



CITY OF HOUSTON

HOUSTON AIRPORT SYSTEM (HAS)

INVITATION TO BID (ITB)

PN 209A SOLICITATION NO.: HHG-HRESTR-2022 019

HOU RESTROOM RENOVATION PHASE 2

Date Issued: June 3rd, 2022

Pre-Bid Conference / Site Visit: June 16th, 2022, 01:30 P.M., CST, (face-to-face meeting) 7800 Airport Blvd, Houston, TX 77061 in the HOU Conference Room A, located on the Ticketing Level near the Delta check-in counter.

Questions Deadline: June 23rd, 2022 @ 3:00 P.M., CST

Solicitation Due Date: July 21st, 2022 @ 10:30 A.M., CST
City Secretary Office, City of Houston
City Hall Annex, Public Level, Room P101
900 Bagby Street, Houston TX 77002

Solicitation Contact Person: Humberto De La Garza
Sr. Procurement Specialist, Houston Airport System
humberto.delagarza@houstontx.gov

Project Summary: This project will modernize three sets of existing restrooms in accordance with the approved HAS Restroom Design Guidelines at HOU improving the customer experience.

NIGP Code: 91200

MWBE Goal (Construction Services): 34 % (26% MBE and 8% WBE).



DocuSigned by:

Jerry Adams

0DD350139A6F4CB

Jerry Adams
Chief Procurement Officer

5/26/2022 | 2:34 CDT

Date



City of Houston - Department of Aviation – Infrastructure Division

PROJECT MANUAL

**HOU Restroom Renovations
Phase 2**

PROJECT No.: PN209A

VOLUME NO. 1 OF 2 TOTAL VOLUMES

Divisions 00 through 16

Issued for Bidding
03/22/22



03.22.22



RDLR Architects, Inc.
800 Sampson St. #104
Houston, TX 77003
713.868.3121

PGA Engineers, Inc
3838 N Sam Houston
PKWY E, Ste 550
Houston, TX 770+6
346.5702418

Jones Engineers, L.P.
9820 Whithorn Dr.
Houston, TX 77095
713.222.7766

Document 00010 - TABLE OF CONTENTS

NOTE: Bold capitalized Specification Sections are included in <https://www.houstonpermittingcenter.org/>; and are incorporated in Project Manuals by reference as if copied verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project. Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 200, 300 and 400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

Division	Section Title
----------	---------------

Volume I of II

DIVISION 0 – CONTRACT REQUIREMENTS

00001	Cover
00010	Table of Contents
00015	List of Drawings
00200	Instructions to bidders
00210	Supplementary instructions to bidders
00220	Request for bid information
00340	Environmental Information
00410	Bid Form (Part A & Part B)
00430	Bidder's Bond (For filing; Example Form)
00450	Bidder's Statement of MWSBE Status
00454	Affidavit of Non-interest
00455	Ownership Information Form
00457	Conflict of Interest Questionnaire
00460	Pay or Play Acknowledgement Form (POP-1)
00461	Houston Hire First
00470	Bidder's MSWBE Participation Plan
00471	Pre-Bid Good Faith Efforts
00472	Bidder's Goal Deviation Request
00480	Form SCM-1 Reference Verification
00481	Anti-Collusion Statement
00842	Letter of Intent

POST-BID PROCEDURES 00495

Post-bid Procedures

CONTRACTING REQUIREMENTS

00501	Resolution of Contractor
00520	Agreement
00570	Contractor's Revised MWSBE Participation Plan
00571	Post-Bid Good Faith Efforts
00572	Contractor's Request for Plan Deviation
00600	List of Proposed Subcontractors and Suppliers, Parts A & B
00601	Drug Policy Compliance Agreement
00604	History of OSHA Actions and List of On-the-job Injuries
00605	List of Safety Impact Positions

00610	Performance Bond
00611	One-year Statutory Payment Bond
00612	One-year Maintenance Bond
00620	Affidavit of Insurance
00621	ACORD Certificate of Insurance Form
00630	Pay or Play Program Certification (POP-2)
00631	Pay or Play Program List of Subcontractors (POP-3)
00632	Certificate by Proposed Material Suppliers
00636	Certificate of Interested Parties

GENERAL CONDITIONS

00700	General Conditions
-------	--------------------

SUPPLEMENTARY CONDITIONS

00800	Supplementary Conditions
00805	Equal Employment Opportunity Program Requirements
00808	MWBE/PDBE/SBE Program
00821	Wage Scale and Payroll Requirements for Building Construction
00840	Pay or Play Program Requirements

Division	Section Title	Pages
----------	---------------	-------

DIVISION 1 - GENERAL REQUIREMENTS

01110	Summary of Work
01145	Contractor's Use of Premises
01255	Modification Procedures
01270	Measurement and Payment
01290	Payment Procedures
01292	Schedule of Values
01312	Coordination and Meetings
01321	Construction Photographs
01325	Construction Schedule
01326	Sequencing
01330	Submittal Procedures
01340	Shop Drawings, Product Data, and Samples
01350	Mockups
01410	TPDES Requirements
01423	References
01450	Contractor's Quality Control
01455	City's Acceptance Testing
01505	Temporary Facilities
01506	Airport Temporary Controls
01507	Temporary Signs
01550	Public Safety & Contractor's Safety Staffing
01570	Storm Water Pollution Prevention Control
01576	Waste Material Disposal
01610	Basic Product Requirements
01630	Product Substitution Procedures
01726	Base Facility Survey
01731	Cutting and Patching
01761	Protection of Existing Services
01770	Closeout Procedures

01782 Operation and Maintenance Data
01785 Project Record Documents

DIVISION 2 – EXISTING CONDITIONS

024119 Selective Demolition

DIVISION 3 - CONCRETE

030130 Maintenance of Cast-In-Place Concrete

DIVISION 4 - MASONRY

NOT USED

DIVISION 5 - METALS

055000 Metal Fabrications

DIVISION 6 - WOOD, PLASTICS AND COMPOSITES

061053 Miscellaneous Rough Carpentry

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

074233 Phenolic Wall Panels

079200 Joint Sealants

DIVISION 8 - OPENINGS

081113 Hollow Metal Doors and Frames

083113 Access Doors and Frames

087100 Door Hardware

DIVISION 9 - FINISHES

092216 Non-Structural Metal Framing

092900 Gypsum Board

093000 Tiling

095133 Acoustical Metal Ceilings

099123 Interior Painting

DIVISION 10 - SPECIALTIES

101400 Panel Signage

102113 Glass Toilet Compartments

102800 Toilet Accessories

DIVISION 11 – EQUIPMENT

NOT USED

DIVISION 12 - FURNISHINGS

123661 Solid Surfacing Countertops

DIVISION 13 - SPECIAL CONSTRUCTION

NOT USED

DIVISION 14 - CONVEYING SYSTEMS

NOT USED

VOLUME II OF II

DIVISION 21 - FIRE SUPPRESSION

211300 Fire Suppression Sprinklers

DIVISION 22 – PLUMBING

220523	General – Duty Valves For Plumbing Piping
220529	Hangers and Supports for Plumbing Piping and Equipment.
220553	Identification for Plumbing Piping and Equipment
220719	Plumbing Piping Insulation
221116	Domestic Water piping
221119	Domestic Water Piping Specialties
221316	Sanitary Waste and Vent Piping
221319	Sanitary Waste Piping Specialties
223000	Plumbing Equipment
224010	Plumbing Fixtures
224700	Drinking Fountains and Water Coolers

DIVISION 23 - HEATING, VENTILATING AND AIR-CONDITIONING (HVAC)

230200	Basic Materials and Methods
230513	Common Motor Requirements for HVAC Equipment
230526	Variable Frequency Motor Speed Control for HVAC Equipment.
230529	Hangers and Support for Piping and Equipment - HVAC
230548	Vibration and Seismic Controls For HVAC Piping and Equipment.
230553	Identification for HVAC Piping and Equipment
230593	Testing, Adjusting and Balancing
230713	Duct Insulation
233100	HVAC Ducts and Casings
233300	Air Duct Accessories
233423	HVAC Power Ventilators
233700	Air Outlets and Inlets

DIVISION 26 - ELECTRICAL

260500	Common Work results for Electrical
260519	Low-Voltage Electrical Power Conductors and Cables
260526	Grounding and Bonding for Electrical Systems
260529	Hangers and Supports for Electrical Systems
260533.13	Conduit for Electrical Systems
260533.16	Boxes for Electrical Systems
260553	Identification for Electrical Systems
262726	Wiring Devices
262816.13	Enclosed Circuit Breakers
262816.16	Enclosed Switches
265100	Interior Lighting

DIVISION 27 - TECHNOLOGY

270526	Telecommunications Grounding & Bonding
270528	Interior Communication Pathways
270553	Identification and Labeling of Communication Infrastructure
271045	Restroom Monitoring System
271500	Horizontal Media Infrastructure

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

NOT USED

DIVISION 31 - EARTHWORK

NOT USED

DIVISION 32 - EXTERIOR IMPROVEMENTS

NOT USED

DIVISION 33 - UTILITIES
NOT USED

Document 00015

LIST OF DRAWINGS

<u>Sheet No.</u>	<u>Drawing Title</u>
G-000	COVER SHEET
G-002	SYMBOLS LEGEND, ABBREVIATIONS, AND SHEET INDEX
G-003	GENERAL NOTES
G-010	PARTITION SCHEDULE
G-011	UL DESIGNS
G-022	TEXAS ACCESSIBILITY GUIDELINES - 1 OF 2
G-023	TEXAS ACCESSIBILITY GUIDELINES - 2 OF 2
G-040	OVERALL FLOOR PLAN - LEVEL 2
G-041	PLUMBING COUNT PLAN AND CODE SUMMARY
G-042	CONSTRUCTION PHASING PLAN
AD-101	DEMOLITION PLAN - GATE 20-23 RESTROOMS
AD-102	DEMOLITION PLAN - GATE 24-27 RESTROOMS
AD-103	DEMOLITION PLAN - GATE 28-32 RESTROOMS
AD-140	DEMOLITION RCP - GATE 20-23 RESTROOMS
AD-141	DEMOLITION RCP - GATE 24-27 RESTROOMS
AD-142	DEMOLITION RCP - GATE 28-32 RESTROOMS
AD-420	DEMOLITION ELEVATIONS
A-101	FLOOR PLAN - GATE 20-23 RESTROOMS
A-102	FLOOR PLANS - GATE 24-27 RESTROOMS
A-103	FLOOR PLAN - GATE 28-32 RESTROOMS
A-140	REFLECTED CEILING PLAN - GATE 20-23 RESTROOMS
A-141	REFLECTED CEILING PLAN - GATE 24-27 RESTROOMS
A-142	REFLECTED CEILING PLAN - GATE 28-32 RESTROOMS
A-420	TYPICAL ELEVATIONS & PLANS
A-421	TYPICAL STALL PLANS & ELEVATIONS
A-422	INTERIOR ELEVATIONS GATES 20-23
A-423	INTERIOR ELEVATIONS GATES 20-23
A-424	INTERIOR ELEVATIONS GATES 20-23
A-425	INTERIOR ELEVATIONS GATES 24-27
A-426	INTERIOR ELEVATIONS GATES 24-27
A-427	INTERIOR ELEVATIONS GATES 28-32
A-428	INTERIOR ELEVATIONS GATES 28-32
A-500	PLAN DETAILS
A-510	SECTION DETAILS

A-511	SECTION DETAILS - LAVATORY STATION
A-600	MATERIAL LEGEND, DOOR SCHEDULE AND DETAILS
A-601	FINISH PLAN GATES 20-23
A-602	FINISH PLAN GATES 24-27
A-603	FINISH PLAN GATES 28-32
A-604	ROOM SIGNAGE
S-000	GENERAL NOTES
S-100	OVERALL FLOOR PLAN - LEVEL 2
S-101	PARTIAL FLOOR FRAMING PLAN - GATES 20-23 RESTROOMS
S-102	PARTIAL FLOOR FRAMING PLAN - GATES 24-27 RESTROOMS
S-103	PARTIAL FLOOR FRAMING PLAN - GATES 28-32 RESTROOMS
S-110	OVERALL FLOOR PLAN - LEVEL 3
S-111	PARTIAL FLOOR FRAMING DEMO PLAN - AT LEVEL 3 GATE 20-23 RESTROOMS.
S-112	PARTIAL FLOOR FRAMING DEMO PLAN - AT LEVEL 3 GATE 24-27 RESTROOMS.
S-113	PARTIAL FLOOR FRAMING DEMO PLAN - AT LEVEL 3 GATE 28-32 RESTROOMS
S-400	FRAMING TYPICAL DETAILS
S-410	FRAMING DETAILS
MG001	MECHANICAL ABBREVIATIONS LEGENDS AND NOTES
MG100	MECHANICAL OVERALL RENOVATION PLAN – LEVEL 2
MG301	MECHANICAL SCHEDULE AND DETAILS
MD101	MECHANICAL DEMOLITION PLAN - GATE 20-23 RESTROOMS
MD102	MECHANICAL DEMOLITION PLAN - GATE 24-27 RESTROOMS
MD103	MECHANICAL DEMOLITION PLAN - GATE 28-32 RESTROOMS
MH101	MECHANICAL RENOVATION PLAN - GATE 20-23 RESTROOMS
MH102	MECHANICAL RENOVATION PLAN - GATE 24-27 RESTROOMS
MH103	MECHANICAL RENOVATION PLAN - GATE 28-32 RESTROOMS
EG001	ELECTRICAL ABBREVIATIONS, LEGENDS, AND NOTES
EG100	ELECTRICAL OVERALL RENOVATION PLAN - LEVEL 2
EG301	ELECTRICAL DETAILS
EG401	ELECTRICAL SCHEDULES
EG402	ELECTRICAL SCHEDULES
EG403	ELECTRICAL SCHEDULE
ED101	ELECTRICAL DEMOLITION PLAN - GATE 20-23 RESTROOMS
ED102	ELECTRICAL DEMOLITION PLAN - GATE 24-27 RESTROOMS
ED103	ELECTRICAL DEMOLITION PLAN - GATE 28-32 RESTROOMS
EL101	ELECTRICAL LIGHTING PLAN - GATE 20-23 RESTROOMS
EL102	ELECTRICAL LIGHTING PLAN - GATE 24-27 RESTROOMS
EL103	ELECTRICAL LIGHTING PLAN - GATE 28-32 RESTROOMS
EP101	ELECTRICAL POWER PLAN - GATE 20-23 RESTROOMS
EP102	ELECTRICAL POWER PLAN - GATE 24-27 RESTROOMS
EP103	ELECTRICAL POWER PLAN - GATE 28-32 RESTROOMS

EP104	ELECTRICAL POWER PLAN - LEVEL 1
FA101	FIRE ALARM PLAN - GATE 20-23 RESTROOMS
FA102	FIRE ALARM PLAN - GATE 24-27 RESTROOMS
FA103	FIRE ALARM PLAN - GATE 28-32 RESTROOMS
PG001	PLUMBING ABBREVIATIONS, LEGENS AND NOTES
PG100	PLUMBING OVERALL RENOVATION PLAN - LEVEL 2
PG301	PLUMBING DETAILS
PG401	PLUMBING SCHEDULES
PD101	PLUMBING DEMOLITION PLAN - GATE 20-23 RESTROOMS
PD102	PLUMBING DEMOLITION PLAN - GATE 24-27 RESTROOMS
PD103	PLUMBING DEMOLITION PLAN - GATE 28-32 RESTROOMS
PP101	PLUMBING RENOVATION PLAN - GATES 20-23 RESTROOMS
PP102	PLUMBING RENOVATION PLAN - GATE 24-27 RESTROOMS
PP103	PLUMBING RENOVATION PLAN - GATE 28-32 RESTROOMS
PP310	PLUMBING RISERS
T001	TECHNOLOGY - ABBREVIATIONS & SYMBOLS
T040	TECHNOLOGY - OVERALL FLOOR PLAN - LEVEL 1
T041	TECHNOLOGY - OVERALL FLOOR PLAN - LEVEL 2
T101	TECHNOLOGY - FLOOR PLAN - GATE 20-23 RESTROOMS
T102	TECHNOLOGY - FLOOR PLAN - GATE 24-27 RESTROOMS
T103	TECHNOLOGY - FLOOR PLAN - GATE 28-32 RESTROOMS
T401	TECHNOLOGY - ENLARGED PLAN - IDF S102.1
T402	TECHNOLOGY - ENLARGED PLAN - IDF S101.6
T403	TECHNOLOGY - ENLARGED PLAN - IDF S108.2
T500	TECHNOLOGY - EQUIPMENT DETAILS
T600	TECHNOLOGY - EQUIPMENT SCHEDULES

END OF DOCUMENT

Document 00200

TABLE OF CONTENTS

INSTRUCTIONS TO BIDDERS

<u>PARAGRAPH</u>	<u>TITLE</u>	<u>PAGE</u>
1.0	<i>RELATED DOCUMENTS</i>	3
2.0	<i>DEFINITIONS</i>	3
3.0	<i>NOTICE TO BIDDERS</i>	3
4.0	<i>BID DOCUMENTS</i>	5
5.0	<i>EXAMINATION OF DOCUMENTS, SITE, AND LOCAL CONDITIONS</i>	5
6.0	<i>INTERPRETATIONS DURING BIDDING</i>	5
7.0	<i>ADDENDA</i>	6
8.0	<i>SUBSTITUTION OF PRODUCTS</i>	6
9.0	<i>PREPARATION OF BIDS</i>	6
10.0	<i>BID SUBMISSION</i>	6
11.0	<i>BID SECURITY</i>	6
12.0	<i>SUBCONTRACTORS AND SUPPLIERS</i>	7
13.0	<i>MODIFICATION OR WITHDRAWAL OF BID</i>	7
14.0	<i>BID DISQUALIFICATION</i>	7
15.0	<i>PREBID MEETING</i>	7
16.0	<i>OPENING OF BIDS</i>	7
17.0	<i>EVALUATION AND CONSIDERATION OF BIDS</i>	7
18.0	<i>ACCEPTANCE OF THE BID</i>	7

INSTRUCTIONS TO BIDDERS

Document 00200

INSTRUCTIONS TO BIDDERS

1.0 RELATED DOCUMENTS

- A. Document 00210, Supplementary Instructions to Bidders.
- B. Document 00320, Geotechnical Information.
- C. Document 00330, Existing Conditions.
- D. Document 00410 – Bid Form, Parts A & B.
- E. Document 00495, Post-Bid Procedures.
- F. Document 00520, Agreement.
- G. Document 00700, General Conditions.
- H. Document 00800, Supplementary Conditions.

2.0 DEFINITIONS

- A. Definitions set forth in Document 00700, General Conditions, and in other documents of Project Manual, are applicable to Bid Documents.
- B. *Addendum*: Written or graphic instrument issued prior to Bid opening, which clarifies, modifies, corrects, or changes Bid Documents.
- C. *Alternate*: The total amount bid for additions to work, as described in Section 01110, Summary of Work. Each Alternate includes cost of effects on adjacent or related components, and Bidder's overhead and profit.
- D. *Bid*: A complete and properly signed offer to perform the Work in accordance with this Document and Document 00210, Supplementary Instructions to Bidders.
- E. *Bid Date*: Date and time set for receipt of Bids as stated in Document 00210, Supplementary Instructions to Bidders, or as modified by Addenda.
- F. *Bid Documents*: Project Manual, Drawings, and Addenda.
- G. *Bid Supplement*: A Bid submittal that is required in Document 00410, Bid Form.
- H. *Bidder*: Person or firm, identified in Document 00410B, Bid Form, Part B, including its successors, and its authorized representative.

I. *Code*: Code of Ordinances, Houston, Texas.

J. *Low Bidder*: Apparent successful Bidder that qualifies as a responsible Bidder and that submits Bid with lowest Total Bid Price.

K. *Project Manager*: Person designated in Document 00100, Advertisement for Bids, and Document 00220, Request for Bid Information, to represent the City during bidding and post-bid periods.

L. *Project Manual*: Volume assembled for the Work that includes the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

M. *Security Deposit*: A certified check, cashier's check, or bid bond in the amount of 10 percent of the Total Bid Price.

N. *Total Bid Price*: Total amount bid for performing the Work as identified by Bidder in Document 00410B, Bid Form, Part B, which amount includes:

1. Stipulated Price;
2. Total Base Unit Prices;
3. Total Extra Unit Prices;
4. Total Cash Allowances; and
5. Total Alternates.

3.0 NOTICE TO BIDDERS

- A. Chapter 18, Ethics and Financial Disclosure, of the City of Houston Code of Ordinances makes it unlawful for a Contractor to offer any contribution to a candidate for City elective office (including elected officers and officers-elect) during a certain period of time prior to and following the award of the Contract by the City Council. The term "Contractor" includes proprietors of proprietorships, all partners of partnerships, and all officers, directors, and holders of 10 percent or more of the outstanding shares of corporations. A statement disclosing the names and business addresses of each of those persons will be required to be submitted with each bid or proposal; for a City Contract. Bidder shall complete and submit Document 00455, Ownership Information Form, with its Bid to comply with this requirement. See Chapter 18 of

INSTRUCTIONS TO BIDDERS

the Code for further information.

- B. Chapter 15, Article VIII, of the City's Code provides that no contract shall be let, nor any other business transaction entered into, by the City with any person indebted to the City or a qualifying entity, if the contractor or transaction comes within the provisions of Section 15-1 (c) of the Code. Exceptions are provided in Section 15-126 of the Code. Bidder shall complete and submit Document 00455, Ownership Information Form, with its Bid to comply with this requirement.
- C. Neither bidder(s) nor any person acting on bidder(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise of gratuities, favors, or anything of value to any appointed or elected official or employee of the City of Houston, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated City Representative identified on the first page of the solicitation. Upon issuance of the solicitation through the pre-award phase and up to the date the City Secretary publicly posts notice of any City Council agenda containing the applicable award, aside from bidder's formal response to the solicitation, through the pre-award phase, written requests for clarification during the period officially designated for such purpose by the City Representative, neither bidder(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City of Houston, their families or staff through written or oral means in an attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any bidder. However, nothing in this paragraph shall prevent a bidder from making public statements to the City Council convened for a regularly scheduled session after the official selection has been made and placed on the City Council agenda for action, or to a City Council committee convened to discuss a recommendation regarding the solicitation.
- D. **Compliance with Certain State Law Requirements.**
1. *Anti-Boycott of Israel.* Contractor certifies that Contractor is not currently engaged in, and agrees for the duration of this Agreement not to engage in, the boycott of Israel as defined by Section 808.001 of the Texas Government Code.
 2. *Anti-Boycott of Energy Companies.* Contractor certifies that Contractor is not currently engaged in, and agrees for the duration of this Agreement not to engage in, the boycott of energy companies as defined by Section 809.001 of the Texas Government Code.
 3. *Anti-Boycott of Firearm Entities or Firearm Trade Associations.* Contractor certifies that Contractor does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, or will not discriminate against a firearm entity or firearm trade association for the duration of this Agreement, as defined by Section 2274.001 of the Texas Government Code.
 4. *Certification of No Business with Foreign Terrorist Organizations.* For purposes of Section 2252.152 of the Code, Contractor certifies that, at the time of this Agreement neither Contractor nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor, is a company listed by the Texas Comptroller of Public Accounts under Sections 2252.153 or 2270.0201 of the Texas Government Code as a company known to have contracts with or provide supplies to a foreign terrorist organization.
- E. **Zero Tolerance Policy for Human Trafficking and Related Activities.** The requirements and terms of the City of Houston's Zero Tolerance Policy for Human Trafficking and Related Activities, as set forth in Executive Order 1-56, as revised from time to time, are incorporated into this Contract for all purposes. Bidder has reviewed Executive Order 1-56, as revised, and shall comply with its terms and conditions as they are set out at the time of this Contract's effective date. Bidder shall notify the City's Chief Procurement Officer, City Attorney, and the Director of any information regarding possible violation by the Bidder or its subcontractors providing services or goods under this Contract within 7 days of Bidder becoming aware of or having a

reasonable belief that such violations may have occurred, have occurred, or are reasonably likely to occur.

- F. The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.
- G. **Prospective Vendor Responsibility.** The City will award contracts only to the responsible vendor possessing the ability to perform successfully under the terms and conditions of a proposed procurement. The City's policy is to award contracts only to a prospective vendor whom the City's contracting department has determined to be responsible, considering the following non-exhaustive factors:
- Record of integrity and business ethics, including timely payments to subcontractors/subconsultants, business judgment, reputation, and reliability.
 - History of compliance with public policy and applicable laws, or the lack thereof.
 - Record of past performance, including but not limited to, poor performance, failure to achieve reasonable progress, or defaulting on existing or previous City of Houston contracts, if any.
 - Capacity to perform the required work or provide the required goods or services, which may include having (or having the ability to obtain) adequate financial and technical resources to perform the contract and any necessary equipment, facilities, organization, experience, efficiency, operational control, or technical skills, as applicable.
 - Financial responsibility, including the ability to provide adequate bonds and insurance, as applicable.
 - History of compliance with prevailing wage and other labor standards requirements.
 - Record of failure to make good faith efforts to meet MWBE goals.
 - Qualification and eligibility to receive an award under applicable laws and regulations, including any federal rules or regulations (e.g., 2 CFR Part 200).
 - Ineligibility due to being suspended or debarred by federal, state, city, or county governmental agencies.

4.0 *BID DOCUMENTS*

- A. The Bid Documents may be obtained at

INSTRUCTIONS TO BIDDERS

location specified in Document 00210, Supplementary Instructions to Bidders.

- B. The Bid Documents are made available only for the purpose of bidding on the Work. Receipt of Bid Documents does not grant a license for other purposes.
- C. On receipt of Bid Documents, Bidder shall verify that documents are legible and complete, compare contents of Project Manual with Document 00010, Table of Contents, and compare Index of Drawings with Document 00015, List of Drawings. Bidder shall notify Project Manager if Bid Documents are incomplete.
- D. If City of Houston Standard Specifications or Standard Details are required by the Project Manual, Bidder shall refer to Document 00210, Supplementary Instructions to Bidders for purchase information.

5.0 *EXAMINATION OF DOCUMENTS, SITE, AND LOCAL CONDITIONS*

- A. Bidder shall examine Project site, become familiar with local conditions under which the Work shall be performed, conduct appropriate investigations, and correlate personal observations with requirements of the Bid Documents before submitting a Bid.
- B. Bidder shall make site investigations to the extent Bidder deems necessary to ascertain extent of subsurface conditions.
- C. Failure of Bidder to perform the investigations prior to submitting a Bid does not relieve Bidder of responsibility for investigations, interpretations and proper use of available information in the preparation of its Bid.
- D. Bidder shall observe limitations of access to occupied or restricted site as stated in Document 00210, Supplementary Instructions to Bidders.

6.0 *INTERPRETATIONS DURING BIDDING*

- A. Bidder shall immediately submit Document 00220, Request for Bid Information, to Project Manager upon finding errors, discrepancies, or omissions in Bid Documents. Confirmation of receipt of questions by the City is the responsibility of Bidder. Verbal discussions and answers are not binding.
- B. Document 00220, Request for Bid Information, must be received at least 10 days before the Bid Date to allow issuance of Addenda in accordance with Paragraph 7.O.D. Replies, if issued, are by Addenda.

INSTRUCTIONS TO BIDDERS

7.0 ADDENDA

- A. Addenda that affect bidding requirements are applicable only through issuance of the Notice to Proceed. Addenda that affect the Contract are a part of the Contract.
- B. BIDDERS WHO SUBMIT A BID ON THIS PROJECT SHALL BE PRESUMED TO HAVE RECEIVED ALL ADDENDA AND TO HAVE INCLUDED ANY COST THEREOF IN THEIR BIDS, REGARDLESS OF WHETHER THEY ACKNOWLEDGE THE ADDENDA OR NOT.
- C. The City will make Addenda available at same location where the Bid Documents may be obtained. The City will notify plan holders of record when Addenda are available. Bidders are responsible for obtaining Addenda after notification.
- D. No Addendum will be issued later than noon on Monday before Bid Date, except Addenda with minor clarifications, withdrawing request for Bids, or postponing Bid Date.

8.0 SUBSTITUTION OF PRODUCTS

- A. No substitutions of Products will be considered during the bidding period.

9.0 PREPARATION OF BIDS

- A. Bidder shall fill in applicable blanks in Document 00410A&B, Bid Form, Parts A & B, and Bid Supplements. In addition, Bidder shall bid all Alternates. Bidder shall properly sign Document 00410B, Bid Form.
- B. Bidder shall initial all pages, except signature page, of Document 00410B, Bid Form, Part B.
- C. Bidder is responsible for all costs incurred by the Bidder, associated with preparation of its Bid and compliance with Post-bid Procedures.
- D. Bidder may not adjust preprinted price on line items stating "Fixed Unit Price" in the description on the Bid Form.
- E. Bidder may increase, but not decrease, preprinted price on line items stating "Minimum Bid Price" in the description on the Bid Form by crossing out the minimum and inserting revised price on the line above. Bidder **may not** decrease the preprinted price on line items stating "Minimum Bid Price".

- F. Bidder may decrease, but not increase, preprinted price on line items stating "Maximum Bid Price" in the description on the Bid Form by crossing out the maximum and inserting revised price on the line above. Bidder **may not** increase the preprinted price on line items stating "Maximum Bid Price".
- G. Bidder shall insert a price no greater than the maximum preprinted range and no less than the preprinted range for line items stating "Fixed Range Unit Price" in the description on the Bid Form by crossing out prices noted and inserting revised price on the line above.
- H. Bidder may not adjust Cash Allowance amounts.

10.0 BID SUBMISSION

- A. City Secretary will receive Bids on Bid Date at location specified in Document 00210, Supplementary Instructions to Bidders.
- B. Bids submitted after Bid Date will be returned to Bidder unopened.
- C. Verbal, facsimile, or electronic Bids are invalid and will not be considered.
- D. Bidder shall submit in person or by mail one copy of the signed Document 00410, Bid Form, Parts A and B, along with required Security Deposit, and required Bid Supplements, in a sealed, opaque envelope. In addition, Bidder shall clearly identify Project, Bid Date and Bidder's name on outside of envelope. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed for postal delivery.

11.0 BID SECURITY

- A. Bidder shall submit a Security Deposit with its Bid.
- B. Certified Check or Cashier's Check
 1. Bidder shall make check payable to the City of Houston.
 2. A check is submitted on the condition that if Bidder is named Low Bidder and fails either to timely and properly submit documents required in Document 00495, Post-Bid Procedures, the City will cash the check in accordance with Paragraph 11.0.E.
- C. Bid Bond
 1. The bid bond must be a valid and

INSTRUCTIONS TO BIDDERS

- enforceable bond, signed by a surety that complies with other requirements set out by law.
2. The bid bond must name the City of Houston as obligee, and be signed by the Bidder as principal and signed and sealed by the surety.
 3. The bid bond must be conditioned such that if Bidder is named Low Bidder and then fails to timely and properly submit documents required in Document 00495, Post-Bid Procedures, surety will be obligated to pay to the City an amount in accordance with Paragraph 11.0.E.
- D. Security Deposits will be retained until after the Contract is awarded or all Bids are rejected.
- E. Low Bidder forfeits Security Deposit if it fails to timely and properly submit documents required in Document 00495, Post-Bid Procedures. The City may claim an amount equal to the difference between the Total Bid Price of the defaulting Bidder and the Total Bid Price of the Bidder awarded the Contract. If Security Deposit is a check, the City will reimburse any remaining balance to the defaulting Bidder.
- 12.0 SUBCONTRACTORS AND SUPPLIERS**
- A. The City may reject proposed Subcontractors or Suppliers.
 - B. Refer to Document 00800,– Supplementary Conditions, for MWBE, PDBE, DBE and SBE goals.
- 13.0 MODIFICATION OR WITHDRAWAL OF BID**
- A. A Bidder may modify or withdraw a Bid submitted before the Bid Date by written notice to the City Secretary. The notice may not reveal the amount of the original Bid and must be signed by the Bidder.
 - B. Bidder may not modify or withdraw its Bid by verbal, facsimile, or electronic means.
 - C. A withdrawn Bid may be resubmitted up to the time designated for receipt of Bids.
- 14.0 BID DISQUALIFICATION**
- A. The City may disqualify a Bid if the Bidder:
 1. fails to provide required Security Deposit in the proper amount;
 2. improperly or illegibly completes information required by the Bid Documents;
 3. fails to sign Bid or improperly signs Bid;
 4. qualifies its Bid; or
 5. improperly submits its Bid.
- B. When requested, Low Bidder shall present satisfactory evidence that Bidder has regularly engaged in performing construction work as proposed, and has the capital, labor, equipment, and material to perform the Work.
- 15.0 PREBID MEETING**
- A. A prebid meeting is scheduled to be held at the place, time, and date listed in Document 00210, Supplementary Instructions to Bidders.
 - B. All Bidders, subcontractors, and suppliers are invited to attend.
 - C. Representatives of City Engineer will attend.
- 16.0 OPENING OF BIDS**
- A. Bids are opened by the City Secretary and publicly read in City Council Chambers on the Public Level in City Hall Annex at 11:00 a.m. on Bid Date.
 - B. Place and date of Bid opening may be changed in accordance with Sections 15-45(c) of the City Code.
- 17.0 EVALUATION AND CONSIDERATION OF BIDS**
- A. Project Manager will tabulate, record and evaluate Bids.
 - B. The City may reject all Bids or may reject any defective Bid.
- 18.0 ACCEPTANCE OF THE BID**
- A. The City will send to Low Bidder Document 00498, Notice of Intent to Award. Acceptance by the City is conditioned upon Bidder's timely and proper submittal of documents required in Document 00495, Post-Bid Procedures.
 - B. The Bid remains open to acceptance and is irrevocable for the period of time stated in Document 00410A, Bid Form, Part A.

END OF DOCUMENT

Document 00210SRF

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following Paragraphs modify Document 00200 - Instructions to Bidders. Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions, the unaltered portions of the Instructions to Bidders remains in effect.

PARAGRAPH 2.0 – DEFINITIONS:

Add the following sub-Paragraphs to this Paragraph:

- O. *Office of Business Opportunity (OBO):* All references to Affirmative Action Contract Compliance Division (AACC) set forth in Document 00700 – General Conditions and in other documents of the Project Manual, shall refer to, and include, the Office of Business Opportunity.

If there is no bid of a Local Business that meets these criteria, the City will award the contract to the lowest responsible bidder.

PARAGRAPH 4.0 – BID DOCUMENTS

Add the following sub-Paragraphs to this Paragraph:

- A. Add the following Paragraph A.1:

- 1. Bid documents may only be obtained electronically at the Houston Airport System's website: <https://www.fly2houston.com/biz/opportunities/solicitations/>

D. Add the following Paragraph D.1:

- 1. Copies of the City Standard Specifications and Details may be acquired at no cost on the Houston Airport System's website <https://www.fly2houston.com/biz/resources/building-standards-and-permits/>)
" *HOUSTON AIRPORTS DESIGN STANDARDS*"

- E. The following plan rooms, whose names, addresses, phone and fax numbers were last updated on April 9, 2007, have been authorized by the City to display Bid Documents for examination:

(Note: The Bid Documents furnished to the plan rooms for examination can be in electronic format, in hard copies, or in any other formats pertaining to each City Contracting Division's discretion.)

1. Associated General Contractors (AGC-HHUI), Highway, Heavy Utilities and Industrial Branch, 2400 Augusta St., Suite 305 , Houston, TX 77057, 713-334-7100, Fax 713-334-7130. Email: msimons@agctx.org
(Attention: Mellora Connelly)
2. Houston Minority Business Development Center, 2900 Woodridge, Suite 124, Houston, TX 77087, 713-644-0821, Fax 713-644-3523. Email: gtamez@gacompanies.com
3. The Builders' Exchange of Texas, Inc., 4047 Naco Perrin Blvd., Ste. 100 San Antonio, TX 78217, 210-564-6900, Email: editor@vrtialbx.com

F. Add the following sub-Paragraph F.1:

1. **Designation as a Hire Houston First City Business (CB) or Local Business (LB)**

To be designated as a City Business (“CB”) or as a Local Business (“LB”) for the purposes of the Hire Houston First Program, as set out in Article XI of Chapter 15 of the Houston City Code, a bidder or proposer must submit the **Hire Houston First Application and Declaration** to the Director of the Office of Business Opportunity and receive notice that the application has been processed and the appropriate designation (if any) is awarded, prior to the submission of a bid or proposal. Bidders must show evidence of HHF designation (as applicable) prior to, or accompanying, the submission of a bid or proposal.

The absence of a Hire Houston First designation does not preclude a business from bidding on City of Houston contracts.

2. The City will award this contract to a “Local Business”, as that term is defined in Section 15-176 of the City of Houston Code of Ordinances (“the Code”):
 - If the bid of the Local Business is less than \$100,000 and is the lowest responsible bid or is within 5% of the lowest bid received, or
 - If the bid of the Local Business is more than \$100,000 and is the lowest responsible bid or is within 3% of the lowest bid received, and
 - Unless the Director determines that such an award would unduly interfere with contract needs, as provided in Section 15-181 of the Code.

Download the HHF Application and Declaration from the Office of Business Opportunity Webpage at the City of Houston e-Government Website, located at:

<http://www.houstontx.gov/obo/hirehoustonfirst.html>

or, delivered to:

Office of Business Opportunity
611 Walker, 7th Floor
Houston, Texas 77002.
Phone: (832) 393-0951
Fax: (832) 393-0646
hirehoustonfirst@houstontx.gov

PARAGRAPH 5.0 – EXAMINATION OF DOCUMENTS, SITE, AND LOCAL CONDITIONS

D. Add the following sub-Paragraph D.1:

1. Area within contract limits is currently restricted. Access for examination is restricted to times, durations, routes and presence of City authorities, occurring at the conclusion of the Prebid Meeting or as otherwise directed by City Engineer. See Paragraph 15.0 below.

PARAGRAPH 8.0 – SUBSTITUTION OF PRODUCTS

NOT APPLICABLE

PARAGRAPH 9.0 – PREPARATION OF BIDS

Add the following sub-Paragraph I to this Paragraph:

- I. For math errors the City encounters in analyzing Bids, the following guidance will be used:

In the event of a conflict between:

The Bid Price is:

- | | |
|--|---|
| 1. Individual Unit Price and Extension of that Unit Price | Individual Unit Price times Estimated Quantity |
| 2. A Unit Price extension and total of Unit Price Extensions | Sum of all Individual Unit Price Extensions |
| 3. Individual Alternate and total of Alternates | Sum of all Individual Alternates |
| 4. Individual subtotals for Stipulated Price, Base Unit Prices, Extra Unit Prices, Contractor Bonus, | Sum of Individual subtotals for Stipulated Price, Base Unit Prices, Extra Unit Prices, Contractor Bonus, Cash |

Cash Allowances,
and Alternates; and the Total
Bid Price

Allowances and Alternates

PARAGRAPH 10.0 – BID SUBMISSION

Add the following sub-Paragraph A.1 to this Paragraph:

A. Add the following sub-Paragraph A.1:

1. Sealed bids, in triplicate, one (1) original marked “Original” and two (2) copies of the bids (also includes two (2) USB drives of all required submittals identified in Document 00410 Section 1.0 Offer) will be received by the City Secretary of the City of Houston, in the City Hall Annex, Public Level, 900 Bagby, Room P101, Houston, Texas 77002, until 10:30 a.m., (CST) on **7/21/2022**.

E. Add the following Paragraph “E.” to Section 10:

E. Bidders shall submit Document 00470 Bidder’s MWSBE Participation Plan (or 00470D Bidder’s DBE Participation Plan if FAA funded project) with the bid. If the MWSBE goal is not met, the Document 00471 Pre-bid Good Faith Efforts, and Document 00472 Bidder’s MWSBE Goal Deviation Request form shall also be included in the submission with the bid (If the DBE goal is not met, following Section 2.A.12. of Document 00806).

11.0 – BID SECURITY: Add the following Paragraph 1. to Section 11.0.A.:

1. Bidder shall submit a Security Deposit in the form of:
 - a.) Certified Check;
 - b.) Cashier’s Check; or
 - c.) Bid BondBidder should submit just one form of Security Deposit among the three listed above, and such form shall be issued according to Section 11.0.B and 11.0.C.

PARAGRAPH 12.0 – SUBCONTRACTORS AND SUPPLIERS

PARAGRAPH 15.0 – PREBID MEETING

Add the following sub-Paragraph A.1 to this Paragraph:

A. Add the following Paragraph A.1:

1.

1. A Pre-bid Meeting will be held on **June 16th, 2022**, at 7800 Airport Blvd, Houston, TX 77061 in the HOU Conference Room A, located on the Ticketing Level near the Delta check-in counter.
2. After the Pre-bid meeting, the site visit will begin at **2:00 p.m.** The site visit is the only opportunity for bidders to see the site prior to Bid Due Date. Address of Site is: 7800 Airport Blvd, Houston, TX 7706.
3. Pre-bid Meeting Questions will be due from bidders at 3:00 p.m. (CST), **6/23/2022.**

16.0 – OPENING OF BIDS: Replace Section B with the following:

- B. Opening of the bids will be conducted at City of Houston Anner, **900 Bagby Room P101**, Houston, TX 77002 on **7/21/2022.**

The following Section is added as part of this solicitation:

3.0 – NOTICE TO BIDDERS

F. RESOLVING PROTESTS

1. Protests will be handled in accordance with City of Houston Administrative Policy AP 5-12. <http://www.houstontx.gov/adminpolicies/5-12.pdf>.

END OF DOCUMENT

Document 00340

ENVIRONMENTAL INFORMATION

1.0 DOCUMENT INCLUDES

- A. Environmental Site Assessment, if applicable.
- B. Asbestos and Lead Surveys, if applicable.
- C. Bidder's responsibilities.

2.0 RELATED DOCUMENTS

- A. Document 00320 - Geotechnical Information **(N/A)**

3.0 SITE INVESTIGATION REPORTS

- A. In the design and preparation of Contract documents for this Project, the City and Design Consultant have used information in environmental site assessment reports for the investigation and analysis of soils and subsurface conditions at the Project site.
- B. In the design and preparation of Contract documents for this Project, the City and Design Consultant have relied upon information in surveys taken for Asbestos-containing Materials (ACMs) and lead at the Project site.
- C. A copy of each report is available for examination at the City of Houston offices located at 611 Walker Street, Houston, Texas 77002.
- D. Neither the City nor Design Consultant is responsible for accuracy or completeness of any information or data.

4.0 REPORTS

A. Environmental Assessment Surveys

- 1. Report No. [_____], prepared by the firm of [_____],
entitled [_____], dated [_____],
consisting of [_____] pages.

ENVIRONMENTAL INFORMATION

2. Report No. [_____], prepared by the firm of [_____],
entitled [_____], dated [_____],
consisting of [_____] pages.

B. Asbestos and Lead Surveys

1. Report No. [_____], prepared by the firm
of [_____],
entitled [_____], dated [_____],
consisting of [_____] pages.
2. Report No. [_____], prepared by the firm of
[_____],
entitled [_____], dated [_____],
consisting of [_____] pages.

5.0 BIDDER RESPONSIBILITIES

- A. Bidder shall take full responsibility for interpretation and use of information contained in above listed reports for bidding and construction purposes.
- B. Bidder may perform additional investigations as Bidder deems appropriate.

END OF DOCUMENT

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Houston
City Hall Annex
900 Bagby Street
Houston, Texas 77002**

Project: HOU Restroom Renovation Phase 2

Project No.: PN209A

Bidder: _____

(Print or type full name of business entity, such as corporation, LLC, etc)

1.0 OFFER

- A. Total Bid Price:** Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document
- B. Security Deposit:** Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.
- C. Period for Bid Acceptance:** This offer is open to acceptance and is irrevocable for 180 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.
- D. Addenda:** All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.
- E. Bid Supplements:** The following documents are attached:
 - Security Deposit (*as defined in Document 00200 – Instructions to Bidders*)
 - Document 00450 - Bidder's Statement of MWSBE Status
 - Document 00454 - Affidavit of Non-interest
 - Document 00455 - Ownership Information Form
 - Document 00456 - Bidder's Certificate of Compliance with Buy American Program (*required for AIP funded project*)
 - Document 00457 – Conflicts of Interest Questionnaire (CIQ)
 - Document 00458 - Bidder's Certificate Regarding Foreign Trade Restriction (*required for AIP funded project*)
 - Document 00459 - Contractor's Statement Regarding Previous Contracts Subject to EEO (*required for AIP funded project*)
 - Document 00460 – Pay or Play Acknowledgement Form (POP 1-A)
 - Document 00461 – Hire Houston First Affidavit
 - Document 00470 – Bidder's MWSBE Participation Plan (*required unless no MWSBE participation goal is provided in Document 00800 (the "Goal")*).
 - Document 00470D - Bidder's DBE Participation Plan (*required for AIP funded project*)

- Document 00471 – Bidder’s Record of Good Faith Efforts *(required if the goal in Bidder’s Participation Plan–Document 00470 is lower than the Goal).*
- Document 00472 – Bidder’s Goal Deviation Request *(required if the goal in Bidder’s Participation Plan–Document 00470 is lower than the Goal).*
- Document 00480 – Form SCM-1 Reference Verification
- Document 00481 – Non-Collusion Statement
- Document 00842 – Letter of Intent
- Others as listed: _____

2.0 CONTRACT TIME

- A.** If offer is accepted, Contractor shall achieve Date of Substantial Completion within **365** days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

C. EXTRA UNIT PRICE TABLE: Not applicable.

Item No.	Spec Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
<u>TOTAL EXTRA UNIT PRICES</u>						\$ _____

REST OF PAGE INTENTIONALLY LEFT BLANK

D. CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
[1]		Building permit	\$10,000
<u>TOTAL CASH ALLOWANCES</u>			\$10,000

REST OF PAGE INTENTIONALLY LEFT BLANK

E. ALTERNATES TABLE: Not applicable.

Item No.	Spec Ref.	Alternate Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total Price for Alternate in figures
<u>TOTAL ALTERNATES</u>						\$ _____

REST OF PAGE INTENTIONALLY LEFT BLANK

F. TOTAL BID PRICE (HOU) + (IAH): \$ _____
(Add Totals for Stipulated Price (A + A1), Base Unit Price, Extra Unit Price, Cash Allowance, and All Alternates, if any)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: _____
Signature Date

Name: _____
(Print or type name) Title

Address: _____
(Mailing)

(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

- * If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.
- ** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

Footnotes for Tables B through E:

- (1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the Bidder.
- (2) Minimum Bid Price determined prior to Bid. Can be increased by the Bidder, but not decreased, by crossing out the Minimum and inserting revised price on the line above. **Cannot** be decreased by the Bidder.
- (3) Maximum Bid Price determined prior to Bid. Can be decreased by the Bidder, but not increased, by crossing out the Maximum and inserting revised price on the line above. A Bid that increases the Maximum Bid Price may be found non-conforming and non-responsive. **Cannot** be increased by the Bidder.
- (4) Fixed Range Bid Price determined prior to Bid. Unit Price can be adjusted by Bidder to any amount within the range defined by crossing out prices noted and noting revised price on the line above.

Document 00430

BIDDER'S BOND

THAT WE, _____, as Principal,
(Bidder)
("Bidder"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation, in the sum of _____ Dollars (\$ _____) (an amount equal to 10 percent of the Total Bid Price, including Cash Allowances and Alternates, if any), for the payment of which sum, well and truly to be made to the City of Houston and its successors, the Bidder and Surety do bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Bidder has submitted on or about this day a proposal offering to perform the following:

(Project Name, Location and Number)

in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is hereby made.

NOW, THEREFORE, if the Bidder's offer as stated in the Document 00410 – Bid Form is accepted by the City, and the Bidder executes and returns to the City Document 00520 – Agreement, required by the City, on the forms prepared by the City, for the Work and also executes and returns the same number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an underwriting limitation in at least the amount of the bond) and other submittals as required by Document 00495 - Post-Bid Procedures, in connection with the Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force and effect.

If Bidder is unable to or fails to perform the obligations undertaken herein, the undersigned Bidder and Surety shall be liable to the City for the full amount of this obligation which is hereby acknowledged as the amount of damages which will be suffered by the City on account of the failure of such Bidder to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Bidder and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

(Name of Bidder)

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS: (SEAL)

(Full Name of Surety)

(Address of Surety for Notice)

(Telephone Number of Surety)

By: _____
Name:
Title:
Date:

By: _____
Name:
Title:
Date:

Document 00450

BIDDER'S STATEMENT OF MBE/WBE/PDBE/DBE/SBE STATUS

This certifies that the status of the Bidder, _____, in
(Bidder's Name)

regard to the City of Houston Code of Ordinances, Chapter 15, Article V, relating to City-wide percentage goals for contracting with Minority and Women-owned Business Enterprises (MWBE) and Disadvantaged Business Enterprises (DBE), Chapter 15, Article VI, relating to City-wide percentage goals for contracting with Persons with Disabilities Business Enterprises (PDBE) and Chapter 15, Article IX, relating to City-wide percentage goals for contracting with a Small Business Enterprise (SBE) is as follows:

1. Bidder (individual, partnership, corporation) is is not a Minority Business Enterprise as certified by the Affirmative Action and Contract Compliance Division.
2. Bidder (individual, partnership, corporation) is is not a Women-owned Business Enterprise as certified by the Affirmative Action and Contract Compliance Division.
3. Bidder (individual, partnership, corporation) does does not declare itself to be a Persons with Disabilities Business Enterprise as defined above.
4. Bidder (individual, partnership, corporation) does does not declare itself to be a Disadvantaged Business Enterprise as defined above.
5. Bidder (individual, partnership, corporation) does does not declare itself to be a Small Business Enterprise as defined above.

Signature: _____

Title: _____

Date: _____

END OF DOCUMENT

Document 00454

AFFIDAVIT OF NON-INTEREST

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared _____, who

Affiant

being by me duly sworn on his oath stated that he is _____ of

Title

_____,

Name of Firm

the firm named and referred to and in the foregoing; and that he knows of no officer, agent, or employee of the City of Houston being in any manner interested either directly or indirectly in such Contract.

Affiant's Signature

SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of TEXAS

Print or type name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

Document 00455

OWNERSHIP INFORMATION FORM

The City of Houston Ownership Information Form is used to gather information to comply with:

- a. The City of Houston Contractor Ownership Disclosure Ordinance ([Chapter 15 of the Code of Ordinances, Article VIII. City Contracts; Indebtedness to City](#));
- b. The City of Houston Fair Campaign Ordinance ([Chapter 18 of the Code of Ordinances](#)); and,
- c. The State of Texas Statement of Residency Requirements ([Tex. Govt. Code Chapter 2252](#)).

Please complete the form, in its entirety, and submit it with the Official Bid or Proposal Form. Except as noted below regarding the Statement of Residency, failure to provide this information may be just cause for rejection of your bid or proposal.

NOTICE OF AFFIRMATIVE ACCEPTANCE OF THE CITY OF HOUSTON FAIR CAMPAIGN ORDINANCE

By submitting a bid or proposal to the City of Houston for a Contract in excess of \$50,000 or for which a request is presented to City Council for approval, all respondents agree to comply with the Chapter 18 of the Code of Ordinances.

Further, pursuant to Section 18-36 of the Code of Ordinances, it shall be unlawful either for any person who submits a bid or proposal to contribute or offer any contribution to a candidate or for any candidate to solicit or accept any contribution from such person for a period commencing at the time of posting of the City Council Meeting Agenda including an item for the award of the Contract and ending upon the 30th day after the award of the Contract by City Council.

INSTRUCTIONS

1. Please **type** or **legibly print in dark ink** responses. Individuals and entities should disclose their full, legal names (not initials) and all required corporate letters ("Inc", "LLP", etc.).
 - a. If a firm is operating under an assumed name, the following format is recommended:
Corporate/Legal Name DBA Assumed Name.
2. Full addresses are required, including street types ("St", "Rd", etc.) and unit number.
3. Individuals or entities with 10% or more ownership of the corporation, partnership, or joint venture (including persons who own 100%) are required to be disclosed with their full name and full address. All officers and directors are also required to be disclosed with their full name and full address.

PROJECT AND BID/PROPOSAL PREPARER INFORMATION

Project or Matter Being Bid: _____

Bidder's complete firm/company business information

Name: _____

Business Address [No./Street] _____

City / State / Zip Code _____

Telephone Number _____

Bidder's email address

Email Address: _____

STATEMENT OF RESIDENCY

(THE STATEMENT OF RESIDENCY PORTION OF THIS DOCUMENT IS **NOT APPLICABLE** IF THE SOLICITATION INDICATES FEDERAL FUNDS WILL BE USED)

TEX. GOV'T CODE §2252.001(4) defines a "**Resident bidder**" as a bidder whose principal place of business* is in this state, and includes a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

TEX. GOV'T CODE §2252.001(3) defines a "**Nonresident bidder**" as a bidder who is not a resident in this state.

* Principal Place of Business in Texas means that the business entity:

- has at least one permanent office located within the **State of Texas**, from which business activities other than submitting bids to governmental agencies are conducted and from which the bid is submitted; and
- has at least one employee who works in the Texas office.

Based on the definitions above, your business is a:

- TEXAS RESIDENT BIDDER
- NONRESIDENT BIDDER

If you are a Nonresident Bidder, does your home state have a statute giving preference to resident bidders? If so, you must attach a copy of the statute to this Document.

A copy of the State of _____ statute is attached.

NOTE: The State of residency of a bidder is not used in the decision-making criteria for the award of contracts for projects receiving federal funding, whether in whole or in part.

CONTRACTING ENTITY ORGANIZATIONAL ENTITY TYPE

FOR PROFIT ENTITY:

NON-PROFIT ENTITY:

- SOLE PROPRIETORSHIP
- CORPORATION
- PARTNERSHIP
- LIMITED PARTNERSHIP
- JOINT VENTURE
- LIMITED LIABILITY COMPANY
- OTHER (*specify in space below*)

- NON-PROFIT CORPORATION
- UNINCORPORATED ASSOCIATION

LISTING OF ADDRESSES

List all current and prior addresses where the bidder does/has done business or owns property (real estate and/or business personal property) in the city of Houston ("Houston") in the past 3 years from the date of submittal of this form. If within the past 3 years from the date of submitting this form, the bidder does not and has not done business and has not or does not own property (real estate and/or business personal property) in Houston, please state "None" on the first line below.

Address

Address

Address

ATTACH ADDITIONAL SHEETS AS NEEDED.

LISTING OF OFFICERS

LIST ALL OFFICERS OF THE ENTITY, REGARDLESS OF THE AMOUNT OF OWNERSHIP (IF NONE STATE "NONE")

Name _____ Officer	_____

LISTING OF DIRECTORS OR MEMBERS

LIST ALL DIRECTORS OF THE ENTITY, REGARDLESS OF THE AMOUNT OF OWNERSHIP (IF NONE STATE "NONE")

Name _____ Director or Member	_____

DISCLOSURE OF OWNERSHIP (OR NON-PROFIT OFFICERS)

Bidders are required to disclose all owners of 10% or more of the Contracting Entity. For non-profit entities, please provide the complete information for the President, Vice-President, Secretary, and Treasurer.

IN ALL CASES, USE FULL NAMES, LOCAL BUSINESS AND RESIDENCE ADDRESSES AND TELEPHONE NUMBERS. DO NOT USE POST OFFICE BOXES FOR ANY ADDRESS. INCLUSION OF E-MAIL ADDRESSES IS OPTIONAL, BUT RECOMMENDED.

ATTACH ADDITIONAL SHEETS AS NEEDED.

Contracting Entity:

Name: _____
Business Address [No./Street] _____
City / State / Zip Code _____
Telephone Number _____
Email Address: _____

DISCLOSURE OF OWNERSHIP (OR NON-PROFIT OFFICERS) continued.

Owner(s) of 10% or More (IF NONE, STATE "NONE."):

Name: _____
Business Address [No./Street] _____
City / State / Zip Code _____
Telephone Number _____
Email Address: _____
Residence Address [No./Street] _____
City / State / Zip Code _____

Owner(s) of 10% or More (IF NONE, STATE "NONE."):

Name: _____
Business Address [No./Street] _____
City / State / Zip Code _____
Telephone Number _____
Email Address: _____
Residence Address [No./Street] _____
City / State / Zip Code _____

ATTACH ADDITIONAL SHEETS AS NEEDED.

OPTIONAL: TAX APPEAL INFORMATION

If the firm/company or an owner/officer is actively protesting, challenging, or appealing the accuracy and/or amount of taxes levied with a tax appraisal district, please provide the following information:

Debtor (Firm or Owner Name):	
Tax Account Nos.:	
Case or File Nos.:	
Attorney/Agent Name:	
Attorney/Agent Phone No.:	
Tax Years:	

Status of Appeal **[DESCRIBE]**:

If an appeal of taxes has been filed on behalf of your company, please include a copy of the official form received by the appropriate agency.

REQUIRED: UNSWORN DECLARATION

I certify that I am duly authorized to submit this form on behalf of the firm, that I am associated with the firm in the capacity noted below, and that I have personal knowledge of the accuracy of the information provided herein. I affirm that all the information contained herein is true and correct to the best of my knowledge. I understand that failure to submit accurate information with my submission may result in my submission being considered non-responsive and non-responsible.

Preparer's Signature	Date
<hr/>	
Printed name	
<hr/>	
Title	

NOTE: This form constitutes a **governmental record**, as defined by Section 37.01 of the Texas Penal Code. Submission of a false government record and falsification of a governmental record are crimes, punishable as provided in Section 37.10 of the Texas Penal Code.

Document 00457

Conflict of Interest Questionnaire

Local Government Code Chapter 176 requires Bidders with the City of Houston ("City") to file a Conflict of Interest Questionnaire with the City Secretary of the City of Houston.

The Conflict of Interest Questionnaire is available for downloading on the Texas Ethics Commission's website at: <http://www.ethics.state.tx.us>

The completed Conflict of Interest Questionnaire will be posted on the City Secretary's website. Also you will find a list of the City Local Government Officers on the City Secretary's website.

For your convenience the CIQ form is attached as part of this document. Although the City has provided this document for the Bidders convenience, it is the Bidders responsibility to submit the latest version of the CIQ form as promulgated by the Texas Ethics Commission.

The Failure of any Bidder to comply with this law is a Class C misdemeanor.

END OF DOCUMENT

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.



City of Houston Pay or Play Program Acknowledgement Form



It has been determined that the project currently open for bidding meets the criteria of the City of Houston Pay or Play program. This form acknowledges your awareness of the Pay or Play program which is authorized by Ordinance 2007-534. Your signature below affirms that you will comply with the requirements of the program upon contract award and ensure the same on behalf of your subcontractors that may be subject to the Pay or Play Program.

I declare under penalty of perjury under the laws of the State of Texas that if awarded this contract which meets the criteria for the City of Houston's Pay or Play Program, I will comply with all requirements of the Pay or Play Program in accordance with Executive Order 1-7.

Fill out all information below and submit this form with your bid/proposal packet.

Solicitation Number

Signature

Date

Print Name

City Vendor ID

Company Name

Phone Number

Email Address

For more information about the Pay or Play program please visit
<http://www.houstontx.gov/obo/popforms.html>.

Questions about the Pay or Play Program should be referred to the Department POP Liaison; an updated contact list is available on the Office of Business Opportunity website or call the POP Contract Administrator at 832-393-0633.



Hire Houston First Application and Affidavit



Thank you for your interest in the Hire Houston First initiative. It is the policy of the City of Houston as defined in Chapter 15, Article XI, to use the City's spending powers in a manner that promotes fiscal responsibility and maximizes the effectiveness of local tax dollars by ensuring a portion of citizens' tax dollars remain in the local economy for economic benefit of the citizens by utilizing all available legal opportunities to contract with city and/or local businesses.

Businesses interested in becoming eligible to participate in the Hire Houston First initiative must complete this application and sign the attached affidavit. Only businesses that meet the requirements will be eligible to participate in the Hire Houston First initiative. **A completed HHF application is NOT evidence of designation under the Hire Houston First initiative. An applicant's eligibility must be confirmed in writing by the Office of Business Opportunity.**

Definitions:

- A. **City Business** means a business with a principal place of business within city limits.
- B. **Local Area** means eight counties in and surrounding Houston city limits. The counties are Harris, Fort Bend, Montgomery, Brazoria, Galveston, Chambers, Waller, and Liberty.
- C. **Local Business** means a business with a principal place of business in the local area.
- D. **Principal place of business** means the business must be headquartered or have an established place or places of business in the incorporated limits of the city or the local area as applicable, from which 20% or more of the entity's workforce are regularly based, and from which a substantial role in the entity's performance of a commercially useful function or a substantial part of its operations is conducted. A location utilized solely as a post office box, mail drop or telephone message center or any combination thereof, with no other substantial work function, shall not be construed as a principal place of business.
- E. **Headquartered** means the location where an entity's leadership directs, controls, and coordinates the entity's activities.

Application

Please complete the following form/affidavit and submit it to the Office of Business Opportunity, Houston Business Solutions Center located at 611 Walker, Lobby Level, Houston, TX 77002 (832) 393-0954. Applications may be submitted via e-mail to houstonBSC@houstontx.gov or faxed to 832.393.0650. Incomplete applications and affidavits will not be processed. Please answer all questions.

1. **Application Date:** _____

2. **Company is applying as (please check at least one box):**

- City Business (CB) with a principal place of business within the city limits from which a substantial role in the entity's performance of a commercially useful function or a substantial part of its operations is conducted as defined in Chapter 15, Article XI.
- Local Business (LB) with a principal place of business in the local area from which a substantial role in the entity's performance of a commercially useful function or a substantial part of its operations is conducted as defined in Chapter 15, Article XI.

3. **Name of Owner or CEO:** _____ **Name of Company:** _____

FOR OFFICE USE ONLY:

Business Address	Primary Activities	Number of Employees
Business Name: Street Address: City, State: Zip Code: Main Phone Number:		

13. List all company locations OUTSIDE the eight (8) county local area, including headquarters locations, as well as addresses, primary activities and number of employees at each location.

Business Address	Corporate Headquarters?	Primary Activities	Number of Employees
Business Name: Street Address: City, State: Zip Code: Main Phone Number:	YES/NO		
Business Name: Street Address: City, State: Zip Code: Main Phone Number:	YES/NO		
Business Name: Street Address: City, State: Zip Code: Main Phone Number:	YES/NO		
Business Name: Street Address: City, State: Zip Code: Main Phone Number:	YES/NO		
Business Name: Street Address: City, State: Zip Code: Main Phone Number:	YES/NO		

14. What is the total number of employees in the entire company? _____

15. Is the company represented on this application an independent or dependent subsidiary of a company with headquarters located outside the eight county local area? (Check One)

NOT a subsidiary of any company

YES – An independent subsidiary. Please submit Federal corporate tax returns and any other documentation necessary to show independence from the parent company.

YES – A dependent subsidiary. Please answer the following questions:

(a). What is the total number of employees within the (8) county local area inclusive of the company represented on this application and the parent company? _____

(b). What is the total number of all employees inclusive of the company represented on this application and the parent company? _____

Hire Houston First Affidavit

I _____ certify and affirm that my business _____ is not
Name of Company Owner Name of Company
a location utilized solely as a post office box, mail drop or telephone message center or any combination thereof, with no other substantial work function.

The undersigned swear/affirm that the foregoing information and statements are true and correct with regard to the employee breakdown of the company's work force, location, and principal place of business. In addition, the undersigned gives permission to the City of Houston to conduct random audits to ensure compliance with the Hire Houston First Initiative under Chapter 15, Article XI.

Name of Company Owner

Name of Company

On this day before me appeared (name) _____ with _____ proper identification, who being duly sworn, did execute the foregoing affidavit and did aver that he or she was properly authorized to execute this affidavit and did so as his or her free act/deed.

Signature (Owner /Applicant)

Title

Name (Print)

Date

(Seal)

Notary Attest:

Notary Public

Commission Expiration

Document 00470

BIDDER'S MWSBE PARTICIPATION PLAN

The Bidder or Proposer shall submit this completed form with the bid to demonstrate the Bidder/Proposer's plan to meet the M/WBE contract goal(s) ("contract goal(s)"). If the Bidder/Proposer cannot meet the contract goal(s), the Bidder/Proposer has the burden to demonstrate "Good Faith Efforts," which shall include correctly and accurately preparing and submitting this form, a Record of Good Faith Efforts (Document 00471), a Request for Deviation from the Goal (Document 00472), and supporting documentation evidencing their "Good Faith Efforts," as required by the City of Houston's Good Faith Efforts Policy (Document 00808). The City will review the Participation Plan and Good Faith Efforts at the time of bid opening. Visit <http://www.houstontx.gov/obo> for more information.

City Advertised Contract Goal	MBE	WBE	<ul style="list-style-type: none"> • MBE and WBE Goals are two separate Contract Goals, to be met individually. • Any excess of one Goal cannot be applied to meet another Goal. • An SBE can be applied to the MBE and/or WBE Goal, but not to exceed 4%. • Up to 50% of the Bidder's Participation plan may be met using Suppliers. • Up to 50% of the advertised goal may be met at the at the Prime level if the Prime is a City-certified firm. Bidder must select one (1) certification type for Prime level credit. Prime level participation percentage must not exceed the individual MBE or WBE advertised goal. Prime level credit does not apply to SBE-certified firms.
--	------------	------------	---

NAICS Code (6 digit)	Description of Work (Plan Sheet #, Unit Price #, Scope of Work #, as applicable)	% of Total Bid Price (2 decimal places; for example: 5.00%)	Services or Supplier	Cert. Type for Goal: MBE, WBE, or SBE	Certified Firm Name Firm Address Contact Name Phone No. and E-Mail
				MBE <input type="checkbox"/> WBE <input type="checkbox"/>	USE THIS LINE FOR PRIME LEVEL CREDIT ONLY. CREDIT MUST NOT EXCEED 50% OF THE ADVERTISED GOAL
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	

By submitting this form, your firm agrees to enter into formal subcontracting agreement(s) with the MWBE subcontractors/subconsultants listed on this participation plan upon award of a contract from the City.

Bidder's Participation Plan Total	MBE	WBE	SBE

Authorized Signature: _____

Printed Name: _____

Company Name: _____

Date: _____

Phone: _____

Email: _____

DOCUMENT 00470

**BIDDER'S MWSBE PARTICIPATION PLAN
 CONTINUATION PAGE**

NAICS Code (6 digit)	Description of Work (Plan Sheet #, Unit Price #, Scope of Work #, as applicable)	% of Total Bid Price (2 decimal places; for example: 5.00%)	Services or Supplier	Cert. Type for Goal: MBE, WBE, or SBE	Certified Firm Name Firm Address Contact Name Phone No. and E-Mail
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
				MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	

*I understand that supplying inaccurate information may violate Texas Penal Code Section 37.10 and lead to City sanctions.

Document 00471
PRE-BID GOOD FAITH EFFORTS

Bidder Name: _____ **Project Name** _____

A Bidder or Proposer that may be unable to complete or follow a Participation Plan (Document 00470) to meet the Contract Goal in the Supplemental Conditions (Document 00800), must submit this completed form, Goal Deviation Request Form (Document 00472), providing supporting documentation evidencing their "Good Faith Efforts", as required by the City of Houston's Good Faith Efforts Policy (see Document 00808).

The Bidder or Prime Contractor has the burden to demonstrate "Good Faith Efforts" to meet the MWSBE goal, which includes correctly and accurately preparing and submitting this form and other efforts described in the City's Good Faith Efforts Policy (Document 00808). The Office of Business Opportunity will review Good Faith Efforts and Participation Plan after selection of an apparent low bidder.

UNLESS THE BIDDER'S/PROPOSER'S PARTICIPATION PLAN MEETS THE CONTRACT GOAL, FAILURE TO SUBMIT THIS FORM MAY RESULT IN THE BID BEING FOUND NON-RESPONSIVE.

NAICS Code	Plan Item No.	MWSBE Type for Goal	Certified Firm Name Address, Phone No., and E-Mail	Certified Firm Contact Person	Methods of Contact	Prime Contact Dates	Certified Firm Response	Results of Contact (why suitable or not suitable for work)
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			

Authorized Signature: _____ Date: _____ Phone: _____

Print Name: _____ Email Address: _____

Company Name: _____

CONTINUATION PAGE

NAICS Code	Plan Item No.	MWSBE Type for Goal	Certified Firm Name Address, Phone No., and E-Mail	Certified Firm Contact Person	Method of Contact	Prime Contact Dates	Certified Firm Response	Results of Contact (why suitable or not suitable for work)
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
		MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>			Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			

Authorized Signature: _____

Date: _____

Phone: _____

Print Name: _____

Email Address: _____

Company Name: _____

Document 00472
BIDDER'S MWSBE GOAL DEVIATION REQUEST

Company Name: _____

Project Name: _____

Department Approved Contract Goals	MBE	WBE	Total
	%	%	%

Bidder's Proposed Participation Plan	MBE	WBE	SBE (Max 4% for Credit)	Total
	%	%	%	%

Justification: Please provide the reason the Bidder is unable to meet the Contract Goal in Document 00800.

Good Faith Efforts: Please list any efforts not listed in the Bidder's Pre-Bid Good Faith Effort (Document 00471) and provide supporting documentation evidencing "Good Faith Efforts", as required by the City of Houston's Good Faith Efforts Policy (Document 808).

Date: _____
Email: _____
Phone Number: _____

Company Name: _____
Company Representative: _____
Title: _____

FOR OFFICIAL USE ONLY: Approved [] Not Approved []	
OBO Representative _____	Date: _____
_____	Title: _____

DOCUMENT 00480 REFERENCE VERIFICATION
REFERENCES

- 1.0
- 1.1 Contractor must be able to demonstrate that they have sufficient expertise, qualified personnel experienced and that their company has done or currently providing the services of similar size as specified in the statement of work. Contractor must have been actively engaged as an actual business entity in the activities described in the bid document for at least the five (5) years immediately prior to the submission of their bid.
- 1.2 The reference(s) must be included in the space provided below. Additional pages may be added if necessary. References must be included at the time of bid submittal.

LIST OF CURRENT/PREVIOUS CUSTOMERS

- 1. Company Name: _____
Contact Person/Title: _____ Phone No.: _____
E-mail Address: _____
Address: _____
Contract Award Date: _____ Contract Completion Date: _____
Contract Name/Title: _____
Project Description: _____

- 2. Company Name: _____
Contact Person/Title: _____ Phone No.: _____
E-mail Address: _____
Address: _____
Contract Award Date: _____ Contract Completion Date: _____
Contract Name/Title: _____
Project Description: _____

- 3. Company Name: _____
Contact Person/Title: _____ Phone No.: _____
E-mail Address: _____
Address: _____
Contract Award Date: _____ Contract Completion Date: _____
Contract Name/Title: _____
Project Description: _____

DOCUMENT 00480

REFERENCE VERIFICATION

SAMPLE	REFERENCE VERIFICATION
Houston Airport System	
Planning, Design & Construction	
Reference Verification for _____ (Respondent's Company Name)	
Name of Company:	
Name of Contact:	
Phone Number of Contact:	
E-Mail Address of Contact:	
QUESTIONS TO BE ASKED BY HOUSTON AIRPORT SYSTEM	
1. When did this company perform work for you?	
2. What type of service did this company perform for you?	
3. Did they perform the work as agreed?	
4. Was the company timely with responding to your needs?	
5. How many instances of services has this company provided for you?	
6. Did company representatives conduct themselves in a professional manner?	
7. Would you do business with this company again?	
Additional Comments:	
Name/Phone Number of Person conducting Reference Verification:	
SIGNATURE: _____ DATE: _____	

ANTI-COLLUSION STATEMENT

DOCUMENT 00481
Anti-Collusion Statement

The undersigned, as Proposer, certifies that the only person or parties interested in this Proposal as principals are those named herein; that the Proposer has not, either directly or indirectly entered into any Agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the award of this Contract.

Date

Proposer Signature

Document 00495

POST-BID PROCEDURES

1.0 DOCUMENT ADDRESSES

- A. Notice of Intent to Award.
- B. Monitoring Authority
- C. Requirements of Bidder.
- D. Failure of Bidder to comply with requirements.
- E. Notice to Proceed.

2.0 NOTICE OF INTENT TO AWARD

- A. The City will provide written Notice of Intent to Award to Low Bidder.

3.0 DEFINITIONS

- A. The "Monitoring Authority" for this Project is:

Houston Airport System
Office of Business Opportunity
Contract Compliance Section
18600 Lee Road, Suite 131
Humble, Texas 77338

4.0 REQUIREMENTS OF BIDDER

- A. Within 10 workdays of receipt of Notice of Intent to Award, Low Bidder shall execute and deliver to Humberto De La Garza, Senior Procurement Specialist (Supply Chain Management) and Monitoring Authority, for the City's approval, documents indicated by an "X" below:

- Document 00501 - Resolution of Contractor
- Document 00520 – Agreement
- Document 00570 – Revised MWSBE Participation Plan *(Only submit if you have changed your MWBE participation plan from the original 00470)*
- Document 00571 – Post-Bid Good Faith Efforts *(Only submit if you could not meet MWBE participation goals from the 00570)*

- Document 00572 – Contractor’s Goal Deviation Request (*Only submit if you could not meet MWBE participation goals from the 00570*)
- Document 00600 - List of Proposed Subcontractors and Suppliers
- Document 00601 - Drug Policy Compliance Agreement
- Document 00602 - Contractor's Drug-free Workplace Policy (*Contractor creates this document.*)
- Document 00604 - History of OSHA Actions and List of On-the-job Injuries
- Document 00605 - List of Safety Impact Positions (*Contractor completes this list. Do not submit if submitting Document 00606.*)
- Document 00606 - Contractor's Certification of No Safety Impact Positions (*Do not submit if submitting Document 00605.*)
- Document 00607 - Certification Regarding Debarment, Suspension, and Other Responsibility Matters (For AIP Grant only)
- Document 00608 - Contractor's Certification Regarding Non-segregated Facilities for Project Funded by AIP Grant (For AIP Grant only)
- Document 00609 – List of Nonroad Diesel Equipment (Do not need to submit if not participating in Clean Air Incentive under Document 00800 Section 9.13.2)
- Document 00610 - Performance Bond (100% of total amount of bid)
- Document 00611 - Statutory Payment Bond (100% of total amount of bid)
- Document 00612 - One-year Maintenance Bond (100% of total amount of bid)
- Document 00613 - One-year Surface Correction Bond (4% of total amount of bid)
- Document 00620 - Affidavit of Insurance
- Document 00621 – City of Houston *Certificate of Insurance* (*for guidance, see Document 00800, Article 11*)
- Document 00622 - Name and Qualifications of Proposed Superintendent (*Contractor creates this document.*)
- Document 00628 - Affidavit of Compliance with DBE Program (For AIP Grant only)
- Document 00629 - Affidavit for FAA Form 7460-1
- Document 00630 – Agreement to comply with POP Program
- Document 00631 - City of Houston Pay or Play Program – List of Participating Subcontractors
- Document 00632 – EEO Certification by Material Suppliers, Professional Service Providers
- Document 00636 – Certificate of Interested Parties FORM 1295
- Document 00810 – Wage Scale for Engineering Construction; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees (For AIP Grant only)

- [] Document 00811 – Wage Scale for Building Construction; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees (For AIP Grant only)
 - [] Document 00812 – Wage Scale for Engineering Heavy Construction [For Water and Sewer]; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees
 - [] Document 00814 – Wage Scale for Engineering Heavy Construction [For Flood Control]; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees
 - [] Document 00820 – Wage Scale for Civil Engineering Construction [For CIP Funded Project]; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees
 - [X] Document 00821 – Wage Scale for Building Construction [For CIP Funded Project]; Exhibit B, Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees; Exhibit C, Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees
- B. Original forms contained in Document 00805 - Equal Employment Opportunity Program Requirements:
- 1. Original forms contained in Document 00805 - Equal Employment Opportunity Program Requirements:
 - [X] EEO-3, Certification by Bidder Regarding Equal Employment Opportunity
 - [X] EEO-6, Total Work Force Composition of the Company *or in lieu thereof, a copy of the latest Equal Employment Opportunity Commission's EEO-1 form (This information is required only if the Contractor has a work force of 50 or more people and the Contract is \$50,000 or more.)*
 - [X] EEO-7, Company's Equal Employment Opportunity Compliance Program
 - [X] EEO-26, Certification by Proposed Subcontractor Regarding Equal Employment Opportunity

- C. Designations of Subcontractors and Suppliers, who have been selected by Bidder in Part B - Schedule of Non-MWBE/PDBE/DBE/SBE Subcontractors and Suppliers of Document 00600 - List of Proposed Subcontractors and Suppliers, and accepted by the City, may be changed only with prior notice and acceptance by Project Manager as provided in Conditions of the Contract.
- D. On Bidder's written request, Humberto De la Garza, Procurement Specialist may grant an extension of time, not to exceed 5 days, to furnish documents specified in Paragraphs 4.0.A and 4.0.B. If Bidder is required to resubmit documents specified in Paragraph 4.0.A or 4.0.B, Bidder shall do so within time limits provided in the request for resubmission.
- E. Designations of Subcontractors and Suppliers, who have been selected by Bidder in its Participation Plan, and accepted by the City, may be changed only with prior notice and acceptance by the Monitoring Authority as provided in Document 00808 - Minority and Women-owned Business Enterprise (MWBE), Persons with Disabilities Business Enterprise (PDBE) and Small Business Enterprise (SBE)Program.

5.0 FAILURE OF BIDDER TO COMPLY WITH REQUIREMENTS

- A. Should Bidder, on receipt of Notice of Intent to Award, fail to comply with requirements of this Document 00495 within stated time, the City may declare award in default and require forfeiture of the Security Deposit.
- B. After the City's written notice of default to Low Bidder, the City may award the Contract to Bidder whose offer is the next lowest bid, and Security Deposit of Bidder in default shall be forfeited to the City in accordance with provisions of Document 00200 - Instructions to Bidders.

6.0 NOTICE TO PROCEED

- A. Upon the City's execution of the Agreement and delivery to Contractor, SCM will give Document 00551 - Notice to Proceed to Contractor, which establishes Date of Commencement of the Work.

END OF DOCUMENT

Document 00501

RESOLUTION OF CONTRACTOR

_____ (“Contractor”),
(Name of Contractor, e.g., “Biz. Inc.”, “Biz LLP”)
is a _____,
(Type of Organization, e.g.: Corporation, Limited Partnership, Limited Liability Partnership, Limited Liability Company, etc.)
which is bound by acts of _____,
(Name and Form of Governing Entity, e.g., “Biz Inc. Board of Directors”, “Bill Smith, GP”,
etc.)
 (“Governing Entity”).

On the ____ day of _____, 20____, the Governing Entity resolved, in accordance with all documents, rules, and laws applicable to the Contractor, that _____, is authorized to act as the
(Contractor’s Representative)
Contractor’s Representative in all business transactions (initial one) ____ conducted in the State of Texas OR ____ related to this Contract; and

The Governing Entity warrants that the above resolution (a) was entered into without dissent or reservation by the Governing Entity, (b) has not been rescinded or amended, and (c) is now in full force and effect; and

In authentication of the adoption of this resolution, I subscribe my name on this ____ day of _____, 20____.

(Authorized Signature for Governing Entity)

(Print or Type Name and Title of Authorized Signatory)

SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of Texas

My Commission Expires: _____
Expiration Date

Print or Type Name of Notary Public

INSTRUCTIONS: Contractor must execute a Resolution of Contractor for each individual authorized to sign Contract Documents related to this Contract. Contractor may rescind Resolutions of Contractor through a written document in similar form.

Document 00520

AGREEMENT

Project: _____ HOU Restroom Renovation Phase 2
Project Location: _____ 7800 Airport Blvd, Houston, TX 77061
Project No: _____ PN209A

The City: THE CITY OF HOUSTON, 900 Bagby Street, Houston, Texas 77002 (the "City")
and

Contractor: _____
(Address for Written Notice) _____

Phone Number: _____

E-mail Address: _____

City Engineer, with respect to Section 4.1.9 and 4.3 thru 4.5 of the General Conditions, is:

Eren Selcen, P.E., – HAS City Engineer, City of Houston Airport. Aviation Department, Infrastructure
Division (or his or her successor)

Address for Written Notice: 111 Standifer Street, Humble, TX 77338

Phone Number: 281-233-1605

Email Address: eren.selcen@houstontx.gov

City Engineer, City Employee designated by the Director of Department of Aviation to represent the City
Engineer, with respect to all other terms of the General Conditions, is:

Robert Lengefeld, (or his or her successor)

Phone Number: 281 233-1666

E-mail Address: robert.lengefeld@houstontx.gov

THE CITY AND CONTRACTOR AGREE AS FOLLOWS:

ARTICLE 1

THE WORK OF THE CONTRACT

1.1 Contractor shall perform the Work in accordance with the Contract.

ARTICLE 2

CONTRACT TIME

2.1 Contractor shall achieve Date of Substantial Completion within **365** days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

2.2 The Parties recognize that time is of the essence for this Agreement and that the City will suffer financial loss if the Work is not completed within the Contract Time. Parties also recognize delays, expense, and difficulties involved in proving in a legal or arbitration proceeding actual loss suffered by the City if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Parties agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay the City the amount stipulated in Document 00800 – Supplementary Conditions, for each day beyond Contract Time.

ARTICLE 3

CONTRACT PRICE

3.1 Subject to terms of the Contract, the City will pay Contractor in current funds for Contractor's performance of the Contract, Contract Price of \$ **TBD** which includes Alternates, if any, accepted below.

3.2 The City accepts Alternates as follows:

Alternate No. 1 Not Applicable

ARTICLE 4

PAYMENTS

4.1 The City will make progress payments to Contractor as provided below and in Conditions of the Contract.

4.2 The Period covered by each progress payment is one calendar month ending on the 25th day of the month.

4.3 The City will issue Certificates for Payment and will make progress payments on the basis of such Certificates as provided in Conditions of the Contract.

4.4 Final payment, constituting entire unpaid balance of Contract Price, will be made by the City to Contractor as provided in Conditions of the Contract.

ARTICLE 5
CONTRACTOR REPRESENTATIONS

5.1 Contractor represents:

5.1.1 Contractor has examined and carefully studied Contract documents and other related data identified in Bid Documents.

5.1.2 Contractor has visited the site and become familiar with and is satisfied as to general, local, and site conditions that may affect cost, progress, and performance of the Work.

5.1.3 Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.

5.1.4 Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Contract documents and (2) reports and drawings of a hazardous environmental condition, if any, at the site which has been identified in Contract documents.

5.1.5 Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including applying specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract to be employed by Contractor, and safety precautions and programs incident thereto.

5.1.6 Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for performance of the Work at Contract Price, within Contract Time, and in accordance with the Contract.

5.1.7 Contractor is aware of general nature of work to be performed by the City and others at the site that relates to the Work as indicated in Contract documents.

5.1.8 Contractor has correlated information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract.

5.1.9 Contractor has given City Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract, and written resolution thereof by City Engineer is acceptable to Contractor.

5.1.10 Contract documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 6

MISCELLANEOUS PROVISIONS

- 6.1 The Contract may be terminated by either Party as provided in Conditions of the Contract.
- 6.2 The Work may be suspended by the City as provided in Conditions of the Contract.

ARTICLE 7

ENUMERATION OF CONTRACT DOCUMENTS

- 7.1 The following documents are incorporated into this Agreement:
 - 7.1.1 Document 00700 - General Conditions.
 - 7.1.2 Document 00800 - Supplementary Conditions.
 - 7.1.3 General Requirements Division 01.
 - 7.1.4 Technical Specs: Divisions 02 through 17 of Specifications (Division 17 – Telecommunications - may be substituted by the Division 27 under the CSI Masterformat 04 numbering system.)
 - 7.1.5 Drawings listed in Document 00015 - List of Drawings and bound separately.
 - 7.1.6 Addenda which apply to the Contract, are as follows:

[Addendum No. 1, dated []
Addendum No. 2, dated []
Addendum No. 3, dated []

- 7.1.7 Other documents:

<u>Document No.</u>	<u>Title</u>
[X] 00410B	Bid Form – Part B
[X] 00470	Pre-bid MWSBE Participation Plan
[] 00470D	Pre-bid DBE Participation Plan for Project Funded by AIP Grant
[X] 00471	Pre-bid Good Faith Efforts
[X] 00472	Pre-bid Goal Deviation Request
[X] 00501	Resolution of Corporation (if a corporation)
[X] 00570	Post-bid MWSBE Participation Plan
[X] 00571	Post-bid Good Faith Efforts
[X] 00572	Post-bid Goal Deviation Request
[] 00607	Contractor's Certification Regarding Debarment, Suspension for Project Funded by AIP Grant
[] 00608	Contractor's Certification Regarding Non-Segregated Facilities for Project Funded by AIP Grant
[X] 00610	Performance Bond
[X] 00611	Statutory Payment Bond

- 00612 One-year Maintenance Bond
- 00613 One-year Surface Correction Bond
- 00620 Affidavit of Insurance
- 00621 City of Houston Certificate of Insurance
- 00628 Affidavit of Compliance with Disadvantaged Business Enterprise (DBE) Program for Project Funded By AIP Grant
- 00630 Agreement to Comply with Pay or Play Program
- 00631 List of Participating Subcontractors (POP-3)
- 00801 FAA Supplementary Conditions (for AIP Only)
- 00804 ARRA requirements (for ARRA grants Only)
- 00805 EEO Program Requirements
- 00806 Disadvantaged Business Enterprise (DBE) Program (For AIP Only)
- 00807 Bidder/Contractor Requirements For Disadvantaged Business Enterprise (DBE) Program (For AIP Only)
- 00808 Bidder Requirements for MWSBE Program
- 00810 Federal Wage Rate - Highway
- 00811 Federal Wage Rate - Building
- 00812 Wage Rate for Engineering Heavy – Water & Sewer Line
- 00814 Wage Rate for Engineering Heavy – Flood Control
- 00820 Wage Rate for Engineering Construction
- 00821 Wage Rate for Building Construction
- 00840 Pay or Play Program
- 00842 Letter of Intent

- 00912 Rider (Contractor Initials: _____)

**ARTICLE 8
SIGNATURES**

8.1 This Agreement is executed in two original copies and is effective as of the date of countersignature by City Controller.

CONTRACTOR:

(If Joint Venture)

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

Date: _____

Date: _____

Tax Identification Number: _____

Tax Identification Number:

CITY OF HOUSTON, TEXAS

APPROVED:

SIGNED:

By: _____
Director, Department of Aviation

By: _____
Mayor

COUNTERSIGNED:

ATTEST/SEAL:

By: _____
City Controller

By: _____
City Secretary

Date Countersigned:

8.2 This Contract and Ordinance have been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. Legal Department has not reviewed the content of these documents.

Legal Assistant

Date

END OF DOCUMENT

Document 00570

CONTRACTORS REVISED MWSBE PARTICIPATION PLAN

As soon as the Contractor becomes aware that the Contractor may not abide by the most current approved Plan, the Contractor shall submit this completed form with a Record of Post-Bid Good Faith Efforts (Document 00571), a Request for Plan Deviation (Document 00572), and any other document evidencing "Good Faith Efforts," as required by the Good Faith Efforts Policy (Document 00808). The City will review this Revised Participation Plan and may approve this Revised Plan if the Contractor has made Good Faith Efforts. For more information, visit <http://www.houstontx.gov/obo>.

Original Participation Plan Percentage	MBE	WBE	SBE	Revised Participation Plan Percentage	MBE	WBE	SBE
--	-----	-----	-----	---------------------------------------	-----	-----	-----

NAICS Code (6 digit)	Description of Work (Plan Sheet #, Unit Price #, Scope of Work #, as applicable)	% of Total Bid Price (2 decimal places; for example: 5.00%)	Cert. Type for Goal: MBE, WBE, or SBE	Certified Firm Name Firm Address Contact Name Phone No. and E-Mail (if available)
			MBE <input type="checkbox"/> WBE <input type="checkbox"/>	USE THIS LINE FOR PRIME LEVEL CREDIT ONLY. CREDIT MUST NOT EXCEED 50% OF THE ADVERTISED GOAL
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	

Authorized Signature: _____

Date: _____

Print Name: _____

Company Name: _____

Email: _____

Phone: _____

*I understand that supplying inaccurate information may violate Texas Penal Code Section 37.10 and lead to City sanctions.

DOCUMENT 00570

**CONTRACTORS REVISED MWSBE PARTICIPATION PLAN
 CONTINUATION PAGE**

NAICS Code (6 digit)	Plan Item Number (if applicable) / Description of Work	% of Total Bid Price (2 decimal places; for example: 5.00%)	Cert. Type for Goal: MBE, WBE, or SBE	Certified Firm Name Firm Address Contact Name Phone No. and E-Mail (if available)
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	
			MBE <input type="checkbox"/> WBE <input type="checkbox"/> SBE <input type="checkbox"/>	

*I understand that supplying inaccurate information may violate Texas Penal Code Section 37.10 and lead to City sanctions.

Document 00571

RECORD OF POST-AWARD GOOD FAITH EFFORTS

Contractor Name: _____ **Project Name:** _____

A Contractor that may be unable to follow an agreed Participation Plan (Document 00470 or 00570) must submit this completed form, a Plan Deviation Request Form (Document 00572), and any other documentation of "Good Faith Efforts" (see Document 00808) that the OBO Representative may require. The Contractor shall submit one completed Document 00571 (Part A) for each Certified Firm that is no longer performing part or all of its work duties under the Approved Plan. The Contractor has the burden to demonstrate "Good Faith Efforts" to meet the MWSBE goal, which includes correctly and accurately preparing and submitting this form and other efforts described in the Good Faith Efforts Policy (Document 00808). The Office of Business Opportunity may review Participation Plan and Good Faith Efforts from time to time and may request that the Contractor submit this form and other information.

UNLESS THE CONTRACTOR MEETS THE GOALS IN THE AGREED PARTICIPATION PLAN, FAILURE TO SUBMIT THIS FORM MAY RESULT IN A DEFAULT OF THE CONTRACT.

PART A (REASON FOR NON-USE OF CERTIFIED FIRM IN AGREED PLAN)

NAICS Code	Plan Item No.	MWSBE Type for Goal	Certified Firm Name, Address, Phone No. and E-mail	Plan Goal & Actual Use (in % of total)	Method of Contact	Reason for Non-Use (why the Contractor was not able to use the Certified Firm in accordance with the Agreed Plan)
				Plan %: _____ Actual %: _____	Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>	

PART B (REASON FOR NONUSE OF REPLACEMENT CERTIFIED FIRMS—IF APPLICABLE)

NAICS Code	Plan Item No.	MWSBE Type for Goal	Certified Firm Name Address, Phone No. and E-Mail	Certified Firm Contact Person	Method of Contact	Prime Contact Date	Certified Firm Response	Results of Contact (why Certified Firm was unsuitable or unusable)
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			

Authorized Signature: _____ Date: _____ Phone: _____

Print Name: _____

Email Address: _____

Document 00571

PART B CONTINUATION (REASON FOR NONUSE OF REPLACEMENT CERTIFIED FIRMS)

NAICS Code	Plan Item No.	MWSB E Type for Goal	Certified Firm Name Address, Phone No. and E-Mail	Certified Firm Contact Person	Method of Contact	Prime Contact Date	Certified Firm Response	Results of Contact (why Certified Firm was unsuitable or unusable)
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			
					Phone <input type="checkbox"/> E-mail <input type="checkbox"/> Fax <input type="checkbox"/>			

Authorized Signature: _____

Date: _____

Phone: _____

Print Name: _____

Email Address: _____

Document 00572

CONTRACTOR'S REQUEST FOR PLAN DEVIATION

Contractor Name: _____

Project Name: _____

Approved Participation Plan Percentages	MBE	WBE	SBE	Total
	%	%	%	%

Contractor's Requested Participation Plan	MBE	WBE	SBE	Total
	%	%	%	%

Justification: Please provide the reason the Contractor is unable to meet the MWSBE goal in the Approved Plan.

Good Faith Efforts: Please list any efforts not listed in Contractor's Record of Good Faith Effort (Document 00571).

Please attach additional pages if the space for Justification or Good Faith Efforts is insufficient.

Date: _____ *Contractor: _____

E-mail: _____ *By: _____

Phone Number: _____ Title: _____

*I understand that the approval of this deviation request does not constitute a final decision by OBO that Contractor has used Good Faith Efforts in meeting the Contracting Goal.

FOR OFFICIAL USE ONLY: Approved <input type="checkbox"/>	Not Approved <input type="checkbox"/>
OBO Representative _____	Date: _____ Title: _____

Document 00601

DRUG POLICY COMPLIANCE AGREEMENT

I, _____, _____,
Name Title

of _____
Contractor

have authority to bind Contractor with respect to its Bid, Proposal, or performance of any and all contracts it may enter into with the City of Houston; and that by making this Agreement, I affirm that Contractor is aware of and by the time the Contract is awarded will be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a Notice to Proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for Contractor that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Contractors (Executive Order No. 1-31).
2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) guidelines and an HHS-certified drug-testing laboratory to perform drug tests.
3. Monitor and keep records of drug tests given and results; and upon request from the City of Houston, provide confirmation of such testing and results.
4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of Contractor that full compliance with the Mayor's Drug Policy and Executive Order No. 1-31 is a material condition of the Contract with the City of Houston,

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations or documentation in compliance with the Mayor's Drug Policy or Executive Order No. 1-31 will be considered a breach of the Contract with the City and may result in non-award or termination of the Contract by the City.

Contractor

Title

Signature

Date

END OF DOCUMENT

Document 00604

HISTORY OF OSHA ACTIONS AND LIST OF ON-THE-JOB INJURIES

Prior to award of the Contract, Low Bidder will be required to file the following with the City:

1. A history of all OSHA actions, advisories, etc., Contractor has received on all jobs worked in any capacity, prime or subcontractor. The history shall be for the two-year period preceding the Bid Date of the Project.
2. A list of all on-the-job injuries, accidents, and fatalities suffered by any present or former employees of Contractor during the same two-year period.
3. If less than the two-year period, give the date Contractor started doing business.

This information must be submitted to the City within the time period stated in Document 00498 - Notice of Intent to Award. An officer of the company must certify in a notarized statement that the information submitted is true and correct.

END OF DOCUMENT

Document 00605

LIST OF SAFETY IMPACT POSITIONS

Contractor is to provide a complete List of Employee Classifications that are considered in a "Safety Impact Position" and the number of employees in each of those classifications.

Employee Classification

Number of Employees

END OF DOCUMENT

00605-1
02-01-2004

Document 00610

PERFORMANCE BOND

THAT WE, _____, as Principal, (the "Contractor"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston (the "City"), a municipal corporation, in the penal sum of \$_____ for the payment of which sum, well and truly to be made to the City, its successors and assigns, Contractor and Surety do bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City for _____,
_____,
all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall faithfully and strictly perform the Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect. Should the Contractor fail to faithfully and strictly perform the Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all damages, losses, expenses and liabilities that the City may suffer in consequence thereof, as more fully set forth herein.

It is further understood and agreed that the Surety does hereby relieve the City or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have knowledge of all acts or omissions of the Contractor in all matters pertaining to the Contract. The Surety understands and agrees that the provision in the Contract that the City will retain certain amounts due the Contractor until the expiration of 30 days from the acceptance of the Work is intended for the City's benefit, and the City will have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the City or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract documents and in the Work to be done thereunder, as provided in the Contract, and in

the terms and conditions thereof, or to make any change in, addition to, or deduction from the Work to be done thereunder; and that such changes, if made, shall not in any way vitiate the obligation in this Bond and undertaking or release the Surety therefrom.

It is further expressly agreed and understood that the Contractor and Surety will fully indemnify and save harmless the City from any liability, loss, cost, expense, or damage arising out of Contractor's performance of the Contract.

If the City gives Surety notice of Contractor's default, Surety shall, within 45 days, take one of the following actions:

1. Arrange for Contractor, with consent of the City, to perform and complete the Contract; or
2. Take over and assume completion of the Contract itself, through its agents or through independent contractors, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the City shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Harris County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

Any party wishing to file a claim may call the Texas Department of Insurance at [1-800-252-3439](tel:1-800-252-3439) to obtain Surety's address for claims processing.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:
(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

Legal Assistant

Date

END OF DOCUMENT

Document 00611

STATUTORY PAYMENT BOND

THAT WE, _____, as Principal, hereinafter called Contractor and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound unto the City of Houston, a municipal corporation, in the sum of \$_____ for the payment of which sum, well and truly to be made to the City of Houston, and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a contract in writing with the City of Houston for _____, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein;

NOW, THEREFORE, if the said Contractor shall pay all claimants supplying labor and materials to him or a Subcontractor in the prosecution of the Work provided for in the Contract, then, this obligation shall be void; otherwise the same is to remain in full force and effect;

PROVIDED HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

Any party wishing to file a claim may obtain Surety's address for claims processing on file with the Texas Department of Insurance by calling [1-800-252-3439](tel:1-800-252-3439).

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:
(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

Legal Assistant

Date

END OF DOCUMENT

Document 00612

ONE-YEAR MAINTENANCE BOND

THAT WE, _____, as Principal, hereinafter called Contractor, and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation, in the sum of \$_____, for the payment of which sum well and truly to be made to the City of Houston and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City of Houston for _____, _____, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of Paragraph 11.5.1 of the General Conditions, and correct work not in accordance with the Contract documents discovered within the established one-year period, then this obligation shall become null and void, and shall be of no further force and effect; otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____

Name:

Title:

Date:

By: _____

Name:

Title: Attorney-in-Fact

Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

Legal Assistant

Date

END OF DOCUMENT

Document 00620

AFFIDAVIT OF INSURANCE

BEFORE ME, the undersigned authority, on this day personally appeared

_____, who
Affiant

being by me duly sworn on his oath stated that he is _____, of
Title

_____,
Contractor's Company Name

the Contractor named and referred to within the Contract documents; that he is fully competent and authorized to give this affidavit and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now available and will be available during the term of the Contract.

Affiant's Signature

SWORN AND SUBSCRIBED before me on _____.
Date

Notary Public in and for the State of TEXAS

Print or type Notary Public name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT



City of Houston Pay or Play Program Certification of Compliance



Prime Contractor: _____ Subcontractor: _____

Address: _____

Outline Number: _____ Contract Amount: \$ _____

Project Name: [Legal Project Name] _____

Contracting Department: _____

In accordance with the City of Houston Pay or Play Program authorized by Ordinance 2007-534 and Executive Order 1-7, Prime/Subcontractor agrees to abide by the terms of this Program. This certification is required of all contractors for contracts subject to the program. You must agree either to PAY, PLAY or BOTH for all covered employees. If selecting BOTH, the Contractor/Subcontractor may Pay on behalf of some covered employees and Play on behalf of the remaining covered employees.

The Prime/Subcontractor will comply with all provisions of the Pay or Play Program Requirements and will furnish all information and reports requested to determine compliance of the Pay or Play Program (See Executive Order 1-7 for the terms of the Pay or Play program).

The Prime/Subcontractor may agree to **“Pay”** \$1.00 per hour for work performed by covered employees under the contract with the City. If independent contract labor is utilized the Contractor/Subcontractor agrees to report hours worked by the independent contract laborer and pay \$1.00 per hour for work performed.

The Prime/Subcontractor may agree to **“Play”** by providing health benefits to each covered employee. The health benefits must meet the following criteria:

- The employer contributes no less than 75% of the total premium costs per covered employee per month toward the total premium cost.
- The covered employee contributes, if any amount, no greater than 25% of the total monthly premium costs.

Please select whether you choose to:	Pay	Play	Both

The Prime/Subcontractor will file compliance reports with the City, which will include activity for covered employees subject to the program, in the form and to the extent requested by the administering department. Compliance reports shall contain information including, but not limited to, documentation showing employee health coverage and employee work records.

Note: The contractor is responsible to the City for compliance of covered employees of covered subcontractors.

Please indicate the estimated number of:	PRIME	SUB
Total Employees on City Job		
Covered Employees		
Non-Covered Employees		
Exempt Employees		

I hereby certify that the above information is true and correct.

Please Sign

Date

Please Print Name & Title



City of Houston Pay or Play Program Participating Subcontractors



Prime Contractor: _____
 Project Number/Description: _____

POP Contact Person: _____
 Address: _____

 Email: _____
 Phone: _____

Note: Include ALL subcontractors (use additional form if necessary)

Subcontractor Name	Supplier Y/N?	Amount of Subcontract	Check One				Contact Person	Phone	Email Address	Mailing Address
			Pay	Play	Both (Pay and Play)	N/A				

*If the above information is found to be submitted fraudulently with the intent to bypass or deceive the purpose of the Pay or Play Program the contractor will be held liable for all compliance requirements from the inception of the contract. All subcontracts that surpass the \$200,000.00 threshold will be responsible for Pay or Play compliance from the inception of the contract.

Affidavit

I hereby solemnly affirm, certify and confirm that the total sub-contract value stated above is the final value of the contract (*) including all material costs, fuel, payroll, taxes, fees, profit sharing, labor or any payments in relation to the contracted work and no separate payment or contract has been made for the sub-contract under contract no._____. The above sub-contract value includes all the costs related to work under the contract. The contractor and sub-contractor(s) agree to inform the Office of Business Opportunity of any related cost(s) added to the contracted work and re-submit POP-3 with the current value of the sub-contract. I understand that compliance with "Pay or Play" program is mandatory and nothing has been hidden to circumvent the program requirements.

 Contractor Authorized Representative & Title
 Name & Signature

 Date

Document 00632

CERTIFICATION BY PROPOSED MATERIAL SUPPLIERS,
LESSORS, AND PROFESSIONAL SERVICE PROVIDERS
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Company Name: _____ \$ _____
(Supplier, Lessor, Professional Service Provider) (Amount of Contract)

Company Address: _____

Company Telephone Number: _____ Fax: _____

E-mail Address: _____

Web Page/URL Address: _____

Company Tax Identification Number: _____

Project Name & No.: _____

Materials/Services Provided: _____

In accordance with Chapter 15 of the City of Houston's Code of Ordinances, Supplier/Lessor/Professional Service Provider represents to be an equal opportunity employer and agrees to abide by the terms of the Ordinance. This certification is required of all Suppliers/Lessors/Professional Service Providers providing goods or service to this project with agreements \$50,000 or more.

Yes No Supplier agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age.

Yes No Supplier agrees that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin, or age.

Yes No Supplier will comply with all provisions of **Executive Order No. 11246** and rules, regulations and applicable orders of the Department of Labor or other Federal Agency responsible for enforcement of applicable equal opportunity and affirmative action provisions and will likewise furnish all information and reports required by the Mayor or Contract Compliance Officers for the purpose of investigation to ascertain and effect compliance with the City of Houston's Office of Business of Opportunity.

Yes No The Supplier shall file and cause their sub-tier contractors to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor or Contract Compliance Officers. Compliance reports filed at such times as directed shall contain information including, but not limited to, the practices, policies, programs, and employment policies.

I hereby certify that the above information is true and correct.

COMPANY OFFICER (Signature) DATE

NAME AND TITLE (Print or type)

END OF DOCUMENT

Document 00636

Certificate of Interested Parties

In accordance with Texas Gov't Code §2252.908, the successful bidder must complete Form 1295, Certificate of Interested Parties. Form 1295 is available for downloading on the Texas Ethics Commission's (TEC) website: <https://www.ethics.state.tx.us/forms/1295.pdf>.

The successful bidder must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number.

No later than 30 days after the contract's effective date, the City will upload the successful bidder's completed Form 1295. The TEC will post the Contractor's completed Form 1295 within seven business days of receipt.

For your reference, Form 1295 is attached as part of this document.

END OF DOCUMENT

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
 Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the goods or services to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO interested party.

6 **AFFIDAVIT** I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

 Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20____, to certify which, witness my hand and seal of office.

 Signature of officer administering oath Printed name of officer administering oath Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

Document 00700

GENERAL CONDITIONS

March 7, 2022 EDITION

TABLE OF ARTICLES

- | | | | |
|----|--|-----|--|
| 1. | GENERAL PROVISIONS | 8. | TIME |
| 2. | THE CITY | 9. | PAYMENTS AND COMPLETION |
| 3. | CONTRACTOR | 10. | SAFETY PRECAUTIONS |
| 4. | ADMINISTRATION OF THE
CONTRACT | 11. | INSURANCE AND BONDS |
| 5. | SUBCONTRACTORS AND
SUPPLIERS | 12. | UNCOVERING AND CORRECTION
OF THE WORK |
| 6. | CONSTRUCTION BY THE CITY OR
BY SEPARATE CONTRACTORS | 13. | MISCELLANEOUS PROVISIONS |
| 7. | CHANGES IN THE WORK | 14. | TERMINATION OR SUSPENSION
OF THE CONTRACT |

ARTICLE 1 - GENERAL PROVISIONS.....	3	4.3	CLAIMS AND DISPUTES.....	17	
1.1	DEFINITIONS	3	4.4	RESOLUTION OF CLAIMS AND DISPUTES	19
1.2	EXECUTION, CORRELATION, AND INTENT.....	5		ARTICLE 5 - SUBCONTRACTORS AND SUPPLIERS	19
1.3	OWNERSHIP AND USE OF DOCUMENTS.....	6	5.1	AWARD OF SUBCONTRACTS OTHER	
1.4	INTERPRETATION.....	6		CONTRACTS FOR PORTIONS OF THE WORK...	19
	ARTICLE 2 - THE CITY.....	6	5.2	CONTRACTOR RESPONSIBILITY FOR	
2.1	LIMITATIONS OF THE CITY'S OFFICERS AND			SUBCONTRACTORS.....	20
	EMPLOYEES.....	6		ARTICLE 6 - CONSTRUCTION BY THE CITY OR BY	
2.2	DUTIES OF THE CITY.....	6		SEPARATE CONTRACTORS.....	20
2.3	AVAILABILITY OF LAND AND USE OF SITE.....	6	6.1	THE CITY'S RIGHT TO PERFORM CONSTRUCTION	
2.4	THE CITY'S RIGHT TO STOP THE WORK	7		AND TO AWARD SEPARATE CONTRACTS	20
2.5	THE CITY'S RIGHT TO CARRY OUT WORK.....	7	6.2	COORDINATION.....	20
	ARTICLE 3 - CONTRACTOR	7	6.3	MUTUAL RESPONSIBILITY	20
3.1	RESPONSIBILITIES	7	6.4	THE CITY'S RIGHT TO CLEAN UP	21
3.2	REVIEW OF CONTRACT AND FIELD CONDITIONS			ARTICLE 7 - CHANGES IN THE WORK	21
	BY CONTRACTOR.....	7	7.1	CHANGES.....	21
3.3	SUPERVISION AND CONSTRUCTION		7.2	WORK CHANGE DIRECTIVES.....	21
	PROCEDURES.....	7	7.3	ADJUSTMENTS IN CONTRACT PRICE.....	21
3.4	SUPERINTENDENT	8	7.4	MINOR CHANGES IN THE WORK	23
3.5	LABOR.....	8		ARTICLE 8 - TIME.....	23
3.6	PREVAILING WAGE RATES.....	9	8.1	PROGRESS AND COMPLETION.....	23
3.7	LABOR CONDITIONS	9	8.2	DELAYS AND EXTENSIONS OF TIME	23
3.8	DRUG DETECTION AND DETERRENCE	9		ARTICLE 9 - PAYMENTS AND COMPLETION	24
3.9	MATERIALS & EQUIPMENT.....	10	9.1	UNIT PRICE WORK.....	24
3.10	PRODUCT OPTIONS AND SUBSTITUTIONS.....	11	9.2	ESTIMATES FOR PAYMENT,	
3.11	CASH ALLOWANCES	11		UNIT PRICE WORK.....	24
3.12	WARRANTY.....	11	9.3	STIPULATED PRICE WORK	24
3.13	TAXES	12	9.4	APPLICATIONS FOR PAYMENT, STIPULATED	
3.14	PERMITS, FEES, AND NOTICES	12		PRICE WORK.....	24
3.15	CONSTRUCTION SCHEDULES	12	9.5	CERTIFICATES FOR PAYMENT.....	25
3.16	DOCUMENTS AND SAMPLES AT THE SITE.....	12	9.6	COMPUTATIONS OF CERTIFICATES FOR	
3.17	MANUFACTURER'S SPECIFICATIONS.....	13		PAYMENT	25
3.18	SHOP DRAWINGS, PRODUCT DATA, AND		9.7	DECISIONS TO WITHHOLD CERTIFICATION	25
	SAMPLES	13	9.8	PROGRESS PAYMENTS.....	25
3.19	CULTURAL RESOURCES AND ENDANGERED		9.9	DATE OF SUBSTANTIAL COMPLETION.....	26
	SPECIES.....	14	9.10	PARTIAL OCCUPANCY OR USE	27
3.20	CUTTING AND PATCHING	14	9.11	FINAL COMPLETION AND FINAL PAYMENT.....	27
3.21	CLEANING.....	14	9.12	LIQUIDATED DAMAGES	28
3.22	SANITATION.....	14		ARTICLE 10 - SAFETY PRECAUTIONS	28
3.23	ACCESS TO WORK AND TO INFORMATION	14	10.1	SAFETY PROGRAMS.....	28
3.24	TRADE SECRETS.....	14	10.2	POLLUTANTS AND POLLUTANT FACILITIES	28
3.25	INDEMNIFICATION	14	10.3	SAFETY OF THE ENVIRONMENT, PERSONS, AND	
3.26	RELEASE AND INDEMNIFICATION – PATENT,			PROPERTY.....	28
	COPYRIGHT, TRADEMARK, AND TRADE SECRET		10.4	EMERGENCIES	29
	INFRINGEMENT.....	15			
3.27	INDEMNIFICATION PROCEDURES.....	15			
	ARTICLE 4 - ADMINISTRATION OF THE CONTRACT.....	17			
4.1	CONTRACT ADMINISTRATION	17			
4.2	COMMUNICATIONS IN ADMINISTRATION OF				
	THE CONTRACT.....	17			

ARTICLE 11 - INSURANCE AND BONDS..... 29

11.1 GENERAL INSURANCE REQUIREMENTS..... 29
11.2 INSURANCE TO BE PROVIDED BY
CONTRACTOR..... 29
11.2 INSURANCE TO BE PROVIDED BY
CONTRACTOR..... 29
11.3 PROOF OF INSURANCE..... 32
11.4 PERFORMANCE AND PAYMENT BONDS 33
11.5 MAINTENANCE BONDS..... 33
11.6 SURETY 33
11.7 DELIVERY OF BONDS 34

ARTICLE 12 - UNCOVERING AND CORRECTION OF THE
WORK..... 34

12.1 UNCOVERING OF THE WORK 34
12.2 CORRECTION OF THE WORK 34
12.3 ACCEPTANCE OF NONCONFORMING WORK ... 35

ARTICLE 13 - MISCELLANEOUS PROVISIONS 35

13.1 GOVERNING LAW AND VENUE 35
13.2 SUCCESSORS..... 35
13.3 BUSINESS STRUCTURE AND ASSIGNMENTS... 35
13.4 WRITTEN NOTICE 35
13.5 RIGHTS AND REMEDIES 35
13.6 TESTS AND INSPECTIONS 35
13.7 INTEREST 36
13.8 PARTIES IN INTEREST 36
13.9 ENTIRE CONTRACT..... 36
13.10 WRITTEN AMENDMENT 36
13.11 COMPLIANCE WITH LAWS..... 36
13.12 SEVERABILITY 36
13.13 COMPLIANCE WITH CERTAIN STATE LAW
REQUIREMENTS..... 36
13.14 ZERO TOLERANCE POLICY FOR HUMAN
TRAFFICKING & RELATED ACTIVITIES 36

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE
CONTRACT..... 37

14.1 TERMINATION BY THE CITY FOR CAUSE 37
14.2 TERMINATION BY THE CITY FOR
CONVENIENCE..... 38
14.3 SUSPENSION BY THE CITY FOR
CONVENIENCE..... 38
14.4 TERMINATION BY CONTRACTOR..... 38

ARTICLE 1 - GENERAL PROVISIONS

1.1 DEFINITIONS

1.1.1 Agreement: Document signed by the Parties and binding the Parties, containing the name of Contractor, title and location of the Project, Original Contract Time, Original Contract Price, enumeration of documents included in the Contract, and other provisions.

1.1.2 Bonds: Performance Bond, Payment Bond, Maintenance Bond, and other Surety instruments executed by Surety. When in singular form, refers to individual instrument.

1.1.3 Business Enterprise: Any business entity registered in a program authorized by 49 C.F.R. § 26 (where applicable) or City Code of Ordinances, Chapter 15, Article II, relating to Equal Opportunity Employment and taking affirmative action to ensure that applicants are employed and employees are treated without regard to race, religion, color, sex, national origin, or age. The term "Business Enterprise" may include any Disadvantaged Business Enterprise ("DBE"), Minority Business Enterprise ("MBE"), Woman Business Enterprise ("WBE"), Small Business Enterprise ("SBE"), Person with Disability Enterprise ("PDBE"), and any Historically Underutilized Business ("HUB").

1.1.4 Business Enterprise Policy: Contract documents and applicable policies relating to Business Enterprises and authorized under 49 C.F.R. § 26 or City Code of Ordinances, Chapter 15, Article V.

1.1.5 Cash Allowance: An estimated sum of money to be used only for a limited class of expenditures such as utility relocation costs, fees for special licenses or permits, or other "pass-through" costs that would be the same for any contractor. Cash Allowances may not be used to purchase goods or services that are not specified in the Contract. The unspecified items must be purchased according to the terms of Article 7.

1.1.6 Change Order: Written instrument prepared by the City and signed by City Engineer and Contractor, specifying the following:

- 1.1.6.1 a change in the Work;
- 1.1.6.2 a change in Contract Price, if any; and
- 1.1.6.3 a change in Contract Time, if any.

The value of a Change Order is the net amount after offsetting all deductions against all additions effected by the Change Order.

1.1.7 City: The City of Houston, a home rule municipality located principally within Harris County, Texas, including its successors and its authorized representatives.

1.1.8 City Engineer: The City Engineer, or the City employee representing the City Engineer, designated in the Agreement and authorized to represent the City, or successors.

1.1.9 Claim: Written demand or written assertion by one Party seeking adjustment of the Contract, payment of money, extension of time, or other relief under the Contract and includes, but is not limited to, claims for materials, labor, equipment, delay, changes, adjustments, substitutions, fees and third party claims. The Party making the Claim has the responsibility to substantiate the Claim.

1.1.10 Conditions of the Contract: General Conditions and Supplementary Conditions.

1.1.11 Construction Manager: Person or firm under contract with the City as its authorized representative to oversee and administer construction of the Work, and who may perform the role of Project Manager and Inspector, as designated by City Engineer in writing.

1.1.12 Contract: The Agreement; documents enumerated in and incorporated into the Agreement, Modifications, and amendments.

1.1.13 Contract Price: The monetary amount stated in the Agreement adjusted by Change Order, and increases or decreases in Unit Price Quantities, if any.

1.1.14 Contract Time: The number of days stated in the Agreement to substantially complete the Work, plus days authorized by Change Order.

1.1.15 Contract Year: a twelve (12) month period during the term of the contract commencing on the Effective Date of this Agreement and each anniversary thereof.

1.1.16 Contractor: Person or firm identified as such in the Agreement including its successors and its authorized representatives.

1.1.17 Date of Commencement of the Work: Date established in Notice to Proceed on which Contract Time will commence. This date will not be changed by failure of Contractor, or persons or entities for whom Contractor is responsible, to act.

1.1.18 Date of Substantial Completion: Date that construction, or portion thereof designated by City Engineer, is certified by City Engineer to be substantially complete.

1.1.19 Design Consultant: Person or firm, under contract with the City, to provide professional services during construction and its authorized representatives. If a Design Consultant is not employed for services during construction, Project Manager will perform duties of Design Consultant designated in the Contract in addition to usual duties of Project Manager.

1.1.20 Drawings: Graphic and pictorial portions of the Contract that define the character and scope of the Work.

1.1.21 Extra Unit Price: Unit Prices, which may be required for completion of the Work. These Unit Prices and Unit Price Quantities are in the Contract and are included in Original Contract Price.

1.1.22 Furnish: To supply, pay for, deliver to the site, and unload.

1.1.23 General Requirements: The sections of Division 01 Specifications that specify administrative and procedural requirements and temporary facilities required for the Work.

1.1.24 Inspector: City's employee or agent authorized to assist with inspection of the Work.

1.1.25 Install: Unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, clean, protect, and similar operations.

1.1.26 Legal Holiday: Day established by the City Council as a holiday.

1.1.27 Major Unit Price Work: An individual Unit Price item,

1.1.27.1 whose value is greater than five percent of Original Contract Price,

1.1.27.2 whose value becomes greater than five percent of Original Contract Price as the result of an increase in quantity, or

1.1.27.3 whose value is \$100,000, whichever is least.

1.1.28 Mayor's Office of Business Opportunity: any reference to, or use of, the "Office of Affirmative Action" shall mean the Mayor's Office of Business Opportunity, or any such future name to which it is changed.

1.1.29 Minor Change in the Work: A written change in the Work, ordered by City Engineer, that does not change Contract Price or Contract Time, and that is consistent with the general scope of the Contract.

1.1.30 Modification: Change Order, Work Change Directive, or Minor Change in the Work.

1.1.31 Notice of Noncompliance: A written notice by City Engineer to Contractor regarding defective or nonconforming work that does not meet the Contract requirements, and that establishes a time by which Contractor shall correct the defective or nonconforming work.

1.1.32 Notice to Proceed: A written notice by City Engineer to Contractor establishing Date of Commencement of the Work.

1.1.33 Original Contract Price: The monetary amount originally stated in the Agreement.

1.1.34 Parties: Contractor and the City. When in singular form, refers to Contractor or the City.

1.1.35 Pollutant: Any materials subject to the Texas Solid Waste Disposal Act.

1.1.36 Pollutant Facility: Any facility regulated by the State of Texas to protect the health and environment from contamination by Pollutants, including without limitation, landfills, oil and gas production and storage facilities, wastewater facilities, waste injection wells, and storage tanks (including drums).

1.1.37 Product: Materials, equipment, or systems incorporated into the Work or to be incorporated into the Work.

1.1.38 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by Contractor to illustrate a Product.

1.1.39 Project: Total construction, of which the Work performed under the Contract may be the whole or a part, and which may include construction by the City or by separate contractors.

1.1.40 Project Manager: City Engineer's authorized representative for administration of the Work. Titles used within the City's departments may be different than those used in this definition.

1.1.41 Provide: Furnish and Install, complete, ready for intended use.

1.1.42 Samples: Physical examples that illustrate Products, or workmanship, and establish standards by which the Work is judged.

1.1.43 Shop Drawings: Drawings, diagrams, schedules, and other data specially prepared for the Work by Contractor, Subcontractor or Supplier, to illustrate a portion of the Work.

1.1.44 Specifications: Divisions 01 through 16 of the documents that are incorporated into the Agreement, consisting of written General Requirements and requirements for Products, standards, and workmanship for the Work, and performance of related services.

1.1.45 Stipulated Price: Single lump sum amount stated in the Contract for completion of the Work, or for designated portion of the Work.

1.1.46 Subcontractor: Person or firm that has direct or indirect contract with Contractor or with another Subcontractor to perform a portion of the Work and its authorized representatives.

1.1.47 Superintendent: Employee of Contractor having authority and responsibility to act for and represent Contractor.

1.1.48 Supplementary Conditions: Part of Conditions of the Contract that amends or supplements General Conditions.

1.1.49 Supplier: Manufacturer, distributor, materialman, or vendor having a direct agreement with Contractor or Subcontractor for Products, or services and its authorized representatives.

1.1.50 Surety: Corporate entity that is bound by one or more Bonds, and is responsible for completion of the Work, including the correction period, and for payment of debts incurred in fulfilling the Contract. Surety shall include co-surety or reinsurer, as applicable.

1.1.51 Underground Facilities: Pipes, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments and encasements containing such facilities that exist below ground level.

1.1.52 Unit Price: An amount stated in the Contract for an individual, measurable item of work, which, when multiplied by actual quantity incorporated into the Work, amounts to full compensation for completion of the item, including work incidental to it.

1.1.53 Unit Price Quantities: Quantities indicated in the Contract that are approximations made by the City for contracting purposes.

1.1.54 Work: Entire construction required by the Contract, including all labor, Products, and services provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a portion of the Project.

1.1.55 Work Change Directive: A written change in the Work, ordered by City Engineer, that is within the general scope of the Contract and consisting of additions, deletions, or other revisions. A Work Change Directive will state proposed basis for adjustment, if any, in Contract Price or Contract Time, or both.

1.2 EXECUTION, CORRELATION, AND INTENT

1.2.1 Execution of the Contract by Contractor is conclusive that Contractor has visited the Work site, become familiar with local conditions under which the Work will be performed, and fully informed itself as to conditions and matters which can affect the Work or costs. Contractor further agrees that it has carefully correlated personal observations with requirements of the Contract.

1.2.2 The Contract and Modifications have been read and carefully considered by Contractor, who understands and agrees to their sufficiency for the Work. The Contract may not be more strongly construed against the City than against Contractor and Surety.

1.2.3 Contractor shall include all items necessary for proper execution and completion of the Work.

1.2.4 Reference to standard specifications, manuals, or codes of a technical society, organization, or association, or to laws or regulations of a governmental authority, whether specific or implied, mean the latest edition in effect as of date of receipt of bids, except as may be otherwise specifically stated in the Contract.

1.2.5 No provision of any referenced standard, specification, or manual changes the duties and responsibilities of the City, City Engineer, Contractor, or Design Consultant from those set forth in the Contract. Nor do these provisions assign to Design Consultant any duty or authority to supervise or direct performance of the Work or any duty or authority to undertake any actions contrary to provisions of the Contract.

1.2.6 Organization of Specifications into divisions, sections, and articles and arrangement of Drawings does not control Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.2.7 Unless otherwise defined in the Contract, words which have well-known construction industry technical meanings are used in the Contract in accordance with these recognized meanings.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 Drawings, Specifications, and other documents prepared by the City or by Design Consultant are instruments of service through which the Work to be executed by Contractor is described. Contractor may retain one Contract record set.

1.3.2 Neither Contractor, Subcontractor, nor Supplier will own or claim a copyright to documents contained in the Contract or any part of the Contract.

1.3.3 Documents contained in the Contract, prepared by the City or by Design Consultant, and copies furnished to Contractor, are for use solely with respect to the Work. They may not be used by Contractor, Subcontractor or Supplier on other projects or for additions to the Work, outside the scope of the Work, without the specific written consent of City Engineer, and Design Consultant, when applicable.

1.3.4 Contractor, Subcontractors, and Suppliers are granted a limited license to use and reproduce applicable portions of the Contract appropriate to and for use in execution of their work under the Contract.

1.4 INTERPRETATION

1.4.1 Specifications are written in an imperative streamlined form and are directed to Contractor, unless noted otherwise. When written in this form, words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.4.2 In the interest of brevity, the Contract frequently omits modifying words such as "all" and "any" and articles such as "the" and "an", but an absent modifier or article is not intended to affect interpretation of a statement.

ARTICLE 2 - THE CITY

2.1 LIMITATIONS OF THE CITY'S OFFICERS AND EMPLOYEES

2.1.1 No officer or employee of the City may authorize Contractor to perform an act or work contrary to the Contract, except as otherwise provided in the Contract.

2.2 DUTIES OF THE CITY

2.2.1 If a building permit is required, the City will process an application for, and Contractor shall purchase the building permit before Date of Commencement of the Work.

2.2.2 The City will make available to Contractor a reproducible set of Drawings. Additional copies will be furnished, on Contractor's request, at the cost of reproduction.

2.2.3 When necessary for performance of the Work, the City will provide surveys describing physical characteristics, legal limitations, legal description of site, and horizontal and vertical control adequate to lay out the Work.

2.2.4 Information or services that the City is required to provide under the Contract will be provided by the City with reasonable promptness to avoid delay in orderly progress of the Work.

2.2.5 The Contract imposes no implied duty on the City. The City does not warrant any plans or specifications associated with the Contract.

2.2.6 Except as expressly stated in this Article, the City owes no duty to the Contractor or any subcontractor.

2.3 AVAILABILITY OF LAND AND USE OF SITE

2.3.1 The City will furnish, as indicated in the Contract, rights-of-way, land on which the Work is to be performed, and other land designated in the Contract for use by Contractor unless otherwise provided in the Contract.

2.3.2 Contractor shall confine operations at site to those areas permitted by law, ordinances, permits, and the Contract, and may not unreasonably encumber site with materials or equipment.

2.3.3 In addition to land provided by the City under Section 2.3, Contractor shall provide all land and access to land that may be required for use by

Contractor for temporary construction facilities or for storage of materials and equipment, and shall indemnify the City during its use of the land as stated in Section 3.25.

2.4 THE CITY'S RIGHT TO STOP THE WORK

2.4.1 If Contractor fails to carry out the Work in accordance with the Contract, or fails to correct work which is not in accordance with requirements of the Contract as required in Sections 12.1 and 12.2, the City may, by Notice of Noncompliance, order Contractor to stop the Work or any portion of the Work until the cause for the order has been eliminated. However, the right of the City to stop the Work will not give rise to a Claim for delay or to a duty on the part of the City to exercise this right for the benefit of Contractor or any other person or entity, except to the extent required by Section 6.2. If Contractor corrects the defective or nonconforming work within the time established in Notice of Noncompliance, City Engineer will give written notice to Contractor to resume performance of the Work.

2.5 THE CITY'S RIGHT TO CARRY OUT WORK

2.5.1 If Contractor fails to carry out work in accordance with the Contract, and fails within the period established in a Notice of Noncompliance to correct the nonconforming work, the City may, after expiration of the required period, correct the deficiencies without prejudice to other remedies the City may have, including rights of the City under Section 14.1.

2.5.1.1 When the City corrects deficiencies, City Engineer will issue an appropriate Change Order and deduct from payments then or thereafter due Contractor the cost of correcting the deficiencies, including compensation for Design Consultant's and Construction Manager's additional services and expenses made necessary by such default, neglect, or failure. This action by the City and amounts charged to Contractor are both subject to prior approval of City Engineer. If payments, then or thereafter due Contractor, are not sufficient to cover these amounts, Contractor shall pay the difference to the City.

2.5.2 Notwithstanding the City's right to carry out work, maintenance and protection of the Work remains Contractor's responsibility, as provided in the Contract.

ARTICLE 3 - CONTRACTOR

3.1 RESPONSIBILITIES

3.1.1 Contractor shall maintain office with agent in the greater City of Houston area during the Contractor's performance under the Contract. Contractor shall file its street address with City Engineer.

3.1.2 Contractor and Contractor's employees shall not give or lend money or anything of value to an officer or employee of the City. Should this Paragraph 3.1.2 be violated, City Engineer may terminate the Contract under Section 14.1.

3.2 REVIEW OF CONTRACT AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Contractor shall carefully study and compare documents contained in the Contract with each other and with information furnished by the City pursuant to Section 2.2 and shall immediately report, in writing, any errors, inconsistencies, or omissions to City Engineer. If work is affected, Contractor shall obtain a written interpretation or clarification from City Engineer before proceeding with the affected work. However, Contractor will not be liable to the City for failure to report an error, inconsistency, or omission in the Contract unless Contractor had actual knowledge or should have had knowledge of the error, inconsistency, or omission.

3.2.2 Contractor shall take field measurements and verify field conditions, and shall carefully compare the conditions and other information known to Contractor with the Contract, before commencing activities. Contractor shall immediately report, in writing, to City Engineer for interpretation or clarification of discrepancies, inconsistencies, or omissions discovered during this process.

3.2.3 Contractor shall make a reasonable attempt to understand the Contract before requesting interpretation from City Engineer.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 Contractor shall supervise, direct, and inspect the Work competently and efficiently, devoting the attention and applying the skills and expertise as necessary to perform the Work in accordance with the Contract. Contractor is solely responsible and has control over construction

means, methods, techniques, sequences, and procedures of construction; for safety precautions and programs in connection with the Work; and for coordinating all work under the Contract.

3.3.2 Regardless of observations or inspections by the City or City's consultants, Contractor shall perform and complete the Work in accordance with the Contract and submittals approved pursuant to Section 3.18. The City is not liable or responsible to Contractor or Surety for work performed by Contractor that is not in accordance with the Contract regardless of whether discovered during construction or after acceptance of the Work.

3.4 *SUPERINTENDENT*

3.4.1 Contractor shall employ a competent Superintendent and necessary assistants who shall be present at the site during performance of the Work. Communications given to Superintendent are binding on the Contractor.

3.4.2 Contractor shall notify City Engineer in writing of its intent to replace the Superintendent. Contractor may not replace the Superintendent if City Engineer makes a reasonable objection in writing.

3.5 *LABOR*

3.5.1 Contractor shall provide competent, qualified personnel to survey and lay out the Work and perform construction as required by the Contract. The City may, by written notice, require Contractor to remove from the Work any employee of Contractor or Subcontractors to whom City Engineer makes reasonable objection.

3.5.2 Contractor shall comply with the applicable Business Enterprise Policy set out in this Agreement and in the Supplementary Conditions, as set out in Chapter 15, Article V of the City of Houston Code of Ordinances.

3.5.3 When Original Contract Price is greater than \$1,000,000, Contractor shall make Good Faith Efforts to award subcontracts or supply agreements in at least the percentages set out in the Supplementary Conditions for Business Enterprise Policy ("Stated MWBE goal"). If the Contractor is a certified MBE or WBE, Contractor may count toward goals the work that it commits to perform with its own work force, capped at 50% of the total advertised goal. Contractor acknowledges that it has reviewed the requirements for Good Faith Efforts on file with the City's Office of Business Opportunity and shall comply with them.

3.5.3.1 Contractor shall require written subcontracts with Business Enterprises and shall submit all disputes with Business Enterprises to voluntary mediation. Business Enterprise subcontracts complying with City Code of Ordinances Chapter 15, Article II must contain the terms set out in Subparagraph 3.5.3.2. If Contractor is an individual person, as distinguished from a corporation, partnership, or other legal entity, and the amount of the subcontract is \$50,000 or less, the subcontract must also be signed by the attorneys of the respective parties.

3.5.3.2 Contractor shall ensure that subcontracts with Business Enterprise firms are clearly labeled "**THIS CONTRACT MAY BE SUBJECT TO MEDIATION ACCORDING TO THE TEXAS ALTERNATIVE DISPUTE RESOLUTION ACT**" and contain the following terms:

3.5.3.2.1 (Business Enterprise) shall permit representatives of the City of Houston, at all reasonable times, to perform (1) audits of the books and records of the Subcontractors and Suppliers, and (2) inspections of all places where work is to be undertaken in connection with this subcontract. (Business Enterprise) shall keep the books and records available for this purpose for at least four years after the end of its performance under this subcontract. Nothing in this provision shall affect the time for bringing a cause of action nor the applicable statute of limitations.

3.5.3.2.2 Within five business days of execution of this subcontract, Contractor and (Business Enterprise) shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of the agent.

3.5.3.3 If the term of this Agreement exceeds one Contract Year and Contractor's MWBE participation level in a Contract Year is less than the Stated MWBE goal, then within 30 calendar days of the end of each Contract Year, Contractor must provide a written detailed explanation to both the

Director and OBO Director of the following: (1) the discrepancy between Contractor's MWBE participation level and the Stated MWBE goal, (2) the reason for the discrepancy, and (3) Contractor's good faith efforts (in accordance with the City's policy) towards achieving the Stated MWBE goal. As part of the good faith efforts assessment, the OBO Director may consider Contractor's failure to timely submit the notice or explanation required by this provision and the OBO Director may impose sanctions or other penalties on Contractor for said failures in accordance with Chapter 15 of the Code of Ordinances, OBO's policies and procedures, and the City's good faith efforts policy.

3.5.4 The requirements and terms of the City of Houston Pay or Play Program, as set out in Executive Order 1-7, as revised from time to time, are incorporated into the Contract for all purposes. Contractor has reviewed Executive Order 1-7 and shall comply with its terms and conditions. IF CONTRACTOR DOES NOT PAY IN ACCORDANCE WITH THE PAY OR PLAY PROGRAM WITHIN 30 DAYS OF THE DATE CITY ENGINEER SENDS CONTRACTOR WRITTEN NOTIFICATION, CITY CONTROLLER MAY DEDUCT FUNDS UP TO THE AMOUNT OWED FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS CONTRACT, AND CONTRACTOR WAIVES ANY RECOURSE.

3.6 *PREVAILING WAGE RATES*

3.6.1 Contractor shall comply with governing statutes providing for labor classification of wage scales for each craft or type of laborer, worker, or mechanic.

3.6.2 Prevailing wage rates applicable to the Work may be one or a combination of the following wage rates identified in Division 00:

- 3.6.2.1 Federal Wage Rate General Decisions
 - 3.6.2.1.1 Highway Rates
 - 3.6.2.1.2 Building Rates
 - 3.6.2.1.3 Heavy Construction Rates
 - 3.6.2.1.4 Residential Rates
- 3.6.2.2 City Prevailing Wage Rates
 - 3.6.2.2.1 Building Construction Rates
 - 3.6.2.2.2 Engineering Construction Rates
 - 3.6.2.2.3 Asbestos Worker Rates

3.6.3 Each week Contractor shall submit to the City's Mayor's Office of Business Opportunity certified copies of payrolls showing classifications and wages paid by Contractor, Subcontractors, and Suppliers for each employee under the Contract, for any day included in the Contract.

3.7 *LABOR CONDITIONS*

3.7.1 In the event of labor disputes affecting Contractor or Contractor's employees, Contractor shall utilize all possible means to resolve disputes in order that the Work not be delayed to any extent. These means will include seeking injunctive relief and filing unfair labor practice charges, and any other action available to Contractor.

3.7.2 When Contractor has knowledge that any actual or potential labor dispute is delaying or is threatening to delay timely performance of the Work, Contractor shall immediately notify City Engineer in writing. No Claims will be accepted by City Engineer for costs incurred as a result of jurisdictional or labor disputes.

3.8 *DRUG DETECTION AND DETERRENCE*

3.8.1 It is the policy of the City to achieve a drug-free work force and to provide a workplace that is free from the use of illegal drugs and alcohol. It is also the policy of the City that manufacture, distribution, dispensation, possession, sale, or use of illegal drugs or alcohol by contractors while on the City's premises is prohibited. By executing the Contract, Contractor represents and certifies that it meets and will comply with all requirements and procedures set forth in the Mayor's Policy on Drug Detection and Deterrence, City Council Motion No. 92-1971 ("Mayor's Policy") and the Mayor's Drug Detection and Deterrence Procedures for Contractors, Executive Order No. 1-31, (Revised) ("Executive Order"). Mayor's Policy is on file in the office of the City Secretary. Copies of Executive Order may be obtained at the location specified in the Advertisement for Bids.

- 3.8.1.1 The Executive Order applies to the City's contracts for labor or services except the following:
 - 3.8.1.1.1 contracts authorized by Emergency Purchase Orders,
 - 3.8.1.1.2 contracts in which imposition of requirements of the Executive Order would exclude all potential bidders or proposers, or would eliminate meaningful competition for the Contract,

- 3.8.1.1.3 contracts with companies that have fewer than 15 employees during any 20-week period during a calendar year and no safety impact positions,
 - 3.8.1.1.4 contracts with non-profit organizations providing services at no cost or reduced cost to the public, and
 - 3.8.1.1.5 contracts with federal, state, or local governmental entities.
- 3.8.1.2 Prior to execution of the Contract, Contractor shall have filed with the City:
- 3.8.1.2.1 a Drug Policy Compliance Agreement form (Attachment "A" to the Executive Order), and
 - 3.8.1.2.2 a copy of Contractor's drug free workplace policy, and
 - 3.8.1.2.3 a written designation of all safety impact positions, if applicable, or a Contractor's Certification of a No Safety Impact Positions form (Attachment "C" to the Executive Order).
- 3.8.1.3 Every six months during performance of the Contract and upon completion of the Contract, Contractor shall file a Drug Policy Compliance Declaration form (Attachment "B" to the Executive Order). The Contractor shall submit the Drug Policy Compliance Declaration within 30 days of expiration of each six-month period of performance and within 30 days of completion of the Contract. The first six-month period shall begin on Date of Commencement of the Work.
- 3.8.1.4 Contractor shall have a continuing obligation to file updated designation of safety impact positions when additional safety impact positions are added to Contractor's employee workforce during performance of the Work.
- 3.8.1.5 Contractor shall require its Subcontractors and Suppliers to comply with the Mayor's Policy and Executive Order. Contractor is responsible for securing and maintaining required documents from Subcontractors and Suppliers for the City inspection throughout the term of the Contract.
- 3.8.1.6 Failure of Contractor to comply with requirements will be a material breach of the Contract entitling the City to terminate in accordance with Section 14.1.

3.9 *MATERIALS & EQUIPMENT*

3.9.1 Unless otherwise provided in the Contract, Contractor shall provide and assume full responsibility for Products, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, transportation, temporary facilities, supplies, and other facilities and incidentals necessary for Furnishing, performing, testing, starting-up, and completing the Work.

3.9.1.1 Contractor, Subcontractors, and Suppliers shall use Ultra Low Sulfur Diesel Fuel in all diesel operating vehicles and motorized equipment utilized in performing the Work. Ultra Low Sulfur Diesel Fuel is defined as diesel fuel having 15 ppm or the applicable standard set by state or federal law or rules and regulations of the Texas Commission on Environmental Quality, or the Environmental Protection Agency, whichever is less in sulfur content. Off-road Ultra Low Sulfur Diesel Fuel may be used in lieu of on-road Ultra Low Sulfur Diesel Fuel. Contractor shall provide, upon request by City Engineer, proof that Contractor, Subcontractors, and Suppliers are using Ultra Low Sulfur Diesel Fuel.

3.9.2 Contractor shall provide Products that are:

- 3.9.2.1 new, unless otherwise required or permitted by the Contract, and
- 3.9.2.2 of specified quality.

If required by City Engineer, Contractor shall furnish satisfactory evidence, including reports of required tests, as to kind and quality of Products.

3.9.3 Contractor shall store Products in a safe, neat, compact, and protected manner. Contractor shall also store Products delivered during the work, along the right-of-way:

- 3.9.3.1 so as to cause the least inconvenience to property owners, tenants, and general public; and
- 3.9.3.2 so as not to block access to, or be closer than, three feet to any fire hydrant.

Contractor shall protect trees, lawns, walks, drives, streets, and other improvements that are to remain, from damage. If private or public property is damaged by Contractor, Contractor shall, at its sole expense, restore the damaged property to at least its original condition.

3.9.3.1 Contractor shall obtain City Engineer's approval for storage areas used for Products for which payment has been requested under Paragraph 9.6.1.

Contractor shall provide the City access to the storage areas for inspection purposes. Products, once paid for by the City, become the property of the City and may not be removed from place of storage, without City Engineer's written permission except for a movement to the site. Contractor's Installation Floater, required under Section 11.2, shall cover all perils, including loss or damage to Products during storage, loading, unloading, and transit to the site.

3.10 *PRODUCT OPTIONS AND SUBSTITUTIONS*

3.10.1 For Products specified by reference standards or by description only, Contractor may provide any Product meeting those standards or description.

3.10.2 For Products specified by naming one or more manufacturers with provision for substitutions or equal, Contractor may submit a request for substitution for any manufacturer not named.

3.10.3 City Engineer will consider requests for substitutions only within the first 15 percent of Contract Time, or first 90 days after date of Notice to Proceed, whichever is less.

3.10.4 Contractor shall document each request for substitution with complete data substantiating compliance of proposed substitution with the Contract.

3.10.5 A request for substitution constitutes a representation that Contractor:

3.10.5.1 has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product;

3.10.5.2 shall provide the same warranty for the substitution as for the specified Product;

3.10.5.3 shall coordinate installation of the proposed substitution and make changes to other work which may be required for the Work to be completed, with no additional cost or increase in time to the City;

3.10.5.4 confirms that cost data is complete and includes all related costs under the Contract;

3.10.5.5 waives Claim for additional costs or time extensions that may subsequently become apparent; and

3.10.5.6 shall provide review or redesign services by a design consultant with appropriate professional license and shall obtain re-approval and permits from authorities.

3.10.6 City Engineer will not consider and will not approve substitutions when:

3.10.6.1 they are indicated or implied on Shop Drawing or Product Data submittals without separate written request; or

3.10.6.2 acceptance will require revision to the Contract.

3.10.7 City Engineer may reject requests for substitution, and his decision will be final and binding on the Parties.

3.11 *CASH ALLOWANCES*

3.11.1 Contract Price includes Cash Allowances as identified in the Contract.

3.11.2 The City will pay the actual costs of Cash Allowance item exclusive of profit, overhead or administrative costs. If actual costs exceed the Cash Allowance, City Engineer must approve a Change Order for the additional costs.

3.12 *WARRANTY*

3.12.1 Contractor warrants to the City that Products furnished under the Contract are:

3.12.1.1 free of defects in title;

3.12.1.2 of good quality; and

3.12.1.3 new, unless otherwise required or permitted by the Contract.

If required by the City Engineer, Contractor shall furnish satisfactory evidence as to kind, quality and title of Products, and that Products conform to requirements of the Contract.

3.12.2 In the event of a defect in a Product, either during construction or warranty period, Contractor shall take appropriate action with manufacturer of Product to assure correction or replacement of defective Product with minimum delay.

3.12.3 Contractor warrants that the Work is free of defects not inherent in the quality required or permitted, and that the Work does conform with the requirements of the Contract. Contractor further warrants that the Work has been performed in a thorough and workmanlike manner.

3.12.4 Contractor warrants that the Work is free of concentrations on polychlorinated biphenyl (PCB) and other substances defined as hazardous by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or any other applicable law or regulation.

3.12.5 Work not conforming to requirements of Section 3.12, including substitutions not properly approved and authorized, may be considered nonconforming work.

3.12.6 Contractor's warranty excludes remedy for damage or defect caused by:

- 3.12.6.1 improper or insufficient maintenance by the City;
- 3.12.6.2 normal wear and tear under normal usage; or
- 3.12.6.3 claim that hazardous material was incorporated into the Work, if that material was specified in the Contract.

3.12.7 Contractor warrants that title to all work covered by Contractor's request for payment passes to the City upon incorporation into the Work or upon Contractor's receipt of payment, whichever occurs first. The Contractor further warrants that the title is free of all liens, claims, security interests or other interests ("Encumbrances"). If not, upon written demand from City Engineer, Contractor shall immediately take legal action necessary to remove Encumbrances.

3.13 TAXES

3.13.1 Contractor shall pay all sales, consumer, use, and similar taxes, which are in effect or scheduled to go into effect on or before bids are received, related to work provided by Contractor.

3.13.2 Contractor shall obtain, and require Subcontractors and Suppliers to obtain, necessary permits from the state and local taxing authorities to perform contractual obligations under the Contract, including sales tax permits.

3.13.3 The City is exempt from the Federal Transportation and Excise Tax. Contractor shall comply with federal regulations governing the exemptions.

3.13.4 Products incorporated into the Work are exempt from state sales tax according to provisions of the TEX. TAX CODE ANN. CH. 151, Subsection H.

3.14 PERMITS, FEES, AND NOTICES

3.14.1 Unless otherwise provided in the Contract, Contractor shall secure and pay for all construction permits, licenses, and inspections:

- 3.14.1.1 necessary for proper execution and completion of the Work; and
- 3.14.1.2 legally required at time bids are received.

3.15 CONSTRUCTION SCHEDULES

3.15.1 On receipt of Notice to Proceed, Contractor shall promptly prepare and submit construction schedule for the Work for City Engineer's review. The schedule must reflect the minimum time required to complete the Work not to exceed Contract Time.

3.15.2 Contractor shall give 24-hour written notice to City Engineer before commencing work or resuming work where work has been stopped. Contractor shall also give the same notice to inspectors.

3.15.3 Contractor shall incorporate milestones specified in Summary of Work Specification into the construction schedule. Contractor's failure to meet a milestone, as determined by City Engineer, may be considered a material breach of the Contract.

3.15.4 Each month, Contractor shall submit to City Engineer a copy of an updated construction schedule indicating actual progress, incorporating applicable changes, and indicating courses of action required to assure completion of the Work within Contract Time.

3.15.5 Contractor shall keep a current schedule of submittals that coordinates with the construction schedule, and shall submit the initial schedule of submittals to City Engineer for approval.

3.16 DOCUMENTS AND SAMPLES AT THE SITE

3.16.1 Contractor shall maintain at the site, and make available to City Engineer, one record copy of Drawings, Specifications, and Modifications. Contractor shall maintain the documents in good order and marked currently to record changes and selections made during construction. In addition, Contractor shall maintain at the site, approved Shop Drawings, Product Data, Samples, and similar submittals, which will be delivered to City Engineer prior to final inspection as required in Paragraph 9.11.4.

3.16.2 Contractor shall maintain all books, documents, papers, accounting records, and other

relevant documentation pursuant to the Work and shall make the books, documents, papers, and accounting records available to representatives of the City for review and audits during the Contract term and for the greater of three years following Date of Substantial Completion or until all litigation or audits are fully resolved.

3.16.3 Contractor shall provide to City Attorney all documents and records that City Attorney deems necessary to assist in determining Contractor's compliance with the Contract, with the exception of those documents made confidential by federal or state law or regulation.

3.17 *MANUFACTURER'S SPECIFICATIONS*

3.17.1 Contractor shall handle, store, and Install Products and perform all work in the manner required by Product manufacturer. Should the Contract and manufacturer's instructions conflict, Contractor shall report conflict to City Engineer for resolution prior to proceeding with the affected work.

3.17.2 References in the Contract to the manufacturer's specifications, directions, or recommendations, mean manufacturer's current published documents in effect as of date of receipt of bids, or in the case of a Modification, as of date of Modification.

3.18 *SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES*

3.18.1 Shop Drawings, Product Data, and Samples are not part of the Contract. The purpose of Contractor submittals is to demonstrate, for those portions of the Work for which submittals are required, the way Contractor proposes to conform to information given and design concept expressed in the Contract.

3.18.2 Contractor shall submit to Project Manager for review the Shop Drawings, Product Data, and Samples, which are required by the Contract. Review by Project Manager is subject to limitations of Paragraph 4.1.4. Contractor shall transmit the submittals to the Project Manager with reasonable promptness and in a sequence, so as to cause no delay in the Work or in activities of the City or of separate contractors. Contractor shall transmit submittals in time to allow a minimum of 30 days for Project Manager's review prior to date Contractor needs reviewed submittals returned. This time may be shortened for a particular job requirement if approved by Project Manager in advance of submittal.

3.18.3 Contractor shall certify that the content of submittals conforms to the Contract without exception by affixing Contractor's approval stamp and signature. By certifying and submitting Shop Drawings, Product Data, and Samples, Contractor represents, and Contractor's stamp of approval shall state, that Contractor has determined and verified materials, quantities, field measurements, and field construction criteria related to the submittal, and has checked and coordinated information contained within the submittals with requirements of the Contract.

3.18.4 Contractor may not perform any work requiring submittal and review of Shop Drawings, Product Data, or Samples until the submittal has been returned with appropriate review decision by the Project Manager. Contractor shall perform work in accordance with the review.

3.18.5 If Contractor performs any work requiring submittals prior to review and acceptance of the submittals by Project Manager, such work is at Contractor's risk and the City is not obligated to accept work if the submittals are later found to be unacceptable.

3.18.6 If, in the opinion of Project Manager, the submittals are incomplete, or demonstrate an inadequate understanding of the Work or lack of review by the Contractor, then submittals may be returned to the Contractor for correction and resubmittal.

3.18.7 Contractor shall direct specific attention in writing and on the resubmitted Shop Drawings, Product Data, or Samples to any additional proposed revisions, other than those revisions requested by Project Manager on previous submittals.

3.18.8 Contractor is not relieved of responsibility for deviations from requirements of the Contract by Project Manager's review of Shop Drawings, Product Data, or Samples unless Contractor has specifically informed Project Manager in writing of the deviation at the time of the submittal, and Project Manager has given written approval of the deviation.

3.18.9 When professional certification of performance criteria of Products is required by the Contract, the City may rely upon accuracy and completeness of the calculations and certifications.

3.18.10 For Product colors or textures to be selected by the City, Contractor shall submit all

samples together to allow preparation of a complete selection schedule.

3.18.11 Contractor shall submit informational submittals, on which Project Manager is not expected to take responsive action, as required by the Contract.

3.18.12 Submittals made by Contractor which are not required by the Contract may be returned to Contractor without action.

3.19 *CULTURAL RESOURCES AND ENDANGERED SPECIES*

3.19.1 Contractor may not remove or disturb, or cause to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, vestiges, remains, or objects of antiquity. If Contractor discovers one of these items, Contractor shall immediately notify City Engineer and further comply with the requirements of 13 Tex. Admin. Code Chs. 25 and 26 (2002), or successor regulation. Contractor shall protect site and cultural resources from further disturbance until professional examination can be made or until clearance to proceed is authorized in writing by City Engineer.

3.19.2 Should either threatened or endangered plant or animal species be encountered, Contractor shall cease work immediately in the area of encounter and notify City Engineer.

3.20 *CUTTING AND PATCHING*

3.20.1 Contractor is responsible for necessary cutting, fitting, and patching to accomplish the Work and shall suitably support, anchor, attach, match, and trim or seal materials to work of other contractors. Contractor shall coordinate the Work with work of other contractors to minimize conflicts, as provided in Article 6.

3.20.2 Contractor may not endanger work by cutting, digging, or other action, and may not cut or alter work of other contractors except by written consent of City Engineer and affected contractor.

3.21 *CLEANING*

3.21.1 Contractor shall perform daily cleanup of all dirt, debris, scrap materials and other disposable items resulting from Contractor's operations, whether on-site or off-site. Unless otherwise authorized in writing by City Engineer, Contractor shall keep all streets, access streets, driveways, areas of public access, walkways, and other designated areas clean and open at all times.

3.21.2 Failure of Contractor to maintain a clean site, including access streets, is the basis for City Engineer to issue a Notice of Noncompliance. Should compliance not be attained within the time period in the Notice of Noncompliance, City Engineer may authorize necessary cleanup to be performed by others and the cost of the cleanup will be deducted from monies due Contractor.

Contractor shall legally dispose off-site, all waste materials and other excess materials resulting from Contractor's operations.

3.22 *SANITATION*

3.22.1 Contractor shall provide and maintain sanitary facilities at site for use of all construction forces under the Contract. Newly-constructed or existing sanitary facilities may not be used by Contractor.

3.23 *ACCESS TO WORK AND TO INFORMATION*

3.23.1 Contractor shall provide the City, Design Consultant, testing laboratories, and governmental agencies which have jurisdictional interests, access to the Work in preparation and in progress wherever located. Contractor shall provide proper and safe conditions for the access.

3.23.2 If required by City Engineer, Contractor shall furnish information concerning character of Products and progress and manner of the Work, including information necessary to determine cost of the Work, such as number of employees, pay of employees, and time employees worked on various classes of the Work.

3.24 *TRADE SECRETS*

3.24.1 Contractor will not make any claim of ownership of trade secrets as to products used in the Work, or preparation of any mixture for the Work. City Engineer will at all times have the right to demand and Contractor shall furnish information concerning materials or samples of ingredients of any materials used, or proposed to be used, in preparation of concrete placed or other work to be done. Mixtures, once agreed on, shall not be changed in any manner without knowledge and consent of City Engineer. The City will make its best efforts to protect confidentiality of proprietary information.

3.25 *INDEMNIFICATION*

3.25.1 CONTRACTOR AGREES TO AND SHALL DEFEND, INDEMNIFY, AND HOLD THE

CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") HARMLESS FOR ALL CLAIMS, CAUSES OF ACTION, LIABILITIES, FINES, AND EXPENSES (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS AND INTEREST) FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THE CONTRACT INCLUDING, WITHOUT LIMITATION, THOSE CAUSED BY:

3.25.1.1 CONTRACTOR'S AND/OR ITS AGENTS', EMPLOYEES', OFFICERS', DIRECTORS', CONTRACTORS', OR SUBCONTRACTORS' (COLLECTIVELY IN NUMBERED SUBPARAGRAPHS .1 through .3, "CONTRACTOR") ACTUAL OR ALLEGED NEGLIGENCE OR INTENTIONAL ACTS OR OMISSIONS;

3.25.1.2 THE CITY'S AND CONTRACTOR'S ACTUAL OR ALLEGED CONCURRENT NEGLIGENCE, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT;

3.25.1.3 THE CITY'S AND CONTRACTOR'S ACTUAL OR ALLEGED STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT.

CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY HARMLESS DURING THE TERM OF THE CONTRACT AND FOR FOUR YEARS AFTER THE CONTRACT TERMINATES. CONTRACTOR SHALL NOT INDEMNIFY THE CITY FOR THE CITY'S SOLE NEGLIGENCE.

3.25.2 NOTWITHSTANDING ANYTHING TO THE CONTRARY, THE LIABILITY OF CONTRACTOR FOR THE CITY'S CONCURRENT NEGLIGENCE SHALL NOT EXCEED \$1,000,000.

3.26 *RELEASE AND INDEMNIFICATION – PATENT, COPYRIGHT, TRADEMARK, AND TRADE SECRET INFRINGEMENT*

3.26.1 UNLESS OTHERWISE SPECIFICALLY REQUIRED BY THE CONTRACT, CONTRACTOR AGREES TO AND SHALL RELEASE AND DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") FROM ALL CLAIMS OR CAUSES OF ACTION BROUGHT AGAINST

THE CITY BY ANY PARTY, INCLUDING CONTRACTOR, ALLEGING THAT THE CITY'S USE OF ANY EQUIPMENT, SOFTWARE, PROCESS, OR DOCUMENTS CONTRACTOR FURNISHES DURING THE TERM OF THE CONTRACT INFRINGES ON A PATENT, COPYRIGHT, OR TRADEMARK, OR MISAPPROPRIATES A TRADE SECRET. CONTRACTOR SHALL PAY ALL COSTS (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS, AND INTEREST) AND DAMAGES AWARDED.

3.26.2 CONTRACTOR SHALL NOT SETTLE ANY CLAIM ON TERMS WHICH PREVENT THE CITY FROM USING THE EQUIPMENT, SOFTWARE, PROCESS, OR PRODUCT WITHOUT THE CITY ENGINEER'S PRIOR WRITTEN CONSENT.

3.26.3 UNLESS OTHERWISE SPECIFICALLY REQUIRED BY THE CONTRACT, WITHIN 60 DAYS AFTER BEING NOTIFIED OF THE CLAIM, CONTRACTOR SHALL, AT ITS OWN EXPENSE, EITHER:

3.26.3.1 OBTAIN FOR THE CITY THE RIGHT TO CONTINUE USING THE EQUIPMENT, SOFTWARE, PROCESS, OR PRODUCT, OR

3.26.3.2 IF BOTH PARTIES AGREE, REPLACE OR MODIFY THEM WITH COMPATIBLE AND FUNCTIONALLY EQUIVALENT PRODUCTS.

IF NONE OF THESE ALTERNATIVES IS REASONABLY AVAILABLE, THE CITY MAY RETURN THE EQUIPMENT, SOFTWARE, OR PRODUCT, OR DISCONTINUE THE PROCESS, AND CONTRACTOR SHALL REFUND THE PURCHASE PRICE.

3.27 *INDEMNIFICATION PROCEDURES*

3.27.1 *Notice of Indemnification Claims:* If the City or Contractor receives notice of any claim or circumstances which could give rise to an indemnified loss, the receiving party shall give written notice to the other Party within 10 days. The notice must include the following:

3.27.1.1 a description of the indemnification event in reasonable detail,

3.27.1.2 the basis on which indemnification may be due, and

3.27.1.3 the anticipated amount of the indemnified loss.

This notice does not estop or prevent the City from later asserting a different basis for indemnification or a different amount of indemnified loss than that

indicated in the initial notice. If the City does not provide this notice within the 10-day period, it does not waive any right to indemnification except to the extent that Contractor is prejudiced, suffers loss, or incurs expense because of the delay.

3.27.2 *Defense of Indemnification Claims:*

3.27.2.1 *Assumption of Defense:*

Contractor may assume the defense of the claim at its own expense with counsel chosen by it that is reasonably satisfactory to the City. Contractor shall then control the defense and any negotiations to settle the claim. Within 10 days after receiving written notice of the indemnification request, Contractor must advise the City as to whether or not it will defend the claim. If Contractor does not assume the defense, the City shall assume and control the defense, and all defense expenses constitute an indemnified loss.

3.27.2.2 *Continued Participation:*

If Contractor elects to defend the claim, the City may retain separate counsel to participate in, but not control, the defense and to participate in, but not control, any settlement negotiations. Contractor may settle the claim without the consent or agreement of the City, unless it:

3.27.2.2.1 would result in injunctive relief or other equitable remedies or otherwise require the City to comply with restrictions or limitations that adversely affect the City;

3.27.2.2.2 would require the City to pay amounts that Contractor does not fund in full; or

3.27.2.2.3 would not result in the City's full and complete release from all liability to the plaintiffs or claimants who are parties to or otherwise bound by the settlement.

3.28 CONTRACTOR DEBT

IF CONTRACTOR, AT ANY TIME DURING THE TERM OF THIS AGREEMENT, INCURS A DEBT, AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES, IT SHALL IMMEDIATELY NOTIFY CITY CONTROLLER IN WRITING. IF CITY CONTROLLER BECOMES AWARE THAT CONTRACTOR HAS INCURRED A DEBT, IT SHALL IMMEDIATELY NOTIFY CONTRACTOR IN WRITING. IF CONTRACTOR DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, CITY CONTROLLER MAY

DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE THEREFOR. CONTRACTOR SHALL FILE A NEW AFFIDAVIT OF OWNERSHIP, USING THE FORM DESIGNATED BY CITY, BETWEEN FEBRUARY 1 AND MARCH 1 OF EVERY YEAR DURING THE TERM OF THE CONTRACT.

3.29 *PRESERVATION OF CONTRACTING INFORMATION*

3.29.1 The requirements of Subchapter J, Chapter 552, Texas Government Code, may apply to this Agreement and the Contractor agrees that this Agreement can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter. If the requirements of Subchapter J, Chapter 552, Texas Government Code, apply to this Agreement, then for the duration of this Agreement (including the initial term, any renewal terms, and any extensions), Contractor shall preserve all Contracting Information, as defined by Section 552.003 of the Texas Government Code, related to this Agreement as provided by the records retention requirements applicable to the City pursuant to federal or state law or regulation, city ordinance or city policy, which record retention requirements include but are not limited to those set forth in Chapters 201 and 205 of the Texas Local Government Code and Texas Administrative Code Title 13, Chapter 7. Within five business days after receiving a request from the Director, Contractor shall provide any Contracting Information related to this Agreement that is in the custody or possession of Contractor. Upon the expiration or termination of this Agreement, Contractor shall, at the Director's election, either (a) provide, at no cost to the City, all Contracting Information related to this Agreement that is in the custody or possession of Contractor, or (b) preserve the Contracting Information related to this Agreement as provided by the records retention requirements applicable to the City pursuant to federal or state law or regulation, city ordinance or city policy.

3.29.2 If Contractor fails to comply with any one or more of the requirements of this Section, *PRESERVATION OF CONTRACTING INFORMATION*, or Subchapter J, Chapter 552, Texas Government Code, then, in accordance with and pursuant to the processes and procedures set forth in Sections 552.373 and 552.374 of the Texas Government Code, the Director shall provide notice to the Contractor and may terminate this Agreement. To effect final termination, the Director must notify Contractor in writing with a copy of the notice to the CPO. After receiving the notice, Contractor shall,

unless the notice directs otherwise, immediately discontinue all services under this Agreement, and promptly cancel all orders or subcontracts chargeable to this Agreement.

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

4.1 *CONTRACT ADMINISTRATION*

4.1.1 City Engineer will provide administration of the Contract and City Engineer is authorized to issue Change Orders, Work Change Directives, and Minor Changes in the Work.

4.1.2 City Engineer may act through Project Manager, Design Consultant, or Inspector. When the term "City Engineer" is used in the Contract, action by City Engineer is required unless City Engineer delegates his authority in writing. The City Engineer may not delegate authority to render decisions under Section 4.4.

The City does not have control over or charge of, and is not responsible for, supervision, construction, and safety procedures enumerated in Section 3.3. The City does not have control over or charge of and is not responsible for acts or omissions of Contractor, Subcontractors, or Suppliers.

4.1.3 The City and Design Consultant may attend project meetings and visit the site to observe progress and quality of the Work. The City and Design Consultant are not required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work.

4.1.4 Project Manager will review and approve or take other appropriate action on Contractor's submittals, but only for limited purpose of checking for conformance with information given and design concept expressed in the Contract.

4.1.5 Project Manager's review of the submittals is not conducted for purpose of determining accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation or performance of Products, all of which remain the responsibility of Contractor.

4.1.6 Project Manager's review of submittals does not relieve Contractor of its obligations under Sections 3.3, 3.12, and 3.18. Review does not constitute approval of safety precautions or, unless otherwise specifically stated by Project Manager in writing, of construction means, methods, techniques, sequences, or procedures. Project Manager's

review of a specific item does not indicate approval of an assembly of which the item is a component.

4.1.7 Based on field observations and evaluations, Project Manager will process Contractor's progress payments, certify amounts due Contractor, and issue Certificates for Payment in the amount certified.

4.1.8 Project Manager will receive and forward to City Engineer for his review and records, written warranties and related documents required by the Contract and assembled by Contractor.

4.1.9 Upon written request by Contractor or Project Manager, City Engineer will resolve matters of interpretation of or performance of the Contract, which are not Claims. City Engineer's decisions are final and binding on the Parties.

4.1.10 City Engineer may reject work which does not conform to the Contract.

4.1.11 When City Engineer considers it necessary to implement the intent of the Contract, City Engineer may require additional inspection or testing of work in accordance with Paragraphs 13.6.3 and 13.6.4, whether such work is fabricated, Installed, or completed.

4.2 *COMMUNICATIONS IN ADMINISTRATION OF THE CONTRACT*

4.2.1 Except as otherwise provided in the Contract or when authorized by City Engineer in writing, Contractor shall communicate with Project Manager. Contractor shall communicate with Design Consultant, Design Consultant's subconsultants, and separate contractors through Project Manager. The City will communicate with Subcontractors and Suppliers through Contractor.

4.3 *CLAIMS AND DISPUTES*

4.3.1 *Documentation by Project Manager:* Contractor shall submit Claims, including those alleging an error or omission by Project Manager or Design Consultant, to Project Manager for documentation and recommendation to City Engineer.

4.3.2 *Decision of City Engineer:* Upon submission of Claim by Project Manager or Contractor, City Engineer will resolve Claims in accordance with Section 4.4.

4.3.3 *Time Limits on Claims:* Claims by Contractor must be made within 90 days after occurrence of event giving rise to the Claim.

4.3.4 *Continuing the Contract Performance:* Pending final resolution of a Claim including referral to non-binding mediation, unless otherwise agreed in writing, Contractor shall proceed diligently with the performance of the Contract and the City will continue to make payments in accordance with the Contract.

4.3.4.1 Pending final resolution of a Claim including referral to non-binding mediation, Contractor is responsible for safety and protection of physical properties and conditions at site.

4.3.5 *Claims for Concealed or Unknown Conditions:* Concealed or unknown physical conditions include utility lines, other man-made structures, storage facilities, Pollutants and Pollutant Facilities, and the like, but do not include conditions arising from Contractor operations, or failure of Contractor to properly protect and safeguard subsurface facilities. Concealed conditions also include naturally-occurring soil conditions outside the range of soil conditions identified through geotechnical investigations, but do not include conditions arising from groundwater, rain, or flood.

4.3.5.1 If conditions are encountered at the site which are Underground Facilities or otherwise concealed or unknown conditions which differ materially from:

4.3.5.1.1 those indicated by the Contract; or

4.3.5.1.2 conditions which Contractor could have discovered through site inspection, geotechnical testing, or otherwise;

then Contractor will give written notice to City Engineer no later than five days after Contractor's first observation of the condition and before condition is disturbed. Contractor's failure to provide notice constitutes a waiver of a Claim.

4.3.5.2 City Engineer will promptly investigate concealed or unknown conditions. If City Engineer determines that conditions at the site are not materially different and that no change in Contract Price or Contract Time is justified, City Engineer will notify Contractor in writing, stating reasons. If City Engineer determines the conditions differ materially and cause increase or decrease in Contractor's cost or time required for performance of part of the

Work, City Engineer will recommend an adjustment in Contract Price or Contract Time, or both, as provided in Article 7. Opposition by a Party to the City Engineer's determination must be made within 21 days after City Engineer has given notice of the decision. If the Parties cannot agree on adjustment to Contract Price or Contract Time, adjustment is subject to further proceedings pursuant to Section 4.4.

4.3.6 *Claims for Additional Cost:* If Contractor wishes to make a Claim for increase in Contract Price, Contractor shall give written notice before proceeding with work for which Contractor intends to submit a Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

4.3.6.1 Contractor may file a Claim in accordance with Section 4.4 if Contractor believes it has incurred additional costs, for the following reasons:

4.3.6.1.1 written interpretation of City Engineer;

4.3.6.1.2 order by City Engineer to stop the Work when Contractor is not at fault;

4.3.6.1.3 suspension of the Work by City Engineer;

4.3.6.1.4 termination of the Contract by City Engineer; or

4.3.6.1.5 The City's non-compliance with another provision of the Contract.

4.3.6.2 No increase in Contract Price is allowed for delays or hindrances to the Work, except for direct and unavoidable extra costs to Contractor caused by failure of the City to provide information and services, or to make land and materials available, when required of the City under the Contract. Any increase claimed is subject to the provisions of Section 4.4 and Article 7.

4.3.6.3 The City is not liable for Claims for delay when Date of Substantial Completion occurs prior to expiration of Contract Time.

4.3.7 *Claims for Additional Time:* If Contractor wishes to make a Claim for an increase in Contract Time, Contractor shall give written notice as provided in Section 8.2. In case of continuing delay, only one Claim is necessary.

4.4 *RESOLUTION OF CLAIMS AND DISPUTES*

4.4.1 City Engineer will review Claims and take one or more of the following preliminary actions within 30 days of receipt of Claim:

- 4.4.1.1 submit a suggested time to meet and discuss the Claim with City Engineer;
- 4.4.1.2 reject Claim, in whole or in part, stating reasons for rejection;
- 4.4.1.3 recommend approval of the Claim by the other Party;
- 4.4.1.4 suggest a compromise; or
- 4.4.1.5 take other actions as City Engineer deems appropriate to resolve the Claim.

4.4.2 City Engineer may request additional supporting data from claimant. Party making Claim shall, within 10 days after receipt of City Engineer's request, submit additional supporting data requested by City Engineer.

4.4.3 At any time prior to rendering a written decision regarding a Claim, City Engineer may refer Claim to non-binding mediation. If Claim is resolved, City Engineer will prepare and obtain all appropriate documentation. If Claim is not resolved, City Engineer will take receipt of Claim and begin a new review under Section 4.4.

4.4.4 If Claim is not referred to or settled in non-binding mediation, City Engineer may conduct a hearing and will render a written decision, including findings of fact, within 75 days of receipt of Claim, or a time mutually agreed upon by the Parties in writing. City Engineer may notify Surety and request Surety's assistance in resolving Claim. City Engineer's decision is final and binding on the Parties.

4.5 *CONDITION PRECEDENT TO SUIT; WAIVER OF ATTORNEY FEES AND INTEREST*

4.5.1 A final decision by the City Engineer is a condition precedent to file suit in any jurisdiction for a claim made in connection with this Contract.

4.5.2 Neither the City nor Contractor may recover attorney fees for any claim brought in connection with this Contract.

4.5.3 Neither the City nor the Contractor may recover interest for any damages claim brought in connection with this Contract except as allowed by TEXAS LOCAL GOVERNMENT CODE Chapter 2251.

4.6 *INTERIM PAYMENT WAIVER & RELEASE*

4.6.1 In accordance with section 4.3, the Contractor shall use due diligence in the discovery and submission of any Claim against the City related to the Contractor's work.

4.6.2 The Contractor shall submit any Claim to the City not later than the 90th day after the occurrence of the event giving rise to the Claim.

4.6.3 Any failure to timely comply with the requirements of section 4.6.2 waives and releases any Claim when the Contractor submits an application for payment after the 90th day.

4.6.4 This waiver does not cover any retainage. In case of any conflict of law, this language shall be revised to the minimum extent necessary to avoid legal conflict. This waiver is made specifically for the benefit of the City.

ARTICLE 5 - SUBCONTRACTORS AND SUPPLIERS

5.1 *AWARD OF SUBCONTRACTS OTHER CONTRACTS FOR PORTIONS OF THE WORK*

5.1.1 Contractor may not contract with a Subcontractor, Supplier, person, or entity that City Engineer has made a reasonable and timely objection to.

5.1.2 If City Engineer has a reasonable objection to person or entity proposed by Contractor, Contractor shall propose another with whom City Engineer has no reasonable objection.

5.1.3 Contractor shall execute contracts with approved Subcontractors, Suppliers, persons, or entities before the Subcontractors or Suppliers begin work under the Contract. All such contracts must be executed and sent to the OBO Director and Contracting Department within 30 days after the date of the Notice to Proceed and must include provisions set forth in Articles 3 and 5 of this Document.

5.1.4 Contractor shall notify City Engineer in writing of any proposed change of Subcontractor, Supplier, person, or entity previously accepted by the City.

5.1.5 Contractor shall make timely payments to Subcontractors and Suppliers for performance of

the Contract. Contractor shall protect, defend, and indemnify the City from any claim or liability arising out of Contractor's failure to make the payments. Disputes relating to payment of Business Enterprise Subcontractors or Suppliers will be submitted to arbitration in same manner as other disputes under Business Enterprise subcontracts. Failure of Contractor to comply with decisions of arbitrator may be determined by City Engineer a material breach leading to termination of the Contract.

5.2 CONTRACTOR RESPONSIBILITY FOR SUBCONTRACTORS

5.2.1 Contractor is responsible to the City, as may be required by laws and regulations, for all acts and omissions of Subcontractors, Suppliers, and other persons and organizations performing or furnishing any of the Work under direct or indirect contract with Contractor.

5.2.2 Contractor shall make available to each proposed Subcontractor, prior to execution of subcontract, copies of the Contract to which Subcontractor is bound by this Section 5.2. Contractor shall notify Subcontractor of any terms of proposed subcontract which may be at variance with the Contract.

5.2.3 The City's approval of Subcontractor or Suppliers does not relieve Contractor of its obligation to perform, or to have performed to the full satisfaction of the City, the Work required by the Contract.

5.2.4 Unless there is a contractual relationship between Contractor and a Subcontractor or Supplier to the contrary, Contractor shall withhold no more retainage from Subcontractors or Suppliers than City withholds from Contractor under this Agreement. However, once a Subcontractor or Supplier completes performance, Contractor shall release all retainage to that Subcontractor or Supplier regardless if City continues to retain under this Agreement.

5.2.5 Prior to a Subcontractor or Supplier commencing performance for Contractor, Contractor shall meet with that Subcontractor or Supplier to provide instructions on invoicing procedures, dispute resolution procedures, and statutory rights, such as claim filing procedures under the McGregor Act. Subcontractors and Suppliers must certify to the City Engineer that Contractor has fulfilled the requirements of this Section.

ARTICLE 6 - CONSTRUCTION BY THE CITY OR BY SEPARATE CONTRACTORS

6.1 THE CITY'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The City may perform on-site construction operations related to the Work and as part of the Project with the City's workforce or with separate contractors.

6.2 COORDINATION

6.2.1 The City will coordinate activities of the City's workforce and of each separate contractor with work of Contractor, and Contractor shall cooperate with the City and separate contractors.

6.2.1.1 Contractor shall participate with other separate contractors and the City in reviewing their construction schedules when directed to do so by the Project Manager. Contractor shall make revisions to construction schedule and Contract Price deemed necessary after joint review and mutual agreement. Construction schedules shall then constitute schedules to be used by Contractor, separate contractors, and the City, until subsequently revised.

6.2.2 Contractor shall afford to the City and to separate contractors reasonable opportunity for introduction and storage of their materials and equipment, and for performance of their activities.

6.2.3 If part of Contractor's work depends on proper execution of construction or operations by the City or a separate contractor, Contractor shall, prior to proceeding with that portion of the Work, inspect the other work and promptly report to City Engineer apparent discrepancies or defects in the other construction that would render it unsuitable for the proper execution of the Work. Failure of Contractor to report apparent discrepancies or defects in the other construction shall constitute acknowledgment that the City's or separate contractor's completed or partially completed construction is fit and proper to receive Contractor's work, except as to discrepancies or defects not then reasonably discoverable.

6.3 MUTUAL RESPONSIBILITY

6.3.1 The responsible party bears the costs caused by delays, by improperly timed activities, or by nonconforming construction.

6.3.2 Contractor shall promptly remedy damage caused by Contractor to completed or

partially completed construction or to property of the City or separate contractor.

6.3.3 Claims or disputes between Contractor and other City contractors, or subcontractors of other City contractors, working on the Project must be submitted to binding arbitration in accordance with Construction Industry Arbitration Rules of the American Arbitration Association upon demand by any party to the dispute or by the City.

6.4 *THE CITY'S RIGHT TO CLEAN UP*

6.4.1 If dispute arises among Contractor, separate contractors, and the City as to responsibility under their respective contracts for maintaining premises and surrounding area free from waste materials and rubbish as described in Section 3.21, the City may clean up and allocate cost among those responsible, as determined by City Engineer.

ARTICLE 7 - CHANGES IN THE WORK

7.1 *CHANGES*

7.1.1 Changes in scope of the Work, subject to limitations in Article 7 and elsewhere in the Contract, may be accomplished without invalidating the Contract, or without notifying Surety by:

- 7.1.1.1 Change Order;
- 7.1.1.2 Work Change Directive; or
- 7.1.1.3 Minor Change in the Work.

7.1.2 The following types of Change Orders require City Council approval:

- 7.1.2.1 a single Change Order that exceeds five percent of Original Contract Price,
- 7.1.2.2 a Change Order which, when added to previous Change Orders, exceeds five percent of Original Contract Price,
- 7.1.2.3 a Change Order, in which the total value of increases outside of the general scope of work approved by City Council, when added to increases outside the general scope of work approved by City Council in previous Change Orders, exceeds 40 percent of the Original Contract Price, even if the net increase to the Original Contract Price is five percent or less.

In this context, "increase" means an increase in quantity resulting from the addition of locations not within the scope of work approved by City Council, or the addition of types of goods or services not bid as unit price items.

Nothing in this Section is intended to permit an increase of the Contract Price in excess of

the limit set out in TEX. LOC. GOV'T CODE ANN. §252.048 or its successor statute.

7.1.3 Contractor shall proceed promptly to execute changes in the Work provided in Modifications, unless otherwise stated in the Modification.

7.2 *WORK CHANGE DIRECTIVES*

7.2.1 A Work Change Directive cannot change Contract Price or Contract Time, but is evidence that the Parties agree that a change, ordered by directive, will be incorporated in a subsequently issued Change Order as to its effect, if any, on Contract Price or Contract Time.

7.2.2 Failure by Contractor to commence work identified in a Work Change Directive within the time specified by City Engineer, or to complete the work in a reasonable period of time, may be determined by City Engineer to be a material breach of Contract.

7.2.3 A Work Change Directive is used in the absence of total agreement of the terms of a Change Order. Interim payments are made in accordance with Paragraph 9.6.1.

7.2.4 If Contractor signs a Work Change Directive, then Contractor agrees to its terms including adjustment in Contract Price and Contract Time or method for determining them. Agreement by the Parties to adjustments in Contract Price and Contract Time are immediately recorded as a Change Order.

7.2.5 City Engineer, by Work Change Directive, may direct Contractor to take measures as necessary to expedite construction to achieve Date of Substantial Completion on or before expiration of Contract Time. When the Work is expedited solely for convenience of the City and not due to Contractor's failure to prosecute timely completion of the Work, then Contractor is entitled to an adjustment in Contract Price equal to actual costs determined in accordance with Article 7.

7.3 *ADJUSTMENTS IN CONTRACT PRICE*

7.3.1 Adjustments in Contract Price are accomplished by Change Order and are based on one of the following methods:

- 7.3.1.1 mutual acceptance of fixed price, properly itemized and supported by sufficient data to permit evaluation;
- 7.3.1.2 unit prices stated in the Contract or subsequently agreed upon;

- 7.3.1.3 cost to be determined in a manner agreed upon by the Parties and mutually acceptable fixed or percentage fee; or
- 7.3.1.4 as provided in Paragraph 7.3.2.

7.3.2 If Contractor does not agree with a change in Contract Price or Contract Time or the method for adjusting them specified in the Work Change Directive within 21 days from date of the Work Change Directive's issuance, method and adjustment are determined by City Engineer. If Project Manager or Contractor disagree with City Engineer's determination they then may file a Claim in accordance with Section 4.4.

7.3.2.1 If City Engineer determines a method and adjustment in Contract Price under Paragraph 7.3.2, Contractor shall provide, in a form as City Engineer may prescribe, appropriate supporting data for items submitted under Paragraph 7.3.2. Failure to submit the data within 21 days of request for the data by City Engineer shall

	<u>Overhead</u>	<u>Profit</u>
to Contractor for change in the Work performed by Subcontractors:	10 percent	0 percent
to first tier Subcontractors for change in the Work performed by its Subcontractors:	10 percent	0 percent
to Contractor and Subcontractor for change in the Work performed by their respective firms:	10 percent	5 percent

constitute waiver of a Claim.

- 7.3.2.2 Unless otherwise provided in the Contract, costs for the purposes of this Paragraph 7.3.2 are limited to the following:
 - 7.3.2.2.1 costs of labor, including labor burden as stated below for social security, unemployment insurance, customary and usual fringe benefits required by agreement or custom, and Workers' Compensation insurance;
 - 7.3.2.2.1.1 the maximum labor burden applied to costs of labor for changes in the Work is 55 percent;
 - 7.3.2.2.2 costs of materials, supplies, and equipment, including cost of

- transportation, whether incorporated or consumed;
- 7.3.2.2.3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from Contractor or others, with prior approval of City Engineer;
- 7.3.2.2.4 costs of premiums for Bonds and insurance and permit fees related to the change in the Work;
- 7.3.2.2.5 additional costs of direct supervision of work and field office personnel directly attributable to the change; and
- 7.3.2.2.6 allowances for overhead and profit as stated below.
 - 7.3.2.2.6.1 the maximum allowances for overhead and profit on increases due to Change Orders:
 - 7.3.2.2.6.2 for changes in the Work performed by Contractor and Subcontractors, allowance for overhead and profit are applied to an amount equal to cost of all additions less cost of all deletions to the Work. Allowance for overhead to Contractor and first tier Subcontractors on changes performed by Subcontractors are applied to an amount equal to the sum of all increases to the Work by applicable Subcontractors.

7.3.3 If the City deletes or makes a change, which results in a net decrease in Contract Price, the City is entitled to a credit calculated in accordance with Paragraphs 7.3.1 and 7.3.2 and Subparagraphs 7.3.2.1, and 7.3.2.2.1 through 7.3.2.2.5. When both additions and credits covering related work or substitutions are involved in a change, allowance for overhead and profit is figured on the basis of a net increase, if any, with respect to that change in accordance with Subparagraph 7.3.2.2.6.

7.3.4 When Contractor agrees with the determination made by City Engineer concerning adjustments in Contract Price and Contract Time, or the Parties otherwise reach agreement upon the adjustments, the agreement will be immediately recorded by Change Order.

7.4 MINOR CHANGES IN THE WORK

7.4.1 A Minor Change in Work is binding on the Parties. Contractor shall acknowledge, in a written form acceptable to City Engineer, that there is no change in Contract Time or Contract Price and shall carry out the written orders promptly.

ARTICLE 8 - TIME

8.1 PROGRESS AND COMPLETION

8.1.1 Time is of the essence in the Contract. By executing the Contract, Contractor agrees that Contract Time is a reasonable period for performing the Work.

8.1.2 *Computation of Time:* In computing any period of time prescribed or allowed by the General Conditions, the day of the act, event, or default after which designated period of time begins to run is not to be included. Last day of the period so computed is to be included, unless it is a Sunday or Legal Holiday, in which event the period runs until end of next day which is not a Sunday or Legal Holiday. Sundays and Legal Holidays are considered to be days and are to be included in all other time computations relative to Contract Time.

8.1.3 Contractor may not commence the Work prior to the effective date of insurance and Bonds required by Article 11.

8.1.4 Contractor shall proceed expeditiously and without interruption, with adequate forces, and shall achieve Date of Substantial Completion within Contract Time.

8.1.5 Should progress of the Work fall behind construction schedule, except for reasons stated in Paragraph 8.2.1, Contractor shall promptly submit at the request of Project Manager, updated construction schedule to City Engineer for approval. Contractor's failure to submit updated schedule may, at City Engineer's discretion, constitute a material breach of the Contract. Contractor shall take action necessary to restore progress by working the hours, including night shifts and lawful overtime operations as necessary, to achieve Date of Substantial Completion within Contract Time.

8.1.6 Except in connection with safety or protection of persons or the Work or property at the site or adjacent to the site, and except as otherwise indicated in the Contract, all the Work at the site will be performed Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m. Contractor

may not perform work between 7:00 p.m. and 7:00 a.m., on a Sunday, or on a Legal Holiday, without giving City Engineer 24-hour prior written notice and receiving written consent of City Engineer.

8.2 DELAYS AND EXTENSIONS OF TIME

8.2.1 Contractor may request extension of Contract Time for a delay in performance of work that arises from causes beyond control and without fault or negligence of Contractor. Examples of these causes are:

- 8.2.1.1 acts of God or of the public enemy;
- 8.2.1.2 acts of government in its sovereign capacity;
- 8.2.1.3 fires;
- 8.2.1.4 floods;
- 8.2.1.5 epidemics;
- 8.2.1.6 quarantine restrictions;
- 8.2.1.7 strikes;
- 8.2.1.8 freight embargoes;
- 8.2.1.9 unusually severe weather; and
- 8.2.1.10 discovery of Pollutants or Pollutant Facilities at the site.

8.2.2 For any reason other than those listed in Section 4.3.6.2, if the Contractor's work is delayed in any manner or respect, the Contractor shall have no claim for damages and shall have no right of additional compensation from the City by reason of any delay or increased expense to the Contractor's work, except for an extension of time as provided in this provision.

8.2.3 Contractor may request an extension of Contract Time for delay only if:

- 8.2.3.1 delay is caused by failure of Subcontractor or Supplier to perform or make progress; and
- 8.2.3.2 cause of failure is beyond control of both Contractor and Subcontractor or Supplier.

8.2.4 Claims relating to Contract Time must be made in accordance with Paragraph 4.3.7.

8.2.5 Claims for extending or shortening Contract Time are based on written notice promptly delivered by the Party making Claim to other Party. Claim must accurately describe occurrence generating Claim, and a statement of probable effect on progress of the Work.

8.2.6 Claims for extension of Contract Time are considered only when a Claim is filed within the time limits stated in Paragraph 4.3.3.

- 8.2.6.1 Notwithstanding paragraph 4.3.3, an extension of time for delays under this paragraph may be granted only upon

written application by the Contractor within 48 hours from the claimed delay.

8.2.7 Written notice of Claim must be accompanied by claimant's written statement that adjustment claimed is entire adjustment to which claimant is entitled as a result of the occurrence of the event. When the Parties cannot agree, Claims for adjustment in Contract Time are determined by City Engineer in accordance with Section 4.4.

8.2.8 Adjustments to Contract Time are accomplished by Change Order.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 *UNIT PRICE WORK*

9.1.1 Where the Contract provides that all or part of the Work is based on Unit Prices, the Original Contract Price includes, for all Unit Price work, an amount equal to the sum of Unit Prices times Unit Price Quantities for each separately identified item of Unit Price work.

9.1.2 Each Unit Price includes an amount to cover Contractor's overhead and profit for each separately identified item.

9.1.3 The Contractor may not make a Claim against the City for excess or deficiency in Unit Price Quantities provided in the Contract, except as provided in Subparagraph 9.1.4. Payment at the prices stated in the Contract is in full for the completed work. Contractor is not entitled to additional payment for materials, supplies, labor, tools, machinery and all other expenditures incidental to satisfactory completion of the Work.

9.1.4 City Engineer may increase or decrease quantities of the Work within limitations stated in Paragraph 7.1.2. Contractor is entitled to payment for actual quantities of items provided at Unit Prices set forth in the Contract.

9.1.5 Where the final quantity of work performed by Contractor on Major Unit Price Work item differs by more than 25 percent from quantity of the item stated in the Contract, a Party may request an adjustment in Unit Price, for the portion that differs by more than 25 percent, by a Change Order under Section 7.3.

9.2 *ESTIMATES FOR PAYMENT, UNIT PRICE WORK*

9.2.1 Following the day of each month indicated in the Contract, Project Manager will

prepare a Certificate for Payment for the preceding monthly period based on estimated units of work completed. Prior to preparing Certificate of Payment, Contractor shall have submitted to City Engineer, on a form approved by the Director of the Office of Business Opportunity, evidence satisfactory to the City Engineer of payments made to Subcontractors and Suppliers for the month preceding the month for which the Certificate for Payment is prepared, including evidence of electronic submission of certified payrolls.

9.2.2 Before final completion, City Engineer will review and confirm with Contractor the actual final installed Unit Price quantities. City Engineer's determination of actual final installed Unit Price quantities will be included in the final Certificate for Payment and any previous underpayments and overpayments will be reconciled with the actual final Unit Price quantities. Contractor shall file written notice of intent to appeal, if any, City Engineer's determination within 10 days of receipt of final Certificate for Payment. Upon expiration of the 10-day period, City Engineer's decision is final and binding on the Parties. If Contractor submits notice within the 10-day period, Contractor shall submit a Claim in accordance with Section 4.4.

9.3 *STIPULATED PRICE WORK*

9.3.1 For work contracted on a Stipulated Price basis, 10 days before submittal of first Application for Payment, Contractor shall submit to City Engineer a Schedule of Values allocated to various portions of the Work, prepared in the form and supported by the data as City Engineer may require to substantiate its accuracy. This schedule, as approved by City Engineer, is used as a basis for approval of Contractor's Applications for Payment.

9.4 *APPLICATIONS FOR PAYMENT, STIPULATED PRICE WORK*

9.4.1 For work contracted on a Stipulated Price basis, Contractor shall submit Applications for Payment to City Engineer each month on a form acceptable to City Engineer in accordance with Schedule of Values. Application must indicate percentages of completion of each portion of the Work listed in Schedule of Values as of the end of the period covered by the Application for Payment.

9.4.2 Applications for Payment must be supported by substantiating data as City Engineer may require and must reflect retainages as provided below. Evidence satisfactory to the City Engineer of payments made to Subcontractors and Suppliers for the month preceding the month for which the Application for Payment is submitted must

accompany each Application for Payment on a form approved by the Director of the Office of Business Opportunity. Evidence of electronic submission of certified payrolls must be included. Application must be sworn and notarized.

9.5 *CERTIFICATES FOR PAYMENT*

9.5.1 City Engineer will, within 10 days after the date specified in the Contract for Unit Price work, or upon receipt of Contractor's Application for Payment for Stipulated Price work, issue a Certificate for Payment for work based on amount which City Engineer determines is properly due, with copy to Contractor.

9.5.2 Unless otherwise provided in the Contract, payment for completed work and for properly stored Products is conditioned upon compliance with procedures satisfactory to City Engineer to protect the City's interests. Procedures will include applicable insurance, storage, and transportation to site for materials and equipment stored off-site. Contractor is responsible for maintaining materials and equipment until Date of Substantial Completion.

9.5.3 Contractor shall document its use of Ultra Low Sulfur Diesel Fuel by providing invoices and receipts evidencing Contractor's use.

9.6 *COMPUTATIONS OF CERTIFICATES FOR PAYMENT*

9.6.1 Subject to the provisions of the Contract, the amount of each Certificate for Payment is calculated as follows:

9.6.1.1 that portion of Contract Price allocated to completed work as determined by:

9.6.1.1.1 multiplying the percentage of completion of each portion of the Work listed in the Schedule of Values by the value of that portion of the Work, or

9.6.1.1.2 multiplying Unit Price quantities Installed times the Unit Prices listed in the Contract;

9.6.1.2 plus progress payments for completed work that has been properly authorized by Modifications;

9.6.1.3 less retainage of five percent;

9.6.1.4 plus actual costs, properly substantiated by certified copies of invoices and freight bills, of non-perishable materials and equipment delivered and properly stored, if approved in advance by Project Manager, less 15 percent;

9.6.1.5 less any previous payments by the City.

9.7 *DECISIONS TO WITHHOLD CERTIFICATION*

9.7.1 City Engineer may decline to certify payment and may withhold payment in whole or in part to the extent reasonably necessary to protect the City if, in City Engineer's opinion, there is reason to believe that:

9.7.1.1 nonconforming work has not been remedied;

9.7.1.2 the Work cannot be completed for unpaid balance of Contract Price;

9.7.1.3 there is damage to the City or another contractor;

9.7.1.4 the Work will not be completed within Contract Time and that unpaid balance will not be adequate to cover actual and liquidated damages;

9.7.1.5 probable evidence that third party claims will be filed in court, in arbitration, or otherwise;

9.7.1.6 Contractor has failed to make payments to Subcontractors or Suppliers for labor, material, or equipment; or

9.7.1.7 Contractor has persistently failed to carry out work in accordance with the Contract.

9.7.1.8 Contractor has not paid Subcontractors or Suppliers because of a payment dispute; or

9.7.1.9 Contractor has failed to provide satisfactory evidence described in Paragraphs 9.2.1, 9.4.2, and 9.8.2.

9.7.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.7.3 City Engineer may decline to certify payment and may withhold request for payment in whole or in part upon failure of Contractor to submit initial construction schedule or monthly schedule updates, as required in Paragraphs 3.15.1 and 3.15.3.

9.8 *PROGRESS PAYMENTS*

9.8.1 The City will make payment, in an amount certified by City Engineer, within 20 days after City Engineer has issued a Certificate for Payment.

9.8.2 The City has no obligation to pay or to facilitate the payment to a Subcontractor or Supplier, except as may otherwise be required by law. Contractor shall comply with the prompt payment requirements of Chapter 2251 of the Government Code. State law requires payment of Subcontractors and Suppliers by Contractor within 7

calendar days of Contractor's receipt of payment from the City, unless there is a payment dispute between Contractor and a Subcontractor or Supplier evidenced on a form approved by the Director of Mayor's Office of Business Opportunity and submitted to the City Engineer each month with Application for Payment or Estimate for Payment. **CONTRACTOR SHALL DEFEND AND INDEMNIFY THE CITY FROM ANY CLAIMS OR LIABILITY ARISING OUT OF CONTRACTOR'S FAILURE TO MAKE THESE PAYMENTS.**

9.8.2.1 The City may, upon request and at the discretion of City Engineer, furnish to Subcontractor information regarding percentages of completion or the amounts applied for by Contractor, and action taken thereon by the City because of work done by the Subcontractor.

9.8.2.2 Contractor shall prepare and submit to City Engineer a Certification of Payment to Subcontractors and Suppliers form to be attached to each monthly Estimate for Payment or Application for Payment.

9.8.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Work by the City, does not constitute acceptance of work which is not in accordance with the Contract.

9.9 *DATE OF SUBSTANTIAL COMPLETION*

9.9.1 When Contractor considers the Work, or a portion thereof designated by City Engineer, to be substantially complete, Contractor shall prepare and submit to Project Manager a comprehensive punch list of items to be completed or corrected. Failure to include an item on the punch list does not alter the responsibility of Contractor to comply with the Contract.

9.9.1.1 By submitting the punch list to Project Manager, Contractor represents that work on the punch list will be completed within the time provided for in Subparagraph 9.9.4.3.

9.9.2 Upon receipt of Contractor's punch list, Project Manager will inspect the Work, or designated portion thereof, to verify that the punch list contains all items needing completion or correction. If Project Manager's inspection discloses items not on Contractor's punch list, the items must be added to the punch list of items to be completed or corrected. If Project Manager's inspection reveals that Contractor is not yet substantially complete,

Contractor shall complete or correct the deficiencies and request another inspection by Project Manager. The City may recover the costs of re-inspection from Contractor.

9.9.3 Prior to City Engineer's issuing a Certificate of Substantial Completion, Contractor shall also provide:

9.9.3.1 Certificate of Occupancy for new construction, or Certificate of Compliance for remodeled work, as applicable, and

9.9.3.2 compliance with Texas Accessibility Standards through state inspection of the Work, if required. If Contractor calls for inspection in a timely manner and the inspection is delayed through no fault of Contractor, and City Engineer so confirms, City Engineer may, upon request by Contractor, add the inspection to the punch list in Paragraph 9.9.2 and issue a Certificate of Substantial Completion.

9.9.4 When the Work, or designated portion thereof, is determined by City Engineer to be sufficiently complete in accordance with the Contract so the City can occupy or utilize the Work, or designated portion thereof, for the purpose for which it is intended, City Engineer will prepare a Certificate of Substantial Completion that incorporates the punch list in Paragraph 9.9.2 and establishes:

9.9.4.1 Date of Substantial Completion;

9.9.4.2 responsibilities of the Parties for security, maintenance, heating, ventilating and air conditioning, utilities, damage to the Work, and insurance; and

9.9.4.3 fixed time within which Contractor shall complete all items on punch list of items to be corrected accompanying the certificate.

9.9.5 Warranties required by the Contract shall commence on the Date of Substantial Completion unless otherwise provided by City Engineer in Certificate of Substantial Completion. Warranties may not commence on items not substantially completed.

9.9.6 After Date of Substantial Completion and upon application by Contractor and approval by City Engineer, the City may make payment, reflecting adjustment in retainage, if any, as follows:

9.9.6.1 with the consent of Surety, the City may increase payment to Contractor to 96 percent of Contract Price, less value of items to be completed and accrued liquidated damages.

9.9.7 Contractor shall complete or correct the items in Paragraph 9.9.2 within the time period set out in the Certificate of Substantial Completion. If

Contractor fails to do so, the City may issue a Notice of Noncompliance and proceed according to Section 2.5.

9.10 *PARTIAL OCCUPANCY OR USE*

9.10.1 The City may occupy or use any completed or partially completed portion of the Work at any stage, provided the occupancy or use is consented to by Contractor and Contractor's insurer and authorized by public authorities having jurisdiction over the Work. Consent of Contractor to partial occupancy or use may not be unreasonably withheld.

9.10.2 Immediately prior to the partial occupancy or use, Project Manager and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used to determine and record condition of the Work.

9.10.3 Partial occupancy or use of a portion of the Work does not constitute acceptance of work not in compliance with requirements of the Contract.

9.11 *FINAL COMPLETION AND FINAL PAYMENT*

9.11.1 Contractor shall review the Contract and inspect the Work prior to Contractor notification to City Engineer that the Work is complete and ready for final inspection. Contractor shall submit affidavit that the Work has been inspected and that the Work is complete in accordance with requirements of the Contract.

9.11.2 Project Manager will make final inspection within 15 days after receipt of Contractor's written notice that the Work is ready for final inspection and acceptance. If Project Manager finds the Work has been completed in accordance with the Contract, Contractor shall submit items set out in Paragraph 9.11.4 and, for stipulated price contracts, a final Application for Payment. City Engineer will, within 10 days, issue Certificate of Final Completion stating that to the best of City Engineer's knowledge, information, and belief, the Work has been completed in accordance with the Contract, and will recommend acceptance of the Work by City Council.

9.11.3 Should work be found not in compliance with requirements of the Contract, City Engineer will notify Contractor in writing of items of noncompliance. Upon inspection and acceptance of the corrections by Project Manager, compliance with all procedures of Paragraph 9.11.2, and Contractor's submission of the items set out in Paragraph 9.11.4,

the City Engineer will issue Certificate of Final Completion to Contractor as provided in Paragraph 9.11.2.

9.11.4 Contractor shall submit the following items to City Engineer before City Engineer will issue a Certificate of Final Completion:

9.11.4.1 affidavit that payrolls, invoices for materials and equipment, and other indebtedness of Contractor connected with the Work, less amounts withheld by the City, have been paid or otherwise satisfied. If required by City Engineer, Contractor shall submit further proof including waiver or release of lien or claims from laborers or Suppliers of Products;

9.11.4.2 certificate evidencing that insurance required by the Contract to remain in force after final payment is currently in effect, will not be canceled or materially changed until at least 30 days written notice has been given to the City;

9.11.4.3 written statement that Contractor knows of no substantial reason that insurance will not be renewable to cover correction and warranty period required by the Contract;

9.11.4.4 consent of Surety to final payment; and

9.11.4.5 copies of record documents, maintenance manuals, tests, inspections, and approvals.

Upon City Engineer's issuance of a Certificate of Final Completion, Contractor may request increase in payment to 99 percent of Contract Price, less accrued liquidated damages.

9.11.5 If Contractor fails to submit required items in Paragraph 9.11.4 within 10 days of Project Manager's inspection of the Work under Paragraph 9.11.2 or Paragraph 9.11.3, City Engineer may, but is not obligated to:

9.11.5.1 deduct liquidated damages accrued from monies held;

9.11.5.2 proceed to City Council for acceptance of the Work, minus some or all of the items Contractor fails to submit under Paragraph 9.11.4; and,

9.11.5.3 upon acceptance by City Council of the portion of the Work completed, make final payment as set out in Paragraph 9.11.8.

9.11.6 If final completion is materially delayed through no fault of Contractor, or by issuance of Change Orders affecting date of final completion, and City Engineer so confirms, the City may, upon

application by Contractor and certification by City Engineer, and without terminating the Contract, make payment of balance due for that portion of the Work fully completed and accepted.

9.11.7 If remaining balance due for work not corrected is less than retainage stipulated in the Contract, Contractor shall submit to City Engineer written consent of Surety to payment of balance due for that portion of the Work fully completed and accepted, prior to certification of the payment. The payment is made under terms governing final payment, except that it does not constitute waiver of Claims.

9.11.8 The City will make final payment to Contractor within 30 days after acceptance of the Work by City Council, subject to limitations, if any, as stated in the Contract.

9.11.9 Acceptance of final payment by Contractor shall constitute a waiver of all Claims, whether known or unknown, by Contractor, except those previously made in writing and identified by Contractor as unsettled at the time of final payment.

9.12 *LIQUIDATED DAMAGES*

9.12.1 Contractor, Surety, and the City agree that failure to complete the Work within Contract Time will cause damages to the City and that actual damages from harm are difficult to estimate accurately. Therefore, Contractor, Surety, and the City agree that Contractor and Surety are liable for and shall pay to the City the amount stipulated in Supplementary Conditions as liquidated damages, and that the amount of damages fixed therein is a reasonable forecast of just compensation for harm to the City resulting from Contractor's failure to complete the Work within Contract Time. The amount stipulated will be paid for each day of delay beyond Contract Time until Date of Substantial Completion.

9.12.2 Contractor shall pay the City an amount equal to \$1,200.00 per diesel operating vehicle or piece of motorized equipment per incident of high sulfur diesel fuel usage.

ARTICLE 10 - SAFETY PRECAUTIONS

10.1 *SAFETY PROGRAMS*

10.1.1 Contractor is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with performance of the Contract. Contractor shall submit a safety program to City Engineer prior to mobilizing for the Work, and

is solely responsible for safety, efficiency, and adequacy of ways, means, and methods, and for damage which might result from failure or improper construction, maintenance, or operation performed by Contractor.

10.2 *POLLUTANTS AND POLLUTANT FACILITIES*

10.2.1 If Contractor encounters material on-site which it reasonably believes to be a Pollutant or facilities which it reasonably believes to be a Pollutant Facility, Contractor shall immediately stop work in affected area and immediately notify City Engineer, confirming the notice thereafter in writing.

10.2.2 If City Engineer determines that the material is a Pollutant or facility is a Pollutant Facility, work in affected area may not be resumed except by Modification, and only if the work would not violate applicable laws or regulations.

10.2.3 If City Engineer determines that the material is not a Pollutant or a facility is not a Pollutant Facility, work in affected area will be resumed upon issuance of a Modification.

10.2.4 Contractor is not required to perform, unless authorized by Change Order, work relating to Pollutants or Pollutant Facilities except for that work relating to Pollutants or Pollutant Facilities specified in the Contract.

10.3 *SAFETY OF THE ENVIRONMENT, PERSONS, AND PROPERTY*

10.3.1 Contractor shall take reasonable precautions for safety and shall provide reasonable protection to prevent damage, injury, or loss from all causes, to:

10.3.1.1 employees performing work on-site, and other persons who may be affected thereby;

10.3.1.2 work, including Products to be incorporated into the Work, whether in proper storage, under control of Contractor or Subcontractor; and

10.3.1.3 other property at or adjacent to the site, such as trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal or replacement in course of construction.

10.3.2 Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons, property, or environment.

10.3.2.1 Contractor shall comply with requirements of Underground Facility Damage Prevention and Safety Act TEX. UTIL. CODE ANN. Ch. 251 (Vernon Supp. 2002).

10.3.2.2 Contractor shall comply with all safety rules and regulations of the Federal Occupational Health and Safety Act of 1970 and subsequent amendments (OSHA).

10.3.3 Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection of persons and property, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.3.4 Contractor shall designate responsible member of Contractor's organization at site whose duty is prevention of accidents. This person will be Contractor's Superintendent unless otherwise designated by Contractor in writing to City Engineer.

10.3.5 Contractor shall prevent windblown dust and may not burn or bury trash debris or waste products on-site. Contractor shall prevent environmental pollution, including but not limited to particulates, gases and noise, as a result of the Work.

10.3.6 When use or storage of hazardous materials or equipment, or unusual methods are necessary for execution of the Work, Contractor shall exercise utmost care and carry on the activities under supervision of properly qualified personnel.

10.3.7 Contractor shall promptly remedy damage and loss to property referred to in Subparagraphs 10.3.1.2 and 10.3.1.3, caused in whole or in part by Contractor, or Subcontractors, which is not covered by insurance required by the Contract. Contractor is not required to remedy damage or loss attributable to the City, Design Consultant, or other contractors.

10.4 *EMERGENCIES*

10.4.1 In emergencies affecting safety of persons or property, Contractor shall act at Contractor's discretion to prevent imminent damage, injury, or loss. Additional compensation or extension of time claimed by Contractor because of emergencies are determined as provided in Article 7.

ARTICLE 11 - INSURANCE AND BONDS

11.1 *GENERAL INSURANCE REQUIREMENTS*

11.1.1 With no intent to limit Contractor's liability under indemnification provisions set forth in Paragraphs 3.25 and 3.26, Contractor shall provide and maintain in full force and effect during term of the Contract and all extensions and amendments thereto, at least the following insurance and available limits of liability.

11.1.2 If any of the following insurance is written as "claims made" coverage and the City is required to be carried as additional insured, then Contractor's insurance shall include a two-year extended discovery period after last date that Contractor provides any work under the Contract.

11.1.3 Aggregate amounts of coverage, for purposes of the Contract, are agreed to be amounts of coverage available during fixed 12-month policy period.

11.2 *INSURANCE TO BE PROVIDED BY CONTRACTOR*

11.2.1 *Risks and Limits of Liability:* Contractor shall maintain the insurance coverages in the listed amounts, as set out in Table 1.

11.2.2 If Limit of Liability for Excess Coverage is \$2,000,000 or more, Limit of Liability for Employer's Liability may be reduced to \$500,000.

11.2.3 *Insurance Coverage:* At all times during the term of this Contract and any extensions or renewals, Contractor shall provide and maintain insurance coverage that meets the Contract requirements. Prior to beginning performance under the Contract, at any time upon the Director's request, or each time coverage is renewed or updated, Contractor shall furnish to the Director current certificates of insurance, endorsements, all policies, or other policy documents evidencing adequate coverage, as necessary. Contractor shall be responsible for and pay (a) all premiums and (b) any claims or losses to the extent of any deductible amounts. Contractor waives any claim it may have for premiums or deductibles against the City, its officers, agents, or employees. Contractor shall also require all subcontractors or consultants whose subcontracts exceed \$100,000 to provide proof of insurance coverage meeting all requirements stated above except amount. The amount must be

commensurate with the amount of the subcontract, but no less than \$500,000 per claim.

11.2.4 *Form of insurance:* The form of the insurance shall be approved by the Director and the City Attorney; such approval (or lack thereof) shall never (a) excuse non-compliance with the terms of this Section, or (b) waive or estop the City from asserting its rights to terminate this Contract. The policy issuer shall (1) have a Certificate of Authority to transact insurance business in Texas, or (2) be an eligible non-admitted insurer in the State of Texas and have a Best's rating of at least B+, and a Best's Financial Size Category of Class VI or better, according to the most current Best's Key Rating Guide. Each insurer is subject to approval by City Engineer in City Engineer's sole discretion as to conformance with these requirements.

11.2.5 *Required Coverage:* The City shall be an Additional Insured under this Contract, and all policies except Professional Liability and Worker's Compensation must name the City as an Additional Insured. Contractor waives any claim or right of subrogation to recover against the City, its officers, agents, or employees, and each of Contractor's insurance policies except professional liability must contain coverage waiving such claim. Each policy, except Workers' Compensation and Professional Liability, must also contain an endorsement that the policy is primary to any other insurance available to the Additional Insured with respect to claims arising under this Contract. If professional liability coverage is written on a "claims made" basis, Contractor shall also provide proof of renewal each year for two years after substantial completion of the Project, or in the alternative: evidence of extended reporting period coverage for a period of two years after substantial completion, or a project liability policy for the Project covered by this Contract with a duration of two years after substantial completion.

11.2.6 *Deductibles:* Contractor assumes and bears any claims or losses to extent of deductible amounts and waives any claim it may ever have for same against the City, its officers, agents, or employees.

11.2.7 *Notice:* **CONTRACTOR SHALL GIVE 30 DAYS' ADVANCE WRITTEN NOTICE TO THE DIRECTOR IF ANY OF ITS INSURANCE POLICIES ARE CANCELED OR NON-RENEWED.** Within the 30-day period, Contractor shall provide other suitable policies in order to maintain the required coverage. If Contractor does not comply with this requirement, the Director, at his or her sole discretion, may immediately suspend Contractor from any further performance under this Agreement and begin procedures to terminate for default.

11.2.8 *Subrogation:* Contractor waives any claim or right of subrogation to recover against the City, its officers, agents, or employees. Each policy, except professional liability, must contain an endorsement waiving such claim.

11.2.9 *Endorsement of Primary Insurance:* Each policy, except Workers' Compensation policies, must contain an endorsement that the policy is primary insurance to any other insurance available to additional insured with respect to claims arising hereunder.

11.2.10 *Liability for Premium:* Contractor is solely responsible for payment of all insurance premium requirements hereunder and the City is not obligated to pay any premiums.

11.2.11 *Additional Requirements for Workers' Compensation Insurance Coverage:* Contractor shall, in addition to meeting the obligations set forth in Table 1, maintain throughout the term of the Contract Workers' Compensation coverage as required by statute, and Contractor shall specifically comply with requirements set forth in Paragraph 11.2.10. The definitions set out below shall apply only for purposes of this Paragraph 11.2.10.

11.2.12 Definitions:

11.2.12.1 *Certificate of Coverage:* A copy of certificate of insurance, or coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory Workers' Compensation insurance coverage for Contractor's, Subcontractor's, or Supplier's employees providing services for the duration of the Contract.

11.2.12.2 *Duration of the Work:* Includes the time from Date of Commencement of the Work until Contractor's work under the Contract has been completed and accepted by City Council.

11.2.12.3 *Persons providing services for the Work (Subcontractor in Texas Labor Code § 406.096):* includes all persons or entities performing all or part of services Contractor has undertaken to perform on the Work, regardless of whether that person contracted directly with Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of the entity, or employees of entity which furnishes persons to provide services on the Work. Services include, without

limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to the Work. Services do not include activities unrelated to the Work, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

11.2.13 Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of coverage agreements, which meets the statutory requirements of TEX. LAB. CODE ANN., Section 401.011(44) for employees of Contractor providing services on the Work, for duration of the Work.

11.2.14 Contractor shall provide a Certificate of Coverage to the City prior to being awarded the Contract.

11.2.15 If coverage period shown on Contractor's original Certificate of Coverage ends during duration of the Work, Contractor shall file new Certificate of Coverage with the City showing that coverage has been extended.

11.2.16 Contractor shall obtain from each person providing services on the Work, and provide to City Engineer:

11.2.16.1 Certificate of Coverage, prior to that person beginning work on the Work, so the City will have on file Certificates of Coverage showing coverage for all persons providing services on the Work; and

11.2.16.2 no later than seven days after receipt by Contractor, new Certificate of Coverage showing extension of coverage, if coverage period shown on current Certificate of Coverage ends during the duration of the Work.

11.2.17 Contractor shall retain all required Certificates of Coverage for the duration of the Work and for one year thereafter.

11.2.18 Contractor shall notify City Engineer in writing by certified mail or personal delivery, within 10 days after Contractor knew or should have known, of any change that materially affects provision of coverage of any person providing services on the Work.

11.2.19 Contractor shall post on-site a notice, in text, form and manner prescribed by Texas Workers' Compensation Commission, informing all persons providing services on the Work that they are

required to be covered, and stating how person may verify coverage and report lack of coverage.

11.2.20 Contractor shall contractually require each person with whom it contracts to provide services on the Work to:

11.2.20.1 provide coverage, based on proper reporting of classification codes, payroll amounts and filing of any coverage agreements, which meets statutory requirements of TEX. LAB. CODE ANN., Section 401.011(44) for all its employees providing services on the Work, for the duration of the Work;

11.2.20.2 provide to Contractor, prior to that person's beginning work on the Work, a Certificate of Coverage showing that coverage is being provided for all employees of the person providing services on the Work, for the duration of the Work;

11.2.20.3 provide Contractor, prior to the end of the coverage period, a new Certificate of Coverage showing extension of coverage, if the coverage period shown on the current Certificate of Coverage ends during the duration of the Work;

11.2.20.4 obtain from each other person with whom it contracts, and provide to Contractor: (1) Certificate of Coverage, prior to other person's beginning work on the Work; and (2) new Certificate of Coverage showing extension of coverage, prior to end of coverage period, if coverage period shown on the current Certificate of Coverage ends during duration of the Work.

11.2.20.5 retain all required Certificates of Coverage on file for the duration of the Work and for one year thereafter;

11.2.20.6 notify City Engineer in writing by certified mail or personal delivery within 10 days after person knew, or should have known, of change that materially affects provision of coverage of any person providing services on the Work; and

11.2.20.7 contractually require each person with whom it contracts to perform as required by Paragraphs 11.2.10.1 through 11.2.10.7, with Certificates of Coverage to be provided to person for whom they are providing services.

11.2.21 By signing the Contract or providing or causing to be provided a Certificate of Coverage, Contractor is representing to the City that all

employees of Contractor who will provide services on the Work will be covered by Workers' Compensation coverage for the duration of the Work, that coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with appropriate insurance carrier. Contractor is not allowed to self-insure Workers' Compensation. Contractor may be subject to administrative penalties, criminal penalties, civil penalties, or other civil actions for providing false or misleading information.

11.2.22 Contractor's failure to comply with Paragraph 11.2.10 is a breach of the Contract by Contractor, which entitles the City to declare the Contract void if Contractor does not remedy breach within 10 days after receipt of notice of breach from City Engineer.

11.2.23 *Subcontractor Insurance Requirements:* Contractor shall require Subcontractors and Suppliers to obtain Commercial General Liability, Workers' Compensation, Employer's Liability and Automobile Liability coverage that meets all the requirements of Paragraph 11.2. The amount must be commensurate with the amount of the subcontract, but not less than \$500,000 per occurrence. Contractor shall require all Subcontractors with whom it contracts directly, whose subcontracts exceed \$100,000, to provide proof of Commercial General Liability and Automobile Liability insurance coverage meeting the above requirements. Contractor shall comply with all requirements set out under Paragraph 11.2.10 as to Workers' Compensation Insurance for all Subcontractors and Suppliers.

TABLE 1
REQUIRED COVERAGE

Coverage	Limit of Liability
1. Workers' Compensation	<ul style="list-style-type: none"> Texas Statutory Limits for Workers' Compensation
2. Employer's Liability	<ul style="list-style-type: none"> Bodily Injury by Accident \$1,000,000 (each accident) Bodily Injury by Disease \$1,000,000 (policy limit) Bodily Injury by Disease \$1,000,000 (each employee)
3. Commercial General Liability: Including Broad Form Property Damage, Contractual Liability, Explosion, Underground and Collapse, Bodily Injury, Personal Injury, Products, and Completed Operations (for a period of one year following completion of the Work).	<ul style="list-style-type: none"> \$1,000,000 Limit (each occurrence), subject to general aggregate Limit of \$2,000,000 Products and Completed Operations \$2,000,000 aggregate Limit
4. Owner's and Contractor's Protective Liability	<ul style="list-style-type: none"> \$1,000,000 each Occurrence/ aggregate
5. Installation Floater (Unless alternative coverage approved by City Attorney)	<ul style="list-style-type: none"> Value of stored material or equipment, listed on Certificates of Payments, but not yet incorporated into the Work
6. Automobile Liability Insurance: (For automobiles furnished by Contractor in course of his performance under the Contract, including Owned, Non-owned, and Hired Auto coverage)	<ul style="list-style-type: none"> \$1,000,000 combined single limit each occurrence for (1) Any Auto or (2) All Owned, Hired, and Non-Owned Autos
7. Excess Coverage	<ul style="list-style-type: none"> \$1,000,000 each occurrence/ aggregate in excess of limits specified for Commercial General Liability, and Automobile Liability
Aggregate Limits are per 12-month policy period unless otherwise indicated.	

11.3 *PROOF OF INSURANCE*

11.3.1 Prior to commencing services and at time during the term of the Contract, Contractor shall furnish City Engineer with Certificates of Insurance, along with Affidavit from Contractor confirming that

Certificate accurately reflects insurance coverage that is available during term of the Contract. If requested in writing by City Engineer, Contractor shall furnish City Engineer with certified copies of Contractor's actual insurance policies. Failure of Contractor to provide certified copies, as requested, may be deemed, at City Engineer's or City Attorney's discretion, a material breach of the Contract.

11.3.2 Notwithstanding the proof of insurance requirements, Contractor shall continuously maintain in effect required insurance coverage set forth in Paragraph 11.2. Failure of Contractor to comply with this requirement does constitute a material breach by Contractor allowing the City, at its option, to immediately suspend or terminate work, or exercise any other remedy allowed under the Contract. Contractor agrees that the City has not waived or is not estopped to assert a material breach of the Contract because of any acts or omissions by the City regarding its review or non-review of insurance documents provided by Contractor, its agents, employees, or assigns.

11.3.3 Contractor shall provide updated certificates of insurance to the Director upon request. The Contractor shall be responsible for delivering a current certificate of insurance in the proper form to the Director as long as Contractor is required to furnish insurance coverage under Paragraph 11.2.

11.3.4 Every certificate of insurance Contractor delivers in connection with this Contract shall

- 11.3.4.1 be less than 12 months old;
- 11.3.4.2 include all pertinent identification information for the Insurer, including the company name and address, policy number, NAIC number or AMB number, and authorized signature;
- 11.3.4.3 include in the Certificate Holder Box the Project name and reference numbers, contractor's email address, and indicates the name and address of the Project Manager;
- 11.3.4.4 include the Contractor's email address in the Certificate Holder Box;
- 11.3.4.5 include the Project reference numbers on the City address so the Project reference number is visible in the envelope window; and
- 11.3.4.6 be appropriately marked to accurately identify all coverages and limits of the policy, effective and expiration dates, and waivers of subrogation in favor of the City for Commercial General Liability, Automobile Liability, and

Worker's Compensation/Employers' Liability.

11.4 *PERFORMANCE AND PAYMENT BONDS*

11.4.1 For Contracts over the value of \$25,000, Contractor shall provide Bonds on the City's standard forms covering faithful performance of the Contract and payment of obligations arising thereunder as required in the Contract pursuant to Chapter 2253 of the Government Code. The Bonds must be for 100 percent of Original Contract Price and in accordance with conditions stated on standard City Performance and Payment Bond and Statutory Payment Bond forms. Bonds may be obtained from Contractor's usual source and cost for the Bonds are included in Contract Price.

11.5 *MAINTENANCE BONDS*

11.5.1 *One-year Maintenance Bond:* Contractor shall provide Bond on standard City One-year Maintenance Bond form, providing for Contractor's correction, replacement, or restoration of any portion of the Work which is found to be not in compliance with requirements of the Contract during one-year correction period required in Paragraph 12.2. The Maintenance Bond must be for 100 percent of the Original Contract Price.

11.6 *SURETY*

11.6.1 A Bond that is given or tendered to the City pursuant to the Contract must be executed by a surety company that is authorized and admitted to write surety Bonds in the State of Texas.

11.6.2 If a Bond is given or tendered to the City pursuant to the Contract in an amount greater than 10 percent of Surety's capital and surplus, Surety shall provide certification that Surety has reinsured that portion of the risk that exceeds 10 percent of Surety's capital and surplus. The reinsurance must be with one or more reinsurers who are duly authorized, accredited, or trusted to do business in the State of Texas. The amount reinsured by reinsurer may not exceed 10 percent of reinsurer's capital and surplus. The amount of allowed capital and surplus must be based on information received from State Board of Insurance.

11.6.3 If the amount of a Bond is greater than \$100,000, Surety shall:

- 11.6.3.1 also hold certificate of authority from the United States Secretary of Treasury to qualify as surety on

obligations permitted or required under federal law; or,

11.6.3.2 Surety may obtain reinsurance for any liability in excess of \$100,000 from reinsurer that is authorized and admitted as a reinsurer in the State of Texas and is the holder of a certificate of authority from the United States Secretary of the Treasury to qualify as surety or reinsurer on obligations permitted or required under federal law.

11.6.4 Determination of whether Surety on the Bond or the reinsurer holds a certificate of authority from the United States Secretary of the Treasury is based on information published in Federal Register covering the date on which Bond was executed.

11.6.5 Each Bond given or tendered to the City pursuant to the Contract must be on City forms with no changes made by Contractor or Surety, and must be dated, executed, and accompanied by power of attorney stating that the attorney in fact executing such the bond has requisite authority to execute such Bond. The Bonds must be dated and must be no more than 30 days old.

11.6.6 Surety shall designate in its Bond, power of attorney, or written notice to the City, an agent resident in Harris County to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of the suretyship.

11.6.7 Contractor shall furnish information to a payment bond beneficiary as required by TEX. GOV'T CODE ANN. CH. 2253.

11.7 DELIVERY OF BONDS

11.7.1 Contractor shall deliver required Bonds to the City within time limits stated in Notice of Intent to Award and prior to Date of Commencement of the Work.

ARTICLE 12 - UNCOVERING AND CORRECTION OF THE WORK

12.1 UNCOVERING OF THE WORK

12.1.1 If a portion of the Work has been covered which City Engineer has not specifically requested to observe prior to its being covered, City Engineer may request to see such work and it must be uncovered by Contractor. If such work is in accordance with the Contract, the costs of uncovering and covering such work are charged to the City by Change Order. If such work is not in accordance with the Contract, Contractor shall pay

for uncovering and shall correct the nonconforming Work promptly after receipt of Notice of Noncompliance to do so.

12.2 CORRECTION OF THE WORK

12.2.1 Contractor shall promptly correct or remove work rejected by City Engineer or work failing to conform to requirements of the Contract, whether observed before or after Date of Substantial Completion and whether fabricated, Installed, or completed.

12.2.2 Contractor bears costs of correcting the rejected or nonconforming work including additional testing and inspections, and compensation for Design Consultant's services and expenses made necessary thereby.

12.2.3 If within one year after Date of Substantial Completion, or after date for commencement of warranties established under Paragraph 9.9.5 or by other applicable special warranty required by the Contract, whichever is later in time, any of the Work is found not to be in accordance with the requirements of the Contract, Contractor shall correct such work promptly after receipt of Notice of Noncompliance to do so.

12.2.4 One-year correction period for portions of the Work completed after Date of Substantial Completion will begin on the date of acceptance of that portion of the Work. This obligation under this Paragraph survives acceptance of the Work under the Contract and termination of the Contract.

12.2.5 The one-year correction period does not establish a duration for the Contractor's general warranty under Paragraph 3.12. The City retains the right to recover damages from the Contractor as long as may be permitted by the applicable statute of limitations.

12.2.6 If Contractor does not proceed with correction of the nonconforming work within time fixed by Notice of Noncompliance, the City may correct nonconforming work or remove nonconforming work and store salvageable Products at Contractor's expense. Contractor shall pay the costs of correction of nonconforming work and removal and storage of salvageable Products to the City. If Contractor does not pay costs of the correction or removal and storage within 10 days after written notice, the City may sell the Products at auction or at private sale. The City will account for proceeds thereof after deducting costs and damages that would have been borne by Contractor, including compensation for services of Design Consultant and necessary expenses. If the proceeds of sale do not cover costs which Contractor should have borne,

Contractor shall pay the value of the deficiency to the City.

12.2.7 Contractor bears cost of correcting work originally installed by Contractor, the City, or by separate contractors and damaged by Contractor's correction or removal of Contractor's work.

12.3 *ACCEPTANCE OF NONCONFORMING WORK*

12.3.1 If City Engineer prefers to accept work which is not in accordance with requirements of the Contract, City Engineer may do so only by issuance of Change Order, instead of requiring its removal and correction. City Engineer will determine Contract Price reduction. The reduction will become effective even if final payment has been made.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.1 *GOVERNING LAW AND VENUE*

13.1.1 This Contract shall be construed and interpreted in accordance with the applicable laws of the State of Texas and City of Houston. Venue for any disputes relating in any way to this Contract shall lie exclusively in Harris County, Texas.

13.2 *SUCCESSORS*

13.2.1 The Contract binds and benefits the Parties and their legal successors and permitted assigns; however, this Paragraph 13.2.1 does not alter the restrictions on assignment and disposal of assets set out in Paragraph 13.3.1. The Contract does not create any personal liability on the part of any officer or agent of the City.

13.3 *BUSINESS STRUCTURE AND ASSIGNMENTS*

13.3.1 Contractor may not assign the Contract at law or otherwise, or dispose of all or substantially all of its assets without City Engineer's prior written consent. Nothing in this Section, however, prevents the assignment of accounts receivable or the creation of a security interest as described in §9.406 of the Texas Business & Commerce Code. In the case of such an assignment, Contractor shall immediately furnish the City with proof of the assignment and the name, telephone number, and address of the assignee and a clear identification of the fees to be paid to the assignee.

13.3.2 Any series, as defined by the TEX. BUS. ORG. CODE ANN., affiliate, subsidiary, or successor to

which Contractor assigns or transfers assets shall join in privity and be jointly and severally liable under this Contract.

13.4 *WRITTEN NOTICE*

13.4.1 All notices required or permitted by the Contract must be in writing and must be effected by hand delivery; registered or certified mail, return receipt requested; or facsimile with confirmation copy mailed to receiving Party. Notice is sufficient if made or addressed with proper postage to the address stated in the Agreement for each Party ("Notice Address") or faxed to the facsimile number stated in the Agreement for each Party. The notice is deemed delivered on the earlier of:

13.4.1.1 the date the Notice is actually received;

13.4.1.2 the third day following deposit in a United States Postal Service post office or receptacle; or

13.4.1.3 the date the facsimile is sent unless the facsimile is sent after 5:00 p.m. local time of the recipient and then it is deemed received on the following day.

Any Party may change its Notice Address or facsimile number at any time by giving written notice of the change to the other Party in the manner provided for in this Paragraph at least 15 days prior to the date the change is affected.

13.5 *RIGHTS AND REMEDIES*

13.5.1 Duties and obligations imposed by the Contract and rights and remedies available thereunder are in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

13.5.2 No act or failure to act by the City or Contractor is a waiver of rights or duties afforded them under the Contract, nor is the act or failure to act constitute approval of or acquiescence in a breach of the Contract. No waiver, approval or acquiescence is binding unless in writing and, in the case of the City, signed by City Engineer.

13.6 *TESTS AND INSPECTIONS*

13.6.1 Contractor shall give City Engineer, Construction Manager, and Design Consultant timely notice of the time and place where tests and inspections are to be made. Contractor shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.6.2 The City will employ and pay for services of an independent testing laboratory to

perform inspections or acceptance tests required by the Contract except:

- 13.6.2.1 inspections or tests covered by Paragraph 13.6.3;
- 13.6.2.2 those otherwise specifically provided in the Contract; or
- 13.6.2.3 costs incurred in connection with tests or inspections conducted pursuant to Paragraph 12.2.2.

13.6.3 Contractor is responsible for and shall pay all costs in connection with inspection or testing required in connection with City Engineer's acceptance of a Product to be incorporated into the Work, or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation into the Work.

13.6.4 Neither observations by the City, Construction Manager, or Design Consultant, nor inspections, tests, or approvals by others, relieves Contractor from Contractor's obligations to perform the Work in accordance with the Contract.

13.7 *INTEREST*

13.7.1 No interest will accrue on late payments by the City except as provided under Chapter 2251 of the Government Code.

13.8 *PARTIES IN INTEREST*

13.8.1 The Contract does not bestow any rights upon any third party, but binds and benefits the Parties only.

13.9 *ENTIRE CONTRACT*

13.9.1 The Contract merges the prior negotiations and understandings of the Parties and embodies the entire agreement of the Parties. No other agreements, assurances, conditions, covenants, express or implied, or other terms of any kind, exist between the Parties regarding the Contract.

13.10 *WRITTEN AMENDMENT*

13.10.1 Changes to the Contract that cannot be effected by Modifications, must be made by written amendment, which will not be effective until approved by City Council.

13.11 *COMPLIANCE WITH LAWS*

13.11.1 Contractor shall comply with the Americans with Disabilities Act of 1990 as amended (ADA) and Texas Architectural Barriers Act and all regulations relating to either statute.

13.11.2 Contractor shall comply with all applicable federal, state, and city laws, rules and regulations.

13.12 *SEVERABILITY*

13.12.1 If any part of the Contract is for any reason found to be unenforceable, all other parts remain enforceable to the extent permitted by law.

13.13 *COMPLIANCE WITH CERTAIN STATE LAW REQUIREMENTS*

13.13.1 *Anti-Boycott of Israel.* Contractor certifies that Contractor is not currently engaged in, and agrees for the duration of this Agreement not to engage in, the boycott of Israel as defined by Section 808.001 of the Texas Government Code.

13.13.2 *Anti-Boycott of Energy Companies.* Contractor certifies that Contractor is not currently engaged in, and agrees for the duration of this Agreement not to engage in, the boycott of energy companies as defined by Section 809.001 of the Texas Government Code.

13.13.3 *Anti-Boycott of Firearm Entities or Firearm Trade Associations.* Contractor certifies that Contractor does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, or will not discriminate against a firearm entity or firearm trade association for the duration of this Agreement, as defined by Section 2274.001 of the Texas Government Code.

13.13.4 *Certification of No Business with Foreign Terrorist Organizations.* For purposes of Section 2252.152 of the Code, Contractor certifies that, at the time of this Agreement neither Contractor nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor, is a company listed by the Texas Comptroller of Public Accounts under Sections 2252.153 or 2270.0201 of the Code as a company known to have contracts with or provide supplies or to a foreign terrorist organization.

13.14 *ZERO TOLERANCE POLICY FOR HUMAN TRAFFICKING & RELATED ACTIVITIES*

13.14.1 The requirements and terms of the City of Houston's Zero Tolerance Policy for Human Trafficking and Related Activities, as set forth in Executive Order 1-56, as revised from time to time, are incorporated into this Agreement for all purposes. Contractor has reviewed Executive

Order 1-56, as revised, and shall comply with its terms and conditions as they are set out at the time of this Agreement's effective date. Contractor shall notify the City's Chief Procurement Officer, City Attorney, and the Director of any information regarding possible violation by the Contractor or its subcontractors providing services or goods under this Agreement.

**ARTICLE 14 - TERMINATION OR SUSPENSION
OF THE CONTRACT**

14.1 TERMINATION BY THE CITY FOR CAUSE

14.1.1 Each of the following acts or omissions of Contractor or occurrences shall constitute an "Event of Default" under the Contract:

- 14.1.1.1 Contractor refuses or fails to supply enough properly skilled workers or proper Products;
- 14.1.1.2 Contractor disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction;
- 14.1.1.3 Contractor is guilty of material breach of any duty or obligation of Contractor under the Contract, including, but not limited to, failure to submit certified payrolls electronically;
- 14.1.1.4 Contractor has had any other contract with the City terminated for cause at any time subsequent to the effective date of the Contract as set out in the Agreement; or
- 14.1.1.5 Contractor fails to utilize Ultra Low Sulfur Diesel Fuel, as required in Paragraph 3.9.1.1.

14.1.2 If an Event of Default occurs, City Engineer may, at his option and without prejudice to any other rights or remedies which the City may have, deliver a written notice to Contractor and Surety describing the Event of Default and giving the Contractor 10 days to cure the Event of Default. If after the cure period, Contractor has failed or refused to cure the Event of Default, then City Engineer may deliver a second written notice to Contractor giving notice of the termination of the Contract or of the termination of Contractor's performance under the Contract ("Notice of Termination"). If City Engineer issues a Notice of Termination, then City Engineer may, subject to any prior rights of Surety and any other rights of the City under the Contract or at law:

- 14.1.2.1 request that Surety complete the Work; or

14.1.2.2 take possession of the site and all materials, equipment, tools, and construction equipment and machinery on the site owned by Contractor; and

14.1.2.3 finish the Work by whatever reasonable method City Engineer may deem expedient.

14.1.3 After Contractor's receipt of a Notice of Termination, and except as otherwise directed in writing by City Engineer, Contractor shall:

14.1.3.1 stop the Work on the date and to the extent specified in the Notice of Termination;

14.1.3.2 place no further orders or subcontracts for Products or services;

14.1.3.3 terminate all orders and subcontracts to the extent that they relate to performance of work terminated;

14.1.3.4 assign to the City, in the manner, at the times, and to the extent directed by City Engineer, all rights, title, and interest of Contractor, under the terminated supply orders and subcontracts. The City may settle or pay claims arising out of termination of the orders and subcontracts;

14.1.3.5 settle all outstanding liabilities and all claims arising out of the termination of supply orders and subcontracts with approval of City Engineer;

14.1.3.6 take action as may be necessary, or as City Engineer may direct, for protection and preservation of property related to the Work that is in possession of Contractor, and in which the City has or may acquire an interest; and

14.1.3.7 secure the Work in a safe state before leaving the site, providing any necessary safety measures, shoring, or other devices.

14.1.4 If the City terminates the Contract or terminates Contractor's performance under the Contract for any one or more of the reasons stated in Paragraph 14.1.1, Contractor may not receive any further payment until the Work is complete, subject to Paragraph 14.1.5.

14.1.5 If the unpaid balance of Contract Price exceeds the costs of finishing the Work, including liquidated damages and other amounts due under the Contract, the balance will be paid to Contractor. If the costs of finishing the Work exceed the unpaid balance, Contractor shall, within 10 days of receipt of written notice setting out the amount of the excess costs, pay the difference to the City. The amount to

be paid to Contractor or the City will be certified by City Engineer in writing, and this obligation for payment shall survive termination of the Contract or termination of Contractor's performance under the Contract. Termination of the Contractor for cause shall not relieve the Surety from its obligation to complete the project.

14.2 TERMINATION BY THE CITY FOR CONVENIENCE

14.2.1 City Engineer may, without cause and without prejudice to other rights or remedies of the City, give Contractor and Surety a Notice of Termination with a seven days written notice.

14.2.2 After receipt of the Notice of Termination, and except as otherwise approved by City Engineer, Contractor shall conform to requirements of Paragraph 14.1.3.

14.2.3 After receipt of the Notice of Termination, Contractor shall submit and substantiate to the City its termination Claim, in forms required by City Engineer. The Claim will be submitted and substantiated to the City promptly, but no later than six months from the effective date of termination, unless one or more extensions are granted by City Engineer in writing. If Contractor fails to submit its termination Claim within the time allowed, in accordance with Paragraph 14.2.4, City Engineer will determine, on the basis of available information, the amount, if any, due to Contractor because of termination, and City Engineer's determination is final and binding on the Parties. The City will then pay to Contractor the amount so determined.

14.2.4 City Engineer will determine, on the basis of information available to City Engineer, the amount due, if any, to Contractor for the termination as follows:

14.2.4.1 Contract Price for all work performed in accordance with the Contract up to the date of termination determined in the manner prescribed for monthly payments in Article 9, except no retainage is withheld by the City either for payment determined by percentage of completion or for materials and equipment delivered to the site, in storage or in transit.

14.2.4.2 Reasonable termination expenses, including costs for settling and paying Subcontractor and Supplier claims arising out of termination of the Work, reasonable cost of preservation and protection of the City's property after termination, if required, and the cost of Claim preparation. Termination expenses do not include field or central office

overhead, salaries of employees of Contractor, or litigation costs, including attorneys' fees.

No amount is allowed for anticipated profit or central office overhead on uncompleted work, or any cost or lost profit for other business of Contractor alleged to be damaged by the termination.

14.2.5 Contractor shall promptly remove from the site any construction equipment, tools, and temporary facilities, except the temporary facilities which City Engineer may wish to purchase and retain.

14.2.6 Contractor shall cooperate with City Engineer during the transition period.

14.2.7 The City will take possession of the Work and materials delivered to the site, in storage, or in transit, as of date or dates specified in the Notice of Termination, and is responsible for maintenance, utilities, security, and insurance, as stated in Notice of Termination.

14.3 SUSPENSION BY THE CITY FOR CONVENIENCE

14.3.1 City Engineer may, without cause, after giving Contractor and Surety 24-hour prior written notice, order Contractor to suspend, delay, or interrupt the Work in whole or in part for a period of time as City Engineer may determine.

14.3.2 An adjustment will be made in Contract Time equivalent to the time of suspension.

14.3.3 Adjustment will be made to Contract Price for increases in the cost of performance of the Work, including profit on increased cost of performance caused by suspension, delay, or interruption of the Work in accordance with Paragraph 7.3. No adjustment will be made to the extent that:

14.3.3.1 performance was, or would have been, suspended, delayed, or interrupted by another cause for which Contractor is responsible; or

14.3.3.2 adjustment is made or denied under another provision of the Contract.

14.4 TERMINATION BY CONTRACTOR

14.4.1 Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of Contractor, directly related to one of these events:

14.4.1.1 issuance of an order of a court or other public authority having jurisdiction;

14.4.1.2 act of government, such as a declaration of national emergency which makes material unavailable; or

14.4.1.3 if repeated suspensions, delays, or interruptions by the City as described in Paragraph 14.3 constitute, in the aggregate, more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less;

No termination will be effective for the above reasons if Contractor delivers written notice to City Engineer describing the reason for termination, giving the proposed termination date, and granting the City a reasonable opportunity to respond and cure any City default before termination is effective.

14.4.2 If the Contract is terminated pursuant to this Paragraph 14.4, Contractor shall comply with the requirements of Paragraphs 14.2.2 through 14.2.7.

[END OF DOCUMENT]

Document 00800

SUPPLEMENTARY CONDITIONS

Project Manager: **Robert Lengefeld**

Project No.: **PN209A**

The following Paragraphs amend and supplement the March 7, 2022 edition of the General Conditions. Unaltered portions of General Conditions remain in effect.

ARTICLE 1 - GENERAL PROVISIONS:

1.1 *DEFINITIONS: Insert the following Paragraphs 1.1.9.1, 1.1.23, and 1.1.25, and reorder the remaining definitions accordingly. Please insert the amended definition of "Specifications".*

1.1.9.1 The firm of
the City as Construction Manager for the Work. **(N/A)** has been employed by

1.1.23 *Good Faith Efforts:* Steps taken to achieve an MBE, WBE, SBE, or PDBE goal or other requirements which, by their scope, intensity, and usefulness, demonstrate the bidder's responsiveness to fulfill the business opportunity objective, as well as the Contractor's responsibility to put forth measures to meet or exceed the MBE, WBE, SBE, or PDBE goal (Contract Goal). These steps apply from before a contract's award, through its duration, and after its conclusion, in the event the Contractor has been unsuccessful in meeting the Contract Goal. These efforts are required whether a Goal Oriented Contract or a Regulated Contract, as defined in the Office of Business Opportunity's Policy & Procedures Manual, available at <http://www.houstontx.gov/obo>.

1.1.25 *Incidental Work:* Work described as incidental shall be work defined in Document 01110 - Summary of Work, that do not have a direct pay item listed in the Document 00410B - Bid Form Part B, or less than 1% of the Contract Price and not capable of being measured. If Work is identified as Incidental Work and also covered by Bid Form Part B

quantities, then the unit price item quantities in the Bid Form Part B shall govern.

1.1.45 *Specifications:* Divisions **01** through **33** of the documents that are incorporated into the Agreement, consisting of written General Requirements and requirements for Products, standards, and workmanship for the Work, and performance of related services. All specifications are amended to include, under the Measurement and Payment Section, the following sentence: "Work described as Incidental Work shall not be paid as a separate unit price item."

ARTICLE 3 - THE CONTRACTOR

3.5 *LABOR: Insert the following Paragraphs, 3.5.3.1.1, 3.5.3.1.2, and 3.5.3.1.3.*

3.5.3.1.1 If the Original Contract Price is greater than One Million Dollars, Contractor shall make Good Faith Efforts to comply with the City ordinances regarding Minority Business Enterprises (MBE), Women Business Enterprises (WBE), Persons with Disabilities Business Enterprises (PDBE) and Small Business Enterprise (SBE) participation goals which are as follows:

3.5.3.1.1.1 the MBE goal is **26%** percent,

3.5.3.1.1.2 the WBE goal is **8%** percent, and

3.5.3.1.1.3 the PDBE goal is **0%** percent.

3.5.3.1.1.4 The bidder may substitute SBE participation of no more than four percent of the MBE goal, the WBE goal, or portions of the MBE Goal and WBE Goal.

3.5.3.1.1.5 The bidder may not use Native-American-owned firms that are certified as MBEs to meet MBE contract goals. Native-Americans firms can only be used as SBEs in fulfillment of the above stated goals.

3.5.3.1.1.6 The bidder may not use MWSBE Suppliers to account for more than 50% of the MWSBE participation plan.

3.5.3.1.2 The MBE, WBE, PDBE, and SBE goals are specific to this Agreement. The Contractor shall make reasonable efforts to achieve these goals.

3.5.3.1.3 Failure by Contractor to comply with the goals for MBE, WBE, SBE, or PDBE is a material breach of the Agreement, which may result in termination of the Agreement, or such other remedy permitted as the City deems appropriate.

ARTICLE 8 - TIME

8.1 *PROGRESS AND COMPLETION: Add the following Paragraph 8.1.6.1.*

8.1.6.1 Contractor shall credit the City by Change Order for inspection services for overtime work or work performed on Sundays or Legal Holidays. The amount Contractor credits the City will be \$50.00 per hour per inspector for inspection services.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 *UNIT PRICE WORK: Delete Section 9.1 in its entirety and insert the following Section 9.1.*

Using table below as a guideline, insert amount of calculated daily cost to City, to be used for liquidated damages, in Paragraph 9.12.1.1. Include calculations in Project files. Department will consider guidelines based on the Project and its Scope.

<u>Est. Amount of Construction Cost</u>	<u>Liquidated Damages per Day</u>
<i>Project less than \$2.5 M</i>	\$800
<i>Project \$2.5 M to \$7.5 M</i>	\$1200
<i>Non-facility Projects Greater than \$7.5 M</i>	\$1500
<i>Facility Projects greater than \$7.5 M</i>	\$2000

9.12 *LIQUIDATED DAMAGES: Insert the following Paragraph 9.12.1.1.*

9.12.1.1 The amount of liquidated damages payable by Contractor or Surety for each and every day of delay beyond Contract Time, are **\$1,200** per day.

ARTICLE 11 - INSURANCE AND BONDS

TABLE 1
 REQUIRED COVERAGES

(Coverage)	(Limit of Liability)
.1 Workers' Compensation	Statutory Limits for Workers' Compensation
.2 Employer's Liability	Bodily Injury by Accident \$1,000,000 (each accident) Bodily Injury by Disease \$1,000,000 (policy limit) Bodily Injury by Disease \$1,000,000 (each employee)

<p>.3 Commercial General Liability: Including Contractor's Protective, Broad Form Property Damage, Contractual Liability, Explosion, Underground and Collapse, Bodily Injury, Personal Injury, Products, and Completed Operations (for a period of one year following completion of the Work)</p>	<p>Combined single limit of \$1,000,000 (each occurrence), subject to general aggregate of \$2,000,000; Products and Completed Operations \$1,000,000 aggregate.</p>
<p>.4 Owner's and Contractor's Protective Liability</p>	<p>\$1,000,000 combined single limit each Occurrence/aggregate</p>
<p>.5 Installation Floater (Unless alternative coverage by City Attorney)</p>	<p>Value of stored equipment or material, listed on Certificates of Payments, but not yet incorporated into the Work</p>
<p>.6 Automobile Liability Insurance: (For automobiles furnished by Contractor in course of his performance under the Contract, including Owned, Non-owned, and Hired Auto coverage)</p>	<p>\$1,000,000 combined single limit each occurrence</p>
<p>.7 Excess Coverage</p>	<p>\$1,000,000 each occurrence/combined aggregate in excess of limits specified for Employer's Liability, Commercial General Liability, and Automobile Liability</p>
<p>.8 Optional Coverages</p>	<p>(Required when checked)</p>
<p>___ (a) Contractor's Pollution Liability including pollution coverage for Contractual Liability, Clean-up costs, Abatement, Transport and Non-owned disposal sites. Including Bodily Injury Liability, Property Damage Liability and environmental damage arising from pollution conditions caused in performance of operations. Include Asbestos and Lead if part of operations. (MCS-90 endorsement: To Auto Policy and removal of Pollution Exclusion)</p>	<p>\$1,000,000 each occurrence (Note to PDC-PM: Add this coverage if there is pollution work on this project) \$1,000,000 CSL</p>
<p><input checked="" type="checkbox"/> (b) Property & Casualty Coverage: "All Causes of Loss" Builders Risk Form for directing physical change to building or plant construction on Work site and/or all land improvements including all work. [Including but not limited to earthquake, flood, boiler and machinery--including testing, damage to existing or adjoining property, time element coverage, collapse, soft costs (management, architecture, financial costs, pre-opening costs, etc.), transit coverage, off-site storage].</p>	<p>100% Contract price, including all change orders (Note to PDC-PM: Add this coverage if construction involves a building)</p>

<p>___ (c) Increased Excess Coverage</p>	<p>\$ _____ each occurrence aggregate in excess of limits specified for Employer's Liability, Commercial General Liability, and Automotive Liability (Note to PDC PM: Add \$10,000,000 if project includes work on aprons or in vicinity of aircraft)</p>
<p>*Defense costs are excluded from face amount of policy. Aggregate Limits are per 12-month policy period unless otherwise indicated.</p> <p>*Use Builder's Risk insurance for projects that include lift stations, plant or facility work. Include Building Wage rates in the project manual</p> <p>*Flood Hazard Insurance: Contractor shall apply for flood insurance on all insurable structures built under the Contract. A copy of the completed application must be provided to City Engineer before commencing construction of the Work. Contractor shall obtain flood hazard insurance as soon as possible and submit a copy of the policy to City Engineer. Use Flood Hazard Insurance only for projects that include structures. Do not include Flood Insurance for line projects, projects outside of the 100-year floodplain, or projects with structures less than \$10,000 in value.</p>	

Use Paragraph 11.2.1.2 if any of the following additional insurance is required by the nature of the contract. DO NOT require any additional insurance that is unnecessary; notify the Legal Department when requiring any additional insurance. When inserting additional insurance requirements into Table 2, number them consecutively, starting with .1 as follows:

Example:

Table 2

- .1 Property and Casualty Coverage
- .2 Contractor's Pollution Liability Coverage
- .3 Etc.

*

11.2 INSURANCE TO BE PROVIDED BY CONTRACTOR: Insert the following Paragraph 11.2.1.2., and Table 2, "Additional Required Coverage".

11.2.1.2 Contractor shall purchase for the duration of the Contract the insurance set out in Table 2 in addition to the minimum insurance coverage set out in section 11.2.1.

TABLE 2
 ADDITIONAL REQUIRED COVERAGE
 DEFENSE COSTS EXCLUDED FROM FACE AMOUNT OF POLICY.

<u>(Coverage)</u>	<u>(Limit of Liability)</u>
Property and Casualty Coverage: "All Causes of Loss" Builder's Risk Form for directing physical change to building or plant construction on the Work site and/or all land improvements including all work. (Including but not limited to earthquake, flood, boiler, and machinery including testing, damage to existing or adjoining property, time element coverage, collapse, soft costs (management, architecture, financial costs, pre-opening costs, etc.), transit coverage, off-site storage).	100% of Contract Price, including change orders
<u>Contractor's Pollution Liability:</u>	\$1,000,000 each occurrence
Including pollution coverage for Contractual Liability, Clean-up costs, Abatement, Transport, and Non-owned disposal sites. Including Bodily Injury Liability, Property Damage Liability, and environmental damage arising from pollution conditions caused in performance of operations. Including Asbestos and Lead if part of operations.	
(MCS - 90 endorsement to Auto Policy and removal of Pollution Exclusion)	\$1,000,000 CSL

11.5 *MAINTENANCE BONDS: Insert the following Paragraph 11.5.2.*

ARTICLE 13 – MISCELLANEOUS PROVISIONS

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

END OF DOCUMENT

Document 00805

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS
(City of Houston Information Requirements
for the Successful Bidder on All Construction Contracts)

**DOCUMENTS THAT MUST BE SIGNED AND RETURNED TO THE CITY OF
HOUSTON PRIOR TO FINAL EXECUTION OF CONTRACT**

- Certification by Bidder Regarding Equal Employment Opportunity EEO-3
- Total Work Force Composition of the Company..... EEO-6
*or in lieu thereof, a copy of the latest Equal Employment Opportunity
Commission's EEO-1 form (This information is required only if the Contractor
has a work force of 50 or more people and the Contract is \$50,000 or more.)*
- Company's Equal Employment Opportunity Compliance Program EEO-7

INFORMATION THAT MUST BE SUPPLIED DURING THE COURSE OF THE WORK

- Certification By Proposed Subcontractor Regarding
Equal Employment Opportunity EEO-26
- Subcontractor's Equal Employment Opportunity
Compliance Program EEO-29
- Certification by Proposed Material Suppliers, Lessors, and Professional
Service Providers Regarding Equal Employment Opportunity EEO-30

PLEASE COMPLETE PAGES EEO-3 THROUGH EEO-7 AND MAIL TO:

Houston Airport System
Office of Business Opportunity
Contract Compliance Section
18600 Lee Road, Suite 131
Humble, Texas 77338

The remainder of the reports can be mailed at the appropriate time.

EQUAL EMPLOYMENT OPPORTUNITY PROGRAM REQUIREMENTS

The following are Equal Employment Opportunity requirements to be met and documents to be submitted to:

Houston Airport System
Office of Business Opportunity
Contract Compliance Section
18600 Lee Road, Suite 131
Humble, Texas 77338

Under the conditions and terms of all City construction contract, the prime contractor is responsible for all Equal Employment Opportunity compliance, including subcontractor compliance.

EQUAL EMPLOYMENT OPPORTUNITY FORMS (EEO Forms)

These forms are submitted by the prime contractors at the beginning of the Project and as requested:

- EEO Forms 3, 6, and 7 by prime contractors.

These forms are submitted by all subcontractors before they begin work on the project.

- EEO Forms 26 - 29 by subcontractors.

This form is submitted by all suppliers, lessors, or professional services providers before they begin work on the project:

- EEO Form 30

POSTING

The following poster should be clearly displayed on each job site, or in case of annual service agreements, in the Contractor's office:

Equal Employment Opportunity is the Law Poster

JOB SITE VISITS

Site visits will be made by a Contract Compliance Officer who will make their presence known to the Project Manager, Supervisor, or Foreman, and will conduct interviews with employees on site.

PAYMENT AND EVALUATION

Upon completion of the Project, as part of the contract-awarding department's total clearance process, the Office of Business Opportunity's Contract Compliance Section must certify to the department that all EEO compliance requirements have been met.

CERTIFICATION BY BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY

GENERAL

In accordance with Executive Order 11246 (30 F.R. 12319-25), the implementing rules and regulations thereof, and orders of the Secretary of Labor, a certification regarding Equal Opportunity is required of bidders or prospective contractors and their proposed subcontractors prior to the award of contracts or subcontracts.

CERTIFICATION OF BIDDER

Bidder's Name: _____

Address: _____

Telephone Number: _____ Fax : _____

Name of the company's EEO Officer: _____

E-mail Address: _____

Web Page/URL Address: _____

IRS Employer Identification Number: _____

Work to be performed: _____

Project No: _____

1. Participation in a previous contract or subcontract.
 - a. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. YES NO
 - b. Compliance reports were required to be filed in connection with such contract or subcontract. YES NO
 - c. Bidder has filed all compliance reports required by Executive Orders 10925, 11114, 11246, or by regulations of the Equal Employment Opportunity Commission issued pursuant to Title VII of the Civil Rights Act of 1964. YES NO
 - d. If answer of Item c. is "No", please explain in detail on reverse side of this certification.

- 2. Dollar amount of bid:\$ _____
- 3. Anticipated performance period in days: _____
- 4. Expected total number of employees to perform the proposed construction: _____
- 5. Nonsegregated facilities.

a. Notice to prospective federally-assisted construction contractors

- (1) A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted to the recipient prior to the award of a federally-assisted construction contract exceeding \$50,000 which is not exempt from the provisions of the Equal Opportunity Clause.
- (2) Contractors receiving federally-assisted construction contract awards exceeding \$50,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$50,000 and are not exempt from the provisions of the Equal Opportunity Clause.

The federally-assisted construction Contractor certifies that he/she does not maintain or provide any segregated facilities at any of his/her establishments, and does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally-assisted construction Contractor certifies further that he/she will not maintain or provide segregated facilities at any of his/her establishments, and will not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally-assisted construction Contractor 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, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin because of habit, local custom, or otherwise. The federally-assisted construction Contractor agrees that (except where he/she has obtained identical certifications from proposed Subcontractors for specific time periods) he/she will obtain identical certifications in duplicate from proposed Subcontractors prior to the award of subcontracts exceeding \$50,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain the duplicate of such certifications in his/her files. The Subcontractor will include the original in his/her bid package.

6. Race or ethnic group designation of bidder. Enter race or ethnic group in appropriate box:

- White Black Hispanic
 Pacific Islander, Asian American Indian, Aleut.

7. Gender of Owner Male Female

REMARKS: _____

Certification - The information above is true and complete to the best of my knowledge and belief.

Company Officer (Please Type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

**EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE PROGRAM
FOR**

Name of Company

The Company's Office of Business Opportunity Program shall consist of documented good faith efforts to comply with the goals, timetables, and objectives set forth in the following Affirmative Action steps:

- A. City of Houston's Specific Equal Employment Opportunity Policy and Clause as contained in City Council Ordinance No. 78-1538, passed August 9, 1978.
- B. Notice of Requirement for Office of Business Opportunity to ensure Equal Employment Opportunity (Executive Order 11246).
- C. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246).

Project: _____

Company Officer (Please Type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

SPECIAL PROVISIONS
SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY POLICY

1. GENERAL

- a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity are required by Executive Order 11246, as amended. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for Project activities under this Contract and shall supplement the notice of requirement for affirmative action to ensure equal employment opportunity and standard federal equal employment opportunity construction contract specifications.
- b. The Contractor shall work with the City and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the Contract.
- c. The prime Contractor and all Subcontractors holding subcontracts of \$50,000 or more shall comply with the following minimum specific requirement activities of equal employment opportunity. The Contractor shall include these requirements in every subcontract of \$50,000 or more with such modification of language as is necessary to make them binding on the Subcontractor.

2. EQUAL EMPLOYMENT OPPORTUNITY POLICY

The Contractor shall accept as his/her operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, age, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, or national origin. Such action shall include: 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.

3. EQUAL EMPLOYMENT OPPORTUNITY OFFICER

The Contractor shall designate and make known to the City contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who must be capable of effectively administering and promoting an active Contractor program of equal employment opportunity and who must be assigned adequate authority and responsibilities to do so.

4. DISSEMINATION OF POLICY

- a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement the Contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions shall be taken as a minimum:
 - (1) Periodic meetings of supervisory and personnel office employees shall be conducted before the start of work and then not less often than once every six months, at which time the Contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings shall be conducted by the EEO Officer or other knowledgeable company official.
 - (2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, or other knowledgeable company official, covering all major aspects of the Contractor's equal employment opportunity obligations, within 30 days following their reporting for duty with the Contractor.
 - (3) The EEO Officer or appropriate company official shall instruct all employees engaged in the direct recruitment of employees for the Project relative to the methods followed by the Contractor in locating and hiring minorities and females.
- b. In order to make the Contractor's equal employment opportunity policy known to all employees, prospective employees, and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor shall take the following actions:
 - (1) Notices and posters setting forth the Contractor's equal employment opportunity policy shall be placed in areas readily accessible to employees, applicants for employment, and potential employees.
 - (2) The Contractor's equal employment opportunity policy and the procedures to implement such policy shall be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. RECRUITMENT

- a. When advertising for employees, the Contractor shall include in all advertisements for employees the notation "An Equal Opportunity Employer". All such advertisements will be published in newspapers, or other publications, having a large circulation among minority groups in the area from which the Project work force would normally be derived.

- b. The Contractor shall, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee-referral sources likely to yield qualified minority-group applicants, including, but not limited to, State employment agencies, schools, colleges, minority-group organizations, and female recruitment agencies. To meet this requirement, the Contractor shall, through his/her EEO Officer, identify sources of potential minority and female employees, and establish with such identified sources procedures whereby such group applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with equal employment opportunity Contract provisions. (The U. S. Department of Labor has held that where implementation of such agreements has the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Executive Order 11246 as amended).

- c. The Contractor shall encourage his/her present employees to refer female or minority-group applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring such applicants will be discussed with employees.

6. PERSONNEL ACTIONS

- a. Wage, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff and termination, shall be taken without regard to race, color, religion, sex, national origin, or age. The following procedures shall be followed:

- (1) The Contractor shall conduct periodic inspections of Project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of Project-site personnel.
- (2) The Contractor shall periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
- (3) The Contractor shall periodically review selected personnel actions in depth to determine whether there is evidence of discrimination.

Where evidence is found, the Contractor shall promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

- (4) The Contractor shall promptly investigate all complaints of alleged discrimination made in connection with his/her obligations under this Contract, shall attempt to resolve such complaints, and shall take appropriate corrective action. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor shall inform every complainant of all avenues of appeal.

7. TRAINING AND PROMOTION

- a. The Contractor shall assist in locating, qualifying, and increasing the skills of minority-group and women employees and applicants for employment.
- b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship and on-the-job training programs, for the geographical area of Contract performance.
- c. The Contractor shall advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The Contractor shall periodically review the training and promotion potential of minority-group and women employees and shall encourage eligible employees to apply for such training and promotion.

8. UNIONS

If the Contractor relies in whole or in part upon unions as a source of employees, he/she shall use his/her best efforts to obtain the cooperation of such unions to increase minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the Contractor, either directly or through a contractor's association acting as his/her agent, will include the procedures set forth below:

- a. The Contractor shall use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority-group members and women for membership in the unions and increasing the skills of minority-group employees and women so that they may qualify for higher-paying employment.
- b. The Contractor shall use best efforts to incorporate an equal employment opportunity clause into all union agreements to the end that such unions will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, or age.
- c. The Contractor is to obtain information as to the referral practices and policies of the labor union, except that to the extent such information is within the exclusive possession of the labor union, and such labor union refuses to furnish such information to the Contractor, the Contractor shall

so certify to the City and shall set forth what efforts have been made to obtain such information.

- d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the Contractor shall, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, age, sex, or national origin, making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U. S. Department of Labor has held that 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 employees.) In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such Contractor shall immediately notify the City.

9. SUBCONTRACTING

- a. The Contractor shall use his/her best efforts to solicit bids from and to utilize minority-group and female subcontractors or subcontractors with meaningful minority-group and/or female representation among their employees.
- b. The Contractor shall use his/her best efforts to assure Subcontractors' compliance with their equal employment opportunity obligations.

10. RECORDS AND REPORTS

- a. The Contractor shall keep such records as are necessary to determine compliance with the Contractor's equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate:
 - (1) The number of minority and non-minority group members and women employed in each work classification on the Project.
 - (2) The progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force).
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees.
 - (4) The progress and efforts being made in securing the services of female and minority subcontractors.
- b. All records, including payrolls, must be retained for a period of three years following completion of the Contract work and shall be available at

reasonable times and places for inspection by authorized representatives of the City and/or the appropriate federal agency.

CITY OF HOUSTON, TEXAS

EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

Pursuant to City Council Ordinance No. 78-1538, passed August 9, 1978, all contracts entered into by the City of Houston involving the expenditure of \$50,000 or more, shall incorporate the following Equal Employment Opportunity Clause:

1. The Contractor, Subcontractor, vendor, Supplier, or lessee shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age. The Contractor, Subcontractor, vendor, Supplier, or lessee shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex, national origin, or age. Such action will include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor, Subcontractor, vendor, Supplier, or lessee agrees to post in conspicuous places available to employees, and applicants for employment, notices to be provided by the City setting forth the provisions of this Equal Employment Opportunity Clause.
2. The Contractor, Subcontractor, vendor, Supplier, or lessee states that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin, or age.
3. The Contractor, Subcontractor, vendor, Supplier, or lessee shall send to each labor union or representatives of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer advising the said labor union or workers' representative of the Contractor's and Subcontractor's commitments under Section 202 of Executive Order No. 11246, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor, Subcontractor, vendor, Supplier, or lessee will comply with all provisions of Executive Order No. 11246 and the rules, regulations, and relevant orders of the Secretary of Labor or other Federal Agency responsible for enforcement of the equal opportunity and affirmative action provisions applicable, and shall likewise furnish all information and reports required by the Mayor and/or Contractor Compliance Officers for purposes of investigation to ascertain and effect compliance with this program.
5. The Contractor, Subcontractor, vendor, Supplier, or lessee shall furnish all information and reports required by Executive Order No. 11246, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant

thereto, and shall permit access to all books, records, and accounts by the appropriate City and Federal officials for purposes of investigation to ascertain compliance with such rules, regulations, and orders. Compliance reports filed at such times as directed shall contain information as to the employment practice policies, program, and work force statistics of the Contractor, Subcontractor, vendor, Supplier, or lessee.

6. In the event of a Contractor's, Subcontractor's, vendor's, Supplier's, or lessee's non-compliance with the non-discrimination clause of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part, and the Contractor, Subcontractor, vendor, Supplier, or lessee may be declared ineligible for further City contracts in accordance with procedures provided in Executive Order No. 11246, and such other sanctions may be imposed and remedies invoked as provided in said Executive Order, or by rule, regulation, or order of the Secretary of Labor, or as may otherwise be provided by law.
7. The Contractor shall include the provisions of paragraphs 1 through 8 of this Equal Employment Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965 so that such provisions will be binding upon each Subcontractor or vendor. The Contractor shall take such action with respect to any subcontractor or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.
8. The Contractor shall file and shall cause each of his Subcontractors, if any, to file compliance reports with the City in the form and to the extent as may be prescribed by the Office of Business Opportunity. Compliance reports filed at such times as directed shall contain information as to the practices, policies, programs, employment policies, and employment statistics of the Contractor and each Subcontractor.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for Minority Participation for Each Trade	Goals for Female Participation for Each Trade
	(Refer to Document 00800)	(Refer to Document 00800)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally-assisted) performed in the covered area.

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

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$50,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the Subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.
4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is The Houston, Texas Standard Metropolitan Statistical Area.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this Contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941.
 - d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$50,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of

any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women, shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which Contractor's employees are assigned to work. The Contractor, where possible, shall assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions

- have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
 - f. Disseminate the Contractor's EEO policy: by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the

- Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
 - j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
 - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare, through appropriate training, etc., for such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of

these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under-utilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these Specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.B.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer),

dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily-understandable and retrievable form; however to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

DESCRIPTION OF JOB CATEGORIES

Officials, Managers, and Administrators

Occupations requiring administrative personnel who set board policies, exercise overall responsibility for the execution of these policies, or provide specialized consultation on a regional, district, area basis, or direct individual departments or special phases of a firm's operations.

Includes: Officials, executives, middle management, plant managers, department managers, superintendents, salaried foremen who are members of management, purchasing agents, buyers, bureau chiefs, directors, deputy directors, wardens, examiners, sheriffs, police and fire chiefs, and kindred workers.

Professionals

Occupations which require specialized and theoretical knowledge which is usually acquired through college or experience of such kind and amount as to provide a comparable background.

Includes: Accountants, auditors, airplane pilots and navigators, architects, artists, chemists, designers, dieticians, editors, engineers, lawyers, librarians, mathematicians, natural scientists, registered professional nurses, personnel and labor relations workers, physical scientists, teachers, social workers, doctors, psychologists, economists, systems analysts, employment and vocational rehabilitation counselors, instructors, police and fire captains and lieutenants, and kindred workers.

Paraprofessionals

Occupations in which workers perform some of the duties of a professional or technician in a supportive role, which usually requires less formal training and/or experience normally required for professional or technical status. Such positions may fall within an identified pattern of a "New Careers" concept.

Includes: Library assistants, medical aides, child support workers, police auxiliary, welfare service aides, recreation assistants, homemakers aides, home health aides, and kindred workers.

Technicians

Occupations requiring a combination of basic scientific knowledge and manual skill which can be obtained through about two (2) years of post high school education, such as is offered in many technical institutes and junior colleges, or through equivalent on-the-job training.

Includes: Computer programmers and operators, draftsmen, engineering aides, junior engineers, mathematical aides, licensed practical or vocational nurses,

photographers, radio operators, scientific assistants, surveyors, technical illustrators, technicians (medical, dental, electronics, physical sciences), police and fire sergeants, and kindred workers.

Protective Service Workers

Occupations in which workers are entrusted with public safety, security, and protection from destructive forces.

Includes: Police patrol officers, fire fighters, guards, deputy sheriffs, bailiffs, correctional officers, detectives, marshals, harbor patrol officers, and kindred workers.

Sales Workers

Occupations engaging wholly or primarily in direct selling.

Includes: Advertising agents and salespersons, insurance agents and brokers, real estate agents and brokers, stock and bond salespersons, demonstrators, salespersons and sales clerks, grocery clerks, cashiers, and kindred workers.

Office and Clerical

Occupations in which workers are responsible for internal and external communications, recording and retrieval of data and/or information and other paper work required in an office predominantly non-manual, though some manual work not directly involved with altering or transporting the products is included.

Includes: Bookkeepers, cashiers, collectors (bills and accounts), messengers and office helpers, office machine operators, shipping and receiving clerks, stenographers, typists and secretaries, telegraph and telephone operators, court transcribers, hearing reporters, statistical clerks, dispatchers, license distributors, payroll clerks, and kindred workers.

Skilled Craft Workers

Occupations in which workers perform jobs which require special manual skill through on-the-job training and experience, or through apprenticeship or other formal training programs. These workers exercise considerable independent judgment and usually receive an extensive period of training.

Includes: The building trades, hourly paid foremen and leadmen who are not members of management, mechanics and repairmen, skilled machining occupations, compositors and typesetters, electricians, engravers, job setters (metal), motion picture projectionists, pattern and model makers, stationary engineers, tailors, heavy equipment operators, carpenters, and kindred workers.

Operatives (semi-skilled)

Workers who operate machine or processing equipment or perform other factory-type duties of intermediate skill level which can be mastered in a few weeks and require only limited training.

Includes: Apprentices (auto mechanics), plumbers, bricklayers, carpenters, electricians, mechanics, building trades, metal workers, machinists, printing trades, operatives, attendants (auto service and parking), blasters, chauffeurs, deliverymen, dressmakers and seamstresses (except factory), dryers, furnacemen, heaters (metal), laundry and dry cleaning operatives, milliners, miners, motormen, oilers, greasers, etc. (except auto), painters (except construction and maintenance), photographic process workers, stationary firemen, truck and tractor drivers, weavers (textile), welders and flame cutters, and kindred workers.

Laborers (unskilled)

Workers in manual occupations which generally require no special training. These workers perform elementary duties that may be learned in a few days and require the application of little or no independent judgment.

Includes: Garage workers, car washers and greasers, gardeners (except farm) and groundskeepers, longshoremen and stevedores, lumbermen, craftsmen, and wood choppers, laborers performing lifting, digging, mixing, loading, and pulling operations, and kindred workers.

Service/Maintenance Workers

Occupations in which workers perform duties which result in or contribute to the comfort, convenience, hygiene, or safety for the general public, or which contribute to the upkeep and care of buildings, facilities or grounds, or public property. Workers in this group may operate machinery.

Includes: Chauffeurs, laundry and dry cleaning operatives, truck drivers, trash collectors, custodial personnel, gardeners and groundskeepers, construction laborers, attendants (hospital and other institutions), professional and personal service, counter and fountain workers, elevator operators, firemen and fire protection, guards, watchmen and doorkeepers, stewards, porters, waiters, and kindred workers.

4. Expected total number of employees to perform the proposed subcontract: _____
5. Nonsegregated facilities.
 - a. Notice to prospective federally-assisted construction contractors
 - (1) A Certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted to the Contractor prior to the award of a subcontract exceeding \$50,000 which is not exempt from the provisions of the Equal Opportunity Clause.
 - (2) Contractors receiving subcontract awards exceeding \$50,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$50,000 and are not exempt from the provisions of the Equal Opportunity clause.

b. Certification of non-segregated facilities

The federally-assisted construction contractor certified that he/she does not maintain or provide any segregated facilities at any of his/her establishments, and does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally-assisted construction Contractor certifies further that he/she will not maintain or provide any segregated facilities at any of his/her establishments, and will not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The federally-assisted construction Contractor 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, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin because of habit, local custom, or otherwise. The federally-assisted construction Contractor agrees that (except where he/she has obtained identical certifications from proposed Subcontractors for specific time periods) he/she will obtain identical certifications in duplicate from proposed Subcontractors prior to the award of subcontracts exceeding \$50,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain the duplicate of such certifications in his/her files. The Contractor will include the original in his/her Bid Package.

6. Race or ethnic group designation of bidder. Enter race or ethnic group in

appropriate box:

- White Black Hispanic
 Pacific Islander, Asian American Indian, Aleut.

7. Gender

- Male Female

REMARKS:

Certification - The information above is true and complete to the best of my knowledge and belief.

Company Officer (Please Type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION BY PROPOSED MATERIAL SUPPLIERS,
LESSORS, AND PROFESSIONAL SERVICE PROVIDERS
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Company Name: _____ \$ _____
(Supplier, Lessor, Professional Service Provider) (Amount of Contract)

Company Address: _____

Company Telephone Number: _____ Fax: _____

E-mail Address: _____

Web Page/URL Address: _____

Company Tax Identification Number: _____

Project Name & No.: _____

Materials/Services Provided: _____

In accordance with Chapter 15 of the City of Houston's Code of Ordinances, Supplier/Lessor/Professional Service Provider represents to be an equal opportunity employer and agrees to abide by the terms of the Ordinance. This certification is required of all Suppliers/Lessors/Professional Service Providers providing goods or service to this project with agreements \$50,000 or more.

Yes No Supplier agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age.

Yes No Supplier agrees that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin, or age.

Yes No Supplier will comply with all provisions of **Executive Order No. 11246** and rules, regulations and applicable orders of the Department of Labor or other Federal Agency responsible for enforcement of applicable equal opportunity and affirmative action provisions and will likewise furnish all information and reports required by the Mayor or Contract Compliance Officers for the purpose of investigation to ascertain and effect compliance with the City of Houston's Office of Business of Opportunity.

Yes No The Supplier shall file and cause their sub-tier contractors to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor or Contract Compliance Officers. Compliance reports filed at such times as directed shall contain information including, but not limited to, the practices, policies, programs, and employment policies.

I hereby certify that the above information is true and correct.

COMPANY OFFICER (Signature)

DATE

NAME AND TITLE (Print or type)

END OF DOCUMENT

Document 00808

**REQUIREMENTS FOR THE CITY OF HOUSTON PROGRAM FOR MINORITY, WOMEN, AND
SMALL BUSINESS ENTERPRISES (MWSBE) AND PERSONS WITH DISABILITIES
ENTERPRISES (PDBE)**

CONSTRUCTION CONTRACTS

I. GENERAL

A. CITY AUTHORITIES

1. The "OBO Director" is the City of Houston's Office of Business Opportunity ("OBO") Director, or his or her designee.

Houston Airport System
Office of Business Opportunity
Contract Compliance Section
18600 Lee Road, Suite 131
Houston, Texas 77338

2. The "Contracting Department" for this Project is the City of Houston Department specified in Document 00520, "Agreement."
3. The "Project Manager" for this Project is specified in Document 00550, "Contract Approval Notification."

**II. REOCCURRING REPORTS THAT MUST BE SUBMITTED DURING THE COURSE OF
THE CONTRACT:**

A. MWSBE MONTHLY REPORT PROCESS

The Contractor shall complete the MWSBE Monthly Utilization Report in the Contract Compliance and Monitoring System (available at <https://houston.mwdbe.com/>).

- B. The Contractor shall further comply with applicable instructions regarding reporting and compliance, as provided in Sections III.E and III.I below.

III. BUSINESS ENTERPRISE PROGRAM REQUIREMENTS:

A. PURPOSE

This Document facilitates implementation of City of Houston, Tex. Code of Ordinances Chapter 15, Article V, § 15-81 *et seq.*, relating to MWSBE contract participation, and Code of Ordinances Chapter 15, Article VI, § 15-90 *et seq.*, relating to PDBE contract participation (collectively, the “Business Enterprise Program” or “MWSBE”). City of Houston, Tex. Ordinance 2013-0428, May 8, 2013.

B. POLICY

It is the policy of the City to encourage the full participation of Minority Business Enterprises, Women Business Enterprises, and Small Business Enterprises, and Persons with Disabilities Business Enterprises, in all phases of its procurement activities and to afford them a full and fair opportunity to compete for City contracts at all levels.

C. POLICY ELEMENTS

1. The Contractor agrees to ensure that MWSBE firms have a full and fair opportunity to participate in the performance of City contracts. In this regard the Contractor shall make all reasonably Good Faith Efforts to meet the Contract Goals for this Contract.
2. The Contractor and any Subcontractor shall not discriminate on the basis of race, color, religion, national origin, or sex in the performance of City contracts.
3. Contractor's performance in meeting the Participation Plan Percentage will be monitored during the construction phase of the Contract by the Office of Business Opportunity (“OBO”) and the Contracting Department (the “Department”).

D. PERCENTAGE GOALS

The MWSBE goals and PDBE goals, if any, for the Work are specified in Document 00800, “Supplementary Conditions.”

E. CONTRACTOR RESPONSIBILITIES

1. **Prior to Award:**

The Bidder shall submit MWSBE documents in accordance with the requirements of Document 00410, “Bid Form Part A.”

 - a. In accordance with the Code of Ordinances and the OBO Good Faith Efforts Policy (Attachment A), the Department shall approve

- an "Apparent Low Bidder's MWSBE Participation Plan," Document 00470 (the "Bidder's Plan" or "Plan"), within three business days of the Bid Opening only if the Department representative determines that Bidder's Plan meets the advertised Contract Goals and is administratively complete.
- b.** If the Department cannot approve the Bidder's Plan, it shall forward the Plan to OBO, who shall review the Bidder's Plan, and if applicable, the Bidder's Document 00471, "Record of Good Faith Efforts," and Document 00472, "Pre-Award Deviation Request," and determine whether the Bidder has made Good Faith Efforts to meet the Contract Goals within 10 business days of the Bid Opening.
 - c.** The Bidder may not use MWSBE Suppliers to account for more than 50% of the MWSBE participation plan.
 - d.** If the bidder is an MBE or WBE firm certified by the City of Houston, the Bidder may use its self-performance on the contract to satisfy up to 50% of the overall goal specified in Document 00800. If the Bidder is certified as both an MBE and WBE firm, the Bidder must select one (1) certification type for which goal credit will be provided.
 - e.** If OBO determines that the Bidder has failed to provide a valid participation plan or make Good Faith Efforts, or if the Bidder fails to provide documents and associated information required by this Document 00808 or reasonably requested in writing by OBO, OBO may declare the Bidder to be non-responsible.
 - f.** If OBO determines that the Bidder has made Good Faith Efforts, OBO may approve Document 00472, "Bidder's Contract MWSBE Goal Deviation Request." Thereafter, the Bidder/Contractor shall be bound by the Plan, as approved, or modified by OBO.
 - g.** The Contractor shall:
 - (1)** ensure that all MWSBE firms listed in the Plan are certified by the OBO prior to bid date. Qualified, non-certified firms may obtain priority consideration for certification if no more than two firms are certified with the same capability as the non-certified firm;
 - (2)** execute written contracts with all certified Subcontractors and Suppliers. All such contracts must be executed and sent to OBO and the Contracting Department within 30 days after the date of the Notice to Proceed and must include provisions set forth in Articles 3 and 5 of Document 00700, "General Conditions;" and
 - (3)** designate an MWSBE liaison officer who will administer the Contractor's MWSBE program and who shall document and maintain records of Good Faith Efforts to subcontract with MWSBE Subcontractors and Suppliers, in addition to self-performance towards a Contract Goal by a certified MBE or WBE Contractor, if applicable.

2. After Award:

- a.** The Contractor shall submit MWSBE Monthly Utilization Reports, as requested in Article II above.
- b.** The Contractor shall complete and submit to OBO a deviation request if the Contractor reasonably believes that it will not achieve the Business Enterprise Program Participation Plan Percentage documented in the Plan and/or will not use in each Certified Firm in accordance with the Approved Plan before the Contractor uses another firm to perform the work.
- c.** The Contractor shall conform to the Plan unless OBO approves a deviation request. OBO shall approve or reject a request for deviation within five business days of receipt of the request.
- d.** OBO shall approve a deviation request if:
 - (1)** for a reason beyond the Contractor's control, the Contractor is unable to use the certified MWSBE firm in the Plan to perform the specified work. In such cases, the Contractor shall use and document Good Faith Efforts to find a similarly qualified, certified MWSBE firm to perform such specified work; or
 - (2)** the Contractor reasonably believes that, due to a change of scope, execution of the work in accordance with the directions from the Contracting Department, it is unlikely to meet the terms of the Plan. In such cases, the Contractor shall use and document Good Faith efforts to achieve MWSBE participation on the remaining work on the Contract.
 - (3)** OBO shall not unreasonably withhold approval of a deviation request.
- e.** After the Date of Substantial Completion, OBO shall evaluate the Contractor's Good Faith Efforts towards meeting the Plan, as it may be amended.
- f.** If the Contractor fails to conform to the Plan and fails to submit a Post-Award Deviation Request or provide documents and associated information required by the Good Faith Efforts Policy or reasonably requested in writing by OBO, OBO may impose sanctions in accordance with Article VI of this Document 00808.

F. ELIGIBILITY OF MWSBE FIRMS FOR GOAL CREDIT

- 1.** To ensure that the City's Business Enterprise Program benefits only those firms that are owned and controlled by a minority person(s), a woman (women), a person(s) with a disability, or a small business enterprise, OBO will certify the eligibility of MWSBE and PDBE Contractors,

Subcontractors, and Suppliers. Contact the OBO Certification Division at 832-393-0600 or obocertification@houstontx.gov for information regarding certification.

2. Firms must be certified by OBO at the time of bid in order to be counted towards meeting MWSBE goals at contract award, or prior to a Post-Award Deviation Request being submitted to, and approved by, OBO. OBO maintains a Certified Minority, Women and Small Business Enterprises and Persons with Disabilities Business Enterprises Directory on the City's website. This Directory also lists federally-designated Disadvantaged Business Enterprises (DBEs).

G. DETERMINATION OF MWSBE PARTICIPATION

MWSBE participation shall be counted toward meeting the Contract Goals in response to the following:

1. Contractor may count toward its Contract Goals only those MWSBE Subcontractors/Suppliers, or the Contractor's self-performance if Contractor is a Certified MBE or WBE, performing a Commercially Useful Function.
 - a. **COMMERCIALLY USEFUL FUNCTION** means a discrete task or group of tasks, the responsibility for performance of which shall be discharged by the MWSBE firm by using its own forces or by actively supervising on-site the execution of the tasks by another entity for whose work the MWSBE firm is responsible. In determining whether a certified firm is performing a commercially useful function, factors including but not limited to the following shall be considered: (1) whether the firm has the skill and expertise to perform the work for which it is being utilized and possesses all necessary licenses; (2) whether the firm is in the business of performing, managing, or supervising the work for which it has been certified and is being utilized; and (3) whether it is performing a real and actual service that is a distinct and verifiable element of the work called for in a contract.
2. Counting MWSBE Participation:
 - a. **Prime Level Participation:** An MBE or WBE certified Prime may count its self-performance for up to 50% of the overall advertised goal. The certified MWBE Prime may count only the work in which the MWBE has performed a Commercially Useful Function. The use of a certified MWBE Prime's self-performance to meet multiple goals (e.g., MBE and WBE) on a contract is prohibited.
 - b. **Subcontractor Participation:** Once a firm is certified as a MWSBE

firm, the total dollar value of the subcontract awarded to the MWSBE firm is counted toward the Contract Goals, counting only the work in which the MWSBE has performed a Commercially Useful Function. The use of one MWSBE certified firm to meet multiple goals (e.g., MBE, WBE, SBE goals) on a contract is prohibited, unless expressly approved by OBO.

- c. Joint Ventures:** The dollar value of the work performed by a certified Prime Contractor that is a member of a joint venture may be counted towards satisfaction of the MWSBE goals. When the Contractor or Subcontractor is in a joint venture with one or more MWSBE firms, OBO shall determine the percent of participation resulting from such joint venture to be counted toward the Contract Goals. The City may count towards the Contractor's MWSBE contract goal that portion of the total value of the contract amount paid to an MWSBE joint venturer equal to the distinct, clearly defined portion of the contract work performed by the MWSBE.

- 3.** Native-American-owned firms that are certified as MBEs cannot be used to meet MBE contract goals on contracts where the City of Houston is the goal setting authority. Native American firms can only be used as SBEs in fulfillment of MBE contracts goals on such contracts, with any limitations expressly stated in Document 00800.
- 4.** The Contractor may not use MWSBE Suppliers to account for more than 50% of the MWSBE participation plan. A MWSBE Supplier's participation will be counted towards the MWSBE goals if all the criteria below are met. The MWSBE Supplier must:

 - a.** negotiate price;
 - b.** determines quality and quantity;
 - c.** orders the materials;
 - d.** show that the invoice is in the certified firm's name;
 - e.** pays for the material itself;
 - f.** control delivery; and
 - g.** be certified to provide the supplies in the appropriate NAICS code.

If the listed criteria above are not met, only the entire amount of fees or commissions charged for assistance in the procurement of the supplies and materials, or fees or transportation charges for the delivery of supplies or materials required on a job site will be counted towards the MWSBE goal. To be counted, proof must be provided of the fees paid and the fees must be reasonable and not excessive as compared with fees customarily allowed for similar services.

- 5.** The OBO Policy and Procedures Manual, as amended from time to time, shall apply to the Contract for other determinations regarding counting

MWSBE participation not explicitly provided for in the Contract.

H. CONTRACTOR COMPLIANCE

To ensure compliance with MWSBE requirements, OBO and the Department will monitor Contractor's efforts regarding MWSBE Primes/Subcontractors/Suppliers during the performance of this Contract. This may be accomplished through the following: job site visits; reviewing of records and reports; and interviews of randomly selected personnel.

I. RECORDS AND REPORTS

1. In accordance with II.A of this Document, the Contractor shall submit an initial report outlining MWSBE participation 40 days after the Notice to Proceed date, and on or before the 15th day of each month thereafter until all MWSBE subcontracting or material supply activity is completed. Each report shall cover the preceding month's activity. The Contractor shall use the MWSBE Contract Compliance and Monitoring System (B2GNow) to meet this requirement.
2. Contractor shall maintain the following records for review upon request by OBO or the Department:
 - a. Copies of executed Subcontractor agreements;
 - b. Copies of executed purchase orders;
 - c. Documentation of payments and other transactions with MWSBE Subcontractors/ Suppliers; and
 - d. Appropriate explanations of any changes or replacements of MWSBE Subcontractors/Suppliers. All replacement MWSBE Subcontractors/Suppliers must be certified by OBO.
 - e. Any other records required by OBO or Contracting Department.
3. If a Participation Plan Percentage is not being met, the monthly report shall include a narrative description of the progress being made in MWSBE participation. MWBE Primes and MWSBE Subcontractors or MWSBE Suppliers being used to meet the Participation Plan Percentage should be identified by name and the dollar amount paid to date for work performed or materials furnished by each MWSBE during the monthly period. Reports are required when no activity has occurred in a monthly period.
4. Contractor shall retain all such records for a period of four years following completion of the Work and shall be available at reasonable times and places for inspection by authorized representatives of the City including the City Controller.

IV. SANCTIONS:

A. SUSPENSION PERIOD AND WAIVER

Pursuant to Section 15-86 of the Code of Ordinances, OBO is authorized to suspend any Contractor who has failed to make Good Faith Efforts for a period of up to, but not to exceed, five years.

B. GUIDELINES FOR IMPOSITION OF SANCTIONS

1. General:

- a.** OBO shall not impose any sanction except upon evidence of specific conduct on the part of a MWSBE or Contractor that is inconsistent with, or in direct contravention of, specific applicable requirements for Good Faith Efforts.
- b.** Imposition and enforcement of suspensions shall be consistent with applicable state law.

2. Severity of Sanctions:

- a.** In determining the length of any suspension, OBO shall consider the following factors:
 - (1)** Whether the failure to comply with applicable requirements involved intentional conduct or, alternatively, may be reasonably concluded to have resulted from a misunderstanding on the part of the Contractor or MWSBE of the duties imposed on them by Article V of Chapter 15 of the Code of Ordinances and these procedures;
 - (2)** The number of specific incidences of failure by Contractor or MWSBE to comply;
 - (3)** Whether the Contractor or MWSBE has been previously suspended;
 - (4)** Whether the Contractor or MWSBE has failed or refused to provide OBO with any information requested by OBO's Director or required to be submitted to OBO's Director pursuant to law or these procedures;
 - (5)** Whether the Contractor or MWSBE has materially misrepresented any applicable facts in any filing or communication to OBO; and
 - (6)** Whether any subsequent restructuring of the subject business or other action has been undertaken to cure the deficiencies in meeting applicable requirements.
- b.** Suspensions may be for any length of time not to exceed five years. Suspensions in excess of one year shall be reserved for cases involving intentional or fraudulent misrepresentation or concealment of material facts, multiple acts in contravention of

applicable requirements, cases where the Contractor or MWSBE has been previously suspended, or other similarly egregious conduct.

C. APPEALS

A decision to implement a suspension may be taken after notice and an opportunity for an informal conciliation conference with OBO and a hearing by the Contract Compliance Commission. Commission members shall not have participated in the actions or investigations giving rise to the suspension hearing.

D. NOTICE

1. Prior to imposing any suspension, OBO shall deliver written notice to the Contractor or MWSBE setting forth the grounds for the proposed suspension and setting a date, time, and place to appear for an informal conciliation conference with OBO, in addition to information regarding the appearance before the Contract Compliance Commission for a hearing on the matter.
2. Any notice required or permitted to be given hereunder to any Contractor or MWSBE may be given either by personal delivery or by certified United States mail, postage prepaid, return receipt requested, addressed to their most recent address as specified in the records of the Office of Business Opportunity or in the Contract, if no address is on file with the Office of Business Opportunity.

E. HEARING PROCEDURES

Proceedings before the Contract Compliance Commission shall be conducted in accordance with Section 15-23 of the Code of Ordinances. If the Commission, in a written decision, finds that a suspension is supported by the evidence presented, the Commission shall submit its recommendation to the Mayor and City Council.

ATTACHMENT A

**CITY OF HOUSTON
OFFICE OF BUSINESS OPPORTUNITY GOOD FAITH EFFORTS POLICY**

General Policy.

Good Faith Efforts are steps taken to achieve a Contract Goal or other requirements which, by their scope, intensity and usefulness demonstrates the bidder's responsiveness to fulfill the business opportunity objective prior to the award of a contract, as well as the contractor's responsibility to put forth measures to meet or exceed the Contract Goal(s) throughout the duration of the contract.

Good Faith Efforts are required to be made and demonstrated by an apparent successful bidder on goal-oriented contracts or proposer on a regulated contract prior to award of a contract. Good Faith Efforts are required on professional services and construction contracts and on procurement of goods and non-professional service contracts with goals. If a bidder, when submitting a participation plan at the time of bid or proposal submission, anticipates it cannot or will not meet the Contract Goal(s) prior to the award, the bidder must demonstrate to Office of Business Opportunity ("OBO") it has made Good Faith Efforts to meet the Contract Goal(s), to be eligible for the contract award.

Good Faith Efforts shall be evaluated on a case-by-case basis in making a determination whether a bidder or contractor is in compliance with this policy. The efforts employed by a bidder or contractor should be those that one could reasonably expect a bidder or contractor to take if the bidder or the contractor were actively and aggressively attempting to obtain MWSBE participation sufficient to meet the Contract Goal(s). Efforts taken that are mere formalities or other perfunctory acts shall not be considered Good Faith Efforts to meet Contract Goals.

The factors provided herein are representative of the types of actions OBO will consider in determining whether the bidder or contractor made Good Faith Efforts to obtain MWSBE participation to meet the Contract Goal(s). The list of factors described below are not intended to be a mandatory checklist, nor is it intended to be exhaustive or exclusive. OBO may consider other factors or types of efforts that may be relevant in appropriate cases.

If a bidder or contractor fails to submit Good Faith Efforts documentation as provided in this Policy, it waives the right to appeal OBO decisions related to this Policy. OBO will review all the efforts made by the contractor, including the quality and quantity of those efforts.

Pre-Award.

A bidder must submit a participation plan, Document 00470, to OBO at the time the bidder submits the bid. If the participation by certified MWBE Primes and MWSBE subcontractors documented on the participation plan ("participation") is less than the Contract Goal(s), a bidder should submit a "Record of Good Faith Efforts," Document 00471, with the bid. A

bidder should also submit a request for a deviation, using Document 00472, if the bidder, having used Good Faith Efforts, reasonably believes that it cannot meet the Contract Goal(s) or a commercially useful deviation.

In making a determination that the bidder has made a good faith effort to meet the Contract Goal(s), OBO shall consider specific documentation¹ concerning the steps taken to obtain MWSBE participation, with a consideration of, by way of illustration and not limitation, whether the bidder demonstrated a genuine effort to comply with the following factors:

1. Attended any pre-bid or pre-proposal meetings scheduled by the City Department;
2. Followed up with MWSBEs that attended the pre-bid or pre-proposal meetings to discuss subcontracting and supplier opportunities and contacted MWSBEs listed in the City's online directory;
3. Conducted outreach with minority and women focused organizations and associations far in advance of solicitation due date (no less than 14 business days);
4. Identified and designated portions of the work to be performed by MWSBEs to increase the likelihood of meeting the Contract Goals (including where appropriate breaking down the contract into reasonably sized subcontracts to ensure participation);
5. Advertised subcontracting opportunities in news media focused towards minority and women persons far in advance of solicitation due date;
6. Provided MWSBEs with a point of contact that was knowledgeable about the project and possessed decision-making authority to answer questions from interested MWSBEs;
7. Provided a reasonable number of MWSBEs certified with timely written notices via email, mail, and/or fax and/or with documented contact regarding the subcontracting/supplier opportunities. A "reasonable number of MWSBEs" shall be based on the number of MWSBEs available in the directory;
8. Solicited the MWSBEs within a reasonable amount of time (no less than seven business days) before bid submission, as well as followed up with the MWSBEs solicited to determine if they were interested in submitting a bid or proposal or participating on a team.
9. Provided interested MWSBEs certified to perform the solicited work with prompt

¹ A list of common supporting documentation that may allow Contractors to support their good faith efforts can be found on the Office of Business Opportunity website at www.houstontx.gov/obo.

- access to the plans, specifications, scope of work and requirements of the contract;
10. Negotiated in good faith with interested MWSBEs, and not rejecting MWSBEs as unqualified without sound reasons based on a thorough investigation of their capabilities;
 11. Entered into a formal contract, or signing enforceable letters of intent with MWSBEs;
 12. Provided an explanation to any MWSBE whose bid or price quotation is rejected, unless another MWSBE is accepted for the same work, as follows:
 - a. Where price competitiveness is not the reason for rejection, a written rejection notice including the reason for rejection will be sent to the rejected MWSBE firm;
 - b. Where price competitiveness is the reason for rejection, a meeting must be held with the price rejected MWSBE, if requested, to discuss the rejection;
 13. Ensured that MWSBE Supplier participation did not account for more than 50% of the MWSBE participation plan.
 14. Made efforts to assist interested MWSBEs in obtaining bonding, lines of credit, insurance required for the contract, and documenting MWSBE denied by bona fide surety agents;
 15. Ensured that the conditions and requirements for subcontracts and supply agreements are commensurate with industry standards and would not cause an economic hardship on MWSBEs, such as unnecessary insurance or coupling bid bonds with retainage; and
 16. Incorporated efforts not attempted earlier or on previous bids that appear more likely to lead to attaining the Contract Goal. Past performance on similar contracts with similar scopes will also be taken in consideration when determining Good Faith Efforts. A bidder that continues to make same efforts without any significant change in the level of participation may not be making Good Faith Efforts.

Post-Award.

The contractor must sign the approved participation plan (Document 00470 or Document 00570) prior to starting work on the Project. A contractor should submit a request for deviation from OBO if the contractor, having made Good Faith Efforts, reasonably believes that it will not achieve the Participation Plan Percentage documented in the approved participation plan. If participation is less than anticipated in the approved participation plan, the contractor must submit supporting documentation evidencing their Good Faith Efforts. A contractor that fails to

submit a deviation request and Good Faith Efforts documentation waives the right to appeal OBO decisions related to this Policy.

If the contractor is awarded the contract and fails to achieve the established Participation Plan Percentage(s), the contractor must demonstrate to OBO its efforts to meet the Participation Plan Percentage(s) and failure to do so based on circumstances that the contractor could not reasonably control. In determining whether the contractor made Good Faith Efforts to ensure full participation and achievement of the Participation Plan Percentage, OBO shall consider the following factors:

1. Whether the contractor designated an MWSBE liaison officer to administer the Contractor's MWSBE programs and to be responsible for maintenance of records of Good Faith Efforts.
2. Whether the contractor furnished prompt MWSBE Utilization Reports in a timely and accurate manner through the online Contract Monitoring System or via hard copy.
3. Whether the contractor responded to efforts to resolve disputes with MWSBEs, and genuinely attempted to resolve these issues.
4. Whether the contractor disclosed payment discrepancies timely and within the monthly reporting period;
5. Whether the contractor complied with the participation plan, unless the contractor received a deviation from the OBO Director and whether upon approval, the contractor made Good Faith Efforts to replace a removed MWSBE with another certified firm;
6. Whether MWSBE Supplier participation accounted for more than 50% of the MWSBE participation plan;
7. Whether the contractor provided an explanation to any MWSBE whose price quotation was rejected due the following reasons:
 - Where price competitiveness was not the reason for rejection, a written rejection notice which includes the reason for rejection shall be sent to the MWSBE firm.
 - Where price competitiveness was the reason for rejection, a meeting must be held with the MWSBE firm, if requested, to discuss the rejection.
8. Whether the contractor furnished prompt written responses to written inquiries from the Director or any employee of OBO regarding the MWSBE's performance or information germane to the MWSBE's certification;
9. Whether the contractor ensured that at all times during the performance of any contract or subcontract the MWSBE firm is engaging in a commercially useful

function as that term is defined in Chapter 15 of the City of Houston Code of Ordinances;

10. Whether the contractor provided the OBO information, or other material, that was factually accurate and free of material misrepresentation;
11. Whether the contractor furnished prompt responses to requests for information, books and records needed to verify compliance from the department administering the Contract, the City Attorney and the City Controller;
12. Whether the contractor attended all meetings and mediation hearings as requested by the Director or his/her designee; and
13. How the contractor may be affected by change orders, with consideration given to the size of the change orders.

Change Orders.

The requirement to make Good Faith Efforts to achieve the approved Participation Plan Percentage is applicable to change orders. Contractors should make Good Faith Efforts to ensure that the Participation Plan Percentage remains substantially the same after the issuance of change orders. If a contractor cannot maintain substantially the same level of participation provided in the latest approved Participation Plan, the contractor shall submit Document 00572, "Post-Award Plan Deviation Request," to the OBO for review and potential approval. In addition to other relevant factors, in evaluating whether Good Faith Efforts were made by the contractor to meet the Participation Plan Percentage despite change orders, the OBO Director shall consider the contractor's efforts to timely and efficiently deliver the project.

END OF DOCUMENT

Document 00821

WAGE SCALE AND PAYROLL REQUIREMENTS FOR BUILDING CONSTRUCTION

Wage Scale Requirements

- 1.1 Contractor and its Subcontractors must pay the general prevailing wage rates for building construction for each craft or type of worker or mechanic employed in the execution of any building construction or repair under the Contract in accordance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91 and 2006-168, and 2009- 247 all as amended from time to time. City Council has determined the prevailing wage rate in the locality in which the work is being performed, which is set forth in Exhibit "A".
- 1.2 This prevailing wage rate does not prohibit the payment of more than the rates stated.
- 1.3 In bidding, Contractor warrants and represents that it has carefully examined the classifications for each craft or type of worker needed to execute the Contract and determined that such classifications in Exhibit "A" include all necessary categories to perform the work under the Contract.
- 1.4 The wage scale for building construction is to be applied to work on a building including an area within 5 feet of the exterior wall.
- 1.5 If Contractor believes that an additional classification for a craft or type of worker is necessary to perform work under the Contract, it must submit with its bid a request to the Contract Compliance Division of the Office of Business Opportunity ("OBO") to use an additional labor classification not listed in Exhibit "A" and specify the proposed new classification. OBO shall determine whether a proposed classification is already covered in Exhibit "A", and, if it is, specify which classification is appropriate. OBO's decision is conclusive. If OBO decides that a new classification is necessary, it will determine the appropriate prevailing wage rate for any resurveyed, amended, new, or additional craft or type of worker not covered by Exhibit "A". Such determination must be decided in accordance with procedures established by OBO, and in compliance with Chapter 2258 of the Texas Government Code and City of Houston, Texas Ordinance Nos. 85-2070, 2000-1114, 2001-152, 2006-91, 2006-168, and 2009-247 subject to City Council approval.
- 1.6 Contractor must not use any labor classification not covered by Exhibit "A" until such classification is established and approved for use by OBO.
- 1.7 A Contractor or Subcontractor who violates Chapter 2258 of the Texas Government Code must pay to the City, \$60 per each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates set forth in Exhibit "A".
- 1.8 The City may withhold money required to be withheld under Chapter 2258 of the Texas Government Code from the final payment to Contractor or earlier payments if City Council makes a determination that there is good cause to believe that Contractor has not complied with these provisions and Chapter 2258 of the Government Code, in which case the City may

withhold the money at any time subsequent to the finding by City Council.

- 1.9 Contractor and Subcontractors must keep records specifying:
- (1) the name and classification of each worker employed under the Contract; and
 - (2) the actual per diem wages paid to each worker, and the applicable hourly rate.

The records must be open at all reasonable hours for inspection by the officers and agents of the City.

- 1.10 The hourly cost of salary for non-exempt workers for labor in excess of 40 hours per worker per week, shall be calculated at 1.5 times the worker's base pay, plus 1.0 times fringe benefits, for the applicable craft and level.

Certified Payroll Requirements

- 2.1 Employees are paid weekly, and payrolls are submitted weekly using the City of Houston's electronic payroll submission module, unless the prime Contractor has been instructed to do otherwise by the Office of Business Opportunity. When no work is done after a Contractor has started work, the Contractor is required to submit a weekly compliance statement indicating no work was performed. The payrolls must reflect the exact work and classification of the workers, the exact amount that they were paid. Workers must be paid the contracted amount (prevailing wage rates). The Contractor will be penalized \$60.00 a day for each employee who is underpaid per Texas Government Code §2258-023 for all contracts.
- 2.2 Payrolls must be submitted electronically & indicate whether the worker worked inside or outside the building area when both wage rates are applicable to the project.
- 2.3 Payrolls must be submitted each week until all work by the contractor is complete and the electronic payroll submission is marked as final in the system.
- 2.4 Payrolls must cover a seven-day period from the start of the work week and must be consecutive seven-day periods until all work is complete.
- 2.5 Payrolls must have employees' names, addresses, last four digits of the social security numbers, and job classifications. The job classifications must be the same as the classifications on the prevailing wage rate schedule.
- 2.6 A payroll deduction authorization form must be submitted for each employee for any deductions other than Federal and FICA taxes and court ordered child support.
- 2.7 Employees must be paid overtime (time and a half) for all hours worked over 40 hours a week on both federally and City-funded contracts.
- 2.8 The Contractor has the responsibility to comply with all Internal Revenue Service rules and regulations. Contractors who submit certified payrolls with **Owner Operators (truckers)** must submit a signed tax liability statement from each Owner Operator acknowledging their responsibility for Federal Income Tax and FICA reporting obligations.
- 2.9 If the Contractor wants to use the apprentice wage rates for an employee, the apprenticeship

certificates must be submitted to the Office of Business Opportunity in advance of the employee working on the project and appearing on the payroll. Contractor must comply with posted number of journeymen to apprentices as listed on the wage rate.

- 2.10 A poster of the Prevailing Wage Rate Schedule should be clearly displayed on each job site from the time the project starts until the work is completed, or in case of annual service agreements, in the Contractor's office.
- 2.11 The Contractor shall submit the "Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "B") to the Monitoring Authority listed in Document 00495 prior to final execution of the contract.
- 2.12 During the course of the work, Subcontractors shall submit the "Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "C") to the Monitoring Authority listed in Document 00495.
- 2.13 Upon completion of the Project, as part of the contract-awarding department's total clearance process, the Office of Business Opportunity's Contract Compliance Section must review whether the Wage Rate and Payroll Requirements were met and report the results to the department.

REST OF PAGE INTENTIONALLY LEFT BLANK

EXHIBIT "A"

**CITY OF HOUSTON, TEXAS
LABOR CLASSIFICATIONS AND PREVAILING WAGE RATES FOR BUILDING CONSTRUCTION
2022**

Worker Classification	Ratio	Base Rate	Fringe Benefit	Wage Total
Acoustical Ceiling Mechanic		\$17.27	\$3.98	\$21.25
Asbestos Abatement Worker (ceilings, walls, floors only)	Ratio 1/3	\$14.00	\$0.00	\$14.00
Asbestos Worker/ Heat & Frost Insulator (Duct, Pipe and Mechanical System Insulation) *	Ratio 1/1 – Apprentice	\$24.28	\$14.16	\$38.44
Boilermaker *	Ratio 5/1 – Apprentice	\$29.47	\$24.10	\$50.35
Bricklayer *	Ratio 1/3 – Mason Tender Brick	\$18.87	\$0.00	\$18.87
Carpenter (excludes acoustical ceiling installation, drywall hanging, form work and metal stud installation work) *	Ratio 2/1 – Apprentice	\$23.05	\$8.78	\$31.83
Caulker		\$15.36	\$0.00	\$15.36
Cement Mason/Concrete Finisher *	Ratio 1/3 – Mason Tender Concrete	\$13.93	\$0.00	\$13.93
Drywall Finisher/Taper *	Ratio 1/3 – Apprentice	\$16.27	\$3.66	\$19.93
Drywall Hanger and Metal Stud Installer *	Ratio 1/3 – Apprentice	\$17.44	\$3.93	\$21.37
Electrician (Excludes Low Voltage Wiring and Installation of Alarms)	Ratio 3/2 – Apprentice	\$32.55	\$10.35	\$42.90
Electrician (Alarm Installation Only) *	Ratio 1/1 – Apprentice	\$17.97	\$3.37	\$21.34
Electrician (Low Voltage Wiring Only) *		\$18.00	\$1.68	\$19.68
Elevator Mechanic *, **, ***	Ratio 1/1 – Apprentice	\$45.48	\$36.365	\$81.845
Floor Layer: Carpet		\$20.00	\$0.00	\$20.00
Form worker *		\$12.77	\$0.00	\$12.77
Glazier *	Ratio 1/3 – Apprentice	\$23.27	\$7.12	\$30.39
Insulator – Batt *		\$14.87	\$0.73	\$15.60
Ironworker, Ornamental		\$25.14	\$7.43	\$32.57
Ironworker, Reinforcing *	Ratio 1/3 – Apprentice	\$12.14	\$0.00	\$12.14
Ironworker, Structural *	Ratio 1/3 – Apprentice	\$25.26	\$7.13	\$32.39
Laborer, Common or General		\$11.76	\$0.00	\$11.76
Laborer, Landscape and Irrigation		\$9.52	\$0.00	\$9.52
Laborer, Mason Tender - Brick		\$13.47	\$0.00	\$13.47
Laborer, Mason Tender - Cement /Concrete		\$10.48	\$0.00	\$10.48
Laborer, Pipelayer		\$12.94	\$0.00	\$12.94
Laborer, Roof Tearoff		\$11.28	\$0.00	\$11.28
Lather *	Ratio 1/3	\$19.73	\$0.00	\$19.73
Operator, Backhoe / excavator / trackhoe		\$13.94	\$0.00	\$13.94
Operator, Bobcat / skid steer / skid loader		\$13.93	\$0.00	\$13.93
Operator, Bulldozer		\$22.75	\$0.00	\$22.75
Operator, Drill		\$16.22	\$0.34	\$16.56
Operator, Forklift		\$16.00	\$0.00	\$16.00
Operator, Grader/blade		\$13.37	\$0.00	\$13.37
Operator, Loader		\$13.55	\$0.94	\$14.49
Operator, Mechanic		\$17.52	\$3.33	\$20.85

CITY OF HOUSTON
STANDARD DOCUMENT

WAGE SCALE
FOR BUILDING CONSTRUCTION

Operator, Paver (asphalt, aggregate, and concrete)		\$16.03	\$0.00	\$16.03
Operator, Roller		\$16.00	\$0.00	\$16.00
Painter * (brush, roller, and spray) excludes drywall finishing/taping	Ratio 1/3 – Apprentice	\$17.24	\$4.41	\$21.65
Pipe Fitter (including HVAC Pipe installation) *	Ratio 1/1 – Apprentice	\$35.68	\$12.46	\$48.14
Plasterer	Ratio 1/3 – Plasterer Tenders	\$26.04	\$9.02	\$35.06
Plumber *	Ratio 3/2 – Apprentice	\$36.15	\$11.88	\$48.03
Power Equipment Operator, Crane		\$34.85	\$9.85	\$44.70
Roofer *	Ratio 1/3 – Apprentice	\$15.40	\$0.00	\$15.40
Sheet Metal Worker (excludes HVAC Unit Installation) *	Ratio 2/1 – Apprentice	\$29.70	\$13.85	\$43.55
Sheet Metal Worker (HVAC Duct Installation only) *	Ratio 2/1 – Apprentice	\$29.70	\$13.85	\$43.55
Sheet Metal Worker (HVAC Unit Installation only) *	Ratio 2/1 – Apprentice	\$20.05	\$2.24	\$22.29
Sprinkler Fitter (Fire sprinklers) *	Ratio 1/1 – Apprentice	\$31.68	\$22.50	\$54.18
Tile Finisher *	Ratio 1/3 – Apprentice	\$12.00	\$0.00	\$12.00
Tile Setter *	Ratio 1/3 – Apprentice	\$16.17	\$0.00	\$16.17
Truck Driver, 1/Single Axle Truck		\$14.18	\$0.00	\$14.18
Truck Driver, Dump Truck		\$12.39	\$1.18	\$13.57
Truck Driver, Flatbed Truck		\$19.65	\$8.57	\$28.22
Truck Driver, Semi-Trailer Truck		\$12.50	\$0.00	\$12.50
Truck Driver, Water Truck		\$12.00	\$4.11	\$16.11
Waterproofers		\$14.39	\$0.00	\$14.39
Welders - Receive rate prescribed for craft performing operation in which welding is incidental.				
* Apprentices must be part of an approved Department of Labor apprenticeship program.				
* -- 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.				
** -- Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day; and Veterans Day.				

Building Construction Prevailing Wages Classification Definitions

Asbestos Worker/Insulator * - Ratio 1 Journeyman /1 Apprentice (1 Journeyman / 1 Apprentice)
(Including application of all insulating materials, protective coverings, coatings and finishing to all type of mechanical systems). Applies insulating material to exposed surfaces of structures, such as air ducts, hot and cold pipes, storage tanks, and cold storage rooms: Reads blueprints and selects required insulation material (in sheet, tubular, or roll form), such as fiberglass, foam rubber, styrofoam, cork, or urethane, based on material's heat retaining or excluding characteristics. Brushes adhesives on or attaches metal adhesive-backed pins to flat surfaces as necessary to facilitate application of insulation material. Measures and cuts insulation material to specified size and shape for covering flat or round surfaces, using tape measure, knife, or scissors. Fits, wraps, or attaches required insulation material around or to structure, following blueprint specifications. Covers or seals insulation with preformed plastic covers, canvas strips, sealant, or tape to secure insulation to structure, according to type of insulation used and structure covered, using staple gun, trowel, paintbrush, or caulking gun.

Asbestos Abatement Worker * (Ceilings, Floors, & Walls only)
Removes asbestos from ceilings, walls, beams, boilers, and other structures, following hazardous waste handling guidelines: Assembles scaffolding and seals off work area, using plastic sheeting and duct tape. Positions mobile decontamination unit or portable showers at entrance of work area. Builds connecting walkway between mobile unit or portable showers and work area, using hand tools, lumber, nails, plastic sheeting, and duct tape. Positions portable air evacuation and filtration system inside work area. Sprays chemical solution over asbestos covered surfaces, using tank with attached hose and nozzle, to soften asbestos. Cuts and scrapes asbestos from surfaces, using knife and scraper. Shovels asbestos into plastic disposal bags and seals bags, using duct tape. Cleans work area of loose asbestos, using vacuum, broom, and dustpan. Places asbestos in disposal bags and seals bags, using duct tape. Dismantles scaffolding and temporary walkway, using hand tools, and places plastic sheeting and disposal bags into transport bags. Seals bags, using duct tape, and loads bags into truck.

Boilermaker * - Ratio 5 Journeymen /1 Apprentice
Assembles, analyzes defects in, and repairs boilers, pressure vessels, tanks, and vats in field, following blueprints and using hand tools and portable power tools and equipment: Locates and marks reference points for columns or plates on foundation, using master straightedge, squares, transit, and measuring tape, and applying knowledge of geometry. Attaches rigging or signals crane operator to lift parts to specified position. Aligns structures or plate sections to assemble boiler frame, tanks, or vats, using plumb bobs, levels, wedges, dogs, or turnbuckles. Hammers, flame cuts, files, or grinds irregular edges of sections or structural parts to facilitate fitting edges together. Bolts or arc-welds structures and sections together. Positions drums and headers into supports and bolts or welds supports to frame. Aligns water tubes and connects and expands ends to drums and headers, using tube expander. Bells, beads with power hammer, or welds tube ends to ensure leak proof joints. Bolts or welds casing sections, uptakes, stacks, baffles, and such fabricated parts as chutes, air heaters, fan stands, feeding tube, catwalks, ladders, coal hoppers, and safety hatch to frame, using wrench. Installs manholes, hand holes, valves, gauges, and feed water connection in drums to complete assembly of water tube boilers. Assists in testing assembled vessels by pumping water or gas under specified pressure into vessel and observing instruments for evidence of leakage. Repairs boilers or tanks in field by unbolting or flame cutting defective sections or tubes, straightening plates, using torch or jacks, installing new tubes, fitting and welding new sections and replacing worn lugs on bolts. May rivet and caulk sections of vessels, using pneumatic riveting and caulking hammers.

Bricklayer * (See Mason Tender) - Ratio 1 Journeyman /3 Mason Tender Brick

Lays building materials, such as brick, structural tile, and concrete cinder, glass, gypsum, and terra cotta block (except stone) to construct or repair walls, partitions, arches, sewers, and other structures: Measures distance from reference points and marks guidelines on working surface to lay out work. Spreads soft bed (layer) of mortar that serves as base and binder for block, using trowel. Applies mortar to end of block and positions block in mortar bed. Taps block with trowel to level, align, and embed in mortar, allowing specified thickness of joint. Removes excess mortar from face of block, using trowel. Finishes mortar between brick with pointing tool or trowel. Breaks bricks to fit spaces too small for whole brick, using edge of trowel or brick hammer. Determines vertical and horizontal alignment of courses, using plumb bob, gauge line (tightly stretched cord), and level. Fastens brick or terra cotta veneer to face of structures, with tie wires embedded in mortar between bricks, or in anchor holes in veneer brick. May weld metal parts to steel structural members. May apply plaster to walls and ceiling, using trowel, to complete repair work.

Carpenter * (Including Acoustical Ceiling Work) - Ratio 2 Journeymen /1 Apprentice

Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wallboard, using carpenter's hand tools and power tools, and conforming to local building codes: Studies blueprints, sketches, or building plans for information pertaining to type of material required, such as lumber or fiberboard, and dimensions of structure or fixture to be fabricated. Selects specified type of lumber or other materials. Prepares layout, using rule, framing square, and calipers. Marks cutting and assembly lines on materials, using pencil, chalk, and marking gauge. Shapes materials to prescribed measurements, using saws, chisels, and planes. Assembles cut and shaped materials and fastens them together with nails, dowel pins, or glue. Verifies trueness of structure with plumb bob and carpenter's level. Erects framework for structures and lays subflooring. Builds stairs and lays out and installs partitions and cabinetwork. Covers sub floor with building paper to keep out moisture and lays hardwood, parquet, and wood-strip-block floors by nailing floors to sub floor or cementing them to mastic or asphalt base. Applies shock-absorbing, sound-deadening, and decorative paneling to ceilings and walls. Fits and installs prefabricated window frames, doors, doorframes, weather stripping, interior and exterior trim, and finish hardware, such as locks, letter drops, and kick plates. Constructs forms and chutes for pouring concrete. Erects scaffolding and ladders for assembling structures above ground level. May weld metal parts to steel structural members.

Cement Mason/Concrete Finisher *(Mason Tender Cement/Concrete) - Ratio 1 Journeyman /3
Mason Tender Cement

Finisher; concrete floater Smooths and finishes surfaces of poured concrete floors, walls, sidewalks, or curbs to specified textures, using hand tools or power tools, including floats, trowels, and screeds: Signals concrete deliverer to position truck to facilitate pouring concrete. Moves discharge chute of truck to direct concrete into forms. Spreads concrete into inaccessible sections of forms, using rake or shovel. Levels concrete to specified depth and workable consistency, using hand held screed and floats to bring water to surface and produce soft topping. Smooths, and shapes surfaces of freshly poured concrete, using straightedge and float or power screed. Finishes concrete surfaces, using power trowel, or wets and rubs concrete with abrasive stone to impart finish. Removes rough or defective spots from concrete surfaces, using power grinder or chisel and hammer, and patches holes with fresh concrete or epoxy compound. Molds expansion joints and edges, using edging tools, jointers, and straightedge. May sprinkle colored stone chips, powdered steel, or coloring powder on concrete to produce prescribed finish. May produce rough concrete surface, using broom. May mix cement, using hoe or concrete-mixing machine. May direct sub grade work, mixing of concrete, and setting of forms.

Drywall Finisher/Taper

Wallboard and plasterboard; sheetrock taper; taper and bedder; taper and floater. Seals joints

between plasterboard or other wallboards to prepare wall surface for painting or papering; Mixes sealing compound by hand or with portable electric mixer, and spreads compound over joints between boards, using trowel, broad knife, or spatula. Presses paper tape over joint to embed tape into compound and seal joint, or tapes joint, using mechanical applicator that spreads compound and embeds tape in one operation. Spreads and smooth's cementing material over tape, using trowel or floating machine to blend joint with wall surface. Sands rough spots after cement has dried. Fills cracks and holes in walls and ceiling with sealing compound. Installs metal molding at corners in lieu of sealant and tape. Usually works as member of crew. May apply texturing compound and primer to walls and ceiling preparatory to final finishing, using brushes, roller, or spray gun. May countersink nails or screws below surface of wall prior to applying sealing compound, using hammer or screwdriver.

Drywall Hanger

Dry-wall installer; gypsum dry-wall systems installer. Plans gypsum drywall installations, erects metal framing and furring channels for fastening drywall, and installs drywall to cover walls, ceilings, soffits, shafts, and movable partitions in residential, commercial, and industrial buildings: Reads blueprints and other specifications to determine method of installation, work procedures, and material, tool, and work aid requirements. Lays out reference lines and points for use in computing location and position of metal framing and furring channels and marks position for erecting metalwork, using chalk line. Measures, marks, and cuts metal runners, studs, and furring channels to specified size, using tape measure, straightedge and hand and portable power cutting tools. Secures metal framing to walls and furring channels to ceilings, using hand and portable power tools.

Measures and marks cutting lines on drywall, using square, tape measure, and marking devices. Scribes cutting lines on drywall, using straightedge and utility knife and breaks board along cut lines. Fits and fastens board into specified position on wall, using screws, hand tools, portable power tools, or adhesive. Cuts openings into board for electrical outlets, vents, or fixtures, using keyhole saw or other cutting tools. Measures, cuts, assembles, and installs metal framing and decorative trim for windows, doorways, and vents. Fits, aligns, and hangs doors and installs hardware, such as locks and kick plates (Includes Installing Metal Studs).

Electrician * Ratio 3 Journeymen /2 Apprentice

Plans layout, installs, and repairs wiring, electrical fixtures, apparatus, and control equipment: Plans new or modified installations to minimize waste of materials, provide access for future maintenance, and avoid unsightly, hazardous, and unreliable wiring, consistent with specifications and local electrical codes. Prepares sketches showing location of wiring and equipment, or follows diagrams or blueprints, ensuring that concealed wiring is installed before completion of future walls, ceilings, and flooring. Measures, cuts, bends, threads, assembles, and installs electrical conduit, using tools, such as hacksaw, pipe threader, and conduit bender. Pulls wiring through conduit. Splices wires by stripping insulation from terminal leads, using knife or pliers, twisting or soldering wires together, and applying tape or terminal caps. Connects wiring to lighting fixtures and power equipment, using hand tools. Installs control and distribution apparatus, such as switches, relays, and circuit-breaker panels, fastening in place with screws or bolts, using hand tools and power tools. Connects power cables to equipment, such as electric range or motor, and installs grounding leads. Tests continuity of circuit to ensure electrical compatibility and safety of components, using testing instruments, such as ohmmeter, battery and buzzer, and oscilloscope. Observes functioning of installed equipment or system to detect hazards and need for adjustments, relocation, or replacement (Including Pulling Wire and Low Voltage Wiring and Installation of Fire Alarms, Security Systems, Telephones, and Computers).

Elevator Mechanic * - Ratio 1 Journeyman /1 Apprentice

FOOTNOTES: a. - Employer contributes 8% of basic hourly rate for over 5 years' service and 6% of

basic hourly rate for 6 months to 5 years' service as Vacation Pay Credit. Paid Holidays: New Year's Day; Memorial Day; Independence Day Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christmas Day.

Erector; elevator installer; elevator mechanic. Assembles and installs electric and hydraulic freight and passenger elevators, escalators, and dumbwaiters, determining layout and electrical connections from blueprints: Studies blueprints and lays out location of framework, counterbalance rails, motor pump, cylinder, and plunger foundations. Drills holes in concrete or structural steel members with portable electric drill. Secures anchor bolts or welds brackets to support rails and framework, and verifies alignment with plumb bob and level. Cuts prefabricated sections of framework, rails, and other elevator components to specified dimensions, using acetylene torch, power saw, and disk grinder. Installs cables, counterweights, pumps, motor foundations, escalator drives, guide rails, elevator cars, and control panels, using hand tools. Connects electrical wiring to control panels and electric motors. Installs safety and control devices. Positions electric motor and equipment on top of elevator shaft, using hoists and cable slings.

Formbuilder/Formsetter

Constructs built-in-place or prefabricated wooden forms, according to specifications, for molding concrete structures: Studies blueprints and diagrams to determine type and dimension of forms to be constructed. Saws lumber to blueprint dimensions, using handsaw or power saw, and nails lumber together to make form panels. Erects built-in-place forms or assembles and installs prefabricated forms on construction site according to blueprint specifications, using hand tools, plumb rule, and level. Inserts spreaders and tie rods between opposite faces of form to maintain specified dimensions. Anchors and braces forms to fixed objects, using nails, bolts, anchor rods, steel cables, planks, and timbers.

Glazier

Installs glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceilings, and tabletops: Marks outline or pattern on glass, and cuts glass, using glasscutter. Breaks off excess glass by hand or with notched tool. Fastens glass panes into wood sash with glazier's points, and spreads and smoothes putty around edge of panes with knife to seal joints. Installs mirrors or structural glass on building fronts, walls, ceilings, or tables, using mastic, screws, or decorative molding. Bolts metal hinges, handles, locks, and other hardware to prefabricated glass doors. Sets glass doors into frame and fits hinges. May install metal window and doorframes into which glass panels are to be fitted. May press plastic adhesive film to glass or spray glass with tinting solution to prevent light glare. May install stained glass windows.

Insulator (Batt and Foam)

Applies batt and form insulation to walls, ceilings and other surfaces according to manufacturers specifications and blue print instructions. May use sealants such as cement plaster or asphalt compound to seal insulation; may spread concrete over floor slabs to form wearing floor: brushes adhesives, cuts insulating materials to specified shape to cover surfaces; uses tape or other sealants to adhere insulation to surfaces. May use staple gun, towel, paintbrushes and caulking guns.

Ironworker (Reinforcing)

Positions and secures steel bars in concrete forms to reinforce concrete; places rods in forms, spacing and fastening together with wire and pliers. Cuts bars using hacksaw, bar cutters or acetylene torch. Bends steel rods with hand tools or rod bending machine; reinforces concrete with wire mesh; welds reinforcing bars together.

Ironworker (Structural)

Erector; ironworker; steel erector; structural-iron erector; structural-iron worker; structural steel erector. Performs any combination of following duties to raise, place, and unite girders, columns, and other structural-steel members to form completed structures or structure frameworks, working as member of crew: Sets up hoisting equipment for raising and placing structural-steel members. Fastens steel members to cable of hoist, using chain, cable, or rope. Signals worker operating hoisting equipment to lift and place steel member. Guides member, using tab line (rope) or rides on member to guide it into position. Pulls, pushes, or pries steel members into approximate position while member is supported by hoisting device. Forces members into final position, using turnbuckles, crowbars, jacks, and hand tools. Aligns rivet holes in member with corresponding holes in previously placed member by driving drift pins or handle of wrench through holes. Verifies vertical and horizontal alignment of members, using plumb bob and level.

Lather

Fastens wooden, metal, or rockboard lath to walls, ceilings, and partitions of buildings to provide supporting base for plaster, fireproofing, or acoustical material, using hand tools and portable power tools: Erects horizontal metal framework to which laths are fastened, using nails, bolts, and studgun. Drills holes in floor and ceiling, using portable electric tool, and drives ends of wooden or metal studs into holes to provide anchor for furring or rockboard lath. Wires horizontal strips to furring to stiffen framework. Cuts lath to fit openings and projections, using hand tools or portable power tools. Wires, nails, clips, or staples lath to framework, ceiling joists, and flat concrete surfaces. Bends metal lath to fit corners, or attaches preformed corner reinforcements. Wires plasterer's channels to overhead structural framework to provide support for plaster or acoustical ceiling tile.

Painter (Brush, Roller, and Spray)

Applies coats of paint, varnish, stain, enamel, or lacquer to decorate and protect interior or exterior surfaces, trimmings, and fixtures of buildings and other structures: Reads work order or receives instructions from supervisor or homeowner regarding painting. Smooths surfaces, using sandpaper, brushes, or steel wool, and removes old paint from surfaces, using paint remover, scraper, wire brush, or blowtorch to prepare surfaces for painting. Fills nail holes, cracks, and joints with caulk, putty, plaster, or other filler, using caulking gun and putty knife. Selects premixed paints, or mixes required portions of pigment, oil, and thinning and drying substances to prepare paint that matches specified colors. Removes fixtures, such as pictures and electric switchcovers, from walls prior to painting, using screwdriver. Spreads dropcloths over floors and room furnishings, and covers surfaces, such as baseboards, doorframes, and windows with masking tape and paper to protect surfaces during painting. Paints surfaces, using brushes, spray gun, or paint rollers. Simulates wood grain, marble, brick, or tile effects. Applies paint with cloth, brush, sponge, or fingers to create special effects. Erects scaffolding or sets up ladders to perform tasks above ground level.

Pipe fitter * (HVAC Pipe Only) - Ratio 1Journeyman /1 Apprentice (See Schedule included)

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps,

and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks.

Pipe Fitter * (Excluding HVAC Pipe)

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller. May be designated Steam Fitter (construction) when installing piping systems that must withstand high pressure

Plasterer * See Plaster Tender - Ratio 1 Journeyman /3 Plaster Tenders

Applies coats of plaster to interior walls, ceilings, and partitions of buildings, to produce finished surface, according to blueprints, architect's drawings, or oral instructions, using hand tools and portable power tools: Directs workers to mix plaster to desired consistency and to erect scaffolds. Spreads plaster over lath or masonry base, using trowel, and smoothes plaster with darby and float to attain uniform thickness. Applies scratch, brown, or finish coats of plaster to wood, metal, or board lath successively. Roughens undercoat with scratcher (wire or metal scraper) to provide bond for succeeding coats of plaster.

Plumber * (Excluding HVAC Pipe) - Ratio 3 Journeymen /2 Apprentice

Assembles, installs, and repairs pipes, fittings, and fixtures of heating, water, and drainage systems, according to specifications and plumbing codes: Studies building plans and working drawings to determine work aids required and sequence of installations. Inspects structure to ascertain obstructions to be avoided to prevent weakening of structure resulting from installation of pipe. Locates and marks position of pipe and pipe connections and passage holes for pipes in walls and floors, using ruler, spirit level, and plumb bob. Cuts openings in walls and floors to accommodate pipe and pipe fittings, using hand tools and power tools. Cuts and threads pipe, using pipe cutters, cutting torch, and pipe-threading machine. Bends pipe to required angle by use of pipe-bending machine or by placing pipe over block and bending it by hand. Assembles and installs valves, pipe

fittings, and pipes composed of metals, such as iron, steel, brass, and lead, and nonmetals, such as glass, vitrified clay, and plastic, using hand tools and power tools. Joins pipes by use of screws, bolts, fittings, solder, plastic solvent, and caulks joints. Fills pipe system with water or air and reads pressure gauges to determine whether system is leaking. Installs and repairs plumbing fixtures, such as sinks, commodes, bathtubs, water heaters, hot water tanks, garbage disposal units, dishwashers, and water softeners. Repairs and maintains plumbing by replacing washers in leaky faucets, mending burst pipes, and opening clogged drains.

Roofer

Covers roofs with roofing materials other than sheet metal, such as composition shingles or sheets, wood shingles, or asphalt and gravel, to waterproof roofs: Cuts roofing paper to size, using knife, and nails or staples it to roof in overlapping strips to form base for roofing materials. Installs gutters and downs spouts. Aligns roofing material with edge of roof, and overlaps successive layers, gauging distance of overlap with chalk line, gauge on shingling hatchet, or by lines on shingles. Fastens composition shingles or sheets to roof with asphalt, cement, or nails. Punches holes in slate, tile, terra cotta, or wooden shingles, using punch and hammer. Cuts strips of flashing and fits them into angles formed by walls, vents, and intersecting roof surfaces. When applying asphalt or tar and gravel to roof, mops or pours hot asphalt or tar onto roof base. Applies alternate layers of hot asphalt or tar and roofing paper until roof covering is as specified. Applies gravel or pebbles over top layer, using rake or stiff bristled broom.

Sheet metal worker * Ratio 2 Journeymen /1 Apprentice (Including Setting HVAC Duct & System Installs)

Fabricates, assembles, installs and repairs sheet metal products, including sheet metal roof (also see Roofer). Operates soldering and welding equipment to join together sheet metal parts. Seals seams and joints with sealant. Installs roof sheets, trims, flashing, gutters down spouts and other related items. Performs other related duties.

Sprinkler Fitter (Fire) * - Ratio 1 Journeyman /1 Apprentice

Lays out, assembles, installs, and maintains pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems, applying knowledge of system operation, and following blueprints: Selects type and size of pipe, and related materials and equipment, such as supports, hangers, and hydraulic cylinders, according to specifications. Inspects work site to determine presence of obstructions and to ascertain that holes cut for pipe will not cause structural weakness. Plans installation or repair to avoid obstructions and to avoid interfering with activities of other workers. Cuts pipe, using saws, pipe cutter, hammer and chisel, cutting torch, and pipe cutting machine. Threads pipe, using pipe-threading machine. Bends pipe, using pipe bending tools and pipe bending machine. Assembles and installs variety of metal and nonmetal pipes, tubes, and fittings, including iron, steel, copper, and plastic. Connects pipes, using threaded, caulked, soldered, brazed, fused, or cemented joints, and hand tools. Secures pipes to structure with brackets, clamps, and hangers, using hand tools and power tools. Installs and maintains hydraulic and pneumatic components of machines and equipment, such as pumps and cylinders, using hand tools. Installs and maintains refrigeration and air-conditioning systems, including compressors, pumps, meters, pneumatic and hydraulic controls, and piping, using hand tools and power tools, and following specifications and blueprints. Increases pressure in pipe system and observes connected pressure gauge to test system for leaks. May weld pipe supports to structural steel members. May observe production machines in assigned area of manufacturing facility to detect machinery malfunctions. May operate machinery to verify repair. May modify programs of automated machinery, such as robots and conveyors, to change motion and speed of machine, using teach pendant, control panel, or keyboard and display screen of robot controller and programmable controller.

Tile Finisher

Supplies and mixes construction materials for TILE SETTER (construction) 861.381-054, applies grout, and cleans installed tile: Moves tiles, tile setting tools, and work devices from storage area to installation site manually or using wheelbarrow. Mixes mortar and grout according to standard formulas and request from TILE SETTER (construction), using bucket, water hose, spatula, and portable mixer. Supplies TILE SETTER (construction) with mortar, using wheelbarrow and shovel. Applies grout between joints of installed tile, using grouting trowel. Removes excess grout from tile joints with wet sponge and scrapes corners and crevices with trowel. Wipes surface of tile after grout has set to remove grout residue and polish tile, using nonabrasive materials. Cleans installation site, mixing and storage areas, and installation machines, tools, and equipment, using water and various cleaning tools. Stores tile setting materials, machines, tools, and equipment. May apply caulk, sealers, acid, steam, or related agents to caulk, seal, or clean installed tile, using various application devices and equipment. May modify mixing, grouting, grinding, and cleaning procedures according to type of installation or material used. May assist TILE SETTER (construction) to position and secure metal lath, wire mesh, or felt paper prior to installation of tile. May cut marked tiles to size, using power saw or tile cutter.

Tile Setter

Applies tile to walls, floors, ceilings, and promenade roof decks, following design specifications: Examines blueprints, measures and marks surfaces to be covered, and lays out work. Measures and cuts metal lath to size for walls and ceilings with tin snips. Tacks lath to wall and ceiling surfaces with staple gun or hammer. Spreads plaster base over lath with trowel and levels plaster to specified thickness, using screed. Spreads concrete on sub floor, with trowel and levels it with screed. Spreads mastic or other adhesive base on roof deck, using serrated spreader to form base for promenade tile. Cuts and shapes tile with tile cutters and biters. Positions tile and taps it with trowel handle to affix tile to plaster or adhesive base.

Truck Driver

Drives truck with capacity of more than 3 tons, to transport materials to and from specified destinations: Drives truck to destination, applying knowledge of commercial driving regulations and area roads. Prepares receipts for load picked up. Collects payment for goods delivered and for delivery charges. May maintain truck log, according to state and federal regulations. May maintain telephone or radio contact with supervisor to receive delivery instructions. May load and unload truck. May inspect truck equipment and supplies, such as tires, lights, brakes, gas, oil, and water. May perform emergency roadside repairs, such as changing tires, installing light bulbs, tire chains, and spark plugs. May position blocks and tie rope around items to secure cargo during transit.

Laborers

Common Laborer

Performs any combination of the following tasks in erecting, repairing and wrecking buildings; dig, spread and level dirt and gravel; lift carry and hold building materials, tools and supplies; clean tools, equipment, materials and work areas; mix, pour and spread concrete, asphalt, gravel and other materials; join, wrap and seal sections of pipe; routine non-machine tasks such as removing forms from set concrete, filling expansion joints with asphalt, and placing culverts in trench. May also signal construction equipment operators; measure distances from grade stakes, drive stakes and stretch lines; bolt, nail align and block up under forms; mix and finish poured concrete, erect scaffolding; spread paint or coating to seal surfaces; caulking compounds to seal surfaces; remove projections from concrete, and mount pipe hangers.

Mason Tender Brick

Mason Tender Cement

Pipe layer

Lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints.

Plaster Tender

Tends machine that pumps plaster or stucco through spray gun for application to ceilings, walls, and partitions of buildings: Starts and stops machine on signals from PLASTERER (construction). Fills hopper of machine with plaster. Turns valves to regulate pump and compressor. Assists in erecting scaffolds.

Power Equipment Operator:

Asphalt Paver (operator)

Operator; bituminous-paving-machine operator; blacktop-paver operator; blacktop spreader; mechanical-spreader operator; paving-machine operator, asphalt or bituminous. Operates machine that spreads and levels hot-mix bituminous paving material on sub grade of highways and streets: Bolts extensions to screed to adjust width, using wrenches. Lights burners to heat screed. Starts engine and controls paving machine to push dump truck and maintain constant flow of asphalt into hopper. Observes distribution of paving material along screed and controls direction of screed to eliminate voids at curbs and joints. Turns valves to regulate temperature of asphalt flowing from hopper when asphalt begins to harden on screed.

Backhoe (operator)

Operates power-driven machine, equipped with movable shovel, to excavate or move coal, dirt, rock, sand, and other materials: Receives written or oral instructions from supervisor regarding material to move or excavate. Pushes levers and depresses pedals to move machine, to lower and push shovel into stockpiled material, to lower and dig shovel into surface of ground, and to lift, swing, and dump contents of shovel into truck, car, or onto conveyor, hopper, or stockpile. Observes markings on ground, hand signals, or grade stakes to remove material, when operating machine at excavation site.

Crane (operator)

Operates electric-, diesel-, gasoline-, or steam-powered guy-derrick or stiff-leg derrick (mast supported by fixed legs or tripod), to move products, equipment, or materials to and from quarries, storage areas, and processes, or to load and unload trucks or railroad cars: Pushes and pulls levers and depresses pedals to raise, lower, and rotate boom and to raise and lower load line in response to signals.

Forklift (operator)

Drives gasoline-, liquefied gas-, or electric-powered industrial truck equipped with lifting devices, such as forklift, boom, scoop, lift beam and swivel-hook, fork-grapple, clamps, elevating platform, or trailer hitch, to push, pull, lift, stack, tier, or move products, equipment, or materials in warehouse, storage yard, or factory: Moves levers and presses pedals to drive truck and control movement of lifting apparatus. Positions forks, lifting platform, or other lifting device under, over, or around loaded pallets, skids, boxes, products, or materials or hooks tow trucks to trailer hitch, and transports load to

designated area. Unloads and stacks material by raising and lowering lifting device.

Slab & Wall Saw (See Related Power Equipment Operator Above)
Use associated power equipment operators already defined.

Apprentices

Apprentices may be used in any of the crafts listed above where noted, if they are currently certified in a program recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, providing the proper ratio between journeyman and apprentice is observed. Apprentice certification certificates must be supplied with the first weekly payroll upon which the apprentice's name appears.

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

Pipe fitters * Apprentice Schedule (Excluding HVAC Pipe)

Journeyman	Indentured Apprentice	Apprentice Applicant	Total
1	1	0	1 to 1
3	2	1	3 to 3
5	3	2	5 to 5
8	4	3	8 to 7
12	5	4	12 to 9
16	6	5	16 to 11
20	7	6	20 to 13
25	8	7	25 to 15
30	9	8	30 to 17
40	10	9	40 to 19
50	11	10	50 to 21

NOTE: Continue after 50 Journeyman — ONE (1) Indentured Apprentice and one (1) Apprentice Applicant for every ten (10) Journeyman

*** When Apprentices are shown, Helpers cannot be utilized**

APPRENTICES (see definitions)

Registered Apprenticeship Ratios

For All Apprentices

Apprentice duties consist but are not limited to reading blue prints, lay out, fabrication, installation, and assembly. Other duties are the setting up and operation of fabrication machines, using hand tools, power tools, lifting/handling devices, sealing if necessary according to their particular craft. Apprentices also are trained in the preparation process of a job that include but not limited to staging, planning, distribution, and sectioning of materials. Apprentices may be used in any of the crafts listed where noted on the Prevailing Wage Rate Schedule, if they are currently certified in a program recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, providing the proper ratio between journeyman and apprentice is observed. Apprentice certification certificates must be supplied with the first weekly payroll upon which the apprentice's name appears. Laborers cannot be utilized when Apprentices are shown

Asbestos Worker / Insulator

City of Houston allows the use of 1 Journeyman and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 2th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 2 Apprentices

Boilermakers

City of Houston allows the use of 5 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 6th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-5 Journeymen w/ 1 Apprentice
- 6-10 Journeymen w/ 2 Apprentices

Carpenter

City of Houston allows the use of 2 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-2 Journeymen w/ 1 Apprentice
- 3-4 Journeymen w/ 2 Apprentices
- 5-6 Journeymen w/ 3 Apprentices

Electrician

City of Houston allows the use of 3 Journeymen and 2 Apprentices, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 3rd Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman. All Journeymen and Apprentices must hold a current license from the State of Texas.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Plumbers

City of Houston allows the use of 3 Journeymen and 2 Apprentices, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 3rd Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman. All Journeymen and Apprentices must hold a current license from the State of Texas.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Sprinkler Fitter

City of Houston allows the use of 1 Journeyman and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 2th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
 - 2 Journeymen w/ 2 Apprentices
- Sheetmetal Worker

City of Houston allows the use of 2 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1-2 Journeymen w/ 1 Apprentice
- 3-4 Journeymen w/ 2 Apprentices
- 5-6 Journeymen w/ 3 Apprentices

Pipefitter

City of Houston allows the use of 1 Journeymen and 1 Apprentice, the Apprentice can be used with the first Journeyman. No other Apprentices can be added until the 4th Journeyman is added. All Apprentices are to be under the direct supervision of a Journeyman.

- 1 Journeyman w/ 1 Apprentice
- 2 Journeymen w/ 1 Apprentice
- 3 Journeymen w/ 2 Apprentices
- 4 Journeymen w/ 3 Apprentices
- 5 Journeymen w/ 3 Apprentices
- 6 Journeymen w/ 4 Apprentices
- 7 Journeymen w/ 4 Apprentices
- 8 Journeymen w/ 4 Apprentices
- 9 Journeymen w/ 4 Apprentices
- 10 Journeymen w/ 5 Apprentices

Welders

Receive rate prescribed for craft performing operation in which welding is incidental

Pipefitters * Apprentice Schedule (Excluding HVAC Pipe)

NOTE: Continue after 50 Journeyman - ONE (1) Indentured Apprentice and one (1) Apprentice Applicant for every ten (10) Journeyman

Journeyman	Indentured Apprentice	Apprentice Applicant	Total
1	1	0	1 to 1
3	2	1	3to 3
5	3	2	5 to 5
8	4	3	8 to 7
12	5	4	12 to 9
16	6	5	16 to 11
20	7	6	20 to 13
25	8	7	25 to 15
30	9	8	30 to 17
40	10	9	40 to 19
50	11	10	50 to 21

When Apprentices are shown, Helpers cannot be utilized

If there are questions as to the classification of a worker, contact the Contract Compliance Officer in writing with a description of the work to be performed. After reviewing the Contract Compliance Officer will respond in writing with the classification and wage rate to be paid the worker in question.

EXHIBIT "B"

CERTIFICATE FROM CONTRACTOR APPOINTING OFFICER OR EMPLOYEE
TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

Project WBS#: _____ Date _____

Email Address: _____

(I) (We) hereby certify that (I am) (we are) the **Prime Contractor** for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20____; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____
(Signature)

By: _____
(Signature)

(Title)

(Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

EXHIBIT "C"

CERTIFICATE FROM SUBCONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO
SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

Project WBS#: _____ Date _____

Email Address: _____

(I) (We) hereby certify that (I am) (we are) the **Sub Contractor** for _____

(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20____; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

(Identifying Signature of Appointee) Phone: _____

Attest: _____
(Name of Firm or Corporation)

By: _____
(Signature)

By: _____
(Signature)

(Title)

(Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

END OF DOCUMENT



Pay or Play Program Operating Procedures

Background

The Pay or Play Program was established with Ordinance 2007-534 on July 1, 2007 and is governed by Executive Order 1-7. The Pay or Play Program (POP) creates a more level playing field and enhances fairness in the bid process between competing contractors that choose to offer health benefits to their workforce and those who do not. The program also recognizes and accounts for the fact that there are costs associated with providing health care for the uninsured citizens of Houston and Harris County area.

Administration:

- Vendors are required to begin complying with POP within 30 days of contract award by utilizing the designated system, *B2G Workforce Module*, at <https://houston.mwdbe.com> to complete/review POP activities.
- Vendors are required to utilize *JP Morgan Chase Pay Connexion (Pay Connexion)* portal that will accept POP payments electronically. B2G Workforce Module will provide a direct link to *Pay Connexion* where contractors may submit payment via Debit Card, Credit Card, Automated Clearing House (ACH) and/or Electronic Checks (e-checks). Contractors will be charged a convenience fee per transaction.
- Vendors who onboard new employees are allowed a 60-day waiting period upon each new employee's start date to begin participating in POP. After the 60-day period has lapsed, Vendor must include the employee in POP reporting.
- The Office of Business Opportunity (OBO) has citywide administrative oversight of the program, including audit responsibilities. Vendor's compliance with POP requirements will be directly managed by the City Department with whom Vendor has contracted (Contracting Department). Questions about POP should be referred to the Contracting Department's POP Liaison. A contact list for POP Liaisons is available at <http://www.houstontx.gov/obo/popforms.html> or by contacting the OBO POP Administrator at 832-393-0633 or Brianne.Maxwell@houstontx.gov.



Pre-bid/Pre-Proposal Forms:

- Vendors must complete and return the following forms before contract award by the Contracting Department:
 - *Acknowledgment Form* (POP-1)
 - *Certification of Compliance* (POP-2)
 - *Participating Subcontractors Form* (POP-3)

Prime/Subcontractor Waiver Request (Form POP-4):

- Completed by Contracting Department prior to City Council approval contract award, for contract(s) that may meet exemption criteria as stated in EO 1-7. Form POP-4 must be signed by Contracting Department and forwarded, along with supporting documentation, to OBO POP Administrator for final decision.
- A new Form POP-4 is not needed for contract amendments and/or extensions, as the POP requirements in the original contract continues to apply.
- Contractors that utilize self-employed, owner/operator individuals to complete services (e.g., Truck Drivers, Day Laborers, 10-99, etc.) are POP exempt.
- Vendors should not submit a Form POP-4 for contracts enumerated in section 4.2 of EO 1-7, as those contracts are not covered under POP.

Pay Option Reporting (Workforce Audit):

- Vendors will create a *Workforce Employee List* showcasing all active employees working on the City of Houston project. Vendors will complete a weekly workforce audit by the end of each month. Vendors must provide the Total Hours Worked and individual Hours Worked by each covered employee as part of the weekly workforce audit.
 - Total Hours Worked = Total Number of Hours Employee worked for Employer.
 - Hours Worked = Total Number of Hours Employee worked on COH project.

Invoice Submission:

- Invoices are created from monthly *Workforce Audits* reports. Payments are due to the contracting department 30 business days after receipt of invoice. Payments



may be made through the *Pay Connexion*. Prime Vendor is responsible to the City for compliance of covered employees of covered subcontractors.

- Vendors will “Pay” by contributing \$1.00 per covered employee per regular hour for work performed under the contract with the City, not to exceed \$40.00 per employee.
 - POP will not accept partial payments; invoices must be paid in full.

Play Option Reporting (Workforce Audit):

- Vendors will create a *Workforce Employee List* showcasing all active employees working on the City of Houston project.
- Vendors will complete a quarterly workforce audits by month end of October, January, April, and July by providing proof of insurance for all active and covered employees for previous three (3) months.
- Vendors will “Play” by providing health benefits to covered employees. Health benefits must meet or exceed the following standards:
 - The employer will contribute no less than 75% of the monthly premium toward the total premium cost covered employee per month.
 - The employee contribution, if any amount, will be no greater than 25% of the monthly premium cost.

Note: Proof of coverage (in the form of the most current Company Insurance invoice or individual employee insurance card) for POP covered employees that work on the City Project.

Employee Waiver Request (Form POP-8):

- Vendor may request employee POP program waiver by submitting a request on the City of Houston Pay or Play (POP) *Employee Waiver Request* (Form POP-8); if a covered employee has refused health coverage through their employer or if a covered employee has acquired health coverage on their own.
 - Vendor will attach approved Form POP-8 to respective employees’ workforce profile in the designated system.



Self-Insured Contractor Request (Form POP-9):

- Vendor may request for Self-Insured Status if the employer is using their own money to cover their employees' claims.
- Vendors awarded Self-Insured Status will be PLAY participants and required to report once a year.



ATTACHMENT “ ”

Sample Letter of Intent

THIS AGREEMENT IS SUBJECT TO BINDING ARBITRATION ACCORDING TO THE TEXAS GENERAL ARBITRATION ACT.

To: City of Houston
Administering Department

Date: _____

Project Name and Number _____

Bid Amount: _____ M/W/DBE Goal: _____

_____ agrees to enter into a contractual agreement
Prime Contractor

with _____, who will provide the following goods/
MWBE Subcontractor

services in connection with the above referenced contract:

for an estimated amount of \$ _____ or _____ % of the total contract value.

_____ is currently certified with the City of Houston's
(M/W/DBE Subcontractor) Office of Business of Opportunity Office to function in the
aforementioned capacity.

Prime Contractor

M/W/DBE Subcontractor

intend to work on the above-named contract in accordance with the M/W/DBE Participation Section of the City of Houston Bid Provisions, contingent upon award of the contract to the aforementioned Prime Contractor.

Signed (Prime Contactor)

Signed (M/W/DBE Subcontractor)

Printed Signature

Printed Signature

Title

Date

Title

Date

Attachment “ ”

CITY OF HOUSTON CERTIFIED MWBE SUBCONTRACT TERMS

Contractor shall ensure that all subcontracts with M/WBE subcontractors and suppliers are clearly labeled **“THIS CONTRACT IS SUBJECT TO BINDING ARBITRATION ACCORDING TO THE TEXAS GENERAL ARBITRATION ACT”** and contain the following terms:

1. _____(M/WBE subcontractor) shall not delegate or subcontract more than 50% of the work under this subcontract to any other subcontractor or supplier without the express written consent of the City of Houston’s Office of Business Opportunity (“the Director”).
2. _____(M/WBE subcontractor) shall permit representatives of the City of Houston, at all reasonable times, to perform 1) audits of the books and records of the subcontractor, and 2) inspections of all places where work is to be undertaken in connection with this subcontract. Subcontractor shall keep such books and records available for such purpose for at least four (4) years after the end of its performance under this subcontract. Nothing in this provision shall affect the time for bringing a cause of action or the applicable statute of limitations.
3. Within five (5) business days of execution of this subcontract, Contractor (prime contractor) and Subcontractor shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of such agent.
4. As concluded by the parties to this subcontract, and as evidenced by their signatures hereto, any controversy between the parties involving the construction or application of any of the terms, covenants or conditions of this subcontract shall, on the written request of one party served upon the other or upon notice by the Director served on both parties, be submitted to binding arbitration, under the Texas General Arbitration Act (Tex. Civ. Prac. & Rem. Code Ann., Ch. 171 – “The Act”). Arbitration shall be conducted according to the following procedures:
 - a. Upon the decision of the Director or upon written notice to the HR Director from either party that a dispute has arisen, the Director shall notify all parties that they must resolve the dispute within thirty (30) days or the matter may be referred to arbitration.
 - b. If the dispute is not resolved within the time specified, any party or the Director may submit the matter to arbitration conducted by the American Arbitration Association under the rules of the American Arbitration Association, except as otherwise required by the City’s contract with the American Arbitration Association on file in the Office of the City’s Office of Business Opportunity.

- c. Each party shall pay all fees required by the American Arbitration Association and sign a form releasing the American Arbitration Association and its arbitrators from liability for decisions reached in the arbitration.
- d. In the event the American Arbitration Association no longer administers Office of Business Opportunity arbitration for the City, the Director shall prescribe alternate procedures as necessary to provide arbitration by neutrals in accordance with the requirements of Chapter 15 of the Houston City Code of Ordinances.

These provisions apply to goal-oriented contracts. A goal-oriented contract means any contract for the supply of goods or non-professional services in excess of \$100,000.00 for which competitive proposals are required by law; not within the scope of the MBE/WBE program of the United States Environmental Protection Agency or the United States Department of Transportation; and which the City Purchasing Agent has determined to have significant MWBE subcontracting potential in fields which there are an adequate number of known MBEs and/or WBEs to compete for City contracts.

The MWBE policy of the City of Houston will be discussed during the pre-proposal conference. For information, assistance, and/or to receive a copy of the City's Office of Business Opportunity Policy and/or Ordinance, contact the Office of Business Opportunity Division at 713.837.9000, 611 Walker Street, 7th Floor, Houston, Texas 77002.

SECTION 01110
SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project description.
- B. Work description.
- C. City occupancy.
- D. Contractor-salvaged products.
- E. Separate contracts and work by City.
- F. Extra copies of Contract Documents.
- G. Permits, fees and notices.

1.02 THE PROJECT

The Project is at the George Bush Intercontinental Airport/ Houston in Houston, Texas.

1.03 GENERAL DESCRIPTION OF THE WORK

- A. Construct the Work under a single general construction contract as follows:
- B. Construct the Work in a single stage.
- C. The Work is summarized as the repair, rehabilitation, and reconstruction of restrooms within the Terminal at HOU.
 - 1. Cut and patch existing construction designated or required to remain and to receive new construction, following Section 01731- Cutting and Patching, and Section 01761 – Protection of Existing Services.
- D. Contract limit lines are shown diagrammatically on Drawings.

1.04 CITY OCCUPANCY

The City will occupy the premises as required to maintain full functionality within Terminal B during the entire period of construction of construction for the conduct of normal operations. However, the two levels of parking will not be occupied until construction is completed.

- A. Cooperate with the City to reduce conflict, and to facilitate the City's operations. Coordinate Contractor's activities with City Operations or Maintenance personnel through City Engineer.

SUMMARY OF WORK

B. Schedule Work to fit these requirements.

1.05 EXTRA COPIES OF CONTRACT DOCUMENTS

Use reproducible documents, furnished by City following Document 00700 Paragraph 2.2.2, to make extra copies of Contract Documents (dialo prints of Drawings and electrostatic copies of Project Manual) as required by Contractor for construction operations, and for Contractor's records following Sections 01726 - Base Facility Survey and 01770 - Contract Closeout. Follow Document 00700 Paragraph 1.3.

1.06 PERMITS, FEES AND NOTICES

Refer to Document 00700 Paragraph 3.14. Reimburse City for City's payment of fines levied against City or its employees because of Contractor's failure to obtain proper permits, pay proper fees, and make proper notifications. Reimbursement will be by Change Order, reducing the Contract Price as based upon the dollar amount of fines imposed.

PART 2 EXECUTION (NOT USED)

END OF SECTION

SECTION 01145
CONTRACTOR'S USE OF PREMISES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Rights-of-way and access to the Work.
- B. Property and Base Facility outside contract limits.
- C. General requirements for exterior work.
- D. Work in AOA, including electrical lockout/tagout program.
- E. Interior work.
- F. Control of access into security areas.

1.02 SUBMITTALS

- A. Show start dates and duration of closures and impediments on construction schedule following Section 01325 - Construction Schedules.
- B. Prepare written requests, using Document 00931 - Request for Information, and submit requests at least 7 days before access is required, for following:
 - 1. Roadway, street, driveway, curbside and building main entrance/exit closures or impediments. Do not close or impede emergency exits intended to remain.
 - 2. Access to property outside contract limits, required to extend or connect work to utilities or environmental system controls in non-contract areas.
- C. For work involving electrical energy or other hazardous energy sources, submit a Lockout/Tagout Program.

1.03 RIGHTS-OF-WAY AND ACCESS TO THE WORK

- A. Confine access and operations and storage areas to contract limits and other areas provided by City, following Document 00700. Do not trespass on non-City-owned property or on airport occupants' spaces.
- B. Airport operates "around the clock." In cases of conflicts with construction operations, airport operations take precedence. Airport roads, streets, drives, curbsides and sidewalks, and ticketing, baggage claim, security check points, concessions, restrooms, aircraft gates

CONTRACTOR'S USE OF PREMISES

and similar passenger-related areas are intended for year-round uninterrupted use and access by the public and airport operations. Maintain uninterrupted traffic movement.

1. Aircraft and emergency vehicles have right-of-way in AOA.
 2. Private vehicles, public transportation and emergency vehicles have right-of-way on roads, streets, driveways and curbsides.
 3. Passengers have right-of-way in public spaces. Occupants have right-of-way in other occupied areas.
- C. Follow instructions of the City Engineer, Airport Manager and of ATCT. Follow FAA procedures.
- D. FAA will review Contractor's submittals for compliance with FAA requirements. Attend meetings with FAA to assist the City Engineer in obtaining approvals.
- E. Continued violations of or flagrant disregard for policies may be considered default, and individuals disregarding requirements may be determined as objectionable by the City Engineer, following provisions of Document 00700.

Do not close or impede rights-of-way without City Engineer approval.

- F. City Engineer may approve temporary storage of products, in addition to areas shown on Drawings, on-airport areas if storage piles do not interfere with airport operations.
1. No permission will be granted for this type of storage in Terminal roadway areas.

1.04 PROPERTY AND BASE FACILITY OUTSIDE CONTRACT LIMITS

- A. Do not alter condition of property or Base Facility outside contract limits.
- B. Means, methods, techniques, sequences, or procedures which may result in damage to property outside of contract limits are not permitted.
- C. Repair or replace damage to property outside contract limits to condition existing at start of the Work, or better.

1.05 GENERAL REQUIREMENTS FOR EXTERIOR WORK

- A. Obtain permits and City Engineer's approval prior to impeding or closing roadways, streets, driveways, Terminal curbsides and parking areas.
- B. Maintain emergency vehicle access to the Work and to fire hydrants, following Section 01505 - Temporary Facilities.

- C. Do not obstruct drainage ditches or inlets. When obstruction is unavoidable due to requirements of the Work, provide grading and temporary drainage structures to maintain unimpeded flow.
- D. Locate by Section 01726 - Base Facility Survey and protect by Section 01505 - Temporary Facilities which may exist. Repair or replace damaged systems to condition existing at start of Work, or better.
- E. Public, Temporary, and Construction Roads and Ramps:
 - 1. Construct and maintain temporary detours, ramps, and roads to provide for normal public traffic flow when use of public roads or streets is closed by necessities of the Work.
 - 2. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment or exceptionally large or heavy trucks or equipment.
 - 3. Construct and maintain access roads and parking areas following Section 01505 - Temporary Facilities.
- F. Excavation in Streets and Driveways:
 - 1. Do not hinder or needlessly impede public travel on roadways, streets or driveways for more than two blocks at any one time, except as approved by City Engineer.
 - 2. Obtain the City Traffic Management and Maintenance Department and City Engineer's approval when the Work requires closing of off-airport roadways, streets or driveways. Do not unnecessarily impede abutting property.
 - 3. Remove surplus materials and debris and open each block for public use as work in that block is complete. Acceptance of any portion of the Work will not be based on return of street to public use.
 - 4. Provide temporary crossings, or complete work in one continuous operation. Minimize duration of obstructions and impediments at drives or entrances.
- G. Provide barricades and signs following Sections 01505 - Temporary Facilities and 01507 - Temporary Signs.
- H. Traffic Control: Follow Section 01555 - Traffic Control and Regulation.
- I. Surface Restoration:
 - 1. Restore site to condition existing before construction, following Section 01731 - Cutting and Patching, to satisfaction of City Engineer.

1.07 GENERAL REQUIREMENTS FOR INTERIOR WORK

- A. Obtain City Engineer's approval and permits prior to impeding or closing building entrances, corridors, and areas around passenger service functions (ticketing, baggage check and claim, security screening, waiting, aircraft enplaning and deplaning).
- B. Maintain emergency access to the Work and to fire hose and extinguisher cabinets, following Section 01505 - Temporary Facilities.
- C. Do not obstruct fire exits. When obstruction is unavoidable due to requirements of the Work, provide fire-retardant enclosures to maintain unimpeded flow, following Section 01505 - Temporary Facilities.
- D. Locate by Section 01726 - Cutting and Patching and protect by Section 01505 - Temporary Facilities **utility and communications or data systems** which may exist. Repair or replace damaged systems to condition existing at start of Work, or better.
- E. Provide temporary facilities and controls following Section 01505 - Temporary Facilities.
- F. Provide signs following Section 01507 - Temporary Signs.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01241
CONTRACTOR'S VALUE ENGINEERING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for Contractor proposing construction cost reductions for projects exceeding \$100,000.00 in original contract value.
 - 1. Following work is not eligible for value engineering:
 - a. Basic design of a pavement type.
 - b. Runway and taxiway lighting.
 - c. Visual aids.
 - d. Hydraulic capacity of drainage facilities.
 - e. Grade or alignment that reduces the geometric standards of the Work.
 - 2. Do not propose value engineering if resulting work will impair in any manner the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards, or increase contract value or time.
- B. City's procedures for review and approval of Contractor's proposals.

1.02 DEFINITIONS

- A. *Net Savings*: The difference in costs between the original contract value, as agreed by Contractor and City Engineer, for original work related to value engineering and the costs resulting from actual value-engineered work.

1.03 SUBMITTALS

- A. Five copies of Document 00931 - Request for Information specifically identified as a value engineering proposal, and including:
 - 1. Written description of both then-current contract requirements.
 - 2. Written description of proposed changes, with documentation following Section 01630 - Product Options and Substitutions.

CONTRACTOR'S VALUE ENGINEERING

3. Statement of the period of time the proposal is valid, and statement of the time by which a change order incorporating the proposal must be executed.
4. Detailed estimate of the cost of performing work under the then-current contract and under the proposed change.
5. Statement of the effect adoption of the proposal will have on the time for completion of the contract.
6. Items of work affected by the proposed changes, including quantity variation attributable to changes.

1.04 PROCEDURES FOR SUBMITTAL, REVIEW AND NOTICE OF ACCEPTANCE

- A. Prepare and submit documentation following Paragraph 1.03.
- B. Continue to perform work following then current Contract Documents during City's review.
- C. City Engineer or Designer or both will review proposals and indicate decisions thereon following Section 01630 - Product Options and Substitutions.
- D. Notice of acceptance of value engineering proposals will be made by City Engineer by issuance of an appropriate form of contract modification, including revisions to Contract Documents as required to describe changes, following Section 01255 - Modification Procedures, and specifically stating that it is executed pursuant to this Section.

1.05 COST SHARING

- A. The Contractor shall share 50 percent of City's costs of investigating value-engineering proposals, deducting that value from change orders attributable to value-engineered work.
- B. The Contractor shall share 50 percent of the value of net savings resulting from value-engineered work, creditable by change orders corresponding to the value-engineered work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01255
MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Signatories on behalf of City and Contractor.
- B. Contractor's documentation.
- C. Change Orders.
- D. Requests for Proposal.
- E. Work Change Directives.
- F. Execution of Modifications.
- G. Resolving Discrepancies.
- H. Requests for Information or Clarification.
- I. Correlation of Submittals.

1.02 SIGNATORIES

- A. Submit at the Preconstruction Conference (Section 01312 - Coordination and Meetings) a letter indicating the name and address of Contractor's personnel authorized to execute Modifications, and with responsibility for informing others in Contractor's employ or Subcontractors of same.

1.03 REFERENCES

- A. Blue Book: "Dataquest" Rental Rate Blue Book for Construction Equipment.
- B. Rental Rate: The full unadjusted base rental rate for the applicable item of equipment.

MODIFICATION PROCEDURES

1.04 CONTRACTOR'S DOCUMENTATION

- A. Maintain detailed records of changes in the Work. Provide full information required for identification and evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Furnish sufficient data to allow City Engineer's evaluation of Contractor's responses to proposed changes.
- C. Include with each proposal the following minimum information (as applicable to form of Contract Price):
 - 1. Quantities of original Bid Schedule unit price work items (with additions, reductions, deletions, and substitutions).
 - 2. When work items are not included in Document 00410 - Bid Tabulation Form, provide unit prices for the new items, with proper supporting information.
 - 3. For Stipulated Price changes, furnish breakdown of labor, products, taxes, insurance, bonds, temporary facilities and controls as applicable, and overhead and profit.
 - 4. Justification for change, if any, in Contract Time.
 - 5. Additional data upon request.
- D. Payment for rented equipment will be made to the Contractor by actual invoice cost for the duration of time required to complete additional work. If additional work comprises only a portion of the rental invoice where the equipment would otherwise be on the site, compute the hourly equipment rate by dividing the actual monthly invoice by 176. (One day equals 8 hours and one week equals 40 hours.) Operating costs shall not exceed the estimated operating costs given for the item of equipment in the Blue Book.
- E. For changes in the Work performed on a time-and-materials basis using Contractor-owned equipment, compute rates with the Blue Book as follows:
 - 1. Multiply the appropriate Rental Rate (the lowest cost combination of hourly, daily, weekly or monthly rates) by an adjustment factor of 70 percent plus the full rate shown for operating costs. Use 150 percent of the Rental Rate for double shifts (one extra shift per day) and 200 percent of the Rental Rate for more than two shifts per day. No other rate adjustments apply.
 - 2. Standby Rates: 50 percent of the appropriate Rental Rate shown in the Blue Book. Operating costs are allowed.

1.05 CHANGE ORDERS

MODIFICATION PROCEDURES

- A. Changes to Contract Price or Time are made only by execution of a Change Order.
- B. Stipulated Price Change Order: Stipulated Price Change Orders are based on an accepted Proposal/Contract Modification including the Contractor's lump sum price quotation.
- C. Unit Price Change Order:
 - 1. Where Unit Prices for the affected items of Work are included in Document 00410 - Bid Tabulation Form, Unit Price Change Orders are based on unit prices as originally bid, subject to requirements in Articles 7 and 9 of Document 00700 - General Conditions.
 - 2. Where unit prices of Work are not pre-determined in Document 00410 - Bid Tabulation Form, Request for Proposal or Work Change Directive will state the unit prices to use.
- D. Time-And-Material Change Order:
 - 1. Provide an itemized account and supporting data after completion of change, within time limits indicated for claims in Document 00700 - General Conditions.
 - 2. City Engineer will determine the change allowable in Contract Price and Contract Time following Document 00700 - General Conditions.
 - 3. For changes in the Work performed on a time-and-material basis, furnish the following in addition to information specified in Paragraph 1.04.C:
 - a. Quantities and description of products and tools.
 - b. Taxes, insurance and bonds.
 - c. Overhead and profit, following Document 00700 - General Conditions Paragraphs 7.3.2.2.6 or Document 00800 - Supplementary Conditions.
 - d. Dates and times of work performance, and by whom.
 - e. Time records and certified copies of applicable payrolls.
 - f. Invoices and receipts for products, rented tools, and Subcontracts, similarly documented.

1.06 REQUEST FOR PROPOSAL

- A. City Engineer may issue a Request for Proposal, including a detailed description of proposed changes, supported by revised Drawings and Specifications, if applicable. Prepare and submit Contractor's response to the Request for Proposal within 7 days or as specified in the request.
- B. This document does not authorize work to proceed.

MODIFICATION PROCEDURES

- C. Follow instructions on back of the Request for Proposal.

1.07 WORK CHANGE DIRECTIVE (WCD)

- A. City Engineer may issue a WCD instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. City Engineer may issue minor changes in the Work, not involving an adjustment to Contract Price or Time by using a WCD.
- C. The document will describe changes in the Work and will designate a method of determining change, if any, in Contract Price or Time. When properly executed, this document authorizes work to proceed. Follow instructions on back of the WCD.
- D. Promptly execute changes in the Work following the directions from the Work Change Directive.

1.08 RESOLVING DISCREPANCIES

- A. Complete Base Facility survey following Section 01726 - Base Facility Survey prior to preparation of submittal data and commencing main construction operations. Submit survey data of inaccessible concealed conditions as cutting and patching or demolition operations proceed.
- B. Prepare and submit a Request for Information for each separate condition with a written statement of substantive discrepancies, including specific scope, location and discrepancy discovered.
- C. Based upon the Contractor's knowledge of Base Facility conditions "as-found" and the requirements for the Work, propose graphic or written alternatives to Drawings and Specifications to correct discrepancies. Include as supplementary data to the Request for Information.
- D. Modifications due to concealed conditions are allowed only for conditions which are accessible only through cutting or demolition operations.
 - 1. No changes in the Contract Sum or Time are permitted for sight-exposed conditions or conditions visible by entry into access doors or panels and above lay-in or concealed spline acoustical ceilings, or by conditions described in Documents 00320 - Geotechnical Information or 00330 - Existing Conditions.

1.09 REQUEST FOR INFORMATION OR CLARIFICATION

- A. The Request for Information or Clarification does not authorize work that changes the Contract Price or Time.

MODIFICATION PROCEDURES

- B. Request clarification of Contract Documents or other information by using the Request for Information or Clarification.
 - 1. If additional work is required, then the requirement will be requested by the City Engineer's issuance of a Request for Information or Clarification; Request for Proposal; Work Change Directive.
 - 2. This document does not authorize work to proceed.
- C. Changes may be proposed by the Contractor only by submitting a Request for Information following Paragraph 1.08.
- D. The City Engineer may issue minor changes in the Work, not involving an adjustment to Contract Price or Time using a Request for Information or Clarification and following Document 00700 - General Conditions.
- E. Follow directions on back of the Request for Information or Clarification.

1.10 CORRELATION OF SUBMITTALS

- A. For Stipulated Price Contracts, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price, following Section 01290 - Payment Procedures.
- B. For Unit Price Contracts, revise the next monthly estimate of work after acceptance of a Change Order to include new items not previously included and the appropriate unit rates.
- C. Promptly revise progress schedules to reflect any change in Contract Time, revise schedules to adjust time for other items of work affected by the change and resubmit for review following Section 01325 - Construction Schedules.
- D. Promptly record changes on record documents following Section 01770 - Contract Closeout.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

MODIFICATION PROCEDURES

01255-5 ver. 10.07.18

SECTION 01270
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for measurement and payment plus conditions for nonconformance assessment and nonpayment for rejected Products.

1.02 AUTHORITY

- A. Measurement methods delineated in Specification Sections are intended to complement criteria of this Section. In event of conflict, requirements of the Specification Section shall govern.
- B. Project Manager will take all measurements and compute quantities accordingly.
- C. Assist by providing necessary equipment, workers, and survey personnel
- D. Measurement and Payment paragraphs are included only in those Specification Sections of Division 01, where direct payment will be made. Include costs in the total bid price for those Specification Sections in Division 01 that do not contain Measurement and Payment paragraphs.

1.03 UNIT QUANTITIES SPECIFIED

- A. Quantity and measurement estimates stated in the Agreement are for contract purposes only. Quantities and measurements supplied or placed in the Work and verified by Project Manager will determine payment as stated in Article 9 of Document 00700 – General Conditions.
- B. When actual work requires greater or lesser quantities than those quantities indicated in Document 00410 – Bid Form, provide required quantities at Unit Prices contracted, except as otherwise stated in Article 9 of Document 00700 – General Conditions.

1.04 MEASUREMENT OF QUANTITIES

- A. Measurement by Weight: Reinforcing Steel, rolled or formed steel or other metal shapes are measured by CRSI or AISC Manual of Steel Construction weights. Welded assemblies are measured by CRSI or AISC Manual of Steel Construction or scale weights.
- B. Measurement by Volume:

MEASUREMENT AND PAYMENT

1. Stockpiles: Measured by cubic dimension using mean length, width, and height or thickness.
2. Excavation and Embankment Materials: Measured by cubic dimension using average end area method.
- C. Measurement by Area: Measured by square dimension using mean length and width or radius.
- D. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
- E. Stipulated Price Measurement: By unit designation in the Agreement.
- F. Other: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
- G. Measurement by Each: Measured by each instance or item provided.
- H. Measurement by Lump Sum: Measure includes all associated work.

1.05 PAYMENT

- A. Payment includes full compensation for all required supervision, labor, Products, tools, equipment, plant, transportation, services, and incidentals; and erection, application or installation of an item of the Work; and Contractor's overhead and profit.
- B. Total compensation for required Unit Price work shall be included in Unit Price bid in Document 00410 – Bid Form. Claims for payment as Unit Price work, but not specifically covered in the list of Unit Prices contained in Document 00410 – Bid Form, will not be accepted.
- C. Interim payments for stored materials will be made only for materials to be incorporated under items covered in Unit Prices, unless disallowed in Document 00800 - Supplementary Conditions.
- D. Progress payments will be based on Project Manager's observations and evaluations of quantities incorporated in the Work multiplied by Unit Price.
- E. Final payment for work governed by Unit Prices will be made on the basis of actual measurements and quantities determined by Project Manager multiplied by the Unit Price for work which is incorporated in or made necessary by the Work.

1.06 NONCONFORMANCE ASSESSMENT

- A. Remove and replace work, or portions of the Work, not conforming to the Contract documents.

MEASUREMENT AND PAYMENT

- B. When not practical to remove and replace work, City Engineer will direct one of the following remedies:
 - 1. Nonconforming work will remain as is, but Unit Price will be adjusted lower at discretion of City Engineer.
 - 2. Nonconforming work will be modified as authorized by City Engineer, and the Unit Price will be adjusted lower at the discretion of City Engineer, when modified work is deemed less suitable than specified
- C. Specification sections may modify the above remedies or may identify a specific formula or percentage price reduction.
- D. Authority of City Engineer to assess nonconforming work and identify payment adjustment is final.

1.07 NONPAYMENT FOR REJECTED PRODUCT

- A. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in an unacceptable manner.
 - 2. Products determined as nonconforming before or after placement.
 - 3. Products not completely unloaded from transporting vehicles.
 - 4. Products placed beyond lines and levels of required work.
 - 5. Products remaining on hand after completion of the Work, unless specified otherwise.
 - 6. Loading, hauling, and disposing of rejected Products.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

MEASUREMENT AND PAYMENT

SECTION 01290
PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Schedule of Values.
- B. Billing forecast.
- C. Value/ time log.
- D. Expenditure of Cash Allowances.
- E. Applications for Payment.
- F. Payment for mobilization work.
- G. Final payment.

1.02 DEFINITIONS

- A. *Schedule of Values*: Itemized list, prepared by the Contractor, establishing the value of each part of the Work for a Stipulated Price contract, or for Major Stipulated Price items for a Unit Price contract. The Schedule of Values is the basis for preparing applications for payment. Quantities and unit prices may be included in the schedule when approved or required by City Engineer.
- B. *Major Stipulated Price Item*: Item listed in Document 00410 - Bid Tabulation Form which qualifies as Major Unit Price Work following Document 00700 - General Conditions Paragraph 9.1.5.

1.03 SUBMITTALS

- A. The Contractor must utilize, a web-based system run by the Houston Airport System, to submit Invoices. Before doing so, the Contractor must attend a brief mandatory training session, which will be conducted by a member of HAS. The Contractor must contact the designated HAS trainer prior to the start of construction to schedule a time for training. Access to will not be given to the Contractor's team until training is completed. All document collaboration will be done using a web-based system.

PAYMENT PROCEDURES

- B. Submit electronic version in native format of preliminary Schedule of Values at the Preconstruction Conference (Section 01312 - Coordination and Meetings). Submit electronic copy in native format of final and updated Schedule of Values with each copy of Application for Payment.
- C. Submit electronic version in native format of Billing Forecast and Value/Time Log at first Progress Meeting (Section 01312 - Coordination and Meetings). Obtain approval before making first application for payment. Coordinate this submittal with Master Schedule specified in Section 01325 - Construction Schedules.
- D. Produce electronic document for Billing Forecast and Value/Time Log on 8 1/2 by 11-inch white bond paper.

1.04 SCHEDULE OF VALUES

- A. Prepare Schedule of Values as follows:
 - 1. Prior to the submission of the initial Application for Payment, Contractor shall obtain Project Manager approval for the format and content of the schedule of values for all invoices including the grouping of costs along the lines of specific equipment, asset or deliverable produced as a result of the work performed.
 - 2. For Stipulated Price contracts, use the Table of Contents of the Project Manual as the outline for listing the value of work by Sections.
 - 3. For Unit Price contracts, use Document 00410 as the outline. Include a proportional share of Contractor's overhead and profit in each Unit Price item so the sum of all items equals the Contract Price.
 - 4. List mobilization, bonds, insurance, accepted Alternates and Cash Allowances as separate items.
- B. Round off values for each item to the nearest \$100.00, except for the value of one item of the Contractor's choice, if necessary, to make the total of all items in the Schedule of Values equal the Contract Price.
- C. At direction of City Engineer revise the Schedule of Values and resubmit for items affected by Modifications, at least 10 days prior to submitting the next Application for Payment. List each Change Order as a separate item.

1.05 BILLING FORECAST

Prepare an electronic graphic or tabular Billing Forecast of estimated monthly applications for payment for the Work.

- A. This information is not required in the monthly updates, unless significant changes in work require resubmittal of the schedule. Allocate the units indicated in the bid schedule or the schedule of values to Construction Schedule activities (weighted allocations are acceptable, where appropriate). Spread the dollar value associated with each allocated unit across the duration of the activity on a monthly basis. Indicate the total for each month and cumulative total.
- B. Billing forecast is only for planning purposes of City Engineer. Monthly payments for actual work completed will be made by City Engineer following Document 00700 - General Conditions.

1.06 VALUE/ TIME LOG

Prepare an electronic Value/ Time Log as a slope chart, showing:

- A. Original Contract Time/ Modified Contract Time: x coordinate, in weeks.
- B. Original Contract Value/ Modified Contract Value: y coordinate, in thousands of dollars.

1.07 EXPENDITURE OF CASH ALLOWANCES

- A. Verify with City Engineer that work and payment requested is covered by Cash Allowance.
- B. Prepare electronic version of Document 00685 - Request for Information following Section 01726 - Base Facility Survey, include following minimum data to support Contractor's request for expenditure of Cash Allowances listed in Section 01210 - Cash Allowances, and process in a timely manner to allow detailed review by City Engineer:
 - 1. Statement of fact indicating reason(s) expenditure is required. Include photographs or video following Section 01321 - Construction Photographs documenting existing conditions.
 - 2. Quantity survey, made from on-site measurements, of quantity and type of work required to properly complete work.
 - 3. Cost of work, including detailed proposals from trade(s) responsible. For work governed by unit prices, applying unit prices following this Section.
 - 4. Trade(s) responsible for corrective work.
 - 5. Change in Contract Time.
 - 6. Administrative data, including contract name and number, and Contractor's name.
- C. Do not commence affected work without written authorization.

PAYMENT PROCEDURES

- D. Process approved expenditures following Section 01255 - Modification Procedures and Application for Payment process below.

1.08 APPLICATIONS FOR PAYMENT

- A. Submit each Application for Payment following Document 00700 and as directed via SharePoint which utilizes an electronic version of the American Institute of Architects Document G702 including G703 continuation sheets.

1.09 PAYMENT FOR MOBILIZATION WORK

- A. Measurement for mobilization is on a lump sum basis if included as a unit price in Document 00410.

- B. Mobilization payments paid upon application by Contractor subject to:

- 1. Authorization for payment of 50 percent of the contract price for mobilization will be made upon receipt and approval by City Engineer of the following submittal items, as applicable:

- a. Schedule of values.
- b. Trench safety program.
- c. Construction schedule.
- d. Photographs.
- e. Submit QC Program

- C. Authorization for payment of the remaining 50 percent of the Contract Price for mobilization will be made upon completion of Work amounting to 5 percent of the Contract Price less the mobilization unit price.

- D. Mobilization payments are subject to retainage amounts stipulated in the Document 00700.

1.10 FINAL PAYMENT

- A. When Contractor considers the Work is complete, submit written certification that:

- 1. Work is fully inspected by the Contractor for compliance with Contract Documents.
- 2. Work follows the Contract Documents, and deficiencies noted on the Punch List are corrected.

PAYMENT PROCEDURES

3. Products are tested, demonstrated and operational.
 4. Work is complete and ready for final inspection.
- B. In addition to submittals required by Document 00700 and other Sections:
1. Furnish submittals required by governing authorities, such as Certificate of Occupancy and Certificates of Inspection.
 2. Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and sum remaining due (final Application for Payment).
- C. When the Work is accepted, and final submittals are complete, a final Certificate for Payment will be issued.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01292
SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparation and submittal of Schedule of Values for Stipulated Price Contracts or for Major Unit Price Work on Unit Price Contracts.

2.01 PREPARATION

- A. For Stipulated Price Contracts, subdivide the Schedule of Values into logical portions of the Work, such as major work items or work in contiguous construction areas. Use Section 01325 • Construction Schedule as a guide to subdivision of work items. Directly correlate Items in the Schedule of Values with tasks in the Construction Schedule. Organize each portion using the Project Manual Table of Contents as an outline for listing value of the Work by Sections. A pro rata share of mobilization, Bonds, and insurance may be listed as separate items for each portion of the Work.
- B. For Unit Price Contracts, items should include a proportional share of Contractor's overhead and profit so that total of all items will equal Contract Price.
- C. For lump sum equipment items, where submittal of operation and maintenance data and testing are required, include separate items for equipment operation and maintenance data where:
 - 1. submittal of maintenance data is valued at five percent of the lump sum amount for each equipment item and
 - 2. submittal for testing and adjusting is valued at five percent of the lump sum amount for each equipment item.

Round off figures for each item listed to the nearest \$100. Set the value of one item, when necessary, to make total of all values equal the Contract Price for Stipulated Price Contracts or the lump sum amount for Unit Price Work.

3.01 SUBMITTAL

- A. Submit the Schedule of Values, in accordance with requirements of Section 01330 - Submittal Procedures, at least 10 days prior to processing of the first Certificate for Payment.

SCHEDULE OF VALUES

- B Submit the Schedule of Values in an approved electronic spreadsheet file and an 8 1/2•inch by 11•inch print on white bond paper.
- C. Revise Schedule of Values for items affected by Contract Modifications. After City Engineer has reviewed changes, resubmit at least 10 days prior to the next scheduled Certificate for Payment date.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01312
COORDINATION AND MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General coordination is required throughout the documents and the Work. Refer to all of the Contract Documents and coordinate as required to maintain communications between Contractor, City and Designer; Subcontractors and Suppliers. Assist City with communications between Contractor and City's separate contractors.
- B. Preconstruction conference.
- C. Progress meetings.
- C. Daily briefings.

1.02 SUBMITTALS

In addition to submittals related to meetings and described elsewhere in this Section, see following Sections for submittals prepared under those Sections, but submitted under this Section:

- A. Section 01255 - Modification Procedures: Individual authorized to execute Modifications.
- B. Section 01506 - Temporary Controls: "Airport Construction Control Plans", containing submittals prepared under Section 01506 and other Sections referenced therein.

1.03 RESPONSIBILITIES FOR MEETINGS

- A. City Engineer may act directly or through designated representatives identified by name at the Preconstruction Conference, and will schedule, chair, prepare agenda, record and distribute minutes and provide facilities for conferences and meetings.
- B. Contractor:
 - 1. Present status information and submittal data for applicable items.
 - 2. Record and distribute Contractor's corrections to meeting minutes.
 - 3. Provide submittal data for attendees. Prepare, reproduce and issue Contractor's documents to support conferences and meetings. Issue typically as part of each session unless more frequent publication is necessary. Issue one copy to each conference attendee, and to others as directed by City Engineer and as required by Contractor.

COORDINATION AND MEETINGS

- a. Transmit documents requiring urgent action by email or messenger.
- b. Provide electronic and/or hard copies as required to properly document the project or project actions. The Contractor shall coordinate the submittal format with the City Engineer.
- c. Initiate and provide facilities for Coordination Meetings as required in 1.04. H.1.
- d. Costs for documentation are the Contractor's responsibility.

1.04 CONTRACTOR COORDINATION

- A. Coordinate scheduling, submittals, and work of Sections to achieve efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify characteristics of products are compatible with existing or planned construction. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing products in service.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Conceal pipes, ducts, wiring and fasteners in finished areas, except as otherwise indicated. Coordinate locations of fixtures and outlets with finish elements. Locate work requiring accessibility to coordinate with existing access panels and doors.
- E. Coordinate completion and clean up of work for Substantial Completion and for portions of the Work designated for partial occupancy.
- F. Coordinate access to site and within the work area(s) for correction of nonconforming work. Minimize disruption of occupants' activities where work areas are occupied.
- G. Do not proceed with affected work until discrepancies in contract requirements are resolved and unsatisfactory substrate and site conditions are corrected.
- H. Coordination Drawings: Before materials are fabricated or Work begun, prepare coordination Drawings including plans, elevations, sections, and other details as required to clearly define relationships between sleeves, piping, ductwork, conduit, ceiling grid, lighting, fire sprinkler, HVAC equipment and other mechanical, plumbing and electrical equipment with other components of the building such as beams, columns, ceilings, and walls.
 1. Hold Coordination Meetings with trades providing the above Work, to coordinate Work of the trades for each floor and mechanical areas.
 2. Prepare coordination Drawings to 1/4" = 1'-0" scale for general layout and 3/8" = 1'-0" for plans and sections in congested areas such as equipment spaces.

COORDINATION AND MEETINGS

3. Resolve conflicts between trades, prepare composite coordination Drawings and obtain signatures on original composite coordination Drawings.
4. When conflicts cannot be resolved, Contractor shall request clarification prior to proceeding with that portion of the Work affected by such conflicts or discrepancies. Prepare interference Drawings to scale and include plans, elevations, sections, and other details as required to clearly define the conflict between the various systems and other components of the building such as beams, columns, and walls, and to indicate the Contractor's proposed solution.
5. Submit Drawings for approval whenever job measurements and an analysis of the Drawings and Specifications by the Contractor indicate that the various systems cannot be installed without significant deviation from the intent of the Contract. When such an interference is encountered, cease Work in the general areas of the conflict until a solution to the question has been approved by the project Architect/Engineer.
6. Submit original composite coordination Drawings as part of record document submittals specified in Section 01770.

1.05 PRECONSTRUCTION CONFERENCE

- A. Attendance Required: City Engineer's representatives, Construction Manager (when so employed), Designer(s), Contractor, Contractor's Superintendent, and major Subcontractors.
- B. Submittals for review and discussion at this conference:
 1. Draft Schedule of Values, following Section 01290 - Payment Procedures.
 2. Bound draft of Airport Construction Plans, following Sections 01506 - Temporary Controls and 01555 - Traffic Control and Regulation.
 3. Draft construction schedule(s), following Section 01325 - Construction Schedules.
 4. Draft Submittal Schedule, following Sections 01325 - Construction Schedules and 01340 - Shop Drawings, Product Data and Samples.
- C. Agenda:
 1. Status of governing agency permits.
 2. Procedures and processing of:
 - a. Submittals (Section 01340 - Shop Drawings, Product Data and Samples).
 - b. Permitted substitutions (Section 01630 - Product Options and Substitutions).
 - c. Applications for payment (Section 01290 - Payment Procedures).
 - d. Document 00685- Request for Information.

COORDINATION AND MEETINGS

- e. Modifications Procedures (Section 01255 - Modification Procedures).
 - f. Contract closeout (Section 01770 - Contract Closeout).
3. Scheduling of the Work and coordination with other contractors (Sections 01325 - Construction Schedules, 01326 - Construction Sequencing and this Section).
 4. Agenda items for Site Mobilization Conference, if any, and Progress Meetings.
 5. Procedures for Daily Briefings, when applicable.
 6. Procedures for City's acceptance testing (Sections 01450 - Contractor's Quality Control, 01455 - City's Acceptance Testing, 01241 - Contractor's Value Engineering, and 01457 - Estimating Percentage of Product Within Specification Limits).
 7. Record documents procedures (Section 01770 - Contract Closeout).
 8. Finalization of Contractor's field office and storage locations (Section 01505 - Temporary Facilities).
 9. Use of premises by City and Contractor (Section 01145 - Use of Premises).
 10. Status of surveys (01726 - Base Facility Survey).
 11. Review of temporary controls and traffic control (Sections 01506 - Temporary Controls and 01555 - Traffic Control and Regulation).
 12. Construction controls provided by City.
 13. Temporary utilities and environmental systems (Section 01505 - Temporary Facilities).
 14. Housekeeping procedures (Section 01505 - Temporary Facilities).

1.06 PROGRESS MEETINGS

- A. City Engineer will hold Progress Meetings weekly, or at other frequency determined by progress of the Work, at Department of Aviation office at

111 Standifer Street (at George Bush Intercontinental Airport/ Houston), Houston, Texas 77338 (281) 233-3000.
- B. Attendance Required: Contractor's Superintendent, major Subcontractors' and Suppliers' superintendents, City Engineer representatives, and Designer(s), as appropriate to agenda topics for each meeting.
- C. Submittals for review and discussion at this conference:
 1. Project schedule (Section 01325 - Construction Schedules).

COORDINATION AND MEETINGS

2. Submittal Log (Section 01340 - Shop Drawings, Product Data and Samples).
3. Log of Document 00685 - Request for Information.

D. Agenda:

1. Review minutes of previous meetings to note corrections and to conclude unfinished topics.
2. Review of: progress schedule; coordination issues if any; corrective measures if any to regain planned progress; planned progress during succeeding work period; off-site fabrication and product delivery schedules.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress and Contractor's proposals for resolution.
5. Review of submittals schedule and status of submittals.
6. Review of RFI status.
7. Review of Request for Proposal, Work Change Directive and Change Order status.
8. Closings and impediments (Section 01145 - Contractor's Use of Premises).
9. Maintenance of quality and work standards (Sections 01450 - Contractor's Quality Control and 01455 - City's Acceptance Testing).
10. Effect of proposed changes on progress schedule and coordination.
11. Other items affecting completion of the Work within contracted cost and time.

1.07 DAILY BRIEFINGS

- A. In addition to Progress Meetings, hold briefings as frequently as required, at place designated by the City Engineer, to coordinate details of construction and airport operations. Discuss specific requirements, procedures and schedule changes, and closures and impediments.
- B. When required, hold briefing before start of work each day, to confirm that required activities are properly allocated and unchanged.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01321
CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Progress photographs to supplement Applications for Payment.
- B. Detail photographs and video to supplement Request for Informaion.

1.02 MEASUREMENT AND PAYMENT

- A. Cost of photographs is incidental to the Contract Price. No additional costs will be paid for other than administrative costs of extra copies and photographs resulting from additional station points.
- B. Following work will be paid on a Unit Price basis:
 - 1. Extra Prints: Per print.
 - a. Extra prints provided direct from the photographer to parties authorized by the City Engineer up to date of Substantial Completion, priced at prevailing local commercial rates. Include photographer's costs and Contractor's administrative costs only.
 - b. Extra prints provided direct from the photographer to the City Engineer up to 3 years after the date of Substantial Completion, priced at prevailing local commercial rates. Include photographer's costs but not Contractor's costs for this service.
 - 2. Additional Station Points: Per stationpoint, for photographs made during same trips as Paragraph 2.01.
- C. Emergencies: Per trip to site. Take additional photographs or video, as appropriate to conditions, within 24 hours of the City Engineer's request. This applies to professional photography required by conditions stated in Paragraph 8.2.1 in Document 00700 - General Conditions.
- D. Following photography will be commissioned by Modification: Publicity photographs; special events at site; photographs taken at fabrication locations off-site.

1.03 SUBMITTALS

- A. Station point Plan: One copy of the Site Plan, marked to show plan, altitude and cone-of-view of each stationpoint selected by the City Engineer or Designer. Submit at least 10 days prior to taking Preconstruction Photographs.

CONSTRUCTION PHOTOGRAPHS

- B. Preconstruction Photographs: Same as Paragraph B., except one-time only, and marked as such.
- C. Progress Photographs: 3 prints (or digital copies) on approved media of each view. Submit 2 prints and 1 color aerial photograph of the project site (or digital copies) with each Application for Payment. Retain 1 print (or digital copy) by the Contractor at the work site and available at all times for reference. Retain photographic digital files, at the photographer's office, for 3 years after Substantial Completion.
- D. Photographs and Video Supporting RFI: Identify following with RFI number and date of photographs:
 - 1. Submit 1 copy of 3x5 inch prints on white card stock in clear plastic sleeves.
 - 2. Submit video on CD's or other approved media. Include video identification number, date of record, approximate location, and brief description of record.
- E. Contract Closeout: Follow Section 01770, Contract Closeout to:
 - 1. Return electronic copies of RFI photographs and video on CD's or other approved media device, identified by Project name, Contractor, and date photographs were taken.
 - 2. Return video on CD's or other approved media device, identified with contents, by RFI number, and each CD or other approved media device numbered sequentially and with "Date From/ To" on each.
- F. Aerial Progress Photographs: Submit 5 prints and 1 CD of 2 consistent oblique views with each Application for Payment. Retain 1 print by the contractor at the work site and available at all times for reference. The photos shall be large format oblique angles taken from a height and viewpoint to be selected by the City Engineer.

1.04 QUALITY ASSURANCE

- A. Timely take and produce photographs from proper station points and provide proper image quality.
- B. Cooperate with the photographer's work. Provide reasonable auxiliary services as requested, including access and use of temporary facilities including temporary lighting.
- C. Qualifications of Photographer for General Progress Photographs: A firm or individual of established reputation regularly engaged as a professional building or scene photographer for not less than 3 years.
- D. Qualifications of Photographer for RFI Photographs and Video: An employee of the Contractor knowledgeable in photography and videotaping technique, including proper use

CONSTRUCTION PHOTOGRAPHS

of video pan-zoom, close-ups, lighting, audio control, clear narrative, smooth transition between subjects, and steady camera support.

- E. Qualifications of Aerial Photographer: A firm or individual of established reputation, regularly engaged in aerial photography with prior experience at IAH.

PART 2 PRODUCTS

2.01 MEDIA

- A. Fixed-Film: 35mm color print film or color slide film, as determined by City Engineer; ASA 100 minimum, higher when required by lighting conditions.
- B. Paper Prints:
1. For Progress Photographs: 8x10 inch matte-finish color, in clear plastic envelop with reinforced 3-ring binding.
 2. For RFI Photographs: 3x5 inch minimum size, matte-finish color, contact-mounted on flexible white paper card stock in clear plastic envelop with reinforced 3-ring binding.
- C. Video: Approved playable PC digital format; record at slowest speed or speed capable of freezing a clear image on "Pause"; date and time stamp as part of recording process. Use audio function for slate data below.
1. Provide color playback equipment at Contractor's site office, with minimum 13-inch (diagonal) screen size.
- D. Bitmapped (Digital) Images: TIFF, JPG, PNG, GIF, JPEG, BMP, TGA, or TIFF format, maximum 1280x480 and minimum 480x480 pixels, digitally date and time stamped.

2.02 PRECONSTRUCTION, PROGRESS AND RFI PHOTOGRAPHS

- A. Preconstruction Photographs: Prior to beginning on-site construction, take five sets of fixed-film photographs of the project area from approved stationpoints. Show condition of existing site area, and particular features as directed, within contract limits.
1. At exterior views, surrounding situs, showing streets, curbs, esplanades, landscaping, runway, taxiway and apron pavement.
 2. At interior views, surrounding situs, showing floors, walls, ceilings and architectural signs.
 3. Take pan-view photographs as required to encompass existing conditions.

- B. Progress Photographs for Applications for Payment: Take 3 fixed-film photographs from each of 2 station-points (same station points each time to show a time-lapse sequence), coinciding with the cutoff date associated with each application for payment, and at Substantial Completion of each stage of the Work.
- C. Photographs and Video for Request for Information: Take photographs and video as required to support Document 00685, Request for Information:
 - 1. Details of existing conditions before construction begins.
 - 2. Details of construction.
 - 3. Details of damage or deficiencies in existing construction and work of separate contractors.
 - 4. Take number of images as required to fully show conditions.

PART 3 EXECUTION

3.01 GENERAL

- A. Do not record over previous video records.
- B. Provide clear, sharp, vibration-less video data and clear audio without detrimental background noise.

END OF SECTION

SECTION 01325
CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.
- C. City of Houston (City) Policies, Standards and Procedures, as applicable.

2.01 SECTION INCLUDES

- A. Project Schedules and Progress Reporting
- B. Construction Sequencing and Phasing

3.01 DEFINITIONS

- A. Contractor: With respect to the Division 01 requirements, the entity contracted by the City to deliver the preconstruction and construction services defined in the Contract Documents.
- B. Design Consultant - Person or firm and its authorized representatives, under contract with the City, to provide professional services during pre-construction and construction.
- C. Project Scheduling Techniques
 - 1. CPM: Critical Path Method
 - 2. PDM: Precedence Diagramming Method
- D. Section Definitions
 - 1. **Activity:** A discrete element of Work or task performed during the course of the Project. Each schedule activity shall be clearly defined depicting duration, start and finish dates, logic links to predecessor and successor activities and supported by defined resources where applicable. The activities shall be detailed in such a way,

CONSTRUCTION SCHEDULES

- that they shall support the planning and measurement of physical percent complete for the purposes of Earned Value Management reporting.
2. **Baseline Schedule:** The schedule prepared by the Contractor and approved by the City which is the basis for representing the full scope of Work, the time scales and phasing for delivery, providing a means against which progress can be determined.
 3. **Commissioning and Integration Testing Schedule:** Activities contained within the Project Schedule depicting startup, testing and commissioning phase of the Project, including activities associated with the transition to revenue service and required for achievement of Final Acceptance.
 4. **Constraint:** Scheduling restriction imposed on start or finish of an activity. A constraint restricts the movement of an activity based on the type of constraint and the date used and may override the logic relationship also assigned to the activity.
 5. **Construction Schedule:** Activities within the Project Schedule which depicts the construction activities performed or to be performed by the Contractor as a part of the Project.
 6. **Contractor's Project Management Plan:** A formal document prepared by the Contractor and approved by the City which describes how the Project will be planned and progressed and delivered by the Contractor and the necessary reviews and acceptances by the City.
 7. **Cost Breakdown Structure:** The breakdown structure the Contractor shall use to distribute contract costs in the various estimates, Schedule of Values and in alignment to the Work Breakdown Structure.
 8. **Critical Path Method (CPM):** Scheduling technique utilizing activities, durations, and interrelationships/dependencies (logic), such that activities are interrelated with logic ties from the beginning of Project to Final Acceptance.
 9. **Data Date:** Date when the status of schedule activities is determined for a Monthly Progress Schedule report. Any data prior to the Data Date is considered historical information and data after is the forecast of remaining work.
 10. **Design Schedule:** Activities within the Project Schedule which includes the design activities of the Project. The Design Schedule shall demonstrate the interdependence between design activities and the Owner's requirements. The Design Schedule shall also demonstrate the relationships between design activities and the requirements to successfully deliver the activities within the Construction Schedule.
 11. **Float:** The term "float" shall refer to "end float", also called "terminal float" End or terminal float is the period by which the finish of the longest path through a schedule

CONSTRUCTION SCHEDULES

- (the critical path) can be delayed, brought forward, or extended without affecting the completion date.
12. **Float Suppression:** Any technique that causes an activity to show less float, including but not limited to, as late as possible constraints and unnecessary lags.
 13. **Fragnet:** A group of interrelated activities taken from or to be added to a Schedule that can stand on their own representing only a portion of a CPM schedule. For example, a Fragnet can be used to portray a scope of work being added to, or changed from, a Project Schedule.
 14. **Key Plans:** Graphic representations on prints of Contract Documents of Contractor's planned breakdown of Project for scheduling purposes. Key plans shall clearly define boundaries of work for each designated segment, locations, and sub-locations. Alphanumeric codes on plans shall match code values for activity code designation in the Project Schedule.
 15. **Lag:** Time that an activity follows or is offset from the start or finish of its predecessor.
 16. **Materials Plan:** A plan for purchase, fabrication, delivery, storage and issuing of materials and products to the Project which must be integrated into the Project Schedule.
 17. **Look-Ahead Schedule:** An element schedule prepared by the Contractor detailing the status of the work as of the Progress Date and Contractor's plan for executing the remaining work before recalculation and/or re-sequencing.
 18. **Longest Path:** The Longest Path is the Path through a Project network from start to finish where the total duration is longer than any other path. The Longest Path is determined by the string of activities, relationships that push the Project to its latest early finish dates.
 19. **Monthly Progress Schedules:** The updates to the Project Schedules prepared by Contractor and submitted to the City on a monthly basis with the Application for Payment. There are two versions of Monthly Progress Schedules submitted; a Progress Only (PO) version and a Contractor Adjusted (CA) version.
 20. **Preconstruction Schedule:** An element of the Project Schedule prepared by the Contractor which includes activities prior to approval to proceed with construction activities.
 21. **Project Schedule:** A CPM Schedule prepared by the Contractor that includes all elements of the Scope of Work of the Contract. The Project Schedule clearly identifies all relationships that exist within the Scope of Work. The Project Schedule

CONSTRUCTION SCHEDULES

- communicates the sequencing of the multiple phases of work. The Project Schedule identifies interfaces, both internal and external to the Scope of Work of the Contract. The Project Schedule encompasses the Baseline Schedule, Look Ahead Schedules, Delivery Phase Schedules (Design, Procurement, Detailing, Fabrication, Shipment, Installation, Construction, Startup, Testing and Commissioning), updated or revised Baseline Schedules. The Project Schedule also includes Monthly Progress Schedules, Proposed Schedules, Schedule Fragnets, Recovery Schedules.
22. **Program Schedule:** When multiple Projects are logically linked into a Program, the Program Schedule is prepared by the City and incorporates all the interrelated projects by combining the individual Project Schedules. Project Schedules become element schedules of the Program Schedule.
 23. **Proposed or Preliminary Schedule:** A schedule prepared by Contractor, prior to approval of the schedule by the City and subsequent incorporation into the Project Schedule. Also referred to as Draft or Initial Schedule.
 24. **Recovery Schedule:** A schedule prepared by the Contractor and to be approved by the City which details the Contractor's plan for recovery of time lost on the Project and associated costs.
 25. **Revised Baseline Schedule:** A revision to the Baseline Schedule that is necessitated to accurately reflect a significant change in scope or phasing of the scheduled Activities. The Baseline Schedule shall not be revised without prior approval by the City.
 26. **Status Data Date:** The "as-of" date up to which all progress has been updated and reflected in the Status report. The Status Data Date is also the date from which a Look-ahead Schedule predicts future activities and progress.
 27. **Submittal Schedule:** A register (list) of the Submittals to be made for materials, products, shop drawings, plans which is prepared by the Contractor and includes durations needed for submittal, reviews and processing. The dates and durations are to be coordinated with the associated activities within the Project Schedule.
 28. **Delay Analysis:** Technique that demonstrates comparison of time impact for each schedule revision or proposed revision against the current Project Schedule. Methodology shall follow Association for the Advancement of Cost Engineering International (AACEI) Delay Analysis as applied in Construction (Recommended Practice No. 52R-06.) as a guideline or method submitted by the Contractor and approved by the PMT.
 29. **Work Breakdown Structure (WBS):** A deliverable-oriented breakdown of a project into decreasingly smaller components, also described as a hierarchical decomposition of the project team's work into manageable sections.

CONSTRUCTION SCHEDULES

30. **Working Day:** Day scheduled for active execution of Work in the Project Schedule Calendar in accordance with the Contract and as approved by the City.

4.01 SUMMARY

A. Acceptance of Schedule Requirements by Contractor

1. The Contractor accepts the responsibility to complete the project on time as called for in the contract.

B. Schedule Requirements

1. The Contractor is responsible for determining the sequence of activities, the time estimates for the detailed construction activities and the means, methods, techniques and procedures to be employed. The Project Schedule shall represent the Contractor's plan of how it will prosecute the Work in compliance with the Contract requirements. Contractor shall ensure that the Project Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions may require and as required by the Contract Documents. Unless the context indicates otherwise, the term "schedule" used herein will be read to include updated schedules.
2. Schedules shall contain logic and necessary components to perform Critical Path Method (CPM) network analysis. Contractor's schedule shall also be able to illustrate Precedence Diagramming Method (PDM).
3. Contractor shall include in the Project schedule contractual milestones and all interface points with City, Design Consultant(s), Subcontractors, Suppliers, and other Contractors. These points shall be in the form of Start Milestones for deliverables due to the Contractor from others, and as Finish Milestones for deliverables that Contractor must supply to City, Design Consultant(s), Subcontractors, Suppliers and other Contractors. Finish milestones must be determinate by predecessor activity, not by constrain.
4. Schedule shall contain activities for preparation and approval of contractor's design and submittal deliverables. Procurement, fabrication and delivery of mayor materials and long lead items. Obtain permits and construction activities.
5. Contractor shall allocate duration uncertainty to the scheduled activities within the contract schedule to enable a Quantitative Schedule Risk Analysis (QSRA) to be performed by the Program Management Team. Duration uncertainty (minimum duration, maximum duration, most likely duration) according to the relevant risk exposure shall be captured by the contractor against the scheduled activities. The PMT must rely on the data being supplied by the Contractor and incorporated and updated in line with the monthly schedule update process.

CONSTRUCTION SCHEDULES

6. Contractor shall utilize the most current version of Primavera P6 (15.1 or Later) for all schedules governed by these provisions.
7. The Contractor is responsible for assigning appropriate material, equipment and labor resource loading of the key quantities necessary to execute the activity. This will demonstrate realistic productivity rates as well as measure and report Key Performance Indicators (KPIs).
8. The City Engineer reserves the right to reject any schedule or report that fails to realistically or satisfactorily reflect completion of the Project scope of work or any agreed intermediate milestone. Failure of the Contractor to deliver satisfactory schedules or reports as required in the Contract Documents may result in actions by the City General Conditions.
9. The schedule shall show all activities in Work Days, with allowance for holidays or other periods when work is not permitted to be performed.
10. Detailed schedule requirements shall be contained within the City Policies, Standards and Procedures).
11. Contractor shall prepare schedules which assure that all work sequences are logical, and the network shows a coordinated plan for complete performance of the Work. Failure of the Contractor to include any element of work required for performance of the Contract in the network shall not excuse the Contractor from completing all Work within the Contract Time.
12. Contractor must have an approved workhour plan as noted in the approved Work Authorization Notification (WAN) prior to commencing work on the project site. Changes to the approved work-hours plan shall require 48-hour written notice and subsequent written approval by the City.

5.01 SUBMITTAL REQUIREMENTS

The Contractor must utilize the City's web-based application management system for submittals. The Project Manager will coordinate training and access to the web-based application management system. The submittal processes are further defined in Section 01330 Submittal Procedures and in the City Policies, Standards and Procedures, as applicable.

- A. In addition to the PDF versions of the schedule required in this Section, submit one electronic copy of schedule in Primavera compressed format (.XER). Filename shall have a unique identifier and shall include a sequential number for each monthly update. PDF prints and reports shall be generated from same version of the Schedule that is provided in electronic form.
- B. Submittal of Contractor Schedules

CONSTRUCTION SCHEDULES

1. Submit Preconstruction Schedule for approval within 30 days of NTP for Preconstruction Services
2. Submit the initial proposed Project Schedule for approval as a Baseline Schedule within 30 days of NTP for Construction Services.
3. Submit Monthly Progress Schedule and Narrative no later than 12:00 noon (local time) on the Wednesday before the last Friday of the month. The Data Date for the Monthly Progress is 00:00 hours on the Saturday following the last Friday of the Month. The Monthly Progress Schedule is required for each Application for Payment. Contractor may request to meet with the City prior to the submittal of the Monthly Progress Schedule and Application for Payment to resolve issues prior to submittal.
4. The weekly 3 weeks Look-Ahead Schedule shall be submitted every Tuesday at 08:00 hours with the previous week's progress updated. The Status Date of the Look-Ahead Schedule shall be the previous Saturday at 00:00 hours, progressed weekly.
5. Submit Delay Analysis per the ACEI recommended practice 52R-06 as follows:
 - a. Within ten work days after receipt of written change modification.
 - b. Within ten work days after receipt of written notice by City.
 - c. Within ten work days from beginning of delay caused by unforeseeable circumstances.
6. Submit Recovery Schedule following the event of a forecast delay. Contractor shall submit a Recovery Schedule within the 21 calendar days of Contractor receiving City's written request that is resource and cost justified indicating how the Contractor will recoup the impacted contract time.
7. Submit an As-Built Schedule within 30 work days after the City's Final Acceptance of the Work.
8. Submit a Submittal Log as a supplement documents for Monthly Progress Schedule, showing all submittals for products, materials, plans, and shop drawings, RFI's and administrative submittals required per the Technical Specifications including associated Specification Section numbers and headings.
 - a. Include durations and dates for processing by Reviewers and/or other parties as required. Indicate submittals requiring special processing such as short-duration reviews.
 - b. The Contractor shall coordinate packaging of individual submittals in a logical and organized fashion so that they may be reviewed in part or in whole with related

CONSTRUCTION SCHEDULES

elements of work with the Reviewers.

- c. Include durations and dates based on frequency of Contractor's submittals to City for items such as of administrative submittals such as Applications for Payment, Labor Reports, Safety Reports, MWBE Reports.

6.01 SCHEDULE CONTROL PROCEDURES AND QUALITY ASSURANCE

A. Control Procedures

1. Procedures for schedule control shall be included in the Contractor's Project Management Plan as part of the plan implementation and reporting requirements. Prior to submission of Monthly Progress Schedule contractor should call for scheduling workshop with Houston Airports to propose schedule changes to remove out of sequence logic and to present accurate critical path. Allowed changes are only for removing or adding logic links. Changes in original durations, resources etc. are not permitted. After approval of schedule changes contractor can proceed with Monthly Progress Schedule submission. All changes must be recorded in schedule change control log and submitted as supplementary document in Monthly progress report.
2. If any in-progress activity is delayed for any reason, that activity will be split to track the reason for the delay. A separate activity for the delay will be created and placed in between the split.
3. Procedures for preparing and monitoring the Project Schedule and other required reporting.,
4. Procedures for performing quality oversight of the schedule review/forecast.
5. Earned Valued Methodology Procedures shall be implemented for performance measurement using data from the schedule to provide an effective means of comparing Work scheduled/planned versus Work performed. Please see Section 0 Section 01 32 16, 1.3.D1.Provide, as a minimum, a continuous review of actual progress against the most recent Project Schedule. This is to assure that revised resource allocation and/or other corrective action can be considered and undertaken proactively and as early as possible.

B. Qualifications of Contractor's Scheduler

1. Contractor shall have within its employ or under separate Contract, throughout the execution of the Work under this Contract, such expertise in CPM scheduling and P6 software so as to insure its effective and efficient performance under this Specification. It shall be the responsibility of the Contractor to prepare input information for the Contract Schedule, monitor progress, provide input for updating

CONSTRUCTION SCHEDULES

and revising logic diagrams when necessary and otherwise fulfilling its obligations hereunder. Contractor shall submit the qualifications of the CPM Specialist for acceptance by the City.

7.01 SCHEDULING PRINCIPLES AND REQUIREMENTS

A. General

1. Contractor shall prepare the Schedules identified in this Section during the performance of Contract. The Schedules shall:
 - a. Be detailed, time-scaled, computer-generated schedules, using the Critical Path Method, that accurately depict activities representing each portion of the Work from the current Data Date through Final Acceptance.
 - b. Be used for planning and coordinating the Work.
 - c. Be the basis for reporting all the Work to be performed in fulfillment of the Contract Documents.
 - d. Accurately depict the Contractor's current logical activity sequences and activity durations necessary to complete the Work in accordance with the requirements of the Contract Documents.
 - e. Assist Contractor and City in preparation and evaluation of Contractor's monthly progress payments.
 - f. Assist the City in evaluating progress (including payment) of the Work.
 - g. Assist Contractor and City in monitoring progress of Work and evaluating proposed changes to the Contract and requests for additional contract time.
 - h. Provide for optimum coordination by Contractor of its trades, Subcontractors, and Suppliers, and of its Work with the Work or services provided by any separate Contractors.
 - i. Permit the timely prediction or detection of events or occurrences which may affect the timely prosecution of the Work.
 - j. Provide a mechanism or tool for use by the City, and Contractor in determining and monitoring any actions of the Contractor which may be required in order to comply with the requirements of the Contract Documents relating to the completion of the various portions of the Work by the Contract Time specified in the Contract Documents.
2. Contractor shall include in the Contract schedule all interface points with City, Design

CONSTRUCTION SCHEDULES

- Consultant(s), Subcontractors, Suppliers, and other Contractors. These points shall be in the form of Start Milestones for deliverables due to the Contractor from others, and as Finish Milestones for deliverables which Contractor must supply to City, Design Consultant(s), Subcontractors, Suppliers and other Contractors. The PMT will assist in obtaining the relevant data from other parties when required.
3. Contractor shall provide to the City duration uncertainty and risk events for scheduled activities within the contract schedule to enable a Quantitative Schedule Risk Analysis (QSRA) to be performed by the City. Duration uncertainty (minimum duration, maximum duration, most likely duration) according to the relevant risk exposure shall be captured by the contractor against the scheduled activities.
 4. Calendar
 - a. Anticipated work and non-work periods shall be included for each activity.
 - b. Agreed Holidays shall be included as non-work days assigned to the appropriate day as they occur.
 - c. Anticipated Weather Lost Days
 - d. As the basis for establishing a “Weather Calendar”, use the National Oceanic and Atmosphere Administration’s (NOAA) historical monthly averages for days with precipitation, using a nominal 30- year, greater than 2.5 mm 0.10-inch amount parameter, as indicated on the Station Report for the NOAA location closest to the project site. In addition, incorporate into the Weather Calendar, other non-workdays such as Saturdays, Sundays and Federal Holidays.
- B. Activities
1. Contractor shall use and/or implement generally accepted recommended industry practices and the City Policies, Standards and Procedures, as applicable.
 2. Schedule activities shall be sufficiently named or titled to include what is to be accomplished and identified by the applicable work areas. Activities shall be grouped to assist in the understanding of the activity sequence. Examples of the types of activities to include in each schedule are as follows:
 - a. Design Activities: If and when Contractor has responsibility for the design as a part of the Contract, design activities shall be logically tied to the Construction Activities without constraints and Contractor shall develop an agreed design progress and performance measurement system based on design package deliverables and division of responsibilities. At a minimum, design work shall be divided to have an agreed number of deliverables per area/facility/system/subsystems and the governing jurisdictions. Actual design

CONSTRUCTION SCHEDULES

packaging scheme shall be agreed upon with the City prior to implementation. When Contractor does not have responsibility for design as a part of the Contract the design activities shall be logically tied to the Construction Activities as start Milestones. Include Contractor's agreed design packaging scheme to support timely procurement of material, obtaining permits, and construction plan and include:

- 1) Agency review and approval cycles based on applicable Governmental Persons, Authority(s) Having Jurisdiction (AHJ) and other applicable Laws, Regulations, and Ordinances.
 - 2) Activities for each design phase (Concept, Schematic (30%), Design Development (60%) and Issued for Permit and Issued for Construction (100%) documents.
 - 3) Application for, and receipt, of required permits.
 - 4) Contractor's submittal of design and construction documents for City review and approval.
 - 5) Design review cycles and logical ties to subsequent fabrication, delivery, and construction activities.
 - 6) Other design related deliverables.
- b. Procurement Activities: Contractor's procurement activities included in schedules shall be logically tied with no constraints and shall be resource and cost loaded. Examples of Procurement activities include, but are not limited to:
- 1) Bid and award cycles.
 - 2) Shop Drawing development and approval.
 - 3) Equipment and Materials submittal preparation and approval
 - 4) Equipment and Materials, fabrication, factory acceptance testing, and delivery.
 - 5) Purchased and Stored Material/Equipment.
 - 6) Material/Equipment delivery requirements by the City.
- c. City Activities: Activities of City and other third-party activities shall be clearly identified in the Project Schedule. These activities include, but are not limited to, the following and the precursor processes:

CONSTRUCTION SCHEDULES

- 1) Right-of-Way property acquisition and site access.
 - 2) Submittal reviews.
 - 3) Inspections and tests as necessary.
 - 4) Environmental permit approvals by regulators.
 - 5) Notice to Proceed.
 - 6) Delivery of City-furnished material/equipment.
- d. Construction Activities: Construction activities shall be resource and cost loaded as described in this Section and shall include, but not be limited to:
- 1) Mobilization or demobilization.
 - 2) Installation of temporary and permanent Work by trades, areas, and facilities as described in the Contract Documents.
 - 3) Activities to describe the Work in sufficient detail identified according to the WBS.
 - 4) Testing and inspections of installed work by technicians, inspectors or engineers as well as the outages.
 - 5) Final clean-up.
 - 6) Scheduled Substantial Completion.
- e. Commissioning and Integration Testing Activities shall be resource and cost loaded and shall include, but not be limited to:
- 1) Start-up and Testing of equipment and systems.
 - 2) Commissioning of building and related systems.
 - 3) Scheduling of specified manufacturer's representatives.
 - 4) Dynamic Testing Readiness.
 - 5) Pre-Final inspection.
 - 6) Final Acceptance inspection.

CONSTRUCTION SCHEDULES

- 7) System Demonstration Performance Tests.
- 8) Training to be provided.
- 9) Administrative tasks and processes necessary to start, proceed with, accomplish, or finalize the Work.

C. Activity Durations:

1. Contractor shall maintain individual schedule activity durations of 20 work days or less.
2. Activities exceeding 20 work days in duration shall contain appropriate production projections so that entries can be maintained, and remaining durations adjusted according to physical progress.
3. Items such as Procurement, Fabrication, and Delivery activities may exceed 20 work days with the approval of City.
4. The Contractor is not permitted to modify (increase or decrease) an activity's original duration after it is approved by the City. During the monthly updating process, only the activity's remaining duration may be modified.

D. Summary Level Activities

1. Contractor may use Summary Level activities to represent the Work under the following conditions:
 - a. In the Preconstruction Schedule, those activities starting at least 180 days after the NTP or as otherwise agreed with the City.
 - b. In the Project Schedule and Monthly Progress Schedules, those activities starting at least 360 days after the NTP or as otherwise agreed with the City.
 - c. Summary Level activities should not exceed 90 work days without City approval and shall match the Work Breakdown Structure.
 - d. All Summary Level activities shall be detailed and supported by appropriate key resource information resource and cost loaded as agreed to in the Scheduling Conference.
 - e. Contractor shall replace Summary Level activities in the Preconstruction and Proposed Project Schedule with detailed activities through an updating process as the information becomes available and as the above-defined or agreed day limits roll forward.

2. Activity Relationships/Use of Constraints, Lags and Milestones
 - a. Except for the Notice to Proceed and Project Completion milestone activities, no activities shall be open-ended, open-start or open finish. Each activity shall have predecessor and successor relationships to present sequence of work and movement of resources (hard and soft logic). Once an activity exists on an approved Project Schedule it may not be deleted, renamed, or renumbered, unless approved by City.
 - b. Finish-to-Start relationships shall be the primary relationship used in all Project Schedules unless valid reasons are demonstrated for other logic relationships. Start-to-Start with lags shall be permitted provided the lag is updated and no gaps exist between contiguous activities due to the lag. Activities linked to successors only with Start-to-Start relationships shall not be permitted and must also include a Finish-to-Start or Finish-to-Finish relationship with one or more successors. Finish to Start relationship with lag shall not be permitted.
 - c. Lags shall not be used when the creation of an activity will perform the same function (e.g., concrete cure time). Use of lag must be minimized and restricted to only those situations where it is not possible to properly define the start or finish of an activity by the use of a normal Finish-to-Start, Start-to-Start or Finish-to-Finish relationship. Duration of a lag shall not exceed the duration of the predecessor activity. Negative lags shall not be permitted. Contractor shall identify any lag proposed and provide an explanation for the purpose of the lag in the activity notebook and Narrative Report.
 - d. Date/time constraints, other than those required by the Contract Documents, shall not be used unless jointly agreed to by City and Contractor. If Contractor seeks approval to include constraints in the schedule, Contractor shall identify any constraints proposed and provide an explanation for the purpose of the constraint in the activity notebook and Narrative Report.
 - e. Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system. Actual Start and Actual Finish dates shall be included on the Monthly Progress Schedule and shall be consistent with other project reporting, such as daily reports, and the Contractor's monitoring and performance measuring system. In-progress activities will be updated by revising the activity's remaining duration according to actual measured or estimated work progression.
 - f. Allowable activity dates are early start, late start, early finish, late finish, actual start, and actual finish. Use of activity dates such as "expected" are prohibited.
 - g. Float Suppression techniques (i.e. as late as possible constraints) shall not be allowed. All Float shall be shown in the Project Schedule. Float shall be

CONSTRUCTION SCHEDULES

monitored, accounted for, and maintained in accordance with this Section.

- h. Activity constraints or use of activity durations, logic ties and sequences unapproved by the City shall not be used in any Project Schedule.
3. Resource Loading Project Schedule
 - a. The Activities within the construction schedule shall be resource loaded with key quantities and updated on a weekly basis to track the production of construction activities. The update of key quantities will be used to track Key Performance Indicators (KPIs) set forth by the PMT.
- E. Software Settings
1. De-Link Remaining Duration and Percent Complete. Construction activity progress will be calculated using Remaining Duration and Physical Percent Complete.
 2. Set Resource Data to “Two decimal places”.
 3. All activity durations and Float values will be shown in days.
 4. Schedule calculations and Out-of-Sequence progress (if applicable) shall be handled through Retained Logic, not Progress Override and not Actual Dates. Out- of-Sequence activities shall be updated to reflect actual project conditions.
 5. Date format will be DDMMYY (i.e., 01DEC15.)
 6. Default activity type will be set to “Task Dependent”.
 7. The Duration Type for each activity shall be set to "Fixed Duration and Units" before assigning any costs or resources to the activity.
- F. Activity IDs
1. The naming and coding of activities will strictly be per the City policies, standards and procedures, as applicable. Activity IDs shall be provided for each Activity with up to 15 characters as detailed in the City Policies, Standards and Procedures, as applicable. The purpose of the structure for the Activity ID is for easier identification and for improved organization in all Project Schedules. Each part of the ID will also need to be included in the schedule as an activity code.
 2. Activity IDs shall not be deleted and/or re-assigned. If during the course of the project, an activity is needed to be deleted, that Activity shall move to the inactive WBS titled “Deleted Activities” in order to avoid re-using of the same Activity IDs, should the need of adding new activities arise.

3. Activities to be deleted: Remove logic, relationships and Activity Codes.

G. Activity Names

1. Activity

- a. Location - Verb Names shall be brief but shall convey the scope of work described. Non- Standard abbreviations shall be explained in the Narrative Report. Percentages shall not be used in activity descriptions (e.g., Pour West Footing (0 - 50%)) unless the City agrees with the use of percentage for a particular activity. Contractor shall submit samples of activity names for approval prior to establishing the schedule.
- b. All activities shall have a unique activity name/description.
- c. Activity names can only be modified to add detail describing an activity's scope, correct the spelling or grammar, or to improve for clarity, but cannot be revised to completely change the scope of the activity.
- d. Each activity name should follow the following format:
 - (1) Noun.
 - (2) Station numbers, column numbers, or other description for the location, may be included at the end of the activity name if it will provide a better description of the activity.
- e. Example values for Location include but are not limited to:
 - (1) Segment Number.
 - (2) Column Line Numbers.
 - (3) Stationing Value.
 - (4) Other Unique Identification schemes.
- f. Examples of Verbs include, but are not limited to:
 - (1) Design.
 - (2) Install.
 - (3) Procure.

- (4) Fabricate.
- (5) Deliver.
- (6) Erect.
- (7) Describe the work being performed.

H. Work Breakdown Structure

1. Activities in Project Schedules shall be tied to the Work Breakdown Structure as provided in the City Policies, Standards and Procedures, as applicable.

I. Activity Codes

1. The purpose of the activity codes is to further sort and filter the schedule activities to enhance reporting capability. The activity codes required include both those that are already part of the Activity ID and those that are not.
2. Activities shall be coded as indicated in the City Policies, Standards and Procedures, as applicable.

J. Resource Loading

1. Resource loading shall be done on every construction activity, representing quantifiable work or materials of that Work Package.
2. Each resource-loaded activity shall have an estimate of the key quantities.
3. Failure to incorporate resource loading and establish planned productivity and/or production rates (defined as the planned quantity of work to be executed in a given time), may result in the Contractor's waiver of any right to compensation and time extension for loss of productivity. Submission of any such claim may be rejected for failure to establish baseline productivity by which any claimed loss would be measured.
4. Failure to incorporate resource loading and establish planned productivity may also result in the rejection of any schedule by the City Engineer.

K. Schedules as the Basis for Payment

1. The approved Project Schedule of Values shall be the basis for monitoring and calculating the Contractor's progress during each update period and therefore the amount of each progress payment. Lack of an approved Project Schedule or Monthly Progress Schedule Update will result in the inability of the City to evaluate contract

CONSTRUCTION SCHEDULES

progress for the purposes of payment. Failure of the Contractor to provide all information, as specified in this Section, will result in the disapproval of the Monthly Progress Schedule (City Engineer may decline to certify payment and may withhold request for payment in whole or in part as set forth in the General Conditions, Article 9, Subparagraph 9.7.3.).

2. Percent complete for activities in the Schedule of Values shall be based on proportion of the overall quantity of the physical work complete. Contractor and City to jointly assess and agree on actual values for easily discernible units of measure (square feet, each, linear feet) on a weekly basis.

L. Cash Flow Report

1. The Contractor shall generate Cash Flow Reports based on each submitted Project Progress Schedule. Report shall be grouped and formatted to be consistent with the approved schedule of values from the contract. Reports shall indicate a time-phased distribution of Schedule of Values. Alternate Cash Flow Reports, if requested by the PMT, shall be submitted for approval prior to submission of the first report.
2. The Cash Flow Report shall display in tabular and graphic format, projections of monthly values of anticipated cost. Each schedule of values line item is to be represented within the project. The Cash Flow Report should also contain the adjusted forecast of estimated costs to achieve completion of the project.

M. Use of Float

1. Float shall be monitored and accounted for. The Float in any schedule shall not be considered for the exclusive use of either the City or Contractor; rather it is for the benefit of the Project. As such, Float is considered an expiring resource available to both parties on a nondiscriminatory basis, so long as the parties act in good faith and work in the best interests of completing the Project on time.

N. Contractor and City Responsibilities for Schedules and Acceptance

1. Any schedule or schedule update rejected or otherwise marked by the City as requiring revision and resubmission shall be revised by the Contractor and resubmitted within 5 days of such revision or resubmission Notice by the Project Manager. Any schedule or schedule update that has not been approved or accepted is presumed lacking a reasonable degree of accuracy and will not be considered by the City to be reasonable, feasible, or accurate when used by Contractor as a basis for a Time Impact Analysis or other type of delay analysis or claim.
2. If Contractor fails to submit its initial construction schedule or monthly schedule updates, or any such schedule or updates are not acceptable to the City, the City Engineer or Director may take such action to decline certifying payment and may

withhold request for payment in whole or part) as set forth in Article 9 - General Conditions, §9.7.3 or any other remedy set forth in the Contract or at law of equity.

3. Contractor Responsibilities

- a. Contractor shall have the responsibility to develop and update the schedules according to all requirements described herein. All schedules shall accurately represent to the City the Contractor's plan for execution of Work. Contractor shall use the most current Project Schedule to execute the Work in compliance with Contract Documents.
- b. In developing and updating the Project Schedules, Contractor represents that it shall require its Subcontractors to actively participate in such development and updating processes. The Contractor represents that all schedules are consistent with Contractor-approved Subcontractor schedules with sufficient agreed details.
- c. Contractor is required to provide its Subcontractors' schedules and updates in native format upon request by City.
- d. Costs incurred by the Contractor in complying with the requirements of this Section or other scheduling obligations contained in the Contract Documents, including but not limited to Contractor's Scheduler, and preparation of all Project Schedules, creation of Recovery Schedules, and the preparation of Time Impact Analysis shall be included in the Contract Price, and shall not be the subject of requests to the City for contractual relief.

4. City's Responsibilities

- a. All Project Schedules shall be submitted to the City for review and approval, consistent with the specific requirements set forth herein. The City shall have the right to disapprove any schedule if the schedule fails to comply with the requirements herein, provided, that such disapproval is based on a reasonable determination by the City that such schedule contains deviations from the specifications. City shall have the right to waive what it considers to be, in its sole discretion, minor defects in a schedule. City recognizes its responsibility to act in a reasonable manner with respect to approvals and agrees that approvals shall not be unreasonably withheld (i.e. for matters that do not impact the effective functioning of the schedule.)
- b. Any approval by City of the schedules submitted by the Contractor to City shall mean that in the opinion of the City, Contractor has complied with the requirements of this Section. No such review shall release or relieve the Contractor from full responsibility for the accurate and complete performance of the Work, including the accuracy and completeness of the schedules, or any other duty, obligation or liability imposed on it by the Contract including, the responsibility

for completing the Work within the time set forth in the Contract. The review or approval will not constitute a representation by City that the Contractor will be able to proceed or complete the Work in accordance with the dates contained in submitted schedule.

- c. In reviewing schedules submitted by designers, contractors, or others, the City will review the schedules to determine if the respective schedule appears “feasible and reasonable”; and, determine if the services or work could logically be accomplished in the time frames allotted in the schedule. Approving, accepting, or assenting to (hereafter referred to collectively as “approval” or “approving”) a schedule only means that the City considers that the schedule appears “feasible and reasonable.”
 - d. By approving a schedule, the City is not agreeing that the work or services will be accomplished according to and within times set forth in the schedule. Nor by approving a schedule does the City accept or bear some responsibility or liability if the work or services are not accomplished according to and within times set forth in the schedule or if factors upon which the schedule is based thereafter change during the execution of the works or services. Approval of any schedule showing completion beyond milestone dates and/or beyond contract completion times indicated in the contract shall not change any milestone or completion times in the contract and approval of a schedule is without any prejudice to the rights of the City.
- O. Schedule Workshops and Review Meetings
1. A record of all Schedule Workshops and Schedule Review Meetings shall be made by the Contractor stating the place and time of the meeting, the names and identification of those present, and a description of the topics discussed, and the agreements reached. Meeting minutes for these meetings, subject to the City’s review and approval, shall be prepared immediately after the meeting and issued within three days, with distribution to the City and all attendees.
 2. Project Scheduling Workshops:
 - a. Proposed Schedule Workshop
 - b. Contractor shall meet with the City within 14 days after the Notice to Proceed for Preconstruction Services to conduct a Post-Award Kick-Off Meeting and Project Scheduling Workshop to review and coordinate schedule requirements including, but not limited to, the following:
 - (1) Review software limitations and content and format for reports.
 - (2) Verify availability of qualified personnel needed to develop and update

schedule.

- (3) Discuss physical constraints to the project, including phasing, work stages, area separations, and interim milestones.
- (4) Review delivery dates for City-furnished products.
- (5) Review of Contractor and Subcontractor procurement cycles and their work plans.
- (6) Review schedule for work of the City's separate contracts.
- (7) Review submittal requirements and procedures.
- (8) Review time required for review of submittals and re-submittals.
- (9) Review requirements for tests and inspections by independent testing and inspecting Governmental Authority(s)
- (10) Review time required for Project closeout and City startup procedures, including commissioning activities.
- (11) Review and finalize list of construction activities to be included in schedule.

c. Baseline Schedule Workshop

- (1) Contractor shall meet with the City within 30 days after the Notice to Proceed for Construction Services to conduct another Post Award Kick-Off Meeting and Project Scheduling Workshop. This Workshop shall involve scheduling personnel from Contractor and City with the objective of working together to establish procedures for the development of the Baseline Schedule, and to ensure that the City requirements are satisfied and to review and coordinate schedule requirements Contractor shall present the draft Baseline Schedule including a description of intended methodology and assumptions used to accomplish the Work. Presentation shall include:
 - (a) Contract scope.
 - (b) Submittals with City's review.
 - (c) Activity durations.
 - (d) Logic.
 - (e) Activity coding.

- (f) Weather assumptions.
- (g) Resource Loading
- (h) Cost Loading and Resource Loading
- (i) Performance and Progress measurement.
- (j) Consequence of potential risks including:
 - (i) Long lead times (procurement/deliveries).
 - (ii) Labor and materials shortages.
 - (iii) Accidents.
- (k) Environmental factors.
- (l) Contractor's plan to mitigate any potential risks should they occur.
- (m) Establish Key Performance Indicators (KPI's) for actual progress compared to projected progress.
 - (i) Workshops shall be conducted no more than every 14 calendar days, until the Baseline Schedule is accepted and approved by City.

P. Joint Monthly Progress Schedule Review Meetings

1. Joint Project Status and Monthly Progress Schedule Review Meetings will be held between the City and Contractor consistent with the Contractor's submission of a Monthly Progress Schedule. Contractor is responsible for gathering all supporting documentation, presenting the data for the applicable Monthly Progress Schedule and recording the meeting minutes. The primary purpose of these meetings shall be to review the Monthly Progress Schedule, the monthly Pay Application, and construction progress, including but not limited to:
 - a. Actual start and finish dates of work accomplished, or actual start date and physical percent complete. Identify activities started and completed during the previous period and enter the Actual Start and Actual Finish dates. It shall be understood that Actual Start is defined as the date that work begins on an activity with the intent to pursue the work represented by the activity to its substantial completion, and Actual Finish is defined as the date that the activity's work is complete.
 - b. The amount of the Work remaining for the next period as incorporated in the

CONSTRUCTION SCHEDULES

schedule. Indicate activity progress and/or revise remaining duration (in workdays) to update each activity started, but not completed (remaining duration.) The remaining duration of an activity shall over-ride the calculated percent complete of an activity's duration when preparing the Monthly Progress Schedule.

- c. Changes in the critical path(s) of the schedule.
 - d. Modifications that affect durations, sequencing or logic of activities for which the City, Governmental Authority(s) or other third parties are responsible.
 - e. The assessment of any delays to Longest Path(s).
 - f. Determination of delays, and, as applicable, adjustment of Force Majeure Reserve.
 - g. All other schedule changes as reflected in the accompanying narrative will be reviewed for relevance and effect on remaining Work.
 - h. Resource constraints, if any and proposed work-around sequences.
 - (i) Review proposed schedule changes, future Work and potential problems or impact.
 - (j) Review the Application for Payment to determine the accuracy of, in accordance with the Project Schedule, all progress achieved, the satisfaction all requirements relating to invoicing for Stored Materials, Time and Material (T&M) Change Orders, and whether it is otherwise complete and accurate.
- Q. Modifications – Time Impact Analysis
1. Proposed modifications, including potential delays that are anticipated or experienced shall be submitted to City. Contractor has a duty to mitigate delays through modified sequences to minimize cost and time impact caused by the change or potential delay.
 2. The Contractor shall prepare a Delay Analysis for each modification, potential delay, delay event, or Contractor request that may affect the Scheduled Substantial Completion Date. The Delay Analysis shall be developed and submitted in accordance with Contract Documents or as requested by City and shall conform to all scheduling principles described in this Section. Preparation of Time Impact Analyses is considered part of construction process and shall be performed at no additional cost to City.
 3. Delay Analysis methodology shall follow the guidelines contained in the Association for the Advancement of Cost Engineering International (AACEI) Time Impact Analysis as Applied in Construction.

4. City will strive to approve or reject each Delay Analysis within ten Work Days after receipt of each Time Impact Analysis, unless subsequent negotiations are required, or multiple analyses are submitted at one time. Upon Approval, a copy of the Time Impact Analysis signed by City shall be returned to Contractor and incorporated into Schedule at next Monthly Progress Schedule update which will then become the current approved Schedule.
5. Delay Analysis shall meet requirements for submittal of Schedules including a Fragnet, with sufficient supporting documentation to enable City to make a determination of Contractor's request for a time extension.
6. Upon execution of a Change Order adjusting the Schedule Substantial Completion Date, the agreed upon event and impact shall be included in the next Monthly Progress Schedule if the parties agree to the extent of the impact. Changes in the schedule should be clearly identifiable by specific Activity IDs and activity coding and Work Breakdown Structure for changes as agreed upon with City. Inclusion of changed conditions shall conform to all scheduling principles noted in this Section. Changes included as an adjustment to the existing schedule activity durations are not allowed.
7. Once the Delay Analysis has been approved, the activities associated with that Time Impact Analysis should be added to the next Monthly Progress Schedule or Look-Ahead Schedule.
8. If the parties are unable to reach an agreement about how to forward-look the effect of the impact on the Monthly Progress Schedule's Critical Path(s), City may allow the Contractor to insert a Fragnet into the schedule on a preliminary basis following agreement of the proposed Fragnet activities. The duration of the Fragnet activities and/or the impact to the Scheduled Substantial Completion Date will be adjusted through the monthly update process as the actual duration of the delay becomes known.

R. Other Schedules

1. The Contractor may use other schedules and report in other formats to manage its work on a day-to-day basis, but these other schedules do not represent or replace the Project Schedules as specified in this Section.

8.01 PRE-CONSTRUCTION SCHEDULE

- A. When Preconstruction Services are to be provided by the Contractor, upon receipt of the NTP for Preconstruction Services, Contractor shall prepare a Preconstruction Schedule which includes those activities prior to approval to proceed with construction activities.
- B. The Preconstruction Schedule shall include the activities described in the plans developed during Preconstruction including design plans, subcontracting plans, procurement plan,

CONSTRUCTION SCHEDULES

construction plans and development and negotiation of a Guaranteed Maximum Price (if applicable) at a summary level which can be replaced with detailed information as the Project Schedule is finalized and the construction is authorized.

8.02 PROJECT SCHEDULES

A. Proposed Project Schedule

1. Prepare an initial Proposed Project Schedule (Proposed Schedule) representing the Contractor's plan for the Work in accordance with the requirements of this Section. The Proposed Project Schedule will include the elements of the Preconstruction Schedule and be the initial draft of the Project Schedule. The Proposed Schedule will be the basis for Monthly Progress Schedules and monthly Pay Applications until the approval of the Baseline Schedule.
2. The Proposed Schedule shall be updated on a monthly basis until the approval of the Baseline Schedule after which the Baseline Schedule becomes the Project Schedule.

B. Baseline and Project Schedule

1. The Baseline Schedule is the Project Schedule at the point in time when the Contractor and City agree and approve the Proposed Schedule as the accepted basis for the Project. Requirements described in this subsection shall apply to the all Baseline Schedule submissions.
2. Baseline Schedule submitted by Contractor and approved by the City shall contain no progress for any activities and shall have a Data Date of the Notice to Proceed date.
3. Prepare a draft Baseline Schedule after the Baseline Schedule Workshop has been conducted.
4. Within 14 calendar days after the draft Baseline Schedule is accepted the Contractor shall provide its final Baseline Schedule for City's review and comments.
5. The final Baseline Schedule submission shall include the following:
 - a. The approved final Baseline Schedule shall be version 00.
 - b. One full-color time-scaled network document in PDF format organized by WBS. Print sizes shall be 11 inches by 17 inches standard sized sheets. Provide following information on the document:
 - (i) Activity ID.
 - (ii) Activity Description.

CONSTRUCTION SCHEDULES

- (iii) Original Duration.
- (iv) Remaining Duration.
- (v) Duration Percent Complete.
- (vi) Early Start.
- (vii) Early Finish.
- (viii) Late Start.
- (ix) Late Finish
- (x) Total Float
- (xi) Activities Gantt Chart

6. The Baseline Schedule narrative which shall address the following:
- a. Description of the Contractor's plan to perform the work through the entire contract performance period.
 - b. Description of primary, secondary and tertiary Critical Paths.
 - c. Explanation of calendars used, including days of the week, holidays, etc.
 - d. Discuss calendar assignment to activities.
 - e. Description of major pieces of equipment that will be used on the site.
 - f. Discuss procurement of long lead items.
 - g. A discussion of monthly cash flow planned costs, and cumulative expenditures.
 - h. A general description of the means and methods proposed for the execution of the Work including, but not limited to:
 - (1) Discussion of operating areas and the proposed sequences.
 - (2) Description of the planned crews - sizes, equipment used, etc.
 - (3) Number of shifts to perform the Work.
 - (4) Significant activities that may inhibit the Work.

CONSTRUCTION SCHEDULES

- (5) A listing of all milestones.
7. Contractor shall represent that the final Baseline Schedule is an accurate representation of Contractor's plan for performing the entire Work and that Contractor intends to use such schedule to execute the Work in compliance with the Contract Documents. Once the final Baseline Schedule is accepted it shall be the initial Project Schedule and used as the baseline in the Monthly Progress Schedules.

C. Monthly Progress Schedules

1. Monthly Progress Schedules are Project Schedules with progress achieved indicated for each Activity.
2. Project Schedules shall be progressed (updated) on a monthly basis until Final Acceptance is accomplished. Progress of Schedule activities shall be a physical percent complete as agreed with the City.
3. The Contractor shall not reduce activity durations in an attempt to reduce negative float. If the Contractor intends to execute activities quicker than the original duration, this shall be mentioned in the float analysis.
4. Approved Changes shall be included in each Monthly Progress Schedule.
5. Contractor shall meet with City each month in a Joint Monthly Progress Schedule Meeting,
6. Contractor shall make two submittals (Progress Only and Contractor's Adjusted) of the Project Schedule each month:
 - a. Shall incorporate the Contractor's Monthly Update (i.e. logic, durations, and calendar) made to the schedule including progress update information. This submission shall follow the scheduling principles described in this Section.
7. Each version of the Monthly Progress Schedule submitted by the Contractor shall require approval by City.
8. The Data Date for the Monthly Progress Schedule is 00:00 hours on Saturday following the last Friday of the Month. For each update of the Proposed and Baseline Schedules, the Version number shall increase by 1, and the previous schedule shall be archived to permit an audit trail.
 - a. Designations for the Progress Only (PO) and the Contractor's Adjusted (CA) shall clearly define the submission.
 - b. City will review and approve Monthly Progress Schedules based on remaining

CONSTRUCTION SCHEDULES

durations provided for each activity.

- c. Each Monthly Progress Schedule (PO and CA) shall contain activity progress measured through the Data Date and shall be submitted to the City for its review.
9. The City will review the Monthly Progress Schedule and provide comments at the Joint Monthly Progress Schedule Meeting to be held five working days after submission of the Monthly Progress Schedule.
10. Monthly Progress Schedule submissions shall be comprised of the following:
- a. One full-color time-scaled network document in PDF format organized by WBS. Print sizes shall be 11 inches by 17 inches standard sized sheets.

Provide following information on the document:

- (1) Activity ID.
 - (2) Activity Description.
 - (3) Original Duration.
 - (4) Remaining Duration.
 - (5) Duration Percent Complete.
 - (6) Early Start.
 - (7) Early Finish.
 - (8) Late Start.
 - (9) Late Finish.
 - (10) Total Float.
- b. The Monthly Progress Schedule narrative shall address the following:
- (1) Description of the Work completed by the Contractor in the past performance period and Contractor's plan to perform the work through the entire next performance period, including shift work.
 - (2) Description of primary, secondary, and tertiary Critical Paths.
 - (3) Description of problem areas and anticipated problem areas and an

CONSTRUCTION SCHEDULES

explanation of corrective actions taken or planned to be taken.

- (4) Current and anticipated delays including cause of delay, corrective actions taken, and impact of delay on other activities, milestones, and completion dates.
- (5) Pending items (Minor Changes in the Work, Change Orders, Time Impact Analyses) and status thereof.
- (6) A list of fully executed Changes issued by the Wednesday of the week before the last Friday of every reporting period.
- (7) A description of any changes made to the schedule and reasons.
- (8) A narrative to show revisions since previous submissions for changes in scope of work, sequencing and other identifiable changes.
- (9) Progress made on critical activities indicated on CPM schedule.
- (10) Status of critical project components (percent complete, amount of time ahead or behind schedule) and if delays have occurred provide an analysis of how they may be mitigated.
- (11) Explanations for any lack of work on critical path activities planned to be performed during last month. Identify any changes to the critical path and the drivers for each change.
- (12) List of critical activities scheduled to be performed next month.
- (13) Status of major material and equipment procurement.
- (14) Any delays encountered during the reporting period.
- (15) Updated schedule duration uncertainty to coincide with the Project status and risk exposures.

D. Look-Ahead Schedules:

1. The Look-Ahead Schedule shall be the actual detailed work plan used by the Contractor in meeting the Contract schedule and milestones. The Look-Ahead Schedule shall be an element of the Contractor's Project Schedule.
2. The Look-Ahead Schedule shall be the basis of the weekly Progress Meetings.
3. The Look-Ahead Schedule shall display:

CONSTRUCTION SCHEDULES

- a. Past Week Activities
 - b. Current Week Activities
 - c. Three Week Look ahead Activities
4. Look-Ahead Schedules shall include as-built data, forecasted activity sequences, activity durations, through the Scheduled Substantial Completion Date and Final Acceptance, demonstrating the entire scope of Work.
 5. In months coinciding with a Look-Ahead Schedule submission, PO Monthly Progress Schedule shall be based on the last approved Monthly Progress Schedule
 6. Submission of Look-Ahead Schedules shall not replace the requirement for Contractor to prepare a Time Impact Analysis indicating delay to Scheduled Substantial Completion Date.
- E. Commissioning and Integration Testing Schedule:
1. Testing and Commissioning is expected to be carried as a summary activity in the Baseline Schedule and Project Schedules until a draft Commissioning and Integration Testing Schedule shall be submitted not later than 90 days prior to the first testing / commissioning before the Scheduled Substantial Completion Date.
 2. A final Commissioning and Integration Testing Schedule shall be submitted no later than 60 days prior to the first testing / commissioning activity before the Scheduled Substantial Completion Date and upon approval shall be incorporated into the Project Schedule with a Monthly Progress Schedule.
 3. The Commissioning and Integration Testing Schedule shall display scheduled Work so that each activity is shown with duration of no more than 15 workdays.
- F. Recovery Schedule
1. Should any of the following conditions exist, City may require the Contractor to prepare, at no extra cost to City, a plan of action and a Recovery Schedule as to how the Contractor plans to reorganize its work and resources to complete the Work by the Scheduled Substantial Completion Date and recover any lost time and/or delays that have been determined by the City to be caused by the Contractor:
 - a. Contractor's monthly progress report indicates delays that are, as determined by City, of sufficient magnitude that the Contractor's ability to complete the Work by the Scheduled Substantial Completion Date is brought into question.
 - (1) If the Work is delayed on the Critical Path item for a period which exceeds

the greater of either a) thirty (-30) days in the aggregate, or b) that number of days in the aggregate equal to five percent of the days remaining until the approved Substantial Completion. For example, If the remaining duration during the period update is 300 Days, then five percent of the remaining 300 Days is 15 Days. The greater of (-30) days or (-15) days is (-15) days.

- (2) Contractor 's performance and resource utilization are not as planned to result in unnecessary consumption of the float.
 - (3) Contractor desires to make changes in the logic (sequencing of Work) or the planned duration of future activities in the schedule to recover lost time.
- b. Contractor shall submit a Recovery Schedule according to the requirements described in this Section. A Recovery Schedule, when required, shall be submitted to City for review and approval within 21 calendar days of Contractor receiving City's written request.
- c. Changes included in Recovery Schedule shall be documented. Contractor shall submit to City an audit report that has been prepared using schedule comparison software (i.e. Claim Digger, Project Investigator, or other software approved by City.
- d. If a recovery schedule is required hereunder, the City, at its sole discretion, may withhold the Contractor's Fee for that period in the Payment Application until such time the Contractor has prepared, and the City has accepted such recovery schedule.
- e. The Recovery Schedule submission shall include the following:
- (1) Detailed narrative describing (with an explanation for the reason of) any revised sequences, durations, and resources.
 - (2) Anticipated effect of revision on the current Project Schedule and Scheduled Substantial Completion Date, including describing change in affected activities' Total Float value.
 - (3) Contractor shall furnish sufficient labor, resources and equipment to ensure the prosecution of the Work meets the current Scheduled Substantial Completion Date. If in the opinion of City, Contractor falls behind in the prosecution of the Work as indicated in the current Schedule, Contractor shall take such steps as may be necessary to improve its progress. City may require Contractor to increase the number of shifts, days of work, and/or the amount of plant and equipment, all without additional cost to City.
 - (4) If Contractor fails or refuses to implement such measures to bring the Work back to conformity within the Scheduled Substantial Completion Date, City

CONSTRUCTION SCHEDULES

shall have the right to declare such failure or refusal a Contractor Event of Default under the Contract.

G. Revised Baseline Schedule

1. Either City or Contractor may request a Revised Baseline Schedule (Re-Baseline Schedule). The Monthly Progress Schedule to reflect actual progress shall not be considered as a Revised Baseline Schedule.
2. A Revised Baseline Schedule is considered necessary under the following conditions:
 - a. Additions, deletions, or revisions to activities required by Contract modification.
 - b. City determines there is reasonable doubt that milestones or the Scheduled Substantial Completion Date will be met. A Schedule Revision shall demonstrate how Contractor intends to reschedule remaining work by the Scheduled Substantial Completion Date. There shall not be additional cost to City, through re-sequencing and reallocating its forces to complete Work by Scheduled Substantial Completion Date.
3. Revised Baseline Schedule, when required, shall be submitted to City for review and approval within 21 days of Contractor receiving City's written request.
4. Revised Baseline Schedule shall conform to all requirements described in this Section for Project Schedules and shall include:
 - a. An audit report that has been prepared using schedule comparison software (i.e. Claim Digger, Project Investigator, or other software approved by the City.)
 - b. Detailed narrative explaining reason for revision.
 - c. Anticipated effect of the Revised Baseline Schedule on the Scheduled Substantial Completion Date, including describing change in affected activities Total Float value.
 - d. Appropriate Fragnet demonstrating the necessary changes.

H. As Built Schedule

1. Contractor shall prepare and submit an As-Built Schedule documenting actual start and actual finish dates for all activities and logic ties for all activities to show actual sequence in which Work was performed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**SECTION 01326
CONSTRUCTION SEQUENCING**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Work periods.
- B. Mobilization and demobilization.
- C. Construction sequence.

1.02 WORK PERIODS

Typically delete following for AOA projects and demolition-only projects. Verify with DOA Project Manager.
Edit working periods in Parag. A and B. Following is only a guide for interior or near-Terminal projects.

- A. No work is permitted at [IAH] [HOU] during the following periods:
 - 1. Beginning at 6:00 a.m. CST (0600 hours) on Tuesday prior to Thanksgiving Day and to 10:00 p.m. CST (2000 hours) the following Monday.
 - 2. Beginning at 6:00 a.m. CST (0600 hours) one week prior to Christmas Day and to 11:59 p.m. CST (2359 hours) January 2 following.
 - 3. Beginning at 6:00 a.m. CST (0600 hours) on Friday prior to Houston Area Spring Break, and to 11:59 p.m. CST (2359 hours) the following Monday. These dates maybe adjusted by HAS operations depending on scheduling of Spring Break for Houston Area School Districts.

No pavements shall be closed during these periods. The Contractor shall prepare any closed pavements to be opened during these periods, including, but not limited to, removal of all barricades and pavement closure devices, replacement of pavement markings. Coordinate requirements with HAS operations. This work shall be considered subsidiary to the cost of the project and shall not be measured or paid for separately.

- A. For purposes of on-site construction operations for exterior work within the AOA, work shall conform to the following:
 - 1. The contractor shall not perform lane closures with the Terminal Roadways unless approved in advance and in writing by HAS Airport Operations.

CONSTRUCTION SEQUENCING

2. Fire station access must be maintained at all times.
3. Maintain access through work zone to terminal buildings and garages at all times unless indicated on the plans. Temporary closures of any access must only be completed between the hours of 10:00 p.m. CST (2200 hours) to 6:00 a.m. CST (0600 hours) on weekend days unless indicated on the plans. Temporary closures of delivery entrances and exits may only occur from 8:00 p.m. CST (2000 hours) to 4:00 a.m. CST (0400 hours) on weekend days unless indicated on the plans.
4. The contractor shall coordinate staging areas for equipment with HAS Airport operations.
5. See additional traffic control sequencing notes in the plans.

1.03 MOBILIZATION AND DEMOBILIZATION

- A. Payment for mobilization is specified in Section 01290 - Payment Procedures.
- B. General mobilization applicable to the Work, regardless of construction sequencing specified herein includes:
 1. Construction and Submittal Schedule processing following Sections 01325 - Construction Schedules and 01340 - Shop Drawings, Product Data and Samples.
 2. Obtain and pay for permits.
 3. Submittal of other documents following Section 01312 - Coordination and Meetings.
 4. Survey Base Building Following Section 01726- Base Facility Survey and process related Document 00685- Request for Information, including accessibility by cutting, following Section 01731- Cutting and Patching, into concealed areas.
 5. Security badging following Section 01506 - Temporary Controls.
 6. Approval of construction schedules following Section 01325 - Construction Schedules.
 7. Product acquisition for other tasks; except products with short lead times may be acquired later as required to maintain schedule performance.
 8. Acquisition of major construction equipment and set-up of on-site storage and office space.
 9. Other activities necessary to maintain schedule performance.
 10. Construction of exterior and interior barricades and enclosures following Section 01505 - Temporary Facilities.

C. Demobilization:

1. Processing of closeout documents, following Section 01770 - Contract Closeout, and activities not otherwise completed at the end of previous tasks.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures for:

1. Construction Schedules and Cash Flow Curve (billing forecast).
2. Shop Drawings, Product Data and Samples
3. Manufacturer's Certificates
4. Construction Photographs
5. Project Record Documents and monthly certification.
6. Design Mixes

1.02 SUBMITTAL PROCEDURES

A. Scheduling and Handling:

1. The Contractor must utilize Microsoft SharePoint, and/or a web-based system run by the Houston Airport System, to submit RFIs, Submittals and Invoices. Before doing so, the Contractor must attend a brief mandatory SharePoint training session, which will be conducted by a member of HAS. The Contractor must contact the designated HAS trainer prior to the start of construction to schedule a time for training. Access to SharePoint will not be given to the Contractor's team until training is completed. All document collaboration will be done using SharePoint.
2. Submit Shop Drawings, Data and Samples for related components as required by Specifications and Project Manager.
3. Schedule submittals well in advance of need for construction Products. Allow time for delivery of Products after submittal approval.
4. Develop submittal schedule that allows sufficient time for initial review, correction, resubmission and final review of all submittals. Allow a minimum of 30 days for initial review. Project Manager will review and return submittals to Contractor as expeditiously as possible, but time required for review will vary

SUBMITTAL PROCEDURES

depending on complexity and quantity of data submitted.

5. Project Manager's review of submittals covers only general conformity to Drawings, Specifications and dimensions that affect layout. Contractor is responsible for quantity determination. No quantities will be verified by Project Manager. Contractor is responsible for errors, omissions or deviations from Contract requirements; review of submittals does not relieve Contractor from the obligation to furnish required items in accordance with Drawings and Specifications.
 6. Submit five copies of documents unless otherwise specified.
 7. Revise and resubmit submittals as required. Identify all changes made since previous submittal.
 8. Assume risk for fabricated Products delivered prior to approval. Do not incorporate Products into the Work, or include payment for Products in periodic progress payments, until approved by Project Manager.
- B. Transmittal Form and Numbering:
1. Transmit each submittal to Project Manager with Transmittal letter which includes:
 - a. Date and submittal number
 - b. Project title and number
 - c. Names of Contractor, Subcontractor, Supplier and manufacturer
 - d. Identification of Product being supplied
 - e. Location of where Product is to be installed
 - f. Applicable Specification section number
 2. Identify deviations from Contract documents clouding submittal drawings. Itemize and detail on separate 8-1/2 by 11-inch sheets entitled "DEVIATIONS FOR _____." When no deviations exist, submit a sheet stating no deviations exist.
 3. Have design deviations signed and sealed by an appropriate design professional, registered in the State of Texas.
 4. Sequentially number transmittal letters beginning with number one.
 5. Use original number for resubmittals with an alphabetic suffix (i.e., 2A for the first resubmittal of submittal 2, or 15C for third resubmittal of submittal 15, etc.). Show only one type of work or Product on each submittal. Mixed submittals will

SUBMITTAL PROCEDURES

not be accepted.

C. Contractor's Stamp:

1. Apply Contractor's Stamp certifying that the items have been reviewed in detail by Contractor and that they comply with Contract requirements, except as noted by requested variances.
2. As a minimum, Contractor's Stamp shall include:
 - a. Contractor's name.
 - b. Job number.
 - c. Submittal number.
 - d. Certification statement Contractor has reviewed submittal and it is in compliance with the Contract.
 - e. Signature line for Contractor

D. Submittals will be returned with one of the following Responses:

1. "REVIEWED AS SUBMITTED" when no response and resubmittal is required.
2. "NO EXCEPTION" when sufficient information has supplied to determine that item described is accepted and that no resubmittal is required.
3. "MAKE CORRECTIONS AS NOTED WHEN EXCEPTIONS DO NOT REQUIRE FUTURE CHANGES" when sufficient information has been supplied to determine that item will be acceptable subject to changes, or exceptions, which will be clearly stated. When exceptions require additional changes, the changes must be submitted for approval. Resubmittal is not required when exceptions require no further changes.
4. "REVISE AND RESUBMIT" when submittal do not contain sufficient information, or when information provided does not meet Contract requirements. Additional data or details requested by Project Manager must be submitted to obtain approval.

1.03 MANUFACTURER'S CERTIFICATES

- A. When required by Specification sections, submit manufacturers' certificate of compliance for review by Project Manager.
- B. Place Contractor's Stamp on front of certification.

SUBMITTAL PROCEDURES

- C. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Product certificates may be recent or from previous test results, but must be acceptable to Project Manager.

1.04 DESIGN MIXES

- A. When required by Specification sections, submit design mixes for review.
- B. Place Contractor's Stamp, as specified in this section, on the front of each design mix.
- C. Mark each mix to identify proportions, gradations, and additives for each class and type of mix submitted. Include applicable test results from samples for each mix. Perform tests and certifications within 12 months of the date of the submittal.
- D. Maintain copies of approved mixes at mixing plant.

1.05 CHANGES TO CONTRACT

- A. Changes to Contract may be initiated by completing a Request for Information form. Project Manager will provide a response to Contractor by completing the form and returning it to Contractor.
 - 1. If Contractor agrees that the response will result in no increase in cost or time, a Minor Change in the Work will be issued by City Engineer.
 - 2. If Contractor and Project Manager agree that an increase in time or cost is warranted, Project Manager will forward the Request for Proposal for negotiation of a Change Order.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01340
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General procedural requirements for submittal data:
 - 1. Shop drawings.
 - 2. Product data.
 - 3. Samples, including control samples.
 - 4. Product certifications and compliance statements.
 - 5. Submittal logging.
- B. Submittal quantities specified in other Sections supersedes those specified herein.
- C. Product interface control documents.

1.02 GENERAL PROCEDURES

- A. Review submittal data and indicate results of review on documents submitted to Designer.
 - 1. Obtain review and indicate results of Subcontractors' and applicable Separate Contractors' reviews before submittal to Designer.
 - 2. Include on each shop drawing, sample or product data submittal the following minimum language, signed (by individuals authorized to make binding agreements on behalf of their respective firms) and dated on behalf of each responsible party:

"The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.

(Subcontractor Firm)
(Authorized Signature)

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

(Date)

-
This submittal has also been checked by the following Subcontractors and Separate Contractors for coordination of substrate/superstrate conditions and applicable product interfaces.

(List company names, place authorized signature and date for each.)

-

(Contractor)

(Authorized Signature)

(Date)"

- B. Transmit submittals under original transmittal to Designer, with a copy of the transmittal only to City Engineer. Number each submittal by specification number, for future reference.
1. Furnish number of copies specified herein or in other Sections, for Designer's and City Engineer's records, plus additional copies as the Contractor requires for construction operations and coordination of the Work.
 2. Identify Project, Contractor, Subcontractor, Supplier, and generic name of component or system. Allow space on submittal data to accommodate required stamps by Contractor, applicable Subcontractors, applicable Separate Contractors, Designers, and other reviewers.
 3. Indicate applicable Drawing detail and Section number.
 4. For submittals using SI (metric) measure as the manufacturer's or fabricator's standard, include corresponding Imperial measure conversions. Follow requirements in Section 01610.
- C. After Designer's review, revise and resubmit until resubmittal is no longer required; identify and log changes made to previous submittals.
- D. Distribute copies of reviewed submittals to concerned parties, including Separate Contractors. Instruct recipients to promptly report inability to comply with requirements indicated therein.
- E. Shop Drawings, Product Data and Samples: Follow Contractor's progress schedule for submittals related to work progress. Coordinate submittal of related items. Partial submittals will be returned unreviewed.
- F. Transmit submittals far enough in advance to provide time required for reviews, for securing necessary approvals, for revisions and resubmittals. Allow 14 days after receipt for Designer's review, except where shorter processing time is approved due to extraordinary conditions.

- G. Do not submit data where no submittal requirements occur. Unsolicited submittals will be returned unreviewed.
 - H. Incomplete, uncoordinated, inaccurate and illegible submittals, and submittals without evidence of review by Contractor, applicable Subcontractors and applicable Separate Contractors will be returned unreviewed.
 - I. Responsibility for costs of Designer's additional reviews resulting from improper submittal data remains with the Contractor, deductible from the Contract Sum or Time by Change Order.
- .03 SHOP DRAWINGS
- A. Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 11 by 17 inches , but no larger than 30 by 42 inches.
 - a. Shop Drawings to be transmitted digitally in PDF Format.
 - D. Prepare shop drawings by qualified drafters, accurately and distinctly showing:
 - 1. Field and erection dimensions clearly identified as such.
 - 2. Arrangement and section views.
 - 3. Relation to adjacent materials or structure including complete information for making connections between work under this Contract and work under other contracts.
 - 4. Kinds of materials and finishes.
 - 5. Parts list and descriptions.
 - 6. Assembly drawings of equipment components and accessories showing their respective positions and relationships to the complete equipment package.

7. Where necessary for clarity, identify details by reference to drawing sheet and detail numbers, schedule or room numbers as shown on the Contract Drawings.

E. Drawing to scale, and accurately represent specific products furnished.

1.04 PRODUCT DATA/MANUFACTURERS' LITERATURE

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Notation of coordination requirements.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - b. Submit product data before shop drawings and before or concurrently with samples.

1.05 CONTRACTOR-PREPARED SAMPLES

- A. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.

4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

1.07 PRODUCT INTERFACE CONTROL DOCUMENTS

- A. Following requirements apply where specified in other Sections.
- B. Prepare submittal data as required, to indicate proper interface between work of Subcontractors and Separate Contractors, for products of one Section or Contract required to be supported by or affixed or connected to products of another Section or Contract. Follow Section Paragraph 1.02 for review and processing requirements.
 1. Fully describe mating surfaces between products.
 2. Fully describe predecessor and successor staging and sequencing of product fabrications and installations.
- C. Field corrections to mating surfaces are not permitted, unless field modification is specified in Sections.

1.08 CERTIFICATIONS AND COMPLIANCE STATEMENTS

- A. Submit 4 original copies plus additional copies required for Contractor's use. Designer will retain three copies for distribution to City. Distribute remaining copies. Include original signature and applicable original seal(s) on each copy.
- B. Certifications may be in the form of recent test results, research reports, reference data, or affidavits, as applicable to certifications required.

1.09 SUBMITTAL LOG

- A. If approved, submittal log may be incorporated into submittal schedules following Section 01325 - Construction Schedules.
- B. Coordinate shop drawings, samples, product data and certifications schedule in Section 01325 - Construction Schedules. Log submittals showing proposed submittal number and expected processing period for each.
- C. Denote submittals requiring special attention, such as requested shorter review time due to extraordinary conditions. Indicate reasons for special attention.
- D. Update and distribute following Sections 01312 - Coordination and Meetings and 01325 - Construction Schedules.

1.10 DESIGNER'S ACTIONS

- A. Comments may be added by Designer to submittal data, to inform the Contractor of detected failure of submittal data to follow contract requirements and the design concept expressed therein.
- B. Commencing work governed by submittal requirements without proper processing of required submittals is the risk of the Contractor.
 - 1. Cost increases attributable thereto are the sole responsibility of the Contractor without increase in Contract Sum.
 - 2. Time increases attributable thereto are the sole responsibility of the Contractor under provisions of Article 9.13 (Liquidated Damages) in Document 00700 - General Conditions.
- C. Responsibility for Contractor's errors and omissions or construction of defective or deficient work remains with the Contractor and is not relieved by Designer's review.
- D. Following is an example of Designer's submittal review statement, which may be affixed to Contractor's submittal by stamp, label, or separate sheet:

RDLR ARCHITECTS, INC. Submittal Review	
Project Name:	COH - PWE NE Quadrant Building
Project Number:	1394
Submittal ID:	125000.02
Received On:	4/14/2020
Reviewed On:	5/21/2020
Reviewed By:	Daniel Ortiz
Action:	Approved
Architect's review of submittals is for conformance with the design intent of the project and with the information contained within the Contract Documents. The Contractor is responsible for verification of field dimensions, quantities, shop fabrication processes, field construction techniques, and the coordination of trades and their work. Contractor's responsibility for errors and omissions, or deviations from the requirements of the contract documents is not relieved by Architect's review.	

END OF DESIGNER'S SUBMITTAL REVIEW STATEMENT

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONTROL SAMPLES

- A. Reinstall control samples following Section 01731 - Cutting and Patching.

END OF SECTION

SECTION 01350

MOCK-UPS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Control sample mock-ups of following to demonstrate finished visual and other aesthetic qualities of completed work. If approved, these mock-ups may be built as part of the completed work.
 - 1. Cement Plastering, Section 092400; as indicated in that section.
 - 2. Painting and Staining, Section 099000; provide a 50 SF sample for each color and type shown in the documents.
- B. Systems integration mock-ups of following to demonstrate dimensional or ergonomic qualities. These mock-ups are not permitted as final work.
 - 1. Traffic Coatings, Section 071800 provide a 50 SF sample of complete system. Test for adhesion.
- C. Provide required mock-ups after award of contract(s) for each section of work affected by this Section.
- D. Provide full-size mock-ups.

1.02 QUALITY ASSURANCE

- A. Provide joinery, attachments, same generic materials, and other components to comply with requirements of final construction.
 - 1. By way of example only, if transparent finished wood material is required in completed construction, the Contractor may substitute a lower "visual" quality wood of compressive and yield strength equal to the finished product for systems integration mockups but use of actual products is required for control sample mockups.
- B. Reduction of quality, specified in applicable Sections, for control sample mock-ups is not permitted.

1.03 SITE CONDITIONS

- A. Protect from damage until directed to remove mock-ups.

MOCK-UPS

1.04 COORDINATION WITH SECTION 01340- SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Mock-ups are specialized submittal data in the form of full-sized "samples".
- B. Provide mock-ups after processing of shop drawings, product data and hand-held-size samples specified in applicable Sections is complete.
- C. If changes are required as a result of fabrication or installation processes, or as a result of review and demonstration results, modify submittal data and fabrication and installation processes accordingly. Submit revised submittals following Section 01340 - Shop Drawings, Product Data and Samples.
 - 1. Refer to Parts 2 and 3 herein for relationship of changes to Section 01610- Basic Product Requirements.

PART 2 PRODUCTS

2.01 GENERAL

- A. Fabricate mock-ups by same techniques and sequencing as expected for completed work.
 - 1. Use fabrication of mock-ups to validate shop techniques and sequencing.
 - 2. If, due to fabrication of mock-ups, changes required for proper function or are recommended by Contractor, follow Section 01610 - Basic Product Requirements for both work of this Section and of other Sections.

PART 3 EXECUTION

3.01 GENERAL

- A. Install products for mock-ups following applicable Sections.
- B. Install mock-ups where shown on Drawings.
- C. Install temporary or supplementary bracing or framing following Section 01505 - Temporary Facilities.
- D. Install mock-ups by same techniques and sequencing as expected for completed work.
 - 1. Validate field techniques and sequencing, interface at mating surfaces and other aspects of coordination between Sections and applicable Separate Contracts.

MOCK-UPS

2. If, due to installation of mock-ups, Contractor recommends changes, follow Section 01610 - Basic Product Requirements for both work of this Section and other Sections.

3.02 REVIEW AND DEMONSTRATIONS

- A. Notify City Engineer and Designer of date when mock-ups are ready for review and demonstration.
- B. Administer demonstrations of mock-ups. Include fabricator and installer.
- C. Take notes of review results and publish to City Engineer, Designer and attendees. Describe changes in construction resulting from discoveries during review and tests.
- D. Minimum review and proper demonstration of mock-ups:
 1. Effectiveness of light, water, sound and air seals, as applicable.
 2. Accessibility for maintenance of concealed or semi-exposed moving parts.
 3. Uniform of joint tolerances and visible treatment within individual or "panelized" items and between separate "panelized" components, and between substrates and completed work.
 4. Compliance of constructed sight lines and profiles with Drawings.
- F. Leave mock-ups in place until removal is authorized, but prior to the date of Substantial Completion.

END OF SECTION

MOCK-UPS

01350-3 ver. 10.21.97

ATTACHMENT 1

TCEQ Office Use Only
 Permit No:
 CN:
 RN:



Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly.
Incomplete applications delay approval or result in automatic denial.

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: <https://www3.tceq.texas.gov/steers/index.cfm>

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is \$325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is \$225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: <http://www.tceq.texas.gov/epay>.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
 - Check/Money Order Number: [REDACTED]
 - Name printed on Check: [REDACTED]
- If payment was made via ePay, provide the following:
 - Voucher Number: [REDACTED]
 - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? Yes No

If Yes, provide the authorization number here: TXR15 [redacted]

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN [redacted]

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

[redacted]

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss): [redacted]

First and Last Name: [redacted] Suffix: [redacted]

Title: [redacted] Credentials: [redacted]

Phone Number: [redacted] Fax Number: [redacted]

E-mail: [redacted]

Mailing Address: [redacted]

City, State, and Zip Code: [redacted]

Mailing Information if outside USA:

Territory: [redacted]

Country Code: [redacted] Postal Code: [redacted]

d) Indicate the type of customer:

- Individual
- Limited Partnership
- General Partnership
- Trust
- Sole Proprietorship (D.B.A.)
- Corporation
- Estate
- Federal Government
- County Government
- State Government
- City Government
- Other Government
- Other: [redacted]

e) Is the applicant an independent operator? Yes No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

0-20

251-500

21-100

501 or higher

101-250

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number:

Federal Tax ID:

Texas Secretary of State Charter (filing) Number:

DUNS Number (if known):

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

Yes, go to Section 3

No, complete this section

Prefix (Mr. Ms. Miss):

First and Last Name: Suffix:

Title: Credential:

Organization Name:

Phone Number: Fax Number:

E-mail:

Mailing Address:

Internal Routing (Mail Code, Etc.):

City, State, and Zip Code:

Mailing information if outside USA:

Territory:

Country Code: Postal Code:

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN

(Refer to Section 3.a) of the Instructions)

- b) Name of project or site (the name known by the community where it's located): [REDACTED]
- c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): [REDACTED]
- d) County or Counties (if located in more than one): [REDACTED]
- e) Latitude: [REDACTED] Longitude: [REDACTED]
- f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*.
 Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name: [REDACTED]

City, State, and Zip Code: [REDACTED]

Section B:

Location Description: [REDACTED]

City (or city nearest to) where the site is located: [REDACTED]

Zip Code where the site is located: [REDACTED]

SECTION 4. GENERAL CHARACTERISTICS

- a) Is the project or site located on Indian Country Lands?
 - Yes, do not submit this form. You must obtain authorization through EPA Region 6.
 - No
- b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?
 - Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.
 - No
- c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? [REDACTED]
- d) What is the Secondary SIC Code(s), if applicable? [REDACTED]
- e) What is the total number of acres to be disturbed? [REDACTED]
- f) Is the project part of a larger common plan of development or sale?

Yes

No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? [REDACTED]

h) What is the estimated end date of the project? [REDACTED]

i) Will concrete truck washout be performed at the site? Yes No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? [REDACTED]

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? [REDACTED]

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

Yes No

If Yes, provide the name of the MS4 operator: [REDACTED]

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

Yes, complete the certification below.

No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: [REDACTED]

Operator Signatory Title: [REDACTED]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

- Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)
- Check number and name on check is provided in this application.

If using ePay:

- The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

- If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

- Customer Number (CN) issued by TCEQ Central Registry
- Legal name as filed to do business in Texas. (Call TX SOS 512-463-5555 to verify.)
- Name and title of responsible authority signing the application.
- Phone number and e-mail address
- Mailing address is complete & verifiable with USPS. www.usps.com
- Type of operator (entity type). Is applicant an independent operator?
- Number of employees.
- For corporations or limited partnerships - Tax ID and SOS filing numbers.
- Application contact and address is complete & verifiable with USPS. <http://www.usps.com>

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

- Regulated Entity Number (RN) (if site is already regulated by TCEQ)
- Site/project name and construction activity description
- County
- Latitude and longitude <http://www.tceq.texas.gov/gis/sqmaview.html>

- Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

- Indian Country Lands -the facility is not on Indian Country Lands.
- Construction activity related to facility associated to oil, gas, or geothermal resources
- Primary SIC Code that best describes the construction activity being conducted at the site.
www.osha.gov/oshstats/sicser.html
- Estimated starting and ending dates of the project.
- Confirmation of concrete truck washout.
- Acres disturbed is provided and qualifies for coverage through a NOI.
- Common plan of development or sale.
- Receiving water body or water bodies.
- Segment number or numbers.
- MS4 operator.
- Edwards Aquifer rule.

CERTIFICATION

- Certification statements have been checked indicating Yes.
- Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

Instructions for Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:

TCEQ

Stormwater Processing Center (MC228)

P.O. Box 13087

Austin, Texas 78711-3087

By Overnight or Express Mail:

TCEQ

Stormwater Processing Center (MC228)

12100 Park 35 Circle

Austin, TX

Application Fee:

The application fee of \$325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: <http://www.tceq.texas.gov/epay>

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application – status and form questions:

512-239-3700, swpermit@tceq.texas.gov

Technical questions:

512-239-4671, swgp@tceq.texas.gov

Environmental Law Division:

512-239-0600

Records Management - obtain copies of forms:

512-239-0900

Reports from databases (as available):

512-239-DATA (3282)

Cashier's office:

512-239-0357 or 512-239-0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review:** Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

or

Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site <http://www.tceq.texas.gov>. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: <http://www15.tceq.texas.gov/crpub/> or you can contact the TCEQ Stormwater Processing Center at 512-239-3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select “Advanced Search” to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number.**

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: <http://www15.tceq.texas.gov/crpub/>. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512-463-5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the applicant.

The fax number and e-mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co-applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512-463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at <http://www15.tceq.texas.gov/crpub/>. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to:

<http://www.tceq.texas.gov/gis/sqmaview.html>.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B*. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser:

[http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30) or contact the TCEQ Stormwater Team at 512-239-4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Buildings Other than Single Family Homes
- 1541 - Construction of Industrial Buildings and Warehouses

- 1542 - Construction of Non-residential Buildings, other than Industrial Buildings and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Local Government Assistance Section at 800-447-2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Environmental Assistance Section at 800-447-2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512-239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of “Common Plan of Development” in the Definitions section of the general permit or enter the following link into your internet browser:

www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for “Additional Guidance and Quick Links”. If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512-239-4671 or the TCEQ Small Business and Environmental Assistance at 800-447-2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site:

www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

You may also find the segment number in TCEQ publication GI-316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi-316 or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512-239-4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a

copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512-239-4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser:

www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512-239-4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site-specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512-239-3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512-463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has

been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form.*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

By Overnight or Express Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No:
2. Amount of Check/Money Order:
3. Date of Check or Money Order:
4. Name on Check or Money Order:
5. NOI Information:

If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

Project/Site (RE) Name:

Project/Site (RE) Physical Address:

Staple the check or money order to this form in this space.

ATTACHMENT 2



SMALL CONSTRUCTION SITE NOTICE

FOR THE
 Texas Commission on Environmental Quality (TCEQ)
 Stormwater Program
TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.E.2.** of the TCEQ General Permit Number TXR150000 for discharges of stormwater runoff from small construction sites. Additional information regarding the TCEQ stormwater permit program may be found on the internet at:

http://www.tceq.state.tx.us/nav/permits/wq_construction.html

Operator Name:	
Contact Name and Phone Number:	
Project Description: <i>Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized</i>	
Location of Stormwater Pollution Prevention Plan:	

For Small Construction Activities Authorized Under Part II.E.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.E.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A stormwater pollution prevention plan has been developed and will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title _____ Date _____

_____ Date Notice Removed

_____ MS4 operator notified per Part II.F.3.

ATTACHMENT 3

TPDES OPERATOR'S INFORMATION

Owner's Name and Address: City of Houston

Mr. _____
(City Official)

(Department)
1002 Washington Ave, 2nd FL
Houston, TX 77002
(832) 394-9108

Contractors' Names and Addresses:

General Contractor: _____

Telephone: _____

Site Superintendent: _____

Telephone: _____

Erosion Control and
Maintenance Inspection: _____

Telephone: _____

Subcontractors' Names and Addresses:

Phone: _____

Phone: _____

Note: Insert name, address, and telephone number of person or firms

ATTACHMENT 4

**CONTRACTOR'S / SUBCONTRACTOR'S
CERTIFICATION FOR TPDES PERMITTING**

I certify under penalty of law that I understand the terms and conditions of TPDES General Permit No. TXR150000 and the Storm Water Pollution Prevention Plan for the construction site identified as part of this certification.

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

ATTACHMENT 5



City of Houston
Storm Water Quality
Construction Site Activities Inspection Report

TCEQ Stormwater Discharge Permit Number _____

COH Storm Water Quality Permit Number _____

COH Building Permit Login Number _____

NAME _____ DATE _____

ADDRESS _____

- No exceptions noted.
The following deficiencies have been noted:
- NOI / Construction Site Notice Improperly Posted
- Stormwater Pollution Prevention Plan Incomplete or requires updating
- Copy of NOI / CSN not on site
- Storm Water Pollution Prevention Plan not on site
- Erosion and sediment controls improperly installed
- Erosion and sediment control devices improperly maintained
- Fueling/washout/chemical storage areas not properly protected
- Portocan or other sanitary facilities not properly protected or leaking
- Self-inspection and maintenance records incomplete
- Sediment from site outside area of construction
- Other (see description below)

The deficiencies must be corrected:
 immediately; within 48 hours;
 prior to re-inspection

Should the noted deficiencies not be corrected in the time frame indicated, further enforcement remedies will be sought.

For questions concerning the above:
Please contact the Storm Water Quality Group at
1002 Washington Avenue, 2nd Floor, Houston TX 77002
832-394-9108

Inspector's Name

Operator's Signature

Inspector's Cell Phone

Operator's Name
 not present

Distribution: white – Stormwater Quality Engineer gold – operator

ATTACHMENT 6

TCEQ Office Use Only
Permit No:
CN:
RN:
Region:



**Notice of Termination (NOT) for Authorizations under
TPDES General Permit TXR150000**

IMPORTANT INFORMATION:

Please read and use the General Information and Instructions prior to filling out each question in the form.

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

ePermits: This form is available on our online permitting system.

Sign up for online permitting at: <https://www3.tceq.texas.gov/steers/>

What is the permit number to be terminated?

TXR15 [redacted] TXRCW [redacted]

Section 1. OPERATOR (Permittee)

a) What is the Customer Number (CN) issued to this entity?

CN [redacted]

b) What is the Legal Name of the current permittee?

[redacted]

c) Provide the contact information for the Operator (Responsible Authority).

Prefix (Mr. Ms. or Miss): [redacted]

First and Last Name: [redacted] Suffix: [redacted]

Title: [redacted] Credentials: [redacted]

Phone Number: [redacted] Fax Number: [redacted]

Email: [redacted]

Mailing Address: [redacted]

City, State, and Zip Code: [redacted]

Country Mailing Information, if outside USA: [redacted]

Section 2. APPLICATION CONTACT

This is the person TCEQ will contact if additional information is needed regarding this application.

Is the application contact the same as the permittee identified above?

Yes, go to Section 3.

No, complete section below

Prefix (Mr. Ms. or Miss): [REDACTED]

First and Last Name: [REDACTED] Suffix: [REDACTED]

Title: [REDACTED] Credentials: [REDACTED]

Phone Number: [REDACTED] Fax Number: [REDACTED]

Email: [REDACTED]

Mailing Address: [REDACTED]

City, State, and Zip Code: [REDACTED]

Country Mailing Information, if outside USA: [REDACTED]

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) TCEQ issued RE Reference Number (RN): RN [REDACTED]

b) Name of project or site as known by the local community: [REDACTED]

c) County, or counties if more than 1: [REDACTED]

d) Latitude: [REDACTED] Longitude: [REDACTED]

e) Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Section 3A.

If the site does not have a physical address, provide a location description in Section 3B. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section 3A: Physical Address of Project or Site:

Street Number and Name: [REDACTED]

City, State, and Zip Code: [REDACTED]

Section 3B: Site Location Description:

Location description: [REDACTED]
[REDACTED]

City where the site is located or, if not in a city, what is the nearest city: [REDACTED]

Zip Code where the site is located: [REDACTED]

Section 4. REASON FOR TERMINATION

Check the reason for termination:

Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have been removed, or scheduled for removal as defined in the SWP3.

- Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been identified in the SWP3 have been transferred to the new Operator.
- The discharge is now authorized under an alternate TPDES permit.
- The activity never began at this site that is regulated under the general permit.

Section 5. CERTIFICATION

Signatory Name: [REDACTED]

Signatory Title: [REDACTED]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

Instructions for Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

GENERAL INFORMATION

Where to Send the Notice of Termination (NOT):

BY REGULAR U.S. MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact List:

Application status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Termination Process:

A Notice of Termination is **effective on the date postmarked for delivery to TCEQ.**

When your NOT is received by the program, the form will be processed as follows:

- 1) Administrative Review: The form will be reviewed to confirm the following:
 - the permit number is provided;
 - the permit is active and has been approved;
 - the entity terminating the permit is the current permittee;
 - the site information matches the original permit record; and
 - the form has the required original signature with title and date.
- 2) Notice of Deficiency: If an item is incomplete or not verifiable as indicated above, a phone call will be made to the applicant to clear the deficiency. A letter will not be sent to the permittee if unable to process the form.
- 3) Confirmation of Termination: A Notice of Termination Confirmation letter will be mailed to the operator.

Change in Operator:

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted not later than 10 days prior to the change in Operator status.

INSTRUCTIONS FOR FILLING OUT THE FORM

The majority of permit information related to the current operator and regulated entity are available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 1. Operator (Current Permittee):

- a) Customer Number (CN)
TCEQ's Central Registry assigns each customer a number that begins with CN, followed by nine digits. This is not a permit number, registration number, or license number. The Customer Number, for the current permittee, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- b) Legal Name of Operator
The operator must be the same entity as previously submitted on the original Notice of Intent for the permit number provided. The current operator name, as provided on the current authorization, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- c) Contact Information for the Operator (Responsible Authority)
Provide information for person signing the NOT application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. Update the address if different than previously submitted for the Notice of Intent or Notice of Change. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the operator.

The fax number and e-mail address are optional and should correspond to the operator.

Section 2. Application Contact:

Provide the name, title and contact information of the person that TCEQ can contact for additional information regarding this application.

Section 3. Regulated Entity (RE) Information on Project or Site:

- a) Regulated Entity Reference Number (RN)
A number issued by TCEQ's Central Registry to sites where an activity regulated by TCEQ. This is not a permit number, registration number, or license number. The Regulated Entity Reference Number is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- b) Name of the Project or Site
Provide the name of the site as known by the public in the area where the site is located.
- c) County
Identify the county or counties in which the regulated entity is located.
- d) Latitude and Longitude
Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. The latitude and longitude as provided on the current authorization is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- e) Site/Project (RE) Physical Address/Location Information
The physical address/location information, as provided on the current authorization, is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 3A. If a site has an address that includes a street number and street name, enter the complete address for the site. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate the site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

Section 3B. If a site does not have an address that includes a street number and street name, provide a complete written location description. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and Zip Code of the facility location.

Section 4. Reason for Termination:

The Notice of Termination form is only for use to terminate the authorization (permit). The Permittee must indicate the specific reason for terminating by checking one of the options. If the reason is not listed then provide an attachment that explains the reason for termination.

Please read your general permit carefully to determine when to terminate your permit. Permits will not be reactivated after submitting a termination form. The termination is effective on the date postmarked for delivery to TCEQ.

Section 5. Certification:

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an application form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statutes under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a) (3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code §305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

SECTION 01410
TPDES REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Documentation to be prepared and signed by Contractor/Operator before conducting construction operations, in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit Number TXR150000 issued on February 8, 2018 (the Construction General Permit).
- B. Implementation, maintenance inspection, and termination of storm water pollution prevention control measures including, but not limited to, erosion and sediment controls, storm water management plans, waste collection and disposal, off-site vehicle tracking, and other appropriate practices shown on the Drawings or specified elsewhere in the Contract.
- C. Review of the Storm Water Pollution Prevention Plan (SWP3) implementation in a meeting with Project Manager prior to start of Construction.

1.02 DEFINITIONS

- A. Commencement of Construction Activities: The exposure of soil resulting from activities such as clearing, grading, and excavation activities, as well as other construction related activities (e.g. stock piling of fill material, demolition).
- B. Large Construction Activity: Project that:
 - 1. disturbs five acres or more, or
 - 2. disturbs less than five acres but is part of a larger common plan of development that will disturb five acres or more of land.
- C. Small Construction Activity: Project that:
 - 1. disturbs one or more acres but less than five acres, or
 - 2. are part of a larger common plan of development that will disturb at least 1 but less than 5 Ac.

TPDES REQUIREMENTS

D. TPDES Operator:

1. Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary as defined below:
 - a. Primary Operator – the person or persons associated with a large or small construction activity that meets either of the following two criteria:
 - (1) the persons have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or, the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan (SWP3) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).
 - b. Secondary Operator –The person or entity, often the property owner, whose operational control is limited to:
 - (1) the employment of other operators, such as a general contractor, to perform or supervise construction activities, or
 - (2) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWP3)

- A. Prepare a SWP3 following Part III of the Construction General Permit and the Storm Water Management Handbook for Construction Activities issued under City Ordinance Section 47-695(b). If conflicts exist between the Construction General Permit and the handbook, the more stringent requirement will apply.
- B. Update or revise the SWP3 as needed during the construction following Part III, Section E of the Construction General Permit.
- C. Submit the SWP3 and any updates or revisions to Project Manager for review and address comments prior to commencing, or continuing, construction activities.

3.02 NOTICE OF INTENT for Large Construction Activity

- A. Fill out, sign, and date TCEQ Form 20022 (03/06/2018) Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000, ATTACHMENT 1 of this Section 01410.
- B. Transmit the signed Contractor's copy of TCEQ Form 20022 (03/06/2018), along with a \$325.00 check, made out to Texas Commission on Environmental Quality, and the completed Payment Submittal Form to Project Manager.
- C. Project Manager will complete a separate TCEQ Form 20022 (03/06/2018) for City's Notice of Intent, and will submit both Notices, along with checks for application fees, to the TCEQ.
- D. Submission of the Notice of Intent form by both the City and Contractor to CEQ if mailing is required a minimum of seven days before Commencement of Construction Activities.

3.03 CONSTRUCTION SITE NOTICE FOR SMALL CONSTRUCTION ACTIVITY

- A. Fill out, sign, and date the Construction Site Notice, Attachment 2 to TPDES General Permit TXR150000, "Small Construction Site Notice", ATTACHMENT 2 of this Section 01410.
- B. Transmit the signed Construction Site Notice to Project Manager at least seven days prior to Commencement of Construction Activity.

3.04 CERTIFICATION REQUIREMENTS

- A. Fill out TPDES Operator's Information form, ATTACHMENT 3 of this Section 01410, including Contractor's name, address, and telephone number, and the names of persons or firms responsible for maintenance and inspection of erosion and sediment control measures. Use multiple copies as required to document full information.
- B. Contractor and Subcontractors shall sign and date the Contractor's/ Subcontractor's Certification for TPDES Permitting, ATTACHMENT 4 of this Section 01410. Include this certification with other Project certification forms.
- C. Submit properly completed certification forms to Project Manager for review before beginning construction operations.
- D. Conduct inspections in accordance with TCEQ requirements. Ensure persons or firms responsible for maintenance and inspection of erosion and sediment control measures read, fill out, sign, and date the Erosion Control Contractor's certification for Inspection and Maintenance. Use the City of Houston Storm Water Pollution Prevention Plan,

Construction Site Inspection Report, ATTACHMENT 5 of this Section 01410 to record maintenance inspections and repairs.

3.05 RETENTION OF RECORDS

- A. Keep a copy of this document and the SWP3 in a readily accessible location at the construction site from Commencement of Construction Activity until submission of the Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity under TPDES Construction General Permit (TXR150000). Contractors with day-to-day operational control over SWP3 implementation shall have a copy of the SWP3 available at a central location, on-site, for the use of all operators and those identified as having responsibilities under the SWP3. Upon submission of the NOT, submit all required forms and a copy of the SWP3 with all revisions to Project Manager.

3.06 REQUIRED NOTICES

- A. Post the following notices from effective date of the SWP3 until date of final site stabilization as defined in the Construction General Permit:
 - 1. Post the TPDES permit number for Large Construction Activity, with a signed TCEQ Construction Site Notice for large or Small Construction Activity. Signed copies of the City's and Contractor's NOI must also be posted.
 - 2. Post notices near the main entrance of the construction site in a prominent place where it is safely and readily available for viewing by General Public, Local, State, and Federal Authorities. Post name and telephone number of Contractor's local contact person, brief project description and location of the SWP3.
 - a. If posting near a main entrance is not feasible due to safety concerns, coordinate posting of notice with Project Manager to conform to requirements of the Construction General Permit.
 - b. If Project is a linear construction project (e.g.: road, utilities, etc.), post notice in a publicly accessible location near active construction. Move notice as necessary.
 - 3. Post a notice to equipment and vehicles operators, instructing them to stop, check, and clean tires of debris and mud before driving onto traffic lanes. Post at each stabilized construction access area.
 - 4. Post a notice of waste disposal procedures in a readily visible location on site.

3.07 ON-SITE WASTE MATERIAL STORAGE

- A. On-site waste material storage shall be self-contained and shall satisfy appropriate local, state, and federal rules and regulations.

TPDES REQUIREMENTS

- B. Prepare list of waste material to be stored on-site. Update list as necessary to include up-to-date information. Keep a copy of updated list with the SWP3.
- C. Prepare description of controls to reduce pollutants generated from on-site storage. Include storage practices necessary to minimize exposure of materials to storm water, and spill prevention and response measures consistent with best management practices. Keep a copy of the description with the SWP3.

3.8 NOTICE OF TERMINATION

- A. Submit a NOT, ATTACHMENT 6 of this Section 01410, to Project Manager within 30 days after:
 - 1. Final stabilization has been achieved on all portions of the site that are the responsibility of the Contractor; or,
 - 2. Another operator has assumed control over all areas of the site that have not been stabilized; and
 - 3. All sit fences and other temporary erosion controls have either been removed, scheduled to be removed as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage.
- B. Project Manager will complete City's NOT and submit Contractor and City's notices to the TCEQ and MS4 entities.

END OF SECTION

SECTION 01423

REFERENCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General quality assurance related to Reference Standards.
- B. List of references.
- C. List of definitions.
- D. List of phrases.

1.02 QUALITY ASSURANCE

- A. For work specified by association, trade, or Federal Standards, follow requirements of the standard, except when more rigid requirements are specified or are required by applicable codes or by Contract Documents.
- B. Follow reference standard effective on the date stated in Document 00700 - General Conditions.
- C. Submit Document 00685- Request for Information before proceeding if specified reference standards conflict with Contract Documents, or if no standards apply.

1.03 PARTIAL LIST OF REFERENCES

AA	Aluminum Association 900 19 th St. N.W. Washington, DC 20006 Ph: 202-862-5100		Research Park Dr. P.O. Box 14052 Lexington, KY 40512-4052 Ph: 859-288-4960
AASHTO	Amer. Assoc. of State Hwy. Officials 444 North Capitol Street, N.W. #249 Washington, DC 20001 Ph: 202-624-5800	AITC	American Institute of Timber Construction 7012 S. Revere Pkwy, #140 Englewood, CO 80112 Ph: 303-792-9559
ACI	American Concrete Institute P.O. Box 9094 Farmington Hills, MI 48333-9094 Ph: 248-848-3700	AISC	American Institute of Steel Construction 1 E. Wacker Dr., #3100 Chicago, IL 60601-2001 Ph: 312-670-2400
AGC	Associated General Contractors of America 333 John Carlyle St., #200 Alexandria, VA 22314 Ph: 703-548-3118	AISI	American Iron & Steel Institute 1101 17th Street, N.W., #1300 Washington, DC 20036 Ph: 202-452-7100
ASME	American Soc. of Mech. Engrs. Three Park Ave. New York, NY 10016-5902 Ph: 212-591-7733	ANSI	American Natl. Stds. Institute 25 W. 43 rd St., 4 Floor New York, NY 10036 Ph: 212-642-4900
AI	Asphalt Institute	APA	The Engineered Wood Assoc.

REFERENCES

- 7011 So. 19th,
Tacoma, WA 98466
Ph: 253-565-6600
- API American Petroleum Institute
1220 L Street, N.W.
Washington, DC 20005-4070
Ph: 202-682-8000
- AREA Amer. Railway Engrg. Assoc.
8201 Corporate Dr., #1125
Landover, MD 20785
Ph: 301-459-3200
- ASTM American Soc. for Testing & Materials
100 Barr Harbor Dr.,
PO Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9585
- AWPA American Wood-Preservers' Association
PO Box 388
Selma, AL 36702-0388
Ph: 334-874-9800
- AWS American Welding Society
550 N.W. LeJeune Rd.
Miami, FL 33126
Ph: 800-443-9353
- AWWA Amer. Water Works Assoc.
6666 West Quincy Avenue
Denver, CO 80235
Ph: 303-794-7711
- BICSI Bldg. Industry Consulting Svc. Intl.
8610 Hidden River Pkwy.
Tampa, FL 33637-1000
Ph: 800-242-7405
- COH City of Houston
900 Bagby Street (Box 1562)
Houston, TX 77251-1562
Ph: 713-837-0311
- CLFMI Chain Link Fence Mfgs Inst.
10015 Old Columbia Rd., #B-215
Columbia, MD 21046
Ph: 301-596-2583
- CRSI Conc. Reinforced Steel Institute
933 N. Plum Grove Road
Schaumburg, IL 60173-4758
Ph: 847-517-1200
- EJMA Expansion Joint Manufacturers Assoc.
25 N. Broadway
Tarrytown, NY 10591
Ph: 914-332-0040
- FS Federal Standardization Documents
Gen. Svcs. Admin. Specificatns. Unit (WFSIS)
7th and D Streets, S.W. #6039
Washington, DC 20407
Ph: 202-472-2205
- HAS (City of) Houston Airport System
P.O. Box 60106 (16930 JFK Blvd., 77032)
Houston, TX 77205-0106
Ph: 281-233-3000
- HOU William P. Hobby Airport (Airport Manager)
7800 Airport Blvd.
Houston, Texas 77061
Ph: 713-640-3000
- IAH George Bush Intercontinental Airport Houston
(Airport Manager)
2800 N. Terminal Road
Houston, TX 77032
Ph: 281-230-3100
- ICEA Insulated Cable Engineer Association
P.O. Box 1568
Carrollton, GA 30112
- IEEE Institute of Electrical and Electronics Engineers
445 Hoes Lane, or P.O. Box 1331
Piscataway, NJ 08854-1331
Ph: 732-981-0060
- MIL Military Specifications (see "FS" for address)
- NACE National Association of Corrosion Engineers
440 1st St. N.W.
Washington, DC 20001
Ph: 202-393-6226
- NARTE National Association of Radio and
Telecommunications Engineers, Inc.
167 Village Street
P.O. Box 678
Medway, MA 02053
Ph: 508-533-8333, 800-896-2783
- NEMA National Electrical Manufacturers' Association
1300 North 17th Street, Suite 1847
Rosslyn, VA 22209
Ph: 703-841-3200
- NFPA National Fire Protection Association
1 Batterymarch Park, P.O. Box 9101
Quincy, MA 02169-7471
Ph: 617-770-3000
- OSHA Occupational Safety Health Administration
200 Constitution Avenue, NW
Washington, DC 20210
Ph: 866-487-2365
- PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077-1083

REFERENCES

PCI	Ph: 847-966-6200 Prestressed Concrete Institute 201 North Wacker Drive Chicago, IL 60606 Ph: 312-786-0300	TAC	Pittsburgh, PA 15222-4656 Ph: 412-281-2331 Texas Admin. Code, Texas Water Development Board Box 13231, Capitol Station Austin, TX 78711-3231 Ph: 512-463-7926
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021 Ph: 847-458-4647	UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062-2096 Ph: 877- 854-3577, 800-285-4476
SSPC	The Society for Protective Coatings 40 24 th Street, 6 th Floor	UNI-BELL	UNI-BELL Pipe Association 2655 Villa Creek Dr., Suite 155 Dallas, TX 75234 Ph: 972-243-3902

1.04 PARTIAL LIST OF DEFINITIONS

Airport: Area of land or water used or intended to be used for landing and takeoff of aircraft and includes buildings and facilities. Airports under control of City are certificated by FAA under FAR Part 139 and operate under specific safety requirements applicable to maintenance and construction activities.

Airport Manager: Individual delegated by Director of Department of Aviation, with absolute responsibility and authority for overall airport operation and compliance with FAR Part 139. Airport Manager shall communicate with Contractor through City Engineer except in case of emergency when City Engineer is not present. The Airport Manager may delegate responsibilities to other persons, such as airport electricians to coordinate lockouts/tag-outs.

Air Operations Area (AOA): Any area of Airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft, including paved or unpaved areas used or intended to be used for unobstructed movement of aircraft in addition to associated runway, taxiway, or apron. The AOA includes any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures.

Airport Security Officers: 1) Uniformed City of Houston Police (HPD) officers enforcing airport regulations and apprehension of unauthorized personnel in security areas; 2) Non-uniformed federal or local government personnel authorized to test for compliance with existing regulations.

Air Traffic Control Tower (ATCT): Person responsible for positive control of aircraft and vehicle traffic, including Contractor's, on and around runways, taxiways, and aprons.

Base Facility: Existing structure upon and within which the Work is constructed. "Existing construction" and "existing" mean the same as Base Facility.

1. By way of general description, Base Facility includes sidewalks and pavement; foundations; superstructure columns, beams and floors; exterior and interior walls,

REFERENCES

partitions and doors; mechanical and electrical systems; conveying systems; interior finish materials.

- a. Underground structures include sewer, water, gas, fuel and other piping, and manholes, chambers, electrical and signal conduits, ducts, tunnels, manholes and other means of access, foundations and below-ground extensions of surface structures and other existing subsurface Work located within or adjacent to the limits of the Work.
- b. Surface structures include existing buildings, tanks, masts and poles, navigational aids, walls, bridges, roads, dams, channels, open drainage, piping, wires, posts, signs, markers, curbs, walks, pavements and surfaces for wheeled vehicles (including aircraft), guard cables, fencing, lighting and similar constructs above the ground surface or visible without excavation, demolition or cutting.

DOT: Acronym for U.S. Department of Transportation.

Emergency Medical Service: Operational division of Houston Fire Department.

Emergency Vehicles: ARFF, HPD and EMS vehicles operating in emergency mode.

Federal Aviation Administration (FAA): Agency of U.S. Department of Transportation. FAA also means FAA's Administrator or Administrator's duly authorized representative.

Ground Support Equipment (GSE): Mobile and stationary vehicles and equipment for servicing aircraft.

Navigation Aids (NAVAIDS): Equipment used to locate aircraft and direct movement while airborne.

Public areas: Areas where no accessibility restrictions are imposed, generally including roadways, streets, parking lots and structures, and building interiors up to but not including baggage and passenger checkpoints at concourses.

Secured Area: Any portion of the airport where aircraft operators (and foreign air carriers that have a security program under part 1544 or 1546) enplane and deplane passengers, sort and load baggage, and any adjacent areas not separated by adequate security measures.

Security Areas, Security Identification Areas (SIDAs): 1.) AOA; 2) Secured Areas: Exterior or interior areas the access to which is controlled by authorized security personnel or by keyed or electronic locks, and which may have posted notice of restricted access.

Traffic Activity: In-the-air or on-the-ground aircraft and emergency vehicle activity that, determined by ATCT, Airport Manager or City Engineer because of safety reasons, prohibits the start, continuation or completion of construction operations.

REFERENCES

Transportation Security Administration (TSA): Agency of U.S. Department of Transportation charged with implementing and enforcing federal airport security rules and regulations. TSA also means TSA's Undersecretary or the Undersecretary's duly authorized representative(s).

TSR: an acronym for Transportation Security Regulation.

1.05 PARTIAL LIST OF PHRASES

- A. Read "includes" and "including" as having the phrase "but not necessarily limited to" immediately following the words, if not otherwise written out.
- B. "Required" means products, labor and services provided by the Contractor to properly complete the Work following the Contract Documents and the design concept expressed therein, such required work being determined and governed by field or shop conditions.

1.06 PARTIAL LIST OF ABBREVIATIONS AND ACRONYMS

- A. Following abbreviations and acronyms may appear on Drawings and in other Sections:
 - 1. CFP: City-furnished product(s).
 - 2. CSP: Contractor-salvaged product(s).
 - 3. NIC or N.I.C.: Not in contract.
 - 4. NOTAM: Notice to Airman.
 - 5. PDC: Department of Aviation Planning Design Construction Group.
 - 6. RFI: Request for Information/Clarification.
 - 7. RFP: Request for Proposal.
 - 8. WCD: Work Change Directive.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

REFERENCES

SECTION 01450
CONTRACTOR'S QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General requirements for Contractor's quality control services.
- B. Contractor's responsibilities related to City's testing are specified in Section 01455 - City's Acceptance Testing.

1.02 GENERAL

- A. Maintain source and on-site quality control over suppliers, manufacturers, products, services, site conditions, quality assurance programs, and workmanship, to provide work of required quality at no additional cost to the City.
- B. Follow manufacturers' installation instructions, including each step-in sequence.
- C. Request clarification from City Engineer before proceeding should manufacturers' instructions conflict with Contract Documents.
- D. Follow specified standards as minimum requirements for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce the specified level of workmanship.
- F. Observe, inspect, collect samples and test samples of the Work as it progresses and as required for compliance with Document 00700 - General Conditions Paragraph 3.2.
 - 1. At Contractor's discretion, retain a testing laboratory to supplement manufacturers' own product testing programs, except do not retain the same testing laboratory retained by City under Section 01455 - City's Acceptance Testing.
 - 2.
 - 2. Additional responsibilities of Contractor related to testing are specified in Section 01455 - City's Acceptance Testing.

1.03. CONTRACTOR'S QUALITY ASSURANCE PROGRAM (QAP)

CONTRACTOR'S QUALITY CONTROL

- A. Implement and maintain a QAP of inspection, sampling, testing, and observation and test results reporting for the Work, applicable to product source, fabrication, mixing, and through final installation, to provide proper work.

- B. Submit required submittals and requests for information (RFIs) into the HAS's web-based application, Microsoft SharePoint. Access to the SharePoint portal and required training will be coordinated through the Project Manager. Submit Contractor's Quality Assurance Program (QAP), following Section 01340 - Shop Drawings, Product Data and Samples, with following minimum information:
 - 1. Organization chart indicating Contractor's QAP personnel.
 - 2. Inspection, Sampling and Testing Matrix/ Schedule: Overlaid with requirements of Section 01325 - Construction Schedules and Section 01455 - City's Acceptance Testing.
 - 3. Sample QAP reporting forms.
 - 4. Procedures for action to correct defective work.
 - 5. Procedures to implement and manage the QAP.
 - 6. Submit one copy of Contractor's written QAP Inspection, Test, and Daily Reports to City and one copy to ITL, on a daily basis, indicating:
 - a. Project Name, Number, CIP Number.
 - b. Date/time of inspection/sampling/test, and quantity of product involved.
 - c. Product or installation batch, mill number, or production run number, and method used to assure statistically based random sampling following ASTM D3665.
 - d. Environmental conditions where applicable to results.
 - e. Name and signature of observer or tester, certifying as follows:

"The above work was inspected/sampled and tested in the manner described, and the result(s) are hereby certified by the undersigned as complete and accurate."
 - f. Product or installation inspected, by Section number, and location of inspection (such as product source, fabrication shop, or on site), and quantity of product tested.
 - g. Location in the Work, by Drawing/detail number, floor number, range/station number, or other specific identifier traceable to the Drawings.

CONTRACTOR'S QUALITY CONTROL

- h. Type of inspection or test (such as visual; non-destructive X-ray), and type of test by referenced standard test number.
 - i. Type of inspection, sample or test products used.
 - j. Performance standard required.
 - k. Factual evidence and results of inspections, measurements or tests stated as "pass" or "fail."
 - l. Factual evidence and record of observations and tests. Include nature and type of failure, and comments as applicable.
- C. Contractor's QAP Personnel for Sitework:
- 1. Quality Control Manager: Sole responsibility for management, implementation and control of the QAP; an employee of Contractor and specialist in type of applicable construction. If not an officer of firm, this person shall report to an officer.
 - a. Duties and Responsibilities: Plan, organize, staff, direct and control the QC Program; supervise QCTs (below); collate and review detail reports of QC activities for accuracy and completeness before publication, and prepare factual summary reports. The QCM may work projects other than this project, except QCM shall be present at times of sampling, testing or observation, within 2 hours of notice.
 - b. Demonstrated experience in parking garage paving construction and quality assurance compliance equivalent in scope and complexity to work of this contract, plus one of the following minimums:
 - 1) Registered civil engineer, with 1 year above experience.
 - 2) Engineer-in-Training, with 2 years above experience.
 - 3) Graduate Bachelor of Science degree in Civil Engineering, Civil Engineering Technology or Construction, with 3 years above experience.
 - 4) National Institute for Certification in Engineering Technologies (NICET), Level III, certified Construction Materials Technician, Highway Materials Technician, or Highway Construction Technician, with 4 years above experience.
 - 5) NICET-certified Civil Engineering Technician, with 5 years above experience, and approved by the City Engineer.
 - 2. Quality Control Technicians (QCT): Responsibility for processing this QC Program; report to the QCM.

- a. Duties and Responsibilities: Inspect work, collect samples, take measurements, test work, collate test and measurement data, and prepare factual, accurate and complete reports. Use as many QCTs as required. QCTs may be Contractor's employees or personnel of a qualified ITL subcontracted to the Contractor, except do not use City's ITL to fulfill Contractor's testing requirements.
 - b. Demonstrated experience in same construction as QCM, and quality assurance compliance equivalent in scope and complexity to work of this contract, plus one of the following minimums:
 - 1) Engineer or Engineering Technician, with 1 year above experience.
 - 2) NICET Level II or higher certification as Construction Materials Technician, Highway Materials Technician, or Highway Construction Technician, , with 2 years above experience.
 3. Equivalent certifications by authorities other than NICET may be substituted following Section 01630.
- D. Contractor's QAP Personnel for Buildings:
1. Quality Control Manager: Sole responsibility for management, implementation and control of the QAP; an employee of the Contractor and specialist in type of applicable construction. If not an officer of firm, this person shall report to an officer.
 - a. Duties and Responsibilities: Plan, organize, staff, direct and control the QC Program; supervise QCT staff (below); collate and review detail reports of QC activities for accuracy and completeness before publication, and prepare factual summary reports. The QCM may work projects other than this project, except QCM shall be present at times of sampling, testing or observation, within 2 hours of notice.
 - b. Demonstrated experience in building Structural construction and quality assurance compliance equivalent in scope and complexity to work of this contract, plus one of the following minimums:
 - 1) Registered structural engineer, with 1 year above experience.
 - 2) Engineer-in-Training, with 2 years above experience.
 - 3) Graduate Bachelor of Science degree in structural engineering, with 3 years above experience.
 2. Quality Control Technicians (QCT): Responsibility for processing QAP; report to the QCM.

- a. Duties and Responsibilities: Inspect work, collect samples, take measurements, test work, collate test and measurement data, and prepare factual, accurate and complete reports. Use as many QCTs as required. QCTs may be Contractor's employees or personnel of a qualified ITL subcontracted to the Contractor, except do not use City's ITL to fulfill Contractor's testing requirements.
- b. Engineer or Engineering Technician, with minimum 1 year demonstrated experience in same construction as QCM, and quality assurance compliance equivalent in scope and complexity to work of this contract.

1.03 REFERENCES

- A. Obtain copies of referenced standards and maintain at site when required by other Sections.

1.04 MANUFACTURER'S FIELD SERVICES

- A. When specified in other Sections or when conditions are required to maintain schedule, cost or quality control, provide services of properly qualified manufacturer's or supplier's technical representative(s) to observe field conditions, conditions of substrates and installation, quality of workmanship, startup, testing, adjusting, balancing, demonstration and City-personnel training as required.
- B. Within 14 days of observation, submit a written report to City Engineer, prepared by manufacturer's representative, documenting their observations, supplementary instructions and instructions at variance with manufacturer's written instructions, and, where applicable, recommendations for corrective action. Costs and time for corrective action is Contractor's responsibility, without increase in Contract Sum or Time.

1.05 SUBCONTRACTS

- A. Coordinate work of subcontractors. Inform subcontractors of relation of their work to that of other subcontractors and Separate Contractors and direct scheduling of work to prevent conflicts or interferences.
- B. Employ subcontractors with documented proof of proper completion of two projects during the past 3 years of work similar in scope, type and quality as that required for this contract.

1.06 EXAMINATION AND PREPARATORY WORK

- A. Carefully examine substrates whether Base Facility or provided as part of the Work before commencing work applied to or accommodated by substrates. Proceed after unsatisfactory conditions are corrected, and after substrate work is properly prepared and complete.

- B. Take field dimension and establish and maintain lines, dimensions, and benchmarks as required to control proper fabrication and installation of work.
- C. Do not proceed with affected work until unsatisfactory site conditions and substrates are correct.
 - 1. Make written notification of scope and type of corrections required of separate contracts.
- D. Repair remaining substrates following Section 01731 - Cutting and Patching.

1.07 CONTRACTOR'S TESTING

- A. Follow Document 00700 - General Conditions Paragraphs 3.9.2 and this Section 01450.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 INSPECTIONS BY BUILDING OFFICIALS AND OTHER AGENCIES

- A. Immediately notify City Engineer of the date of inspections by governing authorities, in order for City Engineer to attend.

END OF SECTION

SECTION 01455
CITY'S ACCEPTANCE TESTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. City Will retain an Independent Testing Laboratory (ITL) for following services:

1. Collect product samples at source, site of fabrication, or project site as required by referenced test procedure, as specified herein or in other Sections.
2. Test product samples at source, site of fabrication, project site or in ITL's laboratory as required by referenced test procedure, as specified herein or in other Sections.
3. Inspect execution of work at source, site of fabrication, or project site, as applicable, as specified herein or in other Sections.
4. Record and distribute observations of work during inspections, indicating "pass" or "fail."
5. Record and distribute results of tests, indicating "pass" or "fail."
6. ITL does not have authority to:
 - a. Release, revoke, alter, or enlarge requirements of Contract Documents.
 - b. Approve or accept work.
 - c. Assume duties of Contractor.
 - d. Stop the Work or a part thereof.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Notify City Engineer, ITL and Designer minimum 24 hours prior to expected time for inspections or sample collections. Schedule ITL's, City Engineer's, and Designer's presence for timely inspections, observations, and sample collection without delay to the Work.
- B. Provide access to the Work and cooperate with ITL for inspection and sample collection.
- C. Furnish samples of manufactured products to ITL for inspection and testing.
- D. Provide incidental labor, products, services and facilities for sample collection and for transportation and handling of samples to ITL's vehicle or to ITL's on-site test facility.

CITY'S ACCEPTANCE TESTING

- E. Reimburse City by Modification (Section 01255 - Modification Procedures) for costs of retesting previously "failed" work, including time expended by City's personnel related thereto.
- F. Time delays and costs resulting from ill-timed QC work are the Contractor's responsibility, without increase in Contract Time or Price.
- G. Follow Document 00700 - General Conditions Paragraph 3.2 and Section 01450- Contractor's Quality Control.
- H. Perform work following requirements of Contract Documents.
- I. Read reports of failed tests or measurements. Implement corrective actions to prevent defective work from proceeding farther.
- J. Stop affected work when corrective action fails to bring work to required standards.
- K. Remove defective work following Section 01731 and replace with proper work.
- L. Inspect, sample and test Base Facility Section 01726, as required to determine and confirm acceptability of existing construction as substrate for new construction.
- M. If Contractor employs a testing laboratory, follow ASTM D3740 and ASTM E329, plus other test standards specified in other Sections.
- N. Contractor shall not:
 - 1. Employ for Contractor's quality assurance testing the same ITL employed by the City for this Project.
 - 2. Retain possession of ITL's samples.

1.03 SUBMITTALS BY ITL

- A. Submit 3 copies of following to City:
 - 1. Written certification of compliance with following:
 - a. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
 - b. ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
 - 2. Copy of latest inspection report by Materials Reference Laboratory/ National Bureau of Standards (NBS) or inspection traceable thereto, with statement of remedies of

deficiencies.

3. Invoice for retesting previously "failed" work.
- B. Submit 5 copies of following, 3 to City, 2 to Contractor. Immediately transmit "fail" reports by facsimile directly to City and to Contractor.
1. Project Name, Number, CIP Number.
 2. Identify ITL, Contractor, Subcontractor or Supplier, Section number and name, generic and manufacturer's name of product, numerical sequence when more than one inspection, sample or test of the same product is made, date and time of each inspection, sample collection or test, and applicable Drawing detail number.
 3. Date/time of inspection/sampling/test, and quantity of product involved.
 4. Product or installation batch, mill number, or production run number, and method used to assure statistically based random sampling following ASTM D3665.
 5. Environmental conditions where applicable to results.
 6. Name and signature of observer or tester, certifying as follows:
"The above work was inspected/sampled and tested in the manner described, and the result(s) are hereby certified by the undersigned as complete and accurate."
 7. Product or installation inspected, by Section number, and location of inspection (such as product source, fabrication shop, or on site), and quantity of product tested.
 8. Location in the Work, by Drawing/detail number, floor number, range/station number, or other specific identifier traceable to the Drawings.
 9. Type of inspection or test (such as visual; non-destructive X-ray), and type of test by ASTM or other reference standard test number.
 10. Type of inspection, sample or test equipment used.
 11. Performance standard required
 12. Factual evidence and results of inspections, measurements or tests stated as "pass" or "fail."
 13. Factual evidence and record of observations and tests. Include nature and type of failure, and comments as applicable. Furnish graphic or narrative data, or both, indicating nominal requirements and actual test values. Indicate type and numerical value of deviations from specified requirements.

14. For submittals using SI (metric) measure as the ITL's standard, include corresponding Imperial measure conversions. Follow Section 01610 - Basic Product Requirements.
- C. Print and distribute copies of records.
- D. Transmit reports within 7 days of observations, inspections or test completion, except where shorter processing time is required due to possibility of Contractor continuing installation of "failing" work.
- E. For data in the form of drawings:
 1. Submit one vellum sepia or electrostatic transparency (emulsion side "up") with one diazo print to City Engineer. Submit one diazo print to Contractor.
 2. Sheet Size: 8-1/2 x 11 inches minimum; 44 x 34 inches maximum.
 3. If CADD is used, prepare documents readable, writable and printable using IBM PC-compatible hardware and software, based on AutoCAD (11 or later versions) or software translated thereto. Provide copy of AutoCAD data disks to City Engineer
 4. Prepare drawings by qualified drafters.
 5. Draw to scale, and accurately represent products.
- F. For statistical records in the form of spreadsheets or graphs:
 1. Submit electrostatic prints.
 2. Sheet Size: 8-1/2 x 11 inches minimum; 11 x 17 inches maximum.
 3. Provide copy of data disks to City Engineer at completion of the Work.

PART 2 PRODUCTS

2.01 SAMPLING AND TEST EQUIPMENT

- A. Provide and maintain in proper function sampling and test equipment of type and quantity required, with calibration and accuracy traceable to NBS.

PART 3 EXECUTION

3.01 GENERAL PROCEDURES

- A. Follow requirements of individual Sections.
- B. Follow Section 01457 - Estimating Percentage of Product Within Specification Limits for

determining percentage of product within specified limits.

- C. Coordinate inspections, sampling and testing with construction progress and Contractor's schedule specified in Section 01325 - Construction Schedules.
- D. At least once per shift inspect mixing, fabrication and installation of soil, cementitious and petroleum-based products for proper operation or tolerances. Confirm installers and tool operators are qualified, and tools are properly functioning.
- E. Sample at frequencies following requirements of applicable Sections or as specified herein and test each sample.
- F. Take quantity, linear, volume and bulk measurements as frequently as necessary to control mixing, fabrication and installation.
- G. Properly calibrate test equipment and measuring tools before use.
- H. Immediately report failed tests or measurements.
- I. Test work for proper function and performance as specified herein and in other Sections.
- J. Test and balance final HVAC system by AABC-certified contractor as part of the Work.

INSPECTION AND OBSERVATION

- A. Inspect work by properly experienced personnel. Observe mixing, fabrication and installation procedures. Record observations.
- B. Inspect at frequency indicated, using visual observation and measuring tools appropriate to the work. If not otherwise required in other Sections, inspect product source at the site of origin.

3.03 SAMPLING

- A. Unless otherwise indicated in Sections or otherwise required by test standard, randomly collect 3 samples and maintain possession until observation and testing is complete and results documented.
- B. Collect and handle samples following test standard.
- C. Coordinate operations with Contractor.

3.04 TESTING

- A. Test products *in situ* as approved by City Engineer or in laboratory where destructive

tests are required, test to product failure. Note factual observations, test results, and measuring equipment setup, typed or legibly handwritten. For graph illustrations, use computerized database or spreadsheets.

- B. Store and cure samples following test standards or as required to maintain samples in pristine condition until tested.
- C. Test samples for conformance with requirements.
- D. Follow test standards specified herein and in other Sections.

3.05 SCHEDULE OF INSPECTIONS, SAMPLES AND TESTS

- A. Observe mixing, fabrication and installation, and inspect, collect samples and test, as indicated in applicable Sections.

END OF SECTION

SECTION 01457
ESTIMATING PERCENTAGE OF
MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

PART 1 GENERAL

When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (\bar{X}) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index(s), Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

IT IS THE INTENT OF THIS SECTION TO INFORM THE CONTRACTOR THAT, IN ORDER TO CONSISTENTLY OFFSET THE CONTRACTOR'S RISK FOR MATERIAL EVALUATED, PRODUCTION QUALITY (USING POPULATION AVERAGE AND POPULATION STANDARD DEVIATION) MUST BE MAINTAINED AT THE ACCEPTABLE QUALITY SPECIFIED OR HIGHER. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRODUCE AT QUALITY LEVELS THAT WILL MEET THE SPECIFIED ACCEPTANCE CRITERIA WHEN SAMPLED AND TESTED AT THE FREQUENCIES SPECIFIED.

1.01 SECTION INCLUDES

- A. Statistical analysis to determine the total estimated percent of the lot within specification limits.
- B. Method for computations.
- C. Table of values for Q_L and Q_U .
- D. Product sampling and testing is specified in Section 01455.

ESTIMATING PERCENTAGE OF PWL

1.02 DEFINITIONS

- A. Percent Within Limits (PWL): Statistically based evaluation method, where the PWL is computed on a lot basis, using the average (\bar{X}) and standard deviation (S_n) of the specified number (n) of subplot tests for the lot and the specified tolerance limits (L for lower and U for upper) for the particular acceptance parameter.
1. From these values, the respective Quality indices (Q_L for Lower Quality Index and/or Q_U for Upper Quality Index) are computed and the PWL for the specified n is determined from Table 1.

1.03 METHOD FOR COMPUTING PWL

- A. The computational sequence for computing PWL is as follows:
1. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.
 2. Locate the random sampling position within the subplot in accordance with the requirements of the specification.
 3. Make a measurement at each location or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.
 4. Find the sample average (\bar{X}) for all subplot values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where: \bar{X} = Sample average of all subplot values within a lot
 x_1, x_2 = Individual subplot values
 n = Number of sublots

5. Find the sample standard deviation (S_n) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2)/(n-1)]^{1/2}$$

Where: S_n = Sample standard deviation of the number of subplot values in the set
 $d_1, d_2,$ = Deviations of the individual subplot values x_1, x_2, \dots from the average value \bar{X}
that is: $d_1 = (x_1 - \bar{X}), d_2 = (x_2 - \bar{X}) \dots d_n = (x_n - \bar{X})$
 n = Number of sublots

6. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

ESTIMATING PERCENTAGE OF PWL

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L , using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

7. For double-sided specification limits (i.e. L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$Q_L = (X - L) / S_n \text{ and } Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U , using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U . Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where: P_L = percent within lower specification limit
 P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

- B. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 96.60
A-2 97.55
A-3 99.30
A-4 98.35
n = 4

2. Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$
 $X = (96.60 + 97.55 + 99.30 + 98.35) / 4$
 $X = 97.95$ percent density

ESTIMATING PERCENTAGE OF PWL

3. Calculate the standard deviation for the lot.

$$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2) / (4 - 1)]^{1/2}$$
$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$$
$$S_n = 1.15$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L=96.3$)

$$Q_L = (X - L) / S_n$$
$$Q_L = (97.95 - 96.30) / 1.15$$
$$Q_L = 1.4348$$

5. Determine PWL by entering Table 1 with $Q_L= 1.44$ and $n= 4$.

$$PWL = 98$$

C. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1	5.00
A-2	3.74
A-3	2.30
A-4	3.25

2. Calculate the average air voids for the lot.

$$X = (x_1 + x_2 + x_3 \dots x_n) / n$$
$$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$$
$$X = 3.57 \text{ percent}$$

3. Calculate the standard deviation S_n for the lot.

$$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$$
$$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$$
$$S_n = 1.12$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L= 2.0$)

$$Q_L = (X - L) / S_n$$
$$Q_L = (3.57 - 2.00) / 1.12$$
$$Q_L = 1.3992$$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and $n = 4$.

$$P_L = 97$$

6. Calculate the Upper Quality Index Q_U for the lot. ($U = 5.0$)

$$Q_U = (U - X) / S_n$$
$$Q_U = (5.00 - 3.57) / 1.12$$
$$Q_U = 1.2702$$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and $n = 4$.

$$P_U = 93$$

8. Calculate Air Voids PWL

$$PWL = (P_L + P_U) - 100$$
$$PWL = (97 + 93) - 100 = 90$$

EXAMPLE OF OUTLIER CALCULATION (Reference ASTM E 78)

Project: Example Project
Test Item: Item P-401, Lot A.

- D. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A. arranged in descending order.

A-3 99.30
A-4 98.35
A-2 97.55
A-1 96.60

2. Use $n=4$ and upper 5 percent significance level of to find the critical value for test criterion = 1.463.
3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

- a. For measurements greater than the average:

If: $(\text{measurement} - \text{average}) / (\text{standard deviation})$ is less than test criterion,
Then: the measurement is not considered an outlier for A-3 Check if $(99.30 - 97.95) / 1.15$ greater than 1.463
1.174 is less than 1.463, the value is not an outlier

- b. For measurements less than the average:

ESTIMATING PERCENTAGE OF PWL

If $(\text{average} - \text{measurement}) / (\text{standard deviation})$ is less than test criterion, then the measurement is not considered an outlier for A-1 Check if $(97.95 - 96.60) / 1.15$ greater than 1.463

1.0 is less than 1.463, the value is not an outlier

NOTE: In this example, a measurement would be considered an outlier if the density was: greater than $(97.95 + 1.463 \times 1.15) = 99.63$ percent or, less than $(97.95 - 1.463 \times 1.15) = 96.27$ percent

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)								
Percent Within Limits (P _L and P _U)	Positive Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420

ESTIMATING PERCENTAGE OF PWL

96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)

Percent Within Limits (P _L and P _U)	Positive Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829

ESTIMATING PERCENTAGE OF PWL

**ESTIMATING PERCENTAGE OF MATERIAL
 WITHIN SPECIFICATION LIMITS (PWL)**

56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)								
Percent Within Limits (P _L and P _U)	Negative Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304

ESTIMATING PERCENTAGE OF PWL

44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)

Percent Within Limits (P _L and P _U)	Negative Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265

ESTIMATING PERCENTAGE OF PWL

6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

END OF SECTION

SECTION 01505
TEMPORARY FACILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General temporary facilities:

1. Utilities and environmental systems.
2. Sanitary facilities.
3. Storage sheds, buildings and lay-down areas.
4. Fire protection.
5. Protection of the Work and property.
6. Interim cleaning.
7. Disposal of trash and debris.

B. Temporary facilities for exterior work:

1. Barricades.
2. Hazard lighting.
3. Access roads and parking.
4. Environmental controls.
5. Disposal of excavated material.
6. Control of erosion and water runoff.

C. Temporary facilities for interior work:

1. Barricades and enclosures, including those for accessways and exit ways.
2. Hazard lighting.
3. Environmental controls.

TEMPORARY FACILITIES

4. Existing electrical power, water, and HVAC are available at interior construction projects for Contractor's use at no charge by City Engineer.
- D. Provide temporary product handling facilities and construction aids, such as scaffolds, staging, ladders and stairs, protective railings, hoists, chutes and other facilities, as required for construction operations and to protect persons, property and products. Follow governing agency requirements for scope, type and location if not otherwise specified.
- E. Follow Section 01326 - Construction Sequencing for mobilization and demobilization requirements.
- F. Temporary facilities specified herein are minimum standards. Provide additional facilities as required for proper execution of the Work and to meet responsibilities for protection of persons and property.
- G. Properly install temporary facilities.
- H. Maintain in proper operating condition until use is no longer required or as otherwise approved.
- I. Modify and extend temporary facilities as required by Work progress.
- J. Restore existing facilities used temporarily, to specified or original condition following Section 01731 - Cutting and Patching.
- K. Provide weather protection and environmental controls as required to prevent damage to remaining Base Facility, the Work, and to other property.
- L. Follow regulatory agency requirements for required temporary facilities not specified herein.
- M. Where disposal of spoil and waste products, whether or not they are contaminated, is required under this or other Sections, make legal dispositions off site following governing authorities' requirements, unless on-site disposition is allowed under this or other Sections.

1.02 SUBMITTALS

- A. Follow Section 01340 - Shop Drawings, Product Data and Samples.
- B. Submit shop drawings and descriptive data showing:
 1. Enclosure and barricade construction.
 2. Enclosure and barricade layout if different from that shown on Drawings, including for each stage if applicable.

1.03 GENERAL REQUIREMENTS FOR UTILITIES AND ENVIRONMENTAL SYSTEMS

TEMPORARY FACILITIES

- A. Make arrangements with utility service companies for temporary services.
- B. Follow rules and regulations of utility service companies or authorities having jurisdiction.
- C. Maintain utility service until Substantial Completion, including fuel, power, light, heat, and other utility services necessary for execution, completion, testing, and initial operation of the Work.
- D. Follow Section 01312 - Coordination and Meetings for advance notifications and approvals of shutdowns of existing services and systems.
- E. Water: Provide water for construction, at Contractor's sole cost and expense except as otherwise required below. Coordinate location and type of temporary water service with and obtain approval from City Engineer.
 - 1. For water obtained direct from water mains or fire hydrants, obtain permit or license from proper authorities, and install temporary meter if applicable.
 - 2. For water obtained downstream from Department of Aviation meter, City will provide water without cost for construction operations. Obtain approval of tap types, locations, and pipe routing. Provide valves and pipe as required.
 - 3. For drinking water for personnel, provide potable water in proper dispensing containers, except public drinking fountains close to interior construction projects are available as long as use by Contractor does not impede airport operations or increase airport maintenance.
- F. Electrical Power: Provide power for lighting, operation of Contractor's plant or tools, or other uses by Contractor, at Contractor's sole cost and expense, except as otherwise required below. Coordinate location and type of temporary power service with and obtain approval from City Engineer.
 - 1. For power obtained direct from electric mains, obtain permit or license from proper authorities, and install temporary meter if applicable.
 - 2. For power obtained downstream from Department of Aviation meter, City will provide power, without cost for construction operations, however, this shall be solely at the discretion of the City Engineer. Tap existing electrical panels and circuits at locations and ampacities approved by City Engineer. Obtain approval of tap types, locations, and conduit/wire routing. Provide switches as required.
 - 3. Provide temporary power service or generators to power construction operations and to power existing facilities during main service shutdowns, and at locations where proper commercial power is not available.

- G. Lighting: Provide lighting in construction areas, or other areas used by Contractor, at Contractor's sole cost and expense, except as otherwise required below. Coordinate location and type of temporary light fixtures with and obtain approval from City Engineer.
 - 1. Provide explosion-resistant fixtures in areas where fuel is stored, handled or dispensed.
 - 2. Minimum Lighting Level: 5-foot candles for open areas; 10-foot candles for exitways. Provide minimum of one 300W lamp per 20 square feet of work area.
- H. Heat and Ventilation: Provide temporary heat and ventilation as required for protection or completion of the Work and to control dust, odors and other environmental contaminants. Provide safe working conditions. Maintain enclosed work areas, including interior work areas, at minimum of 50 degrees F.

1.04 SANITARY FACILITIES

- A. Provide one portable self-contained chemical toilet/urinal for each 25 workers for exterior construction projects or construction areas not close to existing public restrooms. Place at reasonably secluded locations conveniently accessible to workers. Follow regulations of State and local departments of health.
- B. Enforce use of sanitary facilities.
- C. Supply and service temporary sanitary units at least twice per week. Legally dispose of waste off-site.

1.05 STORAGE SHED, BUILDINGS AND LAY-DOWN AREAS

- A. Store products neatly and orderly onsite, arranged to allow inspection, identification and inventory, at locations approved by City Engineer.
- B. When lack of or ill-timed environmental control systems could damage products, store in bonded off-site facilities approved by manufacturer, supplier or fabricator.
- C. Provide suitable and substantial storage sheds, rooms, covers, or other facilities, for storage of material subject to contamination or damage from other construction operations. Provide environmental control to maintain products within manufacturers' required limits, when required. Storage of materials not susceptible to weather damage may be on blocks off the ground.
- D. Do not overload Base Facility structure. Provide temporary shoring or bracing as required to

1.06 FIRE PROTECTION

- A. Follow fire protection and prevention requirements specified herein and those established by Federal, State, or local governmental agencies.

TEMPORARY FACILITIES

- B. Follow applicable provisions of NFPA Standard No. 241, Safeguarding Building Construction and Demolition Operations.
 - C. Provide portable fire extinguishers, rated not less than 2A or 5B following NFPA Standard No. 10, Portable Fire Extinguishers, for field office and for every 3000 square feet of floor area of facilities under construction, located within 50 feet maximum from any point in the protection area.
 - D. Prohibit smoking in hazardous areas. Post suitable warning signs in areas which are continuously or intermittently hazardous.
 - E. Use metal safety containers for storage and handling of flammable and combustible liquids.
 - F. Do not store flammable or combustible products inside occupied buildings or near stairways or exits.
 - G. Maintain clear exits from all points in the Work.
- 1.07 PROTECTION OF THE WORK AND PROPERTY

- A. Take precautions, provide programs, and take actions necessary to protect the Work and public and private property from damage.
- B. Prevent damage to existing public and private utilities and systems during construction. Utilities are shown on Drawings at approximate locations, but this information is not warranted as complete or accurate. Give City Engineer at least 48 hours notice before commencing work in the area, for locating the utilities during construction, and for making adjustments or relocation of the utilities when they conflict the Work.
 - 1. Utilize the Utility Coordinating Committee One Call System, telephone number, (713) 223-4567, called 48 hours in advance. The toll-free telephone number is 1-800-245-4545, Texas One Call System.
 - 2. Follow Section 01726 - Base Facility Survey, to determine existing utilities and systems.
 - 3. Follow Section 01761 - Protection of Existing Services, to make coordination efforts for each existing Service that requires protection.
- C. Provide safe barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, accessways, and hazardous areas.
- D. Obtain written consent from proper parties, before entering or occupying with workers, tools, or products on privately-owned land, except on easements required by the Contract Documents.

- E. Assume full responsibility for preservation of public and private property on or adjacent to the site. If direct or indirect damage is done by or on account of any act, omission, neglect, or misconduct in execution of the Work by Contractor, restore by Contractor, at no cost or time increase, to a condition equivalent to or better than that existing before the damage was done.

- F. Where work is performed on or adjacent to roadways, rights-of-way, or public places, provide barricades, fences, lights, warning signs, and danger signals sufficient to prevent vehicles from being driven on or into Work under construction.
 - 1. Paint barricades to be visible from sunset to sunrise
 - 2. Install at least one flashing hazard light at each barricade section.
 - 3. Furnish watchmen in sufficient numbers to protect the Work.
 - 4. Other measures for protection of persons or property and protection of the Work.

- G. Protect existing trees, shrubs, and plants on or adjacent to the site against unnecessary cutting, breaking or skinning of branches, bark, or roots.
 - 1. Do not store products or park vehicles within drip lines.
 - 2. Install temporary fences or barricades in areas subject to damage from traffic.
 - 3. Water trees and plants to maintain their health during construction operations.
 - 4. Cover exposed roots with burlap and keep continuously wet. Cover exposed roots with earth as soon as possible. Protect root systems from physical damage and damage by erosion, flooding, run-off, or noxious materials contamination.
 - 5. Repair branches or trunks if damaged, prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use in a manner approved by City Engineer.
 - 6. Remove and replace damaged trees and plants that die or suffer permanent injury. Replace with product of equivalent size and in good health.
 - 7. Coordinate this work with Division 2 requirements for clearing and landscaping.

- H. Protection of Existing Structures:
 - 1. Fully sustain and support in place and protect from direct or indirect injury underground and surface structures located within or adjacent to the limits of the Work.

- a. Before proceeding with sustaining and supporting work on property of others, satisfy City Engineer that the owner of the property approves the methods and procedures proposed.
 2. Do not move or in any way change the property of public utilities or private service corporations without prior written consent of a responsible official of that service or public utility. Representatives of these utilities reserve the right to enter within the limits of the Work for the purpose of maintaining their properties, or of making changes or repairs to their property considered necessary by performance of the Work.
 - a. Notify the owners and/or operators of utilities and pipelines of the nature of construction operations proposed and the date or dates on which those operations will be performed. When construction operations are required in the immediate vicinity of existing structures, pipelines, or utilities, give minimum 5 working days advance notice. Probe and securely flag locations of underground utilities prior to beginning excavation.
 3. Assume all risks attending presence or proximity of existing construction within or adjacent to the limits to the Work including but not limited to damage and expense for direct or indirect injury caused by the Work to existing construction. Immediately repair damage caused, following Section 01731.
- I. Protect installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed.
1. Control traffic to prevent damage to products and surfaces.
 2. Provide coverings to protect products from damage. Cover projections, wall corners, jambs, sills, and off-site of openings in areas used for traffic and for passage of product in subsequent work.
- **
- 1.08 ACCESS ROADS AND PARKING
- A. Follow Section 01575 - Stabilized Construction Exit for construction exits.
 - B. Provide temporary stable construction roads, walks, and parking areas of a load bearing capacity required during construction connecting to public thoroughfares and for use of emergency vehicles. Design and maintain temporary roads and parking areas for full use in all weather conditions.
 1. Locate temporary roads and parking areas as approved by City Engineer.
 2. Prevent interference with traffic, City and airport operations on existing roads. Indemnify and save harmless the City from expense caused by Contractor's operations over these roads.

3. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking. If not shown on the Drawings, locate as directed by City Engineer.
 4. Minimize use of construction traffic on existing on-site streets and driveways. For tracked vehicles, use street plugs. Do not load paving beyond design capacity.
 5. Do not allow heavy vehicles or construction equipment in existing parking areas.
 6. Remove temporary roads, walks and parking areas prior to final acceptance. Return to its original condition, unless otherwise required by the Contract Documents.
- C. Public, Temporary, and Construction Roads and Ramps:
1. Public Roads: Follow laws and regulations of governing authorities when using public roads. If Contractor's work requires public roads be temporarily impeded or closed, obtain approvals from governing authorities and pay for permits before starting work. Coordinate activities with City Engineer following Section 01312 - Coordination and Meetings.
 2. On-Site Roads: Prepare temporary roads, construction roads, ramps, and areas on the site to be accessible for trucking and equipment.
 3. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage. Extend and relocate as approved by City Engineer as Work progress requires, provide detours as necessary for unimpeded traffic flow. Maintain 12-foot width access road with turning space between and around combustible materials. Provide and maintain access for fire trucks to fire hydrants free of obstructions.
 - a. Do not use limestone for paving.
 4. Obtain approval of special requirements covering handling exceptionally large or heavy trucks, cranes, or other heavy equipment. Provide mats or other means, so roadways are not overloaded or otherwise damaged.
- D. Submit access road and parking locations to City Engineer for approval.

PART 2 PRODUCTS

2.01 GENERAL

- A. Provide products for temporary construction using equivalent type as required for permanent construction, except "construction grade" quality may be used (such as for wood framing, enclosures and barricades, and construction locks).

- B. Where materials for use in this Section are not specified or detailed, propose products in writing and obtain approval from City Engineer before commencing work.

2.02 TEMPORARY EXTERIOR ENCLOSURES AND BARRICADES

- A. Provide temporary fencing as required to enclose exterior storage/staging and demolition areas, during on-site operations, chain link fence at remote areas (away from Terminal buildings), and chain link fence with plywood overlay at on-site areas (adjacent to or near Terminal buildings and AOA).
 - 1. Chain Link: Minimum 6-foot high commercial quality galvanized fabric, galvanized steel or minimum 4 x 4 treated wood posts at 8 feet on center maximum, gate frames as required, with barbed wire at top if required by Contractor. For natural earth areas, provided minimum 8-inch diameter by 3-foot deep hole for posts. Fill annular space with pea gravel or crushed stone. For paved areas, provide welded base plate on each post and attach to paving with drill-in or powder actuated fasteners of size and quantity required to resist imposed loads. Provide corner bracing and struts as required to maintain erect fencing and taut fabric. Provide gate locks of Contractor's choice. Provide one set of keys to City Engineer.
 - 2. Plywood Overlay: Exterior grade, minimum 3/4 inch-thick, 8-foot-high. Tie plywood with wire to public side of chain link fence and gates. Paint exterior (public) face with flat latex-based paint to match "Nevamar Pepperdust" plastic laminate.
- B. Barricades in Safety Areas of Taxiways and Aprons at AOA: Preservative-treated wood construction, maximum 3 feet high sawhorse legs at both ends of one 8-inch-high top rail, with 45 degree-angled white and orange hashmarks, on 4 by 4-inch wood posts and struts bolted to 12 by 12-inch continuous timber base. Install hazard lights at maximum 6 feet centers and at each end and corners of the barricade. Sandbag wood frame to prevent overturning by jet blast or prop wash.

2.03 TEMPORARY INTERIOR ENCLOSURES AND BARRICADES

- A. Provide temporary partitions and ceilings or reuse existing partitions as required to separate work areas during on-site finishing operations, to prevent penetration of dust, odors, gases and moisture into occupied areas and to prevent damage to remaining Base Facility and to Contractor's work. Remove new and existing barricades upon completion of work or as directed by City.
- B. Rigid Barricades and Enclosures: Provide wood or metal framing and gypsum board or plywood sheet materials with closed joints; flame spread rating of 25 or less following ASTM E84.

1. Paint faces exposed to public areas to match “Nevamar Pepperdust” plastic laminate, as required by City Engineer.
 2. Sandbag or foam-tape floor track to existing terrazzo or tile flooring. Do not fasten to existing finished walls or ceiling tiles.
- C. Membrane Enclosures: Provide same framing as above. Cover with minimum 12 mil black plastic sheet, with taped joints and edges. Seal punctures as they occur.
- D. Perimeter Tape: Manufactured plastic tape, with printed “Construction Area” or equivalent message. Fasten to saw horses, “trees” or equivalent moveable posts. Repair breaks as they occur. Install around areas where quick changeability of barrier limits is required.

2.04 HAZARD LIGHTS

- A. Provide battery-powered flashing yellow lights on barricades and enclosures around perimeter of exterior areas adjacent to AOA, roadways, and parking aisles or spaces. Install on posts set in striped barrels and anchored with sand, or attach to fencing, as applicable and as ground space permits where barricades or enclosures do not occur.

2.05 TEMPORARY UTILITY AND ENVIRONMENTAL SYSTEMS WORK

- A. Furnish temporary HVAC, plumbing and electrical products as required to provide continued Base Facility operation, including systems by-pass dampers, ductwork, valves, pipe and fittings, conduit, wiring, junction boxes, and other items.
- B. Coordinate these products with products of Sections 01731 - Cutting and Patching and Divisions 2, 15 and 16.

PART 3 EXECUTION

3.01 CONTRACTOR'S FIELD OFFICE

- A. Install field office ready for occupancy, 10 days after date fixed in Notice to Proceed.

3.02 ENCLOSURE AND BARRICADE, SIGN, AND HAZARD LIGHT INSTALLATION

- A. Fill and grade site for temporary structures to provide drainage away from buildings. Follow Section 01506- Temporary Controls and 01572 - Erosion and Sedimentation Control for erosion and sedimentation control.
- B. Follow Section 01507 - Temporary Signs.
- C. Install and maintain enclosures and barricades, passageways, signs and lights at locations shown on Drawings, or as directed by City Engineer, or as required to safely divert unauthorized parties away from or around construction operations.

TEMPORARY FACILITIES

1. Maintain minimum 3-foot candles of illumination at exitways, including those remaining adjacent to permanent barricades.
2. Reinforce barricades at AOA as required to withstand jet blast loads.

3.03 TEMPORARY UTILITY AND ENVIRONMENTAL SYSTEMS

- A. Install temporary HVAC, plumbing and electrical products as required to maintain adequate environmental conditions to facilitate progress of Work, to meet specified minimum conditions for installation of materials, to protect materials and finishes from damage due to temperature or humidity beyond specified or otherwise required ranges, and to maintain proper Base Facility systems operation outside contract limits.
- B. Provide ventilation of enclosed areas for proper curing of installed products, to disperse or control humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases inside or outside of enclosures.

3.04 CONSTRUCTION EQUIPMENT

- A. See Document 00646 - Affidavit for FAA Form 7460-1 for filing of information related to height of construction equipment. When not in use, store equipment in designated location outside safety areas.

3.06 REMOVAL OF TEMPORARY FACILITIES

- A. Maintain temporary facilities until Substantial Completion inspection, or when use is no longer required, or as directed by City Engineer.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified or original condition following Section 01731 - Cutting and Patching.

3.07 DISPOSAL OF DEBRIS EXCESS PRODUCTS

- A. Legally dispose of waste and excess products off site. Do not burn or bury on site.
 1. Prepare and file with Texas Department of Health (TDH) "TDH Demolition/ Renovation Notification" related to compliance with National Emissions Standards for Hazardous Air Pollutants. Obtain form from TDH, 10500 Forum Place Drive, Suite 300, Houston, TX 77036-8599, (713) 414-6125, or (800) 572-5548.
- A. Dispose of excavated material off site. Do not make disposition within the City in an area designated as being within the 100-Year Flood Hazard Area unless a "Special Development

Permit” as defined by City Ordinance No. 81-914 and Number 85-1705 has been issued. Verify the floodplain status of proposed disposal site.

1. For floodplain information, contact the City of Houston Storm Sewer Engineering Section at (713) 837-0989.
 2. Immediately remove and properly dispose of excavated material placed in the 100-Year Flood Hazard Area without a ‘Special Development Permit’ at no cost or time increase to the contract.
- C. Do not dispose of debris in sewers. Repair sewer lines to proper function within contract limits as a result of permitted use.
- D. Remove and legally dispose of excess and other products not designated for salvage.

3.08 INTERIM CLEANING

- A. Temporarily store debris in areas concealed from public, occupants’ and AOA view. Prevent migration of debris and dust following Section 01506 - Temporary Controls.
- B. Clean-up dirt and debris in vicinity of construction entrances each day. Clean up debris, scrap materials, and other disposable items before completion of each day's work. Keep streets, driveways, and sidewalks clean of dirt, debris and scrap materials.
1. Failure to maintain clean site is the basis for City Engineer take action following Section 2.5 in Document 00700 - General Conditions.
- C. Remove debris daily unless otherwise approved by City Engineer.
- D. Prevent hazardous conditions due to product or debris storage in work areas and storage areas.
- E. Keep streets used for entering or leaving the job area free of excavated material, debris, and foreign material, including carryout dust and mud, resulting from construction operations. Follow Section 01575 - Stabilized Construction Exit for vehicle wash areas. Follow City of Houston Ordinance No. 5705, Construction or Demolishing Privileges.
- F. As frequently as necessary, sweep and damp mop floors of spaces in public spaces adjoining access points through barricades or enclosures.

END OF SECTION

SECTION 01506
AIRPORT TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Dust control.
- B. Noise control.
- C. Pest and rodent control.
- D. Pollution and environmental control.
- E. Security controls, security plan and procedures. Work in AOA or the airport's secured area is not intended as part of this Contract; however, TSA may be involved in reviews of Contractor's construction plans to verify no TSA requirements or restrictions apply.
- F. Safety requirements and safety plan.
- G. Emergency procedures.

1.02 REFERENCES

- A. U.S. Department of Transportation Federal Aviation Administration Advisory Circular AC 150/5370-2C.

1.03 SUBMITTALS

- A. Make following submittals in 3-ring "D" binders, with clear spine and cover pockets and label "Airport Construction Control Plans" on white card-stock inserts. Prepare submittals as work of this and other Sections but submit following Section 01312 - Coordination and Meetings.
- B. Preliminary "Airport Construction Control Plans": Submit, under provisions of Section 01325, 3 copies in draft form of the following, with section dividers labeled as and containing:
 - 1. Construction Traffic Control Plan prepared under Section 01555 - Traffic Control and Regulation.

AIRPORT TEMPORARY CONTROLS

2. Emergency Response Plan Listing Safety Officers (Paragraph 1.09) with names, positions, office and home telephone numbers, and pager and portable telephone numbers.
 3. Safety Plan, including Trench Safety Plan prepared under Section 01561 - Trench Safety System.
 4. Security Plan.
 5. Dust Control Plan.
 6. Ground Water and Surface Water Control Plan prepared under Section 01578 - Control of Ground and Surface Water.
 7. Revise as required and submit 5 final copies, in same form as preliminary copies under Section 01312 - Coordination and Meetings.
- C. Pesticides and Poisons: Submit following Section 01340 - Shop Drawings, Product Data and Samples. Include Material Safety Data Sheets and manufacturers' recommendations for use and application. Include copy of applicator's certification from manufacturer.
- 1.04 DUST CONTROL
- A. Prevent uncontrolled dust creation and movement. Prevent airborne particulates from reaching receiving streams or storm water conveyance systems, building interiors and AOA.
 - B. Use spray-on adhesives or plastic covers on exposed soil piles.
 - C. Follow Section 01505 - Temporary Facilities for interior enclosures.
 - D. Implement dust control methods immediately whenever dust migration is observed.
- 1.05 NOISE CONTROL
- A. Provide vehicles and tools with noise suppressors and use methods and products that minimize noise to the greatest degree practicable. Follow OSHA standards and City Ordinances regarding noise. Do not create noise levels which interfere with the Work, with work by City, with airport operations, or which create a nuisance in surrounding areas.
 - B. Do not use impact-type or powder-actuated-type tools adjacent to occupied office-type areas.
- 1.06 PEST AND RODENT CONTROL
- A. Provide pest and rodent control as required to prevent infestation of construction or storage areas using legal chemicals applied by a licensed applicator.

- B. Provide methods and products with no adverse effect on the Work or adjoining properties.
- C. Use and store chemicals following manufacturers' recommendations and with local, state, and federal regulations. Avoid overuse of pesticides that produce contaminated runoff. Prevent spillage. Do not wash pesticide containers in or near flowing streams or storm water conveyance systems, or inside buildings.

1.07 POLLUTION AND ENVIRONMENTAL CONTROL

- A. Prevent contamination of soil, water or atmosphere by discharge of noxious substances from construction operations.
- B. Contain spillage and remove contaminated soils or liquids. Excavate and dispose of contaminated earth off-site and replace with suitable compacted fill and topsoil.
- C. Prevent harmful substances from entering public waters. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants. Prevent toxic concentrations of chemicals. Prevent harmful dispersal of pollutants into the atmosphere.
- E. Use equipment during construction following Federal, State, and local laws and regulations.
- F. Follow statutes, regulations, and ordinances governing prevention of environmental pollution and preservation of natural resources, including but not limited to the National Environmental Policy Act of 1969, PL 91-190, Executive Order 11514.
- G. Undeveloped areas on the airport site have considerable natural value. Do not cause unnecessary excavation or filling of terrain, unauthorized destruction of vegetation, air or stream pollution, nor harassment or destruction of wildlife.
- H. Follow environmental requirements. Limit disturbed areas to boundaries established by the Contract Documents. Do not pollute on-site streams, sewers, wells, or other water sources.

1.08 SECURITY CONTROLS, PLAN AND PROCEDURES

- A. Protect products and property from loss, theft, damage, and vandalism. Protect City property and other private property from injury or loss in connection with the Work.
- B. Employ watchmen as needed to provide required security and prevent unauthorized entry.
- C. Repair damage or replace property vandalized.

- D. If existing fencing or barriers are breached or removed for purposes of construction, provide an appropriate (as determined by the airport manager or designee) number of guards and/or maintain temporary security fencing equivalent to existing and approved by City Engineer.
- E. Maintain security program through construction until City's acceptance and occupancy precludes need for Contractor's security program.
- F. Provide chain link fence Terminal area staging areas, following Section 01505 - Temporary Facilities.
- G. Airport Security Requirements:
 - 1. Airport Manager and TSA monitor effectiveness of airport security by attempting to gain unauthorized entry into security areas. When TSA gains unchallenged access to security areas, City and/or the responsible individual may be fined. When unauthorized entry into security areas is made through contract limits or other areas under the Contractor's control:
 - a. Reimburse the City, without increase in contract price, the amount of imposed fines levied against the City, accomplished by Change Order following Section 01255 - Modification Procedures.
 - b. Cease work in breached areas until proper security measures are in place, without change in contract price or time.
 - 2. Immediately notify HPD of discovered presence of unbadged or unknown persons, vehicles or animals in security areas. Dial (IAH) (281) 231-3100.
 - 3. Obtain permitted AOA gate and other security area access locations from Airport Manager. Assign personnel to control passage through entry points not staffed by airport personnel.
 - 4. Badges:
 - a. *After contract award and before preparation of the Safety Plan (Paragraph 1.09D) and construction schedule (Section 01325), obtain permitted security badges.*
 - b. *Security identification badges are required for access into AOA/Secured areas. Badges are valid for one year or for the period of the contract, whichever is shorter.*
 - c. *TSA TSR Part 1542.209 applies to personnel engaged in work of this contract occurring within the AOA or secured area, and reads in part as follows:*

"...each airport operator must ensure that no individual is granted unescorted access authority unless the individual has undergone a fingerprint-based criminal history records check (CHRC) that does not disclose that he or she has a disqualifying criminal offense."

- d. Obtain from City Engineer and fill out one security badge application package (application form and all associated paperwork) per person (including subcontractors' personnel) needing unescorted access in security areas.*
- e. Contact the airport ID badging office to arrange for collection and submittal of fingerprints. Prepare and maintain a file for each applicant, including a copy of the completed application. Keep in Contractor's main office until expiration of the warranty period.*
 - (1) Short-term or temporary personnel are permitted in security areas but only under constant escort by a properly badged escort, who shall have no duty other than to escort short-term or temporary personnel.*
 - (2) Badged and escorted personnel are limited to access to and from work areas and shall remain in the work area.*
 - (3) Personnel under constant escort shall be continuously observed by and in the immediate company of badged personnel.*
 - (4) City Engineer may limit the number of badged personnel and personnel under constant escort.*
- f. Submit completed applications to City Engineer for further review.
- g. Attend required security training sessions.
- h. Pick up completed badges and pay badging fees (as of November 2019, \$55.00 per badge for a 1-year period--verify fee and duration with Airport Manager).
- 5. Do not leave fence breaks unattended. Restore fence or erect equivalent secure temporary fencing before departing the work area.
- 6. Provide proper identification on Contractor's vehicles permitted in AOA.

1.09 SAFETY REQUIREMENTS

- A. Contractor and not City, City Engineer or Designer is solely and without qualification responsible for observation and compliance with safety regulations without reliance or superintendence of or direction by City, City Engineer or Designer.
- B. Safety measures, including but not limited to safety of personnel, provision of first-aid equipment, installation, operation and removal of temporary ventilation and safety

AIRPORT TEMPORARY CONTROLS

equipment, in the Contract Documents are a subsidiary obligation of Contractor compensated through various payment items.

- C. Follow Document 00700 - General Conditions Paragraph 10.1 and this Section for safety plan and procedures.
- D. Prepare a written detailed Safety Plan for the Work describing:
 - 1. Specific methods used to maintain airport safety procedures, based on requirements of the Contract Documents, airport procedures, FAA/TSA requirements and Contractor's own safety and security program.
 - 2. Contractor's emergency procedures in event of following minimum set of circumstances: airport's-, tenants'- or Contractor's on-site property damage; accidents; fire emergency; medical emergency; Airport Manager's intervention in construction operations; detainment or arrest of unauthorized Contractor's employees and subcontractors in Security areas; discovery of hazardous materials.
 - 3. Provisions for temporary removal of security fencing (including culvert and drain-way grates). Include proposed actions to prevent entry of people or animals into security areas when security fence is breached. Do not breach fencing without approval.
 - 4. Requirements for closing safety areas.
 - 5. Submit draft Safety Plan at the Preconstruction Conference, following Section 01312 - Coordination and Meetings.
- E. City Engineer will review the safety program with FAA and ATCT for compliance with applicable regulations. If the plan fails to demonstrate compliance, modify it until approval is obtained.
- F. Contractor's Safety Officers: Refer to Section 01550 - Public Safety & Contractor Safety Staffing, Paragraph 1.05, Contractor's Safety Staffing Requirements.
- G. Submit final Safety Plan at the first Progress Meeting following Section 01312 - Coordination and Meetings.
 - 1. Include in the safety plan Contractor's response to trench safety requirements following Section 01561 - Trench Safety System.
- H. Follow applicable Federal, State and local safety codes and statutes and with proper construction practice. Establish and maintain procedures for safety of work, personnel and products involved in the Work.
- I. Follow Texas Occupational Safety Act (Art. 5182a, V.C.S.) and promulgations of Secretary of Labor under Section 107 of Contract Work Hours and Standards Act, published in 29 CFR Part 1926 and adopted by Secretary of Labor as occupational safety

and health standards under the Williams-Steiger Occupational Safety and Health Act of 1970. Follow other legislation enacted for safety and health of Contractor employees. These safety and health standards apply to Contractor, Subcontractors and Suppliers and their respective employees.

- J. Immediately notify City Engineer of investigation or inspection by Federal Safety and Health inspectors of the Work or place of work on the job site, and after such investigation or inspection inform City Engineer of results. Submit 1 copy of accident reports to City Engineer within 10 days of date of inspection.
- K. Protect areas occupied by workmen by the best available devices for detection of lethal and combustible gases. Frequently test devices to assure their functional capability. Monitor liquids and gases infiltrating into work areas for visual or odor evidences of contamination. Take immediate appropriate steps to seal off entry of contaminants into to the Work.
- L. Maintain coordination with City's Police and Fire Departments during the Work.

1.10 EMERGENCY PROCEDURES

- A. If an emergency situation occurs, including involvement in or witness to aircraft or motor vehicle emergencies and emergencies involving other parties or property regardless of fault, or a violation of requirements of this Section, or a violation of FAA/TSA regulations, take one or more of the following minimum actions as appropriate to the situation.
- B. Immediately report to City Engineer accident or damage to pavement, buildings, utilities, and vehicles involving or caused by Contractor, Subcontractors, Suppliers, personnel, equipment or others.
- C. In general:
 - 1. Immediately notify HFD or HPD (public areas) as appropriate and applicable to location of emergency.
 - 2. Notify City Engineer by telephone or in person.
 - 3. Stop work in the area. Secure site as required to prevent further damage to property and persons.
 - 4. Evacuate non-essential personnel from the scene. Keep involved personnel and witnesses on-site until otherwise directed by City Engineer or security officers.
 - 5. Impound involved vehicles in "as-is condition" until otherwise directed.
 - 6. Do not resume work in the area until released by City Engineer.

- D. For discovery of actual or suspected hazardous material contamination, proceed with Paragraph B above while simultaneously initiating Contractor's own hazardous material response program.

- E. Follow City Engineer's instructions for emergencies affecting the Work but occurring outside the Contract Limits. Certain situations may require the Work or work to be temporarily stopped under provisions of Document 00700 - General Conditions.
 - 1. Maintain a log documenting cost and time impact of the stop-work order.
 - 2. Submit data to the City Engineer in form as instructed at that time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01507
TEMPORARY SIGNS

PART 1- GENERAL

1.01 SECTION INCLUDES

- A. Temporary signs at construction access points.
- B. Maintenance.
- C. Removal.
- D. Project and Contractor identity signs are not permitted.

1.02 QUALITY ASSURANCE

- A. Design signs and supporting sign structure to remain in place and withstand 50 miles-per-hour wind velocity.
- B. Sign Manufacturer/Maker/Painter: Experienced professional sign company.
- C. Finishes, Painting: Withstand weathering, fading, and chipping for duration of construction.
- D. Appearance: Fresh, new-looking, legible and neat look during the entire period during which required.

1.03 SUBMITTALS

- A. Follow Section 01340 - Shop Drawings, Product Data and Samples.
- B. Submit shop drawings including:
 - 1. Signboards and Copy: Show to-scale size, dimensions, content, layout, font style and size, and colors.

PART 2 PRODUCTS

2.01 TEMPORARY SIGNS FOR ACCESS POINTS

- A. Posts for Exterior Signs: New 4x4 inch moisture-resistant-treated wood or 2-1/2-inch diameter by 12-foot long galvanized steel.
 - 1. Paint black.

TEMPORARY SIGNS

2. Fabricate to length required for 3-foot direct-bury plus aboveground length required for proper height of signboard mounting.
3. Furnish number of posts as required for proper support of signboard

B. Signboards:

1. For Exterior Signs: 3/4-inch-thick exterior grade medium density overlay (MDO) plywood, or 3/16-inch sheet aluminum. Paint background [black] [white] [] [as shown on Drawings].
 - a. Contractor's Option: Use colored vinyl film in lieu of paint for aluminum.
2. For Interior Signs: 3/4-inch-thick fire-retardant treated medium density overlay plywood, or colored plastic laminate cladding both faces and with painted edges, or 1/8-inch sheet aluminum. Paint background black.
 - a. Contractor's Option: Use colored vinyl film in lieu of paint for aluminum.

C. Color Coating for Signboards and Hashmarks: Flat ultraviolet inhibited acrylic polyurethane or matte vinyl, all visible surfaces.

D. Copy and Borders: Flat color (color as scheduled) vinyl die-cut, Helvetica Medium typeface, size as shown or scheduled.

E. Rough Hardware: [For wood, galvanized steel or brass for fasteners and other hardware] [For aluminum, cadmium-plated steel or stainless steel].

F. Skid-mounted Signs: Allowed only when approved by the City Engineer. Approval does not release Contractor from responsibility of maintaining temporary signs on site and does not make City responsible for security of temporary signs.

2.03 SIGN FABRICATION

- A. Fabricate signboards and install copy in the shop.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install temporary signs at construction area access points, including within security areas and AOA, at following location:
 1. As scheduled below.
 2. Where shown on Drawings.

3. Where required by City Engineer.

B. Install signs fully visible, legible, level and plumb.

3.02 MAINTENANCE

A. Maintain signs and supports and markings clean. Repair deterioration and damage.

B. Relocate signs as work progresses [at each site] [at each stage] [at both] at no additional cost to the City.

3.03 REMOVAL

A. Remove temporary sign work when control is no longer needed or as directed by City Engineer.

3.04 MESSAGE SCHEDULE

A. Construction Entrance Warning Sign: 3 by 2-foot signboard, white copy and border on black background. Surface-mount on access gates through fences and on doors through barricades or enclosures; at 50 feet on center unless otherwise required by governing agencies:

NO ENTRANCE (4 inch)

CONSTRUCTION AREA (4 inch)

(45-degree hash marks, full width) (2 inch)

Hard Hat Required (2 inch)

Security Badge Required (2 inch)

B. Emergency Egress Sign: One-foot square signboard, white copy and border, with directional arrow, on black background. Surface-mount on fences, barricades or enclosures, or freestanding, spaced 50 feet on center along path of egress, unless otherwise required by governing agencies.

EXIT (4 inch)

(Arrow direction as appropriate to egress path) (6 inch)

C. No Entrance to Closed Parking Area: 8 by 4-foot signboard, white copy and border on black background, free-standing; at each ramp access to floor on which work occurs:

TEMPORARY SIGNS

NO ENTRANCE (6 inch)

CONSTRUCTION AREA (6 inch)

(45-degree hash marks, full width) (4 inch)

This Parking Area Closed (4 inch)

Until (Insert Date) (4 inch)

- D. Notice of Intent to Close Parking Area: 8 by 4-foot signboard, white copy and border on black background, free-standing; at each ramp access to floor on which work occurs:

WARNING (6 inch)

THIS PARKING LEVEL (6 inch)

WILL BE CLOSED (6 inch)

(45-degree hash marks, full width) (4 inch)

Do Not Park on This Level (4 inch)

From (Insert Date) (4 inch)

Until (Insert Date) (4 inch)

END OF SECTION

SECTION 01550

PUBLIC SAFETY & CONTRACTOR'S SAFETY STAFFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Public Safety and Convenience
- B. General Requirements
- C. Street Markers and Traffic Control Signs
- D. Contractor's Safety Staffing Requirements

1.02 RELATED SECTIONS

- A. Section 00700 - General Conditions
- B. Section 01555 – Traffic Control & Regulations
- C. Section 01561 – Trench Safety System

1.03 PUBLIC SAFETY AND CONVENIENCE

- A. The Work in this Project is to be performed [edit wording for scope of work and coord. w/other const. Projects going on in the immediate area]. The Contractor shall furnish and maintain appropriate barricades and signage required to maintain a safe work environment for the HAS employees, the public and construction staff working at the project site.
- B. Contractor shall plan and execute his operations in a manner that will cause a minimum interference with other construction projects.
- C. Signs, barricades and warning devices informing public of construction features will be placed and maintained by Contractor, who shall be solely responsible for their maintenance.
- D. Contractor shall perform the necessary cleanup and finishing immediately after all or a portion of the Work is completed.
- E. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

PUBLIC SAFETY & CONTRACTOR SAFETY STAFFING

1.04 GENERAL REQUIREMENTS

- A. The Contractor shall observe the rules and regulations of the State of Texas and agencies of the U.S. Government which prohibit the pollution of any lake, stream, river, or wetland by dumping of any refuse, rubbish, dredge material, or debris therein.
- B. The Contractor is specifically cautioned that disposal of materials into any water of the State must conform to the requirements of the Texas Natural Resource Conservation Commission (TNRCC), and any applicable permit from the US Army Corps of Engineers.
- C. Waste material must be disposed of at sites approved by the Owner's Representative and permitted by the City.

1.05 CONTRACTOR'S SAFETY STAFFING REQUIREMENTS

- A. Refer to Section 00700 – General Conditions, Article 10 – Safety Precautions

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF DOCUMENT

SECTION 01555
TRAFFIC CONTROL AND REGULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Signs, signals, lights and control devices.
- B. Flagmen.
- C. Construction parking control.
- D. Designated haul routes.
- E. Construction Traffic Control Plan.
- F. See also Section 01145 - Use of Premises.

1.02 DEFINITIONS

- A. See Section 01312 - Coordination and Meetings for definition of terms related to Aircraft Operations Area (AOA).
- B. Flagman: A person who has successfully fulfilled the “Certified Flagman” requirements set forth by the Texas Department of Transportation. Flagman certification may be achieved either through the Texas Department of Transportation, Texas Engineering Extension Services (TEEX), the City of Houston’s E.B Cape Training Center, or by a trained and certified flagman instructor, employed by the Contractor. The certified flagman must carry proof of certification while performing flagman duties. The certified flagman will be required to wear a distinctive, bright colored vest and be equipped with appropriate flagging and communication devices. He/she must be fluent in English (speaking, reading, writing), with Spanish an advantageous, but not required, primary or secondary language.
- C. Peace Officer: A licensed police officer actively employed in a full-time capacity as a peace officer, working on average, minimum 32 paid hours per week, at a rate not less than the prevailing minimum rate following the Federal Wage and Hour Act, and entitled to full benefits as a peace officer, and who receives compensation for private employment as an individual employee or independent contractor. Private employment may be either in employee-employer relationship or on an individual contractual basis. He/she must be fluent in English (speaking, reading, writing) with Spanish an advantageous, but not required, primary or secondary language.

TRAFFIC CONTROL AND REGULATION

- D. Uniformed Flagman: A peace officer trained in traffic control and familiar with George Bush Intercontinental Airport roadway traffic patterns and airport operation procedures. A uniformed flagman may not be a reserve peace officer.

1.03 SUBMITTALS

- A. For Contractor-proposed changes to Traffic Control and Regulation shown on Drawings, permitted only in order to reduce construction time and cost through re-sequencing the Work, prepare plan drawings and supplement with product literature, narrative description, and construction schedule.

1.04 MEASUREMENT AND PAYMENT

- A. Traffic Control and Regulation, excluding Flagmen: Measurement is on a lump sum basis, including submittal of Contractor-proposed changes. Payment will be made based on schedule of values and percent of work complete.
- B. Flagmen: Measurement is on a lump sum basis as required for the Work. Payment will be made based on schedule of values and percent of work complete.
- C. Follow Section 01290 - Payment Procedures.

1.05 CONSTRUCTION TRAFFIC CONTROL PLAN AND PROCEDURES

- A. Develop a written and graphic detailed Construction Traffic Control plan describing:
 1. Rerouting of public roadway and AOA roadway traffic (outside safety areas) showing route, duration, and methods for change over from one route to the other and return to normal.
 2. Product Deliveries: Location, space required and duration for temporary off-loading along public roadways or curbsides and along AOA roadways and around buildings adjacent to aprons, and route through occupied building interiors.
 3. Barricade locations and duration of installation. Submit barricade construction details following Section 01505 - Temporary Facilities.
 4. Maintain, update and obtain approval for changes.

PART 2 PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Furnish traffic cones, drums, barricades and traffic intersection lights, including control devices in AOA, following TMUTCD.

2.02 FLAGMEN AND OTHER PERSONNEL

TRAFFIC CONTROL AND REGULATION

- A. Provide certified flagmen in number, at assigned, locations, and for durations as required to regulate even flow of vehicular and pedestrian traffic affected by construction activities.
- B. Employ other personnel, i.e. uniformed peace officers, to take the additional steps required to protect the Work and public, or when specifically requested by Airport Operations personnel through the City Engineer to assist flagmen in the regulating of airport roadway traffic. The uniformed peace officer will coordinate with City Engineer, contractor, and/or Airport Operations personnel, as appropriate, prior to beginning shift.
- C. Use of flagmen or peace officers does not reduce responsibility for damage for which the contractor would otherwise be liable.

PART 3 EXECUTION

3.01 GENERAL

- A. Install traffic control devices, including flagmen, at approaches to site and on site, at crossroads, detours, parking areas, at AOA, at construction entrances, and elsewhere as required to direct construction and affected public traffic, aircraft and GSE, or where directed by City Engineer and/or Airport operations personnel.
- B. As directed by appropriate authority, e.g., City Engineer, employ additional uniformed peace officers to supplement the flagmen when performing a total terminal area road closure, detour, or overnight activity that affects existing traffic patterns. The uniformed peace officer will coordinate with City Engineer, contractor, and/or Airport Operations personnel, as appropriate, prior to beginning shift.
- C. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
- D. Install warning lights on traffic control devices for use during hours of low visibility to delineate traffic lanes and to guide traffic. Do not use flares or flame pots.
- E. Relocate traffic controls as Work progresses, to maintain effective traffic control.

3.02 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Regulate construction traffic along haul routes. Minimize interference with public traffic.
- C. Follow Texas State Highway and Public Transportation load limits of roadways.

3.03 PUBLIC ROADS AND TERMINAL AREA OADS

- A. Abide by laws and regulations of governing authorities when using roads.
- B. Maintain road lane use as follows, unless otherwise permitted by Airport Manager or Airport Operations personnel, as coordinated through City Engineer.
 - 1. All Terminal area road lanes available from 0500 to 2200 hours; minimum two lanes in each direction at all times.
 - 2. All on-airport road lanes (outside Terminal area) available from 0500 to 0900 hours, and from 0600 to 1900 hours; minimum two lanes in each direction at all times.
- C. Maintain access at driveways. Do not block any vehicle or pedestrian traffic area without obtaining prior approval from the Houston Airport. Any unusual or otherwise unforeseen activity will require forty-eight (48) hours of notification to the City Engineer as well as Airport Operations personnel. Traffic control meetings are held weekly, on Thursdays, at 2:00 pm at a location to be identified during the pre-construction conference. Contractor shall attend these meetings to coordinate all roadway traffic impacts. Contractor must present detailed traffic control/coordination plan, including drawings, written narrative, etc., with dates, times, and durations of proposed activities. This plan must be presented a minimum of three weeks prior to intended activity.
- D. Maintain roads on airport property clean at all times. Broom or wash as required. At Terminal area roads, follow behind haul vehicles and immediately clean up roads and debris and foreign material resulting from construction operations is deposited.
- E. Follow City of Houston Ordinance 5705, Construction or Demolishing Privileges

3.04 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and airport operations.
- B. Prevent construction personnel's vehicles in revenue-producing facilities. Maintain vehicular access to and through construction parking areas.
- C. Do not park on or adjacent to roadways or curbsides.
- D. Comply with all security directives with regard to parking in the Terminal area

3.05 REMAINING EXISTING CONTROL AND REGULATION DEVICES

- A. Leave existing control and regulation devices in place and properly operating and visible during construction, unless indicated for removal or otherwise permitted.
- B. Repair damage resulting from construction operations.

3.06 REMOVAL OF EXISTING CONTROL AND REGULATION DEVICES

TRAFFIC CONTROL AND REGULATION

- A. Contact City of Houston Signal Shop Dispatcher at (713) 803-3004 before removing or deactivating existing control and regulation devices.
- B. Remove designated or permitted existing control and regulation devices following Section 01731.
- C. Unless otherwise indicated or directed, remove existing lane striping and reflective buttons in conflict with temporary control and regulation devices. Install matching temporary lane striping and reflective buttons, maintain during construction, remove after construction is complete, and install permanent matching lane striping and reflective buttons.

3.07 BRIDGING TRENCHES AND EXCAVATIONS IN ROADS

- A. Follow Section 01505 - Temporary Facilities.

3.08 REMOVAL OF TEMPORARY CONTROL AND REGULATION

- A. Remove controls and regulation when no longer required. Repair damage caused by installation.
- B. Remove post settings to a depth of 2-feet.

END OF SECTION

SECTION 01570

STORM WATER POLLUTION PREVENTION CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Implementation of Storm Water Pollution Prevention Plans (SWP3) described in Section 01410 – TPDES Requirement.
- B. Installation, maintenance and removal, of storm water pollution prevention structures: diversion dikes, interceptor dikes, diversion swales, interceptor swales, down spout extenders, pipe slope drains, paved flumes and level spreaders. Structures are used during construction and prior to final development of the site.
- C. Filter Fabric Barriers:
 - 1. Type 1: Temporary filter fabric barrier for erosion and sediment control in non-channelized flow areas.
 - 2. Type 2: Temporary reinforced filter fabric barrier for erosion and sediment control in channelized flow areas.
- D. Hay Bale Fence.
- E. Drop Inlet Basket Inlet
- F. Sediment Traps
- G. Brush Berm
- H. Sand Bag Barrier
- I. Bagged Gravel Barrier
- J. Sediment Basin Inlet
- K. Protection Barrier

1.02 MEASUREMENT AND PAYMENTS

- A. UNIT PRICES

STORM WATER POLLUTION PREVENTION CONTROL

1. Payment for filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.
 2. Payment for reinforced filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.
 3. Payment for drop inlet baskets is on a unit price basis for each drop inlet basket.
 4. Payment for storm inlet sediment traps is on a unit price basis for each storm inlet sediment trap.
 5. Payment for storm water pollution prevention structures is on a lump sum basis for the project. Earthen structures with outlet and piping include diversion dikes, interceptor dikes, diversion swales, interceptor swales, and excavated earth-outlet sediment trap, embankment earth-outlet sediment trap, down spout extenders, pipe slope drains, paved flumes, stone outlet sediment trap, and level spreaders.
 6. Payment for hay bale barrier, if included in Document 00410 - Bid Form, is on a linear foot of accepted bale barriers, if not include in cost of storm water pollution prevention structures.
 7. Payment for brush berm, if included in Document 00410 - Bid Form, is on a linear foot of accepted brush berm, if not include in cost of storm water pollution prevention structures.
 8. Payment for sandbag barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of sandbags, if not include in cost of storm water pollution prevention structures.
 9. Payment for bagged gravel barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of bagged gravel barrier, if not include in cost of storm water pollution prevention controls.
 10. Payment for inlet protection barriers, if included in Document 00410 -Bid Form, is on a linear foot basis measured along outside face of inlet protection barrier, if not include in cost of storm water pollution prevention structures.
 11. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated
- 1.03 REFERENCE
- A. STANDARD ASTM

STORM WATER POLLUTION PREVENTION CONTROL

1. A 36 – Standard Specification for Carbon Structural Steel.
 2. D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³)).
 3. D3786 – Standard Test Method for Hydraulic Bursting Strength for knitted Goods and Nonwoven Fabrics.
 4. D 4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
 5. D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 6. D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
 7. D 4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
 8. D 6382 - Standard Practice for Dynamic Mechanical Analysis and Thermogravimetry of Roofing and Waterproofing Membrane Material.
- B. Storm Water Management Handbook for Construction Activities prepared by the City of Houston, Harris County and Harris County Flood District.

1.04 SYSTEM DESCRIPTIONS

- A. Filter Fabric Barrier Type 1 and Type 2: Install to allow surface or channel runoff percolation through fabric in sheet-flow manner and to retain and accumulate sediment. Maintain Filter Fabric Barriers to remain in proper position and configuration at all times.
- B. Hay Bale Fence: Install to allow surface runoff percolation through hay in sheet- flow manner and to retain and accumulate sediment. Maintain Hay Bale Fence to remain in proper position and configuration at all times.
- C. Interceptor Dikes and Swales: Construct to direct surface or channel runoff around the project area or runoff from project area into sediment traps.
- D. Drop Inlet Baskets: Install to allow runoff percolation through the basket and to retain and accumulate sediment. Clean accumulation of sediment to prevent clogging and backups.
- E. Sediment Traps: Construct to pool surface runoff from construction area to allow sediment to settle onto the bottom of trap.

- F. Sand Bags: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage one Inlet.
- G. Bagged Gravel Barrier: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage two Inlet.
- H. Drop Inlet Insert Basket: Is a temporary barrier placed within a storm drain inlet (Lower Portion of Stage I and Upper Portion of Stage II Inlets) consisting of a filter fabric supported by a metal frame work to prevent sediment and other pollutants from entering convey system.
- I. Brush Berm: Brush Berm is constructed at the perimeter of a distribute site within the developing area.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's literature for product specifications and installation instructions.
- C. Submit manufacturer's catalog sheets and other product data on geotextile or filter fabrics, outlet pipe, perforated riser and connectors.
- D. Submit proposed methods, equipment, materials, and sequence of operations for storm-water pollution prevention structures.
- E. Submit shop drawings for Drop Inlet Baskets.

PART 2 PRODUCTS

2.01 CONCRETE

- A. Concrete: Class B in accordance with Section 03315 - Concrete for Utility Construction as shown on the Drawings.

2.02 AGGREGATE MATERIALS

- A. Use poorly graded cobbles with diameter greater than 3-inches and less than 5-inches.
- B. Provide gravel lining in accordance with Section 02320 – Utility Backfill Materials or as shown on the drawings.

- C. Provide clean cobbles and gravel consisting of crushed concrete or stone. Use clean, hard crushed concrete or stone free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic matter.
- D. Sediment Pump Pit Aggregate: Use nominal 2-inch diameter river gravel.

2.03 PIPE

- A. Polyethylene culvert pipe or PVC sewer pipe in accordance with Section 02505- High Density Polyethylene (HDPE) Solid and Profile Wall Pipe and Section 02506 Polyvinyl Chloride Pipe or as shown on the Drawings.
- B. Inlet Pipes: Galvanized steel pipe in accordance with Section 02642 Corrugated Metal Pipe or as shown on the Drawings.
- C. Standpipe for Sediment Pump Pits: Galvanized round culvert pipe or round PVC pipe, minimum of 12-inch and a maximum of 24-inch diameter, perforate at 6 to 12-inch centers around circumference.

2.04 GEOTEXTILE FILTER FABRIC

- A. Woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material, in continuous rolls of longest practical length.
- B. Grab Strength: 100 psi in any principal direction (ASTM D-4632), Mullen burst strength >200 psi (ASTM D-3786), and equivalent opening size between 50 and 140.
- C. Furnish ultraviolet inhibitors and stabilizers for minimum 6 months of expected usable construction life at temperature range of 0 degrees F to 120 degrees F.
- D. Mirafi, Inc., Synthetic Industries, or equivalent

2.05 BARRIER

- A. Wire Barrier: Woven galvanized steel wire, 14 gauge by 6-inch square mesh spacing, minimum 24-inch roll or sheet width of longest practical length.
- B. Barrier Stakes: Nominal 2 by 2-inch moisture-resistant treated wood or steel posts (min. of 1.25 lbs. per linear foot and Brinell Hardness greater than 140) with safety caps on top; length as required for minimum 8-inch bury and full height of filter fabric.

2.06 SANDBAGS

- A. Provide woven material made of polypropylene, polyethylene, or polyamide material.

1. Minimum unit weight of four ounces per square yard.
2. Minimum grab strength of 100 lbs. in any principal direction (ASTM D4632).
3. Mullen burst strength exceeding 300 lbs. (ASTM D4833).
4. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).
5. Size: Length - 18 to 24-inches. Width - 12 to 18-inches. Thickness: 6 to 8-inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

2.07 BAGGED GRAVEL BARRIERS

1. Minimum unit weight of four ounces per square yard.
2. Minimum grab strength of 100 lbs. in any principal direction (ASTM D4632).
3. Mullen burst strength exceeding 300 lbs. (ASTM D4833).
4. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).
5. Size: Length - 18 to 24-inches. Width - 12 to 18-inches. Thickness: 6 to 8-inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

2.08 DROP INLET BASKETS

- A. Provide steel frame members in accordance with ASTM A36.
- B. Construct top frame of basket with two short sides of 2-inch by 2-inch and single long side of 1-inch by 1-inch, 1/8-inch angle iron. Construct basket hangers of 2-inch by 1/4-inch iron bars. Construct bottom frame of 1-inch by 1/4-inch iron bar or 1/4-inch plate with cent 3-inches removed. Use minimum 1/4-inch diameter iron rods or equivalent for sides of inlet basket.
- C. Weld minimum of 14 rods in place between top frame/basket hanger and bottom frame. Exact dimensions for top frame and insert basket will be determined based on dimensions of type of inlet being protected.

2.09 HAY BALE

- A. Hay: Standard-baled agricultural hay bound by wire, nylon, or polypropylene rope. Do not use jute or cotton binding.

- B. Hay Bale Stakes (applicable where bales are on soil): No. 3 (3/8 diameter) reinforcing bars, deformed or smooth at Contractor's option, length as required for minimum 18 inch bury and full height bales.

PART 3 EXECUTION

3.01 PREPARATION, INSTALLATION AND MAINTENANCE

- A. Provide erosion and sediment control structures at locations shown on the Drawings.
- B. Do not clear, grub or rough cut until erosion and sediment control systems are in place unless approved by Project Manager to allow installation of erosion and sediment control systems, soil testing and surveying.
- C. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Project Manager to remove and discard existing system.
- D. Regularly inspect and repair or replace damaged components of erosion and sediment control structures. Unless otherwise directed, maintain erosion and sediment control structure until project area stabilization is accepted. Redress and replace granular fill at outlets as needed to replenish depleted granular fill. Remove erosion and sediment control structures promptly when directed by Project Manager. Dispose of materials in accordance with Section 01576 - Waste Material Disposal.
- E. Remove and dispose sediment deposits at the designated spoil site for the Project. If a project spoil site is not designated on Drawings, dispose of sediment off site at approved location in accordance with Section 01576 - Waste Material Disposal.
- F. Unless otherwise shown on the Drawings, compact embankments, excavations, and trenches in accordance with Section 02315 - Roadway Excavation or Section 02317 - Excavation and Backfill for Utilities.
- G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated right of way and easements for construction. Immediately repair damage caused by construction traffic to erosion and sediment control structures.
- H. Protect existing trees and plants in accordance with Section 01562 – Tree and Plant Protection.

3.02 SEDIMENT TRAPS

- A. Install sediment traps so that surface runoff shall percolate through system in sheet flow fashion and allow retention and accumulation of sediment.

- B. Inspect sediment traps after each rainfall, daily during periods of prolonged rainfall, and at a minimum once each week. Repair or replace damaged sections immediately.
- C. Use fill material for embankment in accordance with Section 02320 – Utility Backfill Materials.
- D. Excavation length and height shall be as specified on Drawings. Use side slopes of 2:1 or flatter.
- F. Stone outlet sediment traps:
 - 1. Maintain minimum of 6-inches between top of core material and top of stone outlet, minimum of 4-inches between bottom of core material and existing ground and minimum of 1 foot between top of stone outlet and top of embankment.
 - 2. Embed cobbles minimum of 4-inches into existing ground for stone outlet. Core shall be minimum of 1 foot in height and in width and wrapped in triple layer of geotextile filter fabric.
- F. Sediment Basin with Pipe Outlet Construction Methods: Install outlet pipe and riser as shown on the Drawings.
- G. Remove sediment deposits when design basin volume is reduced by one-third or sediment level is one foot below principal spillway crest, whichever is less.

3.03 FILTER FABRIC BARRIER CONSTRUCTION METHODS

- A. Fence Type 1: Filter Fabric: Barrier
 - 1. Install stakes 3 feet on center maximum and firmly embed minimum 8-inches in soil. If filter fabric is factory preassembled with support netting, then maximum support spacing is 8 feet. Install wood stakes at a slight angle toward the source of anticipated runoff.
 - 2. Trench in the toe of the fence lines so the downward face of the trenches is flat and perpendicular to direction of flow. V-trench configuration as shown on Drawings may also be used.
 - 3. Lay fabric along edges of trenches in longest practical continuous runs to minimize joints. Make joints only at a support post. Splice with minimum 6- inch overlap and seal securely.
 - 4. Staple filter fabric to stakes at maximum 3-inches on center. Extend fabric minimum 18-inches and maximum 36 inches above natural ground.

5. Backfill and compact trench.

B. Barrier Type 2: Reinforced Filter Fabric Barrier

1. Layout barrier same as for Type 1.

2. Install stakes at 6-feet on center maximum and at each joint in wire fence, firmly embedded 1-foot minimum, and inclined it as for Type 1.

3. Tie wire fence to stakes with wire at 6-inches on center maximum. Overlap joints minimum one bay of mesh.

4. Install trench same as for Type 1.

5. Fasten filter fabric wire fence with tie wires at 3-inches on center maximum.

6. Layout fabric same as for Type 1. Fasten to wire fence with wire ties at 3-inches on center maximum and, if applicable, to stakes above top of wire fence it as for Type 1.

7. Backfill and compact trench.

8. Attach filter fabric to wooden fence stakes spaced a maximum of 6-feet apart or steel fence stakes spaced a maximum of 8 feet apart and embedded a minimum of 12-inches. Install stakes at a slight angle toward source of anticipated runoff.

9. Trench in toe of filter fabric barrier with spade or mechanical trencher so that downward face of trench is flat and perpendicular to direction of flow. A V-trench configuration may also be used. Lay filter fabric along edges of trench. Backfill and compact trench upon completion of Construction.

10. Filter fabric fence shall have a minimum height of 18-inches and a maximum height of 36-inches above natural ground.

11. Cut length of fence to minimize use of joints. When joints are necessary, splice fabric together only at support post with minimum 6-inch overlap and seal securely.

12. When used in swales, ditches or diversions, elevation of barrier at top of filter fabric. at flow line location in channel shall be lower than bottom elevation of filter fabric at ends of barrier or top of bank, whichever is less, in order to keep storm water discharge in channel from overtopping bank.

C. Triangular Filter Fabric Barrier Construction Methods

1. Attach filter fabric to wire fencing, 18-inches on each side. Provide a fabric cover and skirt with continuous wrapping of fabric. Skirt should form continuous extension of fabric on upstream side of fence.
2. Secure triangular fabric filter barrier in place using one of the following methods:
 - a. Toe-in skirt 6-inches with mechanically compacted material;
 - b. Weight down skirt with continuous layer of 3-inch to 5-inch graded rock; or,
 - c. Trench-in entire structure 4 inches.
3. Anchor triangular fabric filter barrier structure and skirt securely in place using 6-inch wire staples on 2-foot centers on both edges and on skirt or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.
4. Lap fabric filter material by 6-inches to cover segment joints. Fasten joints with galvanized shoat rings.

3.04 DIKE AND SWALE

- A. Unless otherwise indicated, maintain minimum dike height of 18-inches, measured from cleared ground at up slope toe to top of dike. Maintain side slopes of 2:1 or flatter.
- B. Dike and Swale Stabilization: When shown on the Drawings, place gravel lining 3-inches thick and compacted into the soil or 6-inches thick if truck crossing is expected. Extend gravel lining across bottom and up both sides of swale minimum height of 8-inches vertically, above bottom. Gravel lining on dike side shall extend up the up-slope side of dike a minimum height of 8-inches, measured vertically from interface of existing or graded ground and up slope toe of dike, as shown on Drawings.
- C. Divert flow from dikes and swales to sediment basins, stabilized outlets, or sediment trapping devices of types and at locations shown on Drawings. Grade dikes and swales as shown on Drawings, or, if not specified, provide positive drainage with maximum grade of 1 percent to outlet or basin.
- D. Clear in accordance with Section 02233 – Clearing and Grubbing Compact embankments in accordance with Section 02315 – Roadway Excavation.
- E. Carry out excavation for swale construction so that erosion and water pollution is minimal. Minimum depth shall be 1-foot and bottom width shall be 4-feet, with level swale bottom. Excavation slopes shall be 2:1 or flatter. Clear, grub and strip excavation area of vegetation and root material.

3.05 DOWN SPOUT EXTENDER

- A. Down spout extender shall have slope of approximately 1 percent. Use pipe diameter of 4-inches or as shown on the Drawings. Place pipe in accordance with Section 02317 - Bedding and Backfill for Utilities.

3.06 PIPE SLOPE DRAIN

- A. Compact soil around and under drain entrance section to top of embankment in lifts appropriately sized for method of compaction utilized.
- D. Inlet pipe shall have slope of 1 percent or greater. Use pipe diameter as shown on the Drawings.
- C. Top of embankment over inlet pipe and embankments directing water to pipe shall be at least 1-foot higher at all points than top of inlet pipe.
- D. Pipe shall be secured with hold-down grommets spaced 10-feet on centers.
- E. Place riprap apron with a depth equal to pipe diameter with 2:1 side slope.

3.07 PAVED FLUME

- A. Compact soil around and under the entrance section to top of the embankment in lifts appropriately sized for method of compaction utilized.
- B. Construct subgrade to required elevations. Remove and replace soft sections and unsuitable material. Compact subgrade thoroughly and shape to a smooth, uniform surface.
- C. Construct permanent paved flumes in accordance with Drawings.
- D. Remove sediment from riprap apron when sediment has accumulated to depth of one foot.

3.08 LEVEL SPREADER

- A. Construct level spreader on undisturbed soil and not on fill. Ensure that spreader lip is level for uniform spreading of storm runoff.
- B. Maintain at required depth, grade, and cross section as specified on Drawings. Remove sediment deposits as well as projections or other irregularities which will impede normal flow.

3.09 INLET PROTECTION BARRIER

- A. Place sandbags for Stage I, Bagged gravel for Stage II and filter fabric barriers at locations shown on the SWP3. Maintain to allow minimal inlet in flow restrictions / blockage during storm event.

3.10 DROP INLET BASKET CONSTRUCTION METHODS

- A. Fit inlet insert basket into inlet without gaps around insert at locations shown on SWP3.
- B. Support for inlet insert basket shall consist of fabricated metal as shown on Drawings.
- C. Push down and form filter fabric to shape of basket. Use sheet of fabric large enough to be supported by basket frame when holding sediment and extend at least 6-inches past frame. Place inlet grates over basket/frame to serve as fabric anchor.
- D. Remove sediment deposit after each storm event and whenever accumulation exceeds 1-inch depth during weekly inspections.

3.11 HAY BALE FENCE CONSTRUCTION METHODS

- A. Place bales in row with ends tightly abutting adjacent bales. Place bales with bindings parallel to ground surface.
- B. Embed bale in soil a minimum of 4-inches.
- C. Securely anchor bales in place with Hay Bale Stakes driven through bales a minimum of 18-inches into ground. Angle first stake in each bale toward previously laid bale to force bales together.
- D. Fill gaps between bales with straw to prevent water from channeling between bales. Wedge carefully in order not to separate bales.
- E. Replace with new hay bale fence every two months or as required by Project Manager.

3.12 BRUSH BERM CONSTRUCTION METHODS

- A. Construct brush berm along contour lines by hand placing method. Do not use machine placement of brush berm.
- B. Use woody brush and branches having diameter less than 2-inches with 6- inches overlap. Avoid incorporation of annual weeds and soil into brush berm.
- C. Use minimum height of 18-inches measured from top of existing ground at upslope toe to top of berm. Top width shall be 24-inches minimum and side slopes shall be 2:1 or flatter.

- D. Embed brush berm into soil a minimum of 4-inches and anchor using wire, nylon or polypropylene rope across berm with a minimum tension of 50 pounds. Tie rope securely to 18-inch x 3/8-inch diameter rebar stakes driven into ground on 4-foot centers on both sides of berm.

3.13 STREET AND SIDEWALK CLEANING

- A. Keep areas clean of construction debris and mud carried by construction vehicles and equipment. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas, following Section 01575 - Stabilized Construction Exit.
- B. In lieu of or in addition to stabilized construction exits, shovel or sweep pavements as required to keep areas clean. Do not water hose or sweep debris and mud off street into adjacent areas, except, hose sidewalks during off-peak hours, after sweeping.

3.14 WASTE COLLECTION AREAS

- A. Prevent water runoff from passing through waste collection areas and prevent water runoff from waste collection areas migrating outside collection areas.

3.15 EQUIPMENT MAINTENANCE AND REPAIR

- A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose, so fuels, lubricants, solvents, and other potential pollutants are not washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid and solid waste. Clean and inspect maintenance areas daily.
- B. Where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.16 VEHICLE/ EQUIPMENT WASHING AREAS

- A. Install wash area (stabilized with coarse aggregate) adjacent to stabilized construction access, as required to prevent mud and dirt run-off. Release wash water into drainage swales or inlets protected by erosion and sediment controls. Build wash areas following Section 01575 - Stabilized Construction access. Install gravel or rock base beneath wash areas.
- B. Wash vehicles only at designated wash areas. Do not wash vehicles such as concrete delivery trucks or dump trucks and other construction equipment at locations where runoff flows directly into waterways or storm water conveyance systems.

- C. Locate wash areas to spread out and evaporate or infiltrate wash water directly into ground or collect runoff in temporary holding or seepage basins.

3.17 WATER RUNOFF AND EROSION CONTROL

- A. Control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties. Follow environment requirements.
- B. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas, and to direct drainage to proper runoff courses to prevent erosion, sedimentation or damage.
- C. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
- D. Retain existing drainage patterns external to the site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as required to control conditions.
- E. Plan and execute construction and earth work to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - 1. Hold area of bare soil exposed at one time to a minimum.
 - 2. Provide temporary controls such as berms, dikes, and drains.
- F. Construct fill and waste areas by selective placement to eliminate surface silts or clays which will erode.
- G. Inspect earthwork periodically to detect start of erosion. Immediately apply corrective measures as required to control erosion.
- H. Dispose of sediments offsite, not in or adjacent to waterways or floodplains, nor allow sediments to flush into streams or drainage ways. Assume responsibility for offsite disposal location.
- I. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in maximum of 8- inch layers. Provide compaction density at minimum 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- J. Prohibit equipment and vehicles from maneuver on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sedimentation control systems caused by construction traffic.

STORM WATER POLLUTION PREVENTION CONTROL

- K. Do not damage existing trees intended to remain.

3.18 REMOVAL OF CONTROLS

- A. Remove erosion and sediment controls when the site is finally stabilized or as directed by Project Manager.
- B. Dispose of sediments and waste products following Section 01505 - Temporary Facilities.

END OF SECTION

**SECTION 01572
EROSION AND SEDIMENTATION CONTROL**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General erosion and sediment controls and other control-related practices. Provide and maintain erosion and sediment controls until the site is finally stabilized or as directed by City Engineer.
- B. Filter Fabric Fences:
 - 1. Type 1: Temporary filter fabric fences for erosion and sediment control in non-channelized flow areas.
 - 2. Type 2: Temporary reinforced filter fabric fences for erosion and sediment control in channelized flow areas.
- C. Straw Bale Fence.
- D. Temporary vehicle and equipment fueling areas, which require erosion and sediment controls, are specified in Section 01579.
- E. Dust controls are specified in Section 01506.

1.02 MEASUREMENT AND PAYMENT

- A. Control of erosion and sedimentation is incidental to the Work. Include costs for control of erosion and sedimentation in the cost of work for which it is required.

1.03 REFERENCES

- A. ASTM:
 - 1. D3786 - Standard Test Method for Hydraulic Bursting Strength for Knitted Goods and Nonwoven Fabrics.
 - 2. D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

1.04 SYSTEM DESCRIPTIONS

EROSION AND SEDIMENTATION CONTROL

- A. Filter Fabric Fence Type 1 and Type 2: Install to allow surface or channel runoff percolation through fabric in sheet-flow manner and to retain and accumulate sediment. Maintain Filter Fabric Fences to remain in proper position and configuration at all times.
- B. Straw Bale Fence: Install to allow surface runoff percolation through straw in sheet-flow manner and to retain and accumulate sediment. Maintain Straw Bale Fence to remain in proper position and configuration at all times.

1.05 SUBMITTALS

- A. Follow Section 01340 - Shop Drawings, Product Data and Samples.
- B. Submit manufacturer's catalog sheets and other product data on filter fabric and wire fencing.

PART 2 PRODUCTS

2.01 EROSION CONTROL PRODUCTS AND SYSTEMS

- A. Sandbags: Polypropylene, polyethylene, or polyamide woven fabric, with minimum unit weight of 4 ounces per square yard, Muller burst strength exceeding 300 psi, and ultraviolet stability exceeding 70 percent. Fill bags with bank-run sand.
- B. Standpipe for Sediment Pump Pits: Galvanized round culvert pipe or round PVC pipe, minimum of 12-inch and a maximum of 24-inch diameter, perforate at 6 to 12 inch centers around circumference.
- C. Sediment Pump Pit Aggregate: Nominal 2-inch diameter river gravel.
- D. Portable Sediment Tank System: Standard 55-gallon steel or plastic drums, free of hazardous material contamination.
 - 1. Shop or field fabricate tanks in series with main inlet pipe, intertank pipes and discharge pipes, using quantities sufficient to collect sediments from discharge water.
- E. Straw: Standard-baled agricultural hay bound by wire, nylon, or polypropylene rope. Do not use jute or cotton binding.
- F. Straw Bale Stakes (applicable where bales are on soil): No. 3 diameter concrete reinforcing bars, deformed or smooth at Contractor's option, length as required for minimum 8 inch bury and full height bales.
- G. Filter Fabric: Mirafi, Inc., Synthetic Industries, or equivalent following Section 01630.

1. Woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material, in continuous rolls of longest practical length.
 2. Grab Strength: 100 psi in any principal direction (ASTM D-4632), Mullen burst strength >200 psi (ASTM D-3786), and equivalent opening size between 50 and 140.
 3. Furnish ultraviolet inhibitors and stabilizers for minimum 6 months of expected usable construction life at temperature range of 0 degrees F to 120 degrees F.
- H. Wire Fencing: Woven galvanized steel wire, 14 gauge by 6-inch square mesh spacing, minimum 24-inch roll or sheet width of longest practical length.
- I. Fence Stakes: Nominal 2 by 2-inch moisture-resistant treated wood; length as required for minimum 8 inch bury and full height of filter fabric.

PART 3 EXECUTION

3.01 GENERAL

- A. Do not clear, grub or rough cut until erosion and sediment controls are in place, other than site work specifically directed by City Engineer to allow surveying and soil testing.
- B. Maintain existing erosion and sediment controls, if any, until directed by City Engineer to remove and dispose of existing controls.
- C. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage, caused by construction traffic, to erosion and sediment control systems.

3.02 INSPECTION AND REPAIR

- A. Inspect erosion and sedimentation controls daily during periods of prolonged rainfall, at end of rainfall period, and minimum once each week.
- B. Repair or replace damaged sections immediately.
- C. Remove eroded and sedimented products when silt reaches a depth one-third the height of the control or 6 inches, whichever is less.

3.03 FILTER FABRIC FENCES

- A. Layout fence lines with wood stakes.
- B. Fence Type 1:

1. Install stakes 3 feet on center maximum and firmly embed minimum 8 inches in soil. If filter fabric is factory preassembled with support netting, then maximum support spacing is 8 feet. Install wood stakes at a slight angle toward the source of anticipated runoff.
2. Trench in the toe of the fence lines so the downward face of the trenches is flat and perpendicular to direction of flow. V-trench configuration as shown on Drawings may also be used.
3. Lay fabric along edges of trenches in longest practical continuous runs to minimize joints. Make joints only at a support post. Splice with minimum 6-inch overlap and seal securely.
4. Staple filter fabric to stakes at maximum 3 inches on center. Extend fabric minimum 18 inches and maximum 36 inches above natural ground.
5. Backfill and compact trench.

C. Fence Type 2:

1. Layout fence same as for Type 1.
2. Install stakes at 6 feet on center maximum and at each joint in wire fence, firmly embedded 1-foot minimum, and inclined it as for Type 1.
3. Tie wire fence to stakes with wire at 6 inches on center maximum. Overlap joints minimum one bay of mesh.
4. Install trench same as for Type 1.
5. Fasten filter fabric wire fence with tie wires at 3 inches on center maximum.
6. Layout fabric same as for Type 1. Fasten to wire fence with wire ties at 3 inches on center maximum and, if applicable, to stakes above top of wire fence it as for Type 1.
7. Backfill and compact trench.

3.04 STRAW BALE FENCES

- A. Install bales in a row with ends tightly abutting adjacent bales. Place bales with bindings parallel to ground surface. Where bales are installed on soil:
1. Embed bales in soil 4 inches minimum.
 2. Anchor bales with 2 stakes driven into soil, with top end of stake flush with top of bales. Angle the first stake in each bale toward previously laid bale to force bales together.

3. Fill gaps between bales with straw to prevent water from escaping between bales. Wedge carefully to not separate bales.

3.05 PLACEMENT OF TOPSOILS SPECIFIED IN OTHER SECTIONS

- A. Where topsoil is work of another Section, provide erosion controls following this Section during topsoil placement operations.
 1. When placing topsoil, maintain erosion and sediment control systems, such as swales, grade stabilization structures, berms, dikes, waterways, and sediment basins.
 2. Maintain grades previously established on areas receiving topsoil.
 3. After areas receiving topsoil are brought to grade, and immediately prior to dumping and spreading topsoil, loosen subgrade by discing or scarifying 2 inches deep minimum to permit bonding of topsoil to subsoil.
 4. Do not install sod or seed on soil treated with sterilants until sufficient time elapses to permit dissipation of chemicals.

3.06 STREET AND SIDEWALK CLEANING

- A. Keep areas clean of construction debris and mud carried by construction vehicles and equipment.
 1. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas, following Section 01575- Stabilized Construction Exit.
- B. In lieu of or in addition to stabilized construction exits, shovel or sweep pavements as required to keep areas clean. Do not waterhose or sweep debris and mud off street into adjacent areas, except, hose sidewalks during off-peak hours, after sweeping.

3.07 WASTE COLLECTION AREAS

- A. Prevent water runoff from passing through waste collection areas, and prevent water runoff from waste collection areas migrating outside collection areas.

3.08 EQUIPMENT MAINTENANCE AND REPAIR

- A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose or combine with temporary fueling area specified in Section 01579, so fuels, lubricants, solvents, and other potential pollutants are not washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid and solid waste. Clean and inspect maintenance areas daily.

- B. Where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.09 VEHICLE/ EQUIPMENT WASHING AREAS

- A. Install wash area (stabilized with coarse aggregate) adjacent to stabilized construction exit(s), as required to prevent mud and dirt run-off. Release wash water into drainage swales or inlets protected by erosion and sediment controls. Build wash areas following Section 01575- Stabilized Construction Exit. Install gravel or rock base beneath wash areas.
- B. Wash vehicles only at designated wash areas. Do not wash vehicles such as concrete delivery trucks or dump trucks and other construction equipment at locations where runoff flows directly into watercourses or storm water conveyance systems.
- C. Locate wash areas to spread out and evaporate or infiltrate wash water directly into ground or collect runoff in temporary holding or seepage basins.

3.10 PRODUCT STORAGE

- A. Follow Sections 01505- Temporary Facilities and 01610- Basic Product Requirements for basic storage requirements.
- B. Isolate areas where cements, solvents, paints, or other potential water pollutants are stored so they do not cause runoff pollution.
- C. Store toxic products, such as pesticides, paints, and acids following manufacturers= guidelines. Protect groundwater resources from leaching, with plastic mats, packed clay, tarpaper, or other impervious materials on areas where toxic products are opened and stored.

3.11 WATER RUNOFF AND EROSION CONTROL

- A. Control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties.
- B. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas, and to direct drainage to proper runoff courses to prevent erosion, sedimentation or damage.
- C. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
- D. Dispose of drainage water to prevent flooding, erosion, or other damage to the site or adjoining areas. Follow environmental requirements.

- E. Retain existing drainage patterns external to the site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as required to control conditions.
- F. Plan and execute construction and earth work to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation
 - 1. Hold area of bare soil exposed at one time to a minimum.
 - 2. Provide temporary controls such as berms, dikes, and drains.
- G. Construct fill and waste areas by selective placement to eliminate surface silts or clays which will erode.
- H. Inspect earthwork periodically to detect start of erosion. Immediately apply corrective measures as required to control erosion.
- I. Dispose of sediments offsite, not in or adjacent to streams or floodplains, nor allow sediments to flush into streams or drainage ways. Assume responsibility for offsite disposal location.]
- J. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in maximum of 8-inch layers. Provide compaction density at minimum 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- K. Do not maneuver vehicles on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sedimentation control systems caused by construction traffic.
- L. Do not damage existing trees intended to remain.

3.12 REMOVAL OF CONTROLS

- A. Remove erosion and sediment controls when the site is finally stabilized or as directed by City Engineer.
- B. Dispose of sediments and waste products following Section 01505 - Temporary Facilities.

END OF SECTION

EROSION AND SEDIMENTATION CONTROL

01572-7 ver. 10.21.97

**SECTION 01575
STABILIZED CONSTRUCTION ACCESS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation and removal of erosion and sediment control for stabilized construction access used during construction and prior to final development of site, as shown in City of Houston Standard Construction details, DWG No. 01571-01.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Price Contracts. If Contract is Unit Price Contract, payment for work in this Section will be based on the following:
 - 1. Stabilized construction roads, parking areas, access and wash areas: per square yard of aggregate/recycled concrete without reinforcing placed in 8- inch layers. No separate payment will be made for street cleaning necessary to meet TPDES requirements. Include cost of work for street cleaning under related Specification section.
- B. Stipulated Price (Lump Sum) Contracts. If the Contract is a Stipulated Price Contract, include payment for work under this Section in the total Stipulated Price.

1.03 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer=s catalog sheets and other Product Data on geotextile fabric.
- C. Submit sieve analysis of aggregates conforming to requirements of this Specification.

1.04 REFERENCES

- A. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
- B. Storm Water Quality Management Handbook For Construction Activities prepared by the City of Houston, Harris County and Harris County Flood Control District.

STABILIZED CONSTRUCTION ACCESS

PART 2 PRODUCTS

2.01 GEOTEXTILE FABRIC

- A. Provide woven or non-woven geotextile fabric made of polypropylene, polyethylene, ethylene, or polyamide material.
- B. Geotextile fabric: Minimum grab strength of 200 lbs. in any principal direction (ASTM D-4632) and equivalent opening size between 50 and 140.
- C. Geotextile and threads: Resistant to chemical attack, mildew, and rot and contain ultraviolet ray inhibitors and stabilizers to provide minimum of six months of expected usable life at temperature range of 0 to 120 degrees F.
- D. Representative Manufacturers: Mirafi, Inc. or equal.

2.02 COARSE AGGREGATES

- A. Coarse aggregate: Crushed stone, gravel, crushed blast furnace slag, or combination of these materials. Aggregate shall be composed of clean, hard, durable materials free from adherent coatings of, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.
- B. Coarse aggregates to consist of open graded rock 2" to 8" in size.

PART 3 EXECUTION

3.01 PREPARATION AND INSTALLATION

- A. Provide stabilized construction roads and access at construction, staging, parking, storage, and disposal areas to keep street clean of mud carried by construction vehicles and equipment. Construct erosion and sediment controls in accordance with Drawings and Specification requirements.
- B. Do not clear grub or rough cut until erosion and sediment control systems are in place, unless approved by Project Manager to allow soil testing and surveying.
- C. Maintain existing construction site erosion and sediment control systems until acceptance of the Work or until removal of existing systems is approved by Project Manager.
- D. Regularly inspect, repair or replace components of stabilized construction access. Unless otherwise directed, maintain stabilized construction roads and access until the City accepts the Work. Remove stabilized construction roads and access promptly when directed by Project Manager. Discard removed materials off-site.

- E. Remove and dispose of sediment deposits at designated spoil site for Project. If a spoil site is not designated on Drawings, dispose of sediment off-site at a location not in or adjacent to stream or flood plain. Assume responsibility for off-site disposal.
- F. Spread compacted and stabilized sediment evenly throughout site. Do not allow sediment to flush into streams or drainage ways. Dispose of contaminated sediment in accordance with existing federal, state, and local rules and regulations.
- G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sediment control systems caused by construction traffic.
- H. Conduct construction operations in conformance with erosion control requirements of Specification 01570 – Storm Water Pollution Control.

3.2 CONSTRUCTION MAINTENANCE

- A. Provide stabilized access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes where shown on Drawings.
- B. Provide stabilized construction access and vehicle washing areas, when approved by Project Manager, of sizes and at locations shown on Drawings or as specified in this Section.
- C. Clean tires to remove sediment on vehicles leaving construction areas prior to entering public rights-of-way. Construct wash areas needed to remove sediment. Release wash water into drainage swales or inlets protected by erosion and sediment control measures.
- D. Details for stabilized construction access are shown on Drawings. Construct other stabilized areas to same requirements. Maintain minimum roadway widths of 14 feet for one-way traffic and 20 feet for two-way traffic and of sufficient width to allow ingress and egress. Place geotextile fabric as a permeable separator to prevent mixing of coarse aggregate with underlying soil. Limit exposure of geotextile fabric to elements between laydown and cover to a maximum 14 days to minimize potential damage.
- E. Grade roads and parking areas to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar materials to prevent sediment from entering public rights-of-way, waterways or storm water conveyance systems.
- F. Inspect and maintain stabilized areas daily. Provide periodic top dressing with additional coarse aggregates to maintain required depth. Repair and clean out damaged control systems used to trap sediment. Immediately remove spilled, dropped, washed, or tracked sediment from public rights-of-way.

- G. Maintain lengths of stabilized areas as shown on Drawings or a minimum of 50 feet. Maintain a minimum thickness of 8 inches. Maintain minimum widths at all points of ingress or egress.
- H. Stabilize other areas with the same thickness, and width of coarse aggregate required for stabilized construction access, except where shown otherwise on Drawings.
- I. Stabilized areas may be widened or lengthened to accommodate truck washing areas when authorized by Project Manager.
- J. Clean street daily before end of workday. When excess sediments have tracked onto streets, Project Manager may direct Contractor to clean street as often as necessary. Remove and legally dispose of sediments.
- K. Use other erosion and sediment control measures to prevent sediment runoff during rain periods and non-working hours and when storm discharges are expected.

END OF SECTION

SECTION 01576
WASTE MATERIAL DISPOSAL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Disposal of waste material and salvageable material.

1.02 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit copy of approved "Development Permit", as defined in Chapter 19 of Floodplain Ordinance (City Ordinance Number 81-914 and Number 85- 1705), prior to disposal of excess material in areas designated as being in "100-year Standard Flood Hazard Area" within the City and areas designated as being in "500-year Standard Flood Hazard Area". Contact the City of Houston Floodplain Management Office at the Houston Permitting Center (1002 Washington Avenue, 3rd Floor), at (832) 394-8854 for floodplain information.
- C. Obtain and submit disposal permits for proposed disposal sites, if required by local ordinances.
- D. Submit copy of written permission from property owner, with description of property, prior to disposal of excess material adjacent to Project. Submit written and signed release from property owner upon completion of disposal work.
- E. Describe waste materials expected to be stored on-site and a description of controls to reduce Pollutants from these materials, including storage practices to minimize exposure of materials to storm water; and spill prevention and response measures in the Project's Storm Water Pollution Prevention Plan (SWPPP). Refer to Section 01410 - TPDES Requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SALVAGEABLE MATERIAL

- A. Excavated Material: When indicated on Drawings, load, haul, and deposit excavated material at location or locations shown on Drawings outside limits of Project.

WASTE MATERIAL DISPOSAL

- B. Base, Surface, and Bedding Material: Load shell, gravel, bituminous, or other base and surfacing material designated for salvage into City trucks.
- C. Pipe Culvert: Load culverts designated for salvage into City trucks.
- D. Other Salvageable Materials: Conform to requirements of individual Specification Sections.
- E. Coordinate loading of salvageable material on City trucks with Project Manager.

3.02 EXCESS MATERIAL

- A. Remove and legally dispose of vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage from job site.
- B. Excess soil may be deposited on private property adjacent to Project when written permission is obtained from property owner. See Paragraph 1.02 D above.
- C. Verify floodplain status of any proposed disposal site. Do not dispose of excavated materials in area designated as within 100-year and 500-year Standard Flood Hazard Areas unless "Development Permit" has been obtained. Remove excess material placed in "100-year and 500-year Standard Flood Hazard Areas" within the City without "Development Permit", at no additional cost to the City.
- D. Remove waste materials from site daily, in order to maintain site in neat and orderly condition.

END OF SECTION

**SECTION 01578
CONTROL OF GROUND AND SURFACE WATER**

PART 1 GENERAL

1.02 SECTION INCLUDES

- A. Dewatering, depressurizing, draining, and maintaining trenches, shaft excavations, structural excavations and foundation beds in stable condition, and controlling ground water conditions for tunnel excavations.
- B. Protecting work against surface runoff and rising floodwaters.
- C. Trapping suspended sediment in the discharge from the surface and ground water control systems.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

- 1. Measurement for control of ground water, if included in Document 00410 – Bid Form, will be on either a lump sum basis or a linear foot basis for continuous installations of wellpoints, eductor wells, or deep wells.
- 2. If not included in Document 00410 – Bid Form, include the cost to control ground water in unit price for work requiring such controls.
- 3. No separate payment will be made for control of surface water. Include cost to control surface water in unit price for work requiring controls.
- 4. Follow Section 01270 – Payment Procedures for unit price procedures.

- B. Stipulated Price (Lump Sum) Contract. If the Contract is a Stipulated Price Contract, include payment for work under this section in the total Stipulated Price.

1.03 REFERENCES

- A. ASTM D 698 - Standard Test Methods for Laboratory Compaction of Soils Using Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³))

CONTROL OF GROUND AND SURFACE WATER

- B. Federal Regulations, 29 CFR Part 1926, Standards-Excavation, Occupational Safety and Health Administration (OSHA)
- C. Storm Water Management Handbook for Construction Activities prepared by City of Houston, Harris County and Harris County Flood Control District.

1.04 DEFINITIONS

- A. Ground water control system: system used to dewater and depressurize water-bearing soil layers.
 - 1. Dewatering: lowering the water table and intercepting seepage that would otherwise emerge from slopes or bottoms of excavations, or into tunnels and shafts; and disposing of removed water. Intent of dewatering is to increase stability of tunnel excavations and excavations and excavated slopes, prevent dislocation of material from slopes or bottoms of excavations, reduce lateral loads on sheeting and bracing, improve excavating and hauling characteristics of excavated material, prevent failure or heaving of bottom of excavations, and to provide suitable conditions for placement of backfill materials and construction of structures and other installations.
 - 2. Depressurization: includes reduction in piezometric pressure within strata not controlled by dewatering alone, necessary to prevent failure or heaving of excavation bottom or instability of tunnel excavations.
- B. Excavation drainage: includes keeping excavations free of surface and seepage water.
- C. Surface drainage: includes use of temporary drainage ditches and dikes and installation of temporary culverts and sump pumps with discharge lines necessary to protect Work from any source of surface water.
- D. Monitoring facilities for ground water control system includes piezometers, monitoring wells and flow meters for observing and recording flow rates.

1.05 PERFORMANCE REQUIREMENTS

- A. Conduct subsurface investigations to identify groundwater conditions and top provide parameters for design, installation, and operation of groundwater control systems. Submit proposed method and spacing of readings for review prior to obtaining water level readings.
- B. Design ground water control system, compatible with requirements of Federal Regulations 29 CFR Part 1926 and Section 02260 -Trench Safety Systems, to produce following results:
 - 1. Effectively reduce hydrostatic pressure affecting:

CONTROL OF GROUND AND SURFACE WATER

- a. Excavations.
 - b. Tunnel excavation, face stability or seepage into tunnels.
 2. Develop substantially dry and stable subgrade for subsequent construction operations.
 3. Preclude damage to adjacent properties, buildings, structures, utilities, installed facilities and other work.
 4. Prevent loss of fines, seepage, boils, quick condition, or softening of foundation strata.
 5. Maintain stability of sides and bottoms of excavations.
- C. Provide ground water control systems that include single-stage or multiple-stage well point systems, eductor and ejector-type systems, deep wells, or combinations of these equipment types.
- D. Provide drainage of seepage water and surface water, as well as water from other sources entering excavation. Excavation drainage may include placement of drainage materials, crushed stone and filter fabric, together with sump pumping.
- E. Provide ditches, berms, pumps and other methods necessary to divert and drain surface water from excavation and other work areas.
- F. Locate ground water control and drainage systems so as not to interfere with utilities, construction operations, adjacent properties, or adjacent water wells.
- G. Assume sole responsibility for ground water control systems and for any loss or damage resulting from partial or complete failure of protective measures and settlement or resultant damage caused by ground water control operations. Modify ground water control systems or operations if they cause or threaten to cause damage to new construction, existing site improvements, adjacent property, adjacent water wells, or potentially contaminated areas. Repair damage caused by ground water control systems or resulting from failure of system to protect property as required.
- H. Install an adequate number of piezometers installed at proper locations and depths necessary to provide meaningful observations of conditions affecting excavation, adjacent structures and water wells. ,
- I. Install environmental monitoring wells at proper locations and depths necessary to provide adequate observations of hydrostatic conditions and possible contaminant transport from contamination sources into work area or ground water control system.

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittals Procedures.
- B. Submit Ground Water and Surface Water Control Plan for review by Project Manager prior to start of excavation work. Include the following:
 - 1. Results of subsurface investigations and description of extent and characteristics of water bearing layers subject to ground water control.
 - 2. Names of equipment Suppliers and installation Subcontractors
 - 3. Description of proposed ground water control systems indicating arrangement, location, depth and capacities of system components, installation details and criteria and operation and maintenance procedures
 - 4. Description of proposed monitoring facilities indicating depths and locations of piezometers and monitoring wells, monitoring installation details and criteria, type of equipment and instrumentation with pertinent data and characteristics
 - 5. Description of proposed filters including types, sizes, capacities and manufacturer's application recommendations
 - 6. Design calculations demonstrating adequacy of proposed systems for intended applications. Define potential area of influence of ground water control operation near contaminated areas.
 - 7. Operating requirements, including piezometric control elevations for dewatering and depressurization
 - 8. Excavation drainage methods including typical drainage layers, sump pump application and other means
 - 9. Surface water control and drainage installations
 - 10. Proposed methods and locations for disposing of removed water
- C. Submit following records upon completion of initial installation:
 - 1. Installation and development reports for well points, eductors, and deep wells
 - 2. Installation reports and baseline readings for piezometers and monitoring wells
 - 3. Baseline analytical test data of water from monitoring wells

CONTROL OF GROUND AND SURFACE WATER

4. Initial flow rates

- D. Submit the following records weekly during control of ground and surface water operations:
1. Records or flow rates and piezometric elevations obtained during monitoring of dewatering and depressurization. Refer to Paragraph 3.02, Requirements for Eductor, Well Points, or Deep Wells.
 2. Maintenance records for ground water control installations, piezometers and monitoring wells

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Comply with requirements of agencies having jurisdiction.
- B. Comply with Texas Commission on Environmental Quality regulation and Texas Water Well Drillers Association for development, drilling, and abandonment of wells used in dewatering system.
- C. Obtain necessary permits from agencies with jurisdiction over use of groundwater and matters affecting well installation, water discharge, and use of existing storm drains and natural water sources. Since review and permitting process may be lengthy, take early action to obtain required approvals.
- D. Monitor ground water discharge for contamination while performing pumping in vicinity of potentially contaminated sites.

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. Select equipment and materials necessary to achieve desired results for dewatering. Selected equipment and materials are subject to review by Project Manager through submittals required in Paragraph 1.06, Submittals.
- B. Use experience contractors, regularly engaged in ground water control system design, installation, and operation, to furnish and install and operate educators, well, points, or deep wells, when needed.
- C. Maintain equipment in good repair and operating conditions.
- D. Keep sufficient standby equipment and materials available to ensure continuous operation, where required.

CONTROL OF GROUND AND SURFACE WATER

- E. Portable Sediment Tank System: Maintain equipment in good repair and operating conditions.
 - 1. Shop or field fabricate tanks in series with main inlet pipe, inter-tank pipes and discharge pipes, using quantities sufficient to collect sediments from discharge water.

PART 3 EXECUTION

3.01 GROUND WATER CONTROL

- A. Perform necessary subsurface investigation to identify water bearing layers, piezometric pressures and soil parameters for design and installation of ground water control systems. Perform pump tests, if necessary, to determine draw down characteristics. Present results in the Ground Water and Surface Water Control Plan submittal.
- B. Provide labor, material, equipment, techniques and methods to lower, control and handle ground water in manner compatible with construction methods and site conditions. Monitor effectiveness of installed system and its effect on adjacent property.
- C. Install, operate, and maintain ground water control systems in accordance with the Ground Water and Surface Water Control Plan. Notify Project Manager in writing of changes made to accommodate field conditions and changes to Work Provide revised drawings and calculations with notification.
- D. Provide continuous system operation, including nights, weekends, and holidays. Arrange appropriate backup if electrical power is primary energy source for dewatering system.
- E. Monitor operations to verify systems lower groundwater piezometric levels a rate required to maintain dry excavation resulting in stable subgrade for subsequent construction operations.
- F. Depressurize zones where hydrostatic pressures in confined water bearing layers exist below excavations to eliminate risk of uplift or other instability of excavation or installed works. Define allowable piezometric elevations in the Ground Water and Surface Water Control Plan.
- G. Removal of ground water control installations.
 - 1. Remove pumping system components and piping when ground water control is no longer required.
 - 2. Remove piezometers, including piezometers installed during design phase investigations and left for Contractor's use, upon completion of testing, as required in accordance with Part 3 of applicable specification.

CONTROL OF GROUND AND SURFACE WATER

3. Remove monitoring wells when directed by Project Manager.
 4. Grout abandoned well and piezometer holes. Fill piping that is not removed with cement-bentonite grout or cement-sand grout.
- H. During backfilling, maintain water level a minimum of 5 feet below prevailing level of backfill. Do not allow the water level to cause uplift pressures in excess of 80 percent of downward pressure produced by weight of structure or backfill in place. Do not allow water levels to rise into cement-stabilized sand until at least 48 hours after placement.
- I. Provide uniform pipe diameter for each pipe drain run constructed for dewatering. Remove pipe drains when no longer required. If pipe removal is impractical, grout connections at 50-foot intervals and fill pipe with cement-bentonite grout or cement-sand grout after removal from service.
- J. The extent of ground water control for structures with permanent perforated underground drainage systems may be reduced, for units designed to withstand hydrostatic uplift pressure. Provide a means to drain affected portions of underground systems, including standby equipment. Maintain drainage systems during construction operations.
- K. Remove systems upon completion of construction or when dewatering and control of surface or ground water is no longer required.
- L. Compact backfill to not less than 95 percent of maximum dry density in accordance with ASTM D 698.
- M. Foundation Slab: Maintain saturation line at least 3 feet below lowest elevations where concrete is to be placed. Drain foundations in areas where concrete is to be placed before placing reinforcing steel. Keep free from water for 3 days after concrete is placed.

3.02 REQUIREMENTS FOR EDUCTOR, WELL POINTS, OR DEEPWELLS

- A. For aboveground piping in ground water control system, include a 12-inch minimum length of clear, transparent piping between each eductor well or well point and discharge header to allow visual monitoring of discharge from each installation.
- B. Install sufficient piezometers or monitoring wells to show that trench or shaft excavations in water bearing materials are pre-drained prior to excavation. Provide separate piezometers for monitoring of dewatering and for monitoring of depressurization. Install piezometers and monitoring wells for tunneling as appropriate for selected method of work.
- C. Install piezometers or monitoring wells at least one week in advance of the start of associated excavation.

CONTROL OF GROUND AND SURFACE WATER

- D. Dewatering may be omitted for portions of under drains or other excavations, where auger borings and piezometers or monitoring wells show that soil is pre-drained by existing systems and that ground water control plan criteria are satisfied.
- E. Replace installations that produce noticeable amounts of sediments after development.
- F. Provide additional ground water control installations, or change method of control if, ground water control plan does not provide satisfactory results based on performance criteria defined by plan and by specifications. Submit revised plan according to Paragraph 1.06B.

3.03 SEDIMENT TRAPS

- A. Install sediment tank as shown on approved plan.
- B. Inspect daily and clean out tank when one-third of sediment tank is filled with sediment.

3.04 SEDIMENT SUMP PIT

- A. Install sediment tank as shown on approved plan.
- B. Construct standpipe by perforating 12-inch to 24-inch diameter corrugated metal or PVC pipe.
- C. Extend standpipe 12 inches to 18 inches above lip of pit.
- D. Convey discharge of water pumped from standpipe to sediment trapping device.
- E. Fill sites of sump pits compact to density of surrounding soil and stabilize surface when construction is complete.

3.05 EXCAVATION DRAINAGE

- A. Use excavation drainage methods if well-drained conditions can be achieved. Excavation drainage may consist of layers of crushed stone and filter fabric, and sump pumping, in combination with sufficient ground water control wells to maintain stable excavation and backfill conditions.

3.06 MAINTENANCE AND OBSERVATION

- A. Conduct daily maintenance and observation of piezometers or monitoring wells while ground water control installations or excavation drainage is operating at the site, or water is seeping into tunnels, and maintain systems in good operating condition.

- B. Replace damaged and destroyed piezometers or monitoring wells with new piezometers or wells as necessary to meet observation schedules.
- C. Cut off piezometers or monitoring wells in excavation areas where piping is exposed, only as necessary to perform observation as excavation proceeds. Continue to maintain and make specified observations
- D. Remove and grout piezometers inside or outside of excavation area when ground water control operations are complete. Remove and grout monitoring wells when directed by Project Manager.

3.07 MONITORING AND RECORDING

- A. Monitor and record average flow rate of operation for each deep well, or for each well point or eductor header used in dewatering system. Also, monitor and record water level and ground water recovery. Record observations daily until steady conditions are achieved and twice weekly thereafter.
- B. Observe and record elevation of water level daily as long as ground water control system is in operation, and weekly thereafter until Work is completed or piezometers or wells are removed, except when Project Manager determines more frequent monitoring and recording are required. Comply with Project Manager's direction for increased monitoring and recording and take measures necessary to ensure effective dewatering for intended purpose.

3.08 SURFACE WATER CONTROL

- A. Intercept surface water and divert it away from excavations through use of dikes, ditches, curb walls, pipes, sumps or other approved means. Requirement includes temporary works required to protect adjoining properties from surface drainage caused by construction operations.
- B. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains, when approved by agencies having jurisdiction. Provide settling basins when required by agencies.

END OF SECTION

SECTION 01579

TEMPORARY VEHICLE AND EQUIPMENT FUELING AREA

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation of erosion and sediment control for a temporary vehicle and equipment fueling area for aboveground fuel storage tank, which will be on site for more than 48 hours.

1.02 SUBMITTALS

- A. Follow Section 01340 - Shop Drawings, Product Data and Samples.
- B. Submit manufacturer's catalog sheets and other product data on dispensing equipment, pump, and aboveground fuel storage tanks, indicating the capacity and dimensions of the tank.
- C. Submit drawings to show the location of tank protection area and driveway. Indicate the nearest inlet or channelized flow area. Clearly dimension all distances and measurements.
- D. Submit a copy of Contractor's spill response and containment procedures to City Engineer. In lieu of the above, the Contractor shall submit a written statement declaring that the ?Spill Containment Procedures contained in the Airport's pollution prevention plan will be used in the event of a spill, and that a copy of the spill procedures will be located on-site.
- E. Submit a list of significant materials to be used or stored at the airport construction site. Submit statement that all significant materials and associated waste containers that are to be used or stored overnight at the airport construction site will be properly labeled.
- F. Submit a list of spill containment equipment, and quantities thereof, located at the fueling area.
- G. Submit manufacturer's catalog sheets and other product data on geotextile fabric.
- H. Submit inspection reports after the fueling site has been returned to its original condition or constructed in accordance with the Drawings.

1.03 MEASUREMENT AND PAYMENT

- A. Unless indicated in Document 00405 - Bid Tabulation Form, the Temporary Vehicle and Equipment Fueling Area is incidental to the Work. Include costs for Temporary Vehicle and Equipment Fueling Area in the cost of work for which it is required.

TEMPORARY VEHICLE AND EQUIPMENT FUELING AREA

- B. When indicated in Document 00405 - Bid Tabulation Form, measurement and payment for Temporary Vehicle and Equipment Fueling Area will be on a lump sum basis. The Temporary Vehicle and Equipment Area measured as stated, will be paid for at the unit price bid for "Temporary Vehicle and Equipment Fueling Area, Complete in Place."

1. Payment for Temporary Vehicle and Equipment Fueling area will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, concrete foundation and curbs, protection barrier, driveway, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

1.04 QUALITY ASSURANCE

- A. Person conducting visual examination for pollutant shall be fully knowledgeable about the NPDES Construction General Permit, detecting sources of storm water contaminants, inspection of aboveground storage tank and appurtenances for leakage, and the day to day operations that may cause unexpected pollutant releases.

PART 2 PRODUCTS

2.01 ABOVEGROUND STORAGE TANK

- A. Tank Assembly: Must be listed with UL 1709 and UL 2085.
- B. Inner Steel Storage Tank: Follow UL 142, with minimum thickness of 1/8-inch all welded construction.
- C. Tank Encasement: Either concrete or steel to provide a minimum of 110 percent containment of the inner tank capacity. Provide 5-gallon overspill containment pan for tank refueling.
- D. Dispenser Pump: For submersible pump, UL listed emergency shut-off valve to be installed at each dispenser. For suction pump, UL listed vacuum-activated shut-off valve, with a shear section, is to be installed at each dispenser. Fuel may not be dispensed from a tank by gravity flow or by pressurization of the tank. Means must be provided to prevent release of fuel by siphon flow.
- E. Representative Manufacturers: Convault, Fireguard, EcoVault, SuperVault, or equal.

2.02 CONCRETE

- A. Follow Section 03310 - Structural Concrete with a minimum concrete strength of 4,000 psi at 28 days.

TEMPORARY VEHICLE AND EQUIPMENT FUELING AREA

2.03 AGGREGATES

- A. Coarse aggregate shall consist of crushed stone, gravel, crushed blast furnace slag, or a combination of these materials. Aggregate shall be composed of clean, hard, durable materials, free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.
- B. Coarse aggregate shall conform to the following gradation requirements.

Sieve Size (Square Mesh)	Percent Retained (By Weight)
2-1/2"	0
2"	0 - 20
1-1/2"	15-50
3/4"	60-80
No. 4	95-100

2.04 GEOTEXTILE FABRIC

- A. Woven or non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material, in continuous rolls of longest practical length.
- B. Grab Strength: 270 psi in any principal direction (ASTM D-4632), Mullen burst strength exceeding 200 psi (ASTM D-3786), and the equivalent opening size between 50 and 140.
- C. Furnish ultraviolet inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.
- D. Representative Manufacturers: Mirafi, Inc., Synthetic Industries, or equal.

PART 3 EXECUTION

3.01 GENERAL

- A. Follow Section 01572 - Erosion and Sedimentation Control.
- B. Do not clear, grub, or rough cut until erosion and sedimentation control systems are in place, unless otherwise approved by City Engineer.
- C. Maintain existing erosion and sedimentation control systems located within the project site installed by others prior to start of construction under this contract until acceptance of the project or until directed by the City Engineer to remove and dispose the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until acceptance of the project. Remove erosion and

sedimentation control systems promptly when directed by the City Engineer and dispose of removed materials offsite.

- E. Remove and dispose of sediments deposits at the project spoil site. If a project spoil site is not designated on Drawings, dispose sediment at an offsite location. Contractor assumes responsibility for offsite disposal location. Sediment shall be disposed of at an offsite location not in or adjacent to a stream or floodplain. Spread, compact, and stabilize sediment placed at the project site in accordance with the directions of the City Engineer. Do not allow sediment to flush into a stream or drainage way. If sediment is contaminated, dispose of sediment in accordance with federal, state and local regulations.
- F. Do not maneuver equipment or vehicles on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damages caused by construction traffic to erosion and sedimentation control systems.
- G. Employ protective measures to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in Section 01572 - Erosion and Sedimentation Control.
- H. Contractor to prepare spill response and containment procedures to be implemented in the event of a significant materials spill. Significant materials include but are not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical required to be reported pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as slag, ashes and sludge that have the potential to be released with storm water discharges. In lieu of developing procedures stated above, ?Spill Containment Procedures enclosed in the airport's pollution prevention plan may be used. Spill procedures shall be kept on-site at the airport construction site.
- I. Spill containment equipment appropriate to the size of operation is to be located in close proximity to the fueling area. Such equipment includes, but not limited to, suitable waste containers for significant materials, drip pans, booms, inlet covers, or absorbent.
- J. All significant materials or waste containers used for airport construction activities and stored on-site at the airport overnight are to be properly labeled.

3.02 CONSTRUCTION METHODS

- A. Provide fuel tank protection area and driveway as shown on the Drawings, or equivalent if prior written approval has been given by City Engineer.
- B. Do not locate fueling area in or near a channelized flow area or close to a storm sewer conveyance system. Sufficient space must be provided to allow installation of other erosion and sediment controls to protect those areas.

- C. Clear and grub the fueling area to remove unsuitable materials. Place geotextile fabric as permeable separator to prevent mixing of coarse aggregate with underlying soil. Overlap fabric a minimum of 6 inches. Place coarse aggregate on top of the geotextile fabric to minimum depth of 8 inches.
- D. Grade protection area and driveway to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar methods to prevent sediment from entering public right-of-way, receiving stream or storm water conveyance system. The driveway to the fuel tank area shall have a minimum width of 15 feet for one-way traffic and 30 feet for two-way traffic.
- E. Place the aboveground storage tank on top of the cast-in-place or pre-cast foundation. The size and thickness of the foundation shall be based on the size and weight of the tank to be used, with a minimum thickness of 6 inches. The concrete foundation shall be enclosed by a 5-inch by 5-inch concrete curb and shall extend a minimum of 1 foot beyond the tank and dispenser assemblies, so that leak and drip can be contained within the concrete foundation.
- F. Slope the concrete foundation a minimum of 1 percent toward a 6-inch wide by 12-inch long by 4-inch deep sump pit. Install a minimum of 2-inch pipe inside the sump pit with a valve on the outside of the curb to allow draining of the concrete foundation.
- G. Install a portable concrete jersey barrier around the concrete foundation. Provide a minimum clearance of 2 feet from the edge of the foundation. In lieu of the jersey barrier, Contractor can install 4-inch diameter steel pipe bollards around the foundation. The bollards shall be buried a minimum of 3 feet deep, 3 feet aboveground, and 4 feet on center, encased in a 12-inch wide concrete foundation.

3.03 MAINTENANCE

- A. Inspect stabilized areas after every storm event and at least once a week. Provide periodic top dressing with additional coarse aggregate to maintain the required depth. Repair and clean out damaged control measures used to trap sediment.
- B. Inspect fuel tank foundation's bermed area after every storm event and at least once a week. Visually examine storm water contained in the tank's bermed foundation area for oil sheen or other obvious indicators of storm water pollution. Properly dispose of the storm water when significant amount of pollutant is present (as defined in Federal Register, Vol. 60, No. 189, Friday, September 29, 1995). Record visual examination of storm water discharge in a Report noting the date and time of examination, name of examiner, observations of water quality, and volume of storm water discharged from the bermed area. The Report shall be kept together with all other storm water pollution control inspection reports on the site, in a readily accessible location. The Report shall be maintained for the duration of the construction activity, and thereafter in accordance with the provisions of Section 01571 - NPDES Requirements.

3.04 TEMPORARY FUELING AREA CLOSURE

TEMPORARY VEHICLE AND EQUIPMENT FUELING AREA

A. The temporary vehicle and equipment fueling area shall be disposed of by removal of all sediment and erosion controls properly offsite. City Engineer will inspect the top soils in the fueling area and immediate vicinity for evidence of fuel leaks. If the City Engineer determines that sufficient pollutants have been released, the soil shall be removed and properly disposed offsite. Other remediation method may be required at no additional cost to the City.

SECTION 01610
BASIC PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for transportation, delivery, handling, and storage of Products.

1.02 PRODUCTS

- A. Products: Defined in Document 00700 – General Conditions. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components designated for reuse.
- B. For material and equipment specifically indicated or specified to be reused in the work:
 - 1. Use special care in removal, handling, storage and reinstallation, to assure proper function in completed work.
 - 2. Arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation. Include cost in unit price for related items.
- C. When contract documents require that installation of work comply with manufacturer's printed Instructions, obtain and distribute copies of such instructions to parties involved in installation, including two copies to Project Manager. Maintain one set of complete instructions at job site during installation until completion.
- D. Provide Products from the fewest number of manufacturers as practical, in order to simplify spare parts inventory and to allow for maximum interchangeability of components. For multiple components of the same size, type or application, use the same make and model of component throughout the Work.

1.03 TRANSPORTATION

- A. Make arrangements for transportation, delivery, and handling of Products required for timely completion of the Work.
- B. Transport and handle Products in accordance with manufacturer's instructions.
- C. Consign and address shipping documents to proper party giving name of the Project and its complete street address. Shipments shall be delivered to Contractor.

BASIC PRODUCT REQUIREMENTS

1.04 DELIVERY

- A. Arrange deliveries of Products to accommodate short-term site completion schedules and in ample time to facilitate inspection prior to Installation. Avoid deliveries that cause lengthy storage or overburden of limit storage space.
- B. Coordinate deliveries to avoid conflict with the Work and conditions at the site and to accommodate the following:
 - 1. Work of other contractors or the City.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling Products.
 - 4. The City's use of premises.
- C. Have Products delivered to the site in manufacturer's original, unopened, labeled containers.
- D. Immediately upon delivery, inspect shipment to assure:
 - 1. Product complies with requirements of the Contract.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact; labels are legible.
 - 4. Products are properly protected and undamaged.

1.05 PRODUCT HANDLING

- A. Coordinate off-loading of Products delivered to the site. If necessary, during construction, move and relocate stored Products at no additional cost to the City.
- B. Provide equipment and personnel necessary to handle Products, including those provided by the City, by methods to prevent damage to Products or packaging.
- C. Provide additional protection during handling as necessary to prevent breaking, scraping, marring, or otherwise damaging Products or surrounding areas.
- D. Handle Products by methods to prevent over-bending or overstressing.
- E. Lift heavy components only at designated lifting points.

- F. Handle Products by methods to prevent over-bending or overstressing.
- G. Do not drop, roll, or skid Products off delivery vehicles. Hand-carry or use Suitable materials handling equipment.

1.06 STORAGE OF PRODUCTS

- A. Store and protect Products in accordance with manufacturer's recommendations and requirements of these Specifications.
- B. Make necessary provisions for safe storage of Products. Place Products so as to prevent damage to any part of the Work or existing facilities and to maintain free access at all times to all parts of the Work and to utility service company installations in the vicinity of the Work. Keep Products neatly and compactly stored in locations that will cause minimum inconvenience to other contractors, public travel, adjoining owners, tenants, and occupants. Arrange storage in a manner so as to provide easy access for inspection.
- C. Restrict storage to areas available on the site for storage of Products as shown on Drawings or approved by Project Manager.
- D. Provide off-site storage and protection when on-site storage is not adequate. Provide addresses of, and access to, off-site storage locations for inspection by Project Manager.
- E. Do not use lawns, grass plots, or other private property for storage purposes without written permission of owner or other person in possession or control of premises.
- F. Protect stored Products against loss or damage.
- G. Store in manufacturers' unopened containers.
- H. Neatly, safely, and compactly stack Products delivered and stored along the line of the Work to avoid inconvenience and damage to property owners and general public and maintain at least 3 feet clearance around fire hydrants. Keep public, private driveways and street crossings open.
- I. Repair or replace damaged lawns, sidewalks, streets or other improvements to satisfaction of Project Manager. Total length that Products may be distributed along route of construction at one time is 1000 linear feet, unless otherwise approved in writing by Project Manager.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01630
PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedure for requesting substitution of products in lieu of those specified. These requirements supplement Paragraph 3.10 of Documents 00700 - General Conditions and 00800- Supplementary Conditions.
- B. After submittal period expires, requests for substitutions will be considered only when a specified product becomes unavailable because of conditions beyond Contractor's control.

1.02 DEFINITIONS

- A. Process: Any proprietary method for installing products that results in an integral, functioning part of the Work. For this Section, the word "product" includes "process."

1.03 SUBMITTALS

- A. Submit 5 copies of each separate product substitution request, within time period stated in Document 00700 - General Conditions, including:
 - 1. Full submittal data for specified products, following Section 01340- Shop Drawings, Product Data and Samples.
 - 2. Full data substantiating compliance of proposed substitutions with Contract Documents and substantiating equivalency with specified products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature with precise product description, and directly applicable performance and test data and reference standards.
 - c. Samples, as applicable.
 - d. Name and address of projects on which proposed product was used in similar or equivalent conditions within the last 3 years, and date of installation.
 - e. Name, address and telephone number of owners, designer, and installing contractor.

PRODUCT OPTIONS AND SUBSTITUTIONS

- f. For process substitutions, detailed description of proposed method and drawings illustrating methods.
- B. Detailed reason(s) for substitution, and tangible benefits accruing to City.
- C. Itemized comparison of proposed substitutions with specified products and full description of deviations.
- D. Fully describe all effects of substitutions on the Work and on separate contracts and work by City. Include full cost data comparing proposed substitution with specified products and amount of change in Contract Sum. Indicate changes in construction schedule (Section 01325 - Construction Schedules).
- E. Substitutions are not permitted when:
 - 1. They are not processed following Document 00700 - General Conditions and this Section.
 - 2. Acceptance will require revision of Contract Documents or will change the design concept.
 - 3. Delay in construction will occur.
 - 4. No provisions for substitutions are stated in the Contract Documents.
- F. Burden of proof of merit of proposed substitution remains solely with Contractor.

1.02 CONTRACTOR'S OPTIONS

- A. Options, stated as "Contractor's option(s)" in Contract Documents, are intended to benefit the Work through reduced cost, decreased construction time, or better performance within designated range of criteria.
- B. Volunteer options are not permitted.
- C. Notify in writing City Engineer of options chosen.

1.03 QUALITY ASSURANCE

- A. To the maximum extent possible, provide products of the same type or function from a single manufacturer, make, or source. Where more than one choice is available, select the product which is compatible with other products already selected, specified, or which is in use by City.

1.04 DESIGNER'S ACTIONS

- A. Decision to accept or deny proposed substitute products, or selection of one product instead of another, is solely the responsibility of Designer; such decisions and selections are final.

1.05 COSTS FOR REVIEW OF SUBSTITUTIONS

- A. Pay costs related to Designer's review and examination of proposed substitutions. Assume liability for obtaining acceptance of substitutions.
- B. Reimburse City for actual evaluation costs of Designer's(s) if proposed substitute does not meet requirements of Contract Documents, or acceptance of proposed substitute requires changes to the Work.
- C. Reimburse City for associated design costs, including redesign, additional submittal reviews, investigations, Designer's fees and revision of Contract Documents required because of the requested substitution. Design costs are the full price for additional work performed, paid at the rates established by Designer's contract with City for Design and Contract Documents phase of the Project.
- D. Pay for laboratory testing required to obtain information upon which equivalency can be determined.
- E. If Designer determines that proposed substitutions are not equivalent to specified products, furnish one of the specified products without delay in time or additional cost to City.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01725
FIELD SURVEYING

PART 1 GENERAL

1.01 QUALITY CONTROL

- A. Conform to State of Texas laws for surveys requiring licensed surveyors. Employ a surveyor acceptable to Project Manager if required by the Contract.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

- 1. No separate payment will be made for field surveying. Include cost in unit price for related items.

1.03 SUBMITTALS

- A. Conform to requirements of Section 01330- Submittal Procedures.
- B. Submit name, address, and telephone number of Surveyor to Project Manager before starting survey work.
- C. Submit documentation verifying accuracy of survey work on request.
- D. Submit certificate signed by Surveyor, that elevations and locations of the Work are in conformance with the Contract

1.04 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.
- B. Prepare a certified survey setting forth dimensions, locations, angles, and elevations of construction and site work upon completion of foundation walls and major site improvements.
- C. Submit record documents under provisions of Section 01785- Project Record Documents.

1.05 EXAMINATION

- A. Verify locations of survey control points prior to starting the Work.
- B. Notify Project Manager immediately if any discrepancies are discovered.
- C. Verify project address with the HAS GIS Department.

FIELD SURVEYING

1.06 SURVEY REFERENCE POINTS

- A. The City will establish survey control datum as provided in Document 00700- General Conditions and as indicated on Drawings. In m Project Manager in Advance of time horizontal and vertical control points will be established so verification deemed necessary by Project Manager may be done with minimum inconvenience to the City or Contractor.
- B. Locate and protect survey control points prior to starting site work; preserve permanent reference points during construction.
- C. Notify Project Manager a minimum of 48 hours before relocation of reference points is needed due to changes in grades or other reasons.
- D. Promptly report loss or destruction of reference points to Project Manager.
- E. Reimburse the City for cost of reestablishment of permanent reference points disturbed by construction operations.

1.07 SURVEY REQUIREMENTS

- A. Utilize recognized engineering survey practices.
- B. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record horizontal and vertical location data on Project record documents.
- C. Establish elevations, lines and levels to provide quantities required for measurement and payment and for appropriate controls for the Work. Locate and lay out the following with appropriate instruments:
 - 1. Site improvements including grading, fill and topsoil placement, utilities, and footings and slabs
 - 2. Grid or axis for structures
 - 3. Building foundation, column locations, and ground floor elevations
- D. Periodically verify layouts.

PART 2 PRODUCTS (NOT USED)

PART 3 PRODUCTS (NOT USED)

END OF SECTION

FIELD SURVEYING

01725-2 ver. 01.01.11

SECTION 01726
BASE FACILITY SURVEY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. “Base Facility” is defined in Section 01423 - References.
- B. Survey of Base Facility and related existing conditions.
- C. Notification of discoveries.
- D. Contractor's survey of Base Facility is intended to identify and describe actual as-found conditions to supplement information contained in Base Facility documents and in the Drawings and Specifications.
- E. Necessary changes in location of the Work may be made by City Engineer to avoid unanticipated concealed conditions, following Section 01255 - Modification Procedures.
- F. If permanent relocation or reworking of existing conditions is required and not otherwise provided for in the Contract Documents, City Engineer will direct Contractor following Section 01255 - Modification Procedures.

1.02 BASE FACILITY DOCUMENTS

- A. Drawing and Specifications for the Work are based on City-furnished Base Facility documents and upon the Designer's limited visual observations of sight-exposed conditions existing in February of 2020.
 - 1. Contract Documents do not necessarily completely describe all details of Base Facility at interfaces with the Work.
 - 2. The Designer’s observations did not extend to areas or conditions above ceilings or inside partitions and chases.
- B. Obtain available Base Facility documents from the City Engineer.
 - 1. Drawing and Specifications for the Work are based on the City-furnished Base Facility documents and upon limited visual observations of sight-exposed conditions existing at the time of Notice to Proceed (NTP).

BASE FACILITY SURVEY

2. The contractor will provide HAS with a map of the project area to be used by the infrastructure and IT sections to compile a map of known underground utilities and telecommunications lines and equipment. This process does not replace any base survey methods or requirements.

1.03 SEQUENCING AND SCHEDULING

- A. Sequence and schedule survey to properly coordinate with other construction operations.
- B. Complete survey work, process one or more Document 00685 - Request for Information, obtain responses, evaluate and submit cost or schedule impact of responses, and process accepted modifications before commencing work of affected Sections.
- C. Obtain or designate and protect control samples of Base Facility work during survey and maintain until required submittals pertinent thereto are processed.

1.04 BASE FACILITY CONDITIONS

- A. Base Facility intended or required to remain takes precedence of fact and control over details and construction of interfaces, dimensions, clearances, openings, alignments, and substrate conditions between Base Facility and the Work.
- B. Base Facility is intended to remain except where shown on Drawings or specified as work of Section 01731 - Cutting and Patching or Division 2 sections covering demolition.

1.05 DIMENSIONS

- A. Control dimensions are indicated by nominal value on the Drawings within parenthesis. This designation means, in addition to other requirements, the Contractor is responsible for finding the actual dimension following this Section and using actual dimensions to govern placement of work including relationship to and coordination with related work.
 1. Follow Section 01255 - Modification Procedures to resolve discrepancies between existing conditions and Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Survey Base Facility affecting or affected by the Work by on-site examination of existing conditions.

- B. Explore ahead of trenching and excavation work to uncover obstructing underground structures sufficiently to determine location, to prevent damage and to prevent interruption of services. Restore to original condition damages to underground structure at no cost or time increase to the contract, following Section 01731 - Cutting and Patching.
- C. Note discovered discrepancies between the Base Facility and Contract Documents.
 - 1. Use one set of prints of Drawings and Specifications (made from reproducible furnished following Section 01110 - Summary of Work) for the sole purpose of documenting discoveries. Designate as "SURVEY DOCUMENTS."
 - 2. Prepare and issue Document 00685 - Request for Information for each discrepancy, following Section 01255 - Modification Procedures.
 - 3. Supplement data noted on survey documents with video or photographs following Section 01321 - Construction Photographs as required to clearly and fully describe conditions.
- D. Coordinate survey of semi-exposed and concealed conditions with work of Sections 01731-Cutting and Patching, and 024119 – Selective Structure Demolition.

END OF SECTION

SECTION 01731
CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Repair remaining Base Facility.
- B. Connect work to Base Facility.
- C. Remove construction required to enable required alteration or addition to Base Facility.
- D. Uncover work for inspection or reinspection of covered work by authorities having jurisdiction.
- E. Connect work not done in proper sequence.
- F. Make connections or alterations to Base Facility or to work.
- G. Provide openings, channels, chases and flues as required.
- H. Demolition is specified in Division 2.

1.02 REFERENCES

- A. National Terrazzo and Mosaic Association, Inc. (NTMA).

1.03 SUBMITTALS

- A. Submit Document 00931 - Request for Information, with supporting data, in advance of cutting or patching not shown on the Drawings or which affects:
 - 1. Contract Sum or Time.
 - 2. Visual quality of remaining sight-exposed surfaces exposed after work is complete and for which no work is required other than to gain access.
 - 3. Warrantability, value, integrity, serviceability, or life expectancy of any component of the Base Facility and the Work.

CUTTING AND PATCHING

4. Integrity or serviceability of weather-exposed, moisture-resistant, or fire-resistant components or systems.
 5. Work outside indicated contract limits.
- B. Include in each request:
1. Identification of the Project.
 2. Description of affected Work.
 3. The necessity for cutting and patching.
 4. Effect on Base Facility construction, on the Work, or on work of separate contractors and work by City.
 5. Description of proposed work:
 - a. Scope of cutting and patching.
 - b. Contractor, Subcontractor or trades executing work.
 - c. Products proposed.
 - d. Extent and type of refinishing.
 - e. Schedule of operations.
 6. Alternatives to cutting and patching, if any.
 7. Written permission of separate contractors or installers of work by City whose work will be affected, countersigned by City Engineer.
- C. Should Base Facility conditions require change of products, follow Section 01630 - Product Options and Substitutions.
- D. Submit product data and samples following Section 01340 - Shop Drawings, Product Data and Samples.
1. Submit manufacturer's technical literature for each patch material and fully describe compatibility with each substrate.
 2. Submit samples of paint colors and sheen on gypsum board with taped edges.
 3. Submit 2-foot square samples of drywall and plaster finish texture.

CUTTING AND PATCHING

4. Submit mix designs following Section 01455 - City's Acceptance Testing.

- E. Submit written notice to City Engineer designating time work will be uncovered for observation. Do not cut until authorized by City Engineer, except when documentable emergency conditions require immediate cutting.
- F. Should conditions of work or schedule indicate change of products or methods, submit Document 00931 - Request for Information stating conditions indicating change, recommendations for alternative products or methods and submittals. Follow Section 01630 - Product Options and Substitutions.

1.04 QUALITY ASSURANCE

- A. Cut and patch by persons qualified to perform work.
- B. Remove minimum construction necessary. Return surfaces to appearance of new work and match Base Facility.
 - 1. Cut finish surfaces such as masonry, tile, plaster or metals in a straight line at a natural line or plane of division from abutting work.
- C. Make patch work visually undetectable at 5-feet for exposed and semi-exposed interior work, and at 10-feet for exposed and semi-exposed exterior work under Base Facility lighting conditions.
- D. Presence of a damaged or defective product, finish or type of construction requires patching, extending or matching be performed as necessary to make work complete and consistent to standards of quality identical to Base Facility.
- E. Promptly notify City Engineer by Document 00931 - Request for Information of discoveries of construction, such as furnishings and articles having possible historic or private value to City.
 - 1. Protect discovery until disposition.
 - 2. Legally dispose of items not removed by City.

1.06 SCHEDULING AND SEQUENCING

- A. Provide specific time and date information to City Engineer 48 hours in advance of proposed Work involving temporary shutdown of utilities and environmental systems.
- B. Notify City Engineer at least 7 days before starting work in areas or conditions affecting data, communications, security and paging systems. Do not cut or patch such systems without approval of City Engineer.

CUTTING AND PATCHING

- C. Submit a detailed schedule of proposed connections, including shutdowns and tie-ins. Include in the submittal the proposed time and date as well as the anticipated duration of the Work. Submit the detailed schedule coordinated with the construction schedule.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Based on the Designer's knowledge of available "as-builts" of the Base Facility, and observation of sight-exposed construction, patching materials required include:

1. *Paint: Follow Section 099000.*
2. *Gypsum Drywall: Follow Section 092900.*
3. *Lath and Plaster: Follow Section 092400.*
4. *Concrete Masonry Units (CMU).*
5. Concrete Repair: Refer to structural drawings.

- B. Where there is no specification for a required patch product, provide same products and types of construction as analogous Base Facility construction.

1. Determine products required following Section 01726 - Base Facility Survey. Determine required workmanship by using equivalent Base Facility products as control samples.

PART 3 EXECUTION

3.01 GENERAL PERFORMANCE

- A. In addition to demolition work, cut, move or remove discovered non-hazardous-material Base Facility items as necessary to provide access or to allow alterations and new work to proceed, as approved or directed, including:

1. Repair or remove dangerous and unsanitary conditions.
2. Remove abandoned items and items serving no useful purpose, such as Base Facility abandoned HVAC components, piping, data cables, conduit and wiring back to panels, and ductwork.
 - a. Confirm abandonment with City Engineer prior to removal.

3. Remove unsuitable or extraneous products not designated for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete.
- B. Patch, repair and refinish Base Facility items intended or designated to remain, to match analogous Base Facility conditions for each product, with proper transition between new work and Base Facility.
- C. Remove and replace defective or deficient new work and work not following Contract Documents.
- D. Remove samples of Base Facility and work for Contractor's surveillance testing and for tests in Section 01455 - City's Acceptance Testing.
- E. Provide routine penetrations and applicable fire-rated or weather-resistant separations for plumbing piping, electrical conduit, HVAC ducts, and similar items required to complete the work, including incidental conditions occurring outside the indicated contract limits, which occur in walls, floors, ceilings, partitions and roofs.
- F. Repair damage to Base Facility resulting from work under this contract.
- G. Perform activities to avoid interference with facility operations and work of other contractors, following Document 00700 - General Conditions and Sections 01145 - Use of Premises, 01312 - Coordination and Meetings, 01505 - Temporary Facilities and 01506 - Temporary Controls.
- H. Restore Base Facility to a state equivalent to or better than that before cutting and patching. Restore new work to standards of these Specifications.
- I. Support, anchor, attach, match, trim and seal materials to work of other contractors. Unless otherwise specified, provide sleeves, inserts, and hangers, required for the execution of the Work.
- J. Provide shoring, bracing and support as required to maintain structural integrity and protect adjacent work from damage during cutting and patching. Before cutting beams or other structural members, anchors, lintels or other supports, request written instructions from City Engineer. Follow such instructions, as applicable.
- K. Cut and patch as recommended by manufacturers of patch products, and where possible by manufacturer of affected Base Facility products.
- L. Fit and adjust products to provide finished installation complying with specified products, functions, tolerances and finishes.

CUTTING AND PATCHING

- M. Restore Base Facility damaged as a result of the Work. Install work following Contract Documents, Base Facility documents, trade standards, or governing agencies, as applicable.
 - 1. Follow Section 01726 - Base Facility Survey to document Base Facility damage Base Facility prior to commencing work.

- N. Refinish entire exposed and semi-exposed surfaces.

- 1. For continuous surfaces, refinish to nearest change in plane. Remove and reinstall remaining signs, hardware and similar interferences.
 - 2. For an assembly, refinish entire unit.

- O. Where cutting and patching fails to match Base Facility work, provide complete replacement work.

3.02 TEMPORARY FACILITIES AND PROTECTION

- A. Follow Section 01505 - Temporary Facilities.

3.03 INSPECTION AND COORDINATION

- A. Inspect Base Facility following Section 01726 - Base Facility Survey, and if required provide Contractor's testing following Section 01450 - Contractor's Quality Control, for Base Facility conditions subject to this Section.
- B. Report by Document 00931 - Request for Information Questionable Base Facility conditions that affect the Work.
- C. Obtain written authorizations before beginning utility or environmental systems work affecting Base Facility outside the contract limits.
- D. Coordinate work with demolition work specified in Division 2.

3.04 REMAINING FLOORS, WALLS, CEILINGS AND DOORWAYS

- A. Where only partitions are removed, patch remaining floors, walls and ceilings, with substrate and finish materials to match Base Facility.
 - 1. Where removal of partitions results in adjacent spaces becoming one, rework floors and remaining walls and ceilings to provide smooth planes without breaks, steps or bulkheads.

2. Where extreme change of plane occurs, obtain direction by Document 00931 - Request for Information.

B. Trim and refinish Base Facility doors as necessary to clear plane of new floors.

3.05 DAMAGED SURFACES

A. Replace or patch any portion surfaces of the Work and Base Facility found damaged, lifted, discolored, or showing other imperfections resulting from work, with matching sound material and finish.

1. Provide proper support of substrate before patching.
2. Refinish patched portions of painted or coated surfaces scheduled for new finish, to produce uniform color and texture over entire surface.
 - a. Tape, float, sand and apply two coats of latex paint to repaired Base Facility drywall, plaster, doors and doorframes.
3. Exceptions: Fully patch remaining Base Facility surfaces exposed and semi-exposed to public view to match all visual characteristics of Base Facility.

3.06 TRANSITION FROM BASE FACILITY TO NEW CONSTRUCTION

A. Where new work abuts or finishes against Base Facility work, make smooth and workmanlike transition. Match patched work adjacent to Base Facility work for all visual characteristics.

1. Where smooth transition is not possible, terminate Base Facility surface neatly along a straight line at a natural line or plane of division, and provide edge trim appropriate to substrate and finish.
2. Exceptions: Fully patch remaining Base Facility surfaces exposed and semi-exposed to public view to match all visual characteristics of Base Facility.

3.07 SITE UTILITY AND BUILDING ENVIRONMENTAL SYSTEMS

- A. Perform work needed to complete connections and tie-ins to Base Facility. Keep Base Facility in continuous operation unless otherwise specifically permitted or approved by City Engineer.
- B. Base Facility electrical and mechanical systems and site utilities are intended to be functioning properly prior to start of the Work. Follow Section 01505 to confirm proper function.

1. Notify City Engineer by Document 00931 - Request for Information of non-operating systems prior to commencing affected work in each area.
 2. Do not proceed with work affecting improperly functioning utilities or systems until corrective work is complete.
- C. Make required cuts, plugs and terminations. Tag remaining lines with contents names and direction of flow, whether or not flow is active, using weather-resistant tags and permanent markers.
- D. Plumbing Systems and HVAC Systems:
1. Provide temporary or permanent by-passes, test plugs and stop valves in plumbing waste and supply lines, and in HVAC system piping as individual fixtures and equipment are removed. Do not bypass wastewater or sludge into waterways. Provide temporary pumping facilities to handle wastewater if necessary. Provide temporary power supply and piping to facilitate construction where necessary.
 - a. Scope, type and locations of temporary plugs and valves are at the Contractor's option, as approved, based on Base Facility conditions encountered.
 - b. Unless otherwise required, install permanent plugs and valves as follows:
 - 1) For risers tapped into remaining lateral lines cut and plug risers as close as practical to laterals.
 - 2) For laterals, cut and plug approximately one foot from surface of Base Facility demising walls intended to remain.
 - 3) For risers extending through floors in unoccupied areas, cut and plug approximately one foot above top surface of Base Facility floor.
 - 4) For risers extending through floors in occupied areas and which cannot be fully removed following Paragraph 1) above, cut and plug flush with surface of Base Facility floor.
- E. Electrical Power Systems:
1. Provide temporary or permanent bypasses and terminations of electrical systems. Do no work on Base Facility data, communications, security or paging systems following Paragraph 1.05.B above.
 - a. Scope, type and location of terminations are at the Contractor's option, as approved, determined by Base Facility conditions encountered.
 - b. Unless otherwise required, terminate electrical lines as follows:

CUTTING AND PATCHING

- 1) For circuits tapped into remaining laterals intended to remain and which occur above Base Facility ceiling planes, terminate circuits in approximately sized junction boxes as close as practical to the lateral. Attach boxes to building structure, install wire nuts on unconnected wires, and permanently label outside of box with panel/circuit number and voltage.
 - 2) For abandoned circuits, remove wire, conduit, boxes, breakers and related components back to the respective panel boxes or terminal boards, and provide a blank plate in the breaker slot, and identify plate as “SPARE CIRCUIT/ (CAPACITY) AMP” minimum.
 - c. Unless otherwise required by demolition work, and where Base Facility ceilings are indicated for removal, leave paging and security system components in place, using at least two hanger wires per device.
2. Provide permanent support for risers and laterals intended to remain.
 3. Fit ductwork, conduit and pipes water-tight, air-tight and fire-stopped, following Section 078413, at penetrations through walls, floors and ceiling, whether or not Base Facility penetrations are constructed as water-, air- or fire-tight.
 - a. If not otherwise shown on Drawings, provide properly sized fire dampers for remaining Base Facility ducts which penetrate fire-rated construction, and which do not already have fire dampers.
 4. Temporarily or permanently seal penetrations of removed laterals and risers through floors and full-height walls with firestopping, following demolition requirements, as work progresses.
 5. Provide minimum 20-gauge galvanized sheet metal plate with self-tapping screws at openings in ductwork. Seal joints as required to prevent air intake or exhaust.
 6. Remove hangers or supports where associated mechanical and electrical work is removed, if not accomplished as part of Section 024119 Selective Demolition.
 7. Remove site utility lines without disturbing underlying soil or sub-base.
- F. Insofar as possible, test work under operating conditions before final tie-ins are made to connect equipment to the Base Facility. Test remaining utilities and service in presence of City Engineer before covering up. Repair defects and deficiencies.
- 3.10 CONCRETE MASONRY UNITS (CMU)
- A. Remove Base Facility CMU to lines required to receive new work.

CUTTING AND PATCHING

3.12 GYPSUM DRYWALL SYSTEMS

- A. Follow Section 092900.
- B. Fasten new framing to Base Facility with powder-actuated or drill-in fasteners at conditions subject to shear and compression loads, with drill-in fasteners at conditions subject to tension loads, and with drywall screws firmly secured to Base Facility metal framing.

3.13 PLASTER

- A. Follow Section 092400.

3.14 PAINT

- A. Prepare and prime substrates following manufacturer's recommendations.
- B. Apply paint with equipment as required to achieve match with Base Facility. Apply at rates recommended by manufacturer.
- C. Follow Section 099000.

3.17 INTERIM CLEANING

- A. Clean occupied areas daily. Immediately remove spillage, overspray, dust and debris in occupied areas and at points of access into contract limits. Sweep and wet mop floors as required, using safety cones and tape barricades as required cleaning operations.
- B. Make surfaces ready for work of successive trades.
- C. At completion of work in each area, provide final cleaning following Section 01770 - Contract Closeout.

END OF SECTION

SECTION 01740
SITE RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Restoration of site affected by the Work in public or private property, including pavement, esplanades, sidewalks, driveways, fences, lawns and landscaping.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices

1. Payment for restoration of Project site disturbed by utility construction operations is on a linear foot basis. Measurement will be as provided for corresponding utility in each Specification section. No separate payment made for branch pipe, valves, and other associated work for utilities. Measurement for restoration with multiple utilities within the same right-of-way will be on a linear foot basis for only one utility.
2. No separate payment made for facility or roadway projects. Include cost in the surface improvements associated with the facility or roadway construction.
3. Payment includes required site restoration within the right-of-way or easement regardless of size or type of pipe, method of construction, paved or unpaved areas or thickness and width of pavement.
4. No separate payment made for site restoration for service connections under this Section. Include cost in appropriate utility Section.
5. Refer to Section 01270 – Measurement and Payment for Unit Price procedures.

- B. Stipulated Price (Lump Sum) Contracts. If Contract is Stipulated Price Contract, include payment for work under this Section in total Stipulated Price.

1.03 DEFINITIONS

- A. Phase: Locations identified on the plans and listed in Section 01110 – Summary of Work and Section 01326 – Construction Sequencing.
- B. Site Restoration: Replacement or reconstruction of site Improvements located in rights-of-way, easements, public property, and private property affected or altered by the Work.

SITE RESTORATION

- C. Site Improvement: Includes pavement curbs and gutters, esplanades, sidewalks, driveways, fences, lawns, irrigation systems, landscaping, and other improvements in existence at the Project site before commencement of construction operations.

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Schedule of testing, service connections, abandonment, backfill, and site restoration.
- C. Sample of notices to residents outlining their responsibility for maintenance of site improvements adjacent to the Project that are not disturbed by construction operations.

1.05 SCHEDULING

- A. Schedule testing, service connections, abandonment, backfill and site restoration immediately following completion of pipe laying work or paving within each block or line segment.
- B. Phased Construction:
 - 1. Commencement of subsequent Phase(s) will follow scheduling of site restoration of prior Phase. Limit work to a maximum of two (2) Phases of the project.
- C. Construction of Project(s) with no Phases listed in Section 01110 – Summary of Work:
 - 1. Complete site restoration prior to disturbing over 50% of total project linear feet or 2,000 linear feet, whichever is greater, of right-of-way or easement.
 - 2. Limit work to a maximum of 50% of total project linear feet or 2,000 linear feet, whichever is greater, of right-of-way or easement. Commence work in additional right-of-way or easement after completion of site restoration.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pavement, Sidewalks, and Driveways: Materials specified in Section 02951 – Pavement Repair and Resurfacing.
- B. Seeding and Sodding: Sod specified in Section 02922 – Sodding and Seed specified in Section 02921 – Hydro-Mulch Seeding.
- C. Trees, Shrubs and Planting: Conform to requirement in Section 01562 – Tree and Plant Protection.

PART 3 EXECUTION

3.01 PREPATORY WORK

- A. Provide cleanup and restoration crews to work closely behind pipe laying and roadway construction crews, and where necessary, during testing, service restoration, abandonment, backfill and surface restoration.
- B. Water Lines: Unless otherwise approved by Project Manager, comply with the following:
 - 1. Once Project Manager approves work within a Phase, immediately begin preparatory work for disinfection effort.
 - 2. No later than three (3) days after completing disinfection preparatory work, submit to City appropriate request for disinfection.
 - 3. If City fails to perform initial disinfection of lines in accordance with Section 02514 – Disinfection of Water Lines, within seven (7) days from submission of appropriate request, and if approved by Project Manager, pipe laying operations may continue beyond approved limits until the City responds.
 - 4. Immediately after transfer of services, begin abandonment of old water lines and site restoration.
- C. Wastewater Lines:
 - 1. Once Project Manager approves work within a Line Segment, immediately begin preparatory work for testing effort.
 - 2. No later than three (3) days after completing preparatory work for testing, initiate testing work.
 - 3. Immediately after transfer of service connections, begin abandonment of old wastewater lines, and site restorations.
- D. Street Construction and Paving Projects:
 - 1. Once Project Manager approves work within a Line Segment or Block, immediately begin preparatory work for testing effort.
 - 2. No later than three (3) days after completing preparatory work for testing, initiate testing work.
 - 3. Immediately after testing, begin site restoration.
- E. Street Construction and Paving Projects:

1. Once Project Manager approves work within a Block, immediately begin preparatory work for sidewalk construction, sodding and hydro-mulching and tree planting.
2. No later than seven (7) days after completing preparatory work, initiate construction.

3.02 CLEANING

- A. Remove debris and trash to maintain a clean and orderly site in accordance with requirements of General Conditions and Section 01576 Waste Material Disposal.

3.03 LANDSCAPING AND FENCES

- A. Seeding and Sodding.

1. Remove construction debris and level area with bank sand so that new grass surface matches level of existing grass and maintains preconstruction drainage patterns. Level and fill minor ruts or depressions caused by construction operations with bank sand, where grass is still viable.
2. Restore previously existing turfed areas with sod and fertilize in accordance with Section 02922 Sodding. Sod to match existing turf.
3. Restore unpaved areas not requiring sodding with hydro-mulch seeding conforming to Section 02921 – Hydro-Mulch Seeding.

- B. Trees, Shrubbery and Plants.

1. Remove and replant trees, shrubs, and plants in accordance with Section 01562 – Tree and Plant Protection.

- C. Fence Replacement.

1. Replace removed or damaged fencing to equal or better condition than existed prior to construction, including concrete footing and mow strips. Provide new wood posts, top and bottom railings and panels. Metal fencing material, not damaged by the Work, may be reused.
2. Remove and dispose of damaged or substandard material.

3.04 MAINTENANCE

- A. Maintain shrubs, plantings and seeded or sodded areas.
- B. Replace shrubs, plantings and seeded or sodded areas that fail to become established.

- C. Refer to Section 01562 – Tree and Plant Protection, Section 02921 – Hydro-Mulch Seeding, and Section 02922 – Sodding for Maintenance Requirements.

END OF SECTION

SECTION 01761
PROTECTION OF EXISTING SERVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements to protect existing services and minimize impact of interruptions.

1.02 DEFINITIONS:

- A. Service is defined to include utilities (natural gas, water, or power); lighting and emergency lighting; data and telecommunications; closed-circuit video, control and monitoring circuits, and air conditioning, heating, and ventilating. Service types include:

1. Power.
2. Lighting, and emergency lighting.
3. Paging.
4. Telephone.
5. Video.
6. Data and computer networks.
7. Water.
8. Natural gas.
9. Heating, ventilating, and air conditioning

- B. Data and Telecom Service is defined to include:

1. Wiring and cable used for the transmission of data, voice, or video information.
2. Wiring for low voltage monitoring and control of various types of devices.

- C. Service interruption is defined to include any temporary or permanent inability to provide the service as contracted or as intended and includes interference with or disruption to source, distribution, or terminal items of a service system.

PROTECTION OF EXISTING SERVICES

- D. Response time is defined to be the time elapsed between the time that a Service Interruption becomes known to the Contractor and the time that a person is at the site of the interruption or, if the site of the interruption is not immediately known, at the job site to diagnose and locate the service interruption.

1.03 PERFORMANCE REQUIREMENTS

- A. Contractor is required to protect and maintain existing services to those operating areas of the Airport.

- 1. Where services are affected by construction activities and interruption of service is required to complete the Work, schedule service interruption to minimize impact.
- 2. Where services cannot be interrupted, provide alternate services or circuits as required to maintain affected services. Design and implement service "cut-over" so that services are maintained without interruption.

- B. Train employees and subcontractors to ensure that accidental service interruptions are promptly recognized, and appropriate responses can be initiated.

- C. Maintain personnel, equipment, and parts at hand or on call to provide the response times indicated.

- D. Interruptions to Existing Service are classified as follows:

- 1. Security Service Interruption:

- a. Any service interruption of power, lighting, or data and telecom service that affects and compromises one of the following:

- (1) FAA Security

- (2) Airline Security

- (3) Airport Security

- (4) Other government entity charged with enforcing security at the Airport (Houston Police Department, FBI, Secret Service, etc.).

- b. Security Services must be active at all times.

- 2. Life Safety Service Interruption:

- a. Any service interruption of power, lighting, or data and telecom service affecting or compromising one or more of the following life safety systems.

PROTECTION OF EXISTING SERVICES

- (1) Fire/smoke alarms.
- (2) Emergency lighting.
- (3) Elevator operations in "Fire" mode.
- (4) Emergency intercom systems.

b. Life Safety Services must be active at all times.

3. Business Service Interruption:

a. Any service interruption of utility service (power, lighting, natural gas, data and telecom, etc.) that affects and compromises the ability of a profit-seeking entity to earn revenue, including:

- (1) Airline: Includes FIDS network, reservation/confirmation systems, paging systems.
- (2) Tenants Other Than Airlines: Point of sale systems, reservation/confirmation systems, utilities for storing, cooking, or maintaining food for sale to the public.

b. Business Services must be active at all times in the areas of the Airport served by Airlines or other tenants during hours of their operation.

4. Comfort / Convenience Service Interruption :

a. Any service interruption of power, lighting, or data and telecom services affecting or compromising the comfort or convenience of those using the Airport (passengers, visitors, employees, concessionaires, etc.) including:

- (1) Lighting.
- (2) Air Conditioning.
- (3) Heating.
- (4) Public telephones.
- (5) Elevators.

b. Minimize Comfort/Convenience Service Interruptions except in construction areas.

1.04 SUBMITTALS

A. Schedule of service interruptions.

PROTECTION OF EXISTING SERVICES

- B. Emergency Response Plan.

1.05 QUALITY ASSURANCE

- A. Develop emergency response plan for each class of service interruption indicated. Notify other contractors responsible for services and obtain contact information. Where possible, obtain written instructions for emergency repairs from the contractor responsible for each service. Where required, arrange for contractor personnel to be available to meet required response times.

1.06 COORDINATION AND SEQUENCING

- A. Schedule and execute construction activities to prevent service interruption or, where service interruption is required to complete the Work, minimize service interruption.

1.07 SCHEDULING

- A. Follow Section 01325.
- B. Develop a schedule of required service interruptions. Coordinate with the schedules required by Section 01325 and revise as required by the City or project conditions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES:

- A. Follow Section 01726.
- B. Scheduled Service Interruptions: Notify the City Engineer in writing not less than 7 days in advance of a scheduled service interruption. Use the attached form and include the following information in addition to the information required on the form:
 - 1. Type and classification of service.
 - 2. Location.
 - 3. Area(s) affected.
 - 4. Entities affected.
 - 5. Expected duration.
- C. Complete a Work Area Notification form for any/all service interruptions and/or

- D. **Unscheduled Service Interruptions to Data and Telecom Service:**
 - 1. Immediately notify IAH 24-Hour Emergency Dispatch Service at (281) 230-3024 Do not attempt to repair these lines. Include the following information:
 - a. Location.
 - b. Area(s) affected.
 - c. Type and classification of service (if known).
 - d. Entities affected (if known).
 - 2. In addition to the notification requirements above, immediately notify the City Engineer of interruption.

- E. **Unscheduled Service Interruptions to Service Other Than Data and Telecom Service:**
 - 1. When executing Work in an area known to have existing services, maintain on-site or on-call capability to initiate repairs to unscheduled service interruptions within the response times required.
 - 2. Immediately notify the City Engineer of interruption.
 - a. Location.
 - b. Area(s) affected.
 - c. Type and classification of service (if known).
 - d. Entities affected (if known).
 - 3. **Response Times to Interruptions to Existing Service:**
 - a. Security Service Interruption: 15 minutes.
 - b. Life Safety Service Interruption: 15 minutes.
 - c. Business Service Interruption:
 - (1) Service Interruptions to Airlines: 15 minutes.
 - (2) Service Interruptions to Tenants other than Airlines: 1 hour.
 - d. Comfort/Convenience Service Interruption: 1 hour.

END OF SECTION

SECTION 01770
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal of Operation and Maintenance (O & M) manual, lien releases, record documents, badges, and keys.
- B. O & M manual format and contents.
- C. Final cleaning. Interim cleaning is specified in Section 01505.
- D. Systems demonstrations and personnel training.
- E. Notification of Substantial Completion.
- F. Contractor's punch list.
- G. Record of the Work.
- H. Forwarding of Contractor-Salvaged products (CSP), and extra products.

1.02 SUBMITTALS

- A. Two weeks before Substantial Completion inspection, submit 2 sets of Preliminary O & M manual (Paragraph 1.03), 1 copy to Designer and 1 copy direct to City Engineer.
- B. Subsequent to Preliminary O & M manual submittal and precedent to final Certificate for Payment, submit the following:
 - 1. The Contractor shall submit Preliminary O&M Manuals to the City for review and acceptance a minimum of 60 calendar days prior to starting the commissioning process.
 - 2. Release or Waiver of Liens and consents of sureties following Documents 00700-General Conditions and 00800 - Supplementary Conditions.
 - 3. BIM As-Built and BIM Record Documents
 - a. Provide the final coordinated trade construction as-built and/or fabrication models in native format, to the City at regular intervals at the end of the Construction Phase that will have incorporated all addenda, approved Change Orders, and the

PROTECTION OF EXISTING SERVICES

modifications and deliver the final record model to the City as part of the project close-out documents.

- b. The format of the delivered documents shall consist of:
 - 1) PDF files of drawings and specifications.
 - 2) HAS approved AutoCAD version of drawings.
 - 3) Native formats of the BIM model including HAS approved Revit version.
 - 4) HAS approved version of Navisworks files and Civi3D
 - 5) All information, drawings and manuals should conform with HAS approved BIM standards and BPxP.
- 4. File organization, File directory structure, Sheet Borders, titles, method of delivery and other specifications should be in conform to HAS CAD/GIS Data Standards and HAS BIM Standards, available in www.fly2houston.com/tip.
- 5. Security identification badges.
- 6. Construction and other master keys.

1.03 O&M MANUAL CONTENTS AND FORMAT

- A. Provide O & M Manual with full information to allow matching products under future contracts to products under this contract, and to allow City to operate, maintain and repair (for user-serviceable aspects) products, including trade names, model or type numbers, colors dimensions, and other physical characteristics.
- B. Electronic Format:
 - 1. Submit in searchable PDF to reflect 8.5” x 11” inch page and margins shall be formatted for double-sided print out or copy. Large format shall be pre-approved by the City.2. Sections within the O & M Manual shall also be formatted to reflect dividers if a printout copy is desired.3. Cover of the O& M Manual shall be titled “OPERATION AND MAINTENANCE MANUAL, title of project and subject matter and “Number _ of _ if multiple volumes are developed. Include the City’s Project Number and AIP/CIP Number.
- C. Contents:
 - 1. Table of Contents for each volume, naming each Part.

PROTECTION OF EXISTING SERVICES

2. Part 1: Directory with name, address, and telephone number of Designer, Contractor, and Subcontractors and Suppliers for each Project Manual Section.
3. Part 2: Operation and maintenance instructions, arranged by Project Manual Section number where practical, and where not, by system. Include:
 - a. For finish materials, maintenance instructions prepared by manufacturers, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
 - b. Utility, door and window hardware, HVAC, plumbing and electrical products, prepared by product manufacturer, including:
 - 1) Product design criteria, functions, normal operating characteristics, and limiting conditions.
 - 2) Assembly, installation, alignment, adjustment, checking instructions, and troubleshooting guide.
 - 3) Operating instructions for start-up, normal operation, regulation and control, normal shutdown, and emergency shutdown.
 - 4) Lubrication and detailed maintenance instructions; detailed drawings giving location of each maintainable part and lubrication point and detailed instructions on disassembly and reassembly of products.
 - 5) Spare parts list for operating products, prepared by manufacturers, including detailed drawings giving location of each maintainable part; describe predicted life of parts subject to wear, lists of spares recommended for user-service inventory, and nearest source of in-stock spares.
 - 6) Outline, cross-section, and assembly drawings; engineering data; wiring diagrams.
 - 7) Test data and performance curves.
4. Part 3: Project documents and certificates, including:
 - a. Shop drawings, product data, and where practical, samples.
 - b. Air and water balance reports.
 - c. Certificates of occupancy or use.
 - d. Product certifications and mix designs.

PROTECTION OF EXISTING SERVICES

- e. Material Safety Data Sheets.
- 5. Part 4: Copy (not original) of each warranty form containing language of final warranty.
- 6. Part 5: Meeting notes from systems demonstrations.
- 7. Revise content and arrangement of preliminary Manual until approval by City Engineer.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to Substantial Completion [of each Stage].
- B. Clean surfaces exposed to view; remove temporary labels and protective coverings, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to sanitary condition. Clean permanent filters and install new replaceable filters at equipment. Clean HVAC diffusers.
- C. Remove and legally dispose of waste and surplus products and rubbish, including from roofs, gutters, downspouts, drainage systems, pavements, lawn and landscaped areas, and elsewhere from site.
- D. Sweep streets and parking areas, rake lawn and landscaped areas.
- E. Wash roofs, opaque building walls and sidewalks.
- F. Remove temporary facilities and controls.
- G. Leave premises in spotless condition, requiring no further cleaning of construction by City.
- H. Adjust products to proper operating condition.
- I. Correct defective function of products.

1.05 SYSTEMS DEMONSTRATIONS AND PERSONNEL TRAINING

- A. Demonstrate proper operation and maintenance of each product to City's maintenance personnel precedent to Substantial Completion inspection.
 - 1. Operate HVAC, plumbing, and electrical systems 7 continuous days precedent to personnel training.
- B. Precedent to submittal of O & M Manual, train City's maintenance personnel in proper operation, adjustment, and maintenance of products and systems, using the preliminary O

PROTECTION OF EXISTING SERVICES

& M Manual as the basis of instruction. Continue training until City's personnel demonstrate proper knowledge and skills.

- C. Take minutes of meetings, including sign-in sheet, and record subjects covered in each session. Bind minutes in O&M Manual.

1.06 NOTIFICATION OF SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work (or a designated portion or stage thereof identified in Section 01326 - Construction Sequencing) substantially complete, submit written notice and Punchlist (Paragraph 1.04) to City Engineer.

- 1. Do not claim Substantial Completion until authorities having jurisdiction issue certificates of occupancy or use and related inspections affirming compliance.

- 2. Attach copy of each certificate to Substantial Completion form.

- B. Within a reasonable time after receipt of certificates, an inspection will be made by City Engineer and Designer to determine status of completion.

- C. Should the Work be determined by City Engineer as not substantially complete as a result of any Substantial Completion inspection, Contractor will be notified in writing.

- 1. Remedy deficiencies.

- 2. Send written notice of Substantial Completion as above.

- 3. City Engineer and Designer will reinspect the Work.

- 4. Pay costs of Designer's second and subsequent Substantial Completion inspections, by Change Order.

- D. When the Work is determined as substantially complete, the Certificate of Substantial Completion will be executed.

1.07 CONTRACTOR'S PUNCHLIST

- A. Prior to and in connection with Substantial Completion procedures, prepare a written Punchlist on a [room-by-room] [area-by-area] basis [for each stage] and as follows:

- 1. Designer will provide one reproducible copy of then-current floor plans. These drawings are the basis of Contractor's Punchlist.

- 2. Inspect the Work and mark applicable comments on the floor plans. Prepare written notes as required to supplement notes made on drawings.

PROTECTION OF EXISTING SERVICES

3. Continue completion of the Work including Punchlist items, marking off completed items.
 4. Forward 3 diazo prints of the annotated Drawings to City Engineer accompanied by notification that Substantial Completion Inspection is ready.
- B. Schedule Punchlist Inspection and other closeout inspections through City Engineer.
- C. Punchlist inspection will be attended by the following as a minimum:
1. Contractor, Contractor's Superintendent, and applicable Subcontractors' superintendents. Attend with Punchlist drawing.
 2. City Engineer.
 3. Designer.
 4. Others of City Engineer's choice.
- D. Substantial Completion inspection will be made during one or more mutually agreed times to inspect the Work, to review and amend Contractor's Punchlist. If the work is substantially complete, Document 00645 - Certificate of Substantial Completion will be executed.
1. Amendments to the Contractor's Punchlist will be made on the reproducible.
 2. Within 5 days of execution of Document 00645, provide 4 copies of the amended Punch List and original Document 00645 to City Engineer.
- E. Expeditiously correct work.
- F. Process each reinspection as above and in Paragraph 1.04.
- G. Punchlist items and corrections required after execution of Document 00650 - Certificate of Final Completion will be processed as warranty work following Document 00700 - General Conditions, Paragraph 3.12.
- 1.08 RECORD OF THE WORK
- A. Following requirements expand Paragraph 3.16 of Documents 00700 - General Conditions and 00800 - Supplementary Conditions.
- B. Record information concurrently with construction progress. Do not conceal work until required information is recorded.

PROTECTION OF EXISTING SERVICES

- C. Keep in a secure location in the [field office (Section 01505- Temporary Facilities) at the site] [Contractor's office] and timely record the Work as actually built as the Work progresses.
1. Contractor shall maintain one full size set of Construction Documents and one set of the Project Manual(s) in the Contractor's Field office. In addition, the Contractor shall maintain one record set of submittal data, video and photographic data, and other record data as required by to support and supplement record changes made on Drawings and the Project Manual(s).
 2. Legibly note variations from Contract Documents on Drawings, Project Manual and submittal data, whichever most clearly shows the change.
 3. Clearly mark each document in red ink "RECORD OF THE WORK. Use only for recording field deviations and actual constructed conditions and arrangements."
- D. Keep documents current and make available for inspection by City Engineer.
- E. Show following minimum information, as applicable to type of work, marked in fine-point red ink:
1. Measured depths of foundation elements in relation to finish first floor datum.
 2. Measured horizontal locations and elevations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Elevations of underground utilities referenced to City's benchmark utilized for project.
 4. Measured locations of internal utilities, environmental systems and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 5. Field changes of dimension and detail.
 6. Changes made by RFI (Document 00931).
 7. Changes made by Modifications.
 8. Details not on original Contract Documents.
 9. References to related shop drawings, product data, samples, RFIs and Modifications.
- F. Upon completion of the Work, collect diazo prints of marked-up Drawings, one single-sided copy of marked-up Project Manual, one set of shop drawings (including diskettes of CADD files prepared as part of the Contract, such as data required by Section 01340- Shop Drawings, Product Data and Samples), one original set of product data (Section 01340), one set of RFIs, one set of Modifications, one set of originals of video tapes and one copy of photographs (Section 01321 - Construction Photographs), and other required documents.

PROTECTION OF EXISTING SERVICES

1. Clearly mark each document, immediately adjacent to the "RECORD OF THE WORK" mark, in red ink thus:

"CERTIFIED AS THE CORRECT AND COMPLETE RECORD OF WORK PERFORMED.

(Contractor Firm Name)

(Authorized Signature)

(Date)

- G. Transmit all records to City Engineer.
- H. Transmit reproducible copies of Drawings (see Section 01110 - Summary of Work) to City Engineer.
- I. Submit proper record of the Work, in addition to other requirements in the Contract Documents, precedent to City Engineer's authorization for release of final payment.

1.09 FORWARDING CSP AND EXTRA PRODUCTS

- A. Before submitting final application for payment, forward remaining proper CSP (Section 01110 - Summary of Work), extra products, including spare parts (specified in other Sections) to location designated by City Engineer.
- B. Furnish pallets and containers as required for proper product storage.
- C. Unload products from Contractor's vehicles. Place pallets, containers and products as directed by City Engineer.
- D. Obtain written transfer of title or receipt.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PROTECTION OF EXISTING SERVICES

**SECTION 01782
OPERATIONS AND MAINTENANCE DATA**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal requirements for equipment and facility Operations and Maintenance (O&M) Manuals

1.02 MEASUREMENT AND PAYMENT

- A. Measurement for equipment O&M Manuals is on a lump sum basis equal to five percent of the individual equipment value contained in Schedule of Unit Prices or Schedule of Values. The lump sum amount may be included in the first Progress Payment following approval of the O&M Manuals by Project Manager.

1.03 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures. Submit a list of O&M Manuals and parts manuals for equipment to be incorporated into the Work.
- B. Submit documents with 8-1/2 x 11-inch text pages, bound in 3-ring/D binders with durable plastic covers.
- C. Print "OPERATION AND MAINTENANCE INSTRUCTIONS", Project name, and subject matter of binder on covers when multiple binders are required.
- D. Subdivide contents with permanent page dividers, logically organized according to the Table of Contents, with tab titling clearly printed under reinforced laminated plastic tabs.
- E. O&M Manual contents: Prepare a Table of Contents for each volume, with each Product or system description identified.
 - 1. Part 1 - Directory: Listing of names, addresses, and telephone numbers of Design Consultant, Contractor, Subcontractors, and major equipment Suppliers.
 - 2. Part 2 - O&M instructions arranged by system. For each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers and include the following:
 - a. Significant design criteria.
 - b. List of equipment.

OPERATIONS AND MAINTENANCE DATA

- c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
3. Part 3 -Project documents and certificates including:
- a. Shop Drawings and relevant data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties.
- F. Submit two copies of O&M Manuals and parts manuals, for review, within one month prior to placing the equipment or facility in service.
- G. Submit one copy of completed volumes in final form 10 days prior to final inspection. One copy with Project Manager comments will be returned after final inspection. Revise content of documents based on Project Manager's comments prior to final submittal.
- H. Revise and resubmit three final volumes within 10 days after final inspection.
- 1.04 EQUIPMENT O&M DATA
- A. Furnish O&M Manuals prepared by manufacturers for all equipment. Manuals must contain, as a minimum, the following:
1. Equipment functions, normal operating characteristics, and limiting conditions.
 2. Assembly, Installation, alignment, adjustment, and checking instructions.
 3. Operating instructions for start-up, normal operation, regulation and control, normal shutdown, and emergency shutdown.
 4. Detailed drawings showing the location of each maintainable part and lubrication point with detailed instructions on disassembly and reassembly of the equipment.
 5. Troubleshooting guide.

6. Spare parts list, predicted life of parts subject to wear, lists of spare parts recommended to be on hand for both initial start-up and for normal operating inventory, and local or nearest source of spare parts availability.
 7. Outline, cross-section, and assembly drawings with engineering data and wiring diagrams.
 8. Test data and performance curves.
- B. Furnish parts manuals for all equipment, prepared by the equipment manufacturer, which contain, as a minimum, the following:
1. Detailed drawings giving the location of each maintainable part.
 2. Spare parts list with predicted life of parts subject to wear, lists of spare parts recommended on hand for both initial start-up and for normal operating inventory, and local or nearest source of spare parts availability.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01785
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Maintenance and submittal of record documents and Samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one record copy of documents at the site in accordance with Document 00700 - General Conditions,
- B. Store record documents and Samples in field office, if a field office is required by the Contract, or in a secure location. Provide files, racks, and secure storage for record documents and Samples.
- C. Label each document "PROJECT RECORD" in neat, large, printed letters.
- D. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes. Do not use permit drawings to record Modifications to the Work.
- E. Keep record documents and Samples available for inspection by Project Manager.
- F. Bring record documents to progress review meetings for viewing by Project Manager and, if applicable, Design Consultant.

1.03 RECORDING

- A. Record information legibly with red ink pen on a set of blueline opaque drawings, concurrently with construction progress. Maintain an instrument on site at all times for measuring elevations accurately. Do not conceal work until required information is recorded
- B. Contract Drawings and Shop Drawings: Mark each item to record completed Modifications, or when minor deviations exist, the actual construction including:
 - 1. Measured depths of elements of foundation in relation to finish first floor datum.
 - 2. Measured horizontal locations and elevations of Underground Facilities and appurtenances, referenced to permanent surface improvements.
 - 3. Elevations of Underground Facilities referenced to City of Houston benchmark utilized for the Work.

PROJECT RECORD DOCUMENTS

4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 5. Dimensions and details of field changes.
 6. Changes made by Modifications.
 7. Details not on original Drawings.
 8. References to related Shop Drawings and Modifications.
- C. Survey all joints of water mains at the time of construction. Record on Drawings, water main invert elevation, elevation top of manway, and centerline horizontal location relative to baseline.
- D. For large diameter water mains, mark specifications and addenda to record:
1. Manufacturer, trade name, catalog number and Supplier of each Product actually installed.
 2. Changes made by Modification or field order.
 3. Other matters not originally specified.
- E. Annotate Shop Drawings to record changes made after review.

1.04 SUBMITTALS

- A. At closeout of the Contract, deliver Project record documents to Project Manager.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
3. Section 017300 "Execution" for cutting and patching procedures.
4. Section 013516 "Alteration Project Procedures" for general protection and work procedures for alteration projects.
5. Section 101423 "Panel Signage" for temporary signage required during demolition.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.
 - 6. Review temporary signage.

1.5 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and , for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.

1.6 CLOSEOUT SUBMITTALS

1.7 QUALITY ASSURANCE

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- 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/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video and
 - 1. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 2. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - c. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition 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.
 - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

- 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. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 5. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
 - 6. Maintain adequate ventilation when using cutting torches.
 - 7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 10. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:

1. Transport items to Owner's storage area designated by Owner.
2. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, 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.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 030130 - MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Removal of deteriorated concrete and subsequent replacement and patching.
 - 2. Composite structural reinforcement.

1.3 PREINSTALLATION MEETINGS

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type of portland cement and aggregate supplied for mixing or adding to products at Project site.
- B. Product Test Reports: For each cementitious patching mortar, for tests performed by manufacturer and witnessed by a qualified testing agency.

1.6 QUALITY ASSURANCE

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

- B. Store cementitious materials off the ground, under cover, and in a dry location.
- C. Store aggregates covered and in a dry location; maintain grading and other required characteristics and prevent contamination.

1.8 FIELD CONDITIONS

- A. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F and above.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

2.2 PATCHING MORTAR

- A. Patching Mortar Requirements:
 - 1. Only use patching mortars that are recommended by manufacturer for each applicable horizontal, vertical, or overhead use orientation.
 - 2. Color and Aggregate Texture: Provide patching mortar and aggregates of colors and sizes necessary to produce patching mortar that matches existing, adjacent, exposed concrete. Blend several aggregates if necessary to achieve suitable matches.
 - 3. Coarse Aggregate for Patching Mortar: ASTM C33/C33M, washed aggregate, Size No. 8, Class 5S. Add to patching-mortar mix only as permitted by patching-mortar manufacturer.
- B. Cementitious Patching Mortar: Packaged, dry mix for repair of concrete.
 - 1. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C109/C109M.

2.3 MISCELLANEOUS MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I, II, or III unless otherwise indicated.
- B. Water: Potable.

PART 3 - EXECUTION

3.1 CONCRETE MAINTENANCE

- A. Have concrete-maintenance work performed only by qualified concrete-maintenance specialist.
- B. Comply with manufacturers' written instructions for surface preparation and product application.

3.2 EXAMINATION

- A. Notify Architect seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.
- B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries. At columns and walls make boundaries level and plumb unless otherwise indicated.
- C. Pachometer Testing: Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer using depth of cover measurements, and verify depth of cover in removal areas using pachometer.
- D. Perform surveys as the Work progresses to detect hazards resulting from concrete-maintenance work.

3.3 PREPARATION

- A. Ensure that supervisory personnel are on-site and on duty when concrete maintenance work begins and during its progress.
- B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete maintenance work.
 - 1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
 - 2. Use only proven protection methods appropriate to each area and surface being protected.
 - 3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete maintenance work is being performed.
 - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of concrete maintenance work.

5. Contain dust and debris generated by concrete maintenance work and prevent it from reaching the public or adjacent surfaces.
 6. Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials.
 7. Protect floors and other surfaces along haul routes from damage, wear, and staining.
 8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.
 9. Protect adjacent surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
 10. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
 11. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.
1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete maintenance work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- D. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete maintenance work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.
1. Verify that affected utilities have been disconnected and capped.
 2. Inventory and record the condition of items to be removed for reinstallation or salvage.
 3. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.
- E. Reinforcing-Bar Preparation: Remove loose and flaking rust from exposed reinforcing bars by high-pressure water cleaning or wire brushing until only tightly adhered light rust remains.
1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in two or more adjacent bars, cut bars and remove and replace as indicated on Drawings.

2. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars.
 3. Splice replacement bars to existing bars according to ACI 318 by lapping, welding, or using mechanical couplings.
- F. Preparation of Floor Joints for Repair: Saw-cut joints full width to edges and depth of spalls, but not less than 1 inch] deep. Clean out debris and loose concrete; vacuum or blow clear with compressed air.

3.4 REMOVAL OF CONCRETE

- A. Do not overload structural elements with debris.
- B. Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.
- C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.
- D. Remove additional concrete if necessary to provide a depth of removal of at least 1/2 inch over entire removal area.
- E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 3/4-inch clearance around bar.
- F. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.
- G. Provide surfaces with a fractured profile of at least 1/8 inch that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level unless otherwise directed.
- H. Thoroughly clean removal areas of loose concrete, dust, and debris.

3.5 INSTALLATION OF PATCHING MORTAR

- A. Place patching mortar as specified in this article unless otherwise recommended in writing by manufacturer.
 1. Provide forms where necessary to confine patch to required shape.
 2. Wet substrate and forms thoroughly and then remove standing water.
- B. Pretreatment: Apply specified bonding agent.

- C. General Placement: Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.
- D. Curing: Wet-cure cementitious patching materials, including polymer-modified cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.

3.6 INSTALLATION OF DRY-PACK-MORTAR

- A. Use dry-pack mortar for deep cavities. Place as specified in this article unless otherwise recommended in writing by manufacturer.
 - 1. Provide forms where necessary to confine patch to required shape.
 - 2. Wet substrate and forms thoroughly and then remove standing water.
- B. Pretreatment: Apply specified bonding agent.
- C. Place dry-pack mortar into cavity by hand, and compact tightly into place. Do not place more material at a time than can be properly compacted. Continue placing and compacting until patch is approximately level with surrounding surface.
- D. After cavity is filled and patch is compacted, trowel surface to match profile and finish of surrounding concrete. A thin coat of patching mortar may be troweled into the surface of patch to help obtain required finish.
- E. Wet-cure patch for not less than seven days by water-fog spray or water-saturated absorptive cover.

END OF SECTION 030130

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous framing and supports.

B. Related Requirements:

1. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
2. Section 051200 "Structural Steel Framing" for steel framing, supports, elevator machine beams, hoist beams, divider beams, door frames, and other steel items attached to the structural-steel framing.
3. Section 077200 "Roof Accessories" for manufactured metal roof walkways and metal roof stairs.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Nonslip aggregates and nonslip-aggregate surface finishes.
2. Fasteners.
3. Shop primers.
4. Shrinkage-resisting grout.
5. Manufactured metal ladders.
6. Vehicular barrier cable systems.

- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
 - 1. Miscellaneous framing and supports for applications where framing and supports are not specified in other Sections.

1.4 INFORMATIONAL SUBMITTALS

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 - 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304.
- D. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304.
- E. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from plate complying with ASTM A36/A36M or ASTM A283/A283M, Grade C or D.
- F. Rolled-Stainless Steel Floor Plate: ASTM A793.
- G. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.

- H. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- I. Aluminum Plate and Sheet: ASTM B209, Alloy 6061-T6.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless steel fasteners for fastening aluminum, stainless steel, or nickel silver.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.
- C. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 3, heavy-hex steel structural bolts; ASTM A563, Grade DH3, heavy-hex carbon-steel nuts; and where indicated, flat washers.
- D. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593; with hex nuts, ASTM F594; and, where indicated, flat washers; Alloy Group 1.
- E. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
 - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- F. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- G. Post-Installed Anchors: .
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.
- H. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary

filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B633, Class Fe/Zn 5, as needed for fastening to inserts.

2.3 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099600 "High-Performance Coatings."

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.
- D. Prime miscellaneous framing and supports with where indicated.

2.6 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.7 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with zinc-rich primer unless otherwise indicated.

- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 4. Other Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 - 5. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."

- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.8 ALUMINUM FINISHES

- A. As-Fabricated Finish: AA-M12.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide

threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- C. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installation of Bearing and Leveling Plates" Article.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 REPAIRS

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
 - 2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099123 "Interior Painting."
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055000

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking and nailers.

1.3 DEFINITIONS

- A. Boards or Strips: Lumber of less than **2 inches nominal** size in least dimension.
- B. Dimension Lumber: Lumber of **2 inches nominal** or greater size but less than **5 inches nominal** size in least dimension.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D5664.
 - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
1. Preservative-treated wood.
 2. Fire-retardant-treated wood.
 3. Power-driven fasteners.
 4. Post-installed anchors.
 5. Metal framing anchors.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: **15 percent** unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 **for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.**

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- 2.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat **all miscellaneous carpentry unless otherwise indicated.:**
 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, **furring, stripping**, and similar concealed members in contact with masonry or concrete.
 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 4. Wood framing members that are less than **18 inches** above the ground in crawlspaces or unexcavated areas.
 5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than **10.5 feet** beyond the centerline of the burners at any time during the test.
 1. Treatment shall not promote corrosion of metal fasteners.
 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.
 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664, and design value adjustment factors shall be calculated according to ASTM D6841.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.

- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not bleed through, contain colorants, or otherwise adversely affect finishes.
- F. Application: Treat **all miscellaneous carpentry unless otherwise indicated.**

2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Cants.
 - 4. Grounds.
- B. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, **fire-retardant treated**, in thickness indicated or, if not indicated, not less than **3/4-inch** nominal thickness.

2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Screws for Fastening to Metal Framing: **ASTM C1002**, length as recommended by screw manufacturer for material being fastened.
- D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on **ICC-ES AC01** as appropriate for the substrate.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with **ASTM F593 and ASTM F594, Alloy Group 1 or 2.**

2.7 METAL FRAMING ANCHORS

- A. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, **G60** coating designation.
 1. Use for interior locations unless otherwise indicated.
- B. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); **G185** coating designation; and not less than **0.036 inch** thick.
 1. Use for wood-preservative-treated lumber and where indicated.
- C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, [**Type 304**] [**Type 316**].
 1. Use for exterior locations and where indicated.

2.8 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing to Concrete or Masonry: Formulation complying with ASTM D3498 that is approved for use indicated by adhesive manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. **Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.**
- D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- E. Do not splice structural members between supports unless otherwise indicated.

- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than **16 inches** o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than **96 inches** o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than **96 inches** o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and **2-inch nominal** thickness.
 - 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than **100 sq. ft.** and to solidly fill space below partitions.
 - 4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than **20 feet** o.c.
- H. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- J. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- K. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
 - 3. ICC-ES evaluation report for fastener.
- L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILER

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than **1-1/2 inches** wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 INSTALLATION OF WOOD FURRING

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053

SECTION 074233 – Phenolic Wall Panels

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid phenolic Interior cladding panel rainscreen system
2. Fasteners and trim.

B. Related Requirements:

1. Section 079200 " Joint Sealants" for joint sealants installed in assemblies.
2. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that panel system.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Phenolic Wall Panel System
2. Attachment systems and trim.

B. Shop Drawings:

1. Include fabrication and installation layouts of wall panels; detail edge conditions, vertical and horizontal joints, corners, anchorage, attachment systems, trim, and any accessories.
2. Scale of drawings not less than 1-1/2 inches per 12 inches.

C. Samples: For the following products:

1. Wall Panels: Provide sample of each color specified.
2. Trim Accessories: Full-size Sample in **12-inch-** long length for each trim accessory indicated.

D. Warranty Data: Submit Standard Warranty

1.3 Quality Assurance

- A. Work Quality: All work of this Section to be manufactured and constructed, assembled and installed by skilled craft persons in finish carpentry. All such work to be accurately fabricated, assembled, joined and expertly finished in accordance with measurements taken on the job-site.

- B. Defective Work: All work, work not true to line, not in satisfactory operating condition, improperly installed, damaged or marred will not be accepted. Remedy, remove or replace defective work as directed by the Architect.

1.1 MOCKUPS

- A. Build mockups of at least **25 sq. ft. (5'x5')** in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build mockups for the following:
 - a. Include panels, trim, and connected tile base.
 - 2. Simulate finished lighting conditions for review of mockups.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - 4. Demonstrate panel removal for interchanging a panel or component.

1.2 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.3 COORDINATION

- A. Do work of this section in full coordination with work of other related trades to provide a complete and proper installation of all systems.
- B. Secure field measurements before preparation of shop drawings and fabrication.
- C. Protect all work against damage of any kind until final acceptance of the work. Repair or replace damaged work to the satisfaction of the Architect without additional cost to the owner.

1.4 Warranty

- A. Wall panel to be warranted against delamination for (10 Years). The factory authorized fabricator, product installer and material manufacturer must sign and date the Warranty documents and submit a copy to the Contractor for the warranty to be valid.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. These specifications are based on Interior wall panels manufactured by Trespa North America and the wall panel trim and connectors manufactured by Wall Panel Systems. Represented locally by Specified Interiors + Exteriors:

Specified Int+Ex
Gaynor Sherer
Gaynor@specintex.com
281-655-8433
www.specintex.com

Wall Panel Systems Inc.
Jesse Rich
jesser@wpsusa.com
909-280-8582
www.wpsusa.com

- B. All panel produces specified in this section shall be provided by Wall Panel Systems including, CNC shop machining, mounting clips on the back of each panel. Coordinate field dimensions with contractor/installer, assemblies, panels, and frame supports. Indicate all components clearly on shop drawings for review and installation purposes.

2.2 MATERIALS

- A. Basis of design: Attachment system to be WPS Face Mounted Non-Progressive Shadowline System by Wall Panel Systems, Inc. and panel material by Trespa North America Electron Beam Cure resin. Colors and surface texture as specified by Architect. Panels are to be fabricated as per Wall Panel Systems, Inc. including engineering shop drawings and details.
- B. Thickness: A thickness 3/8" for phenolic panels is approved for interior walls with WPS Face Mounted System concealed fasteners, clip non-progressive installations system.
- C. Panel color/texture: To be selected by Architect from Manufacturer's standard color palette. This may include metallics and solid colors.
1. Six (6) "WP01-WP06" Colors to be used per HAS standards. Refer to plans for finish selections.
 2. Texture: Smooth

2.3 FABRICATION

1. Interior panels can be sawn, cut, routed and drilled with the usual tools used to fabricate hardwoods (i.e., carbide tipped blades). Wall Panel Systems to fabricate all materials and attach clips to back of panels. Field modifications are

possible by the installing contractor using hand tools that the above requirements.

2.4 SOURCE QUALITY CONTROL

- A. Panels shall be of material specifically designed for wall cladding. Fabricated panels shall comply with all current codes and regulations. Panels shall have uniform thickness (+0.03") and flatness (maximum difference of 0.03") for 10-foot span.
- B. Flame spread (ASTM E-84): Panels to be UL registered and labeled for quality consistency.
 - 1. Class 1 or Class A.
 - 2. Class 2 or Class B.
- C. Performance requirements:
 - 1. Modulus of elasticity: 1,500,000-psi minimum.
 - 2. Shear strength: 2000-psi minimum.
 - 3. Compressive strength: 24,000-psi minimum.
 - 4. Weight: 93 lbs. per cubic foot maximum.
 - 5. Tensile strength: 13,000-PSI, minimum
 - 6. Flexural strength: 16,000-PSI minimum.
 - 7. Surface Impact Resistance: 9 lb.
 - 8. Scratch Resistance: 0.8 lb.
- D. Panel Tolerance:
 - 1. Thickness: 1/32" Max.
 - 2. Length: 1/4" Max.
 - 3. Width: 1/4" Max.
 - 4. Non-porous surfaces and edges.

2.5 SUB-FRAME ASSEMBLY

- A. Face mounted shadowline clips and trim to be manufactured specifically to meet the following requirements:
 - 1. Handle the weight of wall panels.
 - 2. Fasteners for panel assembly to be designed to keep panels consistently flat at each joint.
 - 3. Capable of holding the largest panels indicated in the drawings.
 - 4. Allow 3/8" ventilation gap between the wall and the back side of the panel clip, to prevent condensation
 - 5. System to allow interchanging of components at a later date, with a dry-fit installation. No liquid adhesives to be used.
- B. Trim and clip material
 - 1. Material to be A1 6061-TF
 - 2. Thickness: not less than 0.62"

- C. Fasteners to be self tapping Type F, 8/32" x 3/8" plated steel.
- D. Panel trim joints, edges and corners to be from Wall Panel Systems: Shadowline, Face Mounted System.
 - 1. Finish: Clear Satin Anodized

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install panels and fixing system as per approved shop drawings and specification.
- B. Install aluminum sub-frame to support the (FMS) clip sub-frame assembly.
- C. Maximum fixing distances:
 - 1. 2 fixing points in one direction using:
 - a. 8 mm panel is 27".
 - b. 10 mm panel is 33".
 - 2. 3 or more fixing points in one direction:
 - a. 8 mm panel is 31"
 - b. 10mm panel is 37".
- D. The installation of the panel clip system shall be true and plumb.
- E. Face of the panels are to sit out from the face of the wall $\frac{3}{4}$ " +/- shimming as required.
- F. Installed panels shall have vertical joints with splines routed directly in the center of the panel edge to ensure that all four intersecting panels are kept in the same plane.
- G. Exact sizes and dimensions of the trim to be coordinated with the drawings, field conditions and approved shop drawings.

3.2 PROTECTION

- A. After installation, the General Contractor shall protect the panels from damage. The panels shall be kept free from paint, plaster, cement scratches, or any other destructive forces.

3.3 CLEANING

- A. Panels to be cleaned with standard cleaning solution.
- B. Repair or replace all damaged material to the satisfaction of the Architect and/or Contractor.

END OF SECTION 074233

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Mildew-resistant joint sealants.
3. Butyl joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Joint sealants.
2. Joint-sealant backing materials.

- B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.3 INFORMATIONAL SUBMITTALS

1.4 CLOSEOUT SUBMITTALS

1.5 QUALITY ASSURANCE

1.6 MOCKUPS

- A. Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
2. When joint substrates are wet.

3. Where joint widths are less than or greater than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain joint sealants from single manufacturer **for each sealant type**.

2.2 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. BASF Building Systems
 2. Dow Corning Corp.
 3. Sika Corp.
 4. Tremco, Inc

2.3 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: **As selected by Architect from manufacturer's full range**.

2.4 SILICONE JOINT SEALANTS (Type 1)

- A. Silicone, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.

2.5 MILDEW-RESISTANT JOINT SEALANTS (Type 2)

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.

2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, **Type C (closed-cell material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated**, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - d. Exterior insulation and finish systems.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.

- c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
- 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
- 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
4. Provide flush joint profile at **locations indicated on Drawings** in accordance with Figure 8B in ASTM C1193.
5. Provide recessed joint configuration of recess depth and at **locations indicated on Drawings** in accordance with Figure 8C in ASTM C1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

<u>JOINT LOCATION OR TYPE</u>	<u>SEALER TYPE</u>
-------------------------------	--------------------

Interior Joints:

Joints in horizontal surfaces subject to pedestrian traffic	1
Joints in toilet rooms, countertops, kitchens	2

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Interior standard steel doors and frames.

B. Related Requirements:

1. **Section 087100 "Door Hardware"** for door hardware for hollow-metal doors.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings in accordance with NAAMM-HMMA 803 or ANSI/SDI A250.8.

1.3 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- B. Coordinate requirements for installation of door hardware, electrified door hardware, and access control and security systems.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **Project site**.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, and finishes.

- B. Shop Drawings: Include the following:

1. Elevations of each door type.

2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
7. Details of anchorages, joints, field splices, and connections.
8. Details of accessories.
9. Details of moldings, removable stops, and glazing.

1.6 QUALITY ASSURANCE

- A. Doors: ANSI/SDI A250.8.
 1. Grade: II - Heavy Duty.
 2. Model: 1 - Full Flush.
 3. Exterior doors: Maximum thermal transmittance (U-value) of 0.50, tested to ASTM C518.
- B. Frames: ANSI/SDI A250.8, Grade II - Heavy Duty.
- C. Fire Door and Frame Construction: Conform to UL 10C.
- D. Installed Fire Rated Door and Frame Assemblies: Conform to NFPA 80.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal doors and frames vertically under cover at Project site with head up. Place on minimum **4-inch**- high wood blocking. Provide minimum **1/4-inch** space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Ceco Door. (www.cecodoor.com)
2. Curries. (www.curries.com)
3. Pioneer Industries, Inc. (www.pioneerindustries.com)
4. Steelcraft. (www.steelcraft.com)

B. Substitutions: Under provisions of Division

2.2 PERFORMANCE REQUIREMENTS

2.3 INTERIOR STANDARD STEEL DOORS AND FRAMES

A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Extra-Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 3; ANSI/SDI A250.4, Level A. **At locations indicated in the Door and Frame Schedule.**

1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: **1-3/4 inches**.
 - c. Face: **Uncoated** steel sheet, minimum thickness of **0.053 inch**.
 - d. Edge Construction: **Model 2, Seamless**.
 - e. Edge Bevel: **Provide manufacturer's standard beveled or square edges**.
 - f. Core: Manufacturer's standard .
2. Frames:
 - a. Materials: **Uncoated** steel sheet, minimum thickness of **0.053 inch**.
 - b. Frames: Fabricated from same thickness material as adjacent door frame.
 - c. Construction: **Full profile welded**.
3. Exposed Finish: Prime .

2.4 FRAME ANCHORS

A. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than **2-inch** height adjustment. Terminate bottom of frames at top of underlayment.

B. Material: ASTM A879/A879M, Commercial Steel (CS), **04Z** coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized in accordance with ASTM A153/A153M, Class B.

2.5 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.
- E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- F. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.

2.6 FABRICATION

- A. Door Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum **3/4 inch** beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- B. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by welding.
 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
- C. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement,

mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.7 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

- A. Install hollow-metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
- B. Hollow-Metal Frames: Comply with **ANSI/SDI A250.11**.
 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
 - b. Install frames with removable stops located on secure side of opening.
 2. Fire-Rated Openings: Install frames in accordance with NFPA 80.

3. Floor Anchors: Secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 4. Solidly pack mineral-fiber insulation inside frames.
 5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. **Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.**
 7. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus **1/16 inch**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus **1/16 inch**, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus **1/16 inch**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus **1/16 inch**, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
1. Non-Fire-Rated Steel Doors: Comply with **ANSI/SDI A250.8**.
 2. Fire-Rated Doors: Install doors with clearances in accordance with NFPA 80.
 3. Smoke-Control Doors: Install doors in accordance with NFPA 105.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.

3.3 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- C. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.
- D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Access doors and frames for wall and ceiling surfaces.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details material descriptions, dimensions of individual components and profiles, and finishes.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

A. Flush Access Doors with Concealed Flanges:

1. Acceptable Manufacturers:

- a. Acudor Products, Inc. (www.acudor.com)
- b. Babcock-Davis, Inc. (www.babcockdavis.com)
- c. J.L. Industries. (www.jlindustries.com)
- d. Karp Associates, Inc. (www.karpinc.com)
- e. Milcor. (www.milcorinc.com)
- f. Nystrom, Inc. (www.nystrom.com)

2. Description: Face of door flush with frame; with concealed flange for gypsum board installation and concealed hinge.
3. Optional Features: Piano hinges .
4. Locations: Wall and ceiling .
5. Door Size: As required for access.
6. Uncoated Steel Sheet for Door: **Nominal 0.060 inch , 16 gage, factory primed.**
7. Frame Material: **Frameless (with drywall flange).**
8. Latch and Lock: Cam latch, hex-head wrench operated.

2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold-rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum **G60** or **A60** metallic coating.
- D. Stainless Steel Plate, Sheet, and Strip: ASTM A240/A240M or ASTM A666, **Type 304**. Remove tool and die marks and stretch lines, or blend into finish.
- E. Stainless Steel Flat Bars: ASTM A666, [**Type 304**] [**Type 316**]. Remove tool and die marks and stretch lines, or blend into finish.
- F. Aluminum Extrusions: **ASTM B221**, Alloy 6063.
- G. Aluminum Sheet: **ASTM B209**, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- H. Frame Anchors: Same material as door face.
- I. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

2.3 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.
 - 1. For concealed flanges with drywall bead, provide edge trim for gypsum panels securely attached to perimeter of frames.
 - 2. For concealed flanges with plaster bead for full-bed plaster applications, provide zinc-coated expanded-metal lath and exposed casing bead welded to perimeter of frames.
- D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling. Provide access sleeves for each latch operator and install in holes cut through finish.

1. For recessed doors with plaster infill, provide self-furring expanded-metal lath attached to door panel.
- E. Latch and Lock Hardware:
1. Quantity: Furnish number of latches and locks required to hold doors tightly closed.
 2. Keys: Furnish two keys per lock and key all locks alike.
 3. Mortise Cylinder Preparation: Where indicated, prepare door panel to accept cylinder specified to be field coordinated with owner's rep.
- F. Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
1. Factory Primed: Apply manufacturer's standard, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.
 2. Factory Finished: Apply manufacturer's standard baked-enamel or powder-coat finish immediately after cleaning and pretreating, with minimum dry-film thickness of **1 mil** for topcoat.
 - a. Color: Custom Color to Match Architect's sample.
- E. Stainless Steel Finishes:
1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
 2. Polished Finish: ASTM A480/A480M No. 4 finish. Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - a. Run grain of directional finishes with long dimension of each piece.
 - b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 3. Bright, Cold-Rolled, Unpolished Finish: ASTM A480/A480M No. 2B.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.

3.3 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 083113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Flush Wood Doors".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series.
 - 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. ANSI/UL 294 - Access Control System Units.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware 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.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 1. Function of building, purpose of each area and degree of security required.

2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Twenty five years for manual overhead door closer bodies.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

- b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).

2.3 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
 1. Manufacturers:
 - a. Match Existing, Field Verify.
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
 1. Threaded mortise cylinders with rings and cams to suit hardware application.
 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 4. Tubular deadlocks and other auxiliary locks.
 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 6. Keyway: Match Facility Standard.
- C. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Field verify and key cylinders to match Owner's existing system.
- D. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).

4. Permanent Control Keys (where required): Two (2).
- E. Construction Keying: Provide temporary keyed construction cores.
- F. Key Registration List (Bitting List):
 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 2. Provide transcript list in writing or electronic file as directed by the Owner.

2.4 KEY CONTROL

- A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
 1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
 1. Where specified, provide status indicators with highly reflective color and wording for "locked/unlocked" or "vacant/occupied" with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1" x 0.6" with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.
 2. Manufacturers:
 - a. Sargent Manufacturing (SA) - 8200 Series.

2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.7 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable

backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Manufacturers:
 - a. Sargent Manufacturing (SA) - 351 Series.

2.8 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.9 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

- a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.10 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
1. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.11 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.12 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Manufacturer's Abbreviations:

- 1. MK - McKinney
- 2. SA - SARGENT
- 3. RO - Rockwood

Hardware Sets

Set: 1.0

Doors: 125, 128

Description: SGL - STORAGE - CLOSER

2 Hinge, Full Mortise	TA2714	US26D	MK
1 Storeroom Lock	72 8204 LNL	US26D	SA
1 Facility Standard Core	Match Existing		
1 Surface Closer	351 Reg / PA	EN	SA
1 Kick Plate	K1050 10" High x LDW CSK	US32D	RO
1 Door Stop	406 / 409 / 446 as required	US26D	RO
3 Silencer	As req'd		RO

Notes: GC to field verify existing conditions for hardware compatibility with door & frame.

Set: 2.0

Doors: 124B, 131A, 138A, 138B

Description: SGL - STORAGE - CLOSER

4 Hinge (heavy weight)	T4A3786	US26D	MK
1 Storeroom Lock	72 8204 LNL	US26D	SA
1 Facility Standard Core	Match Existing		
1 Surface Closer	351 Reg / PA	EN	SA
1 Kick Plate	K1050 10" High x LDW CSK	US32D	RO
1 Door Stop	406 / 409 / 446 as required	US26D	RO
3 Silencer	As req'd		RO

Set: 3.0

Doors: 120

Description: SGL - STORAGE - PS

2 Hinge, Full Mortise	TA2714	US26D	MK
1 Storeroom Lock	72 8204 LNL	US26D	SA
1 Facility Standard Core	Match Existing		
1 Surface Closer	351 PS	EN	SA
1 Kick Plate	K1050 10" High x LDW CSK	US32D	RO

3 Silencer As req'd RO

Notes: GC to field verify existing conditions for hardware compatibility with door & frame.

Set: 4.0

Doors: 122, 124A, 131B

Description: SGL - STORAGE - PS

4 Hinge (heavy weight)	T4A3786	US26D	MK
1 Storeroom Lock	72 8204 LNL	US26D	SA
1 Facility Standard Core	Match Existing		
1 Surface Closer	351 PS	EN	SA
1 Kick Plate	K1050 10" High x LDW CSK	US32D	RO
3 Silencer	As req'd		RO

Set: 5.0

Doors: 130, 140

Description: SGL - PRIVACY - CLOSER

4 Hinge (heavy weight)	T4A3786	US26D	MK
1 Privacy Lock	V20 8265 VN1L	US26D	SA
1 Surface Closer	351 Reg / PA	EN	SA
1 Kick Plate	K1050 10" High x LDW CSK	US32D	RO
1 Door Stop	406 / 409 / 446 as required	US26D	RO
3 Silencer	As req'd		RO

END OF SECTION 087100

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions.
2. Suspension systems for interior ceilings and soffits.
3. Grid suspension systems for gypsum board ceilings.

B. Related Requirements:

1. Section 054000 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; and roof rafters and ceiling joists.

1.2 ACTION SUBMITTALS

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of code-compliance certification for studs and tracks.

B. Evaluation Reports: For **embossed, high-strength steel studs and tracks, firestop tracks** post-installed anchors and , from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.4 QUALITY ASSURANCE

1.5 DELIVERY, STORAGE, AND HANDLING

A. Notify manufacturer of damaged materials received prior to installation.

B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI S202, "Code of Standard Practice for Cold-Formed Steel Structural Framing."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- B. Design framing systems in accordance with AISI S220, "North American Specification for the Design of Cold-Formed Steel Framing - Nonstructural Members," unless otherwise indicated.
- C. Design Loads: As indicated on architectural Drawings or **5 lbf/sq. ft.** minimum as required by the IBC.
- D. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads with a maximum deflection of L/240 for walls and L/360 for ceilings.

2.2 FRAMING SYSTEMS

A. MANUFACTURERS

1. Acceptable Manufacturers:

- a. California Expanded Metals Co. (www.cemcosteel.com)
- b. California Steel Industries. (www.californiasteel.com)
- c. Clarkwestern Dietrich Building Systems. (www.clarkdietrich.com)
- d. Marinoware. (www.marinoware.com)
- e. Quail Run Building Materials, Inc. (www.qrbm.com)

2. Substitutions: Under provisions of Division 01.

B. Studs and Track: **ASTM C645**].

- 1. Minimum Base-Steel Thickness: **As required by performance requirements for horizontal deflection.**
- 2. Depth: **As indicated on Drawings.**

C. Studs: Non-load bearing roll-formed steel, SSMA stud profile, C-shaped, punched for utility access.

D. Top and Bottom Tracks:

- a. Same material and finish as studs, C-shaped.
- b. Standard track: SSMA stud track profile, 1-1/4 inch legs.
- c. Deep leg track: SSMA deep stud track profile, 2 inch legs.

- a. Deflection track: Deep leg track with slotted screw holes; permit plus or minus 1/2 inch movement of overhead structure without damage to partition.
 - b. Depth: **As indicated on Drawings.**
- B. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base-Steel Thickness: **0.0179 inch.**
- C. Cold-Rolled Channel Bridging: Steel, **0.0538-inch** minimum base-steel thickness, with minimum **1/2-inch-** wide flanges.
1. Depth: **1-1/2 inches.**
 2. Clip Angle: Not less than **1-1/2 by 1-1/2 inches**, **0.068-inch-** thick, galvanized steel.
- D. Hat-Shaped, Rigid Furring Channels: ASTM C645.
1. Minimum Base-Steel Thickness: **0.0179 inch.**
 2. Depth: **As indicated on Drawings.**
- E. Resilient Furring Channels: **1/2-inch-** deep, steel sheet members designed to reduce sound transmission.
1. Configuration: **Asymmetrical or hat shaped.**
- F. Cold-Rolled Furring Channels: **0.053-inch** uncoated-steel thickness, with minimum **1/2-inch-** wide flanges.
1. Depth: **As indicated on Drawings.**
 2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of **0.0329 inch.**
 3. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, **0.062-inch-** diameter wire, or double strand of **0.048-inch-** diameter wire.

1.2 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, **0.062-inch-** diameter wire, or double strand of **0.048-inch-** diameter wire.
- B. Hanger Attachments to Concrete:
1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES **AC01 or AC308** as appropriate for the substrate.
 - a. Uses: Securing hangers to structure.
 - b. Type: Torque-controlled, expansion anchor.

- c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or **ASTM F1941**, Class Fe/Zn 5, unless otherwise indicated.
 - d. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy **Group 1** stainless steel bolts, **ASTM F593**, and nuts, **ASTM F594**.
- C. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, **0.16 inch** in diameter.
- D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of **0.0538 inch** and minimum **1/2-inch-** wide flanges.
- 1. Depth: **2-1/2 inches**].
- E. Grid Suspension System for Gypsum Board Ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than **24 inches** o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce

thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

2.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C841 that apply to framing installation.
 - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C1063 that apply to framing installation.
 - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C844 that apply to framing installation.
 - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

2.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: **16 inches o.c.** unless otherwise indicated.
- B. Install studs so flanges within framing system point in same direction.
- C. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.

- b. Install cripple studs at head adjacent to each jamb stud, with a minimum **1/2-inch** clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
 5. Curved Partitions:
 - a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 - b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs **6 inches** o.c.
- D. Direct Furring:
1. Screw to wood framing.
 2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced **24 inches** o.c.
- E. Z-Shaped Furring Members:
1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced **24 inches** o.c.
 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced **24 inches** o.c.
 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than **12 inches** from corner and cut insulation to fit.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than **1/8 inch** from the plane formed by faces of adjacent framing.

2.5 INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
1. Hangers: **48 inches** o.c.
 2. Carrying Channels (Main Runners): **48 inches** o.c.

- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within **performance limits established by referenced installation standards.**
 - 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 4. Do not attach hangers to steel roof deck.
 - 5. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 - 6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 - 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- E. Installation Tolerances: Install suspension systems that are level to within **1/8 inch in 12 feet** measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Tile backing panels.

B. Related Requirements:

1. Section 079219 "Acoustical Joint Sealants" for acoustical joint sealants installed in gypsum board assemblies.
2. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.
3. Section 093013 "Ceramic Tiling" for cementitious backer units installed as substrates for ceramic tile.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Gypsum board, Type X.
2. Impact-resistant gypsum board.
3. Mold-resistant gypsum board.
4. Cementitious backer units.
5. Interior trim.
6. Exterior trim.
7. Aluminum trim.
8. Joint treatment materials.
9. Acoustical sealant.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in **12-inch-** long length for each trim accessory indicated.

1.3 MOCKUPS

A. Build mockups of at least **100 sq. ft.** in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockups for the following:

- a. Each level of gypsum board finish indicated for use in exposed locations.
- b. Each texture finish indicated.
2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C1396/C1396M.
1. Acceptable Manufacturers - Gypsum Panels:
 - a. CertainTeed Gypsum, Inc. (www.certainteed.com)
 - b. GP Gypsum Corporation. (www.gp.com)
 - c. National Gypsum Co. (www.nationalgypsum.com)
 - d. USG Corporation. (www.usg.com)
 2. Thickness: 5/8 inch.
 3. Long Edges: **Tapered**.
- B. Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
1. Acceptable Manufacturers - Gypsum Panels:
 - a. CertainTeed Gypsum, Inc. (www.certainteed.com)
 - b. GP Gypsum Corporation. (www.gp.com)
 - c. National Gypsum Co. (www.nationalgypsum.com)
 - d. USG Corporation. (www.usg.com)
 2. Core: **5/8 inch , Type X**.
 3. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds **Level 1** requirements.
 4. Indentation: ASTM C1629/C1629M, meets or exceeds **Level 1** requirements.
 5. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds **Level 1** requirements.
 6. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds **Level 1** requirements according to test in Annex A1.
 7. Long Edges: Tapered.
 8. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
1. Acceptable Manufacturers - Gypsum Panels:
 - a. CertainTeed Gypsum, Inc. (www.certainteed.com)
 - b. GP Gypsum Corporation. (www.gp.com)
 - c. National Gypsum Co. (www.nationalgypsum.com)
 - d. USG Corporation. (www.usg.com)
 2. Core: **5/8 inch , Type X**.
 3. Long Edges: Tapered.
 4. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges.
1. James Hardie Building Products, Inc. (www.jameshardie.com)

2. Thickness: **5/8 inch**.
3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material: **Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.**
2. Shapes:
 - a. Cornerbead.
 - b. L-Bead: L-shaped; exposed long flange receives joint compound.
 - c. Expansion (control) joint.

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Exterior Gypsum Soffit Board: Paper.
3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
4. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use **setting-type taping** compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use **setting-type, sandable topping** compound.
4. Finish Coat: For third coat, use **setting-type, sandable topping** compound.
5. Skim Coat: For final coat of Level 5 finish, use **setting-type, sandable topping compound**.

D. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
2. Cementitious Backer Units: As recommended by backer unit manufacturer.
3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

- A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C954 for fastening panels to steel members from **0.033 to 0.112 inch** thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Acoustical Sealant: As specified in Section 079219 "Acoustical Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than **1/16 inch** of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than **8 sq. ft.** in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow **1/4- to 3/8-inch-** wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide **1/4- to 1/2-inch-** wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Type X: **As indicated on Drawings.**
 - 2. Impact-Resistant Type: **As indicated on Drawings.**
 - 3. Mold-Resistant Type: **As indicated on Drawings.**
- B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Curved Surfaces:

1. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus **12-inch-** long straight sections at ends of curves and tangent to them.
2. For double-layer construction, fasten base layer to studs with screws **16 inches** o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced **12 inches** o.c.

3.4 INSTALLATION OF TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A108.11, at **showers, tubs, and where indicated on Drawings and at locations indicated to receive tile.**
- B. Water-Resistant Backing Board: Install where indicated with **1/4-inch** gap where panels abut other construction or penetrations.
- C. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLATION OF TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints **according to ASTM C840 and in specific locations approved by Architect for visual effect.**
- C. Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners **unless otherwise indicated.**
 2. L-Bead: Use **[where indicated on Drawings] <Insert requirements>.**

3.6 FINISHING OF GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 5: **At all locations where gypsum board is exposed with painted finish**
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
- F. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.
- G. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Porcelain tile.
2. Thresholds.
3. Waterproof membranes.
4. Crack isolation membranes.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
2. Section 092900 "Gypsum Board" for **cementitious backer units**.

1.2 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. Face Size: Actual tile size, excluding spacer lugs.
- C. Module Size: Actual tile size plus joint width indicated.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **Project site**.
 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Initial Selection: Provide full sized sample for each type of tile, grout, and accessories involving color selection.

1.5 INFORMATIONAL SUBMITTALS

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Tile and Trim Units: **Furnish quantity of full-size units equal to 5 percent of amount installed for each type, composition, color, pattern, and size indicated.**
 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.7 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build a 20 SF mockup of **each type of** floor tile installation.
 2. Build a 20 SF mockup of **each type of** wall tile installation.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Tile: Obtain **tile of each type and color or finish** from single source or producer.
 - 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
 - 1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
 - 2. Obtain **waterproof membrane and crack isolation membrane**, except for sheet products, from manufacturer of setting and grouting materials.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:
 - 1. Stone thresholds.
 - 2. Waterproof membrane.
 - 3. Crack isolation membrane.
 - 4. Cementitious backer units.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation **in wet areas**, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

A. Porcelain Tile Type TL1 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crossville Laminam Gauged Porcelain Tile - Fokos.
2. Module Size: 1 x 3 Meter
3. Thickness: 5.6 mm (7/32 in.).
4. Finish: Matte.
5. Tile Color and Pattern: Sale.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.

B. Porcelain Tile Type TL2 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crossville Laminam Gauged Porcelain Tile - Fokos.
2. Module Size: 1 x 3 Meter
3. Thickness: 5.6 mm (7/32 in.).
4. Finish: Matte.
5. Tile Color and Pattern: Piombo.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.

C. Porcelain Tile Type TL3 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crossville Laminam Gauged Porcelain Tile- Collection.
2. Module Size: 1 x 3 Meter
3. Thickness: 5.6 mm (7/32 in.).
4. Finish: Matte.
5. Tile Color and Pattern: Fumo.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.

D. Porcelain Tile Type TL4 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crossville Laminam Gauged Porcelain Tile - Filo.

2. Module Size: 1 x 3 Meter
3. Thickness: 3+ mm.
4. Face: Stacked Bond Pattern.
5. Finish: Matte.
6. Tile Color and Pattern: Sale.
7. Grout Color: As selected by Architect from manufacturer's full range.
8. Mounting: Wall Panel System- Facemount System.

E. Porcelain Tile Type TL5: Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile Volume 1.0 Porcelain Tile.
2. Module Size: 12 x 24 in.
3. Thickness: 5/16in.
4. Finish: Matte.
5. Tile Color and Pattern: Stereo Gray.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.

F. Porcelain Tile Type TL6 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile Volume 1.0 Porcelain Tile.
2. Module Size: 12 x 24 in.
3. Thickness: 5/16 in.
4. Finish: Matte.
5. Tile Color and Pattern: Sale.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.
8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Wainscot Cap for Thin-Set Mortar Installations: Schluter, module size 3 by 6 inches (152 by 152 mm).
 - b. External Corners for Thin-Set Mortar Installations: Schluter ECK-E Heavy duty edge-protection profile
 - c. Internal Corners: Field-buttet square corners. For coved base use angle pieces designed to fit with stretcher shapes.
 - d. Base: Cove Base module size 6x12in.

G. Porcelain Tile Type TB1 : Unglazed .

1. Basis-of-Design Product: Subject to compliance with requirements, provide Crossville Laminam Gauged Porcelain Tile.
2. Module Size: 12 x 24 in.

3. Thickness: 5/16 in.
4. Finish: Matte.
5. Tile Color and Pattern: Fumo.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Factory, back mounted.
8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. External Corners for Thin-Set Mortar Installations: Schluter RONDEC ½" in.
 - b. Internal Corners & Base: Field-buttet square corners.

2.4 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to **1/16 inch** above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to **1/2 inch** or less above adjacent floor surface.
- B. Marble Thresholds: ASTM C503/C503M, with a minimum abrasion resistance of **10** according to ASTM C1353 or ASTM C241/C241M and with honed finish.
 1. Description:
 - a. Uniform, fine- to medium-grained white stone with gray veining.
 - b. Match Architect's sample.

2.5 WATERPROOF MEMBRANES

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Waterproof Membrane, Fluid-Applied: Liquid-latex rubber or elastomeric polymer.
 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. Sika Corporation.

2.6 CRACK ISOLATION MEMBRANES

- A. General: Manufacturer's standard product, **selected from the following**, that complies with ANSI A118.12 for **high performance** and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Crack Isolation Membrane, Fluid-Applied: Liquid-latex rubber or elastomeric polymer.
 - 1. **Manufacturers:** Subject to compliance with requirements, undefined:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. Sika Corporation.

2.7 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.
- B. Standard Cement Grout: ANSI A118.6.
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. Sika Corporation.
- C. High-Performance Tile Grout: ANSI A118.7.
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - 2. Polymer Type:
 - a. Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
 - b. **Acrylic resin** in liquid-latex form for addition to prepackaged dry-grout mix.
- D. Water-Cleanable Epoxy Grout: ANSI A118.3 , **with a VOC content of 65 g/L or less.**
 - 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.
 - b. MAPEI Corporation.
 - c. Sika Corporation.
 - 2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to **140 and 212 deg F**, respectively, and certified by manufacturer for intended use.

- E. Grout for PregROUTed Tile Sheets: Same product used in factory to pregrout tile sheets.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with **adhesives or thinset mortar** comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 - 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with **adhesives or thinset mortar** with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

- B. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped **1/4 inch per foot** toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION OF CERAMIC TILE

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 - 1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
 - a. Exterior tile floors.
 - b. Tile floors in wet areas.
 - c. Tile floors consisting of tiles **8 by 8 inches** or larger.
 - d. Tile floors consisting of rib-backed tiles.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
 - 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.

3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
1. Glazed Wall Tile: As indicated in drawings.
 2. Porcelain Tile: As indicated in drawings.
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
- J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in **modified dry-set** mortar (thinset).
 2. Do not extend waterproof membrane **or crack isolation membrane** under thresholds set in **standard dry-set or improved modified dry-set** mortar. Fill joints between such thresholds and adjoining tile set on waterproof membrane **or crack isolation membrane** with elastomeric sealant.
- K. Metal Edge Strips: Install **at locations indicated**.
- L. Floor Sealer: Apply floor sealer to **cementitious** grout joints **in tile floors** according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- 3.4 INSTALLATION OF WATERPROOF MEMBRANES
- A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
 - B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.
- 3.5 INSTALLATION OF CRACK ISOLATION MEMBRANES
- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

- B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

3.6 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.7 PROTECTION

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

END OF SECTION 093013

SECTION 095133 - ACOUSTICAL METAL PAN CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical metal pans and associated suspension system for interior ceilings.

B. Products furnished, but not installed, under this Section include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at **Project site**.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include procedure for cutting metal pans.

B. Samples: For each exposed product and for each color and texture specified, **6 inches** in size. Include sample of sound absorbing fabric material.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Suspended ceiling components.
2. Structural members to which suspension systems will be attached.
3. Size and location of access modules for acoustical panels.
4. Items penetrating finished ceiling including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
5. Perimeter moldings.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Metal Pans **with Sound Absorber**: Full-size units equal to **5** percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each grid, exposed molding, and trim equal to **5** percent of quantity installed.
 - 3. Hold-Down Clips: **Equal to 5 percent of quantity installed.**

1.7 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build a 20 SF mockup of each type of ceiling.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical metal pans, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they are protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Handle acoustical metal pans, suspension-system components, and accessories carefully to avoid damaging units and finishes in any way.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Comply with ASTM E1264 for Class A materials.
 - 2. 2. Smoke-Developed Index: 50 or less.

2.2 ACOUSTICAL METAL PANS, GENERAL

- A. Source Limitation: Obtain each type of acoustical metal ceiling pan and supporting suspension system from single source from single manufacturer.
- B. Acoustical Panel Standard: Provide manufacturer's standard pans of configuration indicated that comply with ASTM E1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances unless otherwise indicated.
 - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is **15-3/4 inches** away from test surface according to ASTM E795.
- C. Sheet Metal Characteristics: For metal components exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, roughness, stains, or discolorations.
 - 1. Aluminum Sheet: Rolled aluminum sheet, complying with **ASTM B209**; alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- D. Sound-Absorbent Fabric Layer: Provide fabric layer, sized to fit concealed surface of pan, and consisting of black, nonwoven, nonflammable, sound-absorbent material with surface-burning characteristics for flame-spread index of 25 or less and smoke-developed index of 50 or less, as determined by testing according to ASTM E84.
 - 1. Bond fabric layer to panels in the factory with manufacturer's standard nonflammable adhesive.
- E. Adhesive: Manufacturer's standard nonflammable adhesive for sound-absorbent **fabric and pads**.
- F. Sound Attenuation Panels: Provide manufacturers standard aluminum unperforated metal backing unit that acts as a sound attenuation pan to reduce sound travel through ceiling plenum into adjoining rooms.
 - 1. Sound-Absorbent Pads: Provide secondary sound-absorbent pads, same as specified for primary sound absorbent pads, for placement over sound attenuation pan to reduce plenum sound.

1.1 ALUMINUM PANS FOR ACOUSTICAL METAL PAN CEILING (RE: A-600 MATERIAL LEGEND)

- A. MC-1, MC-2, MC-3
- B. Classification: Units complying with ASTM E1264 for Type VII, perforated aluminum facing (pan) with mineral or glass fiber-base backing.

1.2 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C635/C635M requirements.
- B. Suspension Systems: Provide systems complete with carriers, runners, splice sections, connector clips, alignment clips, leveling clips, hangers, molding, trim, retention clips, load-resisting struts, and other suspension components required to support ceiling units and other ceiling-supported construction.
- C. Attachment Devices: Size for 5 times the design load indicated in ASTM C635/C635M, Table 1, Direct Hung, unless otherwise indicated. Comply with seismic design requirements.
- D. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E488/E488M conducted by a qualified testing agency.
- E. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated and with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E1190 conducted by a qualified testing agency.
- F. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
 - 2. Stainless Steel Wire: ASTM A580/A580M, Type 304, nonmagnetic.
 - 3. Nickel-Copper-Alloy Wire: ASTM B164, nickel copper alloy for UNS No. N04400 alloy.
 - 4. Size: Select wire diameter so its stress at 3 times the hanger design load indicated in ASTM C635/C635M, Table 1, Direct Hung, is less than yield stress of wire, but provide not less than **0.106-inch-** (2.69 -mm-) diameter wire.
- G. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- H. Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04 -inch- (1.0 mm) thick, galvanized-steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation; with bolted connections and 5/16 inch (8mm) diameter bolts.
- I. Hold-Down Clips: Manufacturer's standard hold-down clips spaced to secure acoustical metal pans in place **[to molding and trim at perimeter] [at each pan] <Insert requirements>**.

1.3 ALUMINUM FINISHES

- A. Mill Finish: AA-M10C10 (Mechanical Finish: as fabricated, unspecified; Chemical Finish: chemically cleaned.)
- B. Laquered Mill Finish: AA-M10C10R1x (Mechanical Finish: as fabricated, unspecified; Chemical Finish: chemically cleaned. Organic Coating: as specified below)
 - 1. Organic Coating: Manufacturer's standard clear organic coating.
- C. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.
- D. Clear Mirror Anodic Finish: AA-M21C12A212, 0.005 mm or thicker.
- E. Color-Coated Finish: Manufacturer's standard **powder-coat** baked paint complying with coating manufacturer's written instructions for surface preparation, pretreatment, application, baking, and minimum dry film thickness.
- F. Bright-Reflective Finish: Manufacturer's standard chemical/mechanical bright-reflective metallic finish complying with finish manufacturer's written instructions for surface preparation., pretreatment, process, protective coating, and minimum thickness to produce a finish uniform in appearance and free of blisters, pits, roughness, noduled, burning, cracks, unfinished areas, and other visible defects.

1.4 METALLIC-COATED STEEL SHEET FINISHES

- A. Color-Coated Finish: Manufacturer's standard **powder-coat** baked paint complying with coating manufacturer's written instructions for surface preparation, pretreatment, application, baking, and minimum dry film thickness.

1.5 STEEL SHEET FINISHES

- A. Electroplated Finish: Electroplating process complying with finish manufacturer's written instructions for surface preparation, pretreatment, process, and minimum thickness to produce a coating uniform in appearance and free of blisters, pits, roughness, nodules, burning, cracks, unplated areas, and other visible defects.
- B. Bright Reflective Finish: Manufacturer's standard chemical/mechanical bright-reflective metallic finish complying with finish manufacturer's written instructions for surface preparation, pretreatment, process, protective coating, and minimum thickness to produce a finish uniform in appearance and free of blisters, pits, roughness, nodules, burning, cracks, unfinished areas, and other visible defects.

1.6 STAINLESS STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical metal pan ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical metal pan ceilings.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical metal pans to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width pans at borders, and comply with layout shown on reflected ceiling plans and coordination drawings.

2.3 INSTALLATION

- A. General: Install acoustical metal pan ceiling assemblies to comply with ASTM C636/C636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 4. Secure wire hangers to ceiling suspension members **or carrying channels** and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that do not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 5. Secure flat, angle, channel, and rod hangers to ceiling suspension members **or carrying channels** and to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that does not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 8. Do not attach hangers to steel deck tabs.
 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 10. Space hangers not more than **48 inches** o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than **8 inches** from ends of each member.
 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Secure bracing wires to ceiling suspension members **or carrying channels** and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical metal pans.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than **16 inches** o.c. and not more than **3 inches** from ends, leveling with ceiling suspension system to a tolerance of **1/8 inch in 12 feet**. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

- F. Cut acoustical metal pan units for accurate fit at borders and at interruptions and penetrations by other work through ceilings. Stiffen edges of cut units as required to eliminate evidence of buckling or variations in flatness exceeding referenced standards for stretcher-leveled metal sheet. Cut and treat edges to comply with manufacturer's written instructions.
- G. Install acoustical metal pans in coordination with suspension system and exposed moldings and trim. Comply with manufacturer's installation tolerances.
 - 1. For lay-in, square-edge pans, install pans with edges fully hidden from view by flanges of suspension-system runners and moldings.
 - 2. For lay-in, reveal-edge pans on suspension-system runners, install pans with bottom of reveal in firm contact with top surface of runner flanges.
 - 3. For lay-in, reveal-edge pans on suspension-system members with box-shaped flanges, install pans with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
 - 4. For **torsion-spring-hinged** pans, position pans according to manufacturer's written instructions.
 - 5. For snap-in pans, fit adjoining units to form flush, tight joints.
 - 6. Align joints in adjacent courses to form uniform, straight joints parallel to room axis in both directions unless otherwise indicated.
 - 7. Fit adjoining units to form flush, tight joints.
 - 8. Install directionally patterned or textured metal pans in directions indicated.
 - 9. Install sound-absorbent fabric layers in, and bond to, perforated metal pans.
 - 10. Install sound-absorbent pads in perforated metal pans **over metal spacer grids**.
- H. Install sound attenuation panels in areas indicated by reflected ceiling plans or room finish schedules. Lay panels directly on ceiling system and close major openings to form complete coverage in required areas. Lay second sound-absorbent pads on sound attenuation panels.
- I. Install hold-down clips where indicated.

2.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections of completed installations of acoustical metal panel ceiling hangers, anchors, and fasteners in successive stages. Do not proceed with installations of acoustical metal panel ceiling hangers for the next area until test results for previously completed installations show compliance with requirements.
 - 1. Extent of Each Test Area: When installation of ceiling suspension systems on each floor has reached 20 percent completion, but no panels have been installed.
 - a. Within each test area, testing agency selects one of every 10 power-actuated fasteners and post installed anchors used to attach hangers to concrete and tests them for **200 lbf (890 N)** of tension; it also selects one of

every two post installed anchors used to attach bracing wires to concrete and tests them for 440 lbf (1957 N) of tension.

- b. When tested fasteners and anchors do not comply with requirements, testing agency tests those fasteners and anchors not previously tested until 20 pass consecutively and then resumes initial testing frequency.
- B. Acoustical metal panel ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.

2.5 CLEANING

- A. Clean exposed surfaces of acoustical metal pan ceilings, including trim and edge moldings, after removing strippable, temporary protective covering, if any. Comply with manufacturer's written instructions for stripping of temporary protective covering, cleaning, and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and bent units.

END OF SECTION 095133

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Primers.
 - 2. Water-based finish coatings.
- B. Related Requirements:
 - 1. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
 - 2. Section 099600 "High-Performance Coatings" for tile-like coatings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include preparation requirements and application instructions.
 - 2. Indicate VOC content.
- B. Samples: For each type of topcoat product.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint Products: **5** percent, but not less than **1 gal.** of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures of less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company products indicated or comparable product from one of the following:
1. Benjamin Moore & Co.
 2. Duron, Inc.
 3. Glidden Professional, Division of PPG Architectural Finishes, Inc.
 4. PPG Architectural Finishes, Inc.

5. Pratt & Lambert.

B. Source Limitations: Obtain each paint product from single source from single manufacturer.

2.2 PAINT PRODUCTS, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. Colors: **As selected by Architect from manufacturer's full range.**

2.3 PRIMERS

A. Interior, Institutional Low-Odor/VOC Primer Sealer: Water-based primer sealer with low-odor characteristics and a VOC of less than 10 grams per liter for use on new interior plaster, concrete, and gypsum wallboard surfaces that are subsequently to be painted with latex finish coats.

2.4 WATER-BASED FINISH COATS

A. Interior, Latex, Institutional Low Odor/VOC, Eggshell: White or colored latex paint with low-odor characteristics and a VOC of less than 10 grams per liter, for use in areas, such as hospitals and other occupied buildings, where the odor and VOC levels of conventional latex products would preclude their use.

1. Gloss and Sheen Level: **Manufacturer's standard eggshell finish.**

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 the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Fiber-Cement Board: 12 percent.
 3. Masonry (Clay and CMUs): 12 percent.
 4. Wood: 15 percent.
 5. Gypsum Board: 12 percent.
 6. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- 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. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 INSTALLATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire-Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:
 - a. .
2. Paint the following work where exposed in occupied spaces:
 - a. .
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
 1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
 2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
 3. Allow empty paint cans to dry before disposal.
 4. Collect waste paint by type and deliver to recycling or collection facility.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 1. Alkyd System:
 - a. Prime Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
 - b. Intermediate Coat: Water-based acrylic-alkyd, interior, matching topcoat.
 - c. Topcoat: Water-based acrylic-alkyd, semi-gloss, interior: S-W ProMar 200 Waterbased Acrylic-Alkyd Semi-Gloss, B34-8200 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
 - d. Topcoat: Water-based acrylic-alkyd, gloss, interior: S-W ProMar 200 Waterbased Acrylic-Alkyd Gloss, B35-8200 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
- B. **Gypsum Board and Plaster** Substrates:

1. Latex System:
 - a. Prime Coat: Primer, latex, interior: S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils wet, 1.5 mils dry.
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: Latex, interior, eggshell: S-W ProMar 200 Zero VOC Latex Eggshell, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

END OF SECTION 099123

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Panel signs.

- B. Related Requirements:

- 1. Section 015000 "Temporary Facilities and Controls" for temporary Project identification signs and for temporary informational and directional signs.
- 2. Section 220553 "Identification for Plumbing Piping and Equipment" for labels, tags, and nameplates for plumbing systems and equipment.
- 3. Section 230553 "Identification for HVAC Piping and Equipment" for labels, tags, and nameplates for HVAC systems and equipment.
- 4. Section 260553 "Identification for Electrical Systems" for labels, tags, and nameplates for electrical equipment.

Section 265213 "Emergency and Exit Lighting" for illuminated, self-luminous, and photoluminescent exit sign units.

1.3 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.
- B. Illuminated: Illuminated by lighting source integrally constructed as part of the sign unit.

1.4 COORDINATION

- A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.
- B. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For panel signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
 - 3. Show message list, typestyles, graphic elements , **including raised characters and Braille**, and layout for each sign at least 1/2" scale.
 - 4. Show locations of electrical service connections.
 - 5. Include diagrams for power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
 - 1. Include representative Samples of available typestyles and graphic symbols.
- D. Product Schedule: For panel signs. Use same designations indicated on Drawings or specified.

1.6 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify locations of **anchorage devices and electrical service** embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image.
 - c. Separation or delamination of sheet materials and components.
 - 2. Warranty Period: **Five** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in Texas Department of Licensing and Regulations – Architectural Barriers Texas Accessibility Standards.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 PANEL SIGNS

- A. Panel Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
 - 1. Solid-Sheet Sign: Acrylic sheet with finish specified in "Surface Finish and Applied Graphics" Subparagraph and as follows:
 - a. Thickness: **Per HAS Standards.**
 - b. Surface-Applied, Flat Graphics: Applied MPC paint.
 - 2. Sign-Panel Perimeter: Finish edges smooth.
 - a. Edge Condition per HAS Standards.
 - b. Corner Condition in Elevation: Per HAS Standards.
 - 3. Mounting: Manufacturer's standard method for substrates indicated Surface mounted to wall with adhesive **or as indicated in drawings or HAS standards.**
 - 4. Surface Finish and Applied Graphics:
 - a. Painted Finish and Graphics: Manufacturer's standard, factory-applied **acrylic polyurethane**, in color **as indicated in HAS Design standards.**
 - 5. Text and Typeface: As indicated in HAS Design Standards.
 - 6. Flatness Tolerance: Sign shall remain flat or uniformly curved under installed conditions as indicated on Drawings and within a tolerance of plus or minus **1/16 inch** measured diagonally from corner to corner.

2.3 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

2.4 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following unless otherwise indicated:
 - 1. Inserts: Furnish inserts to be set by other installers into concrete or masonry work.

- B. Adhesive: As recommended by sign manufacturer.

2.5 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 - 1. Preassemble signs in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
 - 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 - 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
 - 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
 - 5. Internally brace signs for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
 - 6. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
- B. Surface-Engraved Graphics: Machine engrave characters and other graphic devices into indicated sign surface to produce precisely formed copy, incised to uniform depth.
 - 1. Engraved Metal: Fill engraved graphics with manufacturer's standard baked enamel.
 - 2. Engraved Opaque Acrylic Sheet: Fill engraved graphics with manufacturer's standard enamel.
 - 3. Face-Engraved Clear Acrylic Sheet: Fill engraved copy with manufacturer's standard enamel. Apply manufacturer's standard opaque background color coating to back face of acrylic sheet.
 - 4. Engraved Plastic Laminate: Engrave through exposed face ply of plastic-laminate sheet to expose contrasting core ply.
- C. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.
- D. Subsurface-Engraved Graphics: Reverse engrave back face of clear face-sheet material. Fill resulting copy with manufacturer's standard enamel. Apply opaque manufacturer's standard background color coating over enamel-filled copy.
- E. Shop- and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fishmouths.

2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

2.7 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, **Class I, 0.018 mm** or thicker.
- B. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of **1.5 mils**. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

2.8 METALLIC-COATED STEEL FINISHES

- A. Surface Preparation: Clean surfaces of oil and other contaminants. Use cleaning methods that do not leave residue. After cleaning, apply a conversion coating compatible with the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint, complying with SSPC-Paint 20, to comply with ASTM A780/A780M.
- B. Factory Prime Finish: After cleaning and pretreating, apply an air-dried primer compatible with the organic coating to be applied over it.
- C. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of **2 mils**.

2.9 STEEL FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, and prepare for coating according to coating manufacturer's written instructions.
 - 1. For Baked-Enamel or Powder-Coat Finish: After cleaning, apply a conversion coating compatible with the organic coating to be applied over it.

- B. Factory Prime Finish: After surface preparation and pretreatment, apply manufacturer's standard, fast-curing, lead- and chromate-free, universal primer.
- C. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of **2 mils**.

2.10 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 - 2. Directional Satin Finish: No. 4.
 - 3. Dull Satin Finish: No. 6.
 - 4. Reflective, Directional Polish: No. 7.
 - 5. Mirrorlike Reflective, Nondirectional Polish: No. 8.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that anchorage devices embedded in permanent construction are correctly sized and located to accommodate signs.
- D. Verify that electrical service is correctly sized and located to accommodate signs.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Install signs so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Accessible Signage: Install in locations on walls **as indicated on Drawings**.

C. Mounting Methods:

1. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.

D. Field-Applied, Vinyl-Character Signs: Clean and dry substrate. Align sign characters in final position before removing release liner. Remove release liner in stages, and apply and firmly press characters into final position. Press from the middle outward to obtain good bond without blisters or fishmouths. Remove carrier film without disturbing applied vinyl film.

E. Signs Mounted on Glass: Provide opaque sheet matching sign material and finish onto opposite side of glass to conceal back of sign.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101423

SECTION 102113 - GLASS TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Glass toilet compartments configured as toilet enclosures and urinal screens.

- B. Related Requirements:

- 1. Wood may provide adequate overhead support for floor-and-ceiling-anchored compartments and post-to-ceiling screens but is inadequate for supporting ceiling-hung compartments. Consult manufacturers for recommendations.
- 2. Section 061053 "Miscellaneous Rough Carpentry" for blocking.
- 3. Section 102800 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.

- B. Shop Drawings: For toilet compartments.

- 1. Include plans, elevations, sections, details, and attachment details.
- 2. Show locations of cutouts for compartment-mounted toilet accessories.
- 3. Show locations of centerlines of toilet fixtures.
- 4. Show locations of floor drains.
- 5. Show overhead support or bracing locations.

- C. Samples for Initial Selection: For each type of toilet compartment material indicated.

- 1. Include Samples of hardware and accessories involving material and color selection.

- D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Each type of material, color, and finish required for toilet compartments, prepared on **6-inch- (152-mm-)** square Samples of same thickness and material indicated for Work.
 - 2. Each type of hardware and accessory.
- E. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of toilet compartment.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Door Hinges: 5% of hinge(s) with associated fasteners.
 - 2. Latch and Keeper: 5% of latch(es) and keeper(s) with associated fasteners.
 - 3. Door Bumper: 5% of door bumper(s) with associated fasteners.
 - 4. Door Pull: 5% of door pull(s) with associated fasteners.
 - 5. Fasteners: 10% of fasteners of each size and type.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.

2. Smoke-Developed Index: 450 or less.

B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities for toilet compartments designated as accessible.

2.2 GLASS TOILET COMPARTMENTS

A. Acceptable Manufacturer: Glass toilet partitions by Carvart 1441 Broadway, New York, NY 10018. Local Carvart rep: Gaynor Sherer / Specified Int-Ex 281-655-8433 / gaynor@specintex.com

B. Toilet-Enclosure Style: Floor anchored.

C. Entrance-Screen Style: Floor anchored.

D. Urinal-Screen Style: Wall hung.

E. Door, Panel, Screen, and Pilaster Construction: Glass, 3/8" – 9/16" laminated, tempered glass.

1. Color and Pattern: Restroom Stalls: (Outside Stall) Smooth B07 Ivory, (Inside Stall) Etched B07 Ivory.

2. Color and Pattern: Urinal Screens: 18" Deep X 42" High, unless otherwise indicated in drawings – Smooth B07 Ivory.

F. Dividers Panel Construction: CHPL 9/16"

1. Color and Pattern: 406 White.

2.3 HARDWARE AND ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.

1. Material: Manufacturer's standard design, heavy-duty operating hardware.

2. Fasteners and Anchors: Not Furnished by Partition Manufacturer.

3. Vertical Jamb's are continuous and double as privacy seals.

4. Stabilizing Bar: Cut to size and receives door pivots

5. Adjustable custom 3" height bottom legs to allow for min. of 2" height adjustability (up to 5" ht.).

6. Interior door latches – all doors to have ADA style interior door latch.

7. User instruction label to be provided inside of all interior doors showing how to turn latch to lock/unlock.

8. Door Stop: Doors secured with an automatic speed adjusting and self-closing shock-absorbing mechanism fitted with an internal 90 degree door blocking device.

9. Door Stop: Integral rubber door stop on overhead stabilizing rail to regulate door stopping and prevent friction at the door closer mechanism.

B. Hardware and Accessories Material:

1. All aluminum is double anodized. Color to be selected from full range of finishes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
 1. Confirm location and adequacy of blocking and supports required for installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 1. Maximum Clearances:
 - a. Pilasters and Panels: **1/8 inch**.
 - b. Panels and Walls: **1/8 inch**.
- B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than **2 inches (51 mm)** into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.3 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after work is complete.
- C. Clean Glass and adjacent surfaces.
- D. To maintain aesthetics, it is important to clean the glass during and after construction. For routine cleaning, use a soft, clean, grit-free cloth and a mild soap, detergent, or window cleaning solution. Rinse immediately with clean water and remove any excess

water from the glass surface with a squeegee. Do not allow any metal or hard parts of the cleaning equipment to contact the glass surface. Clean cubicle components in accordance with manufacturer's instructions and recommendations.

3.4 PROTECTION

- A. Protect installed glass from damage during construction.
- B. Touch-up repair or replace damaged products before substantial completion. Remove and replace glass this is broken, chipped, cracked abraded, or damaged in other ways during construction period including natural causes, accidents, and vandalism.

3.5 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 102113.17

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Toilet-compartment occupancy-indicator systems.
3. Childcare accessories.
4. Underlavatory guards.
5. Custodial accessories.

B. Related Requirements:

1. Section 088300 "Mirrors" for frameless mirrors.
2. Section 093013 "Ceramic Tiling" for ceramic toilet and bath accessories.
3. Section 102813.63 "Detention Toilet Accessories" for accessories designed for installation in detention facilities.

1.2 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Include electrical characteristics.

B. Samples: For each exposed product and for each finish specified, full size.

1. Approved full-size Samples will be returned and may be used in the Work.

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify accessories using designations indicated.

1.4 INFORMATIONAL SUBMITTALS

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.6 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, visible silver spoilage defects.
 - 2. Warranty Period: **[10]** **[15]** **<Insert number>** years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Toilet-Compartment Occupancy-Indicator Systems: Manufacturer agrees to repair or replace toilet-compartment occupancy-indicator systems that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: **[Five]** **<Insert number>** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: **<Insert products>**.

2.2 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

2.3 PUBLIC-USE WASHROOM ACCESSORIES

A. Toilet Tissue (Roll) Dispenser Type PI-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Tork Mini Jumbo Bath Tissue Dispenser 465500
2. Mounting: Partition mounted
3. Material and Finish: Stainless steel

B. Automatic Paper Towel (Roll) Dispenser Type TF-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Tork Matic Hand Towel Dispenser with Intuition Sensor 461102
2. Mounting: Surface mounted
3. Material and Finish: Metal/Plastic, Stainless Steel

C. Waste Receptacle Type PP-2:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-3644
2. Mounting: Recessed
3. Minimum Capacity: 12 Gal.
4. Material and Finish: Stainless steel, Satin Finish
5. Liner: Bobrick Part No. 3944-134.
6. Lockset: Tumbler type for waste receptacle.

D. Waste Receptacle Type PC-3:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-315-35
2. Mounting: Recessed
3. Minimum Capacity: 12 Gal.
4. Material and Finish: Stainless steel, Satin Finish
5. Liner: Bobrick
6. Lockset: Tumbler type for waste receptacle.

E. Combination Towel (Folded) Dispenser/Waste Receptacle Type PP-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Tork Matic Hand Towel Dispenser with Intuition Sensor 309051
2. Description: Frame and waste receptacle only. Intended for use with Type TF-1 Tork 461102.
3. Mounting: Recessed
 - a. Designed for nominal 4-inch wall depth.
4. Material and Finish: Stainless steel

F. Grab Bar PG-1 & PG-2 & PR-1:

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-5806
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, Satin Finish
4. Outside Diameter: 1-1/4 inches
5. Configuration and Length: As indicated on Drawings

G. Sanitary-Napkin Disposal Unit PN-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-254
2. Mounting: Partition mounted
3. Door or Cover: Self-closing, disposal-opening cover and hinged face panel with tumbler lockset.
4. Receptacle: Removable.
5. Material and Finish: Stainless steel, Satin Finish

H. Seat-Cover Dispenser Type PE-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Tork Silhouette Toilet Seat Cover Dispenser 1951001
2. Mounting: Surface mounted
3. Exposed Material and Finish: Plastic, Smoke

I. Hook Type PJ-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Carvart Coat Hook
2. Description: 6 5/16" Combination door bumper and coat hook
3. Material and Finish: Satin Aluminum

J. Hand Sanitizer Dispenser Type PB-2:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Tork 466100
2. Mounting: Surface
3. Material and Finish: Stainless steel

K. Floating Mirror Type PM-2:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Carvart glassMIRROR
2. Description: Frameless Floating Mirror
3. Mounting: Concealed wall-mounted Z-Clip bracket
4. Material and Finish: Smooth Surface, Polished Edges
5. Size: Refer to Drawings

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

2.4 CHILD CARE ACCESSORIES

A. Diaper-Changing Station Type PC-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Koala Kare KB110-SSRE
2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
3. Mounting: Recessed
4. Operation: By pneumatic shock-absorbing mechanism.
5. Material and Finish: Stainless Steel
6. Liner Dispenser: Provide separate, locking dispenser for disposable sanitary liners.

B. Diaper-Changing Station Liner Dispenser Type PB-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Koala Kare KB134-SSLD
2. Mounting: Recessed.
3. Material and Finish: Stainless Steel
4. Lockset: Tumbler type.

C. Child Step Stool Type PH-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Step N' Wash SNW-SS 975B Self Retracting Step Stool
2. Mounting: Secured directly to concrete substrate utilizing four (4) stainless steel wedge anchors (supplied by manufacturer) with tension rating of 3999 lbs. and shear rating of 3031 lbs. ** For complete and secure installation, use only type and size of fastener provided by manufacturer or those suitable for application and substrate

2.5 CUSTODIAL ACCESSORIES

A. Custodial Utility Shelf Type PR-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-298
2. Size: 24 inches long by 8 inches deep. 24"Wx8"Dx3"H
3. Material and Finish: Stainless Steel, Satin

B. Custodial Mop and Broom Holder Type PX-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick B-223
2. Length: 24 inches.
3. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
4. Material and Finish: Stainless steel, Satin.

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

2.6 MATERIALS

- A. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, **0.031-inch-** minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B19, flat products; ASTM B16/B16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B30, castings.
- C. Steel Sheet: ASTM A1008/A1008M, Designation CS (cold rolled, commercial steel), **0.036-inch-** minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A653/A653M, with **G60** hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A153/A153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit, unless otherwise recommended by manufacturer or specified in this Section, and tamper and theft resistant where exposed, and of stainless or galvanized steel where concealed.
- G. Chrome Plating: ASTM B456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.7 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of **[six]** **<Insert number>** keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Remove temporary labels and protective coatings.
- B. Grab Bars: Install to comply with specified structural-performance requirements.

HOU Restroom Renovations Phase 2 **TOILET, BATH, AND LAUNDRY ACCESSORIES**
Project No. PN209A

- C. Shower Seats: Install to comply with specified structural-performance requirements.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Clean and polish exposed surfaces in accordance with manufacturer's written instructions.

END OF SECTION 102800

SECTION 12366 - SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface material backsplashes.
3. Solid surface material end splashes.
4. Solid surface material apron fronts.

B. Related Requirements:

1. Section 224010 " Plumbing Fixtures" for sinks and plumbing fittings.

1.2 ACTION SUBMITTALS

A. Product Data: For countertop materials.

B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

C. Samples for Initial Selection: For each type of material exposed to view.

1.3 INFORMATIONAL SUBMITTALS

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

- B. Installer Qualifications: Fabricator of countertops.
- C. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and execution.
 - 1. Build mockup of typical countertop as indicated on Drawings.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements before countertop fabrication is complete.

1.7 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ISFA 2-01.
 - 1. Basis of Design
 - 2. Type: Provide Standard type unless Special Purpose type is indicated.
 - 3. Integral Sink Bowls: Comply with CSA B45.5/IAPMO Z124.
 - 4. Colors and Patterns: As indicated in drawings.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Premium .
- B. Countertops:
 - 1. 3/4-inch- thick, solid surface material.
- C. Backsplashes: 3/4-inch- thick, solid surface material.

- D. Fabricate tops with shop-applied edges and backsplashes unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Install integral sink bowls in countertops in the shop.
- E. Cutouts and Holes:
 - 1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
 - 2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
 - 3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.
 - 4. Counter-Mounted Cooktops: Prepare countertops in shop for field cutting openings for cooktops. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.

- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Pre-drill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- C. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- D. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
 - 1. Install metal splines in kerfs in countertop edges at joints where indicated. Fill kerfs with adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
 - 2. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
- E. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.
- F. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Pre-drill holes for screws as recommended by manufacturer.
- G. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
 - 1. Seal edges of cutouts in particleboard subtops by saturating with varnish.
- H. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16