AGREEMENT AND SPECIFICATIONS

ON-CALL CONSTRUCTION SERVICES FOR THE REPAIRS OF STREET RIGHT-OF-WAY

CSP 17-26

VOLUME 1

CONTRACT DOCUMENTS

FEBRUARY, 2026

el paso WATER

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STATE OF TEXAS
JAIME ARRIOLA
150876
LICENSED
PROFESSIONAL ENGINEER

6/3/2026

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

CSP NO. 17-26

INFORMAL NOTICE

Competitive Sealed Proposal (CSP) for **On-call Construction Services for the Repair of Streets Right-of-Way,** will be received via E-Bid (IonWave) and / or hard copies (3 each) by the City of El Paso Water Utilities - Public Service Board at the Board's principal office located at 1154 Hawkins Boulevard or by mail to 1154 Hawkins Boulevard, El Paso, Texas, 79925 until **July 29, 2026, 1:30 p.m. local time. After 1:30 p.m., CSP will not be accepted. CSP Opening will occur at 2:00 p.m.** and CSP will be publicly opened and read aloud via the "Teams" format noted in Section 00020.

The work under this contract shall be for furnishing all labor, materials, transportation, and services on an as-needed basis to complete the following work on a unit price basis Contract format: Repairs to street rights-of-way will include the repair or replacement of asphalt and concrete pavement, along with related items such as traffic control, steel plates, roadway striping, curbs and gutters, sidewalks, and driveways. Work will be performed on public rights-of-way, including highways, streets, alleys, and easements, in connection with projects by or for El Paso Water Utilities. These projects may involve construction, maintenance, or emergency work for water, reclaimed water, wastewater, and stormwater systems, and will include paving projects. The successful Offeror must employ qualified personnel for the duration of the contract and provide all necessary equipment, materials, and labor to complete the assigned work efficiently and in accordance with these specifications. This contract establishes site completion deadlines and imposes daily liquidated damages for any site exceeding 10 working days.

The description of this scope of work, as shown above, is only general and Offerors shall refer to the Contract for further information.

Contract documents may be examined and obtained by accessing the following El Paso Water's IonWave electronic CSP (e-bid) website:

https://epwater.ionwave.net/HomePage.aspx

If you have trouble accessing the Contract Documents, please contact the Purchasing and Contracts (P&C) Department of the El Paso Water Utilities, Public Service Board, at (915) 594-5628. Physical (hard) copies of the Contract Documents will **NO** longer be made available.

A pre-CSP meeting will be held on **July 7th, 2026 at 10 a.m.**, local time *(see instructions at the end of Section 00020)*.

Each Proposal shall be submitted in accordance with the Instructions to Offerors and be accompanied by a Proposal Security in the amount of five percent of the amount proposed on the Total Bid Price. (00300)

The Successful Offeror states he or she must furnish a 100 percent (100%) Performance Bond and a 100 percent (100%) Payment Bond, in accordance with the Instructions to Offerors, Agreement between Owner and Contractor, and the Supplemental Conditions.

CSP shall be submitted at the time and place, either through the e-bid response submittal process via IonWave and/or hard copies. If submitting hard copies, ensure, they are enclosed in an opaque, sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the CSP is submitted), name and address of the Offeror and accompanied by the Offer security and other required documents. If the CSP is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "COMPETITIVE SEALED PROPOSAL ENCLOSED" on the face of it. Responses to CSP / solicitations may be submitted via the E-Bid process and, or hard copy, or both.

Please note the requirements for award of this Contract in Section 00100 – Instruction to Offerors

By submission of the CSP, Offeror fully understands the requirements of the Contract Documents and agrees to comply with all requirements thereof.

Wages paid on this project shall be not less than the minimum prevailing wage rates listed in the Contract Documents, Section 00840, General Wage Requirements.

The El Paso Water Utilities (EPWATER) adheres to the Cone of Silence policy which prohibits any communication regarding the CSP between potential Offerors (and subcontractors) and EPWATER Board Members, Staff, and assigned Consulting Engineers. The provisions do not apply to oral communications with Purchasing Agent or Administrative Analyst, provided the communications is limited strictly to matters of process or procedure already contained in the solicitation document oral communications at pre-CSP conferences, or communications in writing (email preferred) submitted to the Administrative Analyst in response to inquiries regarding the CSP. In addition to any other penalties provided by law, violation of the Cone of Silence by any Offeror shall render that Offeror's CSP voidable. Any person having personal knowledge of a violation of these provisions shall report such violations to the EPWater General Counsel and/or the Purchasing Agent in writing.

EPWater reserves the right at its sole judgment to accept any or multiple Offers that are determined to be qualified in accordance with the terms and selection criteria as established by the CSP method of procurement. EPWater will assign Work under the Contract on an as-needed basis and at its discretion by issuing Work Orders. Work is to be the Unit Price Work. Initially, the Contract Price will be deemed to include, for all Unit Price Work, an amount equal to the sum of the unit price for each separately identified item of Unit Price Work multiplied by the estimated quantity of each item, as indicated in the Agreement. The estimated quantities of items, Unit Price Work, are not guaranteed and are provided solely for the purpose of comparing Bids and determining the initial Contract Price. Payments to the Contractor will be based on actual quantities. Although no obligation shall exist to purchase the estimated annual usage, EPWater reserves the right to increase, decrease, or change these requirements to ensure continued operation during the Contract period.

Section **No. of Pages**

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

ON-CALL CONSTRUCTION SERVICES FOR THE
REPAIRS OF STREET RIGHT-OF-WAY

CSP 17-26

CITY OF EL PASO, TEXAS

TABLE OF CONTENTS

PROPOSAL REQUIREMENTS, CONTRACT FORMS,
AND CONDITIONS OF THE CONTRACT

Section		No. of Pages
00020	INVITATION TO BID	3
00100	INSTRUCTIONS TO OFFEROR	28
00300	PROPOSAL FORM	14
00301	CONTRACTOR PRE-QUALIFICATION FORM	4
00302	CERTIFICATE OF INTERESTED PARTIES SAMPLE	2
00303	STATEMENT OF RESIDENCY	2
00304	STATEMENT OF NONDIVESTMENT FROM ISRAEL	1
00310	VETHUB SAMPLE SOLICITATION DOCUMENTS	9
00500	STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR	13
00510	CERTIFICATE OF ACCOUNT STATUS SAMPLE	1
00610	PERFORMANCE BOND	1
00630	PAYMENT BOND	1
00650	CERTIFICATE OF INSURANCE	1
00700	GENERAL CONDITIONS (EJCDC C-700, 2018 ED.)	79
00800	SUPPLEMENTARY GENERAL CONDITIONS	40
00810	EPWATER CONTRACTOR INSURANCE COVERAGE CHECKLIST	2
00820	EPWATER STANDARD APPLICATION FOR PAYMENT	2

Section		No. of Pages
00830	PAY APPLICATION CHECKLIST	1
00840	GENERAL WAGE REQUIREMENTS	12
00850	TEXAS WORKERS' COMP FORMS DWC81 - DWC85	5

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL

01000	GENERAL REQUIREMENTS	6
01010	SPECIAL CONDITIONS	1
01015	CONTROL OF WORK	5
01016	TRENCH SAFETY SYSTEMS (WITH OSHA REGS. ATTACHED	41
01020	FIELD ENGINEERING	1
01021	TPDES REQUIREMENTS	6
01025	MEASUREMENT AND PAYMENT	7
01060	TRAFFIC CONTROL	1
01200	PROJECT MEETING	1
01400	TESTING LABORATORY SERVICES	2
01740	GUARANTIEES AND WARRANTIES	1

DIVISION 2 – INSTALLATION AND SITE WORK

02001	MOBILIZATION/DEMOBILLIZATION	1
02237	FLOWABLE FILL	6
02300	TRENCH EXCAVATION AND PREPARATION	1
02331	FLEXIBLE (CRUSHED STONE) BASE COURSE	2
02510	HOT MIX ASPHALTIC CONCRETE PAVING	3

DIVISION 3 – CONCRETE

03000	CONCRETE	2
03100	GROUT	1
03300	SITE CONCRETE WORK	6
03310	CONCRETE METER BOXES	2

DIVISION 4 - WORK AND PERFORMANCE REQUIREMENTS

04000	GENERAL REQUIREMENTS	7

APPENDIXES

Appendix A- Municipal Codes - Temporary Traffic Control & Excavation
Appendix B - Site Information and Permit Samples
Appendix C- Title 19 - Subdivision Ordinance Design Standards for Construction Section 3
Appendix D - Flowable Fill (Section 02237)
Appendix E -Title 19 - Subdivision Ordinance Design Standards for Construction Section 6
Appendix F -Item 105: Removing Stabilized Base and Asphalt Pavement
Appendix G -Item 132: Embankment
Appendix H -Item 247: Flexible Base
Appendix I -Item 251: Reworking Base Courses
Appendix J -Item 300: Asphalts, Oils, and Emulsions
Appendix K- Item 340: Dense-Graded Hot Mix Asphalt (Method)
Appendix L- Item 666: Reflectorized Pavement Markings
Appendix M - Item 678: Pavement Surface Preparation for Markings
Appendix N -Non-Applicable TxDOT Specifications
Appendix O – EPWater Standard Details -Concrete Collars and Meter Boxes
Appendix P – El Paso County Standard Details – Driveways and Street Paving Cut

SECTION 00020

INVITATION TO OFFEROR

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The work under this contract shall be for furnishing all labor, materials, transportation, and services on an as-needed basis to complete the following work on a unit price basis Contract format: Repairs to street rights-of-way will include the repair or replacement of asphalt and concrete pavement, along with related items such as traffic control, steel plates, roadway striping, curbs and gutters, sidewalks, and driveways. Work will be performed on public rights-of-way, including highways, streets, alleys, and easements, in connection with projects by or for El Paso Water Utilities. These projects may involve construction, maintenance, or emergency work for water, reclaimed water, wastewater, and stormwater systems, and will include paving projects. The successful Offeror must employ qualified personnel for the duration of the contract and provide all necessary equipment, materials, and labor to complete the assigned work efficiently and in accordance with these specifications. This contract establishes site completion deadlines and imposes daily liquidated damages for any site exceeding 10 working days.

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A pre-CSP meeting will be held on **July 7th, 2026 at 10 a.m.,** local time. *(see instructions at the end of this Section 00020)*.

Each Proposal shall be submitted in accordance with the Instructions to Offerors and be accompanied by a Proposal Security in the amount of five percent of the amount proposed on the Total Bid Price. (00300)

The Successful Offeror must furnish a 100 percent (100%) Performance Bond and a 100 percent (100%) Payment Bond, in accordance with the Instructions to Offerors, Agreement between Owner and Contractor, and the Supplemental Conditions.

CSPs shall be submitted at the time and place, either through the e-bid response submittal process via IonWave and/or hard copies. If submitting hard copies, ensure, they are enclosed in an opaque, sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the CSP is submitted), name and address of the Offeror and accompanied by the Offer security and other required documents. If the CSP is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "COMPETITIVE SEALED PROPOSAL

ENCLOSED" on the face of it. Responses to CSPs / solicitations may be submitted via the E-Bid process and, or hard copy, or both.

By submission of the CSP, Offeror states he or she fully understands the requirements of the Contract Documents and agrees to comply with all requirements thereof.

Wages paid on this project shall be not less than the minimum prevailing wage rates listed in the Contract Documents, Section 00840, General Wage Requirements.

The El Paso Water Utilities (EPWater) adheres to the Cone of Silence policy which prohibits any communication regarding the CSP between potential Offerors (and subcontractors) and EPWater Board Members, Staff, and assigned Consulting Engineers. The provisions do not apply to oral communications with Purchasing Agent or Administrative Analyst, provided the communications are limited strictly to matters of process or procedure already contained in the solicitation document oral communications at pre-CSP conferences, or communications in writing (email preferred) submitted to the Administrative Analyst in response to inquiries regarding the CSP. In addition to any other penalties provided by law, violation of the Cone of Silence by any Offeror shall render that Offeror's CSP voidable. Any person having personal knowledge of a violation of these provisions shall report such violations to the EPWater General Counsel and/or the Purchasing Agent in writing.

EPWater reserves the right at its sole judgment to accept any or multiple Offers that are determined to be qualified in accordance with the terms and selection criteria as established by the CSP method of procurement. EPWater will assign Work under the Contract on an as-needed basis and at its discretion by issuing Work Orders. Work is to be the Unit Price Work. Initially, the Contract Price will be deemed to include, for all Unit Price Work, an amount equal to the sum of the unit price for each separately identified item of Unit Price Work multiplied by the estimated quantity of each item, as indicated in the Agreement. The estimated quantities of items, Unit Price Work, are not guaranteed and are provided solely for the purpose of comparing Bids and determining the initial Contract Price. Payments to the Contractor will be based on actual quantities. Although no obligation shall exist to purchase the estimated annual usage, EPWater reserves the right to increase, decrease, or change these requirements to ensure continued operation during the Contract period.

PRE-CSP MEETING INSTRUCTIONS

The Pre-CSP meeting will be held via Microsoft Teams. Please join the meeting from your computer, tablet, or smartphone using the link below:

https://teams.microsoft.com/meet/2764365597745?p=k4NGv6wT3jgW7POGwW

CSP OPENING INSTRUCTIONS

CSP Openings are now to be broadcast through “Microsoft Teams” format.

To View CSP Opening Click the Link Below:

Microsoft Teams Need help?
Join the meeting now
Meeting ID: 230 927 380 505
Passcode: gA7AL2rw

SECTION 00100
INSTRUCTIONS TO BIDDERS

SECTION 00100

INSTRUCTIONS TO OFFERORS

1. DEFINED TERMS *(Revised 3/18/96, 9/9/96, 4/21/97, 7/13, 10/16/20)*

Terms used in these Instructions to Offerors which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 ed.) have the meanings assigned to them in the General Conditions. The term "Offeror" means the entity (such as a corporation, partnership, or sole proprietor) that submits a Proposal/Offer directly to Owner, as distinct from a sub-Offeror, who submits an Proposal to a Offeror. The term "Successful Offeror" means the highest rank, responsible, and responsive Offeror to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Proposal Documents" includes the Advertisement or Invitation to Offer, Instructions to Offerors, the Proposal Form, the Offer Bond or other Offer Security, and the proposed Contract Documents (including all Addenda issued prior to receipt of CSP). Other terms are defined in this Section 00100.

Other terms used in the Proposal Documents and not defined elsewhere have the following meanings which are applicable to both the singular and plural thereof:

Texas Resident Offeror - A Offeror 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.

Nonresident Offeror - A Offeror whose principal place of business is not in this state but excludes a Contractor whose ultimate parent company or majority owner has its principal place of business in this state.

EPCWID #1 - El Paso County Water Improvement District #1 which authorizes dewatering into its facilities under certain terms and conditions and with whom the Owner has negotiated specific basic fees and procedures.

NADB – North American Development Bank

2. COPIES OF PROPOSAL DOCUMENTS *(Revised 10/16/20, 12/11/23)*

2.1 Complete sets of the Proposal Documents stated in the Advertisement or Invitation to CSP may be obtained by accessing the following El Paso Water Utilities – Public Service Board (EPWater-PSB) IonWave electronic Proposal (e-bid) website:

https://epwater.ionwave.net/HomePage.aspx

If you have trouble accessing the Contract Documents, please contact the P&C Department of the EPWater-PSB at (915) 594-5628. Physical (hard) copies of the Contract Documents will no longer be made available.

2.2 Complete sets of Proposal Documents must be used in preparing CSPs; neither the Owner nor the Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Proposal Documents.

2.3 Owner and Engineer, in making copies of Proposal Documents available on the above terms, do so only for the purpose of obtaining CSPs on the Work and do not confer a license or grant for any other use.

3. DETERMINING HIGHEST RANK OFFEROR *(Revised 9/2/92, 2/25/94, 1/10/95. 5/22/95, 3/18/96, 9/9/96, 4/17/97, 6/17/97, 9/26/97, 12/10/97, 6/3/99, /10/99, 12/17/99, 3/13/00, 8/19/04, 1/18/10, 1/12/11,7/18/11, 11/2/16, 1/11/17, 9/27/17, 11/9/17, 7/23/18, 1/17/19, 10/16/20, 3/4/22)*

To demonstrate that the Offeror is responsible and able to perform the Work, each Offeror must be prepared to submit written evidence, such as financial data, previous experience, present commitments, and other data as may be called for below (or in the Supplementary Instructions). Each CSP must contain evidence of Offeror's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to Award of the Contract.

Competitive Sealed Proposal: Owner has determined that the Competitive Sealed Proposal

(CSP) method of procurement will be used for this Project. Offers found to be non-responsive and/or non-responsible will be rejected. Offers that are found to be responsive and responsible will be ranked according to the Selection Criteria defined below. The Offeror receiving the highest number of points will be ranked first and each other Offeror will be ranked in order of the number of points it receives.

In order for Offerors to be considered and evaluated in the Competitive Sealed Proposal (CSP) for this project, they must meet all the requisites included in the MINIMUM GENERAL REQUIREMENTS ALL -CONSTRUCTION PROJECTS.

In conducting the best value assessment, Owner may use information provided by Offers and information from other sources; however, the burden of providing thorough and complete information is the sole responsibility of each Offer. Owner reserves the right to request additional information and/or verify information.

3.1 **Elements**: In determining the highest ranked Offeror(s), in addition to price, the following elements may be considered:

(a) the quality, availability, and adaptability of the supplies, materials, equipment, or contractual services, to the particular use required;
(b) the number and scope of conditions attached to the Offer;
(c) the ability, capacity, and skill of the entity to perform the contract or to provide the service required;
(d) whether the Offeror can perform the contract and provide the service promptly, or within the time required, without delay or interference;
(e) the character, responsibility, integrity, reputation, and experience of the Offeror;
(f) the quality of performance of previous services, or contracts;
(g) the previous and existing compliance by the Offeror with laws relating to the contract or service;
(h) any previous or existing noncompliance by the Offeror with specifications, or requirements relating to time of submission of specified data such as samples, models, drawings, certificates, or other information;
(i) the sufficiency of the financial resources and ability of the Offeror to perform the contract or to provide the service;
(j) the ability of the Offeror to provide competent personnel for the job, as demonstrated by a listing of the names and the skills of experienced personnel who are currently employed by the Offeror and who will be available for performing this work;
(k) the experience of the Offeror in performing work similar in type, size and complexity to this project, as demonstrated by a listing of projects, with verifiable references (names, addresses, phone numbers, etc.), successfully completed.

3.2 **Selection Criteria:** Owner will rank Offers that are determined to be responsive and responsible according to the following method:

The evaluation of the Competitive Sealed Proposals will include an evaluation of the price, qualifications and expertise presented in the proposals received.

The Owner will score the CSP based on the evaluation of the criteria indicated below to identify recommended Offeror(s) for consideration. All proposals should be submitted in the sequence and format prescribed in this document. Failure to provide the requested information in the appropriate location may result in lower scores. Proposals will be evaluated based on the following evaluation criteria:

Criteria	MAXIMUM POINTS
1. Financial Capacity	Pass/Fail
2. Offeror's Proposed Price	40
3. Offeror's Experience and Reputation	15
4. Experience of Key Personnel	10
5. Offeror's Production Capacity / Project Planning Scheduling / Completion Methodology	30
6. Quality Control	5

1. Financial Capacity – (Pass/Fail)

Each Offeror shall complete the Qualification and Financial Disclosure Statement found at the end of this Section 00100 and provide a copy of its financial statement, including its balance sheet and income statement, for its most recent fiscal year-end. Owner will review the Financial Information and will award a pass or a fail to the Offeror.

Each Offeror can be awarded either a pass or fail. Offerors that fail to comply with the Financial Capacity could be deemed non-responsive. A Z-score is a numerical measurement of a value's relationship to the mean (average) of a group of values, measured in terms of standard deviations from the mean. If a Z-score is 0, it indicates that the data point's score is identical to the mean score. A Z-score of 1.0 indicates a value that is one standard deviation from the mean. Z-scores may be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean. The Z-score is based on five key financial ratios found on a company's financial statement.

The Z-score formula is: $\zeta=1.2A+1.4B+3.3C+0.6D+1.0E$

where:

Zeta (ζ) = Z-score
A = Working Capital/Total Assets
B = Retained Earnings/Total Assets
C = Earnings Before Interest and Taxes (EBIT)/Total Assets
D = Market Value pf Equity/Book Value of Total Liabilities
E = Sales/Total Assets

Owner will assign a pass score to the Offeror with a positive Z-score, while the Offeror with a negative Z-score may receive a fail score.

2. **Offeror's Proposed Price – (40 pts maximum allowable points)**

Each Offeror is to provide complete proposal form providing unit prices for all the required items Bid Form (Section 00300). Complete proposal forms must acknowledge receipt of all addenda received prior to bid date. Points will be allocated according to the calculation provided here.

$$\left(\frac{Lowest\ Total\ Proposal\ Price}{Offeror's\ Total\ Proposal\ Price}\right) X \quad 40$$

Example:

Lowest offeror = $100,000

$$\left(\frac{\$100{,}000}{\$100{,}000}\right) X \quad 40 = 40$$

Second lowest offeror=$200,000

$$\left(\frac{\$100{,}000}{\$200{,}000}\right) X \quad 40 = 20$$

3. **Offeror's Experience and Reputation – (15 maximum allowable points)**
(10 Points) – Experience. Each Offeror shall submit evidence and documentation of prior experience that demonstrates the Offeror's ability to satisfactorily perform the work on the project. Each Offeror shall submit five (5) completed projects, these projects shall demonstrate the Offeror's ability to manage and perform similar work as indicated in the scope for this solicitation, each with a minimum contract amount of $400,000. The five (5) projects shall have a cumulative value of $2,000,000. All reference projects shall be within the past ten (10) years (prior to bid opening). Contracts not meeting the criteria indicated in the prior paragraph will not be evaluated.
At least the following elements must be covered within the five (5) projects: repairs of streets rights-of-way and associated work to include curb and gutter repair/replacement, sidewalks, driveways, trench patch paving, milling, placement of flowable fill, placement of steel plates, installation of thermoplastic pavement markings and lane line striping, adjustment of valve boxes and manhole covers to grade. The project information submitted representing the project experience of the Offeror will be evaluated and scored. Each Offeror shall include the following information for each project:

• Project information (name/number/contract amount and dates)
• Client name
• Contact person, address, telephone number and email address.
• Detailed description of the scope of work.
• Providing graphic images of similar projects is encouraged.

Each Offeror is to detail experience in working with area utilities, permitting agencies, and dealing with the public. Each Offeror is to explain how this experience will contribute to successful completion of work orders.

(5 Points) Reputation. Each Offeror shall provide references for each project listed in the experience section for this criterion. A project not meeting the criteria under experience shall not be considered as a viable reference for reputation and shall not be scored.

4. **Experience of Key Personnel – (10 maximum allowable points)**

Each Offeror shall demonstrate relevant project experience similar in scope for the following key personnel proposed for this project:

a. Scheduler
b. Project Manager
c. Construction Superintendent(s)/Foreman(s)

For the key personnel listed above, each Offeror shall provide name of individual, position within the company, years of relevant experience, work and educational background, role and tasks to be assigned on this project, and an organizational chart reflecting the position and general responsibilities. Each Offeror shall also provide percentage of work week to be committed to this project and on-site availability for all key personnel. Each Offeror is also to provide the total number of employees and the list of proposed subcontractors with detailed experience.

5. **Offeror's Production Capacity / Project Planning / Scheduling / Completion Methodology - (30 maximum allowable points)**

(15 Points) Offeror's Production Capacity. Each Offeror shall provide documents that demonstrate that Offeror has the production capability and the resources to complete the project scope. Subcontractor experience maybe allowed. The contractor's production capability plan shall address the following elements:

- List of current contracts with other agencies/clients (name/contract amount/contract dates)
- Availability of steel plates (owned or rented)
- Paving equipment
- Mixing plants (10 cubic yard capacity)
- Concrete delivery trucks (10 cubic yard capacity)
- Traffic control equipment
- Asphalt providers
- Concrete providers
- Employee staffing levels and ability to recruit staff required to meet contract requirements in the various resurfacing process phases, including concrete and asphalt paving working on multiple collectors and above classified streets concurrently.
- Organizational chart outlining all staff and all subcontractors that the company will exclusively used for this contract.

(15 Points) Project Planning / Scheduling / Completion Methodology

a. Describe your approach to assuring timely completion of this project, including methods for schedule recovery if necessary.
b. Provide a comprehensive Critical Path Method (CPM) schedule for the project, based on an estimated total of 1,100 project sites distributed throughout the City of El Paso.
c. Develop a CPM schedule that demonstrates multiple crews working concurrently across multiple sites each day to ensure project completion within the 12 month contract duration.
d. Structure the schedule around a standard Monday–Friday workweek, consistent with project requirements.
e. Of the approximately 1,100 project sites, an estimated 850 sites will require implementation of the trench patch scope of work, including Bid Items 1–4 (trench patch operations), Bid Item 5 (asphalt pavement removal), and Bid Item 6-8 (HMAC placement). At these locations, the Owner may, at their discretion, direct the Contractor to perform all or selected components of Bid Items 9–25 and 30. Any such work shall be executed concurrently with the trench patch and associated asphalt pavement activities described above.

f. The remaining approximately 250 sites will not require work under Bid Items 1–8 and will instead consist solely of some or all work elements classified under Bid Items 9–25 and 30.

g. Ensure that each site—regardless of scope—is scheduled for completion within 10 working days from start to finish.

h. The estimated quantities, Work Order counts, and site counts provided herein are approximate and are included solely for evaluation, planning, scheduling, and proposal comparison purposes. Actual quantities, Work Orders, site locations, and work types may vary substantially, and no minimum quantity of Work Orders is guaranteed.

6. Quality Control – (5 maximum allowable points)

a. Each Offeror will explain the quality control program. Describe the methods used to ensure quality control for the duration of this contract and on each Work Order.

b. Each Offeror will describe how the quality control team will measure the quality of construction and subcontractor's work on this Contract, and how the Offeror will address non-conforming work.

c. Each Offeror is to provide examples of records, reports, monitoring systems, and information management systems to be used on this Contract.

d. Each Offeror is to describe the authority of the assigned quality control inspector to direct correction of work.

End of Evaluation Criteria

4.0 Competitive Sealed Proposal Evaluation and Appeal Process

4.1 Ranking Offerors.

All Proposals will be ranked based on the Selection Criteria by El Paso Water Executive Services, Technical Services, Engineering and Project Management, Public Service Board Member(s), Consulting Engineer, and any other EPWater Personnel as designated by the Owner (the "Selection Committee") and forwarded to the Vice President of Operations and Technical Services for approval. The final rankings will then be forwarded to the President/CEO for his approval. The term "President/CEO" shall include his designee.

4.2 Authorization to Negotiate.

The President/CEO shall review the final ranking. EPWater reserves the right to select one or multiple highest ranked Offeror(s) that are determined to be qualified in accordance with the terms and selection criteria established by the CSP method of procurement.

The Chief Engineering Officer shall negotiate, starting with the highest ranked Offeror(s). If the Chief Engineering Officer and the Selected Offeror(s) cannot reach an agreement within thirty consecutive calendar days from the date the Selected Offeror(s) receives notice of the President/CEO's approval of the final ranking, the Chief Engineering Officer may, in the absence of a protest by the Selected Offeror(s), either (1) proceed to negotiate with the remaining Offeror(s) in the order of their ranking or (2) reject all offers.

4.3 Intent to Award Multiple Contracts and Effect of Ranking

EPWater intends to award this CSP to up to three (3) Offerors, if determined to be in the best interest of EPWater. Final award shall be based on the ranking of responsive and responsible Offerors in accordance with the evaluation criteria set forth herein.

Offerors are advised that final ranking may be considered by EPWater when assigning Work Orders, including the volume, frequency, sequencing, and priority of Work Orders issued. EPWater reserves sole discretion to assign Work Orders based on ranking, operational needs, Contractor availability, responsiveness, capacity, performance, safety record, schedule compliance, quality of work, and the best interest of EPWater.

Award of a Contract shall not guarantee any minimum quantity of Work Orders, dollar amount, or percentage allocation of the Work. All awarded Contracts shall be non-exclusive.

4.4 Notice and filing protests.

Offerors will be notified in writing (by fax, email, or regular mail) of the final ranking. The ranking shall be sent with the notice and shall show the order of the ranking and points received by each Offeror. Offerors shall have three Owner business days from the day of their receipt of the notice to challenge the ranking by filing a written protest with the Owner's P&C Administrator. All Offerors will be notified of any protests filed.

4.5 Review of protests.

The P&C Administrator will review the validity of the protest regarding the ranking and make a recommendation to the President/CEO. The President/CEO will review the rankings and the P&C Administrator's recommendation and (1) approve the rankings and the Selected Offeror(s), (2) direct the Selection Committee to reconsider the rankings, or (3) take other appropriate action in compliance with state laws and the Owner's purchasing policies.

4.6 Notice of Results of Review and New Ranking.

All Offerors shall be given notice of the President/CEO's determination upon completion of the review of the protest. If reconsideration of the ranking is not required by the President/CEO, the ranking shall be final as of the date of the President/CEO's determination, and no further protest shall be allowed. If reconsideration of the ranking is required, notice of the results of the reconsideration of the ranking shall be provided to all Offerors.

4.7 Protesting the New Ranking.
All Offerors may protest the re-ranking of the Offerors following the same process as set forth above.

4.8 Appeal of Final Ranking.
Offerors who have filed a protest concerning the final ranking may appeal the decision of the President/CEO. No other Offerors may appeal under this paragraph. The appeal shall be to the Public Service Board and shall be filed in writing with the P&C Administrator within five Owner business days of the Offeror's receipt of the notice of the final ranking. The appeal shall state the basis for the challenge of the ranking.

4.9 Scope of Negotiations.
The Chief Engineering Officer will negotiate with the Highest Ranked Offeror(s) and may discuss options for scope or time modifications to the proposed contract and any price change associated with the modifications.

4.10 Reaching Agreement or Terminating Selection Process.
If the Chief Engineering Officer and the highest ranked Offeror(s) do not reach an agreement within thirty consecutive calendar days of the date the highest ranked Offeror(s) received notice of the final ranking, the highest ranked Offeror(s) shall be notified in writing that negotiations are terminated, and the highest ranked Offeror(s) shall not be permitted to enter into a contract with the Owner. The highest ranked Offeror(s) shall have three Owner business days from the day of its receipt of such notice to file a written protest with the P&C Administrator. The protest shall state the basis for the challenge to the termination of negotiations. The P&C Administrator will review the validity of the protest and make a recommendation to the President/CEO. The President/CEO will review the protest and the P&C Administrator's recommendation and may direct the Chief Engineering Officer to terminate or reopen negotiations with the highest ranked Offeror(s). If the determination is to terminate negotiations with the highest ranked Offeror(s), the President/CEO may direct the Chief Engineering Officer to negotiate with the next highest ranked Offeror or reject all Proposals. This procedure will be repeated until an agreement is reached, or all Proposals are rejected.

4.11 Appeal by highest ranked Offeror(s) After Terminating Negotiations.
If the President/CEO denies the protest made pursuant to the previous paragraph, the highest ranked Offeror(s) may appeal that decision to the Public Service Board. No other Offeror(s) may appeal under this paragraph. The appeal shall be filed in writing with the P&C Administrator within five Owner business days of the highest ranked Offeror's receipt of the notice denying the protest. The appeal shall state the basis for the challenge to the termination of negotiations.

4.12 Appeal Process.
Following a public hearing after the filing of a notice of appeal pursuant to the preceding paragraph, the Public Service Board may, by a simple majority vote, uphold or overturn the ruling of the President/CEO. The decision of the Public Service Board shall be final and binding.

4.13 Public Service Board Approval of the Contract.
The President/CEO shall recommend to the Public Service Board that the contract be awarded to the highest ranked Offeror(s) with whom the Owner was able to reach an agreement on the terms and conditions of the negotiated contract.

MINIMUM GENERAL REQUIREMENTS - ALL CONSTRUCTION PROJECTS

QUALIFYING PROJECTS

Offerors on Qualifying Projects must provide a Safety Record consisting of: (1) copies of the Offeror's OSHA Forms 300, 300A, and 301 for the last three calendar years (January – December); (2) the Establishment Search Results from the Occupational Safety and Health Administration's website (https://www.osha.gov/pls/imis/establishment.html); and (3) a completed and signed Contractor Pre-Qualification Form (Section 00301). A Qualifying Project is a project with a value greater than $100,000 or one that the Chief Engineering Officer and Vice President of Operations and Technical Services determine poses a significant hazard.

EPWater will deem a Offeror not responsible if the Offeror (1) fails to provide a complete Safety Record; (2) received within the last three calendar years (January – December) six or more serious violations, one or more willful violations, or a single repeat of a serious violation; or (3) has experienced a workplace fatality in the last three calendar years (January – December), unless the Offeror can demonstrate that the factors that caused the fatality were outside the Offeror's control. A Offeror, however, may fail the above criteria but still be deemed responsible if (1) no other appropriate Offeror can be found; (2) the Offeror is approved by the Chief Engineering Officer and the Vice President of Operations and Technical Services; and (3) the Offeror agrees to implement the special safety procedures (which might include a requirement to work only with trained EPWater personnel present) that the Vice President of Operations and Technical Services establishes for the project.

PROJECTS WITH VALUE LESS THAN $1,000,000:

The Offeror, or at least two *Key Personnel employed by the Offeror, must demonstrate **Successful Completion of a project similar in nature and scope to this project within the past five years and a similar project with a value of at least one-third the value CSP for this project.

PROJECTS WITH VALUE BETWEEN $1,000,000 AND $3,000,000:

The Offeror, **or** at least three *Key Personnel employed by the Offeror, must demonstrate **Successful Completion of one project similar in nature and scope to this project within the past five years and one similar project with a value of at least 50% of the value CSP for this project.

PROJECTS WITH VALUE BETWEEN $3,000,000 AND $6,000,000:

The Offeror must demonstrate a minimum of four years of experience in projects similar in nature and scope to this project. At least four *Key Personnel employed by the Offeror must have a minimum of five years of experience in similar construction projects. The Offeror must demonstrate **Successful Completion during the last five years of at least one project comparable in nature and scope to this project and one similar project with a dollar value of at least 60% of the value CSP for this project. The Offeror must have an employee, to be dedicated to this project, who is experienced in scheduling, with demonstrated ability in employing scheduling techniques similar to those to be used for this project.

PROJECTS WITH VALUE BETWEEN $6,000,000 AND $15,000,000:

The Offeror must have a minimum of five years of experience in projects similar in nature and scope to this project. At least four of the Offeror's *Key Personnel must have a minimum of five years of experience in similar construction projects. The Offeror must demonstrate **Successful Completion of at least two projects similar in nature and scope to this project and one similar project with a dollar value of at least 75% of the value CSP for this project, both within the past five years. The Offeror must demonstrate that it has an experienced employee who will serve as the scheduler; who is dedicated to this project; who has successfully employed scheduling techniques appropriate for this project. At least two *Key Personnel for this project must have completed at least two projects, similar in scope and nature to the project being CSP, as an employee of the Company proposing this project.

* KEY PERSONNEL: Defined as individuals who will be directly assigned to this project which includes, but is not limited to, the Offeror's Project Manager, the Project Superintendent, the Scheduler, the Offeror's Construction Engineer, and

Supervisory personnel such as the Foremen who will be directly assigned to this project as well as similar Subcontractor Key Persons. Resumes of Key Personnel must be submitted and accepted by the Owner in order for Offeror to receive the Award.

** SUCCESSFUL COMPLETION: Defined as completion of a project on time, which generally means no more than thirty days later than the original contract time allocated. It also means within budget, which generally means within 5% of the original contract price. If there is any project submitted by the Offeror as qualifying, but which does not meet these requirements, in order to be fully responsive, the Offeror is required to submit detailed information on that project demonstrating what caused the increases to cost or time. The name and telephone numbers of the Design Engineer and the Client are to be provided for evaluation as to whether the project may be considered "successful". For any project where liquidated damages were assessed, the Offeror will not be considered to have been on time.

OFFEROR MUST MEET THE FOLLOWING MINIMUM PROJECT SPECIFIC CRITERIA IN ORDER TO QUALIFY FOR AWARD OF THE PROPOSAL:

1. Offeror shall submit five (5) completed projects that demonstrate the Offeror's ability to manage and perform similar work as indicated in the scope for this solicitation, each with a minimum contract amount of $400,000. The five (5) projects shall have a cumulative value of $2,000,000. All reference projects shall be within the past ten (10) years (ten years prior to bid opening). At least the following elements must be covered within the five (5) projects: repairs of streets rights-of-way and associated work to include curb and gutter repair/replacement, sidewalks, driveways, trench patch paving, milling, placement of flowable fill, placement of steel plates, installation of thermoplastic pavement markings and lane line striping, adjustment of valve boxes and manhole covers to grade. Use the Qualification and Financial Disclosure Statement form in section 00100 to provide this information.

EPWATER CIP FUNDED PROJECTS
GOOD FAITH EFFORTS
TO OBTAIN SERVICE-DISABLED VETERAN PARTICIPATION IN THIS PROJECT

The Utility's policy for its projects is to encourage the participation of Service-Disabled Veteran Businesses to seek purchasing and contracts opportunities as a certified State of Texas HUB resource, Service-Disabled Veteran Business.

FOR SERVICE-DISABLED VETERANS

The Offeror must demonstrate, at the time of submitting their solicitation that he or she is a certified VetHUB Service-Disabled Veteran or has made a good faith effort seeking solicitation requirements with certified VetHUB that may qualify for consideration of an award. The definition of a "Good Faith Effort" is described below. If the Offeror fails to meet the "Good Faith Effort" with inability to provide evidence that a good faith effort has been made, the Owner reserves the right to request additional information from the Offeror as support to Good Faith Effort documentation. The Offeror may meet the requirement in one of three ways:

1. If effort is fully achieved, offeror is to provide all details of the actual participation in the Solicitation Proposal Form, Section 00300, where space has been provided for Offeror's use.

2. If effort is partially achieved in the category, offeror is to provide details(s) of the actual participation in the Offer Proposal Form, and to provide evidence of the Good Faith Effort, as part of the offer proposal, at the time the offer is submitted.

3. If Good Faith Effort is not achieved, offeror is to provide evidence of a demonstrated Good Faith Effort, as defined below, as part of the bid is proposal, at the time the offer is submitted.

If a Service-Disabled Veteran is a single prime contractor, a subcontractor, or a supplier the effort will be considered to have met the good faith effort.

DEFINITIONS *(Revised 7/28/14, 10/16/20, 3/4/22)*

GOOD FAITH EFFORT: Documentation that Service-Disabled Veteran firms from whom there is a reasonable expectation would be able to respond and perform works, services, goods solicited/quoted were given a genuine opportunity to participate. Evidence of a Good Faith Effort must include copies of a reasonable number of letters sent to bona fide firms in the category described showing the full details of the works, services, facsimile or e-mail confirmations of receipt, copies of responses to the letters, and copies of correspondence with the Small Business Administration, and/or newspaper or trade magazine notices. Facsimile and e-mail confirmations of receipt must show sufficient information to identify the company name to which the solicitation was sent. Sample solicitation letters are included in Section 310.

The State of Texas resource to identify Service-Disabled Veteran classification companies is located on the Texas Comptroller of Public Accounts website: Comptroller.Texas.gov.

Comptroller.Texas.gov > "Purchasing (5th link across the upper page) > Select in drop-down "Vendor Sources" > Select "Veteran Heroes United in Business (VetHUB) > Under the VetHUB logo, Select "Search for CMBL/ VetHUB Vendors.

Note: CMBL/VetHUB provides all VetHUB Service-Disabled Veteran businesses. From the same CMBL/VetHUB selection you may search "Business Category/Vendor Location" for a more concentrated search.

SERVICE-DISABLED VETERAN BUSINESS (VetHUB): A business corporation, partnership, joint venture, sole proprietorship, or other legal entity formed for the purpose of making a profit, has been located within the State of Texas and HUB certified a Service-Disabled Veteran business by the State of Texas as a VetHUB and is 51% or more owned by a Service-Discabled Veteran. Furthermore, that business must employ fewer than 100 employees or have annual gross sales of less than$7,000,000 and is not a subsidiary of a business which would not meet these guidelines.

The form entitled "Service-Disabled Veteran Certification and Participation Summary", which is located at the end of Section 00300, Offer Form, should be completed and submitted by the Successful Offeror within ten days of Notice of Award.

It is mandatory that Offeror submit with his or her Offer a fully executed Offer proposal (including the tabulation of proposed subcontractors and suppliers), an original Offer bond, the certificate of insurance availability, and categories reflecting Offeror has met Service-Disabled Veteran (VetHUB) participation goals OR evidence of Offeror's good faith effort to do so. Failure to submit these items with the Offer will result in a finding that the Offeror is non-responsive and the Offer will be disqualified.

Evidence of Offeror's good faith effort *or* evidence of *full* participation in each category is also required at the time of Offer. Owner reserves the right to request additional information from the Offeror as support to good faith effort documentation.

Offerors shall furnish a financial statement or other evidence of the Offeror's financial sufficiency to perform the contract, a sworn statement of his or her experience record, and a listing of the equipment available to him or any other statement or documentation required by the Owner or Owner's consultant as to his or her capability to complete the Work. The Post-Offer/Pre-Award Checklist and the Qualifications Statement may require submittal of additional documentation. PLEASE REVIEW THE CHECKLISTS PROVIDED AT THE END OF THIS SECTION 00100.

To assist the Owner in evaluating the Offeror's responsibility, the lowest responsive Offeror is required to complete and submit the "Qualification and Financial Disclosure Statement" found at the end of Section 00100 within five calendar days of the consulting Engineer's request. The Engineer will submit this document and any additional information received as requested by the consulting Engineer, to the Owner as an attachment to his or her Recommendation of Award.

The Checklists found at the back of this Section are provided to assist the Offeror in fulfilling these requirements.

The P&C Department will evaluate the responsiveness of the Offeror's submittal. Purchasing Agent will forward the offers and results of the P&C Department's evaluation to the consulting Engineer for further evaluation of responsiveness, qualifications of the Offeror and other related conditions of this Offer. Engineer will forward the results of the evaluation to the Owner in writing. Owner will review Engineer's evaluation and present its recommendation to the Public Service Board for award.

Offeror is required to submit information regarding his or her status as a "RESIDENT" or "NONRESIDENT" as shown on the spaces provided in the proposal form.

A "Nonresident Offeror" will not be awarded the Contract if the state of his or her principal place of business assesses a penalty against out-of-state Offerors unless his or her Offer is lower than the lowest CSP submitted by a responsible Texas resident Offeror by the same amount that a Texas resident Offeror would be required to underbid the nonresident Offeror to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

The terms "Texas Resident Offeror" and "Nonresident Offeror" describe the meanings set forth for those terms in Chapter 2252 of the Texas Government Code.

5.0 EXAMINATION OF CONTRACT DOCUMENTS AND SITE *(Revised 3/18/96, 4/21/97, 1/18/10, 1/12/11, 4/13, 10/16/20)*

5.1 It is the responsibility of each Offeror, before submitting a Offer, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, and to determine the character of equipment and facilities needed preliminary to and

during the prosecution of the Work, (c) consider federal, state and local laws and regulations that may affect cost progress, performance or furnishing of the Work, (d) study and carefully correlate Offeror's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents.

6.0 INTERPRETATIONS AND ADDENDA *(Revised 10/16/20, 3/4/22, 12/11/23, 3/13/24)*

6.1 Pursuant to the Cone of Silence policy, any communication between potential Offerors and EPWater staff or Engineer relating to this project is prohibited. All questions regarding the meaning or intent of the Contract Documents must be submitted to Owner via Ion Wave and clicking on Current CSPs, then the CSP # you have a question on and submit your question on the Question Tab. Interpretations or clarifications considered necessary by EPWater staff, Engineer, or Consultant in response to such questions will be issued by Addenda and will be posted on El Paso Water's IonWave electronic proposal (e-bid) website. Offeror will be responsible to check the website regularly for any addenda or additional information for the project. Questions received less than ten (10) days prior to the date for opening of CSPs will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications, either by EPWater staff, Engineer, or Consultant will be without legal effect.

6.2 Addenda may also be issued to modify the Proposal Documents as deemed advisable by Owner or Engineer, with Owner's approval.

7.0 PROPOSAL SECURITY *(Revised 10/12/92, 2/25/93, 1/10/95, 5/22/95, 1/18/10, 7/13, 1/17/19, 10/16/20, 3/4/22, 3/13/24)*

7.1 Each Offer must be accompanied by an original and notarized Offer security made payable to Owner in an amount of five percent of the Offeror's maximum Offer price and in the form of a certified or cashier's check or a Offer Bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions and Paragraph 6.01 of the Supplementary General Conditions.

7.2 The Offer security of the Successful Offeror will be retained until such Offeror has executed the Agreement and furnished the required contract security and insurance, whereupon the Offer security will be returned. If the Successful Offeror fails to execute and deliver the Agreement and furnish the required contract security, insurance, and other required contract documents within ten days after the Notice of Award, Owner may annul the Notice of Award and the Offer security of that Offeror will be forfeited. The Offer security of other Offerors whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the ninety-first day after the Proposal opening, whereupon Offeror security with Offers that are not competitive will be returned within seven days after the Proposal opening.

The Offeror agrees by signing this Offer that he fully understands the requirements of the Offer documents.

An incentive payment is available in the amount of $100 per day, up to a maximum of $300, for the Offeror's successful efforts in expediting delivery of fully compliant documents in a time period shorter than the 10-day maximum called out in the Notice of Award.

Should the Offeror fail to return the Agreements, acceptable Bonds, Insurance Certificates and insurance policies within ten days of receipt of the documents, the Utility may charge excess costs generated by such delay at the rate of $100 for each day of delay. In the event more than two reviews of insurance submittals are required by the Utility's Risk Manager, the Successful Offeror will additionally reimburse the Utility for those costs at the rate of $150 per hour which will apply to each fifteen-minute fraction thereof charged by the Risk Manager. These reimbursed costs will be deducted from the Offerors first Application for Payment or, in the event a Offer Bond is forfeited, such expenses may be reimbursed from the proceeds of the Offer Bond as part of the excess costs or re-procurement.

8. CONTRACT TIME

The initial term of a Contract awarded as a result of this CSP shall be as described in the Agreement, for a one year beginning on the date of the Effective Date of the Agreement. The

contract may be renewed according to the terms stated herein for two (2) additional one (1) year periods by EPWater. It is understood that the submitted unit prices are to be honored over the term of the Contract. A letter from the Contractor will be required for each renewal stating that the prices will be held. If the Contract is extended, a one-time cost escalator at the time of each Contract renewal of no more than the percentage increase specified in the Offeror's submittal will be permitted. A written request from the selected Offeror(s) submitted sixty (60) days prior to the end of the initial Contract period will be required to consider any rate adjustments. Extension of the Contract is subject to the availability of funding. The Contract shall terminate in accordance with the Agreement with EPWater. Awarded Contractor(s) will perform work upon the issuance of Work Order which will more definitively describe the Unit Price Work to be performed and any specified time to complete the Work.

LIQUIDATED DAMAGES *(Revised 3/18/96, 10/16/20)*

Provisions for liquidated damages, if any, are set forth in the Agreement and in the Supplementary General Conditions SC-11.11.

9. SUBSTITUTE OR "OR EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings (if provided) or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor is acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the date of the Notice to Proceed. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraphs 7.05 and 7.06 of the General Conditions and may be supplemented in the General Requirements.

10. SUBCONTRACTORS, SUPPLIERS AND OTHERS *(Revised 10/12/92, 9/9/96, 12/10/97, 12/17/99, 7/13, 10/16/20)*

10.1 Each Offeror is required to identify all Subcontractors and Suppliers; to provide the value of each proposed subcontract or purchase order; and to report their own and their subcontractor's business classification Service-Disabled Veteran or other. Each Offeror shall submit with his or her Offer a list of all proposed Subcontractors and Suppliers. Space for this submittal is provided within the Offer Proposal, Section 00300. Use additional sheets as necessary. Each Offeror is required to submit the Service-Disabled Veteran certification and participation Summary Form with his or her Offer. If requested by Engineer or by Owner, Offeror shall provide an experience statement with pertinent information regarding similar projects and other evidence of qualifications for each such Subcontractor, Supplier, person, or organization. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, either Owner or Engineer may, before the Notice of Award is given, request the apparent highest ranked Offeror(s) to submit an acceptable Highest Ranked Offeror, in which case the apparent highest ranked Offeror(s) shall submit an acceptable substitute, Each Offeror(s)' Offer price will be increased (or decreased) by the difference in cost occasioned by such substitution and Owner may consider such price adjustment in evaluating Offers and making the Contract Award.

10.2 No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

10.3 The Offeror shall submit a Final Report of total payments made to each subcontractor and supplier, as part of the required close out documents.

11.0 CSP FORM *(Revised 10/16/20)*

11.1 The Offer (BID) Form is included with the Proposal Documents.

11.2 All blanks on the Offer (BID) Form must be completed in ink. Offer which do not have all blanks filled in or completed may be rejected at the Owner's option by Owner or Purchasing Agent.

11.3 Offers by corporations must be executed in the corporate name by the president or a vice president (or other

corporate officer accompanied by evidence of authority to sign) and the corporate seal if any must be affixed and officer's signature must be attested by the secretary or an assistant secretary. The corporate address, state of incorporation, and state of principal place of business must be shown below the signature.

11.4 Offers by partnerships must be executed in the partnership name and signed by a partner, whose title and authority to sign must appear under the signature and the official address of the partnership must be shown below the signature.

11.5 All names must be printed below the signature.

11.6 The Offer shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the CSP Form).

11.7 The address and telephone number for communications with Offeror regarding the Offer must be shown.

12.0 SUBMISSION OF CSPS *(Revised 10/16/20, 3/4/22, 12/11/23)*

Offers shall be submitted at the time and place, either through the e-bid response submittal process via IonWave and/or hard copies. If submitting hard copies, ensure, they are enclosed in an opaque, sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Offer is submitted), name and address of the Offeror and accompanied by the Offer security and other required documents. If the Offer is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "COMPETITIVE SEALED PROPOSAL ENCLOSED" on the face of it. Responses to CSPs / solicitations may be submitted via the E-Bid process and, or hard copy, or both.

Any questions or clarifications pertaining to the Offer documents, requirements, specifications, or terms and conditions of the Offer or contract documents should be addressed via the Addendum process described above in Section 5. Any extraneous documentation, letters, explanations, limitations, commentary, conditions, or the like submitted with an Offer will ***NOT*** be considered or incorporated as the basis of any award. Offeror agrees to be held solely to the terms and conditions of these Offer documents; General and Supplementary Conditions (as may be amended from time to time); and any other documents identified by EPWater.

13.0 MODIFICATION AND WITHDRAWAL OF OFFERS

13.1 Offers may be modified or withdrawn by an appropriate document duly executed (in the manner that an Offer must be executed) and delivered to the place where CSPs are to be submitted at any time prior to the opening of CSPs.

13.2 If, within twenty-four hours after Proposals are opened, any Offeror files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Offer; that the mistake is clerical; that the mistake is so serious that enforcement of the Offer would be unconscionable; and that the mistake has occurred despite the exercise of ordinary care; that Offeror may withdraw its Offer and the Offer security will be returned. Thereafter, that Offeror will be disqualified from further Proposal on the Work to be provided under the Contract Documents.

14.0 OPENING OF PROPOSALS

Offers will be opened and (unless obviously nonresponsive) read aloud publicly. An abstract of the amounts of the base Offers and major alternates (if any) will be made available to Offerors after the opening of Proposals.

15.0 OFFERS TO REMAIN SUBJECT TO ACCEPTANCE *(Revised 12/10/97, 1/18/10, 7/13, 10/16/20)*

All Offers will remain subject to acceptance for a minimum of 90 days after the day of the Proposal opening, but Owner may, in its sole discretion, release any Offer and return the Offer security prior to that date. In the case of State, Federal, or NADBank-funded projects, all Offers will remain subject to acceptance for 90 days or such reasonable time as the funding agency may require.

16.0 AWARD OF CONTRACT *(Revised 3/18/96, 12/10/97, 10/9/98, 1/18/10, 10/16/20)*

16.1 Owner reserves the right to reject any and all Offers, to waive any and all informalities not involving price, time or changes in the Work and the right to disregard all immaterial, nonconforming, nonresponsive, unbalanced, or conditional Offer. Also, Owner reserves the right to reject the Offer of any Offeror if Owner believes that it would not be in the best interest of the Project to make an award to the Offeror, whether because the Offer is not responsive, or the Offeror is not responsible because the Offeror is deemed to be unqualified or of doubtful financial ability or fails to meet any other pertinent criteria established by Owner under Paragraph 3 hereof. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Any Offers submitted in which there is a material failure to comply with the Offer requirements or specifications will be rejected and the contract will be awarded to the highest ranked Offeror(s) conforming to the specifications unless the Owner decides to reject all Offers. Owner reserves the right to award a contract to one or multiple highest ranked Offerors).

16.2 In evaluating Offers, Owner will consider the responsiveness of the Offer, responsibility of the Offerors, whether or not the Offers comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Offer Form or prior to the Notice of Award.

16.3 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary General Conditions or other sections of this Proposal document. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award or as a substitute.

16.4 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Offer and to establish the responsibility, qualifications and financial ability of Offerors, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

16.5 If the contract is to be awarded, it will be awarded to one or multiple highest ranked Offerors whose responsibility has been evaluated in accordance with these Instructions to Offerors.

"Award of a Contract under this CSP shall be non-exclusive. EPWater may issue Work Orders to any awarded Contractor at EPWater's sole discretion. EPWater may consider final ranking, Contractor performance, responsiveness, availability, capacity, safety performance, schedule compliance, quality of work, and prior Work Order completion history when assigning future Work Orders. Nothing herein shall be construed as a guarantee of minimum work, compensation, or equal distribution of Work Orders among awarded Contractors."

16.6 If the contract is to be awarded, Owner will give the Successful Offeror a Notice of Award within 90 days after the day of the Proposal opening. In the case of State or Federally-funded projects, Owner will give the Successful Offeror a Notice of Award within 90 days after the day of the CSP opening, or such reasonable time as the funding agency may require.

17. CONTRACT SECURITY *(Revised 9/17/93; 3/18/96, 7/13, 10/16/20, 3/4/22)*

Paragraph 6.01 of the General Conditions and the Supplementary General Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Offeror delivers the executed Agreement to Owner, it must be accompanied by the required Performance and Payment Bonds and the Certificate of Insurance and insurance policies. A Payment Bond must be provided for contracts more than $50,000 in value. If the contract requires an expenditure of less than $100,000, the Owner reserves the right to waive the requirement for a Performance Bond, provided that payment is not due to the Contractor until the Work is completed and accepted by the Owner. Any provision in any bond furnished in attempted compliance with House Bill No. 31 that expands or restricts the rights or liabilities provided under this Act shall be disregarded and the provisions of this Act shall be read into that Bond.

18. SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Offeror, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days after, Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds and a copy of the Certificate of Insurance along with a copy or copies of the actual Insurance policy or policies.

Owner shall deliver fully signed final contract to Contractor when all pre-construction contract requirements have been met.

19. PRE-PROPOSAL CONFERENCE *(Revised 10/16/20)*

A pre-proposal conference will be held at 10 a.m., local time, on the 7th day of July, 2026 virtually using Microsoft Teams software. The link for the meeting will be posted on the EPWater website. Representatives of Owner and Engineer will be present to discuss the Project. Offerors are encouraged to attend and participate in the conference. Owner will publish on the EPWater website such Addenda as Engineer considers necessary in response to questions arising at the conference.

20. SALES AND USE TAXES *(Revised 3/18/96, 4/13)*

Owner is exempt from Municipal and State Sales and Use Taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Contract Price. Refer to Supplementary General Conditions SC-7.10.B for additional information.

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

Offeror:_____

Street Address:_____ City/State/Zip:_____

Phone: _____ Email Address:_____

1. ORGANIZATION

1.1 How many years has your organization been in business as a Contractor? _____years

1.2 How many years has your organization been in business? _____years

1.3 Under what former names has your organization operated? _____

_____

1.4 If your organization is controlled or substantially owned by another organization, identify that organization and explain the relationship.

_____

_____

1.5 If your organization is a corporation, answer the following:

1.5.1 Date of organization: _____ State of incorporation:_____

1.5.2 President's name: _____

1.5.3 Vice-presidents' names: _____

1.5.4 Secretary's name: _____

1.5.5 Treasurer's name: _____

1.6 If your organization is a partnership, answer the following:

1.6.1. Date of organization: _____

1.6.2. Type of partnership (if applicable): _____

1.6.3. Name(s) of partner(s): _____ _____

1.7 If your organization is an individually owned sole proprietorship, answer the following:

1.7.1. Date of organization: _____

1.7.2. Name of owner: _____

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

2. LICENSING

2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable. _____

_____

_____

2.2 List jurisdictions in which your organization's partnership or trade name is filed. _____

_____

3. EXPERIENCE *(revised 3/18/96, 9/9/96, 12/10/97, 10/9/98, 7/13, 02/20/21)*

3.1 Years of experience in the construction industry? _____ years

3.2 List the categories of work that your organization normally performs with its own forces.

_____

_____

3.3 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

3.3.1. Has your organization ever failed to complete any work awarded to it? ☐ Yes ☐ No

3.3.2. Are there any judgments, claims, arbitration proceedings, or suits pending or outstanding against your organization or its officers? ☐ Yes ☐ No

3.3.3. Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years? ☐ Yes ☐ No

3.3.4. Within the last five years, has any officer or principal of your organization been an officer or principal of another organization when it failed to complete a construction contract?

☐ Yes ☐ No

4. CURRENT WORK

List the five largest construction projects your organization has in progress based on amount remaining to be invoiced.

Name of Project #1: _____ Location: _____

Project Manager: _____ Project Superintendent:_____

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

Owner: _____

Owner Point-of-Contact: _____Phone: _____

A/E: _____

A/E Point-of-Contact: _____Phone: _____

Contract Amount: $ _____ Remaining to be Billed: $_____

Name of Project #2: _____ Location:_____

Project Manager: _____ Project Superintendent: _____

Owner: _____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact: _____Phone: _____

Contract Amount: $ _____ Remaining to be Billed: $ _____

Name of Project #3:_____ Location:_____

Project Manager:_____ Project Superintendent: _____

Owner:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Remaining to be Billed: $_____

Name of Project #4:_____ Location:_____

Project Manager:_____ Project Superintendent:_____

Owner:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

Contract Amount: $_____Remaining to be Billed: $_____

Name of Project #5:_____ Location:_____

Project Manager:_____ Project Superintendent:_____

Owner:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Remaining to be Billed: $_____

Sum total of the contract amounts for all work under currently contract: $_____

Total of the amount invoiced to date for the above contracts: $_____

Subtract to determine current backlog for the above contracts: $_____

State annual amount of construction work performed each year during the past five years:

2021: $_____ 2022: $_____

2023: $_____ 2024: $_____

2025: $_____

5. EXPERIENCE AND REPUTATION

The Offeror shall submit evidence and documentation of prior experience. The Offeror shall submit five (5) Each Offeror shall submit five (5) completed projects, these projects shall demonstrate the Offeror's ability to manage and perform similar work as indicated in the scope for this solicitation, each with a minimum contract amount of $400,000. The five (5) projects shall have a cumulative value of $2,000,000. All reference projects shall be within the past five (5) years (ten years prior to bid opening).

Name of Project #1:_____ Location:_____

Project Manager:_____ Project Superintendent:_____

Owner: _____ Email:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Year Completed:_____ Complete on time? ☐ Yes ☐ No

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

Scope of Work _____

_____

_____

Name of Project #2:_____Location:_____

Project Manager:_____ Project Superintendent:_____

Owner: _____ Email:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Year Completed: Complete on time? ☐ Yes ☐ No

Scope of Work:_____

_____

_____

Name of Project #3:_____ Location:_____

Project Manager:_____ Project Superintendent:_____

Owner:_____ Email:_____

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Year Completed: Complete on time? ☐ Yes ☐ No

Scope of Work:_____

_____

_____

Name of Project #4:_____ Location:_____

Project Manager:_____ Project Superintendent:_____

Owner: _____ Email:_____

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

Owner Point-of-Contact:_____ Phone:_____

A/E:_____

A/E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Year Completed: Complete on time? Yes No

Scope of Work:_____

_____

_

_____

_ Name of Project #5:_____

Location:_____ Project Manager:_____ Project

Superintendent:_____ Owner: _____

Email:_____ Owner Point-of-

Contact:_____ Phone:_____ A/

E:_____ A/

E Point-of-Contact:_____ Phone:_____

Contract Amount: $_____ Year Completed: Complete on time? Yes No

Scope of Work:_____

_____

_____

6. SERVICE-DISABLED VETERAN CERTIFICATION

Attach the SERVICE-DISABLED VETERAN Certification Summary Form found at the end of Section 00300.

7. REFERENCES

7.1. Trade References:

7.1.1. Name: _____

7.1.2. Name: _____

7.2. Bank Reference:

7.2.1. Name: _____

7.3. Surety (Bonding Company):

Name: _____

Address: _____

Agent: _____Telephone number: _____

8. FINANCIAL INFORMATION

8.1. Attach a CPA-prepared financial statement, preferably audited, for the fiscal year end immediately preceding the date set for Proposal opening. The pages should be numbered sequentially. The financial statement should include a balance sheet, income statement, and statement of cash flows. Include auditor's statements and notes, if any.

8.2. Provide the following values from the financial statement. Indicate the page number on the financial statement which is the source of each value.

Financial Term	Amount	Page of Financial Statement
Working Capital	$	
Retained Earnings	$	
Earnings Before Interest and Taxes (EBIT)	$	
Market Value	$	
Book Value	$	
Sales	$	
Total Assets	$	

8.3. CPA's contact information:

Firm Name: _____

CPA's Name:_____

Address: _____

Email: _____Telephone number:_____

8.4. Is the attached financial statement for the identical organization named on page one? ☐ Yes ☐ No

8.5. If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary). Also explain if organization whose financial statement is attached act as guarantor of the contract for construction.

_____

_____

_____

9. KEY PERSONNEL

Offeror shall demonstrate relevant project experience similar in scope for the Key Personnel.

9.1. Estimator's Name: _____

Number of years full-time employment by Offeror: _____

Number of years of relevant experience _____

Experience _____

_____

Work and Educational Background _____

_____

Roles and Tasks to be assigned on this project:_____

_____

9.2. Project Manager Name: _____

Number of years full-time employment by Offeror: _____

Number of years of relevant experience _____

Experience _____

_____

Work and Educational Background _____

_____

Roles and Tasks to be assigned on this project: _____

_____

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

9.3. Construction Superintendent Name: _____

Number of years full-time employment by Offeror: _____

Number of years of relevant experience _____

Experience_____

_____

Work and Educational Background _____

_____

Roles and Tasks to be assigned on this project: _____

_____

9.4. Foreman Name: _____

Number of years full-time employment by Offeror: _____

Number of years of relevant experience _____

Experience _____

_____

Work and Educational Background _____

_____

Roles and Tasks to be assigned on this project: _____

_____

10. AUTHORIZATION

By execution of this Offer, the Offeror certifies that its Project Superintendent is authorized to act on behalf of the Contractor at all times, its Project Manager will spend at least 25% of his/her time on average working on this Project and will be physically present at the Project Locations on at least two work days each week, its Project Superintendent will be present at the Project Locations whenever work is being performed by Contractor or subcontractor personnel, and its Project Manager and Project Superintendent will attend all Progress Meetings. Certified Payroll reports and meeting minutes will be monitored to verify compliance.

11. MINIMUM REQUIREMENTS

By execution of this Offer, the Offeror certifies that meets or exceeds the Minimum General Requirements and the Project Specific Requirements called out in Section 00100, Instructions to Offerors.

SIGNATURE

To be executed by an Officer or Principal who is authorized to certify the foregoing information:

_____being duly sworn, deposes and says that the information

provided herein is true and sufficiently complete so as not to be misleading.

Dated at _____ this _____ day of _____ , 202 _____ .

Name of Organization:_____

Signature:_____

Type name: _____

Title: _____

PROPOSAL CHECKLIST (packet should be assembled in an indexed package with divider tabs separating the documents)		
Section 00100/00300	1.	MANDATORY: Signed Bid Form with all blanks filled in, including acknowledgement of any issued addenda and names of all Subcontractors and Suppliers.
Section 00100/00300	2.	MANDATORY: Original and Notarized Offer Security or Bond
Section 00100/00300	3.	MANDATORY: Certificate of Insurance Availability
Section 00100/00300	4.	MANDATORY: Names of all VetHUB Subcontractors and Suppliers with certification
Section 00100/00300	5.	MANDATORY: Evidence of Good Faith Efforts of VetHUB participation are not met met
Section 00100/00300	6.	MANDATORY: Texas Ethics Commission requirement, "Certificate of Interested Parties", Form 1295 – Contractor must have registered/completed on-line application
Section 00100/00300	7.	MANDATORY: Safety Record (Qualifying Projects only)
Section 00100/00300	8.	MANDATORY: Statement of Residency
Section 00100/00300	9.	MANDATORY: Statement of Non-Divestment from Israel
	10.	MANDATORY: E-Bid response via IonWave and/or Sealed Proposal/submittal. Response may be submitted in hard copy, or both.
Section 00100	11.	OPTIONAL: Qualification and Financial Disclosure Statement
Section 00100	12.	MANDATORY: Financial statement, resumes of Key Personnel, References, Organizational Chart
Section 00100	13.	MANDATORY: Worksheet showing calculation of Z-score.
Section 00100/00300	14.	MANDATORY: Resume of Key Employees
Section 00100/00300	15.	MANDATORY: Offeror's Production Capacity / Project Planning / Scheduling / Completion Methodology and Quality Control

POST-PROPOSAL/PRE-AWARD CHECKLIST		
Section 00100/00810	1.	MANDATORY: Evidence of Worker's Compensation Insurance Coverage: a Certificate of Insurance or Form DWC-81, DWC-82, DWC-83, DWC-84, DWC-85 or if self-insured, a coverage agreement filed with the Texas Worker's Compensation Commission's Division of Self Insurance Regulation.
Section 00100/00810	2.	MANDATORY: If employees provided by leasing company, evidence of Texas State License and copy of their Worker's Compensation policy. If no leased employees will be used, provide a letter on Contractor's letterhead stating so.
Section 00100/00300	3.	MANDATORY: Updated VetHUB Certification and Participation Summary

SECTION 00300
BID FORM

SECTION 00300

PROPOSAL FORM

PROJECT IDENTIFICATION: El Paso Water Utilities

On-Call Construction Services for the
Repairs of Street Rights-of-way

PSB CSP NO.: 17-26

Name and Address of OWNER:
El Paso Water Utilities
Public Service Board
1154 Hawkins Boulevard
P. O. Box 511
El Paso, Texas 79961

Name and Address of OFFEROR:
_____
_____
_____
_____
_____

1. The undersigned OFFEROR proposes and agrees, if this Offer is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. OFFEROR accepts all of the terms and conditions of the Advertisement or Invitation to Offer and Instructions to Offerors, including without limitation those dealing with the disposition of Bid security. This Offer will remain subject to acceptance for ninety days after the day of CSP opening. In the case of State, Federal, or NADBank-funded projects, all Offers will remain subject to acceptance for 90 days or such reasonable time as the funding agency may require. OFFEROR will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within ten days after the date of OWNER's Notice of Award.

3. In submitting this Offer, OFFEROR represents, as more fully set forth in the Agreement, that:

   A. OFFEROR has examined copies of all the Proposal Documents and of the following Addenda **(receipt of all which is hereby acknowledged)**:

Date	Number

   B. OFFEROR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.

   C. OFFEROR has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 5.03 of the

General Conditions, and accepts the determination set forth in Paragraph SC-5.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings.

D. OFFEROR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in "C." above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as OFFEROR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 5.03 of the General Conditions.

E. OFFEROR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.

F. OFFEROR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.

G. OFFEROR has given ENGINEER written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to OFFEROR.

H. This Offer is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; OFFEROR has not directly or indirectly induced or solicited any other OFFEROR to submit a false or sham CSP; OFFEROR has not solicited or induced any person, firm or corporation to refrain from proposing; and OFFEROR has not sought by collusion to obtain for itself any advantage over any other OFFEROR or over OWNER.

I. All prices quotes by the OFFEROR shall be entirely in United States Currency (U.S. Dollars).

4. The Work under this Contract shall be for furnishing all labor, materials, equipment, transportation and services to be furnished by the CONTRACTOR for the Project and shall be more definitively described and contracted for through the issuance of Work Orders by OWNER. The term Work Orders is defined as orders issued by OWNER on an as-needed-basis for CONTRACTOR to complete Unit Price Work, as defined by the General Conditions, for which Work quantities and times are estimated at the time of issuance. OFFEROR will complete the Work in accordance with the Contract Documents for the following price(s):

********** HIGH IMPORTANCE **********

TEXAS ETHICS COMMISSION REQUIREMENT

*****IN THE EVENT YOU RECEIVE AN AWARD OF THIS CONTRACT*****

Reference: FORM 1295 (revised 12/22/17) "Certificate of Interested Parties" A

business entity must file Form 1295 electronically with the Texas Ethics Commission using the Commission's online filing application, which can be found at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

SEE INSTRUCTIONS: Form 1295 and Sample Form 1295 (Section 00302)

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
1	5,000	SQ. YD.	Furnish and install trench patch with a 12" cement-stabilized backfill base (2 sack) below the asphalt line; **Between 0.01-24.99 SQ. YDs**, including all necessary excavation.	$	$
2	4,000	SQ. YD.	Furnish and install trench patch with a 12" cement-stabilized backfill base (2 sack) below the asphalt line; **Between 25.00-49.99 SQ. YDs**, including all necessary excavation.	$	$
3	2,500	SQ. YD.	Furnish and install trench patch with a 12" cement-stabilized backfill base (2 sack) below the asphalt line; **Between 50.00-99.99 SQ. YDs**, including all necessary excavation.	$	$
4	1,500	SQ. YD.	Furnish and install trench patch with a 12" cement-stabilized backfill base (2 sack) below the asphalt line; **100+ SQ. YDs**, including all necessary excavation.	$	$
5	40,000	SQ. YD.	Asphalt Pavement Removal, 1-6" Thickness	$	$

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
6	40,000	SQ. YD.	Furnish and Install 2" HMAC Overlay, No Excavation. Prime and 2" H.M.A.C. Complete In place.	$	$
7	10,500	SQ. YD.	Furnish and Install 1" HMAC Overlay, No Excavation. Prime and 1" H.M.A.C. Complete In place.	$	$
8	12,000	SQ. YD.	Furnish and Install 1/2" HMAC Overlay, No Excavation. Prime and 1/2" H.M.A.C. Complete In place.	$	$
9	200	EA	Adjust existing water valve to final grade. Furnish and Install reinforced concrete aprons around water valves. In accordance with the El Paso Water, City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
10	125	EA	Adjust existing manhole to final grade. Furnish and Install reinforced concrete aprons around manholes, In accordance with El Paso Water, City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
11	50	SQ. YD.	Sub-Grade Preparation	$	$
12	5,000	L.F.	Furnish and Install Reflectorized Pavement Markings (Type I) Complete In Place	$	$
13	1,000	L.F.	Furnish and Install Reflectorized Pavement Markings (Type II) Complete In place.	$	$
14	200	CY	Furnish and Install (2-sack) cement stabilized backfill. Complete In place.	$	$
15	50	CY	Furnish and Install (4-sack) cement stabilized backfill. Complete In place.	$	$
16	150	SQ. YD.	Furnish and Install 9-inch-thick reinforced concrete pavement; complete in place, Including all necessary hardware as per City of El Paso, County and TxDOT Specifications.	$	$

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
17	100	SQ. YD.	Furnish and Install 12-inch-thick reinforced concrete pavement; complete in place, including all necessary hardware as per City of El Paso, County and TxDOT Specifications.	$	$
18	50	SQ. YD.	Furnish and Install 1-inch-thick reinforced concrete pavement; complete in place, as per City of El Paso, County and TxDOT Specifications.	$	$
19	1,000	SQ. YD.	Furnish and Installed 4-inch concrete sidewalk / Parkway. In accordance with the City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
20	100	SQ. YD.	Furnish and Install 6-inch concrete sidewalk / Parkway. In accordance to City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
21	1,500	L.F	Remove, dispose and replace standard Curb and Gutter, Standard Curb, Pinned Curb, Header Curb and Rolled Curb. In accordance with the City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
22	600	SQ. YD.	Remove, dispose, and replace residential driveways in accordance with the City of El Paso, County & TxDOT Design Standards. Complete In place.	$	$
23	200	SQ. YD.	Remove, dispose, and replace commercial driveways in accordance with the City of El Paso, County & TxDOT Design Standards for Construction.	$	$
24	15	EA.	Remove, dispose and replace wheelchair ramp / curb in compliance with current TDLR and ADA requirements. In accordance with the City of El Paso, County & TxDOT Design Standards.	$	$

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
25	150	EA.	Remove, dispose, and replace meter boxes type A & B. Meter box shall be adjusted to final grade; In accordance with EPWater Design Standards. Complete in place.	$	$
26	1,000	EA	6-Ft X 10-FtX 1 Inch Steel Plate 7 Day Initial Rental Period (Includes Pick-up and Delivery).	$	$
27	2,000	EA	6-Ft X 10-Ft X 1 Inch Steel Plate per day after Initial Rental Period (No Delivery or Pickup Charge).	$	$
28	75	EA	Steel Plates: Extra Delivery Charge - After Hours; Add-On Charge		
29	75	EA.	Cancelled Steel Plates Work Orders	$	$
30	5,000	SQ. YD.	Asphalt Resurfacing Projects - Milling/Removal of existing pavement at 2-inches in depth. Includes removal, demolition & disposal of the removed asphalt, Prime and install 2" H.M.A.C., mobilization, traffic control, fees and equipment, **700+ SQ. YDs**	$	$
31	1	L.S.	Owner's Allowance for unanticipated work required at the owner's direction only.	$500,000	$500,000

TOTAL BID PRICE (ITEMS 1 THROUGH 31) $ _____

EPWater reserves the right at its sole judgement and to accept any or multiple Offers that are determined to be qualified in accordance with the terms and selection criteria as established by the CSP method of procurement. EPWater will assign Work under the Contract on an as needed basis and at its discretion through the issuance of Work Orders. Work is to be Unit Price Work. Initially the Contract Price will be deemed to include all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining the initial Contract Price. Payments to Contractor will be based on actual quantities. Although no obligation shall exist to purchase the estimated annual usage, EPWater reserves the right to increase, decrease, and/or change these requirements to provide for continued operation during the Contract period. If multiple awards are contemplated under a single bid document, an additional breakdown of bid amounts, subcontractors, and suppliers is required. It will also be necessary to adjust the MWBE Certification and Participation Summary Form accordingly.

In accordance with Section 151.311 of the Texas Tax Code (V.A.T.C.S.), regarding taxes on materials and services, and requiring a separated contract, the following is the breakdown of cost for materials and cost for labor for this bid:

MATERIALS TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX:	**$_____**
LABOR TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX:	**$_____**
RENTAL EQUIPMENT AND OTHER TAXABLE ITEMS:	**$_____**
OTHER (I.E. BONDS, INSURANCE, CAPITAL EQUIPMENT, ETC.)	**$_____**
***TOTAL CONTRACT:** ***(TOTAL MUST EQUAL TOTAL CSP PRICE)**	**$_____**

5. OFFEROR agrees that the initial term of a Contract awarded as a result of this CSP shall be as described in the Agreement, for a one year beginning on the date of the Effective Date of the Agreement. The contract may be renewed according to the terms stated herein for two (2) additional one (1) year periods by EPWater. It is understood that the submitted unit prices are to be honored over the term of the Contract. If Owner desires to exercise the option to extend the term of the Contract, a written confirmation from the Contractor will be required for each renewal stating whether the original unit prices will be held. The Contractor may request a one-time cost escalator at the time of each Contract renewal for the Owner's review and consideration. At no time during the entire term of the Contract may the unit prices exceed 25% of the original unit prices. Such written request from the Contractor must be submitted ninety (90) days prior to the end of the initial Contract period or current extension will be required to consider any rate adjustments. Extension of the Contract is subject to the availability of funding. Acceptance of the increase in the unit prices by Owner will be documented through a Change Order. The Contract shall terminate in accordance with the Agreement with Owner. Awarded Contractor(s) shall perform all Work upon issuance of individual Work Orders, which shall more definitively describe the Unit Price Work to be performed and may specify required completion times. Unless otherwise stated in the applicable Work Order or authorized in writing by Owner, Contractor agrees that each Work Order shall be final completed within ten (10) working days from the date the Work Order is issued. A Final completed work order shall mean that the Work Order scope has been 100% completed to the extent that the repaired area is safe, functional, open to traffic as applicable, including striping, concrete aprons, and landscaping, and is acceptable to Owner. Correction of Deficiencies. If deficiencies are identified by Owner, Contractor shall correct such deficiencies within five (5) calendar days of written notification, unless a different timeframe is authorized in writing by Owner. Failure to comply with Work Order completion requirements will result in withholding payment for Work Order, reduction or suspension of future Work Orders, assessment of liquidated damages, or other remedies available to Owner under the contract. Offeror accepts the provisions of the Supplementary Conditions and the Agreement as to liquidated damages in the event of failure to meet contractual Work Order deadlines.

Offeror acknowledges that EPWater may award this CSP to more than one Offeror and that Work Orders may be assigned based on final ranking, operational needs, Contractor availability, responsiveness, performance, capacity, safety performance, schedule compliance, quality of work, and the best interest of EPWater. Offeror further acknowledges that no minimum quantity of Work Orders, dollar value, or percentage share of the Contract is guaranteed or implied by submission of this Proposal or by award of a Contract.

6. OFFEROR MUST ANSWER THE FOLLOWING QUESTIONS: (Refer to INSTRUCTIONS TO OFFERORS for definitions.)

A. Is the OFFEROR that is making and submitting this Solicitation a "RESIDENT OFFEROR" or a "NONRESIDENT OFFEROR"?

☐ Resident OFFEROR ☐ Nonresident OFFEROR

Answer: _____

B. If the OFFEROR is a "NONRESIDENT OFFEROR", does the state in which the Nonresident OFFEROR's principal place of business is located have a law requiring a Nonresident OFFEROR of that state to bid a certain amount of percentage under the Solicitation or a Resident OFFEROR of that state in order for the nonresident OFFEROR of that state to be awarded a contract on his or her Offer in such state? If the answer to the question in Paragraph 6A above is "Resident OFFEROR", then check N/A below.

☐ Yes ☐ No ☐ N/A

C. If the answer to the question in Paragraph 6B above is "yes", then what amount or percentage must a Texas Resident OFFEROR bid under the Solicitation of a Resident OFFEROR of that state in order to be awarded a contract on such Offer in said state?

_____% ☐ N/A

7. The following documents are attached to and made a condition of this Solicitation:

A. Required Offer Security in the form of _____

_____

B. A tabulation of all Subcontractors who will provide labor at the site of the work or render services to the CONTRACTOR in or about the construction of the work and Suppliers and other persons and organizations is required to be identified in this CSP. Complete the following table, designating companies as certified Service-Disabled Veteran (VetHUB) or other business in Rural Areas (SBRA). Only one category may be checked. Include the work item and value of work to be provided by the Prime Contractor, as well as its category.

Tabulation of Subcontractors and Suppliers

SUBCONTRACTOR/SUPPLIER	WORK ITEM	SUBCONTRACT OR PURCHASE ORDER VALUE (If value is unknown, please list *Pending*)	L	VetHUB				OTHER
			Please check one box					
Prime Contractor:								

C. Will the Contractor be able to exhibit effort(s) Service-Disabled Veteran-Owned Business?

YES _____ NO _____

If "YES", include above each of the firms to be used, their business status as a SLBE, Vet HUB, or WBE, the proposed dollar value and type of work to be performed.

If "NO", documentation supporting good faith effort is required.

8. All documents required to be submitted with this Offer have been assembled in an indexed package with the following divider tabs separating the documents.

Required Tabs:

1. Index of Documents
2. Bid Form
3. Offer Security or Bond
4. Certification of Insurance Availability
5. Service-Disabled Veteran (VetHUB) Documents
   a. Certification and Participation Summary
   b. Evidence of Good Faith Efforts and copies of VetHUB Solicitation efforts
6. Safety Record
7. Statement of Residency
8. Statement of Non-Divestment from Israel
9. Contractor Pre-Qualification Form
10. Qualifications and Financial Disclosure Statement

11. Financial Statement for most recent year-end
12. Worksheet showing calculation of Z-score
13. Resumes of Key Employees, References, Organizational Chart
14. Offeror's Production Capacity / Project Planning / Scheduling / Completion Methodology and Quality Control
15. Other Documents

Has OFFEROR assembled Offer documents in the order listed above, provided an index of the documents, and assembled them with divider tabs?

☐ Yes ☐ No

9. Communications concerning this Solicitation shall be addressed to the following named individual, address, telephone number, facsimile number, and e-mail address:

Name: _____

Address: _____

_____

Phone: _____ Fax: _____ E-mail: _____

10. The terms used in this Solicitation which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

SUBMITTED on _____ , 20_____ .

If OFFEROR is an **Individual**

By _____(SEAL)
(Name of OFFEROR)

_____
(Title) (Signature)

doing business as _____

Business Address: _____

_____

Phone No.: _____

If OFFEROR is **a <u>Partnership</u>**

By _____(SEAL)
(Firm Name)

_____
(Type name of General Partner)

_____
(Signature - general partner)

Business Address: _____

Phone No.: _____

If OFFEROR is a **Corporation** *(Revised 10/12/92, 1/7/93, 4/13, 3/1/22)*

By _____
(Corporation Name)

_____
(State of Incorporation)

_____
(State of Principal Place of Business)

By _____
(Name and Title of Person Authorized to Sign)

_____
(Signature)

(Corporate Seal)

Attest_____
(Secretary)

Business Address: _____

_____

Phone No.: _____

Federal Tax Identification Number: _____

When proposing as a Corporation, OFFEROR swears and affirms by signing this Offer that the proposing Corporation is currently in existence, is currently authorized to do business in the State of Texas (or State of incorporation) and that no franchise tax reports or payments are delinquent as of the date of this Offer. The OFFEROR will provide a Certificate of Account Status with the signed Contract Documents. See Section 00510, for the sample form which is to be obtained by the successful Contractor from the Texas (or other state) Comptroller of Public Accounts and submitted as part of the final, executed Contract Documents.

CERTIFICATION OF INSURANCE AVAILABILITY

Date _____

I, _____ (Name of Insurance Agent), certify that I have reviewed the insurance requirements listed in Article 5 of the Supplementary Conditions of the specifications for the **On-Call Construction Services for the Repair of Street Rights-of-way**, CSP No. 17-26, and further certify that _____ (Name of Offeror) has or can obtain the insurance coverage required by this Project so that a certificate of insurance and a copy(s) for the actual insurance policies can be submitted to the Owner within ten (10) days of the Notice of Award.

Signed _____

Title _____

Insurance Agency _____

Address _____

Telephone _____

VETHUB SERVICE-DISABLED CERTIFICATION AND PARTICIPATION SUMMARY

(EPWater CIP FUNDED PROJECTS)

CSP NUMBER: 17-26

CSP TITLE: On-Call Construction Services for the Repairs of Street Rights-of-way

I certify that the Service-Disabled Veteran (VetHUB) participating in this project are qualified in accordance with the State of Texas HUB Program effective October 2025 included in the above listed Proposal Documents and that we will ensure all consultants, contractors, suppliers, and subcontractors will comply with the VetHUB guidelines. Attached are:

Solicitation Documents: _____ Proposed Subcontracts for the below listed firms: _____

SLBE, Vet HUB, or WBE FIRM NAME	ADDRESS	PHONE	CONTRACT AMOUNT		(Vet HUB)	OTHER

The attached documents outline the Good Faith Effort taken in complying with the VetHUB Guidelines.

_____ CONTRACTOR

_____ SIGNATURE OF AUTHORIZED REPRESENTATIVE

_____ DATE

_____ PRINTED NAME OF AUTHORIZED REPRESENTATIVE

SECTION 00301
CONTRACTOR PRE-QUALIFICATION FORM

CONTRACTOR PRE-QUALIFICATION FORM

EPWater requires any contractor who will work on EPWater Qualifying Projects, as well as subcontractors performing any of the work on a Qualifying Project, to demonstrate their ability to work safely. A Qualifying Project is a project with a value greater than $100,000 or one that the Chief Engineering Officer and Vice President of Operations and Technical Services determine poses a significant hazard. This procedure allows EPWater to identify contractors that can perform site activities without compromising the safety or health of EPWater personnel.

Any contractor wishing to perform work on any Qualifying Project must complete this form and return with the bid package.

The information contained on this form will be evaluated and considered as a part of the overall selection process. Contractors who do not complete and submit this form will be considered non-responsive for any work they propose.

As part of this process, Contractors must certify that its employees have, or will have, appropriate training on the following subjects:

- Basic health and safety issues,
- the Contractor's health and safety programs, and
- the methods and techniques the Contractor will use on the project,
- Procedures for Contractor entrance into and exit from the area of work, and
- Informing EPWater about any unique hazards presented by the Contractor's work or found as a result of the Contractor's work.

Although EPWater will not ask for training documentation on each employee, EPWater requires that this documentation be available within twenty-four hours of request.

CONTRACTOR PRE-QUALIFICATION FORM

1.0 Company Name: _____

Address of Principal Place of Business: _____

Street: _____

City, State, Zip: _____

Telephone Number: _____

E-Mail: _____

2.0 Other Company Names Used: _____

3.0 Name(s) and Relationships of Parent Company, Affiliates, Subsidiaries, Partners:

Company: _____

Address: _____

City, State, Zip: _____

Relationship: _____

Company: _____

Address: _____

City, State, Zip: _____

Relationship: _____

4.0 Has the ownership in your company changed within the last three years? If so, please indicate who the previous owner was in the space below.

YES _____ NO _____

_____

_____

_____

_____

5.0 Please attach certificates showing the extent of coverage, exclusions, and deductibles for the following:

- General Business Liability Insurance Coverage
- Contractors Pollution Liability Insurance Coverage
- Professional Liability Insurance (limits and exclusions)
- Workers' Compensation Insurance Coverage

5.1 How long have you been covered by your current provider of Worker Compensation Insurance?

_____

CONTRACTOR PRE-QUALIFICATION FORM

6.0 Please transfer the numbers and rates of injuries and illnesses from your firm's OSHA No. 300 Logs to the table below:

Injuries & Illnesses in Year:	2023		2024		2025	
Type of Injury Statistic	#	Rate	#	Rate	#	Rate
Lost Workday Cases						
Restricted Workday Cases						
Medical Treatment (not First Aid) Cases						
Total Illness Cases						
Total Recordable Cases						
Employee Hours Worked in Year:						

6.1 List any fatalities your company has had in the last three calendar years (January-December). Include location, cause, and corrective action.

_____
_____
_____
_____
_____

7.0 Do you require that documented safety meetings be held for:

a. Field Supervisor? Yes_____No_____Frequency _____

b. Employees? Yes_____No_____Frequency _____

c. New Hires? Yes_____No_____Frequency _____

d. Subcontractors? Yes_____No_____Frequency _____

8.0 Will a corporate representative audit safety practices on this job?

YES_____ NO_____

8.1 Name _____ Title_____

8.2 How frequently will the representative visit the project?_____

8.3 Does the representative have the authority to take corrective action? Yes_____ No_____

8.4 To whom does the representative report?

Name _____ Title_____

CONTRACTOR PRE-QUALIFICATION FORM

9.0 Does the company have a health and safety plan? If yes, please give details.

_____

_____

_____

10.0 Describe the type and extent of training Contractor employees will have.

_____

_____

_____

10.1 What percentage of those employees will have this training? _____

11.0 Please give the name of the company's health and safety officer, if any.

_____

12.0 Attach a list of any State or Federal Health and Safety citations received in the past three years.

13.0 Signature of Company Officer: _____

Title: _____

Date: _____

SECTION 00302
CERTIFICATE OF INTERESTED PARTIES SAMPLE

INSTRUCTIONS – FORM 1295

*******IN THE EVENT YOU RECEIVE AN AWARD OF THIS CONTRACT*******

Effective January 1, 2016, a governmental entity may not enter into a contract requiring Board approval, unless the business entity submits a Disclosure of Interested Parties (Form 1295) prior to the convening Board awarding the contract.

The following definitions apply:

1. "Interested Party" means a person:
   a. Who has a controlling interest in a business entity with whom a governmental entity contracts, or;
   b. Who actively participates in facilitating the contract or negotiating the terms of the contract, including a broker, intermediary, adviser, attorney, or representative of, or agent for, the business entity.

2. "Intermediary" means a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of, or agent for, the business who:
   a. Receives compensation from the business entity for the person's participation;
   b. Communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contact, and;
   c. Is not an employee of the business entity.

3. "Business Entity" means any entity, recognized by law, through which business is conducted, including a sole proprietorship, partnership, or corporation. "Business entity includes a for-profit or non-profit entity. The term does not include a governmental entity or state agency.

4. "Contract" includes an amended, extended, or renewed contract.

5. "Controlling Interest" means:
   a. An ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds ten (10) percent;
   b. Membership on the board of directors or other governing body of a bustiness entity of which the board or other governing body is composed of not more than ten (10) members, or;
   c. Service as an officer of a business entity that has four (4) or fewer officers, or serve as one of the four (4) officers most highly compensated by a business entity that has more than four (4) officers.

A business entity must file Form 1295 electronically with the Texas Ethics Commission using the Commission's online filing application, which can be found at:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

The business entity must print a copy of the completed form, which will include a certification of filing containing a unique certification number. "Section 6 - Unsworn Declaration" of Form 1295 must be signed by an authorized agent of the business entity. The business entity must then submit the completed, signed Form 1295 to El Paso Water.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

OFFICE USE ONLY

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.

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 services, goods, or other property 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 **UNSWORN DECLARATION**

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Must file online at www.ethics.state.tx.us/File

SECTION 00303
STATEMENT OF RESIDENCY

STATEMENT OF RESIDENCY

The following information is required by El Paso Water Utilities – Public Service Board ("EPWater") in order to comply with the provisions of Texas Government Code §§ 2252.001 *et. seq.* Failure to provide the required information may constitute a basis for rejection of your bid. Bidders' cooperation in this regard will avoid costly time delays in the award of bids by EPWater. Failure to provide all required information may result in the apparent low bidder being considered non-responsive and non-responsible, and the second low bidder being considered for award.

Definitions

Resident Bidder: a person whose principal place of business is in the State of Texas, including a contractor whose ultimate parent company or majority owner has its principal place of business in the State of Texas.

Nonresident Bidder: a person who is not a resident.

Principal Place of Business in Texas: a permanent business office located in Texas from which a bid is submitted and from which business activities are primarily conducted for the organization other than submitting bids to governmental agencies, where at least one employee works for the business entity.

Bidder's Complete Company Name: _____

State the address of your principal place of business in the space provided below:

_____
_____
_____

State the nature of the business conducted at your principal place of business in the space provided below:

_____
_____
_____

State the number of employees you have at your principal place of business: _____

I swear and attest that the information provided above is true and correct as of the date _____ ("Bidder") submitted its bid on CSP No. 17-26.. I further attest that I am an authorized representative of Bidder or have been duly authorized to represent Bidder in this matter. I understand that the information provided is being relied on by EPWater in order for it to comply with state purchasing laws and will materially affect its decisions in this regard. Should the information provided be false or materially misleading, any contract entered into between EPWater and Bidder will be void and EPWater may pursue any legal claims it may have against Bidder.

[SIGNATURE ON NEXT PAGE]

By: _____

Name: _____

Title: _____

Company: _____

ACKNOWLEDGMENT

STATE OF _____§

§

COUNTY OF _____§

This instrument was acknowledged before me on the ____ day of _____, 20___, by _____, as _____ of_____, a _____.

_____

Notary Public, State of _____

My Commission Expires:

_____

(Revised 3/4/22)

SECTION 00304
STATEMENT OF NONDIVESTMENT FROM ISRAEL

STATEMENT OF NONDIVESTMENT FROM ISRAEL

The following information is required by El Paso Water Utilities – Public Service Board ("EPWater") in order to comply with the provisions of Texas Government Code §§ 2270.002.

I swear and attest that the following is true and correct as of the date _____ ("Bidder") submitted its bid on CSP No. 17-26 : Offeror does not boycott Israel and will not boycott Israel during the term of the contract should it be awarded to Bidder. I further attest that I am an authorized representative of Bidder or have been duly authorized to represent Bidder in this matter. I understand that the information provided is being relied on by EPWater in order for it to comply with State purchasing laws and will materially affect its decisions in this regard. Should it be discovered that the statement by Bidder contained herein is false, any contract entered into between EPWater and Bidder will be void and EPWater may pursue any legal claims it may have against Bidder.

By: _____
Name: _____
Title: _____
Company: _____

ACKNOWLEDGMENT

STATE OF _____ §
§
COUNTY OF _____ §

This instrument was acknowledged before me on the ___ day of _____, 20____, by _____ _____, as _____ of _____, a _____.

_____

Notary Public, State of _____

My Commission Expires:

_____

SECTION 00310
SERVICE_DISABLED VETERAN (VetHUB)
SAMPLE SOLICITATION DOCUMENTS

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Amazing Results Landscape and Supply Company
111 Red Rock Terrace
Lignite, Texas 72533

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

Amazing Results
Landscaping

January 12, 2008

Mr. John Q. Doe, Project Director
Acme Construction
10518 Burr Oak Drive
San Antonio, Texas 78609

RE: PROJECT NO. 123456, ANYWHERE TEXAS SEWER SYSTEM IMPROVEMENTS PROJECT

Dear Mr. Doe:

We wish to submit the following bid for the above mentioned project:

St. Augustine sod – 900 square yards at $1.75 per square yard $1,575.00
(Includes installation, rolling, fertilizing, and days of watering)

Hydro-Mulch – 15 acres at $1,175 per acre $17,625.00
(5-acre minimum pre trip; No water; No maintenance; areas that do not germinate will be reseeded) Proper watering is the responsibility of customer.

Hay Bales – We will furnish and install at a rate of $15.00 per bale

We look forward to hearing from you concerning our bid. Thank you.

Sincerely,

Theodore T. "Red" Robbins
Manager

*** * * * A Certified MBE FIRM * * * ***

1111 Red Rock Terrace
Lignite, Texas 72533
(512) 489-5678 (800) 549-0000
(512) 489-5679 fax
www.amazingresults.com

EXAMPLE

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Rider Excavation Services
7856 Dry Gulch
Little Indian Mound, Texas 74561

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

Rider Excavation Services

January 8, 2008

Mr. John Q. Doe, Project director
Acme Construction
10518 Burr Oak Drive
San Antonio, Texas 78609

RE: PROJECT NO. 123456
ANYWHERE TEXAS SEWER SYSTEM IMPROVEMENTS PROJECT

Dear Mr. Doe:

Thank you for your letter of January 5, 2008 requesting bids for the Anywhere, Texas Sewer System Improvements Project. We will not be submitting a bid because we are scheduled to begin work on another project that is projected to start on approximately the same date as ours.

We appreciate the opportunity to participate in your project. Please contact us again for any future projects.

Sincerely,

Easy Rider President
Rider Excavation Services

EXAMPLE

7856 Dry Gulch
Little Indian Mound, Texas 74561
512-767-9818 ph 512-767-9800 fax

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Shadow Paving
P. O. Box 903
Pharr, Texas 72579

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

SHADOW PAVING

January 8, 2008

Acme Construction
John Q. Doe, Project Director
10518 Burr Oak Dr.
San Antonio, TX 78609

Dear Mr.Doe:

Thank you for your letter of January 5, 2008 requesting a bid for the paving portion of the Anywhere, Texas Sewer System Improvements Project. Because of the distance of the project from our offices, we will not be interested in submitting a bid.

We appreciate your interest in our services. Please keep us in mind for future projects that may require expertise and services.

Sincerely,

Elmer A. Paver
Office Manager, Shadow Paving

EXAMPLE

1231 Dark Pl. • P. O. 903 • Pharr, TX 72579 • Phone: 555.555.0125 • Shadowpaving.com

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Construction Trades Newsletter
100 Someplace Dr.
P. O. Box 500
Anywhere, Texas 08654

Attn: Ms. Glory Everett, Editor

Dear Ms. Everett:

Please publish the following in the "Public Notices" section of your weekly newsletter on the following dates: 1/11/08; 1/18/08; 1/25/08; and 2/1/08.

"Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008".

Please bill Acme Construction, 10518 Burr Oak Drive, San Antonio, Texas 78609. The person authorizing the placement of this ad is B. J. Tenfold. If you have any questions, you may contact Mr. Tenfold at 512-557-7000.

Sincerely,

B. J. Tenfold
Manager of Accounts

EXAMPLE

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Anywhere Weekly Courier
1111 Main Street
P. O. Box 1
Anywhere, Texas 08654

Attn: Mr. Bucky Beaver, Circulation Manager

Dear Mr. Beaver:

Please publish the following in the "Public Notices" section of your weekly newspaper editions on the following dates: 1/11/08; 1/18/08; 1/25/08; and 2/1/08.

"Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008".

Please bill Acme Construction, 10518 Burr Oak Drive, San Antonio, Texas 78609. The person authorizing the placement of this ad is B. J. Tenfold. If you have any questions, you may contact Mr. Tenfold at 512-557-7000.

Sincerely,

B. J. Tenfold
Manager of Accounts

EXAMPLE

THE STATE OF TEXAS }
COUNTY OF GHI }

Before me Homer Shortcut, a Notary Public in and for GHI County, Texas on this day personally appeared Bucky Beaver, Circulation Manager for Small Town Newspapers Group, Inc., publishers of the Anywhere Weekly Courier, who being by me duly sworn did depose and say that said newspaper has been published continuously for more than fifty-two weeks prior to the first insertion of this Legal Notice Number 879 at GHI County, Texas and the attached printed copy of the legal notice is a true copy of the original and was printed weekly on the following date(s): 1/11/08; 1/18/08; 1/25/08; 2/1/08.

Circulation Manager
Anywhere Weekly Courier
Small Town Newspaper Group, Inc.

Appeared and sworn to before me on this
21st day of January, 2008

NOTARY PUBLIC in and for the State of Texas
My Commission expires 12/28/2010

Legal Notice as Published

Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

EXAMPLE

SECTION 00500
STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR

SECTION 00500

AGREEMENT BETWEEN OWNER
AND CONTRACTOR ON THE BASIS OF A UNIT PRICE

THE STATE OF TEXAS }
}
COUNTY OF EL PASO }

THIS AGREEMENT is dated as of the day of_____, 2026, ("Effective Date") is entered by and between El Paso Water Utilities-Public Service Board, a component unit of the City of El Paso, a Texas municipal corporation (hereinafter called OWNER), and _____, a _____corporation (hereinafter called CONTRACTOR).

In consideration of the mutual covenants hereinafter set forth OWNER and CONTRACTOR agree as follows:

ARTICLE 1. WORK

CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The Work is generally described as follows:

On-Call Construction Services for the Repairs of
Street Rights- of -Way ("Project")

The Work under this contract shall be for furnishing all labor, materials, equipment, transportation and services to be furnished by the CONTRACTOR for the Project and shall be more definitively described and contracted for through the issuance of Work Orders by OWNER. The term Work Orders is defined as orders issued by OWNER on an as-needed-basis for CONTRACTOR to complete Unit Price Work, as defined by the General Conditions, for which Work quantities and times are estimated at the time of issuance. Work Orders shall become attachments to this Agreement and will set forth the CONTRACTOR'S services for the Work assigned, period of performance, payment, deliverables, and such other terms and conditions which may apply based upon funding agency or technical requirements.

"OWNER reserves sole discretion regarding issuance, sequencing, assignment, prioritization, suspension, cancellation, and distribution of Work Orders among awarded Contractors. OWNER does not guarantee any minimum quantity of Work Orders, dollar amount, or percentage allocation of Work to Contractor. OWNER may consider Contractor's ranking, performance, responsiveness, staffing availability, equipment availability, safety performance, quality of work, schedule compliance, and prior Work Order completion history when assigning future Work Orders."

CONTRACTOR and OWNER agree that the following requirements, as described in the General Conditions and Supplemental Conditions, will not be applicable or required for Unit Price Work to be completed through Work Orders under this Agreement unless it is specified and required by OWNER through a Work Order:

- Preliminary Schedules, which include Progress Schedule, Schedule of Submittals, Schedule of Values.
- Preconstruction Conference.
- Providing reference points to Contractor.

ARTICLE 2. ENGINEER

EPWater Engineer(s), is to act as OWNER's representative, assuming all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME

3.1 This Agreement shall terminate the later of one (1) year from the Effective Date or upon completion of any Work Order issued before the one-year anniversary of the Effective Date ("Initial Term"). The term of the Agreement may be extended by (1) OWNER exercising one option for one additional, one-year period ("Option Terms"); (2) allowing for the completion of Work Orders issued before the end of the Option Terms; or (3) upon reaching this Agreement's maximum dollar amount as defined in Section 4.2.

3.2 Upon the issuance of a Work Order, services of the CONTRACTOR shall commence to perform the Unit Price Work as indicated in the applicable Work Order. CONTRACTOR understands and agrees that time is of the essence and that all phases of this Agreement are to be completed within the time determined as indicated in Work Orders issued under this Agreement.

Unless otherwise stated in the applicable Work Order or authorized in writing by OWNER, CONTRACTOR agrees that each Work Order shall have a final completion date within Ten (10) working days from the date each Work Order is issued.

For purposes of this Agreement, final completion date of a Work Order shall mean that the Work Order scope has been completed to the extent that the repaired area is safe, functional, open to traffic as applicable, including striping, concrete aprons and any other work, and is acceptable to OWNER.

If deficiencies are identified by OWNER, CONTRACTOR shall correct such deficiencies within five (5) calendar days of written notification, unless a different timeframe is authorized in writing by OWNER.

The OWNER will grant an extension of time in the event of delays which the OWNER reasonably determines are beyond the control of the CONTRACTOR, or the CONTRACTOR's subcontractors, employees, or agents.

Failure to complete any Work Order under this Agreement within the times indicated herein or in the applicable Work Order will constitute a material breach of the Agreement and may result in withholding of payment for the affected Work Order, reduction or suspension of future Work Orders, assessment of liquidated damages, or other remedies available to OWNER under the Contract.

If a Work Order requires the delivery of steel plates, the steel plates must be delivered to the work site within two (2) hours of the issuance of the Work Order; otherwise, such deliveries will be deemed late deliveries and OWNER may assess liquidated damages in accordance with the Supplementary Conditions.

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss, operational impacts, and public inconvenience if Work Orders are not completed within the times specified in the applicable Work Order or as otherwise provided in Article 3.2, including the default completion period set forth therein, plus any extensions granted by OWNER in accordance with the Contract.

OWNER and CONTRACTOR further recognize that the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER as a result of late completion of individual Work Orders would be impracticable or extremely difficult. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that liquidated damages for delay (but not as a penalty) may be assessed on a Work Order–by–Work Order basis as follows:

A. Failure to Achieve Final Completion of a Work Order
For each calendar day that expires after the required Final Completion dead-line of a Work Order, CONTRACTOR shall pay OWNER liquidated damages in the amount specified in the Supplementary Conditions for each calendar day until that Work Order is finally complete.

B. Failure to Complete Work Order After Final Completion
After the Final Completion dead-line of a Work Order, if CONTRACTOR neglects, refuses, or fails to complete the remaining Work Order requirements within the time allowed by OWNER, CONTRACTOR shall pay OWNER liquidated damages in the amount specified in the Supplementary Conditions for each calendar day until the Work Order is final completed and acceptable to OWNER.

C. Assessment and Recovery
Liquidated damages assessed under this Section may be deducted from amounts otherwise due or to become due to CONTRACTOR for the affected Work Order, or any other Work Orders issued under this Agreement, without limiting any other rights or remedies available to OWNER.

D. No Waiver of Other Remedies
Assessment of liquidated damages shall not preclude OWNER from exercising any other rights or remedies available under the Contract for failure to perform Work Orders in accordance with the Contract Documents."

3.3 Steel Plate Rental Authorization, Tracking, and Maximum Rental Exposure.
If a Work Order, Material Release Number, dispatcher request, or other written direction from OWNER requires CONTRACTOR to furnish a rented steel plate, CONTRACTOR shall deliver, install, track, maintain, report, and remove the steel plate in accordance with the Contract Documents. CONTRACTOR shall maintain accurate tracking for each steel plate, including the Material Release Number, Work Order number if applicable, site location, delivery date and time, pickup or release date and time, plate identification number if available, and current rental status. CONTRACTOR shall include all active steel plate rentals on the required active-rental report. Any steel plate not included on the required active-rental report shall be payable only for the initial seven-day rental period, and no daily rental charges shall be paid unless expressly authorized in writing by OWNER. Daily rental charges after the initial seven-day rental period shall be payable only for rental days authorized by OWNER and supported by documentation acceptable to OWNER. OWNER may terminate the rental period at any time by issuing a pickup request, release notice, Work Order for permanent restoration, substitution with an OWNER-furnished steel plate, or other written direction. Rental charges after such notice are not payable. No steel plate rental shall continue indefinitely. Notwithstanding anything to the contrary in the Contract Documents, the total amount payable by OWNER for rental of any single steel plate under the applicable steel plate bid items, for any one Material Release Number, Work Order, site, or location, shall not exceed the lesser of:

1. the actual authorized rental amount supported by documentation acceptable to OWNER; or

2. Five Thousand Dollars ($5,000) per steel plate.

Once the maximum rental cap is reached, no additional daily rental charges shall accrue or be payable for that steel plate unless expressly authorized in writing by OWNER through a Change Order or other written instrument executed by OWNER. Payment of the maximum rental cap shall not constitute an admission that all claimed rental days are valid, authorized, or payable. OWNER reserves the right to reject unsupported rental days, duplicate rental days, rental days not included on required active-rental reports, rental days after release or pickup request, and rental days not supported by a valid Material Release Number. At OWNER's option, payment of the maximum rental cap may be treated as full

compensation for continued use, loss, non-return, or replacement of the steel plate. Upon such payment, CONTRACTOR shall have no further claim for rental, replacement, ownership, loss-of-use, administrative cost, overhead, profit, or incidental charges associated with that steel plate.

3.4 CONTRACTOR shall promptly correct any defective work or services furnished by CONTRACTOR at no cost to OWNER. OWNER's approval, acceptance, use of, or payment for all or any part of CONTRACTOR's services hereunder, or of the Project itself, shall in no way alter CONTRACTOR's obligations or OWNER's rights hereunder. The Correction Period described in Section 15.08 of the Supplemental Conditions will be within 1 year after the date of Final Completion of each Work Order.

3.5 In connection with the Work outlined in this Agreement and subsequent Work Orders issued by OWNER, it is agreed and fully understood by CONTRACTOR that OWNER may cancel or indefinitely suspend further Work hereunder or terminate this Agreement for convenience upon a thirty (30) days written notice to CONTRACTOR or any Work Order upon a two-week written notice to CONTRACTOR, with the understanding that immediately upon receipt of said notice, all work and labor being performed under this Agreement shall cease. CONTRACTOR shall invoice OWNER for all Unit Price Work satisfactorily completed and shall be compensated in accordance with the terms of this Agreement.

All plans, inspectors daily logs, field survey maps, cross sections, reports, and other data or work related to the Project shall become the property of the OWNER upon termination of this Agreement either by cancellation or by expiration of the contract period of performance as part of the normal close out procedure.

3.6 This Agreement may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this Agreement through no fault of the terminating party; providing that no such termination may be effectuated unless the other party is given (1) written notice (delivered by certified mail, return receipt requested) of intent to terminate, and not less than thirty (30) calendar days to cure the failure, and (2) an opportunity for consultation with the terminating party prior to termination.

3.7 If this Agreement is terminated in whole or in part by the OWNER for reasons of default by CONTRACTOR, the parties shall use their best efforts to arrive at a negotiated adjustment in the price provided for in this Agreement; however, no amount shall be allowed for anticipated profit or unperformed or unsatisfactory services. If termination for default is effectuated by the CONTRACTOR, the negotiated adjustment shall include a reasonable profit. The equitable adjustment for any termination, other than a termination by default, shall provide payment to the CONTRACTOR for services satisfactorily rendered and expenses incurred prior to the termination, in addition to termination settlement costs reasonably incurred by CONTRACTOR relating to obligations and commitments as a result of entering into this Agreement. Notwithstanding the above, the CONTRACTOR shall not be relieved of liability to the OWNER for damages sustained by the OWNER by virtue of any breach of the Agreement by the CONTRACTOR, and the OWNER may withhold any payment to CONTRACTOR for the purpose of setoff until such time as the exact amount of damages due the OWNER from CONTRACTOR is determined.

Nothing contained herein or elsewhere in this Agreement shall require the OWNER to pay for any work which is unsatisfactory or which is not submitted in compliance with the terms of this Agreement.

3.8 In accordance with Sections 552.371 and 552.372 of the Texas Government Code, the following language is included, and applicable in contracts that require or result in the

expenditure of public funds of at least $1,000,000:

TERMINATION FOR FAILURE TO COMPLY WITH SUBCHAPTER J, CHAPTER 552, GOVERNMENT CODE. The requirements of subchapter J, Chapter 552, Government Code, may apply to this Agreement and the CONTRACTOR agrees that the Agreement can be terminated if the CONTRACTOR knowingly or intentionally fails to comply with a requirement of that subchapter.

ARTICLE 4. CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the pricing detailed for those work elements described in the Work Orders.

4.2 In consideration for providing the Work and services referred to in Article 1 and related attachments, the OWNER shall pay the CONTRACTOR as agreed upon and set out in Work Orders as may be issued under this Agreement. In no event shall the CONTRACTOR be paid in excess of the annual amount of $_____ If the parties exercise the option for two additional one-year extensions during the term of this Agreement, the maximum, aggregated amount paid to CONTRACTOR will not exceed the annual amount of $ _____ _____ for each of the option years exercised.

ARTICLE 5. PAYMENT PROCEDURES

5.1 Provided, however, in no event shall the CONTRACTOR ever be paid more than the total amount of services performed as of the date the CONTRACTOR is notified that the OWNER does not wish to proceed with all or any portion of the project, or otherwise terminates this Agreement in accordance with the termination provisions contained in Article 3.

5.2 Progress Payments. CONTRACTOR shall submit Applications for Payment in the form of invoices for Unit Price Work completed under a Work Order issued by OWNER in accordance with Article 15 of the General Conditions and Article 15 of the Supplementary Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions, Supplemental Conditions, and the procedures described in this Section.

OWNER shall make progress payments based on the Unit Price Work completed under a Work Order issued by OWNER on the basis unit prices under this Agreement, as recommended by ENGINEER.

The CONTRACTOR shall submit invoices in a single copy for each completed Work Order. Invoices for a completed Work Order shall reflect all the Unit Price Work required. Invoices covering more than one Work Order will not be accepted. Invoices shall be submitted in the format found in Section 00820.

ARTICLE 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

6.1 CONTRACTOR has or will have familiarized itself with the nature and extent of the Contract Documents, including but not limited to Work Orders to be issued under this Agreement, each the Work site corresponding to each Work Order, locality, and all local conditions and all applicable laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Unit Price Work.

6.2 Upon the issuance of a Work Order, CONTRACTOR will carefully study all reports of explorations and tests of subsurface conditions and drawings of physical conditions which may be identified in the Supplementary Conditions as provided in Paragraph 5.03 of the General Conditions, and accepts the determination set forth in Paragraph SC-5.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings.

6.3 Upon the issuance of a Work Order, CONTRACTOR will obtain and carefully study (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which may be identified in the Supplementary Conditions (in addition to or to supplement those referred to in Paragraph 6.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise which may affect the cost, progress, performance or furnishing of the Work necessary for the performance or furnishing of the Unit Price Work , specifically within the provisions of Paragraph 5.03 of the General Conditions. CONTRACTOR understands that the correctness of such information is not guaranteed by the OWNER or the ENGINEER and CONTRACTOR understand(s) that the conditions encountered in performing the work may be different from the approximations shown.

6.4 Upon the issuance of a Work Oder, CONTRACTOR will review all information and data that may be shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the location of said Underground Facilities as determined by his or her own field investigations. CONTRACTOR understands that the correctness of such information is not guaranteed by the OWNER or the ENGINEER and CONTRACTOR understand that the conditions encountered in performing the work may be different from the approximations shown.

6.5 Upon the issuance of a Work Order, CONTRACTOR will correlate the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

6.6 CONTRACTOR will give ENGINEER written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

6.7 CONTRACTOR affirms it is not a foreign-owned company that is owned or controlled by citizens of or directly controlled by the government of China, Iran, North Korea, Russia or a designated country pursuant to Chapter 2274 of the Texas Government Code. Additionally, CONTRACTOR affirms it is not a company that is headquartered in China, Iran, North Korea, Russia or a designated country pursuant to Chapter 2274 of the Texas Government Code.

6.8 CONTRACTOR affirms that it does not boycott Israel and will not boycott Israel during the term of the Agreement.

6.9 In accordance with Chapter 2274 of the Texas Government Code, CONTRACTOR affirms that it does not boycott energy companies and will not boycott energy companies during the term of the Agreement.

6.10 In accordance with Section 2274.002 of the Texas Government Code, CONTRACTOR affirms that it does not have a practice, policy, guidance or directive that discriminates against a firearm entity or firearm trade association and will not discriminate during the term of the Agreement against a

firearm entity or firearm trade association.

6.11 CONTRACTOR acknowledges and agrees that Work performed by CONTRACTOR will be performed on the basis of unit prices and will be more definitively described through Work Orders issued by OWNER.

ARTICLE 7. <u>CONTRACT DOCUMENTS</u>

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

7.1 Contractor's Line Item Pricing and Estimated Quantities, (Section 00300) (Exhibit A).

7.2 this Agreement.

7.3 Performance and Payment Bonds, and Certificate of Insurance, and insurance policies identified as Sections 00610, 00630 and 00650 (Exhibit B).

7.4 Notice of Award.

7.5 General Conditions (Section 00700) (Exhibit C).

7.6 Supplementary Conditions (Section 00800) (Exhibit D).

7.7 Application for Payment (Invoices) (Section 00820) (Exhibit E).

7.8 General Wage Requirements (Section 00840) (Exhibit F).

7.9 Work Orders as may be issued under this Agreement.

7.10 Available reports, tests, measurements, shop drawings, record drawings, design drawings and technical specifications and any other related information which is available to the OWNER. OWNER will use its best efforts to provide copies of all its project information requested by the CONTRACTOR within (5) business days of CONTRACTOR's request.

7.11 The documents listed in Paragraphs 7.1 et. seq. above are attached to this Agreement (except as expressly noted otherwise above).

7.12 Specifications for works as may be occur within the services to be provided under this Agreement, and as included within, but not limited to the specifications provided in the bid package for CONTRACTOR review and understanding.

7.13 (IF APPLICABLE) Drawings consisting of a cover sheet and sheets listed in the Index to Drawings, each sheet bearing the following general title: (To be produced with each Work Order)

7.14 Addenda numbers __ to ____, inclusive (not attached to this Agreement.)

7.15 Documentation submitted by CONTRACTOR prior to Notice of Award (Pages ____ to inclusive).

7.16 Contractor Health and Safety Plan.

7.17 The Instructions to Bidders, Information Available to Bidders, Bid Form and Bid Security, as well as any supplements to the Bid Form.

7.18 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments, Work Orders and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.04 of the General Conditions.

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 11.01 of the General Conditions or as may be mutually agreed to, in writing, by OWNER and CONTRACTOR. This Agreement shall prevail over the General Conditions and Supplemental Conditions if any of the terms conflict with this Agreement.

ARTICLE 8. MISCELLANEOUS

8.1 The recitals are incorporated by reference and are made part of this Agreement for all purposes.

8.2 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

8.3 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.4 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

8.5 NOTICE. All notices shall be made in writing and may be given by personal delivery or by mail. Notices sent by mail shall be addressed to the designated responsible person or office:

TO OWNER:

Robert L. Davidson, Contract Construction Administrator
El Paso Water Utilities - Public Service Board
1154 Hawkins Boulevard
El Paso, TX 79925 Email: Rdavidson@epwater.org

TO CONTRACTOR:

_____
_____
_____
_____ Email: _____

when so addressed, shall be deemed given upon deposit in the United States mail, postage prepaid. In all other instances, notices shall be deemed given at the time of actual delivery.

Changes may be made in the names and addresses of the responsible person or office to whom notices are to be sent, provided reasonable notice is given.

8.6 Documents, drawings, plans, specifications, cost estimates, original survey field notes, inspector's logs, maps, reports, and other original documents prepared or obtained under the terms of this Agreement are instruments of service and OWNER shall retain ownership and property interest Therein. If this Agreement is terminated at any time for any reason prior to payment to the CONTRACTOR for all work under the Work Orders issued by OWNER , all documents, drawings, inspector's logs, plans, specifications, original survey field notes, maps, reports, and other original documents prepared or obtained under the terms of the Agreement shall, upon termination, be delivered to and become the property of the OWNER without restriction on their use, per the requirements of Section 3.4, or additional compensation to the CONTRACTOR. All such documents will be turned over to the OWNER, whether the Agreement is terminated or by virtue of its completion, as a part of the close out process. The OWNER, in acquiring ownership of the above listed documents, hereby releases the CONTRACTOR from all responsibility in connection with their use on any project other than their use on the Project referenced herein and in the specific Work Orders.

ARTICLE 9. <u>OTHER PROVISIONS</u>

9.1 It is agreed that should any dispute arise under this Contract which culminates in litigation, venue of that suit shall be in a court of competent jurisdiction sitting in El Paso County, Texas. The court shall apply the laws of the State of Texas in construing and interpreting the terms of this Contract and the Contract Documents. This Contract is governed by the laws of the State of Texas.

9.2 The CONTRACTOR shall comply with all Federal, State, and local laws and ordinances applicable to the work covered hereunder and all applicable rules and regulations promulgated by all local, state and national boards, bureaus and agencies.

9.3 In case any one or more of the provisions contained in this Agreement shall, for any reason, be held to be invalid, illegal, or unenforceable in any respect, that invalidity, illegality, unenforceability shall not affect any other provisions and this Agreement shall be construed as if such invalid, illegal, or unenforceable provisions had never been included, and the Agreement provisions shall be read and interpreted so as to harmonize with the Agreement itself.

9.4 The captions or headings of paragraphs in this Contract are for convenience only and shall not be considered in constraining the provisions hereof if any question of intent should arise.

9.5 For NADBank-funded projects, Contractor agrees to indemnify and hold harmless North American Development Bank (NADB) and each of its directors, officers, employees, agents and representatives (collectively, “NADB’s Associated Persons”) against all claims for death, personal injury, damages, or other relief against NADB or NADB’s Associated Persons, including costs, expenses and attorney’s fees, resulting from negligence or willful acts or failure to act by the Contractor.

9.6 In accordance with Sections 552.371 and 552.372 of the Texas Government Code, the following

language is included, and applicable in contracts that require or result in the expenditure of public funds of at least $1,000,000:

CONTRACTING INFORMATION. CONTRACTOR must preserve all contracting information related to this Agreement as provided by the records retention schedule requirements applicable to the OWNER for the duration of this Agreement. CONTRACTOR will promptly provide the OWNER any contracting information related to this Agreement that is in the custody or possession of the CONTRACTOR on request of the OWNER. On completion of this Agreement, CONTRACTOR will either provide at no cost to the OWNER all contracting information related to this Agreement that is in the custody or possession of the CONTRACTOR or preserve the contracting information related to this Agreement as provided by the records retention requirements applicable to the OWNER.

[Signatures begin on the following page]

IN WITNESS WHEREOF, duly authorized representatives of the OWNER and CONTRACTOR have signed in confirmation of this Agreement:

CONTRACTOR:

_____

_____

_____

_____

OWNER:
EL PASO WATER UTILITIES – PUBLIC SERVICE BOARD

_____
Veronica Garcia
Senior Purchasing Agent

APPROVED AS TO FORM:

_____
Sol M. Cortez
Deputy General Counsel

APPROVED AS TO CONTENT:

_____
Irazema S. Rojas, P.E.
Utility Chief Engineering Officer

INSTRUCTIONS FOR EXECUTING CONTRACT

If the CONTRACTOR be a corporation, the following certificate should be executed:

I,_____, certify that I am the_____ of the corporation named as CONTRACTOR hereinabove; that,_____ who signed the foregoing Contract on behalf of the CONTRACTOR was then,_____ of said Corporation; that said Contract was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporate powers.

_____

Corporate Seal

If the Contract is signed by the secretary of the corporation, the above certificate should be executed by some other officer of the corporation under the corporate seal. In lieu of the foregoing certificate, there may be attached to the Contract copies of so much of the records of the corporation as will show the official character and authority of the officers signing, duly certified by the Secretary or Assistant Secretary under the corporate seal to be true copies.

The full name and business address of the CONTRACTOR should be inserted and the Contract shall be signed with his or her official signature. Please have the name of the signing party or parties typewritten or printed under all signatures to the Contract.

If the CONTRACTOR should be operating as a partnership, each partner should sign the Contract. If the Contract is not signed by each partner, there should be attached to the Contract a duly authenticated Power of Attorney, or other appropriate resolution or document evidencing the signer's (signers') authority to sign such Contract for and in behalf of the partnership.

If the CONTRACTOR is an individual, the trade name (if the CONTRACTOR is operating under an assumed or trade name) should be indicated in the Contract and the Contract should be signed by such individual. If signed by one other than the CONTRACTOR, there should be attached to the Contract a duly authenticated Power of Attorney evidencing the signer's authority to execute such Contract for and in behalf of the CONTRACTOR.

CONTRACT SUBMITTAL CHECKLIST (The following items must be submitted within **10** calendar days of the Notice of Award unless stated otherwise in the General or Supplemental Conditions)	
	1. Executed Agreement
	2. Payment and Performance Bonds
	3. Insurance Certificate and Policies. Policies should be sent in electronic format to rguevara@epwater.org, with copy to Cristy.urquidi@usi.com (Owner's Risk Manager) and to Purchasing.Info@epwater.org.
	4. If employees provided by leasing company, evidence of Texas State License and copy of their Worker's Compensation policy. If no leased employees will be used, provide a letter on Contractor's letterhead stating so.
	5. Certificate of Account Status (paid franchise taxes)
	6. Final/Updated (if applicable) VetHUB Certification and Participation Summary
	7. Health and Safety Plan

- **Deliver all items to the OWNER's Purchasing Department**
- **Deliver electronic copies of items 6-7 to EPWater Project Manager**

SECTION 00510
CERTIFICATE OF ACCOUNT STATUS SAMPLE

TEXAS COMPTROLLER OF PUBLIC ACCOUNTS

SUSAN COMBS • COMPTROLLER • AUSTIN, TEXAS 78774

July 30, 2007

CERTIFICATE OF ACCOUNT STATUS

EXAMPLE

THE STATE OF TEXAS
COUNTY OF TRAVIS

I, Susan Combs, Comptroller of Public Accounts of the State of Texas, DO HEREBY CERTIFY that according to the records of this office

is, as of this date, in good standing with this office having no franchise tax reports or payments due at this time. This certificate is valid through the date that the next franchise tax report will be due November 15, 2007.

This certificate does not make a representation as to the status of the corporation's Certificate of Authority, if any, with the Texas Secretary of State.

This certificate is valid for the purpose of conversion when the converted entity is subject to franchise tax as required by law. This certificate is not valid for the purpose of dissolution, merger, or withdrawal.

GIVEN UNDER MY HAND AND
SEAL OF OFFICE in the City of
Austin, this 30th day of
July 2007 A.D.

Susan Combs

Susan Combs
Texas Comptroller

Taxpayer number:
File number:

Form 05-304 (Rev. 02-03/14)

SECTION 00610
PERFORMANCE BOND

TEXAS STATUTORY PERFORMANCE BOND

(Penalty of this Bond must be 100% of Contract Amount)
Public Work – State of Texas

STATE OF TEXAS }
COUNTY OF_____ } BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ (hereinafter called the Principal), as Principal and _____, a corporation organized and existing under the laws of the State of _____, and whose principal office is located in the City of _____, and duly authorized to do business in the State of Texas (hereinafter called the Surety).

As Surety, are held firmly bound unto El Paso Water Utilities / Public Service Board, hereinafter called the Owner), in the penal sum of _____ Dollars ($_____) for the payment of which sum well and truly to be made, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20___, a copy of which is hereto attached and made a part hereof, for _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall faithfully perform the work in accordance with the plans, specifications and contract documents, then this obligation shall be void; otherwise to remain in full force and effect.

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

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20___.

_____

BY: _____
Principal

WITNESS:

_____BY: _____
Surety

SECTION 00630
PAYMENT BOND

PAYMENT BOND

Public Work – State of Texas

STATE OF TEXAS }
COUNTY OF_____ } BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ of the City of _____, County of _____ and State of _____ (hereinafter called the Principal), and _____ authorized under the laws of the State of Texas to act as Surety on bonds for Principals (hereinafter called the Surety) are held firmly bound unto El Paso Water Utilities / Public Service Board, hereinafter called the Owner), in the penal sum of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20___, for _____ _____ to which Contract is hereby referred to and made part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said Contract, then this obligation shall be void; otherwise to remain in full force and effect.

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

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, shall in anywise affect its obligation on this Bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ___ _____ day of _____, 20___.

_____

BY: _____
Principal

WITNESS:

_____ BY: _____
Surety

SECTION 00650
CERTIFICATE OF LIABILITY INSURANCE

ACORD™

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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

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

PRODUCER

CONTACT NAME:
PHONE (A/C, No, Ext): FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A :	
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

Specimen/Sample Certificate Form

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	CLAIMS-MADE OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	POLICY PRO-JECT LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB / OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$
	DED / RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATU-TORY LIMITS / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

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SECTION 00700
GENERAL CONDITIONS (EJCDC C-700)

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

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GUIDELINES FOR USE OF EJCDC® C-700, STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), is the foundation document for the EJCDC Construction Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Owner and Contractor, and establish how the Contract is to be administered.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with either EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price), or EJCDC® C-525, Agreement Between Owner and Contractor for Construction Contract (Cost-Plus-Fee) (2018 Editions). The provisions of the General Conditions and the Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018).

The full EJCDC Construction series of documents is discussed in the EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

Remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of C-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of C-700 intact and unaltered, with modifications and supplementation of C-700's provisions set forth in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018). If the Standard Text itself is revised, the

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user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

1. The term "Standard EJCDC Text" for C-700 refers to all text prepared by EJCDC in the main body of the document. Document covers, logos, footers, instructions, or copyright notices are not Standard EJCDC Text for this purpose.
2. During the drafting or negotiating process for C-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of C-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If C-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any "Track Changes," redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1—Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 6
Article 2—Preliminary Matters 7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance 7
2.02 Copies of Documents 7
2.03 Before Starting Construction 7
2.04 Preconstruction Conference; Designation of Authorized Representatives 8
2.05 Acceptance of Schedules 8
2.06 Electronic Transmittals 8
Article 3—Contract Documents: Intent, Requirements, Reuse 9
3.01 Intent 9
3.02 Reference Standards 9
3.03 Reporting and Resolving Discrepancies 10
3.04 Requirements of the Contract Documents 10
3.05 Reuse of Documents 11
Article 4—Commencement and Progress of the Work 11
4.01 Commencement of Contract Times; Notice to Proceed 11
4.02 Starting the Work 11
4.03 Reference Points 11
4.04 Progress Schedule 12
4.05 Delays in Contractor's Progress 12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions 13
5.01 Availability of Lands 13
5.02 Use of Site and Other Areas 14
5.03 Subsurface and Physical Conditions 15
5.04 Differing Subsurface or Physical Conditions 16

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5.05 Underground Facilities 17
5.06 Hazardous Environmental Conditions at Site 19
Article 6—Bonds and Insurance 21
6.01 Performance, Payment, and Other Bonds 21
6.02 Insurance—General Provisions 22
6.03 Contractor's Insurance 24
6.04 Builder's Risk and Other Property Insurance 25
6.05 Property Losses; Subrogation 25
6.06 Receipt and Application of Property Insurance Proceeds 27
Article 7—Contractor's Responsibilities 27
7.01 Contractor's Means and Methods of Construction 27
7.02 Supervision and Superintendence 27
7.03 Labor; Working Hours 27
7.04 Services, Materials, and Equipment 28
7.05 "Or Equals" 28
7.06 Substitutes 29
7.07 Concerning Subcontractors and Suppliers 31
7.08 Patent Fees and Royalties 32
7.09 Permits 33
7.10 Taxes 33
7.11 Laws and Regulations 33
7.12 Record Documents 33
7.13 Safety and Protection 34
7.14 Hazard Communication Programs 35
7.15 Emergencies 35
7.16 Submittals 35
7.17 Contractor's General Warranty and Guarantee 38
7.18 Indemnification 39
7.19 Delegation of Professional Design Services 39
Article 8—Other Work at the Site 40
8.01 Other Work 40
8.02 Coordination 41
8.03 Legal Relationships 41

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Article 9—Owner's Responsibilities 42
9.01 Communications to Contractor 42
9.02 Replacement of Engineer 42
9.03 Furnish Data 42
9.04 Pay When Due 42
9.05 Lands and Easements; Reports, Tests, and Drawings 43
9.06 Insurance 43
9.07 Change Orders 43
9.08 Inspections, Tests, and Approvals 43
9.09 Limitations on Owner's Responsibilities 43
9.10 Undisclosed Hazardous Environmental Condition 43
9.11 Evidence of Financial Arrangements 43
9.12 Safety Programs 43
Article 10—Engineer's Status During Construction 44
10.01 Owner's Representative 44
10.02 Visits to Site 44
10.03 Resident Project Representative 44
10.04 Engineer's Authority 44
10.05 Determinations for Unit Price Work 45
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work 45
10.07 Limitations on Engineer's Authority and Responsibilities 45
10.08 Compliance with Safety Program 45
Article 11—Changes to the Contract 46
11.01 Amending and Supplementing the Contract 46
11.02 Change Orders 46
11.03 Work Change Directives 46
11.04 Field Orders 47
11.05 Owner-Authorized Changes in the Work 47
11.06 Unauthorized Changes in the Work 47
11.07 Change of Contract Price 47
11.08 Change of Contract Times 49
11.09 Change Proposals 49
11.10 Notification to Surety 50

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Article 12—Claims 50
12.01 Claims 50
Article 13—Cost of the Work; Allowances; Unit Price Work 51
13.01 Cost of the Work 51
13.02 Allowances 55
13.03 Unit Price Work 55
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work 56
14.01 Access to Work 56
14.02 Tests, Inspections, and Approvals 56
14.03 Defective Work 57
14.04 Acceptance of Defective Work 58
14.05 Uncovering Work 58
14.06 Owner May Stop the Work 58
14.07 Owner May Correct Defective Work 59
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period 59
15.01 Progress Payments 59
15.02 Contractor's Warranty of Title 62
15.03 Substantial Completion 62
15.04 Partial Use or Occupancy 63
15.05 Final Inspection 64
15.06 Final Payment 64
15.07 Waiver of Claims 65
15.08 Correction Period 66
Article 16—Suspension of Work and Termination 67
16.01 Owner May Suspend Work 67
16.02 Owner May Terminate for Cause 67
16.03 Owner May Terminate for Convenience 68
16.04 Contractor May Stop Work or Terminate 68
Article 17—Final Resolution of Disputes 69
17.01 Methods and Procedures 69
Article 18—Miscellaneous 69
18.01 Giving Notice 69
18.02 Computation of Times 69

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18.03 Cumulative Remedies 70
18.04 Limitation of Damages 70
18.05 No Waiver 70
18.06 Survival of Obligations 70
18.07 Controlling Law 70
18.08 Assignment of Contract 70
18.09 Successors and Assigns 70
18.10 Headings 70

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

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requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. Constituent of Concern—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

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recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

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33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

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

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

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43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

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1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

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

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

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

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

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F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

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

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

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into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

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ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

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inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

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B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

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established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

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D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

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B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

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and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

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

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

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

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

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

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Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

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3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

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of construction to be employed by Contractor, and safety precautions and programs incident thereto;

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

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

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conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

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Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

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Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

   1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

   2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

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L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

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4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

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Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

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6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

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B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

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3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. will certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited to the same use as the item specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. will identify:

      1) all variations of the proposed substitute item from the item specified; and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

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H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

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7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

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7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

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I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

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3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

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document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

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d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

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9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

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D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

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E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

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9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

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ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

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E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

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ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

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B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

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1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or
2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

   b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

   c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

   d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

   e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

   f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

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11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

   a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

   b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

   The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

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Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

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and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

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2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

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consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

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g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

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Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

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ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

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D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

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losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

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or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

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establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

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4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

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b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

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submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

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significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

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d. a list of all duly pending Change Proposals and Claims; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

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appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

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attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

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provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
2. agree with the other party to submit the dispute to another dispute resolution process; or
3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

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18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00800
SUPPLEMENTARY CONDITIONS

SECTION 00800
SUPPLEMENTARY CONDITIONS
Table of Contents

Page

INTRODUCTORY STATEMENT 1

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY 1

ARTICLE 2 - PRELIMINARY MATTERS 1

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE 2

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK 3

ARTICLE 5 - SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS 5

ARTICLE 6 - BONDS AND INSURANCE 8

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES 16

ARTICLE 8 – OTHER WORK AT THE SITE 24

ARTICLE 9 - OWNER'S RESPONSIBILITIES 24

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION 25

ARTICLE 11 - CHANGES TO THE CONTRACT 28

ARTICLE 12 – CLAIMS 30

ARTICLE 13 - COST OF WORK; ALLOWANCES; UNIT PRICE WORK 30

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK 31

ARTICLE 15 - PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD 32

ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION 33

ARTICLE 17 - FINAL RESOLUTIONS OF DISPUTES 33

ARTICLE 18 – MISCELLANEOUS 34

INTRODUCTORY STATEMENT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, “Paragraph SC-4.05.”

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01.A.4 Add the following sentence to Paragraph 1.01.A.4:
The term “Offer” has the same meaning as the term “Bid”.

SC-1.01.A.5 Add the following sentence to Paragraph 1.01.A.5
The term “Offeror” has the same meaning as the term “Bidder”.

SC-1.01.A.10.e Add the following sentence to Paragraph 1.01.A.10.e
When submitted, a Claim must be signed by the Designated Authorized Representative.

SC-1.01.A.51 Add the following paragraph as reference 1.01.A.51:
Designated Authorized Representative — the representative authorized by the party filing the Claim to execute legally-binding agreements on behalf of that party. For Owner, the Designated Authorized Representative shall be the Chief Engineering Officer, a Vice President, or President and Chief Executive Officer. For Contractor, The Owner or its designee authorized pursuant to a power of attorney.

SC-1.01.A.52 Add the following paragraph as reference 1.01.A.52:
Health and Safety Plan — The part of the Contract Documents prepared by Contractor that describes safety procedures for the Work, identifies the Contractor’s safety representative required by Paragraph 6.14.A, and certifies that the Contractor’s employees have received or will receive training prior to the commencement of the Work on (1) basic health and safety issues; (2) the Health and Safety Plan; (3) the methods and techniques the Contractor will use on the Project; (4) procedures for Contractor entrance into and exit from the Site(s); and (5) informing Owner about any unique hazards presented by the Work or found as a result of the Work.

SC-1.01.A.53 Add the following paragraph as reference 1.01.A.53: Materially Unbalanced Bid; A bid that generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced bid will result in the lowest ultimate cost to the State.

SC-1.01.A.54 Add the following paragraph as reference 1.01.A.54: Mathematically Unbalanced Bid; A bid containing bid prices that do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder’s anticipated profit, overhead costs, and other indirect costs.

ARTICLE 2 - PRELIMINARY MATTERS

2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

A. Owner shall provide to Contractor an electronic version of a fully executed copy of the contract documents.

2.03 Before Starting Construction

SC-2.03.B Add the following new paragraph immediately after Paragraph 2.03.A.3

B. *Health and Safety Plan*. Contractor shall submit a copy of Health and Safety Plan fifteen (15) after execution of Contract. No Work shall proceed until the Owner has accepted the Health and Safety Plan.

2.04 Pre-Construction Conference; Designation of Authorized Representatives

SC-2.04.B Amend the first sentence of Paragraph 2.04.B to read as follows:

At or prior to this conference Owner and Contractor each shall designate, in writing by Owner and in writing by Contractor as a submittal, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract.

2.05 Acceptance of Schedules

SC-2.05.A Amend the first sentence of Paragraph 2.05.A to read as follows:

At the preconstruction conference indicated in Paragraph 2.04 or other time acceptable to the parties and Engineer, Engineer and Contractor will review the acceptability to Engineer, as provided below, of the schedules submitted in accordance with Paragraph 2.03.A.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

SC-3.01.C Delete Paragraph 3.01.C in its entirety.

SC-3.03.B.1 Add the following to new paragraph immediately after Paragraph 3.03.B:

SC-3.03.B.1 In resolving such conflicts, errors, and discrepancies, the Contract Documents will be given precedence in the following order: Change Orders, Field Orders, Addenda, Agreement, Performance Bond and Payment Bond,

Supplementary Conditions, General Conditions, Specifications and Drawings, if Drawings are provided. Numerical dimensions shown on the Drawings shall govern over scaled dimensions on the Drawings. This Paragraph SC-3.03.B.1 is not, however, a definitive enumeration of what comprises the "Contract Documents", which definitive enumeration is indicated in the Agreement.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

SC-4.01.A Amend the third sentence of paragraph 4.01.A by changing the word: "60th" to read as "90th".

4.03 *Reference Points*

SC-4.03.A Amend the third sentence of Paragraph 4.03.A to read as follows:

Contractor shall report to Engineer when a reference point, including property boundary stakes or monuments, or an elevation benchmark, is disturbed, lost, or destroyed, or requires relocation because of necessary changes in grades or locations. Contractor shall be responsible for accurately replacing or relocating such reference points by a professional land surveyor licensed by and registered in the State of Texas.

4.05 *Delays in Contractor's Progress*

SC-4.05.C.5 Amend Paragraph 4.05.C by adding the following subparagraphs:

SC-4.05.C.5. Weather-Related Delays

a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Time, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:

1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":

i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 1-inch over a 24-hour period of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference).

ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: wind chill factor equal or less than 25-degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: equal or greater than 110-degrees Fahrenheit.

iii) Suspension (greater than 4 hours) or postponement of construction due to high wind advisory/warning that has been issued and does not allow construction activities to continue.

2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by weather monitoring station at **El Paso , TX.** Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by the El Paso International Airport weather monitoring station located at 6701 Convair Road in El Paso, Texas.

3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the Foreseeable Bad Weather Days table, Exhibit A included in SC-4.05.5.b.4.

4) Foreseeable Bad Weather Days:

i) Foreseeable Bad Weather Days (Standard Baseline) is defined as the normal number of calendar days for each month during which construction activity exposed to weather conditions is expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.

ii) The Foreseeable Bad Weather Days are as follows:

Exhibit A

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	3	3	2	3	4	8	8	6	5	3	4

5) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the Standard Baseline table in Exhibit A - Foreseeable Bad Weather Days will be considered as "abnormal weather conditions." The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor's then-current Progress Schedule's critical path for the Project.

ARTICLE 5 - SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

SC 5.01.D Add the following new paragraph immediately after paragraph 5.01.C:

SC-5.01.D. All work associated with special provisions of easements shall be performed in accordance with the Contract Documents, unless the Contract Documents indicate that easement provisions govern. Should the actions of Contractor or Subcontractors or Suppliers cause the Work to be delayed to the point that the ending date of an easement is exceeded, Contractor shall reimburse Owner for additional costs required to extend the period of rights to the easement to complete the Work. Such delay shall be considered to be within the control of Contractor, in accordance with paragraph 4.05.

5.02 *Use of Site and Other Areas*

SC-5.02.A.2 Delete Paragraph 5.02.A.2 in its entirety and insert the following in its place:

SC-5.02.A.2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which the Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by dispute resolution proceeding, or in a court of competent jurisdiction; and (c) **TO THE FULLEST EXTENT PERMITTED BY LAWS AND REGULATIONS, INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM AND AGAINST ANY SUCH CLAIM, AND AGAINST ALL COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT AND/OR MEDIATION OR OTHER DISPUTE RESOLUTION COSTS) ARISING OUT OF OR RELATING TO ANY CLAIM OR ACTION, LEGAL OR EQUITABLE, BROUGHT BY ANY SUCH OWNER OR OCCUPANT AGAINST OWNER, ENGINEER, OR ANY OTHER PARTY INDEMNIFIED HEREUNDER TO THE EXTENT CAUSED DIRECTLY OR INDIRECTLY, IN WHOLE OR IN PART BY, OR BASED UPON, CONTRACTOR'S PERFORMANCE OF THE WORK, OR BECAUSE OF OTHER ACTIONS OR CONDUCT OF THE CONTRACTOR OR THOSE FOR WHICH CONTRACTOR IS RESPONSIBLE.**

SC-5.02.E Add the following new paragraph immediately after Paragraph 5.02.D:

SC-5.02.E. *Dust Control*

1. Contractor shall not cause or allow dust-generating operations, earthmoving operation, use of property, or other operation that results in fugitive dust emissions that exceed the limits prescribed by the authority having jurisdiction, in accordance with Texas Administrative Code Title 30, Part 1, Chapter 111, Subchapter A,

Division 4, Rule 111.145. Contact City of El Paso Environmental Management Division at (915) 212-6000 for additional information regarding nuisance fugitive dust emissions from the Site.

2. Provide necessary equipment and materials to apply sufficient dust suppressants, properly clean all vehicle "track-out" areas on and adjacent to the Site, and provide adequate physical stabilizations of soils to comply with requirements of earthmoving permits and approved dust control plan or activities, if any.
3. Contractor shall pay fines and civil penalties imposed by authorities having jurisdiction and incurred by Owner because of Contractor's violation of earthmoving permits and dust control plans or activities.
4. Implement measures to control fugitive dust emissions from the Site in compliance with earthmoving permit and Laws and Regulations.

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

SC-5.03.E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A*		

*A Technical Data Report will be provided for a specific Work Order (site) if required

SC-5.03.F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A*		

* A Technical Data Report will be provided for a specific Work Order (site) if required

SC-5.03.G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Proposal Documents at the El Paso Water Utilities' website:

www.epwater.org/business_center/purchasing_overview/bids

SC-5.03.A When Work Orders do not have related reports or drawings the following will apply: Delete Paragraphs 5.03.A and 5.03.C in their entirety and insert the following in their place:

SC-5.03.A No reports of explorations or tests of subsurface conditions at or contiguous to the Site(s), or drawings of physical conditions relating to existing surface or subsurface structures at the Site(s), are known to Owner.

SC-5.03.C Not Used.

5.06 *Hazardous Environmental Conditions at Site*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A*		

*A Technical Data Report will be provided for a specific Work Order (site) if required

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A*		

*A Technical Data Report will be provided for a specific Work Order (site) if required

SC-5.06 When work orders do not have related reports or Drawings for Hazardous Environmental Conditions the following will apply:

Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following in its place:

SC-5.06.A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

SC-5-06.B. Not Used.

SC-5.06.I Delete Paragraph 5.06.I in its entirety.

SC-5.06.J **TO THE FULLEST EXTENT PERMITTED BY LAWS AND REGULATIONS, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS, AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM AND AGAINST ALL CLAIMS, COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT AND/OR MEDIATION OR OTHER DISPUTE RESOLUTION COSTS) ARISING OUT OF OR RELATING TO THE FAILURE TO CONTROL, CONTAIN, OR REMOVE A CONSTITUENT OF CONCERN BROUGHT TO THE SITE BY CONTRACTOR OR BY ANYONE FOR WHOM CONTRACTOR IS RESPONSIBLE, OR TO A HAZARDOUS ENVIRONMENTAL CONDITION CREATED BY CONTRACTOR OR BY ANYONE FOR WHOM CONTRACTOR IS RESPONSIBLE. NOTHING IN THIS PARAGRAPH 5.06.J OBLIGATES CONTRACTOR TO INDEMNIFY ANY INDIVIDUAL OR ENTITY FROM AND AGAINST THE CONSEQUENCES OF THAT INDIVIDUAL'S OR ENTITY'S OWN NEGLIGENCE.**

ARTICLE 6 - BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01.A Delete Paragraph 6.01.A and 6.01.B in their entirety and insert the following in place of:

SC-6.01.A. Except as provided in this Paragraph SC-6.01.A, Contractor shall furnish performance and payment bonds, each in an amount at least equal to $2,000,000 as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect during the entire term of Contract, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds and certificates of insurance as are required by the Contract Documents. Certificates of insurance shall be in the form prescribed by the Contract Documents. Conditions under which a payment bond and/or performance bond are required are as follows:

1. Payment bond is required when the contract award is in excess of $50,000, and;
2. Performance Bond is required when the contract award is in excess of $100,000.

(Note: Contract value is excess of $100,000, both bonds are required.)

SC-6.01.B Delete Paragraph 6.01.C in its entirety and insert the following in its place:

SC-6.01.B. All bonds shall be in the form prescribed by the Contract Documents, except as provided otherwise by Laws and Regulations including, but not limited to, Chapter 2253 of the Texas Government Code and Article 7.19-1 of the Texas Insurance Code. The bonds shall be executed by surety which shall be authorized and admitted to do business in the State of Texas, licensed by the State of Texas to issue surety bonds, and carry an A.M. Best Key rating of not less than A VIII. If the amount of the bond is in excess of ten percent of surety's capital and surplus, surety shall furnish to Owner a written certification that surety has insured that portion of surety's risk that exceeds ten percent of surety's capital and surplus with one or more reinsurers who are duly authorized, accredited or trusteed to do business in the State of Texas. If any portion of surety's obligation is reinsured, the amount reinsured shall not exceed ten percent of the reinsurer's capital and surplus. Surety and the reinsurer(s) shall furnish additional information and documentation, if any, required by Owner for Owner to determine whether surety or its reinsurer(s) comply with the requirements of this Paragraph SC-6.01.B. All bonds signed by an agent or attorney-in-fact shall be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

6.02 *Insurance - General Provisions*

SC-6.02.G Delete Paragraph 6.02.G in its entirety and insert the following in its place:

SC-6.02.G. Not Used.

6.03 *Contractor's Insurance*

SC-6.03.C Add the following immediately after Paragraph 6.03.C.5:

SC-6.03.C.5 If, at any time, the required insurance policies are canceled, terminated, or modified so that the insurance is not in full force and effect as required under the Contract Documents, Owner may terminate for cause in accordance with Paragraph 16.02 of the General Conditions or, where possible, obtain insurance coverage equal to that required by the Contract Documents, the full cost of which will be charged to Contractor and deducted from any payments due Contractor.

a. Each Contractor shall require his subcontractors, at all tiers, to carry insurance coverages satisfactory to the Contractor and to provide evidence of such insurance as specified herein.

For purposes of this Bid, a Payment Bond will be required in an amount equal to $2,000,000 and a Performance Bond **will** be required in a like amount.

SC-6.03.C.6 Add the following immediately after Paragraph 6.03.C.5:

SC-6.03.C.6 Contractor shall furnish to Owner and each other additional insured identified in the Contract Documents, to whom evidence of insurance has been issued, evidence satisfactory to Owner and other such additional insured of continuation of such insurance at final payment and for a duration thereafter equal to the correction period required under Paragraph 15.08.

SC-6.03.D Add the following new Paragraph 6.03.D:

SC-6.03.D. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and Employer's Liability Insurance:

a. State: Statutory

b. Employer's Liability: In accordance with Table 00800-1 of these Supplementary Conditions.

c. Terminology: The following terms are not defined but when used in this Paragraph SC-6.03.D for workers' compensation insurance, and have the meanings indicated below:

1) Certificate of coverage: A copy of a certificate of insurance, a certificate of authority to self-insure, issued by the Texas Workers Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project. Contractor shall not execute TWCC Forms 83 or 85 or other form that precludes coverage under Contractor's policy if Contractor hires a Subcontractor or service provider without worker's compensation insurance.

2) Duration of the Project: Is the time from the Contractor's beginning work on the Project until the time Contractor's and Subcontractor's obligations under the Contract Documents are fully complete.

3) Contractor and Subcontractors (as indicated in Texas Labor Code §406.5096) includes all persons or entities performing all or part of the Work, regardless of whether that person or entity contracted directly with Contractor and regardless of whether that person or entity has employees. This includes, without limitation, independent contractors, Subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or

delivering equipment or materials, or providing labor, transportation, or other services related to the Project. "Services" does not include activities unrelated to the Project, such as food or beverage vendors, office supply deliveries, and delivery of portable toilets or portable sanitary facilities.

d. Comply with the following relative to Worker's Compensation and Employer's Liability insurance:

1) *Waiver of Subrogation Relative to Workers' Compensation Insurance:* The policy shall be endorsed to provide that insurer waives any right of subrogation that insurer may acquire against Owner, Engineer, Engineer's consultants, and others named in the Contract Documents as additional insured relative to Contractor's liability insurance, by reason of any payment made on account of injury, including death resulting therefrom, sustained by an employee of the insured.

2) If workers employed on the Work will be employed through a leasing company, furnish evidence of leasing company's State of Texas license and a copy of leasing company's Worker's Compensation policy insuring its employees (including sole proprietors, partners, supervisors, and executive officers) who perform work in the State of Texas.

3) Contractor shall furnish coverage, based on proper reporting of classification codes and payroll amounts and filing of coverage agreements, which meets the statutory requirements of Texas Labor Code §401.011(44) for all employees of Contractor performing the Work or services on the Project, for the duration of the Project.

4) Contractor shall furnish to Owner a certificate of coverage prior to being awarded the Contract.

5) If the coverage period shown on the Contractor's current certificate of coverage ends during the Contract Times, Contractor shall, prior to the end of the coverage period, furnish to Owner a new certificate of coverage indicating that coverage has been extended; furnish updated certificate of coverage throughout the duration of the Project.

6) Subcontractors and Workers' Compensation and Employee Liability Insurance:

a) Contractor shall contractually require each Subcontractor to comply with the workers' compensation and employer's liability insurance requirements of the Contract Documents, to same extent such requirements are binding on Contractor.

b) Obtain from each Subcontractor and furnish to Owner a certificate of coverage, prior to that Subcontractor beginning work on the Project. Not later than seven days after receipt by Contractor, furnish updated, valid certificate of coverage for each Subcontractor throughout the duration of the Project.

7) Retain Contractor's and Subcontractors' required certificates of coverage for the duration of the Project.

8) Contractor shall notify Owner in writing, in accordance with Paragraph 18.01, within 10 days after Contractor knew or should have known, of a change that materially affects the provision of coverage of any entity performing work or services on the Contract.

9) Post at the Site a notice, in the text, form, and manner prescribed by the Texas Workers' Compensation Commission, informing persons performing work or services on the Contract that they are required to be covered, and stating how a person may verify coverage and report lack of coverage. Such posted notice does not satisfy other posting requirements imposed by the Act or other commission rules in the State of Texas. Such notice shall be printed with a title in text that is not less than 30-point bold type, with and other text in not less than 19-point non-bold type, and shall be in English, Spanish, and other languages, if any, common to the workers at the Site. Text for the notices shall be as indicated by the Commission on the sample notice without changes.

10) By executing the Agreement or furnishing or causing to be furnished a certificate of coverage, Contractor represents to Owner that employees of Contractor and Subcontractors who will perform work or services on the Contract will be covered by workers' compensation coverage for the duration of the Project; that such coverage will be based on proper reporting of classification codes and payroll amounts; and that coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Furnishing false or misleading information may subject Contractor to administrative penalties of authorities having jurisdiction, criminal penalties, civil penalties of authorities having jurisdiction, and other civil actions.

11) Contractor's failure to comply with one or more workers' compensation insurance provisions is a breach of the Contract by Contractor, entitling Owner to terminate for cause in accordance with Paragraph 16.03, unless otherwise provided by Laws and Regulations.

12) If any provision of the Workers' Compensation and Employee Liability insurance requirements of the Contract Documents, or its application to any person or circumstance, is held invalid, the invalidity does not affect other provisions or applications of this rule that can be given effect without the invalid provision or application, and to this end the provisions of this rule are declared to be severable.

2. Contractor's General Liability under Paragraphs 6.03 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of Contractor. General Liability coverage shall be for not less than the limits indicated in Table 00800-1 of these Supplementary Conditions.

3. Automobile Liability under Paragraph 6.03 of the General Conditions: Shall be for not less than the limits indicated in Table 00800-1 of these Supplementary Conditions.

4. Umbrella Liability:

   a. Contractor shall purchase and maintain, until final payment by Owner, Umbrella Liability Insurance. Such insurance shall insure against all claims in excess of the limits provided under workers' compensation and employer's liability, general liability insurance, and automobile liability policies. The limits of umbrella liability shall be in accordance with Table 00800-1 of these Supplementary Conditions.

5. *Table of Minimum Liability Insurance Coverage Limits*: The limits of liability insurance shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations. The limits of coverage under Paragraph 6.03 vary with the Contract Price as indicated in Table 00800-1:

TABLE 00800-1				
LIMITS OF COVERAGE FOR ALL CONSTRUCTION PROJECTS	AUTOMOBILE (6.03) {Combined Single Limit} Per Accident	COMMERCIAL GENERAL LIABILITY (6.03) {Combined Single Limit} Per Project	WORKERS' COMPENSATION (6.03) {Employers' Liability} Per Accident Per Employee Per Disease	UMBRELLA (SC-6.03) {Combined Single Limit}
CONTRACT PRICE LESS THAN $100,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$300,000	$ 500,000 $ 500,000 $1,000,000	$ 500,000 $ 500,000 $ 500,000	Not applicable
CONTRACT PRICE EQUAL TO $100,000 OR GREATER AND LESS THAN $500,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$500,000	$ 500,000 $1,000,000 $1,000,000	$ 500,000 $ 500,000 $ 500,000	Not applicable
CONTRACT PRICE EQUAL TO OR GREATER THAN $500,000 AND UP TO AND INCLUDING $10,000,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$1,000,000	$1,000,000 $2,000,000 $2,000,000	$1,000,000 $1,000,000 $1,000,000	Not applicable
CONTRACT PRICE GREATER THAN $10,000,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$1,000,000	$1,000,000 $2,000,000 $2,000,000	$1,000,000 $1,000,000 $1,000.000	Not applicable

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04 in its entirety and insert the following in its place:

SC-6.04 *Property Insurance*

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of $500,000. This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, Engineer, and other individuals or entities identified herein, and the officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured, additional insured, or loss payee as their interest may appear;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, and shall insure against at least the following perils or causes of loss: collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood);

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. allow for partial utilization of the Work by Owner;

5. include testing; and

6. be maintained in effect until the Contract term ends.

B. Contractor shall purchase and maintain equipment breakdown insurance which will include the interests of Owner, Contractor, Subcontractors, Engineer, and other individuals or entities identified as additional insured or loss payees in this Paragraph SC-6.04, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured, additional insured, or loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph SC-6.04 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured or loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph SC-6.05.

D. The risk of loss within any deductible amount applicable to the policies of insurance purchased in accordance with this Paragraph SC-6.04 will be borne by Contractor, Subcontractors, or others suffering such loss.

E. Contractor shall purchase and maintain flood insurance upon the Work in the amount of the full replacement cost of the Work

6.05 *Property Losses; Subrogation*

SC-6.05 Delete Paragraph 6.05 in its entirety and insert the following in its place:

SC-6.05 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph SC-6.04 will protect Owner, Contractor, Subcontractors, Engineer, and all other individuals or entities identified in Paragraph SC-6.04 to be listed as insureds or additional insured or loss payees (and the officers, directors, members, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of loss or damage the insurers will have no rights of recovery against any of the insureds or additional insured or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, Engineer, and all other individuals or entities identified in Paragraph SC-6.04 to be listed as insureds or additional insureds or loss payees (and the officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, Engineer, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire and other perils whether or not insured by Owner, and;

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03 or after final payment pursuant to Paragraph 15.06.

C. Any insurance policy maintained by Owner covering any loss, damage, or consequential loss referred to in Paragraph SC-6.05.B shall contain provisions to the effect that in the event of payment of any such loss, damage or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, Engineer, and the officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7:00 a.m. to 4:00 p.m.
2. Owner's legal holidays are:

New Year's Day
Martin Luther King Holiday
Community & Labor Heritage Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving Day
Day After Thanksgiving
Christmas Day

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "…all Work at the Site(s) must be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday."
The Contractor may perform Work on a Saturday or Sunday if approved my Owner and may have to pay for overtime inspection fees.

SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:

C. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, if approved by Owner.

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new paragraph immediately after paragraph 7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as Owner's inspectors' hours to cover inspection work performed on weekends and holidays.

SC-7.03.E Add the following new paragraph immediately after paragraph 7.03.D:

SC-7.03.E for work financed in whole or in part by loans or grants from, or loans insured or guaranteed by, the United States or any agency or instrumentality thereof under any statute of the United States providing wage standards for such work, the provisions of the Contract Documents are subject to the applicable provisions of the Contract Work Hours and Safety Standards Act, 40 U.S.C.A. §327 et seq. Contractor and Subcontractor shall not require or allow any laborer or mechanic to be employed on the Work in excess of forty hours in any work week unless such laborer or mechanic receives compensation at a rate not less than one-and-one-half times his or her basis rate of pay for hours worked in excess of forty hours in such work week. Except as may be otherwise required by law, all claims pertaining to the classification of labor employed on the project shall be decided by Owner's governing body or other duly designated official.

7.07 *Concerning Subcontractors and Suppliers*

SC 7.07.N Add the following new paragraphs immediately after Paragraph 7.07.M:

SC-7.07.N. Contractor shall perform, with his organization and with the assistance of workers under Contractor's immediate superintendence, not less than 40 percent of the Contract Price, exclusive of Work not commonly found in contracts for similar construction which require specialized knowledge, craftsmanship, or equipment not ordinarily available in the organizations of contractors performing construction similar in nature to the Work. The value of the Work, exclusive of said items, will be interpreted as the value of labor, equipment, superintendence, and only those portions of materials and equipment incorporated into the Work that are related to the Contract's direct labor requirements.

7.08 *Patent Fees and Royalties*

SC- 7.08.B Delete Paragraph 7.08.B in its entirety.

SC- 7.08.C Delete Paragraph 7.08.C in its entirety and replace with the following:

SC-7.08.C. **TO THE FULLEST EXTENT PERMITTED BY LAWS AND REGULATIONS, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM AND AGAINST ALL CLAIMS, COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT AND/OR MEDIATION OR OTHER DISPUTE RESOLUTION COSTS) ARISING OUT OF OR RELATING TO ANY INFRINGEMENT OF PATENT RIGHTS OR COPYRIGHTS INCIDENT TO THE USE IN THE PERFORMANCE OF THE WORK OR RESULTING FROM THE INCORPORATION IN THE WORK OF ANY INVENTION, DESIGN, PROCESS, PRODUCT, OR DEVICE NOT SPECIFIED IN THE CONTRACT DOCUMENTS.**

7.09 *Permits*

SC-7.09.B Add the following new paragraph immediately after Paragraph 7.09.A:

SC-7.09.B TPDES Permit and Related Permits and Requirements

If a Work Order requires a TPDES Permit and Related Permits and Requirements

1. Contractor's responsibilities are as follows:

   a. Prepare a Storm Water Pollution Prevention Plan (SWPPP) in compliance with Laws and Regulations.

   b. Obtain a signed certification statement from all Subcontractors responsible for implementing erosion and sedimentation controls and other best management practices for the Site that are part of the SWPPP. Such statement shall indicate that the Subcontractor understands the permit requirements. The certified statement forms shall be attached to and become part of the SWPPP.

   c. Fill out the TCEQ's "Construction Site Notice" form, which is Attachment 2 to the TPDES General Permit TXR150000 (form available from Owner or on the Internet at http://www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr152d2.pdf ,and post it near the main entrance of the Site, or at multiple postings if the Work is linear. Submit a copy of the completed Construction Site Notice form to Owner and Engineer.

   d. Maintain erosion/sedimentation controls and other protective measures identified in the SWPPP in effective operating condition.

   e. Perform inspections every 14 days and after every half-inch of rainfall, noting the following observations on an inspection form provided by Owner:

      1) Locations of discharges of sediment or other pollutants from the Site.
      2) Locations of stormwater, erosion, sedimentation controls that are in need of maintenance or repair.

      3) Locations of stormwater, erosion, sedimentation controls that are not performing, failing to operate, or are inadequate.

      4) Locations where additional stormwater, erosion, sedimentation controls are needed.

   f. Continuously maintain at the Site a copy of the SWPPP (with updates, as described below) and inspection reports.

   g. Update the SWPPP as necessary to comply with TPDES permitting requirements, which includes noting changes in erosion, and sedimentation controls and other best management practices that are part of the SWPPP and which may be necessary due to the results of inspection reports.

   h. Upon Substantial Completion or establishment of permanent cover over disturbed soil areas (if such cover is established after Substantial Completion), submit TPDES records to Owner.

7.10 *Taxes*

SC-7.10.B Add the following new paragraph immediately after Paragraph 7.10.A:

SC-7.10.B. Exemption from State of Texas sales tax may be obtained on materials and equipment incorporated into the Work and supplies required to perform the Work. Owner is an organization which qualifies for such exemption pursuant to provisions of Article 20.04(F) of the Texas Limited Sales, Excise and Use Tax Act. In accordance with Texas law, Contractor may purchase, materials, equipment, and supplies consumed in the performance of the Work by issuing to Suppliers an exemption certificate in lieu of the tax, said exemption certificate complying with State of Texas Comptroller's Ruling No. 95-0.07. Such exemption certificate(s) issued by Contractor in lieu of the sales will be subject to the provisions of the State of Texas Comptroller's Ruling No. 95-0.09 as amended to be effective October 2, 1968. Exemption certificate may be obtained from Owner's Purchasing Agent.

7.11 *Laws and Regulations*

SC-7.11.B Delete Paragraph 7.11 in its entirety and replace with the following:

SC-7.11.B **IF CONTRACTOR PERFORMS ANY WORK OR TAKES ANY OTHER ACTION KNOWING OR HAVING REASON TO KNOW THAT IT IS CONTRARY TO LAWS OR REGULATIONS, CONTRACTOR SHALL BEAR ALL RESULTING COSTS AND LOSSES, AND SHALL INDEMNIFY AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS, AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM AND AGAINST ALL CLAIMS, COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT OR DISPUTE RESOLUTION COSTS) ARISING OUT OF OR RELATING TO SUCH WORK OR OTHER ACTION. IT IS NOT CONTRACTOR'S RESPONSIBILITY TO MAKE CERTAIN THAT THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS IS IN ACCORDANCE WITH LAWS AND REGULATIONS, BUT THIS DOES NOT RELIEVE CONTRACTOR OF ITS OBLIGATIONS UNDER PARAGRAPH 3.03.**

SC-7.11.C Remove last sentence on Paragraph 7.11.C that reads as follows:

"If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim in its entirety."

SC-7.11.D Add the following new paragraph immediately after Paragraph 7.11.C:

SC-7.11.D. *Minimum Prevailing Wage Rates*

1. Wage rates paid to workers employed in performing the Work at the Site, including Contractor and Subcontractor employees, shall not be less than the following:
   a. Minimum prevailing wage rates of the City of El Paso, Texas. The prevailing minimum wage rate determination, comprised of 5 pages, applicable to the Project is part of the Contract Documents.

When a labor classification is included in both the City of El Paso and federal minimum prevailing wage rate determinations, Contractor shall pay the higher of the two minimum prevailing wage rates for that labor classification. Contractor shall be aware of changes in the minimum prevailing wage rates applicable to the Work and shall pay the minimum prevailing wages at no additional cost to Owner. Contractor shall post the schedule of classifications and wage rates at conspicuous locations at the Site. Such schedule shall also show deductions, if any, required by law to be made from wages earned by laborers and mechanics engaged on the Work.

2. Contractor shall give preference to hiring qualified local residents for work as laborers and mechanics on the Project. Employees shall be bona-fide residents of the United States of America.

3. Contractor and Subcontractors shall pay each of their employees, engaged in the Work in full, not less often than once per week, and without deductions or subsequent rebates on any account, except for deductions mandated by law.

4. Contractor, and Subcontractors shall keep a complete payroll record indicating the name, address, and Social Security number of each employee engaged in the Work, together with the classification of work in which the employee is engaged, the hourly wage rate paid, number of deductions made from such wages and total amount paid to the employee. Submit to Owner one copy of each such payroll record, for the period for which payment is requested, with each Application for Payment. Each payroll record shall bear the affidavit of the employer certifying, under oath, that such payroll is a true, complete, and accurate report of the wages earned and paid to each employee engaged in the Work, that no deductions from any wages due each employee, except as set out on the payroll, have been directly or indirectly made, and that no rebates, either direct or indirect, have been nor will be required of an employee.

5. Certified payroll reports shall indicate for each worker whether the labor performed was performed under the Building, Heavy, Highway, or Water and Sewer Line Prevailing Wage Rate scale. Certified payroll reports shall be submitted for the complete Contract period and, for weeks where no Work was performed, negative reports shall be submitted, marked "No Work Performed". Clearly mark "FIRST PAYROLL" on the first payroll submitted, and clearly mark "FINAL PAYROLL" on the last payroll submitted for the Contract.

6. Apprentices will be work only under a bona fide apprenticeship program registered with the U.S. Department of Labor. A copy of such program shall be submitted to Owner, together with current certification or evidence of registration with the U.S. Department of Labor, Bureau of Apprenticeship and Training, for each apprentice engaged in the Work.

7. Contractor shall, when requested by Owner, submit additional certification and documentation (such as copy of cancelled check or an Employee Restitution Receipt Form) indicating that employee has received back compensation due.

8. Contractor and Subcontractors in violation of this provision are subject to a penalty of $60 per day for each worker that is paid less than the rate specified in the Project's applicable prevailing wage rates.

SC-7.11.E Add the following new paragraph immediately after Paragraph 7.11.D:

SC-7.11.E. *Mandatory for Building Projects with Contract Price Over $100,000 – Apprentices*

1. In accordance with resolution adopted on November 9, 1999 by the El Paso City Council regarding apprenticeship programs on City projects, Contractor and Subcontractors shall:

   a. Sponsor or participate in a U.S. Department of Labor (DOL) certified apprenticeship program for all job classifications utilized on the Project which are apprenticeable occupations as defined by

DOL regulations and which appear on the "schedule of categories of apprentices" kept on file in the office of the City of El Paso's Capital Improvement Department;

b. Pay wage rates and benefits in accordance with the applicable apprenticeship program;

c. Comply with the DOL requirements for ratio of apprentices to journeymen;

d. Hire registered apprentices enrolled in a DOL-certified apprenticeship program in all job classifications utilized on the Project which are apprenticeable occupations as defined by DOL regulations and which are designated for City projects on the "schedule of categories of apprentices" kept on file in the office of the City of El Paso Director of Capital Improvement Department. Helpers, unregistered apprentices, and other substitutes shall not perform apprentice-level work in place of registered apprentices.

2. Contractor shall post the applicable prevailing wage rate schedules at the Site in a prominent location readily accessible to the workers throughout the Project. Contractor shall post a notice to be provided by the City of El Paso Director of Capital Improvement Department regarding prevailing wage rates and the City of El Paso's apprenticeship program, in English and in Spanish, which shall be posted at the Site with the prevailing wage rates.

3. Contractor shall submit to Owner the names of all apprentices employed on the Work; verification of their status as registered apprentices; documentation regarding apprentice's proper wage rates; and documentation regarding journeyman-to-apprentice ratios for each trade as determined by the apprenticeship program.

4. No worker shall be discharged by Contractor or Subcontractor, or in any other manner be discriminated against, because such worker has filed an inquiry or complaint, instituted legal or equitable proceeding, or has testified or is about to testify in such proceeding under, or relating to, the apprenticeship program.

5. Contractor and Subcontractors shall allow immediate entry into all areas of the Site by Owner or Owner's agents and representatives displaying or presenting proper identification to Contractor's Site superintendent or their representative. Owner or their representative may visit the Site to determine adherence to these requirements, Contractor and Subcontractors shall allow access to personnel and apprenticeship program books and records and access to employees to be interviewed at random, at any time and for any reasonable duration to determine compliance with these provisions, including the apprenticeship programs.

6. Owner reserves the right to terminate for cause in accordance with Paragraph 16.02 if Contractor or Subcontractor breaches any of provisions of the Contract Documents regarding apprenticeship programs.

7. Apprentices shall be allowed to work at less than the predetermined rate for the work they performed when apprentice(s) are employed pursuant to, and individually-registered in, a bona-fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration Bureau; or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program but who has been certified by the Bureau of Apprenticeship & Training, or a state apprenticeship agency where appropriate, to be eligible for probationary employment as an apprentice.

8. The allowable ratio of apprentices to journeymen on the Work in any craft classification shall not be greater than the ratio permitted to the Contractor or Subcontractor as to the entire work force under the registered program. Any apprentice performing the Work in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the City Wage Scale for the work actually performed.

9. Contractor shall submit to Owner's Contract Administrator with sufficient information, which demonstrates that apprentices are employed pursuant to, and individually registered in, a bona-fide apprenticeship program. A copy of such program shall be submitted to Owner as well as the current certification for each individual assigned to the Work and appearing on the payrolls for that Contract. Every apprentice must be paid at not less than the rates specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the City wage determination. Workers not registered in a bona-fide apprenticeship program shall be paid not less than the applicable wage rate in the City Wage Scale for the classification of work actually performed. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the program does not specify fringe benefits, they must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Bureau of Apprenticeship & Training determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with that determination.

10. If the Bureau of Apprenticeship & Training or a state apprenticeship agency recognized by the Bureau, withdraws approval of a program, Contractor shall not employ apprentices at less than the applicable City rate for the work performed until an acceptable program is approved and evidence provided.

7.13 *Safety and Protection*

SC-7.13.B.1 Add following new subparagraph immediately after Paragraph 7.13.B:

SC-7.13.B.1. Contractor's safety representative shall be identified in submittal to Owner and Engineer for acceptance prior to commencement of Work at the Site. Name and qualifications of proposed substitute, if any, shall be submitted to Owner for acceptance.

SC-7.13.G Replace the word "safety program" with "Health and Safety Plan".

SC-7-13.H Replace the word "safety program" with "Health and Safety Plan".

SC-7.13.K Add the following new subparagraphs immediately after Paragraph 6.13.J:

SC-7.13.K. Within twenty-four hours of receiving a request from Owner, Contractor shall furnish to Owner documentation substantiating representations made in the Health and Safety Plan including, but not limited to, that each of the Contractor's employees has received training on the Health and Safety Plan as well as any other training necessary to competently effectuate the Health and Safety Plan. Select Contractor project management staff shall complete the El Paso Water Online Contractor Orientation, (Course 19ELPWC) available at www.hasc.com, before start of construction.

SC-7.13.L. Owner maintains a drug and alcohol-free workplace in accordance with the Drug-free Workplace Act of 1988. Contractor shall publicize a statement notifying employees on the Work that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the workplace, including at the Site.

SC-7.13.M. Owner maintains specific rules regarding smoking on Owner's properties. Contractor shall adhere to such rules at the Site.

SC-7.13.N. Owner maintains specific rules regarding firearms and Contractor shall adhere to such rules at the Site.

SC-7.13.O. Owner maintains specific rules regarding traffic safety on Owner's properties. Contractor shall adhere to such rules at the Site.

7.16 *Submittals*

SC-7.16.G Add the following new paragraphs immediately after Paragraph 7.16.F:

SC-7.16.G. For each Contractor submittal required under the Contract Documents, Engineer will review one initial submittal and one resubmittal at no cost to Contractor. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, Samples, or other submittals requiring approval or acceptance, and Contractor shall reimburse Owner for Engineer's charges for labor and expenses for such time.

SC-7.16.H. In the event that Contractor requests a change of a previously approved or previously accepted submittal, Contractor shall reimburse Owner for Engineer's charges for Engineer's review time unless the need for such change is beyond Contractor's control.

7.18 *Indemnification*

SC-7.18 Delete Paragraph 7.18.A in its entirety and insert the following in its place:

SC-7.18.A. **TO THE FULLEST EXTENT PERMITTED BY LAWS AND REGULATIONS, AND IN ADDITION TO ANY OTHER OBLIGATIONS OF CONTRACTOR UNDER THE CONTRACT OR OTHERWISE, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS OF EACH AND ANY OF THEM, FROM LOSSES, DAMAGES, COSTS, AND JUDGMENTS (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS, AND ALL COURT AND/OR MEDIATION OR OTHER DISPUTE RESOLUTION COSTS) ARISING FROM THIRD-PARTY CLAIMS OR ACTIONS RELATING TO OR RESULTING FROM THE PERFORMANCE OR FURNISHING OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, ACTION, LOSS, COST, JUDGMENT OR DAMAGE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE, OR DEATH, OR TO DAMAGE TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF), INCLUDING THE LOSS OF USE RESULTING THEREFROM, BUT ONLY TO THE EXTENT CAUSED BY ANY NEGLIGENT ACT OR OMISSION OF CONTRACTOR, ANY SUBCONTRACTOR, ANY SUPPLIER, OR ANY INDIVIDUAL OR ENTITY DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM TO PERFORM ANY OF THE WORK, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE.**

ARTICLE 8 – OTHER WORK AT THE SITE

8.03 *Legal Relationships*

SC-8.03.C Delete Paragraph 8.03.C in its entirety and insert the following in its place:

SC-8.03.C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by dispute resolution proceeding or at law, and **(2) INDEMNIFY, DEFEND AND HOLD HARMLESS OWNER AND ENGINEER, AND THE OFFICERS, DIRECTORS, MEMBERS, PARTNERS, EMPLOYEES, AGENTS, CONSULTANTS AND SUBCONTRACTORS OF EACH AND ANY OF THEM FROM AND AGAINST ANY SUCH CLAIMS, AND AGAINST ALL COSTS, LOSSES, AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ENGINEERS, ARCHITECTS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT AND/OR MEDIATION OR OTHER DISPUTE RESOLUTION COSTS) ARISING OUT OF OR RELATING TO SUCH DAMAGE, DELAY, DISRUPTION, OR INTERFERENCE.**

ARTICLE 9 - OWNER'S RESPONSIBILITIES

9.11 *Evidence of Financial Arrangements*

SC-9.11 Delete Paragraph 9.11 in its entirety and insert the following in its place:
SC-9.11 Not used

9.13 *Owner's Site Representative*

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 *Owner's Site Representative*

A. Owner will furnish an "Owner's Site Representative" to represent Owner at the Site(s) and assist Owner in observing the progress and quality of the Work. The authority and responsibilities of Owner's Site Representative follow:

Overseeing that the contractor is completing the Work as per the Specifications, requirements, codes and/or ordinances set for by El Paso Water and/or the governing agencies. Owner's Representative will issue a "Pass or Fail" determination on completed work.

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03.C Add a new paragraph immediately after Paragraph 10.03.B that is to read as follows:

SC-10.03.C If a Resident Project Representative is required for a specific Work Order (site) the following will apply:

Resident Project Representative (RPR) will be Owner's and/or Engineer's employee or agent at the Site, will act as directed by and under the supervision of Owner and/or Engineer, and will confer with Owner and/or Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Owner and/or Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of and under the direction of Engineer.

1. Duties and Responsibilities to RPR:

   a. Schedules: Review the Progress Schedule, Schedule of Submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

   b. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

   c. *Safety Compliance*: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

   d. Liaison:

      1) Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent, and assist in providing understanding of the intent of the Contract Documents.

      2) Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

3) Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

e. Shop Drawings and Samples:

1) Record date of receipt of Shop Drawings and Samples that are received at the Site.

2) Receive Samples that are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

3) Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by Engineer.

f. Review of Work, Rejection of Defective Work, Inspections, and Tests:

1) Conduct observations of the Work in progress on the Site to assist Engineer in determining if the Work is, in general, proceeding in accordance with the Contract Documents.

2) Report to Engineer when RPR believes that any Work is unsatisfactory, faulty, or defective or does not conform generally to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.

3) Verify that tests, equipment, and systems startups, and operating and maintenance training are conducted in the presence of appropriate Owner's personnel and that Contractor maintains adequate records thereof; and observe, record, and report to Engineer appropriate details relative to the test procedures and startups.

4) Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

5) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.

g. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

h. Modifications: Consider and evaluate Contractor's suggestions for modifications to Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor decisions issued by Engineer.

i. Records:

1) Maintain at the Site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, and reproductions of original Contract Documents including all Addenda, Change Orders, Field Orders, work change directives, additional Drawings issued subsequent

to the execution of the Agreement, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project-related documents.

2) Keep a record recording Contractor's hours on the Site, weather conditions, data relative to questions on Change Orders or changed conditions, list of visitors to the Site, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

3) Record names, addresses, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

4) The RPR shall prepare a daily report or keep a daily diary that records weather conditions, the contractor's daily work activities, and specific observations. The RPR shall regularly photograph the work. The RPR shall maintain orderly files of correspondence, reports of job conferences, change orders, field orders, work change directives, daily reports and/or diaries, photographs and other similar documents. These documents shall be filed in Consultant's project record file. They shall be made available to Owner upon receipt of request from Owner and, if available, uploaded to cloud-based construction management software applications (or any other construction management software applications made available).

j. Reports:

1) Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and Schedule of Submittals.

2) Consult with Engineer in advance of scheduled major tests, inspections, or start of important phases of the Work.

3) Prepare draft of proposed Change Orders, obtaining backup documents from Contractor, and provide recommendations to Engineer regarding Change Orders and Field Orders.

4) Report immediately to Engineer and Owner upon the occurrence of any Site accident, any Hazardous Environmental Condition, emergencies, or acts of God endangering the Work, or property damage by fire or other cause.

k. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission, and submit recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

l. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals, and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.

m. Completion:

1) Before Engineer issues a certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

2) Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public authorities having jurisdiction over the Work.

3) Conduct final inspection in the company of Engineer, Owner, and Contractor, and prepare a final list of items to be completed or corrected.

4) Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance of the Work.

2. The RPR shall not:

a. Authorize any deviation from the Contract Documents or substitution of materials or equipment, including "or equal" items.

b. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

c. Undertake any of the responsibilities of Contractor, Subcontractors, or Contractor's superintendent.

d. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction, unless such advice or directions are specifically required by the Contract Documents.

e. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.

f. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

g. Authorize Owner to occupy the Project in whole or in part.

h. Authorize the use of any Unmanned Aircraft System (UAS or drone) without prior consent and authorization from Owner.

i. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

ARTICLE 11 - CHANGES TO THE CONTRACT

11.02 *Change Orders*

SC-11.02.A Delete Paragraph 11.02A in its entirety and insert the following in its place:
SC-11.02.A Owner and Contractor shall execute appropriate Change Orders covering changes in Unit Prices accepted by Owner in accordance with the Contract.

SC-11.02.B Delete Paragraph 11.02.B in its entirety.

11.03 *Work Change Directives*

SC-11.03.A.1 Add the following new subparagraphs immediately after Paragraph 11.03.A:

SC-11.03.A.1. Without invalidating the Contract, Owner may, by written Work Change Directive, using the Cost of the Work method, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Amount and

Contract Time being adjusted as necessary. "Cost of the Work" means a basis of payment for the direct performance of Work with payment based on the actual cost of the labor, equipment and materials furnished and consideration for overhead and profit as set forth in Section 13.01, below. A Work Change Directive shall be used in the absence of complete and prompt agreement on the terms of a Change Order. Where practicable, any items of Work that may be agreed upon, prior to the performance of Work under this Section, will be included in a separate Change Order.

SC-11.03.A.2. If the Work Change Directive provides for an adjustment to the Contract Amount, the adjustment shall be based on the method provided in paragraph 13.01. The estimated value of the work issued under each individual Work Change Directive shall not exceed five (5) percent of the original contract price.

SC-11.03.A.3. A Work Change Directive shall be effective immediately and shall be recorded later by preparation and execution of an appropriate Change Order.

SC-11.03.A.4. Upon receipt of a Work Change Directive, Contractor shall promptly proceed with the change in the Work involved, provided, prior to the commencement of any Work under this section, the Contractor must submit its proposed Work plan, anticipated schedule, and a list of its work force and equipment proposed to be used in the Work for Owner's approval. Upon such approval, Contractor must promptly commence and make continuous progress in the Work. The Owner reserves the right to withhold payment for low production or lack of progress.

11.07 *Change of Contract Price*

SC-11.07.C.2.c Delete 27 percent and replace with 25 percent.

SC-11.11 Add the following new paragraph immediately after Paragraph 11.10:

SC-11.11.1 *Liquidated Damages*

A. Time is of the Essence. All time limits for performance of Work Orders, including Fully Completed and completion of corrective work as stated in the Contract Documents, are of the essence of the Contract.

B. Liquidated Damages Relative to each individual Work Order.

C. Liquidated damages, shall be assessed on a Work Order–by–Work Order basis as provided herein.

D. Liquidated Damages for Failure to Timely Complete Work Orders

Owner and Contractor recognize that time is of the essence and that Owner will suffer financial loss, operational impacts, and public inconvenience, traffic impacts, inspection impacts, administrative burden, and other damages if individual Work Orders are not completed within the time requirements established in Article 3.2 of the Agreement, including the default Ten (10) working days completion period, unless otherwise stated in the applicable Work Order or authorized by Owner.

Owner and Contractor further recognize that the delays, expense, and difficulties involved in proving the actual damages suffered by Owner due to late completion of individual Work Orders would be impracticable or extremely difficult. Accordingly, instead of requiring any such proof, Owner and Contractor agree that, as liquidated damages for delay (but not as a penalty), Contractor may pay, at Owner's determination of Contractor's delay, the sum of One Hundred-Seventy Two Dollars and Forty-Three cents ($172.43) per calendar day for each calendar day after the required Final Completion dead-line of a Work Order until that Work Order is finally completed. Liquidated damages assessed under this Section may be deducted from amounts due or to become due to CONTRACTOR under this Contract, including amounts due for the affected Work Order or any other Work Order. Assessment of liquidated damages shall not preclude OWNER from exercising any other rights or remedies available under the Contract Documents.

E. Liquidated Damages for Late Delivery of Steel Plates Owner and Contractor recognize that time is of the essence, and Owner will suffer financial loss , operational impacts, public inconvenience, and safety-related impacts if steel plates are not delivered on time. The timing of deliveries of steel plates shall be as described in the Agreement.
Deliveries will be deemed late deliveries if the time of delivery is not met by Contractor. Accordingly, instead of requiring any such proof, Owner and Contractor agree that, as liquidated damages for delay (but not as a penalty), Contractor may pay, at Owner's determination of Contractor's delay, the sum of One-Hhundred Thirty-Seven dollars and 07 cents ($137.07) for each full thirty (30)-minute increment that the delivery arrives late. The actual delivery time shall be written on the delivery ticket by the Owner representative at the site, and said delivery time shall be used to determine the liquidated damages due for late deliveries. Such liquidated damages shall be deducted by Owner from payments due for the applicable bid item after invoices are received."

F. Extensions and No-Penalty Periods
The ten (10) working days period will be paused due to unmapped utility conflicts or delays directed by the City of El Paso or EPWater. The contractor must notify both the City of El Paso and EPWater in writing within 24 hours of any such delay to request a 'No-Penalty' extension for the specific site.

ARTICLE 12 - CLAIMS

SC-12.01.B Add the following immediately after Paragraph 12.01.B:
SC-12.01.B.1. In the event a delay Claim arises due to Standby Equipment Costs, Contractor must notify, through an RFI, Engineer and Owner no later than 72-hours in advance of such claim at which time Contractor, Engineer and Owner will evaluate the progress of the Work and determine if no other Work can be performed. Once that determination has been made, official response from Engineer and Owner acknowledging the delay at which point the Standby time will commence.

ARTICLE 13 - COST OF WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

SC-13.01 In Paragraph 13.01.A, delete the last sentence and replace with:
The provisions of this Paragraph 13.01 are used for **three** distinct purposes:

SC-13.01 Add the following new paragraph immediately after Paragraph 13.01.A.2:
SC-13.01.A.3. If neither of the methods defined in paragraphs 13.01.A.1 nor 13.01.A.2 can be agreed upon before a change in the Work is commenced, which will result in an adjustment in the Contract Amount, then the change in the Work will be performed by Work Change Directive, using the Cost of the Work method, and payment will be made as described below:

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:
SC-13.01.B.5.c.(2). The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of “Rental Rate Blue Book (Volumes 1 through 3) by Equipment Watch. Equipment or machinery with a value of less than $1,000 will be considered small tools.

SC-13.01 Add the following new subparagraphs immediately after Paragraph 13.01.B.5.i:
SC-13.01.B.5.j. Standby Equipment Costs: Standby equipment time will not exceed more than

Liquidated damages shall not be assessed for periods of delay for which OWNER has granted a written extension of time. CONTRACTOR must notify OWNER in writing within twenty-four (24) hours after becoming aware of any condition that may delay Final Completion. No extension shall be allowed for delays caused by CONTRACTOR, its subcontractors, suppliers, employees, agents, lack of staffing, lack of equipment, failure to timely obtain permits, failure to schedule inspections, or failure to timely establish traffic control.

eight (8) hours per twenty-four (24) hour day, forty (40) hours per week, and one hundred seventy-six (176) hours per month Payment for standby equipment will be made in accordance with 13.01.B.5.c except that:

SC-13.01.B.5.j.(1) Contractor-Owned Equipment. For Contractor-owned machinery, trucks, power tools, or other equipment, Standby will be paid at 50% (to account for the removal of operating costs) of the rate established under 13.01.B.5.c.(2). Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

SC-13.01.B.5.j.(2) Equipment Not Owned by the Contractor. For equipment rented from a third party not owned by the Contractor, Standby will be paid at the invoice daily rental rate, excluding operating cost, which includes fuel, lubricants, repairs, and servicing. The Owner reserves the right to limit the daily standby rate to comparable rates established under 13.01.B.5.c.(2). Standby will be paid for equipment operators when included on the invoice and equipment operators are actually on standby. Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than $1,000.

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if approved by Owner as per the Contract.

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK

SC-14.02 Add the following new subparagraphs to Paragraph 14.02.B:

1. Re-Inspection Fees

a. Pay fees to the Owner to compensate the Owner's Representative as identified in Article 10 of the General Conditions for reinspection of the Work required by the failure of the Work to comply with the claims of status of completion made by the Contractor.

b. Owner may withhold the amount of these fees from the Contractor's final payment as stipulated in Article 15 of the General Conditions.

c. Cost for additional inspections will be billed to the Owner by the Owner's Representative for the actual hours required for the reinspection and preparation of related reports in accordance with the rates provided in the Supplementary Conditions.

2. Fees for Inspections Outside Normal Working Hours

a. If some or all of the Work has been determined to be required to be performed outside the normal working hours and or beyond the standard 40-hour work week as defined by Article 7 of the General Conditions, the Contractor is required to:

1) Notify the Owner in advance of their intent to work outside regular working hours or working days;

2) Determine if the work to be performed will require observation by the Owner's Representative or other agencies prior to covering the Work;

b. Pay fees to the Owner to compensate the Owner's Representative as identified in Article 10 of the General Conditions for inspection of the Work performed outside normal working hours;

c. Owner may withhold the amount of these fees from the Contractor's final payment as stipulated in Article 15 of the General Conditions.

d. Cost for inspections will be billed to the Owner by the Owner's Representative for the actual hours required for the inspection and or observation of the work and preparation of related reports in accordance with the rates provided in the Supplementary Conditions.

ARTICLE 15 - PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

SC-15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

SC-15.01.D.1 Thirty days after presentation of the Application for Payment to Owner by Contractor with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 15.01.E) become due, and when due will be paid by Owner to Contractor.

SC-15.01.D.1.(a) The thirty days' time will commence immediately after Owner acknowledges receipt of the Application for Payment from Contractor.

SC-15.01.D.1.(b) If upon review of the Application for Payment the Owner encounters any error (including, but not limited to, clerical, grammatical, informational) or lacks documentation as required by the Contract Documents, the Application for Payment will be deemed incomplete and the Owner will reject the Application for Payment. The Owner will immediately notify the Contractor and Engineer the reason for the rejection of the Application for Payment. The thirty days' time allotted will reset and recommence once a corrected Application for Payment is received by Owner from Contractor.

SC-15.01.F Add the following new Paragraph 15.01.F:

SC-15.01.F For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for

Payment.

15.03 *Substantial Completion*

SC-15.03.A Add the following sentence at the end of Paragraph 15.03.A
Under this Contract, each Work Order issued will have its own separate Substantial Completion Date.

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

15.06 *Final Payment*

SC-15.06.B Delete the first sentence and replace with the following:

If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the Application for Payment (Invoice) for a specific Work Order (Site) and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer (Owner) will, within 10 days after receipt of the final Application for Payment (Invoice), begin the process for final payment for that specific Word Order (Site).

SC-15.06.E Delete Paragraph 15.06.E in its entirety and replace with the following:

E. Final Payment Becomes Due: Upon receipt from **Contractor of an approvable Application for Final Payment** and accompanying documentation, Owner shall set-off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including, but not limited to, set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Contractor. An approvable application for final payment shall include Contractor and Subcontractor payrolls for the period covered in the final Application for Payment; an update of progress against the accepted Progress Schedule; and such other items as the Engineer may reasonably require.

15.08 *Correction Period*

SC-15.08.G Add the following new Paragraph 15.08.G:

G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be One (1) year after Substantial Completion, which will be the day of the Final Completion per Work Order (Site). Each Work Order (Site) will have its own separate Substantial Completion Date.

ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION

16.02 *Owner May Terminate for Cause*

SC-16.02.A.5 Add the following new paragraphs immediately after Paragraph 16.02.A.4:

SC-16.02.A.5 If the Contract or any part thereof is sublet or assigned to another party by Contractor, without the written consent of Owner and surety that issued the performance bond and payment bond.

ARTICLE 17 - FINAL RESOLUTIONS OF DISPUTES

SC-17.02 Add the following new paragraphs immediately after Paragraph 17.01:

17.02 *Non-binding Mediation*

A. Claims, disputes, or other matters in controversy arising out of or related to the Contract shall be subject to non-binding mediation as a condition precedent to filing suit.

B. The parties shall endeavor to resolve their Claims by mediation. A request for mediation shall be made in writing.

C. The parties shall share the mediator's fee and any filing fees equally. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02:

17.03 *Attorneys' Fees*

A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18 - MISCELLANEOUS

SC-18.11 Add the following new paragraph immediately after Paragraph 18.10:

SC-18.11 *Use of Unmanned Aerial/Aircraft Systems (UAS)*

A. The use of an UAS on all Owner property is strictly prohibited unless the following are met:

1. The proposed flight is solely for purposes of Utility operations
2. Authorization has been received from Owner to operate on or above Owner property
3. All of the necessary federal, state, and local approvals have been acquired
4. Compliance with federal, state, and local laws are met
5. The Contractor has filed a flight plan with AirMap or any other Owner-approved Unmanned Aircraft System Traffic Management (UTM) ecosystem for uncontrolled operations that is separate from, but

complementary to, the FAA's Air Traffic Management (ATM) system prior to flight operations

6. The proposed flight does not photograph, video, or monitor in any way areas where members of the general public would have a reasonable expectation of privacy

B. Any person or vendor, including but not limited to third parties seeking to operate a UAS on or above Owner property or at an Owner-sponsored event must submit a completed UAS (Drone) Use Approval Form to the Owner at least 10 business days in advance.

C. The applicable Owner Representative (PM) who is an employee of the Owner will process the request for UAS use. After review and assessment of the request, the requestor will be notified of a decision or receive a request of additional information within five (5) business days.

1. If approved, the PM will email a copy of the approved form to the Owner's Utility Security and Emergency Response (USER) Coordinator.

D. The USER Coordinator will advise El Paso Police Department (EPPD) and Airport Operations (if the UAS will be near or entering restricted flight space) of UAS activity for situational awareness.

1. If approved, a copy of the UAS Approval Form must be in possession by the pilot in command at all times during flight activity and must be presented to any EPWater official or representative with control or jurisdiction over the activity, upon request.

E. The USER Coordinator will maintain a copy of the UAS (Drone) Use Approval Forms.

F. Exceptions and Deviations

1. Contractors will be limited to the collection, use, retention, or dissemination of images and videos of Owner's critical infrastructure acquired by UAS.

2. The Owner's Utility Chief Operations Officer may waive the 10-business day notification requirement as deemed necessary.

3. UAS operators must only conduct approved flights under favorable conditions. If unforeseen circumstances develop (e.g. adverse weather) under which operations cannot be conducted in a safe manner, the operation must postpone the flight and request an extension from the Project Manager within 3 business days of the original date. If the extension is not requested within three (3) business days, a new UAS Approval Form must then be completed and submitted.

4. The use of UAS for hobby or recreational use on all EPWater property is always strictly prohibited. Using a UAS to take photographs or videos for personal use is considered recreational use and is prohibited.

5.

SC-18.12 Add the following new paragraph immediately after Paragraph 18.10:

SC-18.12 *Working Near Utilities*

A. Construction Adjacent to High Voltage Electric Lines:

1. Contractor shall comply with Laws and Regulations, including U.S. Occupational Safety and Health Administration (OSHA) safety standards regarding construction adjacent to high-voltage electric lines and facilities, including trenching, crane operations, final grading, and other associated work which may result in impaired clearance to an existing electrical line or facility.

2. It is a violation of OSHA regulations to operate equipment in a manner that results in persons or equipment coming within ten feet of an energized electric line. Such Laws and Regulations are enforced by OSHA, and violators are subject to penalties imposed under federal Law.

3. Texas Law prohibits function or activity where it is possible for the person performing such activity to come within six feet of an overhead power line.

4. Contractor shall notify the El Paso Electric Company in writing of Contractor's anticipated dates and times when such work is scheduled. Written notification of El Paso Electric Company shall be at least six working days prior to each scheduled activity near El Paso Electric Company power lines and facilities, so that El Paso Electric Company personnel can coordinate with Contractor to provide proper clearance of energized electric lines. No other type of notice will be acceptable and work shall not be initiated until proper clearance and arrangements are confirmed by Contractor with the El Paso Electric Company.

5. Submit written notification to:

   Raul Guel, Distribution Engineering Design
   El Paso Electric Company
   P. O. Box 982
   El Paso, Texas 79960
   (915) 543-4015

6. Simultaneously submit one copy of the notification letter to Owner's Contracts Development Manager and retain copy in Contractor's file.

7. Below are selected El Paso Electric Company phone numbers:

Claims Director	(915) 543-4158
Trouble & Emergencies	(915) 543-5720
Field Services/Power Consultants	(915) 543-2255
Cable Locator	(915) 543-4051

B. Construction Adjacent to Gas Lines:

1. Contractor shall comply with the One-Call Notification and System Protection Program developed by Southern Union Gas Company, and with State Damage Prevention Law, HB 2295:

- ☐ Contact Texas Gas Co. not less than two working days before commencing excavation activities
- ☐ Determine exact location of all underground utilities by safe and acceptable means
- ☐ Employ the two-foot safety rule
- ☐ Utilize "Professional Excavator's Manual" as revised

SC-18.13 Add the following new paragraph immediately after Paragraph 18.12:

SC-18.13 *EPCWID #1 Dewatering Permit Requirements*

A. A license agreement for "Discharge of Foreign Waters into District Drain Ditches" is required between Owner and the El Paso County Water Improvement District (EPCWID) #1 before Contractor may begin dewatering operations. Contractor shall be a co-licensee with Owner. Terms and conditions of the license agreement are applicable to Contractor, who will function, relative to the license EPCWID #1 agreement only, as an agent of Owner, by preparing an approvable plan and carrying out the terms of the plan and the EPCWID #1 license agreement. Contractor shall, to the extent permitted by law, defend and hold harmless Owner, its employees, insurers and agents; and the Engineer and Engineer's consultants, and their employees, officers, insurers, and agents from claims arising out of damages caused by actions, or inactions, of Contractor or as a result of EPCWID's exercise of any or all options given it under the license agreement.

B. Contractor shall prepare and submit to Engineer a "Dewatering Plan", a "Final Schedule for Dewatering", and an estimate of fees due EPCWID #1. Submit "Dewatering Plan" within 15 days of the date that the Contract Times commence running. "Dewatering Plan" shall include the estimated quantities of dewatering for each month of the Contract, the design capacity and number of pumps to be used by Contractor, and the point(s) of dewatering pump discharge. Engineer will review for acceptability the "Dewatering Plan" and, when the submittal is acceptable to Engineer, Engineer will forward it, through Owner, to EPCWID #1. Prepare and submit the submittal and schedule the Work so that Owner receives the "Dewatering Plan" submittal not less than 14 days before the start of dewatering operations at the Site. Owner will pay the fees as estimated in the "Dewatering Plan".

C. Estimate the dewatering fees on the following basis:

1. Drain maintenance fee of $1,000 for each six months a discharge occurs. Fee for maintenance is non-refundable. Subsequent semiannual fee payments are payable to Owner by Contractor in advance of each respective six-month period.

2. Dewatering fee at the rate of $150 per acre-foot of water discharged. For a month in which the discharge exceeds the amount estimated under the "Dewatering Plan", Contractor shall advise Owner and Engineer in writing, that such excess fees may be due so that the Owner may consider its liability for, and take

action to make payment of, such excess fees to EPCWID #1. Owner will pay such excess fees only to the extent that such fees are incurred through no fault of Contractor.

D. Samples of the discharge water shall be tested by a qualified testing laboratory hired by Contractor. Submit to Engineer results of total dissolved solids (TDS) tests, which Engineer will transmit to EPCWID #1. Submit to Engineer and Owner monthly reports of discharge quantities and quality (TDS and sulfates), which specific requirements may be more particularly indicated in the Specifications and in the associated discharge permit; Engineer will transmit monthly reports to EPCWID #1.

E. Contractor will not be eligible for final payment by Owner until final dewatering fees based upon actual quantities and damages (if any) due EPCWID # 1 have been paid and payment due from Contractor has been made. A "Final Release" from EPCWID # 1 shall be received by Owner as a condition precedent to Contractor applies for final payment.

SC-18.14 Add the following new paragraph(s) immediately after Paragraph 18.12:

SC-18.14 *Railroads*

A. *Union Pacific Railroad Company Contractor's Right of Entry*: Contractor shall acquire and pay all associated expenses (including railroad company inspection fees), Contractor's right-of-entry from, the Union Pacific Railroad Company. Refer to Union Pacific Railroad's "Contractor's Right of Entry" form and its exhibits, included in the Project Manual following these Supplementary Conditions. Right-of-entry requirements are interrelated with the railroad liability insurance requirements and both are Contractor's cost responsibility. Contractor shall acquire railroad company's authorization prior to commencing work in the railroad right

of-way. Submit to Owner and Engineer executed copies of Contractor's "Right of Entry" form prior to commencing work on railroad property.

B. *Railroad Liability Insurance*: Contractor shall obtain Railroad Liability Insurance in the form and amount required by the Union Pacific Railroad Company. Such insurance shall be in effect and cover all necessary work and operations required of Contractor within the railroad right-of-way. Refer to the railroad's "Contractor's Right of Entry" form and its exhibits. Insurance requirements of this paragraph are interrelated with the right-ofentry requirements in Paragraph SC-18.14.A and is Contractor's responsibility.

C. For clarification of the requirements and costs of railroad permits and insurance, contact:

Manager Utilities Work
Union Pacific Railroad Company
Contracts and Real Estate Department
1400 Douglas Street STOP 1690
Omaha, Nebraska 68179-1690
Phone: (402) 544-8620
Fax: (402) 501-1519

SC-18.15 Add the following new paragraph immediately after Paragraph 18.14:

SC-18.15 Texas Water Development Board (TWDB) contracts - Not Applicable

***** END OF SUPPLEMENTARY CONDITIONS *****

REQUIRED WORKERS' COMPENSATION COVERAGE

(Title must be 30 point font & bold lettering)

(19 point font from here on)

The law requires that each person working on this site or providing services related to this construction project must be covered by workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee."

"Call the Texas Workers' Compensation Commission at 512-440-3789 to receive information on the legal requirements for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage."

* The above sign to be provided in both English and Spanish without any additional words or changes and shall be posted at the Project Site. Refer to Paragraph SC-6.03.D.1 of the Supplementary Conditions (Document 00800 in the Contract Documents).

SECTION 00810
EPWATER CONTRACTOR INSURANCE COVERAGE
CHECKLIST

Contractor Insurance Check List

Project	**On-Call Construction Services for the Repairs of Street Rights- of -Way**		
CSP Number	17-26		
Job Description			
Contract Cost			
Final Completion			
Contractor			
Engineer			
Insurance Agent			
Performance & Payment Bonds	**Bond Limit :**		
	Surety:		
	Certified copy of Authority to Act	☐ Yes	☐ No
	Countersigned by Agent	☐ Yes	☐ No
Workers' Compensation	**Insurance Company / A.M. Best Rating**		
	Policy Period From: To:		
	Employers Liability Limits required		
	Employers Liability Limits provided		
	Waiver of Subrogation	☐ Yes	☐ No
	30 Days Notice of Cancellation	☐ Yes	☐ No
	If Employees Leased:		
	– Employee Leasing Company	☐ Yes	☐ No
	– Texas State License	☐ Yes	☐ No
	– Copy of Workers' Compensation Policy	☐ Yes	☐ No
Commercial General Liability	**Insurance Company / A.M. Best Rating**		
	Policy Period From: To:		
	Limits required		
	Limits provided		
	Products/Completed Operations – 2 Years after completion	☐ Yes	☐ No
	Personal Injury – Employment Exclusion deleted	☐ Yes	☐ No
	Contractual	☐ Yes	☐ No
	Broad Form Property Damage	☐ Yes	☐ No
	XCU	☐ Yes	☐ No
	Additional Insured	☐ Yes	☐ No
	30 Days Notice of Cancellation	☐ Yes	☐ No
Business Auto	**Insurance Company / A.M. Best Rating**		
	Policy Period From: To:		
	Limits required		
	Limits provided		
	Symbol 1	☐ Yes	☐ No
	Additional Insured	☐ Yes	☐ No
	30 Days Notice of Cancellation	☐ Yes	☐ No
Umbrella	**Insurance Company / A.M. Best Rating**		
	Policy Period From: To:		
	Limits required		
	Limits provided		
	Follow Form – Additional Insureds and Waivers of Subrogation	☐ Yes	☐ No
	30 Days Notice of Cancellation	☐ Yes	☐ No

Builder's Risk/Installation Floater	**Insurance Company / A.M. Best Rating**		
	Policy Period	From:	To:
	Limits required		
	Limits provided		
	Deductible		
	– All Risk	☐ Yes	☐ No
	– Flood	☐ Yes	☐ No
	– Earthquake	☐ Yes	☐ No
	– Testing	☐ Yes	☐ No
	– Offsite Storage	☐ Yes	☐ No
	– Transit	☐ Yes	☐ No
	– Additional Interests	☐ Yes	☐ No
	– Waiver of Subrogation	☐ Yes	☐ No
Boiler & Machinery	– **If required**		
Certificates of Insurance	– **All coverages**		
Certified Copies of Policies	– **All policies**		
Requirements	**Additional Insureds – Owner, Engineer and Engineer's Consultants on:**		
	– CGL	☐ Yes	☐ No
	– Auto	☐ Yes	☐ No
	– Umbrella	☐ Yes	☐ No
	Waiver of Subrogation (Workers' Compensation) – Owner, Engineer and Engineer's Consultants	☐ Yes	☐ No
	30 Days Notice of Cancellation to Owner & Engineer by Certified Mail on:		
	– WC	☐ Yes	☐ No
	– CGL	☐ Yes	☐ No
	– Auto	☐ Yes	☐ No
	– Umbrella	☐ Yes	☐ No
	– Builder's Risk	☐ Yes	☐ No
	– B&M (If required)	☐ Yes	☐ No
	Builder's Risk/Installation Floater – Include Additional Insured interests & Waiver of Subrogation in favor of :		
	– Owner	☐ Yes	☐ No
	– Contactor	☐ Yes	☐ No
	– Subcontractor	☐ Yes	☐ No
	– Engineer	☐ Yes	☐ No
	– Engineer's Consultants	☐ Yes	☐ No
Other			

Notice: This checklist is provided as a guide only and is not a substitute for the insurance requirements included in the EPWATER contract. EPWATER strongly advises contractors provide a copy of the contract insurance requirements to their insurance agents, consultants and providers to ensure their insurance coverages meet the contract insurance requirements.

SECTION 00820
EP WATER APPLICATION FOR PAYMENT (INVOICE)

INVOICE DATE _____
TERMS _____

INVOICE NO.	***Work Order No.***

OWNER: El Paso Water Utilities

Public Service Board
1154 Hawkins Blvd.
El Paso, Texas 79925

PROJECT: On Call Services for the Repair of Street Rights-of-way

CSP NO.: 17-26

CONTRACTOR/VENDOR:_____ ADDRESS_____ PHONE No._____
CONTACT PERSON: _____
PURCHASE ORDER No: _____
MASTER CONTRACT No.:_____

WORK ORDER ISSUED _____/_____/_____

LOCATION_____

WORK ORDER

DESCRIPTION_____

DATE WORK ORDER COMPLETED_____/_____/_____

TCP/PCP PERMIT NO. _____

ACCT No. / Job No. _____

Item No.	Contract Line-Item No.	Item Description	Quantity	Units	Unit Price	Amount

Total	

OWNER shall make payments based on the Unit Price Work completed under a Work Order issued by OWNER on the basis of unit prices under this Contract, as recommended by ENGINEER. Completed Work Order shall reflect all the Unit Price Work required. If the Owner encounters errors or discrepancies in the Invoice, the Invoice will be rejected until a corrected Invoice is received by the Owner.

CONTRACTOR'S CERTIFICATION:

The undersigned CONTRACTOR certifies that title to all materials and equipment incorporated in said work order or otherwise listed in or covered by this invoice is free and clear of all liens, claims, security interests and encumbrances (except such as covered by bond acceptable to OWNER).

CONTRACTOR: _____ By:_____

Title:_____

Date: _____

RECOMMENDED:

By: _____

Date: _____

APPROVED:

Title: _____

Date: _____

SECTION 00830
PAY APPLICATION (Invoice)
CHECKLIST

PAY APPLICATION (INVOICE) CHECK LIST

REQUIRED ITEM/PROCESS	INCLUDED
1. Original Pay Applications (Invoice) are included/submitted and are on the standard EPWATER form (00820-1 in the bid document).	
2. Completion dates listed	
3. Locations	
4. TCP/PCP Permit No.	
5. Description	
6. Submit Contractor, and Subcontractors complete payroll record. (Monthly)	

If all requirements are not met or included in the Pay Application (Invoice) package, the Pay Application (Invoice) will be returned for revisions, and payment will not be made until EPW's receipt of 'approvable' Pay Application (Invoice). EPW make require additional information and Check List subject to change.

SECTION 00840
GENERAL WAGE REQUIREMENTS

SECTION 00840

GENERAL WAGE REQUIREMENTS

The following Wage Decision(s) will be utilized for this project. **A Wage Rate for one or both Wage Decisions for a construction type(s) included in the Contract Document, the Contractor is required to indicate on his Certified Payroll Reports, the Wage Decision description/construction type under which the works being reported. The wage decision(s) is/are attached to this form.**

CONSTRUCTION TYPE / WAGE DECISION	PORTION OF PROJECT FOR WHICH THE WAGE DECISION IS APPLICABLE
El Paso Water Utilities – Public Service Board 2024 Heavy and Highway Construction Trades Wage	Entire Project

El Paso Water Utilities-Public Service Board

2024 Heavy and Highway Construction Trades Wage Rates

TX DOT Job ID	Job Classification	Base Rate	Fringe	Hourly Wage	Total 8 hr work day
1106	Asphalt Raker	17.81	-	17.81	142.48
1112	Batching Plant Operator, Asphalt	18.89	2.85	21.74	173.92
1115	Batching Plant Operator, Concrete	18.23	2.85	21.08	168.64
1124	Concrete Finisher, Paving and Structures	17.35	-	17.35	138.80
1139	Electrician	25.50	7.92	33.42	267.36
1143	Telecommunication Technician	17.76	-	17.76	142.08
1150	Flagger	15.00	-	15.00	120.00
1151	Form Builder, Setter, Structures	16.51	2.85	19.36	154.88
1160	Form Setter, Paving and Curb	12.26	-	12.26	98.08
1172	Laborer, Common	15.78	-	15.78	126.24
1175	Laborer, Utility	16.87	-	16.87	134.96
1187	Mechanic	28.39	-	28.39	227.12
1194	Servicer	13.44	-	13.44	107.52
1196	Painter, Structures	15.92	-	15.92	127.36
1205	Pipelayer	18.28	-	18.28	146.24
1214	Blaster	19.26	2.85	22.11	176.88
1300	Asphalt Distributor Operator	19.77	-	19.77	158.16
1303	Asphalt Paving Machine Operator	18.67	-	18.67	149.36
1305	Broom or Sweeper Operator	18.25	-	18.25	146.00
1315	Concrete Paving Curing, Float, Texturing Machine Operator	19.50	-	19.50	156.00
1318	Concrete Pavement Finishing Machine Operator	16.03	-	16.03	128.24
1344	Crane Operator, Hydraulic 80 tons or less	32.15	-	32.15	257.20
1345	Crane Operator, Hydraulic Over 80 tons	32.85	-	32.85	262.80
1346	Loader/Backhoe Operator	18.67	-	18.67	149.36
1347	Excavator Operator, 50,000 lbs or less	21.08	-	21.08	168.64
1363	Foundation Drill Operator, Truck Mounted	16.22	-	16.22	129.76
1369	Front End Loader Operator, 3 CY orLess	17.86	-	17.86	142.88
1372	Front End Loader Operator, Over 3CY	20.34	-	20.34	162.72
1380	Milling Machine Operator	18.56	-	18.56	148.48
1390	Motor Grader Operator, Fine Grade	20.29	-	20.29	162.32
1393	Motor Grader Operator, Rough	24.33	-	24.33	194.64
1402	Roller Operator, Asphalt	18.76	-	18.76	150.08
1411	Scraper Operator	11.12	-	11.12	88.96
1600	Truck Driver, Single Axle	17.09	-	17.09	136.72
1606	Truck Driver, Single or Tandem Axle Dump Truck	20.77	-	20.77	166.16
1607	Truck Driver, Tandem Axle Tractorwith Semi Trailer	21.58	-	21.58	172.64
1609	Truck Driver Lowboy - Flat	19.65	-	19.65	157.20
1612	Truck Driver Transit - Mix	21.65	-	21.65	173.20
1705	Structural Steel Welder	38.81	-	38.81	310.48
1706	Welder	21.85	-	21.85	174.80

*Welder - Wage depends on craft performed, if welding is necessary.

April 1, 2025

2024 HEAVY AND HIGHWAY CONSTRUCTION DEFINITIONS

1106 Asphalt Raker
Distributes asphaltic materials evenly over road surface by raking and brushing material to correct thickness; may control screed to regulate width and depth of materials; directs Laborers when to add or take away material to fill low spots or to reduce high spots.

1112 Batching Plant Operator, Asphalt
Operates a stationary or portable batching scale that weighs out asphaltic materials. Adjusts scales for required weight of the materials. Operates controls that admit materials separately from storage hoppers to weighing bins. Observes scales or indicators that show when proper amount of materials have been made. Discharges materials from weighing bin into truck or other carrier. May operate all equipment necessary to support batching operations. May oil, grease or otherwise service or make adjustments, including welding. May measure materials by weight. May perform quality control and assurance. Performs other related duties.

1115 Batching Plant Operator, Concrete
Operates a stationary or portable batching scale that weighs out concrete materials. Adjusts scales for required weight of the materials. Operates controls that admit materials separately from storage hoppers to weighing bins. Observes scales or indicators that show when proper amount of materials have been made. Discharges materials from concrete plant or pugmill into truck or other carrier or mixer. May operate all equipment necessary to support batching operations. May oil, grease or otherwise including welding. May measure materials by volume or weight. May perform quality control and assurance. Performs other related duties.

1124 Concrete Finisher, Paving and Structures
Finishes the exposed surfaces of fresh concrete paving, median barrier and every element of concrete structures to the final trowels. Operates bridge deck finishing machine. Forms and finishes edges and joints. Finishes concrete curbs and gutters. Finishes exposed surface of concrete after forms have been removed by patching imperfections with fresh concrete, rubbing surface with abrasive stone, and directing others in removing excess or defective concrete with power tools. Performs other related duties.

1139 Electrician
Plans and directs the layout of metal electrical conduit, installs wiring systems, switch panels, buss bars; works on overhead distribution systems and underground distribution systems. Performs other related duties.

1143 Telecommunications Technician
Installs and troubleshoots communication equipment including cabling for the transmission of communication circuits. Terminates and tests communication circuits including video, voice and data. Installs communication equipment in buildings, outdoor cabinets, and pole mounted installations. Installs, terminates, and tests optical fiber cables as well as copper communication cable carrying less than 50 volts AC. Performs other related duties.

1144 Communications Cable Installer
Installs communication cable under direction of telecommunication technician including optical fiber and cable carrying less than 50 volts AC. Operates equipment associated with cable installation. Performs other related duties.

1145 Traffic Signal/Light Pole Worker
Sets forms, reinforcing steel, anchor bolts and pours/finishes concrete for traffic signal and light pole foundations. Assembles, erects, and plumbs traffic signal and light pole structures by bolting and other means. Installs signal spans, signal heads, signal detection, and lights on equipment. Installs cabling and wiring in signal and light poles, on signal and light spans and underground raceway systems. Properly identifies and terminates cables and wiring to appropriate equipment. Installs signal controllers and service equipment. Tests and troubleshoots system for proper operation. Performs other related duties.

1150 Flagger
A worker who directs traffic in or around a construction site. May use signs or devices to direct traffic. May help assemble, position, and clean devices or equipment used to direct traffic. Must be able to effectively communicate with the public. May require certain level of training by TxDOT specifications. Performs other related duties.

1151 Form Builder/Setter, Structures
Works from plans to build, assemble, fit together, align, plumb, and set in place forms for molding concrete structures. Forms may be wood, steel, aluminum, fiberglass, or any other type of material. Checks forms while concrete is being placed. Directs others in stripping forms after concrete is placed. May install miscellaneous materials integral to concrete structures. May install precast concrete elements. Prepares for slipforming traffic rail and median barrier. May install permanent metal deck forms. May work with power tools. Performs other related duties.

1160 Form Setter, Paving and Curb
Fits together, aligns, and sets to grade metal and wooden forms for placement for concrete paving and curbs. Works with survey crew to set stringline for paving, curb and gutter and curb. Performs other related duties.

1172 Laborer, Common
A general term used on construction work covering many unskilled classifications requiring work of a physical nature. A laborer works with all crews doing everything from pick and shovel work to cleaning up lumber with hammer, shoveling and placing concrete, uses air tools, cleans concrete joints and fills joints with sealing compound from bucket or with hose and nozzle from a central source, applies coating of oil to inside face of forms, may help set and strip forms, unloads and transports reinforcing steel, cures newly poured concrete, helps lower pipe into ditch for pipelayers, builds fences, works with dirt crew keeping construction layout stakes out of the way of dirt-moving equipment. May fine grade excavation and ditches, shovels hot asphalt material. May use power tools and other necessary equipment in demolition work. Does not ordinarily perform work permitting exercise of independent judgment or without close direction by other workers. Usually, an entry level position as the first step to learn a skill. Performs other related duties.

1175 Laborer, Utility
Performs a variety of manual duties, usually working in a utility capacity by working on multiple projects and tasks where demands require workmen with varied experience and ability to work without close direction. Unloads and transports reinforcing steel. May occasionally place and tie reinforcing steel. Directs common laborers in pouring concrete. Erects shoring and bracing. Assists in installation of pipe. Installs, operates, maintains dewatering systems. May assist equipment operators in positioning machines, verifying grades, and signaling operators to dumping positions to maintain grades as directed. Uses power tools and air tools. May work as lead man in a labor crew. Installs and maintains erosion control. Is more or less a general utility construction worker. May be a second step in learning a skill. Performs other related duties.

1187 Mechanic
Assembles, sets up, adjusts and maintains and repairs all types of construction equipment and trucks. May perform the duties of a welder in repair of equipment. Performs other related duties.

1194 Servicer
Drives a truck which carries various fuels, oils, greases and filters. Must have knowledge of and is responsible for the correct oiling and greasing and changing of filters on equipment according to manufacturers' specifications. Uses compressed air grease guns, wrenches, and other tools. May make adjustments to clutches, brakes and other mechanical items. Keeps record of service for preventive maintenance records. May have laborer assisting him. May require CDL if driving truck on public highways. Performs other related duties.

1196 Painter, Structures
Paints and stains structural steel and concrete surfaces of bridges, retaining walls or other structures. Directs cleaning and abrasive blasting of surfaces prior to painting or staining. Performs other related duties.

1202 Piledriver
Sets in place, aligns, plumbs, and directs driving of timber, concrete, steel, pipe and any other type of piling. Sets, drives, and pulls steel, concrete and other types of sheet piling. Rigs pile and leads and bracing. Signals operator. Splices piles before and after driving. Directs pile cutoffs. May direct jetting or drilling equipment in connection with installing piles to grade. Performs other related duties.

1205 Pipelayer
Installs concrete, clay, steel, ductile iron, plastic, corrugated pipe and any other type of pipe for storm drainage, water lines, gas lines and sanitary sewer lines. Lays underground communication and electrical ducts. May install and set electrical ground boxes, hand holes, manholes, inlets and other structures. Caulks joints, makes threaded and flanged connections. Installs valves and other accessories. Performs other related duties.

1214 Blaster
Loads and fires blast holes for breaking up rock, concrete and other hard materials. Stores and handles explosives and detonating devices. Attaches fuses and electric wires. May use prima-cord or delay caps. Performs other related duties.

1300 Asphalt Distributor Operator
Drives distributor truck, sets spray bars and operates valves and lever to control distribution of bituminous material for highway surfacing. May oil, grease or otherwise service and make adjustments to equipment as needed. Performs other related duties.

1303 Asphalt Paving Machine Operator
Operates paving machine that spreads and levels asphaltic concrete on highway subgrade. Controls movement of machine, raises and lowers screed, regulates width of screed. May oil, grease, service and make adjustments to equipment as needed. Performs other related duties.

1305 Broom or Sweeper Operator
Operates a self-propelled machine to sweep and clean roadway surfaces. May oil, grease, service and make adjustments to equipment as needed. Performs other related duties.

1306 Crawler Tractor Operator
Operates a crawler tractor with a bulldozer mounted in front of chassis to level, distribute and push earth or other material. May operate a ripper attachment to break up rock or other hard material. May use a push block on front of tractor to push load scrapers. May oil, grease or otherwise service and make minor repairs to equipment as needed. Performs other related duties.

1315 Concrete Paving Curing, Float, Texturing Machine Operator
Operates self-propelled machine(s) which may or may not travel on concrete paving forms and operates pump on the machine which sprays curing compound on freshly poured concrete or tube floats concrete or textures fresh concrete. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1318 Concrete Pavement Finishing Machine Operator
Operates self-propelled machine(s) which may or may not travel on paving forms, spreading, and leveling fresh concrete to grade by use of augers and screeds. May oil, grease, to otherwise services and make adjustments to equipment as necessary. Performs other related duties.

1329 Joint Sealer
Cleans and seals joints requiring a hot or cold sealing compound in concrete paving, sidewalks, driveway and approach slabs. May oil, grease or make necessary repairs and adjustments. Performs other related duties.

1333 Concrete Saw Operator
Operates a water-cooled power saw with either diamond or an abrasive blade to saw expansion and contraction joints in concrete pacing. May also be used to saw asphaltic pavements. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1339 Subgrade Trimmer
Operates a machine that controls subgrade elevation. Machine may run on paving forms or be controlled electronically. Machine may be automated to control depths of subgrade or operator may mechanically operate to eject excess materials from subgrade with augers or blades. May oil,

grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1341 Small Slipform Machine Operator
Operates a self-propelled machine which may either lay curb and gutter, median safety barrier or bridge rail. Manipulates hand or foot levers to control movements of the machine. Raises or lowers screed, regulates width of screed. May oil, grease, or otherwise service and make necessary adjustment to equipment as needed. Performs other related duties.

1342 Crane Operator, Lattice Boom 80 tons or less
A worker who operates a lattice boom type crane to hoist and move materials, raise and lower heavy weights and perform other related operation. May be crawler type or rubber-tired. May include placement of rock riprap, clamshell, dragline, pipe and pile driving operations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1343 Crane Operator, Lattice Boom Over 80 tons
A worker who operates a lattice boom type crane to hoist and move materials, raise and lower heavy weights and perform other related operation. May be crawler type or rubber-tired. May include placement of rock riprap, clamshell, dragline, pipe and pile driving operations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1344 Crane Operator, Hydraulic 80 tons or less
A worker who operates a hydraulic telescoping boom type crane to hoist and move materials, raise, and lower heavy weights and perform other related operations. May be crawler type or rubber-tired. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1345 Crane Operator, Hydraulic Over 80 tons
A worker who operates a hydraulic telescoping boom type crane to hoist and move materials, raise and lower heavy weights and perform other related operations. May be crawler type or rubber-tired. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1346 Loader/Backhoe Operator
Operates a rubber-tired machine mounted with a backhoe bucket on one end and a loader bucket on the other end. Used for excavating ditches and structures, laying pipe and precast concrete structures, carrying material in the loader bucket, and general excavation and backfill. May also be equipped with hydraulic attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1347 Excavator Operator, 50,000 lbs or less
Operates a crawler or rubber-tired machine mounted with an excavator bucket. Used for excavating ditches and structures, laying pipe and precast concrete structures, loading trucks, and placing rock riprap. May also be equipped with various hydraulic attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1348 Excavator Operator, Over 50,000 lbs
Operates a crawler or rubber-tired machine mounted with an excavator bucket. Used for excavating ditches, structures, and mass excavations, laying pipe and precast concrete structures, loading trucks and placing rock riprap. May also be equipped with various hydraulic attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1351 Crusher or Screen Plant Operator
Operates a crusher or screening plant through which rock is run to break it into crushed stone for construction or to control flow of materials through screening plant to screen out materials not needed. May include crushing and screening of broken concrete and asphalt. May make minor repairs and may service and make necessary adjustments to equipment as needed. Performs other related duties.

1360 Foundation Drill Operator, Crawler Mounted
Operates a hole drilling machine that is crawler mounted. May include geotechnical operations such as soil nails, rock nails, tiebacks, anchors or jet grouting. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1363 Foundation Drill Operator, Truck Mounted
Operates a hole drilling machine that is mounted on the rear of a rubber-tired vehicle or truck. May include soil nails, rock nails, tiebacks, anchors, or jet grouting. Drives truck from location to location or may have laborer who drives trick. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1369 Front End Loader Operator, 3 CY or Less
Operates a rubber-tired, skid steer, or crawler type tractor with an attached scoop type bucket on front end. Machine is used to load materials from stockpiles, excavation, charging batch plants, loading, and unloading tricks. May be used with attachments in lieu of the bucket. May oil, grease or otherwise service and make necessary adjustments to equipment as needed Performs other related duties.

1372 Front End Loader Operator, Over 3 CY
Operates a rubber-tired, skid steer, or crawler type tractor with an attached scoop type bucket on front end. Machine is used to load materials from stockpiles, excavation, charging batch plants, loading, and unloading tricks. May be used with attachments in lieu of the bucket. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1380 Milling Machine Operator
Operates power-driven milling machine that planes material of the roadbed and discharges the material into a hauling unit or a window. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1384 Reclaimer/Pulverizer Operator
Operates a machine that pulverizes material of the roadbed and may mechanically mix it with asphalt, cement, or other stabilizing materials. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1390 Motor Grader Operator, Fine Grade
Operates motor grader. Performs many of the same duties of Motor Grader, Rough, but in addition performs finish grade work to bluetops or other close specification control. This work is subject to strict inspection and must conform closely to specifications. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1393 Motor Grader Operator, Rough
Operates Motor Grader. Equipment is used to grade excavation and embankment and to lay asphalt, base and other materials. May blade haul roads and do other general motor grader work, but does not perform finish grade work to close specification tolerances. This operator may be a learner in the first phase of learning the skills of motor grader work. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1396 Pavement Marking Machine Operator
Operates a machine used in laying paint stripes or markers on all types of paving. Loads machine with appropriate materials and may walk or ride on machine. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1399 Concrete/Gunite Pump Operator
Operates a pumping machine that pumps fresh concrete, gunite or grout. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1402 Roller Operator, Asphalt
Operates a self-propelled machine with either steel wheels or pneumatic tires which is used to compact and smooth all bituminous materials. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1405 Roller Operator, Other
Operates a self-propelled machine with either steel wheels or pneumatic tires which is used to compact earth fills, subgrade, flexible base and all other types of materials except bituminous. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1411 Scraper Operator
Operates a self-contained wheeled tractor scraper both self-loading or assisted by crawler tractors or other scrapers. Used to excavate and transport earth or other materials. May oil, grease or equipment as needed. Performs other related duties.

1413 Off Road Hauler
Drives an off-road hauler loaded by another machine, mounted on wheels, that transports earth or other materials. May also operate an off-road water tanker. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1417 Self-Propelled Hammer Operator
Operates a self-propelled machine which has an attachment used for breaking concrete, asphalt or other martial. Machine may be air, hydraulic or cable operated. Machine is usually mounted on rubber tires but may be truck mounted. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1428 Agricultural Tractor Operator
Operates a gasoline or diesel-powered agricultural tractor that tows compaction rollers, disc plow, water tanks, scrapers, and other similar operations. May use other miscellaneous attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1437 Trenching Machine Operator, Light
Performs duties similar to those performed by operator of a Trenching Machine Heavy, except that machine excavates a trench less than 5 feet in depth and may be rubber-tired. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1440 Trenching Machine Operator, Heavy
Operates a machine that digs trenches for sewer, underground cable, underground pipes for electrical communication, water, drainage, oil and gas and other pipelines. The heavy trenching machine excavates trenches more than 5 feet in depth and is mounted on crawler treads with the digging equipment usually consisting of an endless chain or wheel of edged buckets or other cutting devices that excavate and discharge the material at the side of the trench. May also be used for mass excavations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1441 Tunneling Machine Operator, Heavy
Operates a machine which creates a tunnel through dirt or rock for the purpose of installing subterranean facilities such as utilities, including sanitary sewer and water mains, storm sewers, pedestrian tunnels, vehicular tunnels, and subways. The tunneling machine excavates tunnels greater than 2,500 feet in continuous length. Sets up machine to line and grade. Checks grade during tunneling operation. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1442 Tunneling Machine Operator, Light
Operates a machine which creates a tunnel through dirt or rock for the purpose of installing subterranean facilities such as utilities, including sanitary sewer and water mains, storm sewers, pedestrian tunnels, vehicular tunnels, and subways. The tunneling machine excavates tunnels less than 2,500 feet in continuous length. Sets up machine to line and grade. Checks grade during

tunneling operation. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1443 Percussion or Rotary Drill Operator
Operates rock drilling equipment that may be used in advance of blasting operations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1444 Boring Machine Operator
Operates boring machine that drills holes through dirt or rock in a generally horizontal plane to provide an excavation for an encasement or carrier pipe in a wet or dry condition. May operate a jacking machine to install conduit in a generally horizontal plane. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1445 Directional Drilling Operator
Operates a directional drilling machine that drills holes through dirt or rock with a directional locating beam and directional steering capabilities. Machine may utilize various steering head tools to control the direction of the drill. Controls speed of drilling, drilling fluid characteristics and pullback of pipe being installed. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1446 Directional Drilling Locator
Assist directional drilling operator in machine setup. Operates locating equipment under direction of the operator. May oil, grease or otherwise service or make necessary adjustments to equipment as needed. Performs other related duties.

1500 Reinforcing Steel Worker
Works from plans to lay out and install reinforcing steel within forms or in mats of concrete paving. May direct unloading of material. Determines rigging required to complete work. Gives direction to common or utility laborers. May install miscellaneous materials integral to concrete structures or paving. May work with power tools. Performs other related duties.

1509 Structural Steel Worker
Erects and places fabricated structural steel members, such as girders, plates, diaphragms, lateral bracing, and unites them permanently to form a completed structural steel unit. Fastens steel members together by welding or bolting. May include dismantling and erecting large units of equipment. Performs other related duties.

1513 Sign Erector
Sets forms, reinforcing steel, anchor bolts and pours concrete for sign foundations. Fabricates and erects pipe and angle frameworks by bolting, welding, or other means prior to installation of signs that are normally prefabricated. Works from alignment of signs. May direct hoisting of signs into place. Fastens signs to framework by bolting and other means. Locates and sets lighting brackets. May perform other work associated with signing projects. Performs other related duties.

1515 Spreader Box Operator
Operates spreader box by adjusting hopper and strike-off blade so that gravel, stone, or other material may be spread to a specific depth on road surface during seal coat and surface treatment operations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

1520 Work Zone Barricade Servicer
Fabricates, erects, and maintains temporary traffic control devices, including arrow boards, signs, barricades, channelizing devices, barrels and all message boards. May operate a truck during traffic control operations.

1600 Truck Driver, Single Axle
Drives a light capacity truck for transporting loads of construction material. The truck is of single rear axle type, may have various kinds of beds attached such as dump, flat bed, tank, etc. May require CDL license for driving on highway. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.

1606 Truck Driver, Single or Tandem Axle Dump Truck
Drives a heavy-duty diesel-powered dump truck used in hauling materials. Hauls dirt, rock, aggregates, non-agitated concrete, or other material. May also be used for operation of water trucks. May require CDL license for driving on highway. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.

1607 Truck Driver, Tandem Axle Tractor with Semi Trailer
Drives a diesel-powered tractor pulling a semi-trailer hauling materials. Hauls dirt, rock, aggregates, or other material. May require CDL license for driving on highway. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.

1609 Truck Driver Lowboy—Float
Drives a heavy-duty diesel-powered truck to which is attached a trailer upon which heavy equipment is hauled. Driver is often required to operate heavy equipment to load or unload the lowboy. May require CDL license for on-highway use. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.

1612 Truck Driver Transit—Mix
Drives a gasoline or diesel truck upon which is mounted a concrete mixer. Operates concrete mixer and dumps concrete on the grade, into forms or into concrete pumps or buckets. Cleans mixer drum. May require CDL license for on-highway use. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.

1615 Boom Truck Operator
Drives a gasoline or diesel single or tandem axle truck equipped with a hydraulic telescopic or articulated boom for picking up various objects. Operates boom in accordance with signals from ground. May require CDL license for highway use. May service and make necessary adjustments for proper operation of equipment. This classification used only when boom is operated; otherwise,

operator should be classified under appropriate truck driver classification. Performs other related duties.

1705 Structural Steel Welder

Certified by the American Welding Society to perform structural steel welding. Operates welding equipment. Welds structural steel girders and diaphragms. May weld permanent metal deck forms. Performs other related duties.

1706 Welder

Operates welding equipment. Cuts, lays out, fits and welds metals or alloyed metal parts to fabricate or repair equipment. Welds the joints between lengths of pipe for oil, gas or other types of pipelines. Welds structural steel girders and diaphragms. May assist in welding of permanent metal deck forms. Performs other related duties.

1708 Slurry Seal or Micro-Surfacing Machine Operator

Operates slurry seal or microsurfacing equipment that spreads and levels slurry or microsurfacing materials on highways. Controls movement of machine, raises and lowers screed, regulates width of screed. May oil, grease, service and make adjustments to equipment as needed. Performs other related duties.

SECTION 00850
TEXAS WORKERS' COMP FORMS DWC81 – DWC85

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

AGREEMENT BETWEEN GENERAL CONTRACTOR AND SUBCONTRACTOR
TO PROVIDE WORKERS' COMPENSATION INSURANCE

Notice of Agreement

The undersigned General Contractor and the undersigned Subcontractor hereby agree that the General Contractor ☐will withhold ☐will not withhold the cost of workers' compensation insurance coverage from the Subcontractor's contract price and that, for the purpose of providing workers' compensation insurance coverage, the General Contractor will be the employer of the Subcontractor and the Subcontractor's employees. This agreement makes the General Contractor the employer of the Subcontractor and the Subcontractor's employees only for the purposes of workers' compensation laws of Texas and for no other purpose.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT):

_____

_____

_____

ESTIMATED NUMBER OF EMPLOYEES AFFECTED: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.
Texas Labor Code, Texas Workers' Compensation Act, Section 406.123

General Contractor's Affirmation

_____
Federal Tax I.D. Number

If the General Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the General Contractor to file this form with the new insurance carrier.

Signature of General Contractor _____ Date _____ Address (Street) _____

Printed Name of General Contractor _____ Address (City, State, Zip) _____

Subcontractor's Affirmation

_____
Federal Tax I.D. Number

Signature of Subcontractor _____ Date _____ Address (Street) _____

Printed Name of Subcontractor _____ Address (City, State, Zip) _____

The General Contractor should retain the original. Legible copies of this agreement should be filed with the general contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. If the General Contractor is certified self-insured, a copy should be filed with the Division's Self-Insurance Regulation service area. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Subcontractor must also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

CHECK ☐ BOX OF STATEMENT THAT APPLIES

☐ AGREEMENT BETWEEN MOTOR CARRIER AND OWNER OPERATOR TO PROVIDE WORKERS' COMPENSATION INSURANCE COVERAGE

Notice of Declaration

The undersigned Motor Carrier and the undersigned Owner Operator agree that the Motor Carrier will provide workers' compensation insurance coverage to the Owner Operator and the Owner Operator's employees. The Motor Carrier ☐ will deduct ☐ will not deduct the actual premiums, based on payroll, that are paid or incurred by the Motor Carrier for coverage from the contract price or any other amount owed to the Owner Operator by the Motor Carrier.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

ESTIMATED NUMBER OF WORKERS AFFECTED: _____
Texas Labor Code, Texas Workers' Compensation Act, Section 406.123.

☐ AGREEMENT TO REQUIRE OWNER OPERATOR TO ACT AS EMPLOYER

Notice of Agreement

The undersigned Motor Carrier and the undersigned Owner Operator agree that the Owner Operator assumes the responsibilities of an employer for the performance of work.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

ESTIMATED NUMBER OF WORKERS AFFECTED: _____
Texas Labor Code, Texas Workers' Compensation Act, Section 406.122.

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

MOTOR CARRIER'S AFFIRMATION

If the Motor Carrier's workers' compensation carrier changes during the effective period of coverage, it is advisable for the Motor Carrier to file this form with the new insurance carrier.

Federal Tax I.D. Number

Signature of Motor Carrier | Date | Address (Street)

Printed Name of Motor Carrier | Address (City, State, Zip)

OWNER OPERATOR'S AFFIRMATION

Federal Tax I.D. Number

Signature of Motor Owner Operator | Date | Address (Street)

Printed Name of Owner Operator | Address (City, State, Zip)

The Motor Carrier should retain the original. Legible copies of this agreement must be filed with the Motor Carrier's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Owner Operator must also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

Texas Workers' Compensation Act, Texas Labor Code, Section 406.141(2) defines "independent contractor" as follows: (2) "Independent contractor" means a person who contracts to perform work or provide a service for the benefit of another and who: (A) is paid by the job, not by the hour or some other time-measured basis; (B) is free to hire as many helpers as he desires and to determine what each helper will be paid; and (C) is free to work for other contractors, or to send helpers to work for other contractors, while under contract to the hiring employer.

CHECK ☐ BOX OF STATEMENT THAT APPLIES

☐ JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

Notice of Declaration

The undersigned Hiring Contractor and the undersigned Independent Contractor hereby declare that the Independent Contractor meets the qualifications of an Independent Contractor under Texas Workers' Compensation Act, Texas Labor Code, Section 406.141, that the Independent Contractor is not an employee of the Hiring Contractor, and that:

(A) the Independent Contractor and the Independent Contractor's employees shall not be entitled to workers' compensation coverage from the Hiring Contractor; and

(B) the Hiring Contractor's workers' compensation insurance carrier shall not require premiums to be paid by the Hiring Contractor for coverage of the Independent Contractor or the Independent Contractor's employees, helpers, or subcontractors.

THIS DECLARATION TAKES EFFECT UPON RECEIPT BY THE TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION. THIS DECLARATION APPLIES TO ALL HIRING AGREEMENTS EXECUTED BY THE HIRING CONTRACTOR AND THE INDEPENDENT CONTRACTOR DURING THE YEAR AFTER THIS DECLARATION IS FILED UNLESS A SUBSEQUENT HIRING AGREEMENT IS MADE TO WHICH THE DECLARATION DOES NOT APPLY. IN THE EVENT THAT A HIRING AGREEMENT TO WHICH THIS DECLARATION DOES NOT APPLY IS MADE, THE HIRING CONTRACTOR AND INDEPENDENT CONTRACTOR SHALL SO NOTIFY THE TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION AND THE HIRING CONTRACTOR'S WORKERS' COMPENSATION INSURANCE CARRIER (IF ANY) IN WRITING WITHIN 10 DAYS AFTER THE NON-APPLYING AGREEMENT IS MADE. ONCE THIS AGREEMENT IS SIGNED, THE SUBCONTRACTOR AND THE SUBCONTRACTOR'S EMPLOYEES SHALL NOT BE ENTITLED TO WORKERS' COMPENSATION COVERAGE FROM THE HIRING CONTRACTOR UNLESS A SUBSEQUENT WRITTEN AGREEMENT IS EXECUTED, AND FILED ACCORDING TO WORKERS' COMPENSATION RULES, EXPRESSLY STATING THAT THIS AGREEMENT DOES NOT APPLY.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.145.

☐ AGREEMENT TO ESTABLISH EMPLOYER-EMPLOYEE RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

Notice of Agreement

The undersigned Hiring Contractor and the undersigned Independent Contractor hereby agree that the Hiring Contractor ☐ will withhold ☐ will not withhold the cost of workers' compensation insurance coverage from the Independent Contractor's contract price and that the Hiring Contractor will purchase workers' compensation insurance coverage for the Independent Contractor and the Independent Contractor's employees. Once this agreement is signed, for the purpose of providing workers' compensation insurance coverage, the Hiring Contractor will be the employer of the Independent Contractor and the Independent Contractor's employees. This agreement makes the Hiring Contractor the employer of the Independent Contractor and the Independent Contractor's employees only for the purposes of workers' compensation laws of Texas and for no other purpose.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT):

_____

_____

_____

ESTIMATED NUMBER OF EMPLOYEES AFFECTED: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.144.

Hiring Contractor's Affirmation

If the Hiring Contractor's workers' compensation carrier change during the effective period of coverage, it is advisable for the Hiring Contractor to file this form with the new insurance carrier.

Federal Tax I.D. Number

Signature of Hiring Contractor | Date | Address (Street)

Printed Name of the Hiring Contractor | Address (City, State, Zip)

Independent Contractor's Affirmation

Federal Tax I.D. Number

Signature of Independent Contractor | Date | Address (Street)

Printed Name of the Independent Contractor | Address (City, State, Zip)

The Hiring Contractor should retain the original. Legible copies of this agreement should be filed with the hiring contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Independent Contractor should also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

EXCEPTION TO APPLICATION OF JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

NOTICE OF DECLARATION

The undersigned Hiring Contractor and the undersigned Independent Contractor declare that the Joint Agreement to Affirm Independent Relationship for Certain Building and Construction Workers (as recorded on DWC FORM-83) does not apply to the subsequent hiring agreement between the Hiring Contractor and Independent Contractor. Nothing in this declaration otherwise nullifies the Joint Agreement to Affirm Independent Relationship for Certain Building and Construction Workers as it applies to other hiring agreements made during the term of the joint agreement.

DATE OF JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

DATE OF SUBSEQUENT HIRING AGREEMENT TO WHICH THIS FORM APPLIES

LOCATION OF SPECIFIC JOB SITES NOT AFFECTED BY JOINT AGREEMENT: _____

NAME OF HIRING CONTRACTOR

NAME OF INDEPENDENT CONTRACTOR

Texas Labor Code, Texas Workers' Compensation Act, Section 406.145.

Hiring Contractor's Affirmation

If the Hiring Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the Hiring Contractor to file this form with the new insurance carrier.

Federal Tax I.D. Number

Signature of Hiring Contractor | Date | Address (Street)

Printed Name of Hiring Contractor | Address (City, State, Zip)

Independent Contractor's Affirmation

Federal Tax I.D. Number

Signature of Independent Contractor | Date | Address (Street)

Printed Name of Independent Contractor | Address (City, State, Zip)

The Hiring Contractor should retain the original. Legible copies of this agreement should be filed with the hiring contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Independent Contractor should also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

Texas Workers' Compensation Act, Texas Labor Code, Section 406.121(2) defines "independent contractor" as follows: (1) "Independent contractor" means a person who contracts to perform work or provide a service for the benefit of another and who ordinarily: (A) acts as the employer of any employee of the contractor by paying wages, directing activities, and performing other similar functions characteristic of an employer-employee relationship; (B) is free to determine the manner in which the work or service is performed, including the hours of labor of or method of payment to any employee; (C) is required to furnish or have his employees, if any, furnish necessary tools, supplies, or materials to perform the work or service; and (D) possesses the skills required for the specific work or service.

AGREEMENT BETWEEN GENERAL CONTRACTOR AND SUBCONTRACTOR TO ESTABLISH INDEPENDENT RELATIONSHIP

Notice of Agreement

The undersigned General Contractor and the undersigned Subcontractor hereby declare that:

(A) the Subcontractor meets the qualifications of an Independent Contractor under Texas Workers' Compensation Act, Texas Labor Code, Section 406.121;
(B) the Subcontractor is operating as an independent contractor as that term is defined under Section 406.121 of the Act;
(C) the Subcontractor assumes the responsibilities of an employer for the performance of work; and
(D) the Subcontractor and the Subcontractor's employees are not employees of the General Contractor for purposes of the Act.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

_____
Name of General Contractor

_____
Name of Subcontractor

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT).

_____

_____

_____

Estimated number of employees affected: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.122.

General Contractor's Affirmation

If the General Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the General Contractor to file this form with the new insurance carrier.

_____
Federal Tax I. D. Number

_____ _____
Signature of General Contractor Date

_____
Address (Street)

_____
Printed Name of General Contractor

_____
Address (City, State, Zip)

Subcontractor's Affirmation

_____
Federal Tax I. D. Number

_____ _____
Signature of Subcontractor Date

_____
Address (Street)

_____
Printed Name of Subcontractor

_____
Address (City, State, Zip)

The General Contractor should retain the original. The Subcontractor should also retain a copy of the agreement. This form is not required to be filed with the Division, and may be provided to the insurance carrier.

Division Date Stamp Here

DIVISION 01

GENERAL

DIVISION 1 – GENERAL

SECTION 01000 – GENERAL REQUIREMENTS

The Work under this Contract shall be for furnishing all labor, superintendence, machinery, materials, equipment, transportation and services to be furnished and installed by the Contractor necessary to complete the Work required for **On-call Construction Services for the Repair of Streets Rights-of-Way.** The Work shall be more definitively described and contracted for through the issuance of Work Orders by Owner. The term Work Orders is defined as orders issued by Owner on an as-needed-basis for Contractor to complete Unit Price Work for which Work quantities and times are estimated at the time of issuance.

The project shall be constructed complete, including all incidentals and subsidiary work and all clean-up of the work area, with all costs thereof being included in the prices in the proposal.

Work generally consists of repairs to street rights-of-ways to include repairs and or replacement of asphalt or concrete pavement structures as well as other ancillary items like traffic control, steel plates, roadway stripping, curb and gutter, sidewalks and driveways. The Work will be performed on public Rights-of-ways including highways, streets, alleys, easements, and/or rights-of-way improvements in connection with work performed by or on behalf of El Paso Water Utilities in the construction or maintenance of water, reclaimed water, wastewater, and storm water projects and will include paving projects undertaken by the El Paso Water Utilities.

It is the intent of these Specifications that the repair Work be completed and functioning in accordance with the specified purpose. Therefore, it is the direct responsibility of the Contractor to furnish, install and construct, and provide all labor, superintendence, material, machinery, equipment as required by these Specifications for the unit prices stated in the Contract, and to take account of all subsidiary requirements of the materials and other items furnished to the end that the Work functions in accordance with these Specifications.

Nighttime, Weekend, and Holiday Work: This project may require that the Contractor work outside his or her normal working day including working outside the hours of 7:00 a.m. to 4:00 p.m.; exceeding an eight-hour work day, Monday through Friday or working on Saturdays, Sundays, or legal Holidays. A normal working day shall be defined as Monday through Friday from 7:00 a.m. to 4:00 p.m. with the exception of legal Holidays. Working outside the Contractors normal hours may be required by a property owner with special needs, a business owner, a school or governmental agency, or a regulating agency. The Contractor should take this matter into account when estimating the time and cost to complete the Work Order. The Contractor should feel comfortable that he or she can complete the job in the time allotted each Work Order issued.

If the Contractor desires to perform any work between the hours of 4:01 p.m. and 6:59 a.m., or Saturdays, Sundays or national holidays, it shall make the request to Owner before it starts such work. The Contractor shall acquire any necessary permits associated work and comply with all permit conditions and all laws and ordinances relating thereto.

a. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, inspectors and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. For Owner may impose a reasonable set-off against payments due for the hours to cover overtime inspection work.

b. The Contractor shall reimburse the applicable governing agency for additional costs incurred as a result of providing additional inspection personnel when the Contractor performs work outside the regular working hours. Additional inspection costs will be at a per hour rate as called out by the applicable governing agency for which inspection services are needed.

Critical Schedule Requirements and Mandatory Contractor Staffing Levels

The Contractor is advised that this on-call contract requires an extensive volume of work, there are approximately 1,100 project sites, an estimated 850 sites will require implementation of the trench patch scope of work, including Bid Items 1–4 (trench patch operations), Bid Item 5 (asphalt pavement removal), and Bid Items 6-8 (HMAC placement). At these locations, the Owner may, at their discretion, direct the Contractor to perform all or selected components of Bid Items 9–25 and 30. Any such work shall be executed concurrently with the trench patch and associated asphalt pavement activities described above. The remaining approximately 250 sites will not require work under Bid Items 1–6 and will instead consist solely of some or all work elements classified under Bid Items 11–21, all of which must be completed within a one-year contract period and within a standard five-day workweek. The Contractor is advised that, of the approximately 1,100 project sites included in this on call contract, the Owner will issue multiple Work Orders each workday, and the Contractor shall be required to perform Work at several sites concurrently throughout the duration of the Contract. To meet the required one-year completion timeframe, the Contractor shall maintain and deploy sufficiently staffed and equipped multiple crews capable of simultaneously executing trench patch operations at numerous locations on any given workday. Each Work Order shall be subject to the Work Order completion requirements set forth in Article 3.2 of the Agreement and the liquidated damages provisions set forth in SC-11.11 of the Supplementary Conditions. The Owner will issue a separate Work Order for each site, which shall function as the Notice to Proceed for that specific location. Liquidated damages, if applicable, shall be assessed on a Work Order-by-Work Order basis in accordance with SC-11.11 of the Supplementary Conditions. EPWater staff will prepare a written list of Work Orders and email it to the Contractor as needed.

The estimated number of project sites, Work Orders, and site classifications is approximate and is provided for planning, evaluation, and proposal comparison purposes only. Actual Work Orders, quantities, locations, site conditions, and scope combinations may vary substantially. OWNER does not guarantee any minimum quantity of Work Orders, site count, or dollar amount.

Any one permit listed below will meet criteria for approved permits:

- City of El Paso – Streets and Maintenance Utility Emergency Permit (EPEP), Street and Maintenance Traffic Control Permit (EPTC), Streets and Maintenance Paving Cut Permit (NEDP).
- El Paso County – Planning and Development Department Country Street Permit (STRC).
- TxDOT – Utility Permit Approval, please note that emergency restorations may not require an approved utility permit, but requires coordination with utility inspectors before works commences on any TxDOT right of ways.

The Contractor must review the daily list of Work Orders from EPWater and verify that each has a permit number if City of El Paso ROW, site information. If any needed repair work order does not have a permit number or site informations, the Contractor must notify EPWater immediately. EPWater will either provide the necessary permit number or cancel and reissue the request when permits are available. For work performed by EPWater, EPWater crews will maintain the repair site up to 24 hours after releasing the Work Order to the Contractor. Maintenance includes keeping the surface level and providing barricades, flares, or signs as needed. If additional curing time is required for cement-stabilized backfill or concrete, and to ensure uninterrupted traffic, EPWater will instruct the contractor to install approved structural steel plates at these locations, subject to approval by the governing jurisdiction. Payment for the steel plates will be made in accordance with the terms specified in the contract. The contractor must provide El Paso Water with a report detailing steel plates on active rental that have not been issued to any paving requests/work orders. Reports are due on the first business day after the start of the contractor's scheduled plate rotation and at the end of the first business day after the rotation is completed. Reports must be accurate to ensure correct invoice billing. Steel plate invoice shall reflect entire rental duration on only one invoice, no partial payment for rental period will be paid. Plates that are not on the report will be only paid out for the seven (7) rental, no daily fees will be paid out. EPWater has the right to change Contractor plate rotation schedule at any time with a three (3) business day notice.

Compliance with regulations

The Contractor shall comply at all times with all applicable ordinances, laws, codes, and regulations, as amended or updated by the relevant governing agency.

The Contractor must stay informed of all requirements and specifications set by governing agencies with jurisdiction over the Work, including the County of El Paso, the City of El Paso Municipal Code, City of El Paso Subdivision Design Standards, and Design Standards for Construction. All repair work must be inspected by a representative from the El Paso Department of Transportation, EPWater, TxDOT, or the County Roads & Bridges Department.

If any of these agencies reject the work, EPWater will reject it as well. The Contractor is responsible for contacting the appropriate inspector or agency in advance to schedule inspections. If an inspection is rejected, the Contractor must reschedule with the inspector or agency.

The Contractor must stay informed of all applicable TxDOT specifications referenced in this contract. The TxDOT 2024 Standard Specifications (Items 1–10) General Requirements and Covenants, and the PS&E Preparation Manual are incorporated by reference and are an integral part of these bidding documents. All TxDOT highway restoration work will be inspected by a TxDOT representative and, as applicable, by the Owner. Any rejection by these inspectors will result in rejection by EPWater. The Contractor must keep TxDOT updated on their repair schedule and provide any advance notice required by the roadway agency to ensure timely inspections.

Permits and Inspections

The Contractor shall keep itself fully informed of all local ordinances as well as state and federal laws, which in any manner affect the Work herein specified. The Contractor shall at all times comply with said ordinances, laws, codes, and regulations, as may be amended or updated by the respective governing agency. Contractor is to obtain and furnish all necessary permits for the construction of the Work, including:

The Contractor shall obtain permits required to perform the Work. The Contractor shall prepare and submit to the proper governing agency all information required for the issuance of such permits and shall pay all costs thereof, including agency inspections, unless specifically provided otherwise in these Contract Documents. The Contractor shall provide the Engineer with a copy of each such permit.

a. Traffic Control

   Upon issuance of a Work Order, the Contractor must immediately submit a site-specific Traffic Control Plan (TCP) to the City for review and permit approval. After approval, the Contractor must promptly install all required traffic control devices at the site where EPWater's previously approved pattern is in place. The Contractor is responsible for coordinating with EP Water to ensure the timely removal of existing EPWater devices and a smooth transition to the Contractor's approved setup. The Work Order marks Day One of the Contractor's ten (10) working-day completion period. All traffic control submittals, coordination, and device installation must be completed without delay. Extensions will not be granted for failure to promptly establish the required traffic control.

b. Paving Cut Permit

   The Contractor shall comply with all permitting and other requirements specified under the City of El Paso Municipal Code Chapters 12.30 – Temporary Traffic Control, and 13.08 – Excavations (see **Appendix A**) or the permitting requirements of other governing agencies. The Contractor shall apply for and obtain their own Traffic Control and Excavation Permits for repair work to be done under this Contract, separate from those obtained by EPWater for repair work**.** The Contractor will be required to obtain their own Traffic Control Permit even if they elect to use the same traffic control contractor used by EPWater. The cost associated with obtaining said permits and traffic control shall be included in the cost of the associated bid item.

   EPWater shall provide copies to the Contractor of all approved Traffic Control Permits (TCP) and Excavation Permits it obtains from the City/County/TXDOT for its work activities within street rights-of- way as soon as possible. The Contractor may attach to their permit applications copies of the traffic control plans or street patching layouts, as applicable, which are included as part of EPWater's approved permits. Sample Traffic Control and Excavation Permit application is provided in **Appendix B**.

c. Inspections

   The Contractor shall at all times maintain proper facilities and provide safe access to all parts of the work for purposes of inspection by the Engineer, EPWater, or governing agency inspectors. Per EPWater requirements, the contractor must schedule inspections of all work performed within City rights-of-way, which include, but are not limited to, patches during placement of the base, flowable fill, HMAC, concrete streets, sidewalks, curb & gutter, and ramps. After removal of the existing asphalt pavement, the Contractor shall perform compaction of the exposed subgrade spanning the full area beyond the trench boundary and including the bridge section, using only a tamping rammer (Jumping Jack/Stomper) as th e approved compaction equipment prior to placement of the 2-sack backfill material. Proof rolling shall be required on all areas of existing asphalt pavement removed outside of the trench and bridge limits, and the Contractor shall perform this proof rolling exclusively with a steel wheel roller as the approved equipment.

Following completion of the proof roll, the Contractor shall thoroughly clean the entire area of all loose material to ensure that the exposed surface is properly prepared and fully suitable to receive the required prime coat. These inspections must be scheduled in advance and at specific times of day, in accordance with the current scheduling requirements. Working hours 7:00-AM to 4:00-PM, with last inspection schedule time at 3:00-PM. Inspectors must adhere to the EPWater inspection schedule template. Each contractor will be assigned only one inspector per day. Inspections will be accepted based on inspector availability. EPWater inspectors may cancel inspections for lateness or non-compliance. Sites must be invoiced within 60 days of completion.

The Contractor will be required to comply with the City's Title 19 – Subdivision Ordinance Design Standards for Construction (DSC) – (see **Appendix C**).

The Contractor will be required to have approved Permits on hand at the work site during the time of inspection. Traffic Control must be fully set up before the Contractor can begin repair work. The Contractor cannot perform work, including preparation work, without permits and Traffic Control setup. Failure to obtain approved permits and complete the traffic control setup will result in the inspection being rejected and will require the contractor to reschedule it. All costs associated with such failure will be at the contractor's expense.

Materials and Workmanship: The fact that the specifications may fail to be sufficiently complete in some detail will not relieve the Contractor of full responsibility for providing all necessary materials, of high quality, required to produce a fully functional project and protecting them adequately until they are incorporated in the work.

The Specifications for materials, methods and workmanship set out the minimum standards of quality which the Owner believes necessary to procure satisfactory facilities. The presence or absence of the Engineer, or his representative, on the construction site does not, in any manner, relieve the Contractor of full responsibility for complying with these specifications and permit requirements,

Approval of Materials: All materials shall be new and shall be designed for the function and service specified. No equipment or materials shall be used in the project except that which has been approved by the Engineer. Approval for installation, or incorporation in the project, will be made only after submittal of test results or other data required. Final approval and acceptance of material will be made only after such material has met all specified tests.

Protection of Existing Utilities and Structures: The Contractor shall exercise care to prevent damage to, and shall be liable for any damage to, and for maintenance and protection of such lines and structures as are shown on the drawings (when provided) or otherwise brought to the attention of the Contractor or of which the Contractor should reasonably be aware of. The Contractor shall not cut, remove, change, or disturb any existing lines or structures, except as provided by the plans and these specifications, without the express permission of the Owner of any such line. Utility adjustments or relocations will be accomplished by the owner of each utility. The Contractor shall provide the utility owner with reasonable advance notice to perform the required adjustments and relocations.

Construction and Support Facilities: Locate field storage sheds and other support facilities for easy access to the work at sites approved by the Engineer.

Maintain storage and fabrication sheds, temporary sanitary facilities, waste disposal systems, and project signs until substantial completion of each Work Order. Immediately after substantial completion remove these facilities.

Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities, and drinking water facilities. Comply with governing regulations including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities; provide not less than specified requirements. Install facilities in locations that will best serve the project's needs.

The Contractor shall provide adequate toilet facilities for use by his personnel and the Engineer and shall maintain such facilities in a clean and sanitary condition throughout the construction period. Such facilities shall be conveniently located for use by the personnel and the entire area shall be maintained in a clean and sanitary condition. After completion of the work, all temporary toilet facilities shall be removed from the site.

Supply and maintain toilet tissue, paper towels, paper cups, and similar disposable materials as appropriate and as required. Provide appropriate covered waste containers for used material.

Drinking Water: The Contractor shall make his own arrangement for a supply of potable drinking water for his employees and shall keep such supply available at all times. Provide potable water approved by local health authorities.

Contractor's Use of Premises: Limit use of the premises to construction activities in areas indicated; allow for Owner use and use by the public.

Confine operations to areas within Contract limits indicated in each Work Order. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

All structures, storage areas, parking areas and the adjacent grounds shall be kept in a clean, slightly and sanitary condition at all times by the Contractor.

Keep driveways and entrances serving the public clear and available at all times. No storage of construction materials will be allowed within City of El Paso right-of-way (streets, alleys, and parkways).

Water for Construction:

Project Water: The contractor shall make his own arrangements for a supply of potable drinking water for his employees and shall keep such supply available at all times.

The Contractor shall pay for water used at cost, with no mark up. Due to drought conditions, Contractor may need to make provisions to provide for water by other means.

Instructions to Contractors Requesting Fire Hydrant Meter:

The Contractor must complete a Fire Hydrant Meter Application for a fire hydrant meter with Engineering Developer Services Section of the El Paso Water Utilities, located on the third floor of the El Paso Water Utilities Building, 1154 Hawkins Blvd. For information, please contact 594-5635 or 594-5539. Deposit and Set-up/Removal fee are due at application. Deposit for a fire hydrant meter is $2,000.00, as may be amended by PSB Rules and Regulations. Billing rate for construction water will be as established in the latest Rules and Regulations.

The Engineering Developer Services Section will forward the application form to the Fire Department for approval. The Fire Department will approve within 48 hours of receipt of the application.

Meter Shop Section will have the meter installed within 48 hours after approval by the Fire Department and Engineering Developer Services Section. The Contractor must coordinate with Water Supply Section at 594-5782 to have a Contractor's Representative at the specified fire hydrant for the installation of the meter. The Contractor shall be responsible to secure the valve on the meter to ensure unauthorized use.

Readings will be taken monthly from the fire hydrant meter by Utility Personal. Consumption will be billed monthly by the 15th of the month. Payment is due 10 working days later. If not paid, fire hydrant meter will be removed.

At the end of use, the Contractor must complete the attached **Meter Removal Form** requesting removal of the meter. The Utility will remove the meter within two working days.

A final bill will be consolidated for any damages to the fire hydrant or the fire hydrant meter in addition to any assessments due to violations. Charges will be deducted from the original deposit. Any shortages must be paid before Final Acceptance of the project will be made; any overages will be refunded within 15 days of payment of the final bill.

Notes to Contractors:

Additional fire hydrant meters will not be issued for other fire hydrants within a 2000-foot radius of the fire hydrant requested. Deposits are due for each meter on a project.

The fire hydrant meter shall not be moved for any reason by the Contractor. If the Contractor needs to move the meter to another fire hydrant, the Contractor must contact Engineering Developer Services Section at 594-5530 or 594-5545 to apply for another fire hydrant meter. Fire Department approval for the new meter location is also required.

Neither non-metered consumption, removal of the meter, nor tampering with the fire hydrant or valve will be allowed under any circumstances. The Contractor agrees that by executing the Fire Hydrant Meter Application any violations of these requirements shall be grounds for **immediate removal of the meter and assessment for water losses for each occurrence.**

The adapter that is installed for use of the Fire Department on the fire hydrant meter **must not** be removed. This is considered as tampering and violation fees will be assessed.

The Contractor may, with approval of the Engineer, make other arrangements and secure water for construction purposes from a source of his own choosing. Said water will be potable.

Electric Power For Construction: The Contractor shall furnish and install, and make their own arrangement, at his own expense, for all temporary electrical facilities required for construction and safe operation. Separate electrical metering shall be provided and power used shall be paid for by the Contractor, regardless of the source of the power.

Emergency Communication Procedures: Since it is necessary that prompt action be taken in case of an emergency which threatens the operation of the existing facilities, the Contractor shall maintain, at all times during construction, a local telephone listing where responsible supervisory personnel may be contacted twenty-four hours a day. The telephone number shall be given to the Engineer so that contact can be made in the event of an emergency.

END OF SECTION

SECTION 01010 – SPECIAL CONDITIONS

1.1 SCOPE OF WORK

The work completed under this contract consist of furnishing of all labor, material, equipment and tools necessary for the construction of the project titled as follows: **On-call Construction Services for the Repair of Streets Rights-of-Way**

1.2 DUST CONTROL

The Contractor shall take proper steps and procedures to prevent abnormal dust conditions caused by his operations in connection with this Contract used by the Contractor or his subcontractors, excavation or fill areas, demolition operations, or other activities. Dust control shall be achieved either by sprinkling, the use of dust palliative, the modification of operations, or any other means acceptable to the Health or Environmental Control Agency having jurisdiction.

1.3 NOISE ABATEMENT

In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation. In residential areas, particular consideration shall be given to noise generated by repair and service activities during the early morning or night hours. Contractor shall comply with limits set by the El Paso City County Health Municipal Code, Chapter 9.40.

1.4 DAMAGE TO PRIVATE PROPERTY

Any damage resulting from the Contractor's performance of the Work shall be repaired by at the Contractor's expense. The Contractor shall be responsible for any damage to private property caused by the Work. The Contractor upon receipt of a complaint of damage shall, within five (5) working days, respond in writing with a proposal to repair said damage or a letter stating the reason why the damage was not caused by the construction. The Contractor will provide the Engineer with a copy of the letter.

Except for extenuating circumstances beyond the control of the Contractor, the damage shall be repaired completely within ten (10) working days of the complaint.

END OF SECTION

SECTION 01015 – CONTROL OF WORK

1.1 WORK PROGRESS

The Contractor shall furnish personnel and equipment which will be efficient, appropriate and skilled enough to secure a satisfactory quality of work and a rate of progress which will ensure the completion of the work within the time stipulated in the Work Order. If at any time such personnel or equipment appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the personnel and equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the Work and rate of progress required.

1.2 PRIVATE LAND

The Contractor shall not enter or occupy private land outside of acquired rights-of-way or easements, except by written permission of the Owner.

1.3 WORK LOCATIONS

Work shall be located substantially as indicated on the Work Order or Drawings (if applicable), but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or utilities or for other reasons.

1.4 OPEN EXCAVATIONS

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights, and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open trench, prohibiting stacking of excavated material in the street, and requiring that the trench shall not remain open overnight.

B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be protected with barricades having flashing warning lights at all times when appropriate to insure safety and when construction is not in progress.

C. The Contractor shall take appropriate measures to prevent any surface flow from entering any open excavation at any time, including flow from any defined watercourse or overland flow during or following a rainfall event or storm.

D. No open trenches will be allowed overnight for any reason, unless approved in writing by governing agency.

1.5 TEST PITS

Test pits for the purpose of locating underground utilities or structures (if required) in advance of the construction shall be excavated and backfilled by the Contractor. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

1.6 DISTRIBUTION SYSTEMS AND SERVICES

A. The Contractor shall not interrupt water, sewer, gas, telephone, cable TV, or other utility services without the written permission of the utility owner.

B. If it appears that utility service will be interrupted for an extended period, the Engineer may order the Contractor to provide temporary service lines. Inconvenience to the users shall be minimized, consistent with existing conditions. The safety and integrity of the system is of prime importance in scheduling work.

C. The Contractor shall not move, cut, or relocate private utilities (gas, electric, telephone, cable TV, etc.) without the written permission of the appropriate utility company.

1.7 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to building utilities, in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by or at the Contractor's expense, or in the case of private utilities, repaired by that utility at the Contractor's expense.

B. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities. Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit prices established in the proposal.

D. If, in the opinion of the Engineer, permanent relocation of a utility owned by Owner is required, he may direct the Contractor in writing, to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work under Article 10 of the General Conditions. If relocation of a privately owned utility is required, the Owner will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Owner and Utility and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and legal holidays) before excavating near their utilities.

1.8 MAINTENANCE OF TRAFFIC

A. Unless permission to close a street is received in writing from the governing agency, all excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the proper governing agency having jurisdiction. Detours around construction will be subject to the approval of the Traffic Control Plan. Where detours are permitted, the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the Contractor shall expedite construction operations, and periods when traffic is being detoured will be strictly controlled by the governing agency having jurisdiction.

B. The Contractor shall take precautions to prevent injury to the public due to open trenches and boring pits. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. The Contractor shall be fully responsible for damage or injuries whether or not police protection has been provided.

1.9 CARE AND PROTECTION OF PROPERTY

A. The Contractor shall be responsible for the preservation of all public and private property, and shall

use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.

B. The Contractor upon receipt of a complaint of damage shall within 24 hours respond in writing with a proposal to repair said damage or a letter with reasons explaining why the damage was not caused by the construction. The damage shall be repaired completely within 15 days of the complaint. If the damages are not repaired within the 15 days stated above, the owner may perform the repairs and back charge the contractor.

C. All sidewalks, which are disturbed by the Contractor's operations, shall be restored to their original or better condition in accordance with these specifications. All curbing shall be restored to a condition equal to or better than the original construction and in accordance with these Specifications.

D. Along the location of this Work, all fences, walks, bushes, trees, shrubbery, and other physical features shall be protected and restored to a condition equal to or better than the original construction and in accordance with the best modern practice.

E. Trees close to the Work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the Engineer. All injuries to bark, trunk, limbs, and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials.

F. The protection, removal, and replacement of existing physical features along the Work, including existing utilities, of shall be a part of the Work under the Contract, and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Bid Form.

1.10 MAINTENANCE OF FLOW - Not Used

1.11 DISPOSAL OF EXCESS EXCAVATED AND OTHER WASTE MATERIALS

A. All excess material (suitable or unsuitable) and all vegetation, trash, debris, etc., from the Work shall be disposed of off-site at a location approved by the Owner.

B. Unacceptable disposal sites include, but are not limited to, sites within a wetland or critical habitat and sites where disposal will have a detrimental effect on surface water or groundwater quality or restrict the flows of such waters. A list of approved disposal sites can be obtained at the different state and city agencies.

C. The Contractor shall make his own arrangements for disposal subject to submission of proof to the Owner that the owner(s) of the proposed site(s) have a valid fill permit issued by the appropriate governmental agency and submission of a haul route plan including a map of the proposed route(s).

D. The Contractor shall provide watertight conveyance of any liquid, semi-liquid, or saturated solids, which tend to bleed or leak during transport. No liquid loss from transported materials will be permitted whether being delivered to the construction site or being hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at the selected disposal site.

E. The Contractor shall comply with all necessary permits, licenses, and authorizations regarding the removal, transport and disposal of sludge as are required by all applicable Federal, State and local laws and regulations.

F. The Owner may suspend operations of the Contractor, at its discretion, for alleged non-compliance with Texas Water Commission or Environmental Protection Agency regulations.

1.12 PROTECTION OF AIR QUALITY

A. Air pollution shall be minimized by wetting down bare soils during windy periods, or as requested by Engineer by requiring the use of properly operating combustion emission control devices on construction vehicles and equipment used by Contractors, and by encouraging the shutdown of motorized equipment not actually in use.

B. Trash burning will not be permitted on the construction site without the Owner's approval.

C. If temporary heating devices are necessary for protection of the Work, such devices shall be of a type that will not cause pollution of the air.

1.13 USE OF CHEMICALS

A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either the
U.S. Environmental Protection Agency or the U.S. Department of Agriculture or other applicable regulatory agency. Use of all such chemicals and disposal of residues shall be in conformance with the manufacturer's instructions.

1.14 NOISE AND DUST CONTROL

A. The Contractor shall so conduct his operations that they will not annoy the residents in the vicinity of the Work, and shall comply with all applicable local ordinances. Compressors, hoists, and other apparatus shall be equipped with such mechanical devices as may be necessary to minimize noise and dust. Compressors shall be equipped with silencers on intake lines. All gasoline or oil operated equipment shall be equipped with silencers or mufflers on intake and exhaust lines. Storage bins and hoppers shall be lined with material that will deaden the sounds if directed by Engineer. The operation of dumping rock and of carrying rock away in trucks shall be so conducted as to cause a minimum of noise and dust. Vehicles carrying rock, concrete, or other material shall be routed over such streets as will cause the least annoyance to the public and shall not be operated on public streets between the hours of 6 p.m. and 7 a.m. or on Saturdays, Sundays or legal holidays unless approved by the Owner. The Contractor shall comply with the City of El Paso Municipal Code 9.40.030 for exterior noise standards as per applicable noise zone. The City Department of Health will ultimately determine the actual noise level readings in case of a complaint. The Contractor shall immediately correct its actions to minimize the noise and to bring it to city compliance.

B. All unpaved streets, roads, detours, or haul roads used in the construction area shall be given an approved dust-preventive treatment or periodically watered to prevent dust of at least twice a day or as directed by the governing agency having jurisdiction, inspector, Owner and/or Engineer. Applicable environmental regulations for dust prevention shall be strictly enforced

1.15 CLEANUP

A. During the course of the Work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, concrete, lumber, equipment, temporary structures, vegetation and any other refuse remaining from the construction operations, and shall leave the entire site of the Work in a neat and orderly condition at the end of each working day.

1.16 CONTRACTOR'S QUALITY CONTROL

A. All material shall be new and of the specified quality and equal to the accepted samples, if samples have been submitted. All work shall be done and completed in a thorough, workmanlike manner, notwithstanding any omission from these Contract Documents; and it shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instructions

before proceeding with the work. The Engineer may, by appropriate instructions, correct errors and supply omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

B. At the option of the Engineer, materials to be supplied under this Contract will be tested and/or inspected either at their place of origin or at the site of the work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials to be tested and/or inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the material nor shall it preclude retesting or reinspection at the site of the work.

C. Material, which will require testing and inspection at the place of origin, shall not be shipped prior to such testing and inspection.

END OF SECTION

SECTION 01016- TRENCH SAFETY SYSTEMS

PART 1 – SPECIAL CONDITIONS

A. The Contractor will be required to install a trench safety system to provide for the save excavation of all trenches exceeding a depth of five (5) feet as per OSHA standards.

B. It shall be the duty and responsibility of the Contractor and all of its subcontractors to be familiar and comply with all requirements of Public Law 91-596, 29 U.S.C. Secs. 651 et. Seq., the Occupational Safety and Health Act of 1970 (OSHA), and all amendments thereto, and to enforce and comply with all of the provisions of this Act. In addition, on projects in which trench excavation will exceed a depth of five feet, the Contractor and all of its subcontractors shall comply with all requirements of 29 C.F.R. Secs., 1926.652 and 1926.653, OSHA Safety and Health Standards, which are more fully described herein.

C. The Contractor will be required to submit three (3) sets of trench excavation plans with a trench safety system to the Owner for review before the start of a Work Order where and when trench safety systems are required.

Plans must be designed and sealed by a professional engineer registered in the State of Texas with professional experience in geotechnical engineering. The Contractor is responsible for obtaining borings and soil analysis as required for the design and preparation of the trench excavation plan and trench safety system. The trench excavation plan and the trench safety system are to be designed in conformance with OSHA standards and regulations. No trenching in excess of five (5) feet below existing grade will be allowed until the trench excavation plan is reviewed and returned to the Contractor. Any changes in the trench excavation plan after initiation of construction will not cause an Extension of Time or Change Order but such changes will require the same review process as the original excavation plan.

The Contractor accepts sole responsibility for compliance with all applicable safety requirements. The review is only for general conformance with OSHA safety standards; and review of the trench excavation plan does not relieve the Contractor of any or all construction means, methods, techniques and procedures. Any property damage or bodily injury, including death that arises from use of the trench excavation plan shall remain the sole responsibility and liability of the Contractor

D. **Indemnification** - The Contractor shall indemnify and hold harmless the Owner, its employees and agents, from any and all damages, costs (including without limitation, legal fees, court costs, and the cost of investigation), judgments or claims, by anyone, including workers or the general public, for injury or death of persons resulting from the collapse or failure of trenches constructed under this Contract.

The Contractor acknowledges and agrees that this indemnity provision provides indemnity for the Owner in case that claims are made that the Owner is negligent either by act or omission in providing for trench safety, including, but not limited to inspections, failure to issue stop work orders, and the hiring of the Contractor.

PART 2 - TECHNICAL SPECIFICATIONS

A. **Description**: This item shall govern the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project including all additional excavation and backfill necessitated by the safety system. The trench safety systems shall be suitable for construction of pipe-lines, utilities, etc. that are installed below grade and shall be sufficient to fully protect public or private property including other existing utilities and structures below, or above grade. Trench Safety Systems include but are not limited to sloping side of excavation, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering, or diversion of water to provide adequate drainage.

The Contractor shall be responsible for the design of systems, and procedures such as the use of sheet piling, shoring, or other means of temporary support to protect existing buildings, streets, highways, water conveying structures, or any other structures. In the case of existing utilities, the contractor may elect to remove the utilities under the stipulated condition that the removal and subsequent replacement of these utilities shall meet with the approval of the Engineer, the Owner, the Utility Owner, and all agencies having

jurisdiction of the structure or property. In all cases, the Contractor shall be fully responsible for the protection of public or private property and for the protection of any person or persons, who, as a result of the Contractor's work, may be injured.

B. **Construction Methods**: Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavations, Trenching, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29 CFR, Part 1926. Subpart P, as amended including proposed Rules published in the Federal Register (Vol.54, No, 209) on Tuesday, October 31, 1989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature (H.B. No. 662 and H.B. No. 665) with regard to Trench Safety Systems, is hereby also incorporated, by reference, into these specifications.

C. **Safety Program**: The Contractor shall submit a safety program specifically for the construction of trench excavations together with the trench excavation plans for Trench Safety Systems. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

Contractors have three generally accepted methods, or combinations thereof, to meet OSHA Standards for Trench Excavations:

1. Utilization of Trench Box

2. Shoring, Sheeting, and Bracing Methods

A Contractor electing to utilize a Trench Box must submit physical dimensions, materials, position in the trench, expected loads, and the strength of the box. The Trench Box shall be designed by a professional engineer. No claims delay will be permitted.

A Contractor electing to utilize Shoring, Sheeting, and Bracing must submit dimensions and materials of all uprights, stringers, cross-bracing, and spacing required to meet OSHA requirements, all designed by a Professional Engineer. No Claims for delay will be permitted.

D. **Inspection**: The Contractor shall provide a qualified person to make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. The Contractor shall maintain a permanent record of daily inspections.

If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the contractor to safeguard personnel entering the trench. It is the sole duty, responsibility, and prerogative of the contractor, not the Owner or the Owner's designated representative, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project.

E. **Emergencies**: In an emergency situation, which may threaten or affect the safety or welfare of persons or property, the Contractor shall act at his discretion to prevent possible damage, injury, on loss. Any additional compensation or extension of time claimed for such action shall be considered in view of the cause of the emergency and in accordance with the General Conditions.

F. **OSHA Safety and Health Regulations Part 1926**: (SeeAttached)

END OF SECTION

• OSHA REGULATIONS •

• REGARDING TRENCH SAFETY (FROM FEDERAL REGISTER)

(2) The employer shall ensure that there is in the vicinity of each barge in use at least one U.S. Coast Guard-approved 30-inch lifering with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that he is working the barge.

(3) Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved work vests or buoyant vests.

(e) *Commercial diving operations.* Commercial diving operations shall be subject to subpart T of part 1910, §§ 1910.401-1910.441, of this chapter.

[39 FR 22801, June 24, 1974, as amended at 42 FR 37674, July 22, 1977]

§ 1926.606 Definitions applicable to this subpart.

(a) *Apron*—The area along the waterfront edge of the pier or wharf.

(b) *Bulwark*—The side of a ship above the upper deck.

(c) *Coaming*—The raised frame, as around a hatchway in the deck, to keep out water.

(d) *Jacob's ladder*—A marine ladder of rope or chain with wooden or metal rungs.

(e) *Rail*, for the purpose of § 1926.605, means a light structure serving as a guard at the outer edge of a ship's deck.

Subpart P—Excavations

AUTHORITY: Sec. 107, Contract Worker Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), or 9-83 (48 FR 35736), as applicable, and 29 CFR part 1911.

SOURCE: 54 FR 45959, Oct. 31, 1989, unless otherwise noted.

§ 1926.650 Scope, application, and definitions applicable to this subpart.

(a) *Scope and application.* This subpart applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.

(b) *Definitions applicable to this subpart.*

Accepted engineering practices means those requirements which are compatible with standards of practice required by a registered professional engineer.

Aluminum Hydraulic Shoring means a pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed, specifically to support the sidewalls of an excavation and prevent cave-ins.

Bell-bottom pier hole means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Benching (Benching system) means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Cross braces mean the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Faces or *sides* means the vertical or inclined earth surfaces formed as a result of excavation work.

Failure means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Hazardous atmosphere means an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Kickout means the accidental release or failure of a cross brace.

Protective system means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp means an inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

Registered Professional Engineer means a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

Sheeting means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield (Shield system) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in accordance with § 1926.652 (c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

Shoring (Shoring system) means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sides. See "Faces."

Sloping (Sloping system) means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Stable rock means natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

Structural ramp means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Support system means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Tabulated data means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench (Trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Trench box. See "Shield."

Trench shield. See "Shield."

Uprights means the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or

interconnected to each other, are often called "sheeting."

Wales means horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

§ 1926.651 Specific excavation requirements.

(a) *Surface encumbrances.* All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

(b) *Underground installations.* (1) The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

(2) Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

(3) When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.

(4) While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

(c) *Access and egress*—(1) *Structural ramps.* (i) Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

(ii) Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

(iii) Structural members used for ramps and runways shall be of uniform thickness.

(iv) Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

(v) Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

(2) *Means of egress from trench excavations.* A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.

(d) *Exposure to vehicular traffic.* Employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

(e) *Exposure to falling loads.* No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with § 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

(f) *Warning system for mobile equipment.* When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

(g) *Hazardous atmospheres*—(1) *Testing and controls.* In addition to the requirements set forth in subparts D and E of this part (29 CFR 1926.50–1926.107) to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

(i) Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

(ii) Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with subparts D and E of this part respectively.

(iii) Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

(iv) When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

(2) *Emergency rescue equipment.* (i) Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

(ii) Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a life-line securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

(h) *Protection from hazards associated with water accumulation.* (1) Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

(2) If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

(3) If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) of this section.

(i) *Stability of adjacent structures.* (1) Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

(2) Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

(i) A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

(ii) The excavation is in stable rock; or

(iii) A registered professional engineer has approved the determination that the structure is sufficently removed from the excavation so as to be

unaffected by the excavation activity; or

(iv) A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

(3) Sidewalks, pavements, and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

(j) *Protection of employees from loose rock or soil.* (1) Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

(2) Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

(k) *Inspections.* (1) Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

(2) Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

(l) Walkways shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with § 1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels.

[54 FR 45959, Oct. 31, 1989, as amended by 59 FR 40730, Aug. 9, 1994]

§ 1926.652 Requirements for protective systems.

(a) *Protection of employees in excavations.* (1) Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when:

(i) Excavations are made entirely in stable rock; or

(ii) Excavations are less than 5 feet (1.52m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

(2) Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

(b) *Design of sloping and benching systems.* The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or, in the alternative, paragraph (b)(2); or, in the alternative, paragraph (b)(3), or, in the alternative, paragraph (b)(4), as follows:

(1) *Option (1)—Allowable configurations and slopes.* (i) Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.

(ii) Slopes specified in paragraph (b)(1)(i) of this section, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this subpart.

(2) *Option (2)—Determination of slopes and configurations using Appendices A and B.* Maximum allowable slopes, and allowable configurations for sloping

and benching systems, shall be determined in accordance with the conditions and requirements set forth in appendices A and B to this subpart.

(3) *Option (3)—Designs using other tabulated data.* (i) Designs of sloping or benching systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(ii) The tabulated data shall be in written form and shall include all of the following:

(A) Identification of the parameters that affect the selection of a sloping or benching system drawn from such data;

(B) Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe;

(C) Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

(iii) At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

(4) *Option (4)—Design by a registered professional engineer.* (i) Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) of this section shall be approved by a registered professional engineer.

(ii) Designs shall be in written form and shall include at least the following:

(A) The magnitude of the slopes that were determined to be safe for the particular project;

(B) The configurations that were determined to be safe for the particular project; and

(C) The identity of the registered professional engineer approving the design.

(iii) At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

(c) *Design of support systems, shield systems, and other protective systems.* Designs of support systems shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (c)(1); or, in the alternative, paragraph (c)(2); or, in the alternative, paragraph (c)(3); or, in the alternative, paragraph (c)(4) as follows:

(1) *Option (1)—Designs using appendices A, C and D.* Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with paragraph (c)(2) of this section, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix D.

(2) *Option (2)—Designs Using Manufacturer's Tabulated Data.* (i) Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

(ii) Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.

(iii) Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the Secretary upon request.

(3) *Option (3)—Designs using other tabulated data.* (i) Designs of support systems, shield systems, or other protective systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(ii) The tabulated data shall be in written form and include all of the following:

(A) Identification of the parameters that affect the selection of a protective system drawn from such data;

(B) Identification of the limits of use of the data;

(C) Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

(iii) At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

(4) *Option (4)—Design by a registered professional engineer.* (i) Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, shall be approved by a registered professional engineer.

(ii) Designs shall be in written form and shall include the following:

(A) A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and

(B) The identity of the registered professional engineer approving the design.

(iii) At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.

(d) *Materials and equipment.* (1) Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

(2) Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

(3) When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.

(e) *Installation and removal of support*—(1) *General.* (i) Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

(ii) Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

(iii) Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

(iv) Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.

(v) Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

(vi) Backfilling shall progress together with the removal of support systems from excavations.

(2) *Additional requirements for support systems for trench excavations.* (i) Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

(ii) Installation of a support system shall be closely coordinated with the excavation of trenches.

(f) *Sloping and benching systems.* Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from

the hazard of falling, rolling, or sliding material or equipment.

(g) *Shield systems*—(1) *General.* (i) Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

(ii) Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

(iii) Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

(iv) Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.

(2) *Additional requirement for shield systems used in trench excavations.* Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

APPENDIX A TO SUBPART P—SOIL CLASSIFICATION

(a) *Scope and application*—(1) *Scope.* This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

(2) *Application.* This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in § 1926.652(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in § 1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

(b) *Definitions.* The definitions and examples given below are based on, in whole or in part, the following: American Society for Testing Materials (ASTM) Standards D653–85 and D2488; The Unified Soils Classification System, The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS–121.

Cemented soil means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive soil means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil means soil that does not exhibit visible signs of moisture content.

Fissured means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil means gravel, sand, or silt, (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist soil means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

Soil classification system means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil means soil which is underwater or is free seeping.

Type A means cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

(i) The soil is fissured; or

(ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or

(iii) The soil has been previously disturbed; or

(iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or

(v) The material is subject to other factors that would require it to be classified as a less stable material.

Type B means:

(i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or

(ii) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

(iii) Previously disturbed soils except those which would otherwise be classed as Type C soil.

(iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or

(v) Dry rock that is not stable; or

(vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C means:

(i) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or

(ii) Granular soils including gravel, sand, and loamy sand; or

(iii) Submerged soil or soil from which water is freely seeping; or

(iv) Submerged rock that is not stable, or

(v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined compressive strength means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) *Requirements*—(1) *Classification of soil and rock deposits.* Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

(2) *Basis of classification.* The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other recognized methods of soil classification and testing such as those adopted by the America Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

(3) *Visual and manual analyses.* The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

(4) *Layered systems.* In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

(5) *Reclassification.* If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

(d) *Acceptable visual and manual tests.*—(1) *Visual tests.* Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

(v) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) *Manual tests.* Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(i) *Plasticity.* Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as ⅛-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of ⅛-inch thread can be held on one end without tearing, the soil is cohesive.

(ii) *Dry strength.* If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

(iii) *Thumb penetration.* The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488—"Standard Recommended Practice for Description of Soils (Visual—Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a miminum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

(iv) *Other strength tests.* Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

(v) *Drying test.* The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

(A) If the sample develops cracks as it dries, significant fissures are indicated.

(B) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as a unfissured cohesive material and the unconfined compressive strength should be determined.

(C) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

APPENDIX B TO SUBPART P—SLOPING AND BENCHING

(a) *Scope and application.* This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in § 1926.652(b)(2).

(b) *Definitions.*

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) *Requirements*—(1) *Soil classification.* Soil and rock deposits shall be classified in accordance with appendix A to subpart P of part 1926.

(2) *Maximum allowable slope.* The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) *Actual slope.* (i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least ½ horizontal to one vertical (½H:1V) less steep than the maximum allowable slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with § 1926.651(i).

(4) *Configurations.* Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1

MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]
STABLE ROCK TYPE A [2] TYPE B TYPE C	VERTICAL (90°) 3/4 : 1 (53°) 1:1 (45°) 1½: 1 (34°)

NOTES:

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
2. A short-term maximum allowable slope of 1/2H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

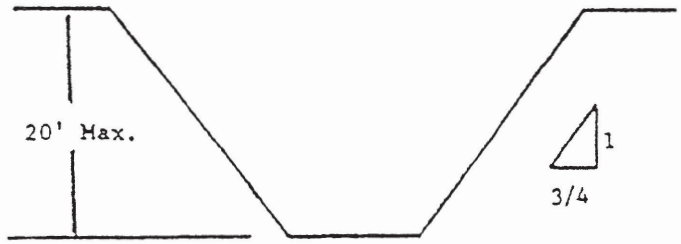
Figure B-1

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

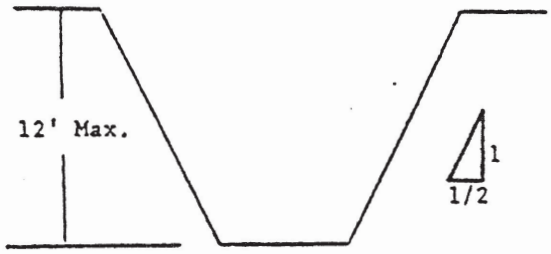
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾:1.



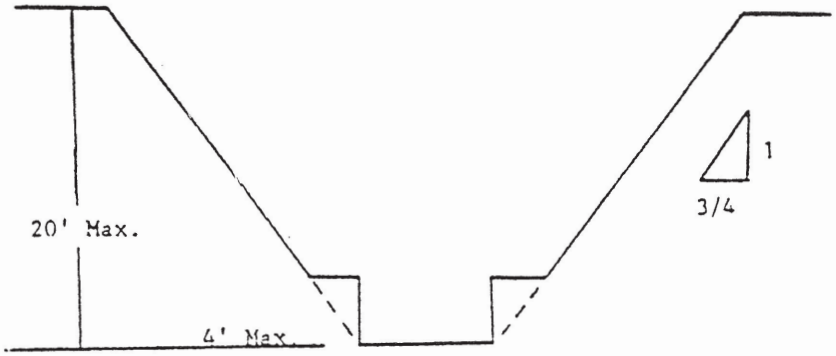
SIMPLE SLOPE—GENERAL

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.

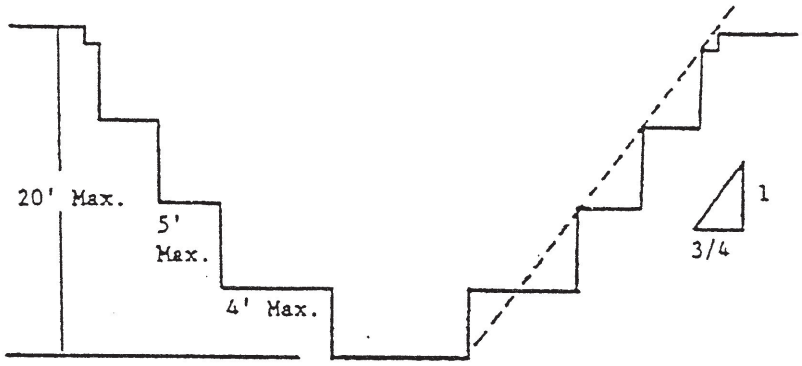


SIMPLE SLOPE—SHORT TERM

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of ¾ to 1 and maximum bench dimensions as follows:

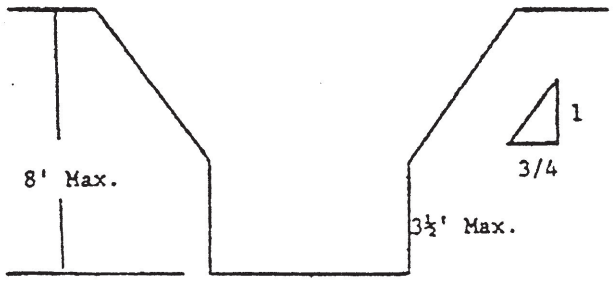


SIMPLE BENCH



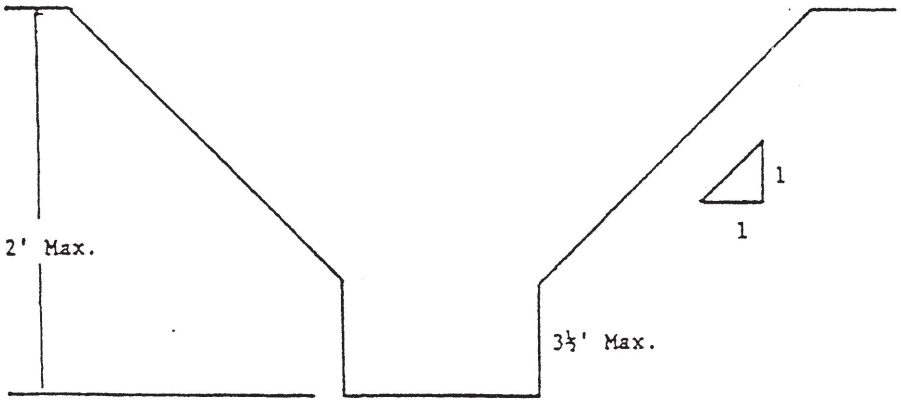
MULTIPLE BENCH

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



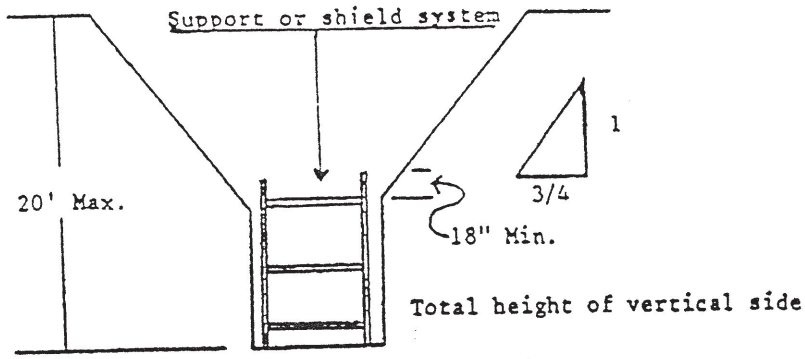
UNSUPPORTED VERTICALLY SIDED LOWER PORTION—MAXIMUM 8 FEET IN DEPTH

All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



UNSUPPORTED VERTICALLY SIDED LOWER PORTION—MAXIMUM 12 FEET IN DEPTH

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

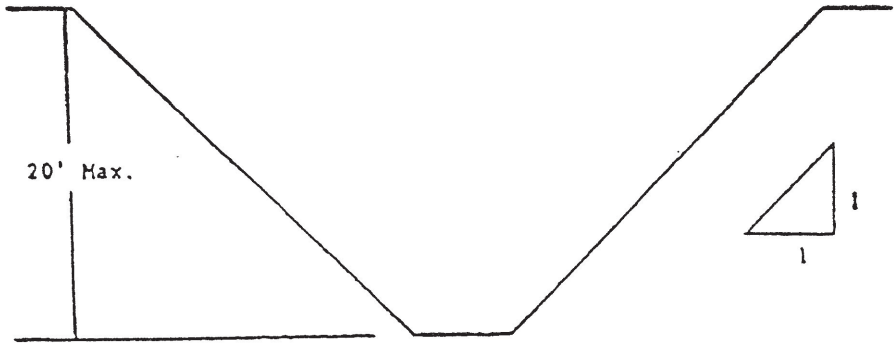


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

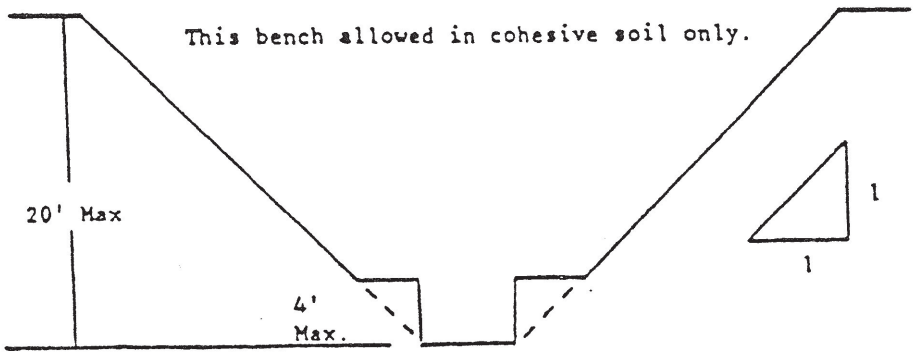
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

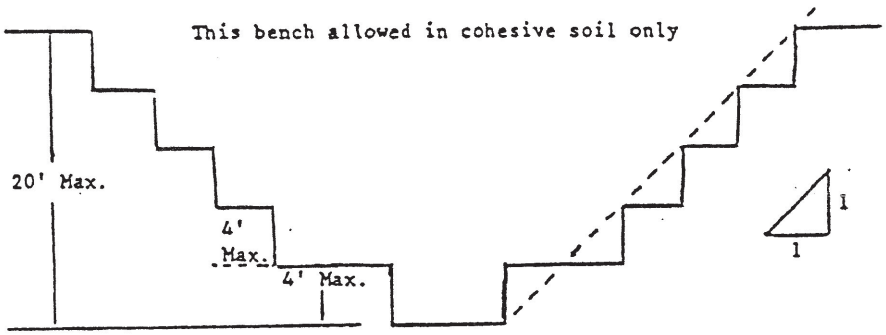


SIMPLE SLOPE

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

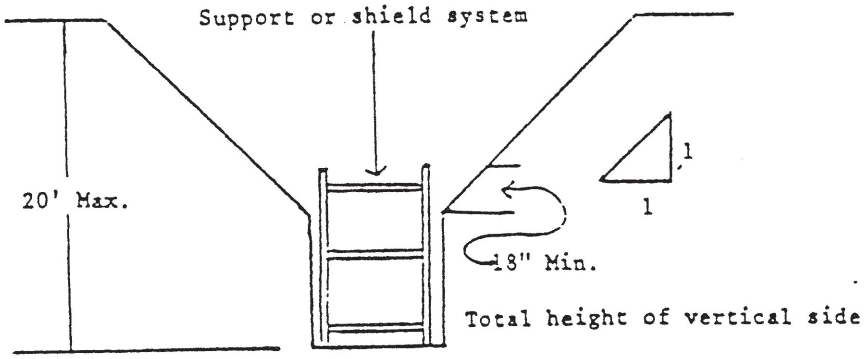


SINGLE BENCH



MULTIPLE BENCH

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

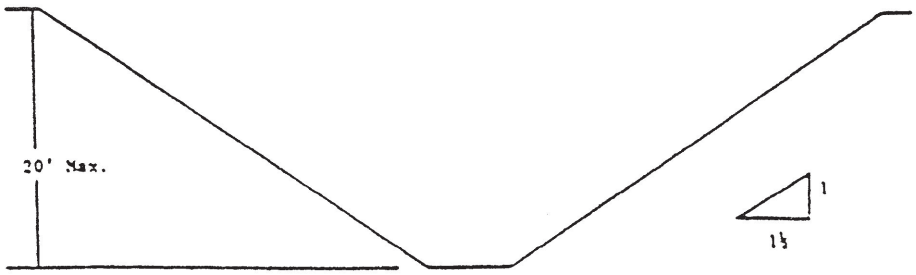


VERTICALLY SIDED LOWER PORTION

4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

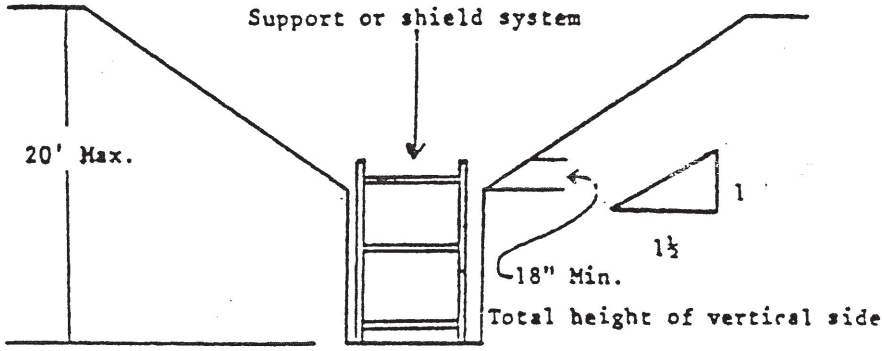
B-1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



SIMPLE SLOPE

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

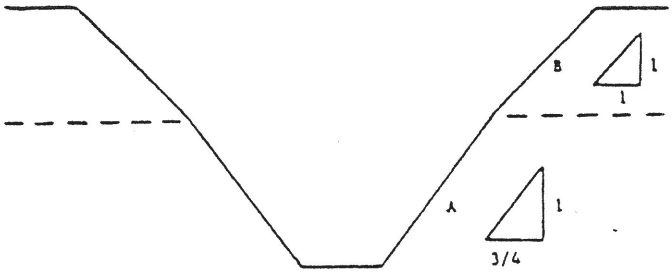


VERTICAL SIDED LOWER PORTION

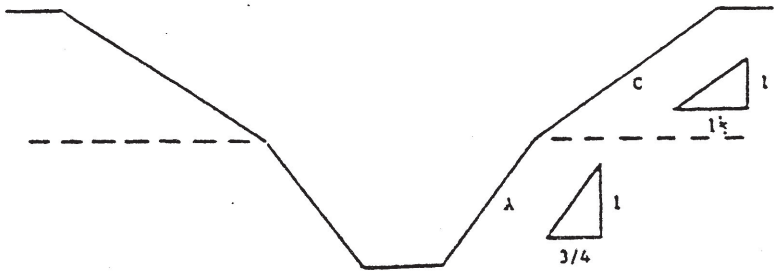
3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B-1.4 Excavations Made in Layered Soils

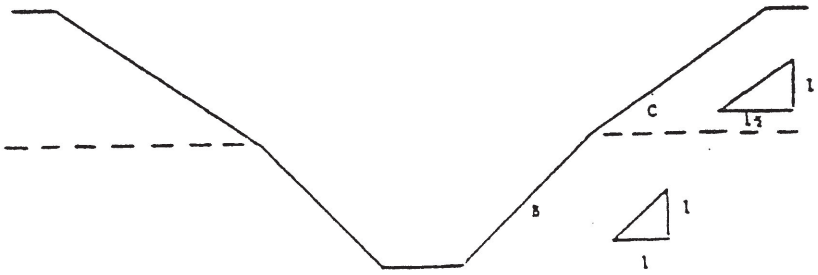
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



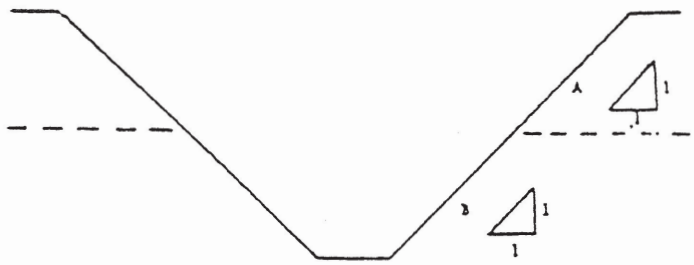
B OVER A



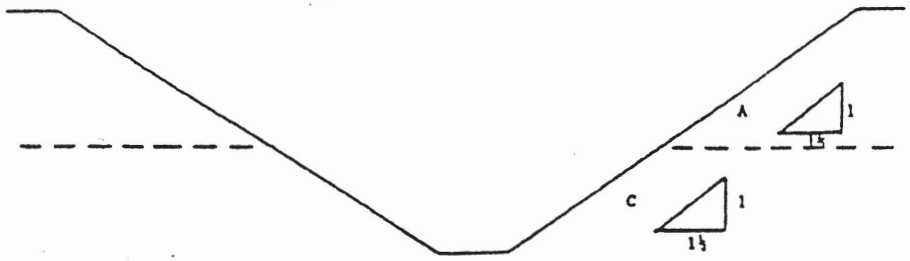
C OVER A



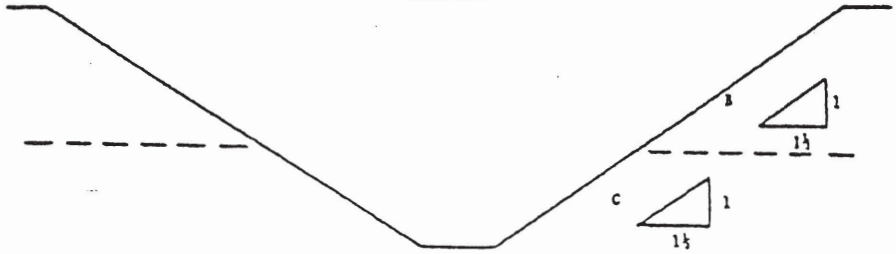
C OVER B



A OVER B



A OVER C



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

APPENDIX C TO SUBPART P—TIMBER SHORING FOR TRENCHES

(a) *Scope.* This appendix contains information that can be used timber shoring is provided as a method of protection from cave-ins in trenches that do not exceed 20 feet (6.1 m) in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with §1926.652(c)(1). Other timber shoring configurations; other systems of support such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in §1926.652(b) and §1926.652(c).

(b) *Soil Classification.* In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of this part.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables C-1.1, C-1.2, and C-1.3, and Tables C-2.1, C-2.2 and C-2.3 following paragraph (g) of the appendix. Each table presents the minimum sizes of timber members to use in a shoring system, and each table contains data only for the particular soil

type in which the excavation or portion of the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix, and on the tables themselves.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations regarding Tables C-1.1 through C-1.3 and Tables C-2.1 through C-2.3 are presented in paragraph (g) of this Appendix.

(d) *Basis and limitations of the data.*—(1) *Dimensions of timber members.* (i) The sizes of the timber members listed in Tables C-1.1 through C-1.3 are taken from the National Bureau of Standards (NBS) report, "Recommended Technical Provisions for Construction Practice in Shoring and Sloping of Trenches and Excavations." In addition, where NBS did not recommend specific sizes of members, member sizes are based on an analysis of the sizes required for use by existing codes and on empirical practice.

(ii) The required dimensions of the members listed in Tables C-1.1 through C-1.3 refer to actual dimensions and not nominal dimensions of the timber. Employers wanting to use nominal size shoring are directed to Tables C-2.1 through C-2.3, or have this choice under § 1926.652(c)(3), and are referred to The Corps of Engineers, The Bureau of Reclamation or data from other acceptable sources.

(2) *Limitation of application.* (i) It is not intended that the timber shoring specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be designed as specified in § 1926.652(c).

(ii) When any of the following conditions are present, the members specified in the tables are not considered adequate. Either an alternate timber shoring system must be designed or another type of protective system designed in accordance with § 1926.652.

(A) When loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by a two-foot soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

(B) When vertical loads imposed on cross braces exceed a 240-pound gravity load distributed on a one-foot section of the center of the crossbrace.

(C) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(D) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables.* The members of the shoring system that are to be selected using this information are the cross braces, the uprights, and the wales, where wales are required. Minimum sizes of members are specified for use in different types of soil. There are six tables of information, two for each soil type. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is then made. The selection is based on the depth and width of the trench where the members are to be installed and, in most instances, the selection is also based on the horizontal spacing of the crossbraces. Instances where a choice of horizontal spacing of crossbracing is available, the horizontal spacing of the crossbraces must be chosen by the user before the size of any member can be determined. When the soil type, the width and depth of the trench, and the horizontal spacing of the crossbraces are known, the size and vertical spacing of the crossbraces, the size and vertical spacing of the wales, and the size and horizontal spacing of the uprights can be read from the appropriate table.

(f) *Examples to Illustrate the Use of Tables C-1.1 through C-1.3.*

(1) *Example 1.*

A trench dug in Type A soil is 13 feet deep and five feet wide.

From *Table C-1.1*, for acceptable arrangements of timber can be used.

Arrangement #1

Space 4x4 crossbraces at six feet horizontally and four feet vertically.

Wales are not required.

Space 3x8 uprights at six feet horizontally. This arrangement is commonly called "skip shoring."

Arrangement #2

Space 4x6 crossbraces at eight feet horizontally and four feet vertically.

Space 8x8 wales at four feet vertically.

Space 2x6 uprights at four feet horizontally.

Arrangement #3

Space 6x6 crossbraces at 10 feet horizontally and four feet vertically.

Space 8x10 wales at four feet vertically.

Space 2x6 uprights at five feet horizontally.

Arrangement #4

Space 6x6 crossbraces at 12 feet horizontally and four feet vertically.

Space 10x10 wales at four feet vertically.

Spaces 3x8 uprights at six feet horizontally.

(2) *Example 2.*

A trench dug in Type B soil in 13 feet deep and five feet wide. From Table C-1.2 three acceptable arrangements of members are listed.

Arrangement #1

Space 6x6 crossbraces at six feet horizontally and five feet vertically.

Space 8x8 wales at five feet vertically.

Space 2x6 uprights at two feet horizontally.

Arrangement #2

Space 6x8 crossbraces at eight feet horizontally and five feet vertically.

Space 10x10 wales at five feet vertically.

Space 2x6 uprights at two feet horizontally.

Arrangement #3

Space 8x8 crossbraces at 10 feet horizontally and five feet vertically.

Space 10x12 wales at five feet vertically.

Space 2x6 uprights at two feet vertically.

(3) *Example 3.*

A trench dug in Type C soil is 13 feet deep and five feet wide.

From Table C-1.3 two acceptable arrangements of members can be used.

Arrangement #1

Space 8x8 crossbraces at six feet horizontally and five feet vertically.

Space 10x12 wales at five feet vertically.

Position 2x6 uprights as closely together as possible.

If water must be retained use special tongue and groove uprights to form tight sheeting.

Arrangement #2

Space 8x10 crossbraces at eight feet horizontally and five feet vertically.

Space 12x12 wales at five feet vertically.

Position 2x6 uprights in a close sheeting configuration unless water pressure must be resisted. Tight sheeting must be used where water must be retained.

(4) *Example 4.*

A trench dug in Type C soil is 20 feet deep and 11 feet wide. The size and spacing of members for the section of trench that is over 15 feet in depth is determined using Table C-1.3. Only one arrangement of members is provided.

Space 8x10 crossbraces at six feet horizontally and five feet vertically.

Space 12x12 wales at five feet vertically.

Use 3x6 tight sheeting.

Use of Tables C-2.1 through C-2.3 would follow the same procedures.

(g) *Notes for all Tables.*

1. Member sizes at spacings other than indicated are to be determined as specified in § 1926.652(c), "Design of Protective Systems."

2. When conditions are saturated or submerged use Tight Sheeting. Tight Sheeting refers to the use of specially-edged timber planks (e.g., tongue and groove) at least three inches thick, steel sheet piling, or similar construction that when driven or placed in position provide a tight wall to resist the lateral pressure of water and to prevent the loss of backfill material. Close Sheeting refers to the placement of planks side-by-side allowing as little space as possible between them.

3. All spacing indicated is measured center to center.

4. Wales to be installed with greater dimension horizontal.

5. If the vertical distance from the center of the lowest crossbrace to the bottom of the trench exceeds two and one-half feet, uprights shall be firmly embedded or a mudsill shall be used. Where uprights are embedded, the vertical distance from the center of the lowest crossbrace to the bottom of the trench shall not exceed 36 inches. When mudsills are used, the vertical distance shall not exceed 42 inches. Mudsills are wales that are installed at the toe of the trench side.

6. Trench jacks may be used in lieu of or in combination with timber crossbraces.

7. Placement of crossbraces. When the vertical spacing of crossbraces is four feet, place the top crossbrace no more than two feet below the top of the trench. When the vertical spacing of crossbraces is five feet, place the top crossbrace no more than 2.5 feet below the top of the trench.

TABLE C-1.1

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE A $P_a = 25 \times H + 72$ psf (2 ft Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS **													
	CROSS BRACES							WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5 TO 10	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				2X6	
	UP TO 8	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---					2X8
	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4			2X6		
	UP TO 12	4X6	4X6	6X6	6X6	6X6	4	8X8	4				2X6	
10 TO 15	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				3X8	
	UP TO 8	4X6	4X6	6X6	6X6	6X6	4	8X8	4		2X6			
	UP TO 10	6X6	6X5	6X6	6X8	6X8	4	8X10	4			2X6		
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	10X10	4				3X8	
15 TO 20	UP TO 6	6X6	6X6	6X6	6X8	6X8	4	6X8	4	3X6				
	UP TO 8	6X6	6X6	6X6	6X8	6X8	4	8X8	4	3X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X10	4	8X10	4	3X6				
	UP TO 12	8X8	8X8	8X8	8X8	8X10	4	10X10	4	3X6				
OVER 20	SEE NOTE 1													

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.

TABLE C-1.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE B $P_a = 45 \times H + 72$ psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**														
	CROSS BRACES							WALES		UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)					
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	2	3			
5 TO 10	UP TO 6	4X6	4X6	6X6	6X6	6X6	5	6X8	5			2X6			
	UP TO 8	6X6	6X6	6X6	6X8	6X8	5	8X10	5			2X6			
	UP TO 10	6X6	6X6	6X6	6X8	6X8	5	10X10	5			2X6			
	See Note 1														
10 TO 15	UP TO 6	6X6	6X6	6X6	6X8	6X8	5	8X8	5		2X6				
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X10	5		2X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X10	5	10X12	5		2X6				
	See Note 1														
15 TO 20	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	8X10	5	3X6					
	UP TO 8	8X8	8X8	8X8	8X8	8X10	5	10X12	5	3X6					
	UP TO 10	8X10	8X10	8X10	8X10	10X10	5	12X12	5	3X6					
	See Note 1														
OVER 20	SEE NOTE 1														

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.

TABLE C-1.3

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE C P_a = 80 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**														
	CROSS BRACES									UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) (See Note 2)					
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE					
5 TO 10	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	8X10	5	2X6					
	UP TO 8	8X8	8X8	8X8	8X8	8X10	5	10X12	5	2X6					
	UP TO 10	8X10	8X10	8X10	8X10	10X10	5	12X12	5	2X6					
	See Note 1														
10 TO 15	UP TO 6	8X8	8X8	8X8	8X8	8X10	5	10X12	5	2X6					
	UP TO 8	8X10	8X10	8X10	8X10	10X10	5	12X12	5	2X6					
	See Note 1														
	See Note 1														
15 TO 20	UP TO 6	8X10	8X10	8X10	8X10	10X10	5	12X12	5	3X6					
	See Note 1														
	See Note 1														
	See Note 1														
OVER 20	SEE NOTE 1														

* Mixed Oak or equivalent with a bending strength not less than 850 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.1

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE A P_a = 25 X H ± 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **														
	CROSS BRACES							WALES		UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)					
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5 TO 10	UP TO 6	4X4	4X4	4X4	4X4	4X6	4	Not Req'd	Not Req'd				4X6	
	UP TO 8	4X4	4X4	4X4	4X6	4X6	4	Not Req'd	Not Req'd					4X8
	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4			4X6		
	UP TO 12	4X6	4X6	4X6	6X6	6X6	4	8X8	4				4X6	
10 TO 15	UP TO 6	4X4	4X4	4X4	6X6	6X6	4	Not Req'd	Not Req'd				4X10	
	UP TO 8	4X6	4X6	4X6	6X6	6X6	4	6X8	4		4X6			
	UP TO 10	6X6	6X6	6X6	6X6	6X6	4	8X8	4			4X8		
	UP TO 12	6X6	6X6	6X6	6X6	6X6	4	8X10	4		4X6		4X10	
15 TO 20	UP TO 6	6X6	6X6	6X6	6X6	6X6	4	6X8	4	3X6				
	UP TO 8	6X6	6X6	6X6	6X6	6X6	4	8X8	4	3X6	4X12			
	UP TO 10	6X6	6X6	6X6	6X6	6X8	4	8X10	4	3X6				
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	8X12	4	3X6	4X12			
OVER 20	SEE NOTE 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE B P_a = 45 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **													
	CROSS BRACES							WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	2	3	4	6
5 TO 10	UP TO 6	4X6	4X6	4X6	6X6	6X6	5	6X8	5			3X12 4X8		4X12
	UP TO 8	4X6	4X6	6X6	6X6	6X6	5	8X8	5		3X8		4X8	
	UP TO 10	4X6	4X6	6X6	6X6	6X8	5	8X10	5			4X8		
	See Note 1													
10 TO 15	UP TO 6	6X6	6X6	6X6	6X8	6X8	5	8X8	5	3X6	4X10			
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X10	5	3X6	4X10			
	UP TO 10	6X8	6X8	8X8	8X8	8X8	5	10X12	5	3X6	4X10			
	See Note 1													
15 TO 20	UP TO 6	6X8	6X8	6X8	6X8	8X8	5	8X10	5	4X6				
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X12	5	4X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X8	5	12X12	5	4X6				
	See Note 1													
OVER 20	SEE NOTE 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.3

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE C $P_a = 80 \times H + 72$ psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **														
	CROSS BRACES							WALES		UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)					
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE					
5 TO 10	UP TO 6	6X6	6X6	6X6	6X6	8X8	5	8X8	5	3X6					
	UP TO 8	6X6	6X6	6X6	8X8	8X8	5	10X10	5	3X6					
	UP TO 10	6X6	6X6	8X8	8X8	8X8	5	10X12	5	3X6					
	See Note 1														
10 TO 15	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	10X10	5	4X6					
	UP TO 8	8X8	8X8	8X8	8X8	8X8	5	12X12	5	4X6					
	See Note 1														
	See Note 1														
15 TO 20	UP TO 6	8X8	8X8	8X8	8X10	8X10	5	10X12	5	4X6					
	See Note 1														
	See Note 1														
	See Note 1														
OVER 20	SEE NOTE 1														

* Douglas fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.

APPENDIX D TO SUBPART P—ALUMINUM HYDRAULIC SHORING FOR TRENCHES

(a) *Scope.* This appendix contains information that can be used when aluminum hydraulic shoring is provided as a method of protection against cave-ins in trenches that do not exceed 20 feet (6.1m) in depth. This appendix must be used when design of the aluminum hydraulic protective system cannot be performed in accordance with §1926.652(c)(2).

(b) *Soil Classification.* In order to use data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of part 1926.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables D-1.1, D-1.2, D-1.3 and E-1.4. Each table presents the maximum vertical and horizontal spacings that may be used with various aluminum member sizes and various hydraulic cylinder sizes. Each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. Tables D-1.1 and D-1.2 are for vertical shores in Types A and B soil. Tables D-1.3 and D1.4 are for horizontal waler systems in Types B and C soil.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations (footnotes) regarding Table D-1.1 through D-1.4 are presented in paragraph (g) of this appendix.

(6) Figures, illustrating typical installations of hydraulic shoring, are included just prior to the Tables. The illustrations page is entitled "Aluminum Hydraulic Shoring; Typical Installations."

(d) *Basis and limitations of the data.*

(1) Vertical shore rails and horizontal wales are those that meet the Section Modulus requirements in the D-1 Tables. Aluminum material is 6061-T6 or material of equivalent strength and properties.

(2) Hydraulic cylinders specifications. (i) 2-inch cylinders shall be a minimum 2-inch inside diameter with a minimum safe working capacity of no less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufaturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe working capacity of not less than 30,000 pounds axial compressive load at extensions as recommended by product manufacturer.

(3) Limitation of application.

(i) It is not intended that the aluminum hydraulic specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be otherwise designed as specified in §1926.652(c).

(ii) When any of the following conditions are present, the members specified in the Tables are not considered adequate. In this case, an alternative aluminum hydraulic shoring system or other type of protective system must be designed in accordance with §1926.652.

(A) When vertical loads imposed on cross braces exceed a 100 Pound gravity load distributed on a one foot section of the center of the hydraulic cylinder.

(B) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(C) When only the lower portion or a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables D-1.1, D-1.2, D-1.3 and D-1.4.* The members of the shoring system that are to be selected using this information are the hydraulic cylinders, and either the vertical shores or the horizontal wales. When a waler system is used the vertical timber sheeting to be used is also selected from these tables. The Tables D-1.1 and D-1.2 for vertical shores are used in Type A and B soils that do not require sheeting. Type B soils that may require sheeting, and Type C soils that always require sheeting are found in the horizontal wale Tables D-1.3 and D-1.4. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is made. The selection is based on the depth and width of the trench where the members are to be installed. In these tables the vertical spacing is held constant at four feet on center. The tables show the maximum horizontal spacing of cylinders allowed for each size of wale in the waler system tables, and in the vertical shore tables, the hydraulic cylinder horizontal spacing is the same as the vertical shore spacing.

(f) *Example to Illustrate the Use of the Tables:*

(1) Example 1:

A trench dug in Type A soil is 6 feet deep and 3 feet wide. From Table D-1.1: Find vertical shores and 2 inch diameter cylinders spaced 8 feet on center (o.c.) horizontally and 4 feet on center (o.c.) vertically. (See Figures 1 & 3 for typical installations.)

(2) Example 2:

A trench is dug in Type B soil that does not require sheeting, 13 feet deep and 5 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinders spaced 6.5 feet o.c. horizontally and 4 feet o.c. vertically. (See Figures 1 & 3 for typical installations.)

(3) A trench is dug in Type B soil that does not require sheeting, but does experience some minor raveling of the trench face. The trench is 16 feet deep and 9 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinder (with special oversleeves as designated by footnote #2) spaced 5.5 feet o.c. horizontally and 4 feet o.c. vertically, plywood (per footnote (g)(7) to the D-1 Table) should be used behind the shores. (See Figures 2 & 3 for typical installations.)

(4) Example 4: A trench is dug in previously disturbed Type B soil, with characteristics of a Type C soil, and will require sheeting. The trench is 18 feet deep and 12 feet wide. 8 foot horizontal spacing between cylinders is desired for working space. From Table D-1.3: Find horizontal wale with a section modulus of 14.0 spaced at 4 feet o.c. vertically and 3 inch diameter cylinder spaced at 9 feet maximum o.c. horizontally. 3x12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(5) Example 5: A trench is dug in Type C soil, 9 feet deep and 4 feet wide. Horizontal cylinder spacing in excess of 6 feet is desired for working space. From Table D-1.4: Find horizontal wale with a section modulus of 7.0 and 2 inch diameter cylinders spaced at 6.5 feet o.c. horizontally. Or, find horizontal wale with a 14.0 section modulus and 3 inch diameter cylinder spaced at 10 feet o.c. horizontally. Both wales are spaced 4 feet o.c. vertically. 3x12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(g) *Footnotes, and general notes, for Tables D-1.1, D-1.2, D-1.3, and D-1.4.*

(1) For applications other than those listed in the tables, refer to §1926.652(c)(2) for use of manufacturer's tabulated data. For trench depths in excess of 20 feet, refer to §1926.652(c)(2) and §1926.652(c)(3).

(2) 2 inch diameter cylinders, at this width, shall have structural steel tube (3.5x3.5x0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

(3) Hydraulic cylinders capacities. (i) 2 inch cylinders shall be a minimum 2-inch inside diameter with a safe working capacity of not less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe work capacity of not less than 30,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(4) All spacing indicated is measured center to center.

(5) Vertical shoring rails shall have a minimum section modulus of 0.40 inch.

(6) When vertical shores are used, there must be a minimum of three shores spaced equally, horizontally, in a group.

(7) Plywood shall be 1.125 in. thick softwood or 0.75 inch. thick, 14 ply, arctic white birch (Finland form). Please note that plywood is not intended as a structural member, but only for prevention of local raveling (sloughing of the trench face) between shores.

(8) See appendix C for timber specifications.

(9) Wales are calculated for simple span conditions.

(10) See appendix D, item (d), for basis and limitations of the data.

ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

FIGURE NO. 1

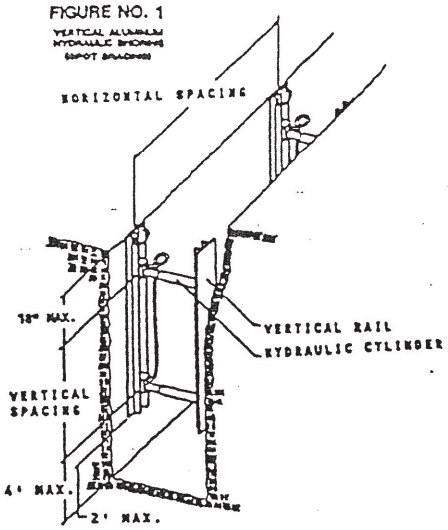


FIGURE NO. 2

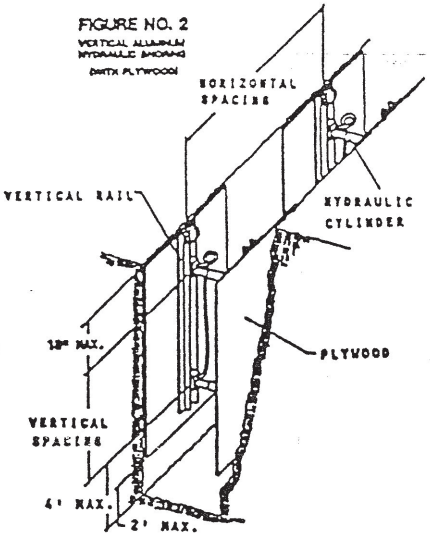


FIGURE NO. 3

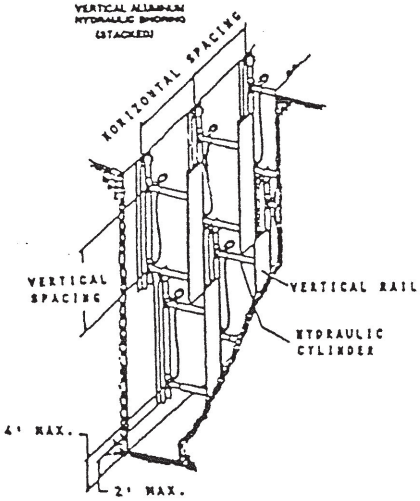


FIGURE NO. 4

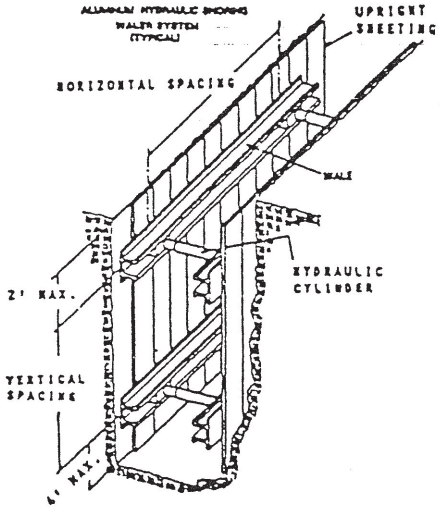


TABLE D - 1.1
ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE A

DEPTH OF TRENCH (FEET)	HYDRAULIC CYLINDERS				
	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)		
			UP TO 8	OVER 8 UP TO 12	OVER 12 UP TO 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	2 INCH DIAMETER NOTE (2)	3 INCH DIAMETER
OVER 10 UP TO 15	8				
OVER 15 UP TO 20	7				
OVER 20	NOTE (1)				

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)

TABLE D - 1.2
ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE B

DEPTH OF TRENCH (FEET)	HYDRAULIC CYLINDERS				
	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)		
			UP TO 8	OVER 8 UP TO 12	OVER 12 UP TO 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	2 INCH DIAMETER NOTE (2)	3 INCH DIAMETER
OVER 10 UP TO 15	6.5				
OVER 15 UP TO 20	5.5				
OVER 20	NOTE (1)				

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)

TABLE D - 1.3
ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE B

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS		
			WIDTH OF TRENCH (FEET)						MAX.HORIZ.SPACING (ON CENTER)		
	VERTICAL SPACING (FEET)	* SECTION MODULUS (IN^3)	UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO15		SOLID SHEET	2 FT.	3 FT.
			HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER			
OVER 5 UP TO 10	4	3.5	8.0	2 IN	8.0	2 IN NOTE(2)	8.0	3 IN	—	—	3x12
		7.0	9.0	2 IN	9.0	2 IN NOTE(2)	9.0	3 IN			
		14.0	12.0	3 IN	12.0	3 IN	12.0	3 IN			
OVER 10 UP TO 15	4	3.5	6.0	2 IN	6.0	2 IN NOTE(2)	6.0	3 IN	—	3x12	—
		7.0	8.0	3 IN	8.0	3 IN	8.0	3 IN			
		14.0	10.0	3 IN	10.0	3 IN	10.0	3 IN			
OVER 15 UP TO 20	4	3.5	5.5	2 IN	5.5	2 IN NOTE(2)	5.5	3 IN	3x12	—	—
		7.0	6.0	3 IN	6.0	3 IN	6.0	3 IN			
		14.0	9.0	3 IN	9.0	3 IN	9.0	3 IN			
OVER 20	NOTE (1)										

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

TABLE D - 1.4
ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE C

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS		
			WIDTH OF TRENCH (FEET)						MAX.HORIZ SPACING (ON CENTER)		
	VERTICAL SPACING (FEET)	* SECTION MODULUS (IN³)	UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO 15		SOLID SHEET	2 FT.	3 FT.
			HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER			
OVER 5 UP TO 10	4	3.5	6.0	2 IN	6.0	2 IN NOTE(2)	6.0	3 IN	3x12	—	—
		7.0	6.5	2 IN	6.5	2 IN NOTE(2)	6.5	3 IN			
		14.0	10.0	3 IN	10.0	3 IN	10.0	3 IN			
OVER 10 UP TO 15	4	3.5	4.0	2 IN	4.0	2 IN NOTE(2)	4.0	3 IN	3x12	—	—
		7.0	5.5	3 IN	5.5	3 IN	5.5	3 IN			
		14.0	8.0	3 IN	8.0	3 IN	8.0	3 IN			
OVER 15 UP TO 20	4	3.5	3.5	2 IN	3.5	2 IN NOTE(2)	3.5	3 IN	3x12	—	—
		7.0	5.0	3 IN	5.0	3 IN	5.0	3 IN			
		14.0	6.0	3 IN	6.0	3 IN	6.0	3 IN			
OVER 20	NOTE (1)										

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

APPENDIX E TO SUBPART P—ALTERNATIVES TO TIMBER SHORING

Figure 1. Aluminum Hydraulic Shoring

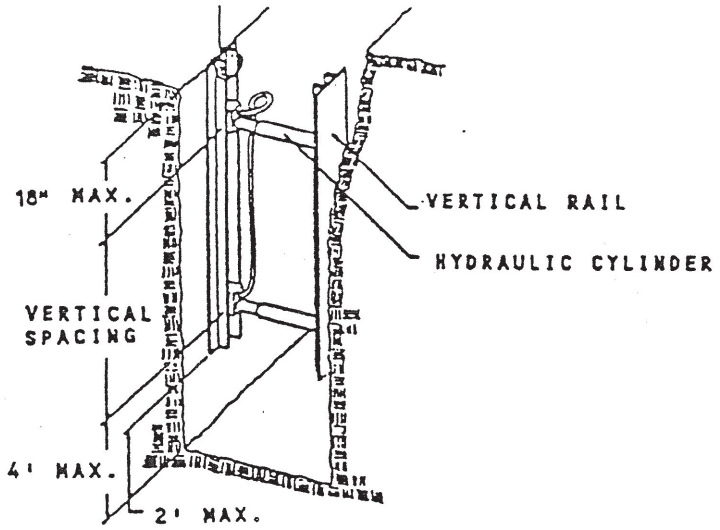


Figure 2. Pneumatic/hydraulic Shoring

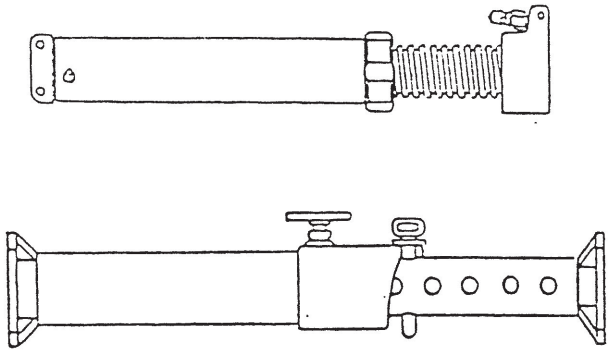


Figure 3. Trench Jacks (Screw Jacks)

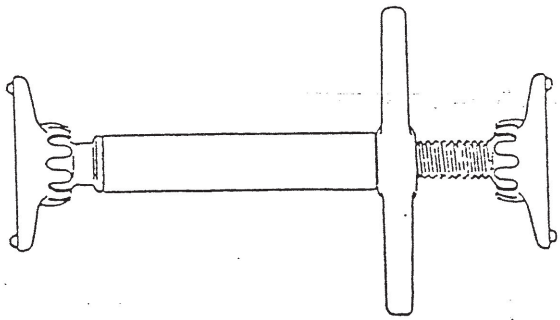
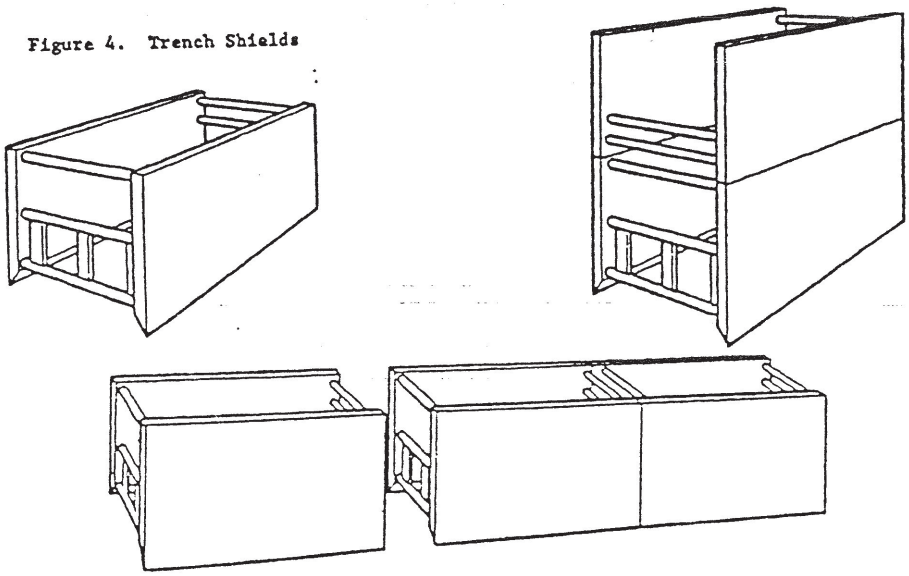


Figure 4. Trench Shields



APPENDIX F TO SUBPART P—SELECTION OF PROTECTIVE SYSTEMS

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with § 1926.652 (b) and (c).

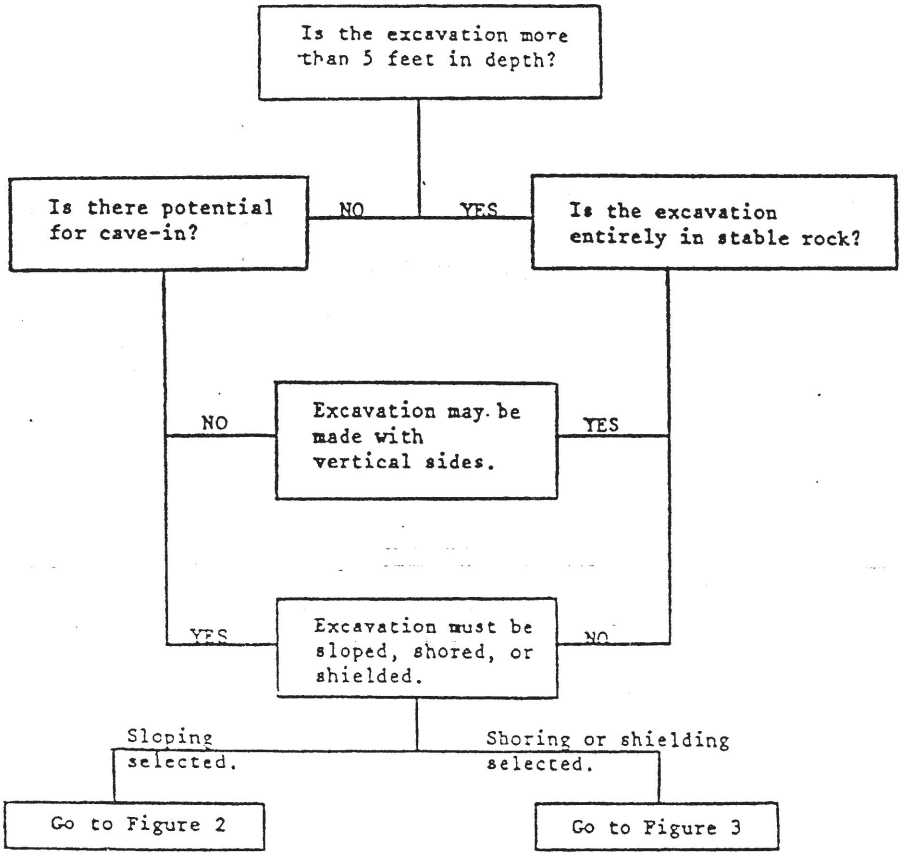


FIGURE 1 - PRELIMINARY DECISIONS

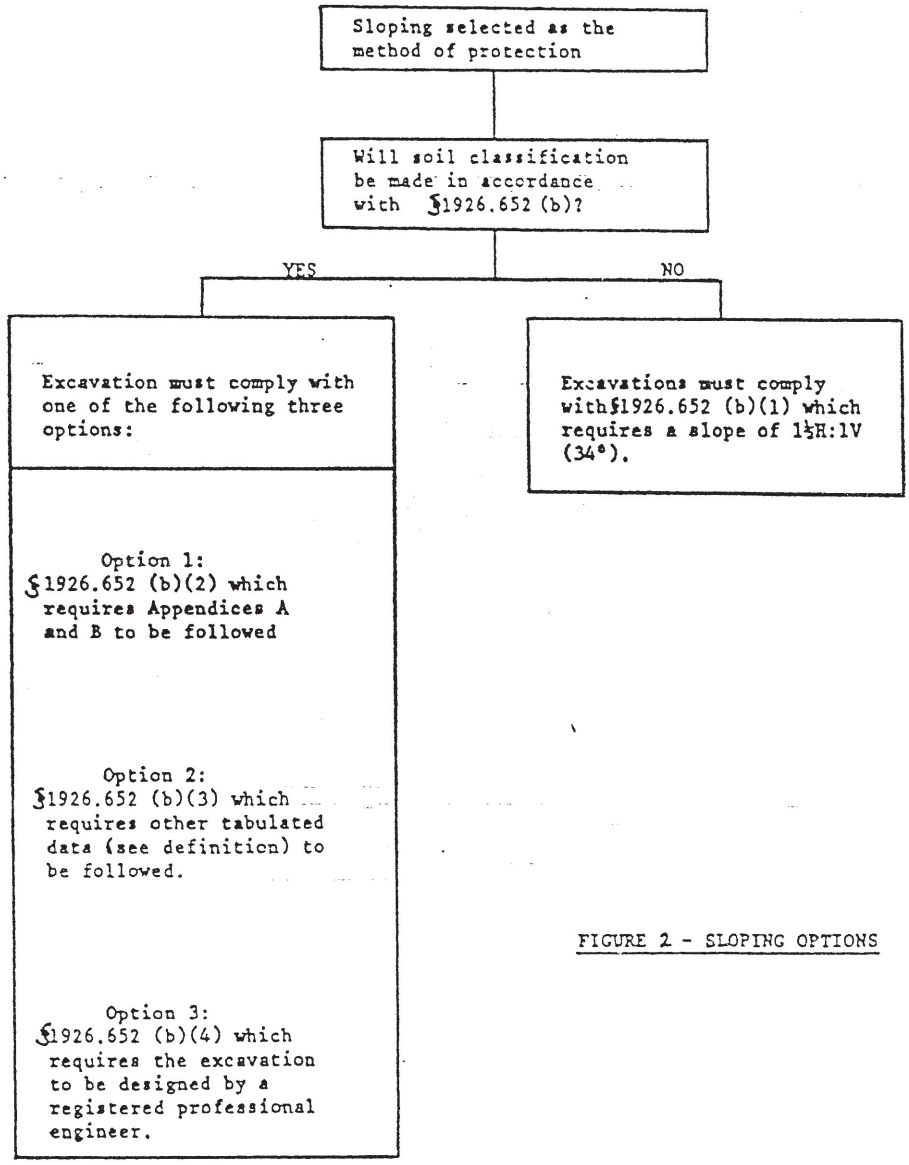


FIGURE 2 - SLOPING OPTIONS

Shoring or shielding selected as the method of protection.

Soil classification is required when shoring or shielding is used. The excavation must comply with one of the following four options:

Option 1
§1926.652 (c)(1) which requires Appendices A and C to be followed (e.g. timber shoring).

Option 2
§1926.652 (c)(2) which requires manufacturers data to be followed (e.g. hydraulic shoring, trench jacks, air shores, shields).

Option 3
§1926.652 (c)(3) which requires tabulated data (see definition) to be followed (e.g. any system as per the tabulated data).

Option 4
§1926.652 (c)(4) which requires the excavation to be designed by a registered professional engineer (e.g. any designed system).

FIGURE 3 - SHORING AND SHIELDING OPTIONS

SECTION 01020 – FIELD ENGINEERING

1.1 SCOPE OF WORK

Provide such field engineering services as required for proper completion of the Work including, but not necessarily limited to:

A. Structural design of shores, forms, braces and similar items provided by the Contractor as part of his means and methods of construction.

B. Using adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary skills and who are completely familiar with the specified requirements and methods for completion of the Work.

1.2 CONSTRUCTION STAKING

The Contractor shall provide competent, suitably qualified personnel to layout the Work and perform construction as specified.

1.3 SURVEY MONUMENTS AND REFERENCE POINTS

If required by the Work and the Engineer, Contractor is to:

1. Locate all survey control monuments, points and reference points before starting work on the site.

2. Preserve and protect all permanent reference points and survey monuments during progress of the construction.

3. Do not change or relocate points without specific approval by the Engineer.

1.4 SUPPLIER'S/MANUFACTURER'S SPECIAL SERVICES - Not Used

END OF SECTION

SECTION 01021 - TPDES REQUIREMENTS

PART 1—GENERAL

The Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit No. TXR 150000, was issued March 5, 2013 (Construction General Permit). The Construction General Permit allows operators to obtain permit coverage for stormwater conveyance from Small and Large Construction Activities. The TPDES program implements the federal National Pollutant Discharge Elimination System (NPDES) program in the state of Texas, which requires that operators of Small or Large Construction Activities obtain permit coverage prior to the commencement of construction activities.

The Engineer will estimate (if required by a specific Work Order), the acres that the Work will disturb and will provide a Storm Water Pollution Prevention Plan (SWP3) for implementation by the Contractor. The Contractor may need to provide and implement an additional SWP3 as required for his construction support activities and proposed construction means and methods at no additional cost to the owner.

1.01 SECTION INCLUDES

A. Documentation to be prepared and signed by Contractor before conducting construction operations, in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit Number TXR 150000, issued on March 5, 2013 (Construction General Permit).

B. Implementation, maintenance inspection, and termination of stormwater pollution prevention control measures including, but not limited to, erosion and sediment controls, stormwater management plans, waste collection and disposal, and other applicable practices shown on the drawings or specified elsewhere in the Contract.

1.02 DEFINITIONS

A. Commencement of Construction Activities: The exposure of soil resulting from activities such as clearing, grading, and excavating.

B. Large Construction Activity is defined as a project that:

1. disturbs five acres or more, or

2. disturbs less than five acres but is part of a large common plan of development that will disturb five acres or more of land.

C. Small Construction Activity is a project that:

1. disturbs one or more acres but less than five acres, or
2. disturbs less than one acre but is part of a larger common plan of development that will ultimately disturb one or more acres but less than five acres.

D. Operator is a person or persons who have day-to-day operation control of the construction activities, which are necessary to ensure compliance with the SWP3 for the site.

PART 2—PRODUCTS – Not Used

PART 3—EXECUTION

3.05 STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A. The Contractor shall have an SWP3 prepared in accordance with Part III of the Construction General Permit for Small or Large Construction Activities. A professional engineer licensed in the state of Texas shall prepare the SWP3, in accordance with City of El Paso ordinance.

B. Support Activities within 1-mile distance of project boundary of the permitted construction site, which directly supports the project, should be included in the Storm Water Pollution Prevention Plan prepared for the Contractor. These activities include but are not limited to:

(a) Equipment Staging Areas

(b) Material Storage Yards

(c) Material Borrow Areas

(d) Excavated Material Disposal Areas

(e) Concrete Batch Plants

(f) Asphalt Batch Plants

Refer to Part II, Section A of the Construction General Permit for a description of Discharges Eligible for Authorization under the Construction General Permit.

C. The SWP3 will be updated as needed during construction following Part III, Section E of the Construction General Permit.

D. The SWP3 shall be submitted to the engineer 15 days after award of the contract. Any comments provided shall be addressed prior to commencing construction activities.

E. The SWP3 shall be submitted to the City of El Paso Development Department for Review and Approval seven (7) days prior to commencement of construction activities. Refer to Part 3.01, Section E and Part 3.02, Section B for additional submittal requirements for Large and Small Construction Activities, respectively.

F. The SWP3 shall be implemented prior to commencement of construction activities and maintained through the duration of construction.

3.01 LARGE CONSTRUCTION ACTIVITY

A. NOTICE OF INTENT (NOI)

1. The Contractor shall fill out, sign, and date the TCEQ Form 20022 (03/05/13) Notice of Intent for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR 150000), included at the end of this Section.

2. The Contractor shall submit a copy of the Notice of Intent (NOI) form, along with a signed check for $100.00, made out to the Texas Commission on Environmental Quality, and completed payment submittal form to the TCEQ. A copy of the package will be submitted to the engineer.

3. The engineer will complete a separate Notice of Intent (NOI) Form for the El Paso Water Utilities for submittal to the TCEQ.

4. Submission of the NOI form by both the El Paso Water Utilities and Contractor to TCEQ is required a minimum of two days before Commencement of Construction Activities.

5. The Contractor shall submit to the City of El Paso Development Department copies of the NOI.

6. Post a signed copy of the NOI near the main entrance of a construction site in a prominent place for viewing by the general public and local, state, and federal authorities prior to commencing construction activities, and maintain it in that location until completion of the construction. Post name and telephone number of Contractor's local contact person, brief project description and location of SWP3.

   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.

B. NOTICE OF CHANGE (NOC) LETTER

If the operator becomes aware that he failed to submit any relevant facts or submitted incorrect information in the NOI, the correct information must be provided to the executive director in a NOC letter within 14 days after discovery. If relevant information provided in the NOI changes, a NOC letter must be submitted within 14 days of the change. A copy of the NOC must be provided to the engineer and City of El Paso Municipal Services Department.

C. ANNUAL WATER QUALITY FEES

Large Construction activities authorized under the construction general permit must pay an annual Water Quality Fee of $100 per Part VII, Section B of the Construction General Permit.

D. NOTICE OF TERMINATION (NOT)

1. Submit a Notice of Termination (NOT) to the TCEQ and the engineer ten (10) days after:

   (a) Final stabilization has been achieved on all portions of the site that are the responsibility of the Contractor; or

   (b) Another operator has assumed control over all areas of the site that have not been stabilized.

   (c) All silt 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.

2. Submittal of the NOT to the engineer is required for final acceptance of the project.

3. The engineer will complete the El Paso Water Utilities NOT for submittal to TCEQ.

4. The Contractor shall submit a signed copy of the NOT to the City of El Paso Development Department.

E. STORM WATER POLLUTION PREVENTION PLAN APPLICATION

1. Fill out and sign the City of El Paso Development Department Storm Water Pollution Prevention Plan Application.

2. Provide the engineer with a copy of the signed application 10 days prior to commencing construction activities.

3. Submit the original signed application along with a $100 fee and two copies of the SWP3 to City of El Paso Development Department for review and approval seven (7) days prior to commencing construction activities.

3.02 SMALL CONSTRUCTION ACTIVITY

A. CONSTRUCTION SITE NOTICE

1. Fill out, sign, and date the Construction Site Notice, included at the end of this Section. Submit the signed copy of the Construction Site Notice to the Engineer at least two days before commencement of construction activities.

2. Post a signed copy of the Construction Site Notice near the main entrance of a construction site in a prominent place for viewing by the general public and local, state, and federal authorities prior to commencing construction activities, and maintain it in that location until completion of the construction. Post name and telephone number of Contractor's local contact person, brief project description and location of SWP3.

   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. The Contractor shall submit a signed copy of the Construction Site Notice to the City of El Paso Development Department or governing agency.

B. STORM WATER POLLUTION PREVENTION PLAN APPLICATION

1. Fill out and sign the City of El Paso Storm Water Pollution Prevention Plan Application.

2. Provide the Engineer with a copy of the signed application 10 days prior to commencing construction activities.

3. Submit the original signed application along with a $100 fee and two copies of the SWP3 to City Development Department for review and approval seven (7) days prior to commencing construction activities.

3.03 CERTIFICATION REQUIREMENTS

A. Fill out Pollution Prevention Plan Certification Form to include the Operator's signature, name, title and organization.

B. Contractor and Subcontractors shall sign and date Contractor's / Subcontractor's Certification for TPDES Permitting included at the end of this Section 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. Include this certification with other Project certification forms.

C. Submit properly completed certification forms to the engineer for review before commencing construction.

D. Conduct inspections in accordance with TCEQ requirements. Ensure persons or firms responsible for maintenance and inspection of erosion and sediment control measure read, fill out, sign, and date the Erosion Control Contractor's Certification for Inspection and Maintenance. Use EPA's NPDES Construction Inspection Form included at the end of this Section. Controls must be inspected once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches or greater, in accordance with Part III, Section F, of the Construction General Permit.

3.04 RETENTION OF RECORDS

Keep a copy of this document and the SWP3 in a readily accessible location at the construction site from Commencement of Construction Activity, and maintain it in that location until completion of the construction. 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.

3.05 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.

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 the 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 stormwater, and spill prevention and response measures consistent with best management practices. Keep a copy of the description with the SWP3.

POLLUTION PREVENTION PLAN CERTIFICATION

This certifies that this Construction Stormwater Pollution Prevention Plan is up-to-date and that the update meets the specified requirements under the *Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit Number TXR 150000, issued on March 5, 2003,* and that the information provided herein is true, correct and complete. This also certifies that the person whose signature appears below has the authority to commit the resources necessary to implement this plan.

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 gathered and evaluated 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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____ Date: _____

Name: _____

Title: _____

Company: _____

Organization: _____

END OF SECTION

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

A. Measurement and payment shall be as specified in this Section. Work to be performed under this Contract will be paid for on the basis specified under the appropriate Bid Items on the Bid Form.

B. General Scope of Work under each Bid Item includes labor, materials, equipment and all incidental costs required for the construction of a completely functional and operational facility as detailed on the Drawings (when provided) and in these Specifications.

C. Measurement methods delineated in Specification sections are intended to complement the criteria of this section. In the event of conflict, the requirements of the specific specification section shall govern.

D. Quantity and measurement estimates stated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment as stated in the General Conditions.

1.2 UNIT QUANTITIES SPECIFIED

A. If the actual Work requires greater or lesser quantities than those quantities indicated in the Bid Form, the Contractor shall provide the required quantities at the unit prices contracted, except as otherwise stated in the General Conditions, the contract drawings, or other sections within the specifications.

B. Payment for Work governed by unit prices will be made based on actual measurements and quantities accepted by Engineer multiplied by unit price for Work incorporated in or made necessary by Work.

C. All bid items unit prices shall be for work complete in place shall include the cost of all labor, equipment and materials to produce the finished product. The Contractor shall be paid for the Work after completion and the submission of an invoice in the format requested on the Contract documents. The contractor should include a coversheet with a detailed breakdown of costs by line item.

D. Sites must be final completed before submitting invoice, no partial work will be invoiced. Prior to submitting invoices for any bid items priced by area or length units, Contractor shall measure the size of the repaired area and document the measurements and area computations. EPWater's staff will measure the area and document their measurements and area computation using a EPWater form, then share the form to the Contractor either by email or picture when the site is complete. If the Contractor agrees with EPWater's measurements and area computation, Contrator shall sign the form and submit it with the invoice. If the Contractor disagrees with EPWater's measurements and/or area computation, he shall notify EPWater of this fact and thereafter representatives from both entities shall meet at the Work Order site to agree on the dimensions. The EPWater representative shall enter the final agreed dimensions and area computations on the bottom section of the form, then both representatives shall sign the form to indicate their agreement.

E. The calculation for the area shall be made to the nearest 1/10 of a square yard and for length shall be to the nearest 1/10 of a foot. Payment for line item paid for by the ton shall be measured to the nearest 1/10 ton. When the area to be repaired includes a valve box, manhole cover, meter box, or other appurtenance, the area of the appurtenance will be deducted from the total area. The Contractor will be paid on the net area paved.

F. METHODS OF MEASUREMENT OF QUANTITIES

Measurement by Volume

Measurement by Area: Measured as a square dimension using either mean length and width or radius of a circle (or portion of a circle).

Linear Measurement: Measured by linear dimension, at the item centerline or mean chord. Stipulated Price Measurement: Measured by unit designated in the agreement.

Other: Includes items measured by volume, area, or lineal means or combinations, as appropriate, as a completed item or unit of the Work.

1.3 ITEMS DESCRIPTION

This is a description of the work included and the method of measurement and payment to be applied for the work in each proposal item. Measurement will be for work in place with no allowance for waste.

The contractor is responsible for handling, installing, maintaining, securing, recovering, and cleaning up El Paso Water-owned steel plates at locations specified in issued Work Orders. Upon completing repairs, the contractor must move the steel plates to a safe location near the repair site for recovery and notify El Paso Water staff for plate pick-up within 24 hours of completing the Work Order. These requirements apply to all assigned work and Work Orders. A Final completed work order shall mean that the Work Order scope has been 100% completed to the extent that the repaired area is safe, functional, open to traffic as applicable, including striping, concrete aprons, and landscaping, and is acceptable to Owner.

Bid Items 1-4: Trench Patch with Cement Stabilized Backfill Base (2-sack)

Measurement and payment shall be made at the stated unit price per square yard for furnishing and installing trench patch with a 12-inch cement-stabilized backfill base (2 sack) below the asphalt line, where asphalt meets the base. This includes all necessary excavation, such as bridging the original trench, as well as equipment, labor, mobilization and demobilization, preparation, and achieving a minimum of 95% subgrade compaction. Testing and compaction approval must be completed and approved by the Owner. The work also includes compacted backfill, disposal, all required traffic control devices as specified by the City of El Paso, TxDOT, and County, cleanup, and any incidental items necessary for proper removal, disposal, and placement in accordance with City of El Paso, County, and TxDOT Design Standards. Work must be completed in place.

Bid Items 5: Removal of Asphalt Paving

Measurement and payment shall be made at the specified unit price per square yard for asphalt paving removal. The scope includes saw-cutting existing pavement to the field-marked boundary lines, up to a maximum depth of 6 inches. Removal of a portion of the stabilized base may be required to achieve the specified depth. The price includes all equipment, labor, mobilization and demobilization, disposal, fees, required traffic control devices per City of El Paso, TxDOT, and County regulations, cleanup, and any incidental items necessary for proper removal, disposal, and placement in accordance with City of El Paso, County, and TxDOT Design Standards. Work must be completed in place. Use of a milling machine may be requested by the owner and will be charged as Line Item #5. The owner will specify the milling depth.

Bid Items 6: 2-inch H.M.A.C. Overlay

Measurement and payment shall be made at the stated unit price per square yard for furnishing and installing 2-inch H.M.A.C. overlay. Excavation is not included. Prime and install the 2-inch H.M.A.C. overlay as specified. Bid Items 6-8 may be used together to achieve the required overlay height, with Bid Item 6 required for each 2-inch asphalt layer. The unit price covers surface preparation (including proof rolling), materials (including prime coat), and placement of both standard and non-standard asphalt mix designs in accordance with City of El Paso, County, and TxDOT requirements. This includes all necessary equipment, labor, mobilization, demobilization, disposal, fees, traffic control devices, cleanup, and incidental items required for proper removal, disposal, and placement. Work must be completed in accordance with City of El Paso, County, and TxDOT standards, or as directed by El Paso Water personnel. In the City right-of-way, repairs perpendicular to the street that exceed 8 feet in width and extend from gutter to gutter or from gutter to the center of the street require a paving machine. Longitudinal repairs over 8 feet wide and longer than 15 feet also require a paving machine.

Bid Item 7: 1-inch H.M.A.C. Overlay.

Measurement and payment shall be made at the stated unit price per square yard for furnishing and installing 1-inch H.M.A.C. overlay. Excavation is not included. Prime and install the 1-inch H.M.A.C. overlay as specified. Bid Items 6-8 may be used together to achieve the required overlay height, with Bid Item 6 required for each 1-inch asphalt layer. The unit price covers surface preparation (including proof rolling), materials (including prime coat), and placement of both standard and non-standard asphalt mix designs in accordance with City of El Paso, County, and TxDOT requirements. This includes all necessary equipment, labor, mobilization, demobilization, disposal, fees, traffic control devices, cleanup, and incidental items required for proper removal, disposal, and placement. Work must be completed in accordance with City of El Paso, County, and TxDOT standards, or as directed by El Paso Water personnel. In the City of El Paso right-of-way, repairs perpendicular to the street that exceed 8 feet in width and extend from gutter to gutter or from gutter to the center of the street require a paving machine. Longitudinal repairs over 8 feet wide and longer than 15 feet also require a paving machine.

Bid Item 8: 1/2-inch H.M.A.C. Overlay

Measurement and payment shall be made at the stated unit price per square yard for furnishing and installing 1/2-inch H.M.A.C. overlay. Excavation is not included. Prime and install the 1/2-inch H.M.A.C. overlay as specified. Bid Items 6-8 may be used together to achieve the required overlay height, with Bid Item 6 required for each 1/2-inch asphalt layer. The unit price covers surface preparation (including proof rolling), materials (including prime coat), and placement of both standard and non-standard asphalt mix designs in accordance with City of El Paso, County, and TxDOT requirements. This includes all necessary equipment, labor, mobilization, demobilization, disposal, fees, traffic control devices, cleanup, and incidental items required for proper removal, disposal, and placement. Work must be completed in accordance with City of El Paso, County, and TxDOT standards, or as directed by El Paso Water personnel. In the City of El Paso right-of-way, repairs perpendicular to the street that exceed 8 feet in width and extend from gutter to gutter or from gutter to the center of the street require a paving machine. Longitudinal repairs over 8 feet wide and longer than 15 feet also require a paving machine.

Bid Items 9: Adjust Water Valve Bonnet Box to Final Grade & Install Reinforced Concrete Apron

Measurement and payment shall be made at the stated unit price for each adjustment of existing water valve and monument bonnet boxes to final grade, and for furnishing and installing reinforced concrete aprons up to 36 inches in diameter around each bonnet box. Use this bid item when the bonnet box does not match the final grade of the surrounding surface, or when it has sunken and requires adjustment. This item may also be used to install a concrete apron when the bonnet box is already at final grade. The scope includes saw-cutting pavement to field-marked boundaries, excavation or fill to subgrade, and all necessary equipment, labor, preparation, and compaction to a minimum of 95%. Work also includes compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware if required, forming, mobilization and demobilization, disposal, placement, required traffic control devices, cleanup, permits, fees, and any incidental items necessary for proper installation in accordance with El Paso Water, City of El Paso, County, and TxDOT Design Standards. Work must be completed in place.

Bid Items 10: Adjust Manhole to Final Grade & Install Reinforced Concrete Apron

Measurement and payment shall be made at the stated unit price for each adjustment of an existing manhole to final grade and for furnishing and installing reinforced concrete aprons, up to 18 inches thick, from the edge of the manhole ring to the outer edge of the concrete. Use this bid item when the manhole does not match the final grade of asphalt, concrete pavement, or unpaved surfaces, or when a sunken manhole must be raised to final grade. This item may also be used to install a concrete apron when the manhole already matches the final grade. If the manhole must be raised, use concrete adjustment rings in accordance with El Paso Water Standards. The scope includes saw-cutting existing pavement to the field-marked boundary lines, excavation or fill to the subgrade, and all necessary equipment, labor, preparation, and subgrade compaction to a minimum of 95%. Work also includes compacted backfill, site restoration, H.M.A.C. patching, forming, mobilization and demobilization, disposal, required traffic control devices per City of El Paso, TxDOT, and County requirements, cleanup, permits, fees, and any incidental items necessary for proper installation in accordance with El Paso Water, City of El Paso, County, and TxDOT Design Standards. Work shall be completed in place.

Bid Item 11: Sub-Grade Preparation

Measurement and payment shall be made at the stated unit price per square yard for removing, preparing, and compacting the subgrade to a minimum of 95% compaction. For these specifications, subgrade refers to the top 12 inches of embankment directly below the 12-inch roadway base, starting below the asphalt line. This work includes removing the existing 12 inches of subgrade, preparing and compacting the lower subgrade to at least 95% compaction, as tested and approved by the Owner. Backfilling and re-compacting will be performed in two 6-inch layers using approved processed backfill material, with grading ending at the start of the base, 12 inches below the asphalt line. The scope includes all equipment, approved backfill material, labor, required traffic control devices per City of El Paso, TxDOT, and County regulations, mobilization and demobilization, cleanup, testing, permits, fees, and any incidental items necessary for proper preparation. Work must be completed in place.

Bid Item 12: Reflectorized Pavement Markings Hot Applied Thermoplastic (Type I)

Measurement and payment shall be made at the stated unit price per linear foot for furnishing and installing Reflectorized Pavement Marking (Type I). This includes all equipment, labor, materials, manufacturing, coating testing, required traffic control devices, mobilization, demobilization, cleanup, permits, glass beads, fees, and any incidental items necessary for proper installation. Work must be completed in place. Measurements will be taken along the longest edge of the striping.

Bid Item 13: Reflectorized Pavement Markings Traffic Paint (Type II)

Measurement and payment shall be made at the specified unit price per linear foot for furnishing and installing Reflectorized Pavement Marking (Type II). This includes all equipment, labor, materials, manufacturing, coating testing, required traffic control devices, mobilization, demobilization, cleanup, permits, glass beads, fees, and any incidental items necessary for proper installation. Work must be completed in place. Measurements will be taken along the longest edge of the striping.

Bid Item 14: Cement Stabilized backfill (2-Sack)

Measurement and payment shall be made at the specified unit price per cubic yard for furnishing and installing cement-stabilized backfill (2-Sack), excluding excavation. This price includes all equipment, labor, mobilization and demobilization, disposal, required traffic control devices per City of El Paso, TxDOT, and County standards, cleanup, and any incidental items necessary for proper removal, disposal, and placement in accordance with City of El Paso, County, and TxDOT Design Standards. Work must be completed in place.

Bid Item 15: Cement Stabilized backfill (4-Sack)

Measurement and payment shall be made at the specified unit price per cubic yard for furnishing and installing cement-stabilized backfill (4-Sack), excluding excavation. This price includes all equipment, labor, mobilization and demobilization, disposal, required traffic control devices per City of El Paso, TxDOT, and County standards, cleanup, and any incidental items necessary for proper removal, disposal, and placement in accordance with City of El Paso, County, and TxDOT Design Standards. Work must be completed in place.

Bid Item 16: 9-inch Reinforced Concrete Pavement

Measurement and payment shall be made at the specified unit price per square yard for removing, disposing, replacing, and installing up to 9-inch reinforced concrete pavement in accordance with City of El Paso, County, and TxDOT specifications. The scope includes saw-cutting existing pavement to field-marked boundaries, excavation or fill to sub-grade, and preparing and compacting the sub-grade to at least 95%. All equipment, labor, rebar, hardware, mobilization, demobilization, required traffic control devices, cleanup, permits, fees, and incidental items necessary for proper installation in accordance with City of El Paso, County, and TxDOT specifications are included. The contractor must confirm that the sub-grade and base are properly prepared before installing the concrete pavement. This also includes removing and disposing of existing reinforced concrete road pavement.

Bid Item 17: 12-inch Reinforced Concrete Pavement

Measurement and payment shall be made at the stated unit price per square yard for the removal, disposal, replacement, and installation of 9.01 to 12-inch reinforced concrete pavement in accordance with City of El Paso, County, and TxDOT specifications. The scope includes saw-cutting existing pavement to the field-marked boundary lines, excavation or fill to the subgrade, and preparing and compacting the subgrade to a minimum of 95%. All necessary equipment, labor, rebar, hardware, mobilization and demobilization, required traffic control devices, cleanup, permits, fees, and incidental items needed for proper installation in accordance with City of El Paso, County, and TxDOT specifications are included. Work must be completed in place. The contractor is responsible for verifying that the subgrade and base are properly prepared before installing the concrete pavement. This also includes the removal and disposal of existing reinforced concrete road pavement.

Bid Item 18: 1-inch Reinforced Concrete Pavement

Measurement and payment shall be made at the stated unit price per square yard for the removal, disposal, replacement, and installation of 1-inch reinforced concrete pavement in accordance with City of El Paso, County, and TxDOT specifications. The scope includes saw-cutting existing pavement to the boundary lines marked in the field, as well as excavation or fill to the sub-grade. All necessary equipment, labor, mobilization, demobilization, traffic control devices required by the City of El Paso, TxDOT, and County, cleanup, permits, fees, and incidental items needed for proper installation in accordance with City of El Paso, County, and TxDOT specifications are included. Work must be completed in place. The contractor must verify that the sub-grade and base are prepared before installing the concrete pavement. Bid Item 18 may only be used with Bid Item 17 to achieve a height above 12 inches. This item also includes the removal and disposal of existing reinforced concrete road pavement.

Bid Items 19: Remove, Dispose and Replace 4-inch Sidewalk / Parkway

Measurement and payment shall be made at the specified unit price per square yard for the removal, disposal, replacement, and installation of 4-inch concrete sidewalk/parkway. This includes stamped and/or colored concrete at 4-inch depth. Stamp patterns and colors must match adjacent existing concrete or as directed by the Owner. The scope includes saw-cutting existing pavement to the marked boundary lines, excavation or fill to subgrade, and all necessary equipment, labor, preparation, and 95% subgrade compaction. Work also includes compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware if required, forming, concrete mobilization and demobilization, disposal, traffic control devices as required by the City of El Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards. All work must be completed in place, including the removal and disposal of existing concrete.

Bid Items 20: Remove, Dispose and Replace 6-inch Sidewalk / Parkway

Measurement and payment shall be made at the stated unit price per square yard for the removal, disposal, replacement, and installation of 6-inch concrete sidewalk/parkway. This includes stamped and/or colored concrete at 6-inch depth. Stamp patterns and colors must match adjacent existing concrete or as directed by the Owner. The scope includes saw-cutting existing pavement to the marked boundary lines, excavation or fill to subgrade, and all necessary equipment, labor, preparation, and 95% compaction of subgrade. Work also includes compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware if required, forming, concrete mobilization and demobilization, disposal, traffic control devices as required by City of El Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards. Work must be completed in place and includes the removal and disposal of existing concrete.

Bid Item 21: Remove, Dispose and Replace Standard Curb and Gutter / Standard Curb / Pinned Curb / Header Curb / Rolled Curb

Measurement and payment shall be made at the specified unit price per linear foot for removing, disposing of, and replacing Standard Curb and Gutter, Standard Curb, Pinned Curb, Header Curb, and Rolled Curb. The scope includes saw-cutting pavement to field-marked boundaries, excavation or fill to subgrade, reinforcement, equipment, labor, subgrade preparation and compaction to 95%, compacted backfill, site restoration, H.M.A.C. patching, forming, concrete mobilization and demobilization, disposal, required traffic control devices per City of El Paso, TxDOT, and County

standards, cleanup, permits, fees, and all incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards. Completed work includes Standard Curb and Gutter, Standard Curb, and Pinned Curb up to 12 inches above final grade, and Rolled Curb up to 6 inches. Requirements below final grade also apply. Removal and disposal of existing concrete are included.

Bid Item 22: Remove, Dispose and Replace Residential Driveways

Measurement and payment shall be made at the stated unit price per square yard for the removal, disposal, and replacement of residential driveways. The scope includes saw-cutting existing pavement to the field-marked boundary lines, excavation or fill to subgrade, and preparation with a minimum of 95% subgrade compaction. All necessary equipment, labor, compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware (if required), forming, mobilization and demobilization, disposal, traffic control devices as required by City of Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards are included. This line item applies to the entire driveway and all monolithic parts up to the expansion joint material and edge of pavement, including gutter, driveway splay, driveway wings, and driveway approach. Work includes the complete removal and disposal of existing concrete.

Bid Item 23: Remove, Dispose and Replace Commercial Driveways

Measurement and payment shall be made at the stated unit price per square yard for the removal, disposal, and replacement of residential driveways. The scope includes saw-cutting existing pavement to the field-marked boundary lines, excavation or fill to subgrade, and preparation with a minimum of 95% subgrade compaction. All necessary equipment, labor, compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware (if required), forming, mobilization and demobilization, disposal, traffic control devices as required by City of El Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards are included. This line item applies to the entire driveway and all monolithic components up to the expansion joint material and edge of pavement, including gutter, driveway splay, driveway wings, and driveway approach. Work must be completed in place and includes the removal and disposal of existing concrete.

Bid Item 24: Remove, Dispose and Replace Wheelchair Ramp/Curb

Measurement and payment shall be made at the stated unit price for each wheelchair ramp and curb removed, disposed of, and replaced in compliance with current TDLR and ADA requirements. The scope includes saw-cutting existing pavement to the field-marked boundary lines, excavation or fill to sub-grade, and all necessary equipment, labor, subgrade preparation and compaction, compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware (if required), forming, concrete mobilization and demobilization, disposal, traffic control devices as required by the City of El Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with City of El Paso, County, and TxDOT Design Standards. This line item covers all monolithic parts of the ramp and includes the removal and disposal of the concrete ADA ramp. Work must be completed in place.

Bid Item 25: Remove, Dispose and Replace Meter Boxes (Type A & B)

Measurement and payment shall be made at the stated unit price for each meter box removed, disposed of, and replaced. This bid item covers the replacement of Owners' Type A and B meter boxes. The scope includes saw-cutting pavement to the marked boundary lines, excavation or fill to sub-grade, and all necessary equipment, labor, subgrade preparation and compaction, compacted backfill, site restoration, H.M.A.C. patching, reinforcement and hardware if required, water service adjustment if required, forming, concrete mobilization and demobilization, disposal, traffic control devices as required by the City of El Paso, TxDOT, and County, cleanup, permits, fees, and any incidental items necessary for proper removal, disposal, and installation in accordance with El Paso Water, City of El Paso, County, and TxDOT Design Standards. The contractor will provide the meter box. Work must be completed in place.

Bid Item 26: 6-feet X 10-feet X 1-inch Steel Plate (Initial 7 Day Rental)
Measurement and payment shall be made at the stated unit price for each 6-feet by 10-feet by 1-inch steel plate furnished and installed. This price includes all equipment, labor, delivery and pickup, cleanup, permits, fees, and any incidental items required for installation. Plates must be installed complete and in place. The initial rental period is up to 7 days from the date of request. The contractor must leave the steel plates in place until the street patch is complete. The contractor is responsible for rental costs beyond the 7-day period unless delays are outside their control or the Owner requests additional rental days (Bid Item 27). Delivery is required within 2 hours of the request. Deliveries made after 2 hours are subject to late delivery fees as outlined in the Supplemental Conditions.

Steel Plate Measurement and Payment Requirements.

Payment for steel plate items shall be made only for steel plates authorized by EPWater through a valid Work Order, Dispatcher request, or Material Release Number. No payment shall be made for steel plates delivered, installed, rented, or picked up without authorization from EPWater.

Each steel plate must be tracked by Material Release Number, Work Order number if applicable, site location, delivery date and time, pickup or release date and time, and plate identification number if available. The rental period shall begin only when the steel plate has been delivered to the authorized site, installed in a safe condition, and delivery has been documented by delivery ticket, system entry, or other written confirmation acceptable to EPWater.

The rental period shall end at the earliest of:

1.) EPWater's issuance of a Work Order for permanent pavement restoration at the corresponding site;
2.) EPWater's release of the steel plate for pickup;
3.) placement of permanent pavement restoration;
4.) substitution of an Owner-furnished steel plate; or
5.) any other written direction from EPWater ending the rental period.

Rental days after EPWater's release, Work Order issuance for permanent pavement restoration, or request for pickup are non-payable unless expressly authorized in writing by EPWater. Contractor delays in pickup after release by EPWater are non-payable.

Contractor shall submit steel plate invoices with supporting documentation showing the Material Release Number, site location, delivery date and time, pickup or release date and time, number of plates, applicable bid item, and total rental days claimed. Unsupported steel plate rental days are not eligible for payment.

Bid Item 27: 6-feet X 10-feet X 1-inch Steel Plate (Rental per day after Initial 7 Day Rental)
Measurement and payment shall be made at the stated unit price for each 6-feet by 10-feet by 1-inch steel plate rental per day after the initial 7-day rental period. The cost should not include equipment, labor, delivery or pickup, cleanup, permits, fees, or incidental items required for installation, as these costs are already included in Bid Item 26.

Maximum Compensable Steel Plate Rental Period and Rental Cap.
Notwithstanding anything to the contrary in the Contract Documents, the total amount payable by Owner for rental of any single steel plate under Bid Items 26 and 27, for any one Material Release Number, Work Order, site, or location, shall not exceed the lesser of: the actual authorized rental amount supported by documentation acceptable to Owner; or Ten Thousand Dollars ($10,000.00) per steel plate. The maximum rental cap applies to all initial and daily rental charges for the same steel plate at the same site or location. Once the maximum rental cap is reached, no additional daily rental charges shall accrue or be payable for that steel plate unless expressly authorized in writing by Owner through a Change Order or other written instrument executed by Owner. Payment of the maximum rental cap shall not constitute an admission that all claimed rental days are valid, authorized, or payable. Owner reserves the right to reject unsupported rental days, duplicate rental days, rental days not included on required active-rental reports, rental days after release or pickup request, and rental days not supported by a valid Material Release Number. At Owner's option, payment of the maximum rental cap may be treated as full compensation for continued use, loss, non-return, or replacement of the steel plate. Upon such payment, Contractor shall have no further claim for rental, replacement, ownership, loss-of-use, administrative cost, overhead, profit, or incidental charges associated with that steel plate.

Bid Item 28: Steel Plate (Extra Charge: Delivery Charge - After Hours Only)

Measurement and payment shall be made at the stated unit price for Steel Plates Delivered After Hours Only. This charge applies to all steel plates delivered together, not per individual plate. Costs for equipment, labor, standard delivery or pickup, cleanup, permits, fees, and other incidental items required for installation are already included in Bid Item 26 and should not be included here.

Bid Item 29: Cancelled Steel Plates Work Orders in Transit

Measurement and payment shall be made at the stated unit price for each Cancelled Steel Plates Work Order in Transit, provided the cancellation occurs at least 30 minutes after the request. This item applies only when steel plates are in transit to a work site and are cancelled by the Owner. It does not apply to contractor weather days or to orders cancelled by the Owner while still in the contractor's pending queue.

Bid Item 30: Asphalt Resurfacing Projects

Measurement and payment shall be made at the stated unit price per square yard for milling asphalt pavement to a depth of 2 inches, followed by furnishing and installing 2 inches of asphalt for resurfacing projects. The scope includes saw-cutting existing pavement to the field-marked boundary lines, milling existing asphalt, surface preparation (proof rolling and clean-up), materials (including prime coat), and placement of both standard and non-standard asphalt mix designs in accordance with City of El Paso, County, and TxDOT standards and requirements. This price also covers all necessary materials, equipment, demolition, removal and disposal, labor, required traffic control devices, mobilization and demobilization, subgrade preparation and compaction, compacted backfill, site restoration, clean-up, permits, fees, and any incidental items required for proper milling, removal, and installation. This bid item will be used at the Owner's request. **700+ SQ. YD's.**

Bid Item 31: Owner's Allowance

The Owner's Allowance applies to additional work authorized and approved by the owner. The owner will review and approve all proposed items, specifications, and costs for this Bid Item. Payment will be made as a lump sum. All work, services, or materials must receive owner approval before being provided; otherwise, payment will not be issued.

END OF SECTION

SECTION 01060 – TRAFFIC CONTROL

1.1 SCOPE OF WORK

The Scope of Work shall include all labor, materials, equipment, and incidentals for the installation, maintenance, and removal of traffic control devices during construction operations. This item includes, but not limited to signs, sign posts (permanent or portable), barricades, cones, drums, warning lights or flashers, temporary striping, flags, flaggers, electronic message boards, coordinating traffic control requirements and preparing and submitting traffic control plans and permits with the governing agencies as required and any other incidental items as shown on the plans or as required by the Owner.

A. All traffic control devices, traffic control plan and procedures shall meet the minimum requirements as stated in the Manual on Uniform Traffic Control Devices latest edition.

B. The Contractor shall conduct his work so as to interfere as little as possible with traffic, and shall be subject to any regulations the Owner may require. The Contractor shall provide, when required or when traffic conditions dictate, a safe substitute vehicular and pedestrian route for any public right-of-way obstructed or occupied by his operations.

C. The Contractor shall erect and maintain all necessary barricades, warning signs, detour signs, route markers, flares or approved flashers with flares, according to the plans approved by the Owner. Contractor shall take all necessary precautions for the protection of the work and the safety of his employees and of the public. Excavated material shall be piled along the line of work in a manner to cause as little inconvenience as possible to public travel and access to abutting property.

D. The Contractor shall provide suitable means, by sprinkling or wetting, for the abatement of dust conditions in the construction area and on access and detour roads. Such dust abatement by sprinkling or other approved methods shall be done no less than two (2) times daily or as further directed by the Owner.

E. Whenever a street or thoroughfare is to be closed or partially closed, the Contractor shall notify the City of El Paso's Department of Transportation, County or TXDOT of such closing and the length of time the street will be closed to traffic. This notice shall be given forty-eight (48) hours prior to the closing and shall be coordinated with the Engineer.

F. Local access shall be maintained for all streets. The Contractor will be required to keep as much roadway open as possible to provide access for private property owners. The Contractor shall supply signing, markings, or flagmen as needed to permit local traffic onto the streets where construction is in progress.

G. During working hours, the Contractor may close portions of the street for short durations (2-4 hours) to facilitate construction, such as during asphalt patching operations.

H. At the end of each day, all streets, side streets and driveways shall be left in a fully passable condition. The Contractor shall close trenches and clean the job site before the end of each day, weekends or holidays. All sidewalks and public walkways shall be open. During non-working hours all streets shall be open to traffic.

I. The Contractor shall not remove or adjust any official City traffic control devices. The Contractor shall give the City of El Paso's Department of Transportation forty-eight (48) hours' notice of any official City traffic control devices that need to be moved. The City of El Paso's Municipal Services shall move all traffic control devices as soon as practical thereafter.

END OF SECTION

SECTION 01200 – PROJECT MEETINGS

PART 1 – GENERAL

1.1 SCOPE OF WORK

A. **Work Included**: To enable orderly reviews during the progress of the Work and to provide for the systematic discussion of problems, the Engineer will conduct project meetings throughout the duration of the Contract.

1.2 QUALITY ASSURANCE

Persons designated by the Contractor to attend and participate in the project meetings shall have all the required authority to commit the Contractor to solutions agreed upon in the project meetings.

PART 2 – PRODUCTS

2.1 MEETING SCHEDULE

Progress meetings will be held as required by Engineer. Coordinate with the Owner, the Engineer, and others as necessary to establish a mutually acceptable schedule for the meetings.

2.2 MEETING LOCATION

Coordinate with the Owner, the Engineer, and others as necessary to establish a mutually acceptable location for the meetings.

2.3 PROGRESS MEETINGS

A. **Attendance:** To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings. At a minimum the project superintendent is to attend. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the work are involved.

B. **Minimum Agenda**:

1. Review progress of the Work since the last meeting.

2. Identify problems which impede progress.

3. Develop corrective measures and procedures.

4. Complete other current business, and address any invoicing and payroll issues, if any.

END OF SECTION

SECTION 01400 – TESTING LABORATORY SERVICES

1.1 SCOPE OF WORK

The Owner will be responsible for providing testing services and the Contractor is responsible for providing access to personnel to collect, test, and inspect the work. All testing laboratory failures will be paid by the Contractor.

Where tests of materials or any portions of the Work are required by law/ordinance or public authority, the Owner shall bear all costs of such tests, shall give timely notice of readiness therefore and shall furnish to the Engineer the required certification of testing or approval.

Tests specified in the Technical Specifications shall fall into four categories: (1) those required for approval of materials prior to use, which serve the same purpose as shop drawings or samples; (2) those required by law; (3) those necessary for acceptance of Work, (4) those made during the progress of the Work to check compliance with the requirements of the Contract Documents. The Contractor shall bear all the costs of the tests in all four categories.

Tests conducted in the fourth category shall be carried out at the discretion of the Engineer. The cost for testing materials in this category shall be paid for by the Contractor. The Contractor shall furnish the materials for any samples and shall fully cooperate with the Engineer or Testing Laboratory in securing such samples. In addition, all failing tests under category (4) shall be paid for by the Contractor. Any re-work necessary by the Contractor to obtain passing tests shall be at the Contractor's cost and no time extension for delays will be considered by the Owner.

1.2 QUALITY ASSURANCE

A. Qualifications of Testing Laboratory: The testing laboratory will be qualified in accordance with ASTM E329. The testing laboratories qualifications shall be submitted to the Engineer for approval before testing begins.

B. Codes and Standards: Testing, when required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing on Materials.

1.3 COORDINATION

The testing representative shall process and distribute to the Engineer, the Owner, and to City Engineering or governing agency required copies of test reports and related instructions to ensure necessary retesting and replacement of materials with the least possible delay in progress of the work.

1.4 CODE COMPLIANCE TESTING

Inspections and tests required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract documents.

1.5 TAKING SPECIMENS

Specimens and samples for testing, unless otherwise provided in the contract documents, will be taken by the testing personnel. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

1.6 SCHEDULES FOR TESTING

A. **Establishing the Schedule**: By advance discussion with the testing laboratory, the Contractor will determine the time required for the laboratory to perform its tests, to issue each of its findings and the lead time required for the laboratory to collect specimens. The Owner will provide the required time to the Contractor, so that it can be incorporated in the construction schedule.

B. **Revising the Schedule**: When changes in the construction schedule are necessary during construction, coordinate such changes of schedule with the Engineer as required.

1.7 MINIMUM REQUIREMENTS FOR TESTS

The Contractor shall be required to meet the following minimum requirements for the tests:

A. Field Densities:

a.	Subgrade	2 densities per 200 LF
b.	Subbase	2 densities per 200 LF
c.	Base Course	2 densities per 200 LF

B. Concrete: 1 set (four specimens) per each 8 CY or less

C. Sieve Analysis: Base course and subbase, 1 gradation per 1,000 LF

END OF SECTION

SECTION 01740 – GUARANTEES AND WARRANTIES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

A. General – Section 01010: General

1.2 PROJECT MAINTENEACE AND GUARANTEE

A. The Contractor shall maintain the Work covered by these Contract Documents during for a period as described in the General and Supplementary Conditions.

B. The Contractor shall indemnify the Owner against any repairs which may become necessary to any part of the Work performed and to items of equipment, and system procured for or furnished under this Contract, arising from defective workmanship or materials used therein, for a period as described in the General and Supplementary Conditions.

C. All Work, supplies, materials, and any other item installed or supplied by the Contractor shall be warranted by the Contractor for a period of one (1) year from the date of substantial completion of a specific Work Order as described in the General and Supplementary Conditions.

D. The Contractor shall, at his own expense, furnish all labor, materials, tools, and equipment required and shall make such repairs and removals or shall perform such work of reconstruction, as may be made necessary by any structural or functional defect or failure resulting from neglect, faulty workmanship, or faulty materials, in any part of the Work performed by him.

E. Except as noted on the Drawings or as specified, all structures such as embankments, levees, fences, etc., shall be returned to their original condition prior to the completion. Any and all damage to any facility, not designated for removal, resulting from the Contractor's operations shall be promptly repaired by the Contractor at no cost to the Owner.

F. The Contractor shall be responsible for all new improvements and reconstructed/repaired work included in the Work Order, plans and specifications and for the reconstruction or repair of any road, sidewalks, street, and/or entrance damaged as a consequence of his operations, and or repairs and maintenance of same for a period of one (1) year from the date of such reconstruction. In the event the repairs and maintenance are not made immediately to the satisfaction of the Engineer, and it becomes necessary for the Owner to make such repairs, the Contractor shall reimburse the Owner for the cost of such repairs.

G. In the event the Contractor fails to proceed to remedy the defects of which he has been notified within 7 days of the date of such notice, The Owner reserves the right to cause the required materials to be procured and the work to be done, as described in the General Conditions and to hold the Contractor and his sureties liable for the cost and expense thereof.

1.3 **PROCESS WARRANTIES** – Not Used

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION -Not Used

PART 4 MEASUREMENT AND PAYMENT

No separate measurement and payment shall be made for this item, but shall be included in the total price bid under this Contract.

END OF SECTION

DIVISION 02

INSTALLATION, & SITE WORK

DIVISION 2 – INSTALLATION, & SITE WORK

SECTION 02001 – MOBILIZATION / DEMOBILIZATION

PART 1 – GENERAL

1.1 SCOPE OF WORK

This work shall consist of preparatory work and operations, per site per Work Order including but not limited to those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work and operations, which must be performed or costs incurred prior to beginning work on various contract items on the project site. This item is incidental to the Work and the cost associated with providing the required mobilization/demobilization will be included in the cost of the associated bid item.

PART 2 – PRODUCTS

2.1 There are no specific products in this section of the specifications.

END OF SECTION

SECTION 02237 - FLOWABLE FILL

PART 1 GENERAL

1.1 DEFINITION

A. Flowable Fill, also known as Controlled Low Strength Material (CLSM), Controlled Density Fill (CDF), 2-sack/4-sack or 2-sack Grout, Flowcrete, Liquid Dirt, and various other trademark names is a self-compacting, self-leveling cementitious backfill material that is used in lieu of compacted soil fill material. Flowable Fill should not be considered as, or tested like, a type of low strength concrete. Applications of Flowable Fill under this specification are considered "excavatable" and require 28 day strengths less than 200 psi. Upon curing, Flowable Fill has the properties of high quality, well compacted, load bearing soil.

1.2 DESCRIPTION

A. Furnish and place Flowable Fill as backfill for trench, foundation, hole, tank pipeline abandonment, or void filling. The material may also be used where long flowable horizontal movements are required such as pipe filling, annular rings, in jacked pipes, and difficult to access areas requiring long lateral placements.

1.3 SAMPLING

A. Sampling of Flowable Fill will be in accordance with ASTM D5971.

PART 2 MATERIALS

2.1 CEMENT

A. For 2-sack - Cement shall conform to ASTM C150 Type II, or Type I/II.
B. For 4-sack – Cement conforms to ASTM C150 Type I, II, V, IL

2.1.1 Source Approval and Acceptance:

A. Portland cement will be accepted based on certification of the approved sources and satisfactory test results from verification samples. The following information shall be included in the request for source approval:

1. Supplier or company
2. Cement plant location
3. Storage facility type and capacity
4. Average and maximum production capabilities
5. Production procedures
6. In-house Quality Control Program information:
   - 6.1. Routine sampling and testing frequency;
   - 6.2. Documentation that the laboratory responsible for the certified ASTM C150, ASTM C595, and ASTM C1157 test results is currently participating in the Cement and Concrete Reference Laboratory (CCRL) proficiency sample and pozzolan inspection programs;
   - 6.3. A copy of the Laboratory's letter authorizing CCRL to send copies of the CCRL inspection programs and proficiency result reports directly to Engineer;
   - 6.4. Documentation that measures have been taken to assure that the Supplier keeps unacceptable cement separated from acceptable cement.
7. Copies of Quality Control program test reports for the previous six (6) months.

2.2 FLY ASH

A. Use fly ash that will comply with the physical and chemical requirements of ASTM C618, Class F. Fly ash may be used to increase flowability and/or pumpability. Type C fly ash or high lime fly ash is not to be used as it tends to increase the long-term strength and may cause the mix to become un-excavatable. The use of fly ash is not required in the mix design.

2.1.2 Source Approval and Acceptance

A. Documentation concerning test results shall be supplied to Engineer for acceptance. The request for approval of the fly ash source shall include:

1. Supplier or company
2. Source Power plant location
3. Coal type and origin
4. Combustion process
5. Storage facility type and capacity
6. Production procedures
7. In-house Quality Control Program information:
   - 7.1. Routine sampling and testing frequency;
   - 7.2. Documentation that the laboratory responsible for the certified ASTM C618 test results is currently participating in the CCRL proficiency sample and pozzolan inspection programs;
   - 7.3. A copy of the Laboratory's letter authorizing CCRL to send copies of the CCRL inspection programs and proficiency result reports directly EPWater;
   - 7.4. Documentation that measures have been taken to assure that the Supplier keeps unacceptable fly ash separated from acceptable fly ash.
8. Copies of Quality Control program test reports for the previous six (6) months.

2.3 AGGREGATE

A. For 2-sack, provide a mixture of aggregate with a uniform gradation range in accordance with Table 2.3.1, "Aggregate Mixture Gradation Requirements". Test aggregates in accordance with ASTM C117 and ASTM C136.

Table 2.3.1
Aggregate Mixture Gradation Requirements

Sieve Size	Percent Passing
½"	100
#4	80-100
#200	0-30

B. For 4-sack, provide a mixture of aggregate with a uniform gradation range in accordance with Table 2.3.2, "Aggregate Mixture Gradation Requirements". ASTM C33

Table 2.3.2
Aggregate Mixture Gradation Requirements

Sieve Size	Percent Passing
3/4"	100
#200	0-30

C. The Plasticity Index (PI) shall not exceed six (6) when tested in accordance with ASTM 4318.

2.4 MIXING WATER

A. Mixing water from potable water supplies approved by a public health department may be used without further testing. The producer shall provide test data of water samples from other sources. To determine

chemical properties, use a laboratory accredited by the National Environmental Laboratory or Construction Engineering Council Accreditation Program.

2.4.1 Non-Potable Water Testing

A. Water to be used as mixing water from non-potable sources such as recycled water, reclaimed water, water from open bodies, and water taken from untreated wells, whether used individually or in combination, shall be tested before use and shall not exceed the limits in Table 2.4.1.1:

Table 2.4.1.1
Required Water Quality for Combined or Individual Sources of Mixing Water

Chemical Test	Limits	ASTM Test Method
Total Solids by Mass (ppm)	50,000 ppm	C1603
Chloride as Cl^- (ppm)	1,000 ppm	C114
Sulfate as SO_4^- (ppm)	3,000 ppm	C114
Alkalis as $Na_2O + 0.658\ (K_2)$ (ppm)	600 ppm	C114

2.5 **CHEMICAL ADMIXTURES**

A. The Flowable Fill producer may use any admixtures meeting the requirements identified below in their mix designs, as they may require, to provide the desired product properties. Air-entraining admixtures may be added to the mix to increase flowability and/or reduce strength. Other specialty admixtures may also be used to increase flowability, reduce shrinkage, and reduce segregation by maintaining solids in suspension, or accelerate set and curing times as required. Use and proportion all admixtures in accordance with the manufacturer's recommendations.

B. Water reducing admixtures may be used; however, where it is demonstrated that any admixture can increase the strength of the mix over time, it shall not be used.

C. The use of calcium chloride is allowable provided the flowable fill will not contact metallic materials such as reinforcing, conduits, piping, or any other element that may be affected by the potential for corrosion. Calcium chloride may be introduced when fully dissolved in the mixing water or when in a liquid form. Calcium chloride shall meet the criteria set forth in ASTM D98 as well as a Type C Additive in accordance with ASTM C494. Mix designs utilizing calcium chloride shall be submitted for approval that demonstrates rapid set time and that it will not reach a strength greater than the maximum 28-day requirement.

D. Air entraining admixtures shall meet the requirements of ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.

E. All other concrete chemical admixtures shall meet the requirements of ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.

PART 3 MIX DESIGN REQUIREMENTS

1.1 **GENERAL**

A. The following are general physical properties of the mix design. Mix designs submitted by the supplier may vary somewhat depending on the application required for various projects. Multiple mix designs may be required to satisfy the needs for any given project.

1.2 **PHYSICAL PROPERTY REQUIREMENTS**

A. Unless otherwise required by the Engineer, furnish a mix design meeting the following requirements:

Table 3.2.1
Flowable Fill Physical Requirements

Property	Excavatable	Test Method
28-day Compressive Strength, (psi)	60 – 200	ASTM D4832
Flow Consistency, (in)	8 – 11	ASTM D6103*
Unit Weight, (pcf)	90 – 125	ASTM D6023
Air Content (%)	<30	ASTM D6023

*Withdrawn Standard

B. Mix designs will be referred to based on flowability using the flow consistency as determined using ASTM D6103. For 4-sack mix designs, the maximum water to cementitious material ratio is 1.33, nominal maximum coarse aggregate size is 3/8"

Table 3.2.2
Flowable Fill Slump Test Requirement Based on ASTM C143

Slump (in)
7 +/- 1 (7 +/- 2 for 4-sack)

PART 4 CONSTRUCTION

4.1 GENERAL

A. Mix the Flowable Fill using a central-mixed concrete plant, ready-mix concrete truck, pug mill, or other approved method. Documentation in the form of a "Batch Ticket" showing the supplier's name, batch time, mix design identification, materials, batch scale weights, water volume, additives and amounts and any other information necessary to convey that the delivered product meets the requirements of the proportions required in the approved mix design.

B. When required by the Engineer, provide a mix design for approval.

4.2 PLACEMENT

A. When required by Engineer, submit for approval a construction method, plan, means of filling the entire void volume, and method of demonstrating the void area is filled.

B. Flowable Fill may be placed using chutes, pump, or buckets to its final location. The contractor is responsible for assuring the delivery and placement method and equipment is adequate for the application. The maximum time from batching of the Flowable Fill to placement at its final location shall be ninety (90) minutes.

C. Contractor, at their expense, shall assure the prevention of movement, or flotation, of any inserted or backfilled structure, pipe, or other appurtenances from their designated location. This may be accomplished by using adequate tie-down structures or devices, or, by limiting the lift thickness of the Flowable Fill to prevent the fluid material from lifting (or floating) the pipe or other structure until the Flowable Fill has hardened.

D. Because the Flowable Fill generates significant hydraulic loads when fluid, individual lift thicknesses that will load structures or pipe should be limited to four (4) feet unless pipe loading calculations.

indicate more loading can be applied without damage. Curing time prior to the addition of additional lifts should be a minimum of eight (8) hours.

E. Cure time prior to placement of other structural elements should be a minimum of twenty (24) hours. Structural elements such as pavements, slabs or similar project components may be placed earlier if testing to determine suitability for load application using the Ball Drop method (ASTM 6042) indicates an indentation diameter of four (4) inches or less on a freshly exposed Flowable Fill surface.

F. The final decision concerning the hardening time requirement for any placement shall be made by the representative of the Owner and communicated through them to the Contractor's representative.

4.3 ADDITION OF WATER

A. Water may be added one time on the site to bring the flow consistency to that required to achieve the needed flowability for the application as long as there is no evidence of segregation of the mix components. If there is evidence of segregation, as evidenced visually by separation of aggregate from the cement paste matrix, the mix shall not be placed. The contractor shall take sole responsibility for performance of the Flowable Fill if water is added on the site, unless specifically directed to do so by the project inspector.

B. Flowable Fill shall not be placed in areas containing standing water such that the water can mix or be blended with the Flowable Fill material.

4.4 TEMPERATURE REQUIREMENTS

A. Flowable Fill does not require curing like concrete but should be protected from freezing until it has hardened. Ambient air temperature must remain above 40°F (4°C) when placing Flowable Fill. The temperature of the Flowable Fill shall not be less than 50°F (10°C) at the time of placement. Flowable Fill must not be placed such that the material is in contact with frozen ground, nor should the Flowable Fill be placed in areas containing frozen material. If the Flowable Fill will be exposed to freezing temperatures during the first twenty-four (24) hours after placement, it should be protected from freezing using concrete blankets, or, after the initial set a minimum of twelve (12) inches of moist soil cover.

PART 5 QUALITY

5.1 GENERAL

A. "Flowable Fill" placement shall be witnessed by the Owner's designated representative or inspector.

B. All testing of Flowable Fill will be authorized by the Owner's representative or inspector in advance of the placement. Need for testing will be determined by the Owner. Material testing performed by the Owner's Laboratory of Record for the project will determine compliance with project specifications.

C. Material testing frequency may be determined based on Table 5.1.1; however, the project inspector shall have the authority to increase, reduce, or eliminate testing as the project needs dictate.

Table 5.1.1

Property	Test Method	Frequency
28-day Compressive Strength, (psi)	ASTM D4832	**1 set/50yd^3 or portion thereof
Flow Consistency, (in)	ASTM D6103*	**1 per 50yd^3 or portion thereof
Unit Weight, (pcf)	ASTM D6023	**1 per 100yd^3 or portion thereof
Air Content (%)	ASTM D6023	**1 per 50yd^3 or portion thereof
Temperature (F)	ASTM C1064	**1 per 50yd^3 or portion thereof
Ball Drop (indentation dia. - inches)	ASTM D6024	As Requested By Owner

*Withdrawn Standard
**Or As Requested by Owner

D. Quality assurance may be subject to City or governing agency regulations and standards.

5.2 **NON-COMPLIANCE**

A. At the option of the Owner, Flowable Fill material may be required to be removed at the contractor's expense if it is found to be non-compliant with the requirements of the Contract documents.

END OF SECTION

SECTION 02300—TRENCH EXCAVATION AND PREPARATION

1.1 **General:** Classification of excavation shall be "unclassified" and involves removing unnecessary materials and excavating trenches to the alignment, width, and depth as indicated on the bid item or as required for the proper installation of the Work. Adjacent structures shall be protected from damage by construction equipment. All excavated material shall be piled along the trench in a manner that will not endanger the work.

1.2 **Dewatering:** (No dewatering anticipated in this project).

1.3 **Trench Support:** Excavations shall be braced and sheeted to provide complete safety to persons working therein and bracing shall comply with applicable federal (OSHA), state and local laws and ordinances. All trenches exceeding 5-feet in depth, as measured from the ground surface at the highest side of the trench to the trench bottom, shall meet the requirements specified in the current OSHA Standards.

Contractor shall be fully responsible for providing sufficient and adequate bracing for excavations with respect to work under construction and to adjacent utility lines and private property. Where soil conditions within trench area require support, Contractor may elect to use tight sheeting, skeleton sheeting, stay bracing, trench jacks, movable trench shield, or other approved methods to support the trench during pipe installation operations such as bedding preparation, pipe laying, and backfilling of haunches and initial zone.

1.4 **Trenching in Public Right-of-Way:** Except where otherwise specified, or accepted in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion, shall not exceed the length set forth below. The definition of "open trench" for the purposes of this description will include excavation, backfilling, placement of flowable fill and pavement replacement. The descriptions under the area designations are general in nature and may be amended in writing by the Engineer due to particular or peculiar field conditions.

BUSINESS DISTRICT AREAS –300 LINEAR FEET: Store front areas.

COMMERCIAL AREAS – 300 LINEAR FEET: Industrial, shopping centers, churches, schools, hotels, motels, markets, gas stations, government and private office buildings, hospitals, fire and police stations, and nursing homes.

RESIDENTIAL AREAS – ONE (1) BLOCK OR 300 LINEAR FEET, WHICHEVER IS THE LEAST: Single and multi-family residences, apartments, and condominiums.

UNDEVELOPED AREAS – 1,500 LINEAR FEET: Parks, golf courses, farms, undeveloped subdivided land.

Any excavated areas shall be considered as "open trench" until all pavement replacement has been made, or until all trenches outside of pavement replacement areas have been backfilled and compacted in accordance with these Contract Documents. An open trench shall not be permitted overnight, unless adequately barricaded and approved by the Engineer.

Contractor shall provide steel plates with adequate trench shoring and bracing, designed to support traffic loads where required to bridge across trenches at street and alley crossings, commercial driveways, and residential driveways where trench backfill, temporary patch, pavement replacement have not been completed during regular working hours. Safe and convenient passage for pedestrians shall be provided. The Engineer may designate a passage to be provided at any point deemed necessary. Access to fire stations, fire hydrants, and hospitals shall be maintained at all times.

END OF SECTION

SECTION 02331 – FLEXIBLE (CRUSHED STONE) BASE COURSE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Flexible (Crushed Stone) Base Course.

B. Flexible crushed stone base may be placed only when specifically directed by Engineer and approved by the City Streets and Maintenance Department. Flexible base (crushed stone) shall consist of a foundation course for the surface course. It shall be composed of crusher-run brokenstone.

1.2 REFERENCES

A. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb. (4.54 Kg) Rammer and 18-inch (457 mm) Drop.

B. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

C. ASTM D3017 - Test Methods for Moisture Content of Soil & Soil-Aggregate Mixtures.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The Base Course shall have a minimum Crushed Stone Base as specified on the respective bid item, conforming to the requirements of TXDOT specifications, item 247 (**Appendix I**). Flexible base material Type A, Grade 1, with a minimum plasticity index of 3 and a Triaxle Class 3 (part 1).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and are dry.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

C. To protect the underlying course and to ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on, a crowned section, or on the high side of the pavement with a one-way slope.

3.3 AGGREGATE PLACEMENT

A. Spread aggregate over prepared substrate to a total compacted thickness as indicated on the Drawings.

B. The aggregate, as spread, shall be of uniform gradation with no segregation or pockets of fine or coarse materials. The aggregate shall not be spread more than 2,000 square yards or 500 linear feet in advance of the rolling.

C. Place aggregate in maximum 8-inch loose layers and compact to 100% maximum dry density and a moisture content within plus or minus 2%, in accordance with ASTM D1557. If more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

D. Level and contour surfaces to elevations and gradients indicated.

E. Add small quantities of fine aggregate to coarse aggregate to assist compaction.

F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 FINISHING AND COMPACTING

A. After spreading, the crushed aggregate shall be thoroughly compacted by rolling. The rolling shall progress gradually from the sides to the center of the lane under construction, or from one side toward previously placed material by lapping uniformly each preceding rear wheel track by one half the width of such track.

B. Rolling shall continue until the rear wheels have rolled the entire area of the course. The rolling shall continue until the stone is thoroughly set, the interstices of the material reduced to a minimum, and until creeping of the stone ahead of the roller is no longer visible.

C. The Crushed Stone Base Course shall be moisture conditioned and compacted to a minimum of 100 percent of maximum dry density as determined by ASTM D1557, unless otherwise indicated on drawings.

D. The Crushed Stone Base Course for the full depth shall be within plus or minus 2 percent of optimum moisture content as determined by ASTM D1557.

3.5 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 16-foot straight edge when applied to the surface parallel with, and at right angles to, the centerline.

B. Scheduled Compacted Thickness: Within 1/4 inch.

3.6 FIELD QUALITY CONTROL

The Contractor will be required to use a proctor density test value representative of the flexible base material used at each location to determine the percent compaction achieved. Based on the source of the flexible base material, the inspector will determine whether an existing proctor density test is representative of the material being used or whether a new proctor density test will be required. The cost of each new proctor density tests required by the inspector will be paid for under line item 20, “Proctor for Flexible Base Material”. The Contractor shall keep the inspector informed about the source of the flexible base material to be used at each location in advance of the work so that the time required to obtain a new proctor density test will not delay their operation.

END OF SECTION

SECTION 02510 – HOT MIX ASPHALTIC CONCRETE PAVING (H.M.A.C.)

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Asphaltic concrete paving, wearing binder or Base Course.

B. Surface sealer.

C. Aggregate base course.

1.2 RELATED SECTIONS

A. Section 02331 – Crushed Stone Base Course.

1.3 PERFORMANCE REQUIREMENTS

H.M.A.C surfacing shall consist of a compacted mixture of mineral aggregate and asphaltic material. This paving shall be constructed on the previously completed and approved flexible base **(Appendix C and E)**.

H.M.A.C. shall be produced and placed in accordance with TxDOT Specifications, Item 320 and Item 341 (Attached in **Appendix K**), Dense-Graded Hot-Mix Asphalt, Item 341.1 through 341.4 and the material properties shall be as specified on Table 8 of this Item - Type C-Course Surface. Asphalt used in the H.M.A.C. shall be PG 76- 22 as specified in Table 17 of TxDOT Specifications, Item 300, Sub-item 300.2(J).

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with the latest Texas Department of Transportation (TXDOT) Standard Specifications for Construction of Highways, Streets and Bridges Manual and/or City of El Paso Standards.

B. Mixing Plant: Conform to above TXDOT Standards.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable codes.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot Mix Asphalt Concrete: In accordance with Item 341, Type C, of the TXDOT Standards.

B. The H.M.A.C. surface course shall have a minimum thickness as identified on the Contract Documents and conform to the Marshall Stability and flow requirements in ASTM D-6927-15.

C. Densification of the material shall be 100% of the maximum theoretical specific gravity of the mix (Rice).

D. The mix design criteria shall be within the in-place air void requirements ranging between 3 and 5 percent.

E. Aggregate for Wearing Course Mix: Item 341 of the above TXDOT Standard.

F. Fine Aggregate: Item 341 of the above TXDOT Standard.

G. Mineral Filler: In accordance with Item 341 of the above TXDOT Standard.

H. Primer: CSS-1H or equal.

I. Tack Coat: Emulsified asphalt.

2.2 ASPHALT PAVING MIX

A. Use dry material to avoid foaming. Mix uniformly.

B. In accordance with Item 341, Type C of the above TXDOT Standard.

2.3 SOURCE QUALITY CONTROL AND TESTS

A. Provide mix design for asphalt.

B. Submit proposed mix design of each class of mix for review.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify base conditions.

B. Verify that compacted subgrade and sub-base is dry and ready to support paving and imposed loads.

C. Verify gradients and elevations of base are correct.

3.2 SUB-BASE

A. Section 02331 - Crushed Stone Base Course forms the base construction for work of this section.

3.3 PREPARATION – PRIMER

A. Prior to placement of the asphaltic-concrete layer, the base course shall be cleaned, and tack coat of diluted emulsified asphalt (TXDOT Standard) shall be applied at the rate of 0.15 gal. per square yard.

B. Apply primer to contact surfaces of curbs, gutters, and site structures.

C. Use clean sand to blot excess primer.

3.4 PLACING ASPHALT PAVEMENT - SINGLE COURSE

A. Install Work in accordance with above TXDOT Standard.

B. Place asphalt within 24 hours of applying primer.

C. Place to compacted thickness as indicted on the Drawings.

D. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

E. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.5 **TOLERANCES**

A. Flatness: Maximum variation of 1/4-inch measured with 10-foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4-inch.

C. Variation from True Elevation: Within 1/2-inch.

3.6 **PROTECTION**

A. Immediately after placement, protect pavement from mechanical injury for 7 days.

END OF SECTION

DIVISION 03

CONCRETE

DIVISION 3 – CONCRETE

SECTION 03000—CONCRETE

1.1 **Scope:** The Contractor shall furnish all materials, equipment, labor superintendence and incidentals necessary to mix and place concrete, consisting of Portland cement, fine aggregate, coarse aggregate, admixtures, and water in the proper proportions as specified herein.

1.2 **Quality Assurance:** Concrete shall be proportioned to give the necessary workability and strength shall conform to the following requirements.

Class	Minimum 28-DAY Compressive Strength	Minimum Cement Bags/Cubic Yard	Maximum Size of Coarse Aggregate	Maximum Water Gallons per Bag	Slump (inches)
A	3,000 psi	5.5	1-1/2”	5.5	4-6
C	2,500 psi	4.0	1-1/2”	7.0	3-5

Concrete to be used for construction for all Contract items shall be Class A with a minimum 28 day compressive strength of 3,000 psi or otherwise required by EPWater or governing agency. The concrete mix materials shall be proportioned at a central batch plant and delivered to the work site using Redi-Mix trucks. On site batching and mixing of concrete mix will not be allowed.

1.3 **Submittals:** Submit certified test reports regarding concrete mix design and reinforcing steel as may be required by the Contract Documents or Engineer. Submit in a timely manner so as not to delay the project. Allow sufficient time for Engineer’s review and resubmission, if necessary.

1.4 **Standard:** Concrete and related products shall comply with applicable requirements of the following:

ASTM C-33 Specification for Concrete Aggregates
ASTM C-150 Specification for Portland Cement
ASTM C-260 Specification for Air-Entraining Admixtures for Concrete
ASTM C-494 Specification for Chemical Admixtures for Concrete

1.5 **Materials:** Portland Cement: Shall conform to ASTM C-150 for the appropriate required Type.

1. Aggregates: Shall conform to ASTM C-33. Fine aggregate shall consist of natural, washed and screened sand having clean, hard, strong, durable, uncoated grains complying with ASTM C-33. Coarse aggregates shall comply with ASTM C-33 Size 467, or Size 57, or Size 67. Local aggregates of proven durability may be used when acceptable to the Engineer.

2. Air-Entraining Admixtures: Shall be used for concrete of 3,000 psi or greater and shall comply with ASTM C-260. The total average air content shall be in accordance with ACI 211.1.

3. Water Reducing Admixture: Shall be used when required by job conditions and shall comply with ASTM C494. Use only admixtures which have been tested and accepted in mix designs, unless otherwise acceptable. Shall be used according to manufacturer’s recommendations.

4. Set Retarding Admixtures: Shall comply with ASTM C-494 and be used with approval of the Engineer. Shall be used according to manufacturer’s recommendations.

5. Water: Shall be clean and free from impurities. Drink and ordinary household water is acceptable.

1.6 **Manufactured Products:** The forms shall be of wood or metal and shall be of sufficient strength to support

the concrete without bulging between supports and sufficiently water tight to hold the concrete mortar. The forms shall be so constructed that the finished concrete shall be of the form and dimension shown on the plans. All form work for exposed surfaces shall be of such materials and so constructed so as to produce a smooth, even surface when the concrete is poured. All forms shall be oiled before use. In general, wall forms may be removed after the concrete has been in place for 24 hours. All exposed edges shall have a ¾- inch chamfer whether or not so shown on the details. Immediately upon removal of the form, any honeycombed sections shall be repaired as directed

Embedded Items: All bolts, pipe, pipe sleeves, inserts, or other fixtures to be embedded in the concrete, as required by these specifications, shall be set accurately in place and maintained in such positions during concreting operations.

Reinforcing Steel: Metal reinforcements shall conform to the following requirements. Bar Reinforcement shall be round, deformed bars, Grade 60, conforming to either "Specification for Rail Steel Deformed and Plain Bars for Concrete Reinforcement" (ASTM A-616), or "Specification for Axle Steel Deformed and Plain Bars for Concrete Reinforcement" (ASTM A-617).

Rail Steel Bars will be permitted only where bending is not required. All reinforcement bars shall be permanently marked with grade identification marks or shall, on delivery, be accompanied by manufacturer's guarantee of grade which will identify variation. Reinforcement stored on the site shall be protected form accumulation of grease, mud or other foreign matter and from rust producing conditions. Bars shall be free from rust, scale, oil, mud, or structure defects when incorporated in the structures. Reinforcements shall be accurately placed and securely held in place during placement of concrete in accordance with the ACI Detailing Manual.

END OF SECTION

SECTION 03100 – GROUT

1.1 **Scope:** Where called for in the plans or specifications, the contractor shall provide all labor, materials, equipment, and incidentals required for grouting.

1.2 **Standards:** Grout shall comply with applicable requirements of the following:

ASTM C-33 Specification for Concrete Aggregates.
ASTM C-150 Specification for Portland Cement.

1.3 **Materials**: Types of grout may include the following material.

A. Non-shrink Epoxy Type: Shall be non-metallic, 100% solids, high strength grout such as Epoxtite as manufactured by A.C. Horn Company, or Five Star Epoxy Grout by U.S. Grout Corporation, or equal.

B. Non-shrink, Non-Metallic Type: Shall be a premixed non-staining cementitious grout requiring only the addition of water at the job site. Provide Darex In-Pakt Grout Pre-mix by A.C. Horn Company, or Masterflow 713 by Master Builders Company, or equal.

C. Ordinary Cement-Sand Grout: Consisting of 1 part by weight of Portland cement complying with ASTM C-150, Type V, to 3 parts by weight of clean sand of suitable gradation and complying with ASTM C-33.

At the Contractor's option, ordinary grout may be four (4) sacks of masonry cement per cubic yard of clean sand, together with approved air-entraining agent and a minimum of clean water for placing. Where water repelling and shrinkage reducing requirements are shown or specified, use approved admixtures.

D. Water: Use clean, fresh, potable water free from injurious amounts of oils, acids, alkalis, or organic matter.

END OF SECTION

SECTION 03300 – SITE CONCRETE WORK

PART 1 GENERAL

1.1 SCOPE

A. This section of the specifications covers all of the work required for constructing concrete structures, curbs, headers, sidewalks, driveways, and other miscellaneous work.

B. Concrete for this project shall conform to the requirements of this section. The Contractor shall furnish all materials, equipment, tools, labor, superintendence, and incidentals necessary to perform the Work in accordance with these specifications.

1.2 RELATED SECTIONS

1.2.A N/A

1.3 REFERENCES

1.3.A	ACI 301	Specifications for Structural Concrete for Buildings
1.3.B	ACI 304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
1.3.C	ASTM A185	Welded Steel Wire Fabric for Concrete Reinforcement
1.3.D	ASTM A497	Welded Deformed Steel Wire Fabric for Concrete Reinforcement
1.3.E	ASTM A615	Deformed and Plain Billet-Steel for Concrete Reinforcement
1.3.F	ASTM C33	Concrete Aggregates
1.3.G	ASTM C94	Ready Mix Concrete
1.3.H	ASTM C150	Portland Cement
1.3.I	ASTM C260	Air-Entraining Admixtures for Concrete
1.3.J	ASTM C309	Liquid Membrane-Forming Compounds for Curing Concrete
1.3.K	ASTM C494	Chemical Admixtures for Concrete
1.3.L	ASTM D1751	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction

1.4 SUBMITTALS FOR REVIEW

1.4.A Provide test reports and materials' certification as required in referenced sections for concrete.

1.5 QUALITY ASSURANCE

1.5.A Perform work in accordance with ACI 301.

1.5.B Obtain cementitious materials from same source throughout.

1.6 REGULATORY REQUIREMENTS

1.6.A Conform to applicable codes and standards.

1.7 ENVIRONMENTAL REQUIREMENTS

1.7.A Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form Materials:

1. Steel or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

2. Use flexible spring steel forms or laminated boards to form radius bends as required.

3. Coat forms with a non-staining form release agent that will not discolor or deface of concrete.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615; 60 ksi yield grade; deformed billet steel bars; unfinished finish.

B. Welded Steel Wire Fabric: Plain type, ASTM A185; in coiled rolls finish.

C. Dowels: ASTM A615; 60 ksi yield grade, plain steel, unfinished finish.

2.03 CONCRETE MATERIALS

A. Concrete Materials: As specified herein.

2.04 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1, Class A.

B. Joint Materials: AASHTO M-33, ½" bituminous type preformed joint filler.

2.05 CONCRETE MIX - BY PERFORMANCE CRITERIA

A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.

B. Select proportions for normal weight concrete in accordance with ACI 301 Method 3.

C. Provide Type I/II concrete to the following criteria:

1. Compressive Strength: 3,000 psi @ 28 days.

2. Slump: 4 inches (± 1).

3. Minimum Water/Cement Ratio: 0.45.

4. Air Entrained: 4%, ±1.5%.

D. Provide Type I/II Concrete to the following criteria:

1. Compressive Strength: 4,000 psi @ 28 days.

2. Slump: 4 inches (± 1).

3. Minimum Water/Cement Ratio: 0.45.

4. Air entrained: 4%, ±1.5%.

E. Use accelerating admixtures in cold weather only when approved by Engineer. Use of admixtures will not relax cold weather placement requirements.

F. Use calcium chloride only when approved by Engineer.

G. Use set retarding admixtures during hot weather only when approved by Engineer.

2.06 SOURCE QUALITY CONTROL AND TESTS

A. Provide mix design for concrete to the Engineer for approval.

B. Tests on cement and aggregates will be performed to ensure conformance with specified requirements.

C. Test samples in accordance with ACI 301.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.03 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

D. Clean forms after each use and coat with form releasing agent as required to ensure separation from concrete without damage.

3.04 REINFORCEMENT

A. Interrupt reinforcement at expansion joints.

B. Place dowels and reinforcement to achieve pavement and curb alignment as detailed.

C. Provide doweled joints 12 inch oc at transverse joints and interruptions of concrete.

3.05 PLACING CONCRETE

A. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies,

reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels and joint devices.

B. Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints.

E. Deposit and spread concrete in a continuous operation between transverse joints as far as possible. If interrupted for more than ½ hour, place a construction joint.

F. Curb and Gutter: Automatic machines may be used for curb and gutter placement at the Contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results that meet or exceed the minimums specified. Machine placement must produce curbs and gutters to required cross sections, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, the Contractor will be required to remove and replace with formed concrete, as specified, at the Contractor's expense.

3.06 JOINTS

A. Expansion Joints

1. Place expansion joints at 20 foot intervals. Align curb, gutter, and sidewalk joints.

2. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/4 inch for sealant placement.

3. Provide scored joints at 5 feet intervals between sidewalks.

4. Provide keyed joints as indicated.

5. Provide premolded joint filler for expansion joints abutting concrete curbs, structures, walks and other fixed objects, unless otherwise indicated.

6. Furnish joint fillers in one piece lengths for full width being placed wherever possible. When more than one length is required, or clip joint filler sections together.

7. Protect top edge of joint filler during concrete placement with a metal cap or other temporary materials.

8. Remove protection after concrete has been placed on both sides of joint.

B. Construction Joints

1. Place construction joints at and of placements and at locations where placement operations are stopped for more than ½ hour.

2. Where load transfer-slip dowel devices are used, install so that one end of each dowel bar is free to move.

C. Fillers and Sealants

1. Where joints in concrete construction are shown to be sealed, the joint sealing compound shall be a cold-applied two-component poly-sulfide sealant.

2. The handling, mixing, and placing of the material and preparation of the joint prior to sealing shall be in strict accordance with the recommendations of the manufacturer.

3. A two component epoxy primer compatible with the sealer shall be used in all joints.

4. Provide joint sealers and other related materials that are compatible with one another and with joint substrates.

3.07 FINISHING

A. Area Paving: Rake finish or as required by TXDOT standards.

B. Sidewalk Paving: Light broom, radius to 1/2 inch radius, and trowel joint edges.

C. Curbs and Gutters: Light broom.

D. Direction of Texturing: Transverse to pavement direction.

E. Inclined Vehicular Ramps: Broomed perpendicular to slope.

F. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.08 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Cure floor surfaces in accordance with ACI 308.

D. Ponding: Maintain 100 percent coverage of water over slab areas continuously for 4 days.

E. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

3.09 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.10 PATCHING

A. Allow inspector concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

C. Patch imperfections as directed.

3.11 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Engineer.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.12 FIELD QUALITY CONTROL

A. Three concrete test cylinders will be taken for every 50 or less cubic yards of concrete placed each day.

B. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.

C. One slump test will be taken for each set of test cylinders taken.

D. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian and vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

END OF SECTION

SECTION 03310 – CONCRETE METER BOXES

1.1 **Scope**: Furnish labor, materials, equipment, and incidentals to furnish and install pre-cast concrete meter boxes and vaults.

1.2 **Quality Assurance**: The Owner reserves the right to request results of compressive tests, to inspect the manufacturing process at any time, to perform tests on materials used, and to extract cores from completed meter boxes for compressive strength testing and placement of reinforcement.

1.3 **Submittals**: Provide manufacturer's certification that products comply with appropriate ASTM, AWWA and Utility standard details.

1.4 **Standards**:

ASTM A-27	Specifications for Steel Castings, Carbon, for General Application
ASTM A-36	Specification for Structural Steel
ASTM A-48	Specification for Gray Iron Castings
ASTM C-33	Specification for Concrete Aggregates
ASTM C-150	Specification for Portland Cement
ASTM C-309	Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C-615	Specification for Granite Building Stone

1.5 **Materials:**

A. Cement shall be Portland Cement conforming to ASTM C-150, Type I or Type III. Concrete shall have a minimum 28-day compressive strength of 4,500 psi; a water cement ratio of 0.5 or less by weight; and a maximum of 5.5 gallons water sack cement.

All concrete shall be handled from the mixer or transport vehicle to the place of final deposit in a continuous manner, as rapidly as practicable, and without segregation or loss of ingredients, until the operation is completed. Concrete shall be placed in layers not over two feet deep. Each layer shall be compacted by mechanical internal or external vibrating equipment. Duration of the vibration cycle shall be limited to the time necessary to produce satisfactory consolidation without causing objectionable segregation.

B. Aggregates, other than lightweight aggregates, shall conform to specifications outlined by ASTM C-33. Aggregates shall be free of deleterious substances and graded in a manner as to produce a homogeneous concrete mix. All materials are to be accurately weighed at a central batching facility for mixture.

C. Curing for the purposes of early re-use of forms, the concrete may be heated in the mold, after initial seat has taken place. The temperature shall not exceed 71.11^{0}C (160 degrees Fahrenheit) and the temperature shall be raised from normal ambient temperatures at a rate not to exceed 4.44^{0}C (40 degrees Fahrenheit) per hour. The cured unit shall not be removed from the forms until sufficient strength is obtained for the unit to withstand any structural strain that may be subjected during the form stripping operation. After the stripping of forms further curing by means of water spraying or a membrane curing compound may be used and shall be of a clear or white type, conforming to ASTM C-309.

D. Steel Reinforcing shall comply with ASTM A-615 Grade 60 steel, F_Y= 60,000 psi. Minimum concrete cover on re-bar top slab shall be 1.25" and 1.5" on re-bar for walls. Bar bending and placement to comply with latest ACI Standards. All reinforcing steel, including welded wire mesh, shall be of the size and in location as shown on the plans. All reinforcing shall be sufficiently tied to withstand displacement during the pouring operation. Lifters shall be designed to handle the imposed weights, and shall be placed as specified on the drawings or manufacturer's requirements.

E. Steel Frames and Covers shall conform to ASTM A-27, Grade 70-36. Structural welded steel shall conform to the requirements of ASTM A-36 with dimensions as specified on the drawings.

F. Cast Iron Ring and Covers shall conform to the requirements of ASTM 48, Class 30. All castings shall be of uniform quality, free from blowholes, shrinkage, distortion or other defects. They shall be smoothed and well cleaned by shot-blasting.

All castings shall be manufactured true to pattern. Component parts shall fit together in a satisfactory manner. Round frames and covers shall have continuously machined bearing surfaces to prevent rocking and rattling.

Tolerances shall not exceed 1/16-inch per foot. Deviation in weight shall not exceed 5 percent.

1.6 Installation:

Meter boxes shall be installed in accordance with these specifications and Utility Standard Details. Install to grade matching top of curb. Meter boxes shall not be installed under sidewalks, driveways, or proposed above-ground structures. Where no curbing exists, install boxes in accessible locations beyond limits of street surfacing, walks, and driveways.

The following standard meter boxes shall be installed for their respective meter size, unless otherwise determined and approved by the Utility.

STANDARD METER BOXES			
METER SIZE	**BOX TYPE**	**CONSTRUCTION**	**DIMENSIONS W x H**
3/4-inch	Type A	Single Unit	19.25 in. O.D. x 17 in.
1 inch	Type B	Single Unit	26 in. O.D. x 17 in.
1-1/2 in. to 2 in.	Type C	Single Unit	50 in. SQ x 24 in.
3 in. and larger	Type D	Modular	7 ft.-8 in. SQ x 4 ft.-6 in.

Where it is necessary to install Type A or B boxes for 3/4-inch or 1-inch meters under roadways or traffic bearing surfaces, boxes shall be encased in 12-inches concrete 3,000 psi minimum.

END OF SECTION

DIVISION 04

WORK AND PERFORMANCE REQUIREMENTS

DIVISION 4 – WORK AND PERFORMANCE REQUIREMENTS

SECTION 04000 – GENERAL REQUIREMENTS

1.1 PATCH PAVING REPAIR

Typical Street patching work shall consist of the work specified below (see "Typical Street Patch Detail" on last page for reference). This patching is typically done over trenches that have been excavated and backfilled. As required by Title 13, Chapter 13.08 of the City Municipal Code, the existing Hot Mixed Asphaltic Concrete (H.M.A.C.) must be cut back 24 inches from the edge of the trench cut (i.e. the bridge), to avoid having the H.M.A.C. joint lining up with the edge of the trench. This is shown on City of El Paso Title 19, Subdivision Ordinance - Design Standards for Construction (see **Appendix C)**, which shall be deemed part of these specifications. For the scope of work identified in Subsections A through J, Bid Items 1 through 8 shall be used for measurement and payment, and the specific bid item applied shall correspond directly to the description of work performed in the field.

A. Excavation of the existing temporary backfill within the trench boundary down to subgrade level. Bid Items 1-4.
B. Full depth removal of the existing asphaltic surfacing and base two (2) feet beyond the trench boundary (i.e. the bridge) Bid Items 1-4.
C. If removal of existing Hot Mix Asphalt Concrete (H.M.A.C.) outside the specified trench and bridge work limits is required in order to comply with City of El Paso Title 19 Subdivision Ordinance provisions, the additional removal area will be delineated in the field by the EP Water Inspector. The inspector will identify and clearly mark the extended removal boundaries using paint to indicate the precise limits where asphalt must be removed. Bid Item 5.
D. After removal of the existing asphalt pavement, the Contractor shall perform compaction of the exposed subgrade spanning the full area beyond the trench boundary and including the bridge section, using only a tamping rammer (Jumping Jack/Stomper) as the approved compaction equipment prior to placement of the 2 sack backfill material. Bid Items 1-4.
E. Placing of cement stabilized backfill material at the thicknesses specified in the bid item descriptions, spanning the area over the trench and including the bridge. **(Appendix D)**. Bid Items 1-4.
F. Proof rolling shall be required on all areas of existing asphalt pavement removed outside of the trench and bridge boundary, and the Contractor shall perform this proof rolling exclusively with a steel wheel roller as the approved equipment. Following completion of the proof roll, the Contractor shall thoroughly clean the entire area of all loose material to ensure that the exposed surface is properly prepared and fully suitable to receive the required prime coat. In accordance with Section 02510 - H.M.A.C. Paving. Bid Item 6.
G. Application of prime coat over the existing base. Bid Items 6 -8.
H. Placement of H.M.A.C. for Bid Item 6 -8. To include areas over the trench, bridge and beyond trench boundary in Accordance with City of El Paso Title 19 Subdivision Ordinance, Section 02510 - H.M.A.C. Paving and in accordance with TxDOT Specifications, Item 320 Equipment for Asphalt Concrete Pavement and Item 341 Type C of the TxDOT Standards.
I. Disposal of the removed asphalt pavement and other material in accordance with the city's environmental regulations. Bid Item 5.
J. The cost associated with obtaining permits & traffic control shall be including in the cost of the associated repair Item. Bid Items 1-25, 30 and 31.

At some locations, an additional area beyond the limits of the 2-sack backfill material area. Repaving of these areas will require full-depth removal of the existing HMAC. The removal of the existing pavement shall be paid for under Bid Item 5. Paving of these areas will be paid under Bid Item 6-8.

All Work shall be subject to the approval of inspection personnel employed by Owner, under the direction of TxDOT or the County Roads and Bridges Department, as applicable.

For repairs where Owner is able to open the street to traffic after completion of the water main repairs (typically by installing steel plates or some other type of temporary street surfacing), the Contractor will be required to furnish their own traffic control during the repair work, including pavement removal work. In such cases, the Contractor shall include the cost of furnishing said traffic control in their bid prices for the applicable items. On repairs where Owner must keep the repair area closed to traffic until pavement repairs are completed, Owner will leave the traffic control in place until owner issues a work order for that site at which point the contractor will not need to furnish their own traffic control.

1.2 RESURFACING

Measurement and payment as per Bid Items 5 -8 and 30.
Typical street resurfacing work is done over trenches that have been excavated and backfilled. Street resurfacing work should follow the City of El Paso's Title 19, Subdivision Ordinance – Design Standards for Construction Section 3 and Section 3 (**Appendix C & E**) which are part of these Specifications.

A. The removal of asphalt 1-6 Inches shall be accomplished in accordance with TxDOT Specifications, Item 105 (Attached in **Appendix F**), Removing Stabilized Base and Asphalt Pavement. Bid Items 5 and 30.
B. Proof rolling shall be required on all areas of existing asphalt pavement removed outside of the trench and bridge boundary, and the Contractor shall perform this proof rolling exclusively with a steel wheel roller as the approved equipment. Following completion of the proof roll, the Contractor shall thoroughly clean the entire area of all loose material to ensure that the exposed surface is properly prepared and fully suitable to receive the required prime coat. Bid Item 6 -8, and 30.
C. Application of prime coat over the existing base. Bid Items 6 -8 and 30.
D. Placement of H.M.A.C. for Bid Item 6 -8 and 30. To include areas over the trench, bridge and beyond trench boundary in Accordance with City of El Paso Title 19 Subdivision Ordinance, Section 02510 - H.M.A.C. Paving and in accordance with TxDOT Specifications, Item 320 Equipment for Asphalt Concrete Pavement and Item 341 Type C of the TxDOT Standards.
E. Disposal of the removed asphalt pavement and other material in accordance with the city's environmental regulations. Bid Item 5.
F. Obtain permits & traffic control shall be including in the cost of the associated repair item. Bid Items 1 -25, 30 and 31.

Curbs, gutter, ramps, driveways, flowable fill, collar aprons, steel plates, meter boxes, adjustment of manholes, valve bonnet boxes, et., will be paid under their respective bid items 9, 10 and 16 -24.

1.3 CONCRETE ITEMS - Measurement and payment for line items 9,10 and 16-through 24.

A. Excavation and Subgrade Preparation

Prior to placement of all concrete items, the Contractor shall excavate any fill material temporarily placed by EPWater crews or others, and set the bottom grade to the required elevations using string-lines and stakes as required. For concrete patches inside TxDOT Rights-of-Way (ROWs), the Contractor will need to excavate 2-sack cement stabilized base which is used for backfill within the ROW.

Except within TxDOT ROWs where cement stabilized base is used, after excavation the subgrade shall be compacted by tamping/rolling and wetting the subgrade to the satisfaction of the Inspector. When required by the Inspector, the subgrade shall be compacted to a density of not less than 90% in accordance with ASTM D1557. Immediately prior to concrete placement all stones, roots, vegetation, and other deleterious materials, shall be removed from the subgrade. Necessary excavation and grading shall be carried out neatly to the required line and grade.

The cost for excavation and subgrade preparation shall be included in the unit price of the concrete item involved, and no separate payment for this work will be made.

B. Materials and Work Requirements

Cement shall be Type 1 Portland Cement and shall conform to the standard specification the American Association of State Highway Officials (A.A.S.H.O. Designation M25-49). Water shall be suitable for drinking purposes and fine and coarse aggregates shall be well graded, clean and shall conform to the standard specifications of the governing agency.

Concrete to be used for construction for all contract items shall be Class A with a minimum 28 day compressive strength of 3,000 psi or otherwise required by EPWater or governing agency. The concrete mix materials shall be proportioned at a central batch plant and delivered to the work site using Redi-Mix trucks. On site batching and mixing of concrete mix will not be allowed.

Immediately before placing concrete the sub-base shall be thoroughly wetted. The concrete mix shall be poured in sections and length as indicated in the attached City of El Paso Subdivision Design Standards (**Appendix E**)

Concrete shall be placed and tamped to a dense mass in such a way that all materials will remain well distributed. After the concrete has been struck off and after it has become sufficiently set, the exposed surface shall be thoroughly worked with a wooden float. Any expansion joint material required will be incidental to the work. The surface of the concrete shall be floated and wire brushed or broomed to provide a non-skid wearing surface. The exposed edges shall then be rounded by the use of an edging tool to the radius indicated by set standards.

When the concrete has become sufficiently set, the forms shall be carefully removed and the surface thus exposed shall be pointed up as necessary, then wetted and rubbed with a wood block to remove all form marks and other irregularities, producing a finish similar in appearance to the existing improvements. The surface finish shall be performed prior to initial set of the concrete. No rubbed mortar finish applied after the concrete has set will be permitted.

The completed work shall be properly cured using a method and for a time period approved by the City. After curing is complete, excavated material shall be placed and compacted around the work to sub-grade level on the street side and as required to transition to any existing grade at a minimum 12:1 taper.

All cross-sections of curb and gutter specified in City of El Paso Subdivision Design Standards Section 6 **(Appendix E)** which shall be deemed part of these specifications.

1.4 ASPHALT PAVEMENTREMOVAL

The scope of work for these bid items includes saw-cutting existing pavement to limits of boundary lines marked in the field to a maximum depth of 6 inches, breaking-up of pavement, loading and disposal of pavement. The removal of asphalt shall be accomplished in accordance with TxDOT Specifications, Item 105 (Attached in **Appendix F**), Removing Stabilized Base and Asphalt Pavement.

1.5 SUBGRADE PREPARATION

For these specifications, subgrade refers to the top 12 inches of embankment directly below the 12-inch roadway base, starting below the asphalt line. This work includes removing the existing 12 inches of subgrade, preparing and compacting the lower subgrade to at least 95% compaction, as tested and approved by the Owner. Backfilling and re-compacting will be performed in two 6-inch layers using approved processed backfill material, with grading ending at the start of the base, 12 inches below the asphalt line. The scope includes all equipment, approved backfill material, labor, required traffic control devices per City of El Paso, TxDOT, and County regulations, mobilization and demobilization, cleanup, testing, permits, fees, and any incidental items necessary for proper preparation. Work must be completed in place. The subgrade shall be prepared in accordance with TxDOT Specifications, Item 132 (**Appendix G**), Embankment, Sub-sections 132.1 through 132.3.

1.6 PRIME COAT

A prime coat shall be uniformly placed on the entire completed surface of the base course, prior to paving. A prime coat shall be uniformly placed on the entire completed surface of the base course, prior to paving. The prime coat material shall be in accordance with TxDOT Specifications, Item 300 (**Appendix J**), Sub-Item 300.2, Materials, Table 4 – RC-250, Table 5 –MC-800 or Table 8 – CRS-2. The prime coat material shall be applied uniformly across the compacted base material at not less than 0.2 to 0.3 gallons per square yard and be allowed to cure completely in accordance with the manufacturer's recommendations before the placement of H.M.A.C.

2.0 ASPHALT PAVER / LAYDOWN MACHINE

Use of a asphalt paver will typically be required on all street patches wider than 8 feet or longer than 15 feet, although the inspector may require the use of a asphalt paver in smaller patches. The asphalt paver shall be the following requirements:

a. Asphalt paver shall be contained, power-propelled units with an activated vibrating screed or strike-off assembly, heated, if necessary, and shall be capable of spreading and finishing courses of bituminous plant mix material which will meet the specified thickness, smoothness, and grade.

Asphalt paver used for shoulders and similar construction shall be capable of spreading and finishing courses of bituminous plant mix material in widths of 12-feet plus.

b. The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without rearing, shoving, or gouging the mixture.

c. The paver shall be capable of operating at forward speeds consistent with satisfactory laying of the mixture.

d. If an automatic grade control device is used, the pavement machine shall be equipped with a control system capable of automatically maintaining the specific screed elevation. The control system shall be automatically actuated from either a reference line or surface through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the pavement machine screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent.

e. The controls shall be capable of working in conjunction with any of the following attachments: Ski-type device of not less than 30-feet (9.14 m) in length Taut string line (wire) set to grade Short ski or shoe.

f. MEASUREMENT AND PAYMENT
The work performed, listed above will include equipment, labor, tools, and incidentals will not be measured or paid for directly, but will be subsidiary to Bid Items 6 -8.

2.1 MILLING

Work under this bid item shall include: (a) mobilizing and de-mobilizing milling machine and operational staff to milling site; (b) furnishing traffic control, including obtaining city traffic control permits; (a) saw- cutting transverse (not longitudinal) edges of area to be milled; (b) milling of pavement to the depth directed, up to 6" depth; (c) sweeping of milled surface using a powered sweeper; (d) stockpiling, loading, hauling and disposal of milled materials per governing agency's regulations.

2.2 REFLECTORIZED PAINTED MARKINGS TYPE I & TYPE II

The scope for line items 12 and 13 covers the placement, materials, composition, manufacture and testing of coatings (striping) and related materials.

Reflectorized painted markings will be placed in accordance with Texas Department of Transportation Specifications, Item 666, Sub-items 666.1 ~ 666.4 as applicable (**Appendix L**). Surface preparation prior to placement of markings shall be in accordance with Texas Department of Transportation Specifications, Item 678, (**Appendix M**). Glass beads will be applied immediately after the markings are placed and will be applied to provide a uniform distribution of beads across the surface of the stripe, with 40 to 60% embedment. Glass beads are subject to inspection and testing by TxDOT. Commercial laboratories designated by the TxDOT will perform inspection and testing. Final approval and acceptance of glass bead shall be by the TxDOT's designee. Cost of testing will not be borne by the Contractor. However, the cost of sampling and testing for materials failing to conform to the requirements of this specification shall be borne by the contractor or supplier.

2.3 STEEL PLATES

a. General.
The EPWater Dispatcher, or other authorized EPWater representative, shall order steel plates under this Contract, and Contractor shall supply, deliver, install, maintain, track, report, and remove steel plates as required by the Contract Documents. Steel plates may be ordered for the protection of pavement cuts under this Contract or for protection of other pavement cuts performed outside this Contract.

b. Material Release Number Required.
Contractor may supply its own steel plates or subcontract this work. Contractor shall provide EPWater with a point of contact and telephone number for ordering steel plates. EPWater shall provide a written Material Release Number for each steel plate order. No delivery of, installation of, rental of, or payment for steel plate pay items shall be made without a valid Material Release Number, unless otherwise expressly authorized in writing by EPWater. For a change in quantity of steel plates delivered other than the quantity stated in the original written request, the contractor must contact EPWater on site to have EPWater send an updated an accurate request in quantity.

b.1 Steel Plate Delivery Confirmation and Tracking.
Contractor shall notify EPWater promptly upon delivery and installation of any steel plate. Notification shall include the Material Release Number, site location, delivery date and time, number of plates delivered, plate identification number if available, and confirmation that the steel plate has been installed and secured for safe use.

Delivery shall not be considered complete for payment, compliance, or rental-period purposes until documented by delivery ticket, system entry, or other written confirmation acceptable to EPWater.

Contractor shall maintain accurate tracking of each steel plate furnished under this Contract, including the Material Release Number, Work Order number if applicable, site location, delivery date and time, pickup or release date and time, plate identification number if available, and current rental status. Contractor shall include all active steel plate rentals on the required active-rental report.

c. Bid Item 26 – Initial Steel Plate Rental Period.
Bid Item 26 shall be used for the initial rental period for each 6-feet by 10-feet by 1-inch steel plate supplied under this Contract and shall include standard delivery, installation, pickup, equipment, labor, cleanup, permits, fees, and incidental items required for installation. The initial rental period shall be up to seven (7) calendar days, measured from the verified delivery and installation date and time.

The rental period shall end at the earliest of:

EPWater's issuance of a Work Order for permanent pavement restoration at the corresponding site;
EPWater's request that the steel plate be picked up;
placement of permanent pavement restoration;
substitution of an Owner-furnished steel plate; or
other written direction from EPWater ending the rental period.

Contractor shall bear the cost of steel plate rental beyond the authorized rental period unless the additional rental period is expressly authorized by EPWater in writing and supported by documentation acceptable to EPWater.

d. Bid Item 27 – Daily Steel Plate Rental After Initial Rental Period.
Bid Item 27 shall be used only for authorized daily rental of each steel plate after expiration of the initial rental period under Bid Item 26. Bid Item 27 shall exclude delivery, installation, pickup, cleanup, permits, fees, and incidental items already included in Bid Item 26.

Daily rental charges are payable only for days authorized by EPWater and supported by delivery, rental, active-rental reporting, and release documentation acceptable to EPWater.

Any steel plate not included on the required active-rental report shall be payable only for the initial seven-day rental period, and no daily rental charges under Bid Item 27 shall be paid unless expressly authorized in writing by EPWater.

No daily rental charges shall be payable after EPWater issues a pickup request, release notice, Work Order for permanent pavement restoration, **substitution with** an Owner-furnished steel plate, or other written direction ending the rental period.

d.1 Maximum Rental Exposure Per Steel Plate.
No steel plate rental shall continue indefinitely. Notwithstanding anything to the contrary in the Contract Documents, the total amount payable by Owner for rental of any single steel plate under Bid Items 26 and 27, for any one Material Release Number, Work Order, site, or location, shall not exceed the lesser of:

the actual authorized rental amount supported by documentation acceptable to Owner; or
Five Thousand Dollars ($5,000) per steel plate.

Once the maximum rental cap is reached, no additional daily rental charges shall accrue or be payable for that steel plate unless expressly authorized in writing by Owner through a Change Order or other written instrument executed by Owner.

Payment of the maximum rental cap shall not constitute an admission that all claimed rental days are valid, authorized, or payable. Owner reserves the right to reject unsupported rental days, duplicate rental days, rental days not included on required active-rental reports, rental days after release or pickup request, and rental days not supported by a valid Material Release Number.

At Owner's option, payment of the maximum rental cap may be treated as full compensation for continued use, loss, non-return, or replacement of the steel plate. Upon such payment, Contractor shall have no further claim for rental, replacement, ownership, loss-of-use, administrative cost, overhead, profit, or incidental charges associated with that steel plate.

e. Delivery Locations.
Steel plates shall be delivered to EPWater job sites within the EPWater retail service area, water main utility corridors, easements, public rights-of-way, or other locations directed by EPWater. Some locations may be outside the City of El Paso limits. Contractor shall comply with all requirements of the governing jurisdiction where the steel plate is installed.

f. Late Delivery of Steel Plates.
Owner and Contractor recognize that time is of the essence and that Owner will suffer financial loss, operational impacts, public inconvenience, and safety-related impacts if steel plates are not delivered on time. The timing of steel plate deliveries shall be as described in the Agreement, the applicable Work Order, Material Release Number request, dispatcher request, or other written direction from Owner.

Deliveries will be deemed late if the required delivery time is not met by Contractor. Accordingly, instead of requiring proof of actual damages, Owner and Contractor agree that, as liquidated damages for delay and not as a penalty, Contractor shall pay Owner the sum of one hundred thirty-seven and 07/100 dollars ($137.07) for each full thirty (30)-minute increment that the delivery arrives late.

The actual delivery time shall be written on the delivery ticket by the Owner representative at the site, and said delivery time shall be used to determine liquidated damages due for late deliveries. Such liquidated damages may be deducted by Owner from payments due or to become due under the applicable bid item or any other amount due under the Contract.

g. After-Hours Delivery.
Contractor shall deliver steel plates after normal operating hours, including Saturdays, Sundays, and holidays, when directed by EPWater. After-hours delivery charges shall be paid only when authorized by EPWater and shall be paid under Bid Item 28. The after-hours charge shall apply per authorized delivery request or dispatch, not per individual steel plate, unless otherwise stated in the Work Order.

h. Cancelled Steel Plate Work Orders in Transit.
Bid Item 29 shall apply only when steel plates are in transit to a work site and the order is cancelled by Owner at least thirty (30) minutes after the request. This item does not apply to Contractor weather days, Contractor-caused delays, cancelled requests that remain in Contractor's pending queue, or orders cancelled before the steel plate is in transit.

i. Installation, Protection, Maintenance, and Pickup.
Contractor shall be responsible for safe installation, protection, maintenance, and pickup of all steel plates furnished under this Contract. Steel plates shall be installed and secured in a manner acceptable to EPWater and the governing jurisdiction. Steel plates shall be protected with cold asphalt mix or other approved material around the steel plate as required for public safety and traffic operations. Contractor shall remove and properly dispose of all asphaltic mix materials or other temporary materials at the time of pickup.

Contractor shall regularly inspect lifting nuts, lifting points, and other plate components for wear or damage and shall not deliver steel plates with worn or defective lifting components. Steel plates may be rejected by EPWater at the job site due to worn lifting nuts, unsafe condition, improper installation, inadequate protection, or other safety concerns. If a plate is rejected, Contractor shall deliver a replacement plate at no additional cost to Owner.

j. No Waiver of Owner Rights.
Payment for any steel plate item shall not waive Owner's right to dispute unsupported rental days, reject defective or unsafe plates, assess liquidated damages, require pickup, substitute an Owner-furnished plate, terminate the rental period, or exercise any other remedy available under the Contract Documents.

k. The contractor is responsible for handling, installing, maintaining, securing, recovering, and cleaning up El Paso Water-owned steel plates at locations specified in issued Work Orders. Upon completing repairs, the contractor must move the steel plates to a safe location near the repair site for recovery and notify El Paso Water staff for plate pick-up within 24 hours of completing the Work Order. These requirements apply to all assigned work and Work Orders.

2.4 NON-APPLICABLE TXDOT SPECIFICATIONS

Appendix N specifies the articles and sections from the TxDOT Specifications referenced in **Appendices F through M** which do not apply to this contract.

2.5 OWNER'S ALLOWANCE FOR UNANTICIPATED WORK REQUIRED AT THE OWNER'S DIRECTION ONLY – Measurement for this item shall be a lump sum basis for the additional work desired by the **OWNER** so directs its use. Documentation of how it is used shall be made by Work Order and reflected on the pay estimate.

END OF SECTION

CSP17-26 Appendixes - Table of Contents

Appendix A- Municipal Codes - Temporary Traffic Control & Excavation

Appendix B - Site Information and Permit Samples

Appendix C- Title 19 - Subdivision Ordinance Design Standards for Construction Section 3

Appendix D - Flowable Fill (Section 02237)

Appendix E -Title 19 - Subdivision Ordinance Design Standards for Construction Section 6

Appendix F -Item 105: Removing Stabilized Base and Asphalt Pavement

Appendix G -Item 132: Embankment

Appendix H -Item 247: Flexible Base

Appendix I -Item 251: Reworking Base Courses

Appendix J -Item 300: Asphalts, Oils, and Emulsions

Appendix K- Item 340: Dense-Graded Hot Mix Asphalt (Method)

Appendix L- Item 666: Reflectorized Pavement Markings

Appendix M - Item 678: Pavement Surface Preparation for Markings

Appendix N -Non-Applicable TxDOT Specifications

Appendix O – EPWater Standard Details - Concrete Collars and Meter Boxes

Appendix P – El Paso County Standard Details – Driveways and Street Paving Cut

Appendix A

Municipal Codes – Temporary Traffic Control & Excavation

Chapter 12.30 - TEMPORARY TRAFFIC CONTROL

Sections:

12.30.010 - Definitions.
12.30.020 - State manual.
12.30.030 - Permit required.
12.30.040 - Failure to obtain a temporary traffic control permit.
12.30.050 - Permit application.
12.30.060 - Permit bond and insurance required.
12.30.070 - Permit fees.
12.30.080 - Approval or denial of temporary traffic control plan.
12.30.090 - Duties of permittee.
12.30.100 - Hours of work.
12.30.110 - Emergencies.
12.30.120 - Correction of violations, removal of traffic control devices, fees.
12.30.130 - Stop work order.
12.30.140 - Nonconforming devices.
12.30.150 - Interference with traffic control devices.
12.30.160 - Violation.
12.30.170 - Enforcement authority.

12.30.010 - Definitions.

A. "Permittee" means the governmental entity, utility company, contractor, person or business entity that has received a temporary traffic control permit pursuant to this chapter.

B. "Person" means associations, clubs, societies, firms, contractors, governmental agencies, traffic barrier supply companies, partnerships, corporations, other business entities as well as individuals or groups of individuals.

C. "Temporary traffic control plan" means a plan describing temporary traffic control measures to be used for facilitating pedestrian and vehicular users through a work zone or other activity in a public right-of-way.

D. "Traffic engineer" shall have the same meaning as found in Section 12.04.190 and shall also include, for purposes of this chapter, those people designated by the traffic engineer.

E. "Work" means any activity that requires placement of barriers in the public right-of-way and/or any construction activities within the public right-of-way.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.020 - State manual.

The Manual on Uniformed Traffic Control Devices (MUTCD), Chapter 6 (Temporary Traffic Control), in the version adopted by the Texas Department of Transportation shall govern the operations of all

contractors, subcontractors, public utility companies, including, but not limited to the El Paso Public Service Board/El Paso Water Utilities, railroads, state and city agencies and any other person who is engaged in work subject to the MUTCD within the city.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.030 - Permit required.

No person shall (1) conduct work within the city right-of-way or (2) otherwise occupy the public right-of-way that impedes or limits the general public from traversing the right-of-way without a traffic control permit issued by the permit official. Permits shall be required in connection with all governmental work, including but not limited to the city (including the El Paso Public Service Board/El Paso Water Utilities), schools, universities, hospitals, water improvement districts, county, state and federal public works projects, all private sector work, and for such events as block parties, parades or other such temporary events that require the use of any portion of the public right-of-way. No permit shall be issued until a temporary traffic control plan is approved by the traffic engineer. Denial of a proposed temporary traffic control plan and the requested permit by the traffic engineer shall include the grounds for the denial. The issuance of the permit shall require the permittee to comply, implement and maintain the temporary traffic control plan.

A. State right-of-way. When the work proposed is within or adjacent to or impacting a state right-of-way, a copy of a Texas Department of Transportation approved permit to work within or adjacent to or impacting such state right-of-way shall be provided to the traffic engineer before a temporary traffic control permit may be issued.

B. El Paso Department of Transportation: All work by contractors under contract with the city, including those performing construction under the direction of the El Paso Department of Transportation, shall obtain a temporary traffic control permit pursuant to the requirements of this section. When the El Paso Department of Transportation uses city employees to perform work, it shall be required to obtain a temporary traffic control permit for restoration of the surface of streets, installation of traffic signalization and all other work within the right-of-way other than work that creates minimal disruption of traffic, such as sign repair and replacement, graffiti removal, patching and sealing the streets, minor operational maintenance and installation and the installation or repair of pavement markings. The fees, bond and insurance requirements of this section shall not apply to the El Paso Department of Transportation but shall be required of its construction contractors.

C. TxDOT. The Texas Department of Transportation and their contractors shall not be subject to the requirements of this Section for work they perform within TxDOT owned right-of-way within the City of El Paso.

D. Parade and public assembly permits, film making permits and events produced by the City of El Paso Museums and Cultural Affairs Department. Temporary traffic control permits are not required for a filmmaking permit issued pursuant to Chapter 13.30 for parade permits and public assembly permits issued pursuant to Chapter 13.36 or for events produced by the City of El Paso Museums and Cultural Affairs Department under Chapter 2.40.100 or other ordinance or resolution of city council.

(Ord. No. 17489, § 1, 1-18-2011; Ord. No. 17583, § 1, 6-14-11)

12.30.040 - Failure to obtain a temporary traffic control permit.

A. It shall be a violation of this chapter for any person to perform any work in the public right-of-way, occupy the public right-of-way, as described in Section 12.30.030, or to place traffic control devices, such as barricades, in the public right-of-way without first obtaining a traffic control permit except as otherwise provided by state statute or City Code. Persons providing traffic control devices shall not place traffic control devices in the public right-of-way until the person who is performing the work in the public right-of-way has obtained a traffic control permit. Persons providing traffic control services to persons performing work in the right-of-way may obtain the traffic control permit as the agent for the person performing such work provided that they submit written proof of such agency to the permit official when applying for a permit.

1. When no traffic control permit has been issued by the city, the traffic engineer may stop all work, remove or place traffic control devices and provide such other traffic control as deemed necessary for safety in the public right-of-way. The work at a site where no traffic control permit was obtained may be stopped by the traffic engineer until a traffic control permit is issued.

2. If no application is made for a traffic control permit within one city working day after issuance of a stop work order, the city may repair the street if any construction had commenced and remove barricades. The person placing the barriers in the city right-of-way and the person performing work in the city right-of way shall be jointly and severally liable to the city for payment of all costs the city incurs in responding to the work site for which no traffic control permit was issued.

B. Nothing in this chapter shall be construed to prohibit or limit the authority of law enforcement agencies to stop work and control the work site in the event of an emergency or in the course of law enforcement activities.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.050 - Permit application.

A. Filing an application. An application for a temporary traffic control permit shall be made in writing on a form prescribed by the permit official at least forty-eight hours before the proposed commencement of work within the public right-of-way.

B. All applications shall be signed by the applicant and be accompanied by payment of the established nonrefundable application fee.

C. Late application. Notwithstanding the preceding subsection, the permit official may consider an application that is filed in less than forty-eight hours before the proposed commencement of work if the short notice does not unreasonably hinder the city's review of the application.

D. Application form. The application and accompanying documentation shall include the following:

1. Name, address, telephone numbers and e-mail address of the contractor, the person or people in charge of the work or activity within the public right-of-way and the name and contact person for the barricade company responsible for traffic set up.

2. Location where the barricades will be placed, including the street address of the property or adjacent property.

3. Description of work or activity in the city right-of-way.

4. Duration and schedule of work or activity in the city right-of-way.

5. Type of closure needed.

6. The traffic control plan.

7. Certificates of insurance and permit bond.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.060 - Permit bond and insurance required.

A. Bond requirements. Except as provided in subsection 12.30.060 D. hereafter, no traffic control permit shall be issued under this chapter to any person applying for a traffic control permit until such applicant has filed with the traffic engineer a bond in the amount of fifty thousand dollars, signed by a surety company authorized to do business in Texas. The city shall be named as the obligee under such bond. The bond shall provide that the principal and its agents, employees, and subcontractors shall comply with all provisions of this chapter, that the principal shall pay all damages which are sustained by the city and which are caused by failure of the principal, its agents, employees or subcontractors to comply with the provisions of this chapter, and that the principal shall indemnify the city against claims arising out of such failure to comply. The surety shall be acceptable to the city as to solvency and such surety shall be listed on the current Department of the Treasury's Listing of Approved Sureties, Department Circular 570, United States Department of the Treasury or its successor publication, ("Circular 570"). If the city becomes dissatisfied that the surety is solvent or the surety is no longer included in Circular 570, the Traffic Engineer may require a bond from another surety listed in Circular 570. Permit applicants who have provided a bond to the city pursuant to the requirements of a chapter of the City Code other than this chapter that meets all of the requirements established in this chapter shall not be required to obtain an additional bond but are required to provide a copy of such bond, provided that such bond specifically includes coverage for the permit or permits issued pursuant to this chapter. Permittees who have multiple temporary traffic control permits are required to provide only one current valid bond for all such permits but may be required to provide a copy of the current bond with each application for a temporary traffic control permit.

B. Insurance requirements. Except as provided in subsection 12.30.060 D. hereafter, no permit applicant shall be issued a permit until the applicant presents evidence satisfactory to the traffic engineer that the applicant meets the following minimum insurance requirements:

1. The applicant shall procure and shall maintain during the term of the permit such commercial general liability, property damage liability and vehicle liability insurance, naming the permittee and any subcontractor performing work associated with the permit as insured, co-insured or additional insured for claims for damages for personal injury, including accidental death, as well as from claims for property damage that may arise from work associated with the permit.

2. Minimum limits of liability and coverage shall be two hundred fifty thousand dollars for bodily injury liability, including death, for each person and five hundred thousand dollars in the aggregate and one hundred thousand dollars for property damage for each occurrence and one hundred thousand dollars in the aggregate. Permit applicants that are governmental entities may comply with the insurance requirements of this section by providing certification that they are self-insured.

3. Such insurance shall be written by an accredited insurance company under the supervision of the Board of Insurance Commissioners of the State of Texas. Evidence of compliance with these insurance requirements shall be considered as having been met when copy of the insurance policy or a certificate of insurance has been filed with and approved by the traffic engineer. Such policy shall include an endorsement that the city is named as an additional insured to the full amount of the policy limits and that traffic engineer shall be notified at least thirty days in advance in the event the policy or policies are canceled and ten days in advance for non-payment of policy premiums. The required endorsement shall be provided to the traffic engineer. The permittee shall maintain said insurance with a solvent insurance company authorized to do business in Texas. The policy shall provide that the insurer will defend against all claims and lawsuits which arise and will pay any final judgment of a court of competent jurisdiction against the city, its officers, agents, servants or employees and permittee, his officers, agents, servants or employees. Failure to keep the policy in full force and effect throughout the term of the permit shall be grounds for cancellation of the permit.

4. Permit applicants who have provided certificates of insurance to the city pursuant to the requirements of a chapter of the City Code other than this chapter that meet all of the requirements established in this chapter shall not be required to obtain an additional insurance but are required to provide such certificates of insurance showing present coverage as required in this chapter. Permittees who have multiple temporary traffic control permits are required to provide only one current valid certificate of insurance for all such permits but may be required to provide a copy of the current certificate of insurance with each application for a temporary traffic control permit.

5. Self-insurance. A Permittee may satisfy the vehicle insurance requirements of this section by providing the city with a current "Self-insurance Certificate" issued by the Texas Department of Public Safety or its successor agency. A permittee may satisfy the worker's compensation insurance requirements of this section by providing the city with a current "Certificate of Authority to Self-insure" issued by the Texas Department of Insurance, Division of Worker's Compensation or its successor agency.

C. Temporary events. Those traffic control permits issued for temporary events where construction work is not conducted within the right-of-way, such as a block party, film making or parade, shall be exempt from the requirements in this section concerning bonds and insurance coverage but shall meet requirements for bonds and insurance as may exist under other applicable provisions of the City Code.

D. Traffic control permits shall be required in connection with all city (including El Paso Public Service Board/El Paso Water Utilities), county, state or federal public works projects provided that no permit fee or bond shall be required for such projects. Permit applicants that are governmental entities and are self-insured may comply with the insurance requirements of this section by providing certification that they are self-insured.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.070 - Permit fees.

The following fees are established and shall be charged:

A. Temporary traffic control permit fees. A fee for temporary traffic control permits shall be charged at the time the application for the permit is submitted. The permit fees shall be based on the duration of the permit with fees for permits based on the number of days for which the permit

was issued. No permit shall be issued for a period longer than six months. Permittees requiring additional time beyond the term of the permit shall apply for a new permit and shall pay the permit fee applicable to the new permit.

B. Exemptions. City departments, public utilities with city or state franchises for use of the right-of-way and state agencies and any construction contractor under contract with the city, such public utilities or an agency of the state shall be exempt from paying the fees authorized under this section. Those traffic control permits issued for temporary events where construction work is not conducted within the right-of-way, such as a block party, film making or parade, shall be exempt from the fee requirements in this section but shall meet the applicable fee requirements under other provisions of the City Code.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.080 - Approval or denial of temporary traffic control plan.

A. The permit official shall approve or deny a completed application within one city working day of the permit official's receipt of the completed application for permit. A notice of denial shall clearly set forth the grounds upon which the permit was denied and, when applicable, shall contain measures by which the applicant may cure any defects in the application or otherwise procure a permit.

B. The permit official may attach reasonable conditions to any permit approval as may be appropriate to address the purpose for which this chapter has been adopted, including but not limited to requirements concerning notification of lane closure to affected property owners and occupants, access to adjacent property and advance notice of lane closures.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.090 - Duties of permittee.

The permittee shall conform to the regulations as defined in the MUTCD, Chapter 6, or as the Traffic Engineer indicates on the approved temporary traffic control plan.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.100 - Hours of work.

A. Work restrictions during peak hours:

1. When construction is required that will block one or more lanes of an arterial roadway, the hours of operation shall be limited on weekdays to avoid conflict with peak hour traffic movements. Such work on weekdays is prohibited from 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:30 p.m. and any other peak hour traffic periods designated by the traffic engineer.

B. Exemptions:

1. Projects with a work duration as defined in Section 6G.02 of the MUTCD as intermediate-term stationary and long-term stationary may be exempt from the peak hour work restrictions.

2. Traffic engineer may exempt work from the peak hour restrictions on a case-by-case basis for projects described in subsection B.1. and for other projects based on the nature of the

construction and traffic volume in the area of the construction.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.110 - Emergencies.

An emergency exists when rapid deterioration of the roadway or infrastructure within the city's right of way occurs and such deterioration, left uncorrected, is causing or will cause further damages within the right-of-way to the extent that the public welfare and safety will be adversely affected. When an emergency occurs that requires total or partial road closures on a roadway no permit shall be required prior to beginning work needed to respond to the emergency. The traffic engineer shall be notified of the emergency as soon as possible. The limitations on hours of work in this chapter shall not apply to work required in response to an emergency. Every effort should be made to make repairs as soon as possible and a traffic control plan shall be submitted with an application for a permit during regular city working hours before the close of business on the next city business day after the day the emergency occurred.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.120 - Correction of violations, removal of traffic control devices, fees.

A. Violation of any regulation contained in the MUTCD or pursuant to the requirements of the city approved temporary traffic control plan or permit requirements shall be corrected by permittee within two hours after receipt of written notice from the traffic engineer or his duly authorized representative that a violation exits.

B. When the correction of violations is not made within the two hours specified in subsection A. and the city must take action to correct the violation, the city is authorized to charge fees as established related to traffic control and the placement of traffic control devices by the city.

C. Whenever a violation of this chapter occurs, the city shall be entitled to correct the existing deficiencies upon the failure on the part of the permittee to correct any such violation within the two-hour period described in this section. Permittee shall pay the city for its costs of correcting the deficiencies within ten city working days of receiving an itemized statement for such costs.

D. Fees. When barricades or other traffic control devices are left within vehicular travel lanes or sidewalk area of a public right-of-way beyond the period authorized by a traffic control permit, the city is authorized to remove such traffic control devices and charge the established noncompliance correction fee and a lane/sidewalk rental fee. The permittee shall pay to the city all costs of removal and storage of traffic control devices. The city shall be entitled to use or sell such traffic control devices that are not claimed and/or when the removal and storage costs are not paid within ninety days from the date of removal by the city. If the traffic engineer knows the identity of the owner of the traffic control device, he shall give such owner written notice of the removal of the traffic control device, the fees owed and where the traffic control device may be obtained. The owner of the traffic control devices shall be allowed to obtain the traffic control devices before disposition of such devices by the city if payment to the city of the fees required in this section is made within the time limits established herein. Traffic control devices left in the public right of way that are not within an approved permit area or otherwise authorized by the city in writing may be removed by the city and the provisions of this section shall apply to such traffic control devices.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.130 - Stop work order.

The traffic engineer may order a cessation of work for which the traffic control permit was issued when the permittee fails to comply with the requirements of the permit and traffic plan or when there is an imminent hazard. The stop work order shall continue in effect until the noncompliance is corrected by the permittee. Stop work orders shall not be subject to the two-hour correction period established in Section 12.30.120. The traffic engineer may order the removal, relocation or addition of traffic control devices during the time of the stop work order as needed to protect traffic from work accomplished to the time of the issuance of the stop work order.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.140 - Nonconforming devices.

A. No person shall place, maintain, or display upon or in view of any construction site, any temporary traffic control devices that the traffic engineer determines are substandard, damaged, worn out, faded, or otherwise nonconforming.

B. The city shall be entitled to issue a notice of violation by red-tagging any temporary traffic control device which is in violation of this section, and such violation shall be corrected within four-hours by the violator after receipt of notice of the red tag.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.150 - Interference with traffic control devices.

It shall be a violation for any person to alter, deface, injure, damage or remove any traffic control devices, including, but not limited to, barricades or signs or warning signs that have been placed upon or in the area of temporary traffic control or detour or construction zone, provided that the city and permittee may move, relocate and repair traffic control devices in accordance with the permit or the direction of the permit official, the traffic engineer or a police officer.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.160 - Violation.

It shall be a violation for any person to work in the public right of way without a permit, except as provided in Section 12.30.110 (emergencies), fail to comply with a traffic control plan, work in violation of a stop work order, use nonconforming devices or devices that have received a red tag or to work in the public right-of-way during hours that are prohibited by this chapter and in the traffic control plan unless such work is specifically excluded from the provisions of this chapter. Any person who violates a provision of this chapter shall, upon conviction, be guilty of a misdemeanor and punished by a fine not to exceed five hundred dollars. Each day the violation occurs shall constitute a separate offense.

(Ord. No. 17489, § 1, 1-18-2011)

12.30.170 - Enforcement authority.

The permit official shall have authority to enforce this chapter.

(Ord. No. 17489, § 1, 1-18-2011)

Chapter 13.08 - EXCAVATIONS [8]

[8] **Editor's note—** Ord. No. 17487, § 1, adopted January 18, 2011, repealed the former Ch. 13.08, §§ 13.08.010—13.08.180, and enacted a new Ch. 13.08 as set out herein. The former Ch. 13.08 pertained to similar subject matter and derived from prior code § 19-15—19-23, 19-25, 19-26; Ord. 8229 §§ 1—9, 1984; Ord. 9430 § 9, 1988; Ord. 10780 § 1, 1991; Ord. 10909 § 1, 1992; Ord. 11044 § 1, 1992; Ord. 11705 §§ 1, 2, 1993; Ord. 11846, 1994; Ord. 12757 § 1, 1996; Ord. 13062 § 18, 1997; Ord. 13135 § 1, 1997; Ord. 13152 §§ 110—114, 116—118, 1997; Ord. 13956 §§ 18, 19, 1999; Ord. 15188 § 1 (part), 2002; Ord. 15189 § 1 (part), 2002; Ord. 15662, § 1, 2004; Ord. 15663 § 1, 2004; Ord. 16819 §§ 1—3, 2008; Ord. 16982 § 4, 2008; Ord. No. 17391, §§ 6—8, 8-24-2010.

Sections:

13.08.010 - Definitions.
13.08.020 - Permit required.
13.08.030 - Permit—Application and requirements.
13.08.040 - Fees, bonds and insurance.
13.08.050 - One-year warranty and maintenance requirement.
13.08.060 - Permit—Limitations.
13.08.070 - Excavation and cut location limitations.
13.08.080 - Protective measures.
13.08.090 - Specifications.
13.08.100 - Responsibility of permittee.
13.08.110 - Monitoring wells.
13.08.120 - Appeal.
13.08.130 - Authority to issue citations.
13.08.140 Violation—Penalty. -

13.08.010 - Definitions.

A. "Design standards for construction" ("DSC") means the most recent edition of the regulations of the city engineer providing design standards for the construction of restoration of any cut or excavation in the city right-of-way.

B. "Normal city work hours" means city workdays from 8:00 a.m. to 3:00 p.m. Saturday, Sunday and official city holidays are not included in city workdays.

C. "Parkway" means the area of the city right-of-way from the back of the curb to the right-of way line.

D. "Permittee" means the governmental entity, person or business entity that has received a permit pursuant to this chapter.

E. "Property" means a parcel of land having a property or parcel identification number issued by the Central Appraisal District.

F. "Temporary traffic control plan" means a plan required pursuant to Chapter 18.30 describing

temporary traffic control measures to be used for facilitating users through a work zone in a public right-of-way.

G. "Work" means any cut or excavation in the public right-of-way and/or any construction activities within the public right-of-way, including but not limited to public works projects by governmental entities, but shall not include El Paso Department of Transportation repair and maintenance.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.020 - Permit required.

A. No person shall perform any work, make or cause to be made any cut or excavation in or under any street, alley, sidewalk, parkway or driveway within the city right of way without having first obtained a permit as required in this chapter. Permits are not required for the following activities in the Parkway: (1) utility service installations and repairs that require excavation depth of four feet or less than four feet and (2) utility pole installation or removal. Permittees who obtain a permit issued pursuant to this chapter that includes sidewalk cuts will not be required to obtain an additional separate sidewalk permit pursuant to the requirements of Chapter 13.04

B. When an emergency occurs that requires an excavation, no permit shall be required prior to beginning work needed to respond to the emergency. All other work shall not proceed until a permit has been issued. The permit official shall be notified of the emergency as soon as possible. Limitations on hours of work in this Code shall not apply to work required in response to an emergency. Emergencies exist only when there is a present danger to life, health or property, including but not limited to utility service outage. A permit shall be submitted as soon as possible but no later than noon of the city business day following the day the emergency occurred.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.030 - Permit—Application and requirements.

A. Application. The application for the permit required by this chapter shall be made in writing on a form supplied by the permit official and shall be signed by the applicant or an individual who is authorized in writing to act as the agent of the applicant. The application and accompanying documentation shall be submitted to the permit official and shall include the following:

1. The name, address, telephone numbers and e-mail address of the applicant and the person or people in charge of the work related to the permit, and

2. Location where the work will be performed including the street address of the property or adjacent property and the parcel identification number of the Central Appraisal District given to such property, and

3. The duration and schedule of the work, and

4. The description of the work, including but not limited to drawings showing the dimensions and characteristics of the proposed cut/excavation and restoration, a plan view of the work area, cross-sections of the backfill requirements and such other design information as may be required by the permit official, and

5. A traffic control plan, and

6. Certificates of insurance and permit bond, and

7. The one call system verification number (DIG TESS) for the work related to the permit, and

8. The name of the barricade company responsible for traffic set up, if applicable.

B. An applicant requesting a permit under this chapter shall be responsible for contacting a "one call" notification system servicing the area and will be required to furnish a verification number confirming that such a "one call" has been made as part of the application for permit. A permit issued under this chapter shall be denied for the failure of the applicant to contact a "one call" notification system servicing the area, and to provide a verification number confirming that such a "one call" notification system has been contacted by the applicant. This requirement, however, shall create no duty, express or implied, on the part of the city to verify that the applicant notified the one call system and received a verification number.

C. Public utility companies having permanent installations in or under streets, alleys or any other city right-of-way or city owned property by franchise or by special privilege license from the city shall obtain permits as required in this chapter.

D. Term. Permits shall be for a fixed term not to exceed thirty consecutive calendar days. The permit shall clearly identify the expiration date of the permit. If a permittee does not complete the work by the permit expiration date, the permittee must apply for and may be granted a permit extension for an additional thirty consecutive calendar days. An application for the extension of the term of the permit must be submitted to the permit official prior to the expiration date.

E. Traffic control permits are required pursuant to Chapter 18.30 and are in addition to the permit required in this chapter. Applicants for a permit under this chapter must also apply for a traffic control permit from the traffic engineer when such permit is required pursuant to Chapter 18.30. Failure to obtain a traffic control permit for the work that is subject of a permit issued under this chapter shall result in the revocation of a permit issued pursuant to this chapter.

F. Permittees shall request appointments for inspections by city inspectors for backfill, two sack, asphalt or concrete placement by calling the permit official. Requests shall be made on or before the city work day prior to the day the permittee wishes the inspection to take place. Appointments shall be made subject to the availability of the city inspectors. Inspections not performed during normal city work hours shall be subject to the after hours inspection fee in Section 13.08.040

(Ord. No. 17487, § 1, 1-18-2011)

13.08.040 - Fees, bonds and insurance.

A. Fees: The established fees shall be as follows:

1. Permit fee: The permit fee shall be charged for each permit issued. The permit fee shall be paid when the permit is issued, and shall not be refunded. Permit fees shall not include the costs related to occupancy that prevents the use of parking meters and permittees shall be subject to parking meter fees pursuant to Title 18. Permittees obtaining a permit under this chapter shall not be required to pay the sidewalk, street or alley space rental or storage fees that are required in Title 18. No permit fee will be charged to public utility companies operating under a franchise from the city or state or to city agencies, provided that city agencies are required to pay for inspection costs incurred by the permit official. Contractors applying for a permit to perform work on behalf of

a public utility that is operating under a franchise with the city or the state shall not have to pay the permit fee when the public utility has provided verification to the city that such contractor is working on behalf of the public utility for the work authorized under the permit.

2. Permit extension fee: The permit extension fee shall be one-third of the original permit fee and shall be charged for each thirty-day extension of the permit. Permit extension fees shall be paid prior to issuance of each extension. No permit extension fee will be charged to public utility companies operating under a franchise from the city or state or to city agencies, provided that city agencies are required to pay for inspection costs incurred by the permit official.

3. Initial inspection fee: The initial inspection fee shall be included in the permit fee and includes the city's cost of up to two hours of inspection of the work during normal city work hours by city employees.

4. Additional inspection fee. Permittees shall pay an additional inspection fee that shall be charged for each additional hour or part of an hour of inspection by the City that is in addition to the first two hours of inspection.

5. After hours inspection fee. An inspection fee for inspection performed by the city during hours other than normal city work hours shall be charged for each hour or portion of an hour inspection is provided.

B. Bond requirements. No permit shall be issued under this chapter to any person, firm or corporation applying for a permit until such applicant has filed with the permit official a bond in the minimum amount of fifty thousand dollars, signed by a surety company authorized to do business in Texas. The permit official may require a bond in an amount in excess of fifty thousand dollars in the event the permit application is for work in excess of fifty thousand dollars. The city shall be named as the obligee under such bond. The bond shall provide that the principal and its agents, employees, and subcontractors shall comply with all provisions of this chapter, that the principal shall pay all damages which are sustained by the city and which are caused by failure of the principal, its agents, employees or subcontractors to comply with the provisions of this chapter, and that the principal shall indemnify the city against claims arising out of such failure to comply, including but not limited to the one-warranty period required in this chapter. Bonds shall be issued for a duration sufficient to cover the one-year warranty period. The surety shall be acceptable to the city as to solvency and such surety shall be listed on the current Department of the Treasury's Listing of Approved Sureties, Department Circular 570, United States Department of the Treasury or its successor publication, ("Circular 570"). If the city becomes dissatisfied that the surety is solvent or the surety is no longer included in Circular 570, the permit official may require a bond from a surety listed in Circular 570. Permit applicants that have provided a bond to the city in the amount required by the permit official for a permit pursuant to the requirements of a chapter of the City Code other than this chapter that meets all of the requirements established in this chapter shall not be required to obtain an additional bond but are required to provide a copy of such bond, provided that such bond specifically includes coverage for the permit or permits issued pursuant to this chapter. Permittees who have multiple permits issued pursuant to this chapter are required to provide only one current valid bond for all such permits but may be required to provide a copy of the current bond with each application for a permit. Contractors under contract with a government agency shall provide the bond required in this section. No bond is required when all of the work performed pursuant to a permit issued under this chapter to a government agency is performed entirely by the employees of that government agency. Public utility companies operating under a state or city franchise shall not be required to provide the bond required in this section when the work authorized in a permit will be performed solely by employees of such public utility. Any person or entity

that is not an employee of the public utility performing work under a permit on behalf of a public utility shall provide the bond required under this section.

C. Insurance requirements. No permit applicant shall be issued a permit until the applicant presents evidence satisfactory to the permit official that the applicant meets the following minimum insurance requirements:

1. The applicant shall procure and shall maintain during the term of the permit such commercial general liability, property damage liability and vehicle liability insurance, naming the permittee and any subcontractor performing work associated with the permit as insured, co-insured or additional insured for claims for damages for personal injury, including accidental death, as well as from claims for property damage that may arise from work associated with the permit.

2. Minimum limits of liability and coverage shall be two hundred fifty thousand dollars for bodily injury liability, including death, for each person and five hundred thousand dollars in the aggregate and one hundred thousand dollars for property damage for each occurrence and one hundred thousand dollars in the aggregate.

3. Such insurance shall be written by an accredited insurance company under the supervision of the Board of Insurance Commissioners of the State of Texas. Evidence of compliance with these insurance requirements shall be considered as having been met when copy of the insurance policy or a certificate of insurance has been filed with and approved by the permit official. Such policy shall include an endorsement that the city is named as an additional insured to the full amount of the policy limits and that permit official shall be notified at least thirty days in advance in the event the policy or policies are canceled and ten days in advance for non-payment of policy premiums. The required endorsement shall be provided to the permit official. The permittee shall maintain said insurance with a solvent insurance company authorized to do business in Texas. The policy shall provide that the insurer will defend against all claims and lawsuits which arise and will pay any final judgment of a court of competent jurisdiction against the city, its officers, agents, servants or employees and permittee, his officers, agents, servants or employees. Failure by permittee to keep the policy in full force and effect throughout the term of the permit shall be grounds for cancellation of the permit by the permit official. The permit official shall provide notice of cancellation of the permit to the permittee, at which time the permittee shall cease the work allowed under the permit.

4. Permit applicants who have provided certificates of insurance to the city pursuant to the requirements of a chapter of the City Code other than this chapter that meet all of the requirements established in this chapter shall not be required to obtain an additional insurance but are required to provide such certificates of insurance showing present coverage as required in this chapter.

Permits shall be required in connection with all city (including but not limited to El Paso Public Service Board/El Paso Water Utilities), county, state or federal public works projects provided that no permit fee shall be required for such projects. When the work permitted under this chapter is performed by the employees of a governmental agency, the insurance requirements of this section may be met by providing certification that government agency obtaining the permit is self-insured. Work permitted under this chapter performed by those contracting with a governmental agency shall provide the insurance required herein.

5. Self-insurance. A permittee may satisfy the vehicle insurance requirements of this section by

providing the city with a current "Self-insurance Certificate" issued by the Texas Department of Public Safety or its successor agency. A permittee may satisfy the worker's compensation insurance requirements of this section by providing the city with a current "Certificate of Authority to Self-insure" issued by the Texas Department of Insurance, Division of Worker's Compensation or its successor agency.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.050 - One-year warranty and maintenance requirement.

Any person issued a permit shall agree and warrant to maintain the excavated area for a period of one year after the completion of the restoration of the right of way, as approved by the city. Maintenance of the excavated area shall include the repair of any type of failure, including, but not limited to, the area permittee was required to repave. Repairs during the warranty period shall meet the standards of the DSC. The city may conduct inspections of the restored area throughout the one-year warranty period and require maintenance and correction of the work by the permittee. Failure of the permittee to correct the work shall constitute a violation of this chapter.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.060 - Permit—Limitations.

A. Each permit shall specify the location of each cut or excavation allowed in the permit and the dates during which the city right-of-way or any portion thereof may be cut or excavated as to each such location. The time for each cut or excavation allowed in the permit shall not exceed thirty consecutive calendar days, provided that if the work for a cut or excavation is not completed within the time allowed in the permit, the permittee shall obtain a permit extension. A work schedule for each such location not completed as required in the original permit shall be submitted with the application for the permit extension. Each permit extension shall not be issued for more than thirty consecutive calendar days.

B. Master permits may be issued for multiple cuts or excavations in the city right-of-way provided that they pertain to the same project scope of work, adequate documentation is provided to the permit official and the requested master permit does not create conflicts with street closures and property access.

C. Permits shall not be assignable. No person shall use the name of another in obtaining a permit, and no person shall allow his name to be used by another in obtaining a permit, except in the case of an authorized agent acting for his principal.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.070 - Excavation and cut location limitations.

The permit official may restrict the area in which a cut or excavation may occur. In granting permission for a cut or excavation, the permit official shall consider the need for the proposed cut or excavation, amount of traffic at the location in question and safety factors, including but not limited to the hazards likely to be created by such cut or excavation. The permit official shall have the authority to require a location of the cut or excavation other than the location requested by the applicant when one or more alternative locations are available to the applicant. The permit official's determination of required location shall be based on the following information that shall be provided by the traffic engineer to the permit official: the amount and pattern of traffic, nature and condition of the right of way and safety

factors, including but not limited to reduced risk to the traveling public.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.080 - Protective measures.

A. While the cut or any part thereof is open, and while any part of the street, sidewalk or public place is obstructed by rubbish or material, the permittee shall erect and maintain traffic control devices as required by the traffic control permit and shall maintain safe passage for pedestrian and vehicular traffic.

B. If substantially the full width of any street, alley, sidewalk or public place is excavated, the permittee shall maintain a driveway or walkway across the excavation until it is refilled. The driveway or walkway, as applicable, shall be specified in the plans submitted with the application for the permit and such driveway and/or walkway shall meet specifications approved by the permit official.

C. If the permittee fails to take any protective measures herein required, the permit official may, in his discretion, authorize the work to be done by city forces or by contract. Permittee shall pay the city for its costs of protective measures within ten city working days of receiving an itemized statement for such costs.

D. Steel plates. Requirements for providing and maintaining steel plates are contained in the DSC.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.090 - Specifications.

A. All work, including but not limited to cutting of paving, excavation, backfill, bedding, base course and placement and compaction of pavement shall be done pursuant to the standards and specifications in the city's Design Standards for Construction, Addendum 1, or successor standards for construction in effect at the time of the issuance of the permit or as specified in the permit by the permit official. The DSC governs the construction and restoration of the streets, sidewalks, parkways, driveways, and related infrastructure within the city's right-of-way and does not apply to the construction related to public utility infrastructure within the city's right-of-way.

B. Minimum patching requirements. The minimum area that shall be patched pursuant to the standards in the DSC and any provision specified in the permit, includes:

FOR EXCAVATIONS ACROSS THE RIGHT-OF-WAY: (1) patching the excavated area; and (2) patching two feet from each side of the excavation area, and (3) patching no more than eight feet in each direction from the areas patched pursuant to (1) and (2) of this paragraph, provided that patching need not extend across a median when the excavation did not extend across the median and providing that if the area patched under (1), (2) and (3) of this paragraph extends into an area that was patched prior to the excavation, such patching shall be extended to include all of the area of the prior patch, as shown in the illustrations in the DSC.

FOR EXCAVATIONS ALONG THE LENGTH OF THE RIGHT-OF-WAY: In traffic lanes: (1) patching the excavated area and (2) patching to the next existing original paving joint, provided that patching shall always be no less than to the center of the wheel path in all lanes in which the excavation occurs. In parking and other lanes such as bike lanes: (1) patching the excavated area and (2) patching to the curb or original paving joint, whichever is the greater distance, provided that patching shall always be not less than to the center of such lane, as shown in the illustrations

in the DSC.

OTHER AREAS: The requirements for patching other areas within the city right-of-way, including but not limited to sidewalk and curb repair, are set forth in the DSC.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.100 - Responsibility of permittee.

A. The permittee shall be responsible for, and shall hold the city harmless against, all damages to persons or property resulting from the making or repair of the cut or excavation, whether done by himself or by the city; and the taking out of the permit shall be deemed a contractual acceptance of this obligation by the permittee in a condition of the issuance of the permit. The person making the cut or excavation shall continue to protect it and be responsible for its condition until the work allowed in the permit is completed as required in the permit.

B. If the permittee fails to complete any work required of him hereunder as promptly as reasonably possible consistently with good construction practice, or if the permittee fails to take any protective measure required of him by this chapter, the work may, in the discretion of the permit official, be done by city forces or by contract whether requested or not; and the proper charge shall be made against the permittee in accordance with this section.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.110 - Monitoring wells.

A. Permit required. Where drilling of a monitoring well is proposed on public right-of-way or city-owned property, a monitoring well permit shall be required. A permit application may cover one or more monitoring wells for a single property. If additional wells are required on the same property subsequent to a permit having been issued, a new monitoring well permit shall be required for the additional wells. Separate monitoring well permits shall be required for wells on property not included in an existing monitoring well permit. A monitoring well permit shall expire at the end of one year from of the date of issuance of the permit, at which time the permit will become void and a new permit, obtained through the filling of a new application with the permit official, shall be required.

B. Monitoring well permit fees. A permit application shall be accompanied with the established permit fee. The permit fee shall not be refundable. The permit fee shall include the cost of inspecting the capping of the monitoring wells that are allowed under the permit. If any person commences construction work on public right-of-way or city-owned property prior to the issuance of a permit, such person shall submit an application for a permit and pay the established permit fee for an application submitted after work begins, provided, however, that such additional fee shall not be required in cases of an emergency, as emergency is described in Section 13.08.015 B. For purposes of this subsection, the Texas Commission on Environmental Quality or the director of the department of environmental services may declare an emergency; provided, that the city is properly notified by written notice to the permit official. Permit fees shall not include the costs related to occupancy that prevents the use of parking meters and permittees shall be subject to parking meter fees pursuant to Title 18. Permittees shall not be required to pay sidewalk, street or alley space rental under Title 18 or for sidewalk, street or alley storage fees pursuant to Title 18

C. Permit contents. The monitoring well permit application shall be on a form approved by the permit official that shall be submitted to the permit official and include the information required in Section

13.08.030 A.1. through 8. and the following information:

1. A site map of the proposed monitoring well(s);

2. A narrative describing the need for the well(s), the extent of interruption of traffic, and the proposed drilling schedule of the monitoring well(s);

3. When issued by the Texas Commission on Environmental Quality (TCEQ), a copy of the demand letter requesting corrective action on delineation of ground contamination, which shall contain the LPST identification number if available;

4. The applicant shall be required to provide copies of the permit application and accompanying information to the engineering services manager of the El Paso Water Utilities and the Permit Official.

D. Other requirements. The requirements of Section 13.08.20 B. shall apply to all monitoring well permits. The permit shall require that the Permittee shall meet all TCEQ requirements for capping the monitoring well.

E. Permit issuance. Upon verification by the applicant that the previously described information has been provided to all indicated departments, the application shall be accepted for processing. The permit official shall, within five city working days after acceptance of the application, issue or deny the permit based on the information provided. It shall be the responsibility of the applicant to obtain clearance from all affected utility agencies and the engineering services manager of the El Paso Water Utilities and submit such clearances with the permit application. The applicant shall meet the insurance and the bond requirements of Section 13.08.030

F. Notification to director of the department of environmental services. Whether the monitoring well is on public right-of-way, city-owned property or private property, copies of the well driller's log submitted to the Texas Commission on Environmental Quality shall be provided to the director of the city's department of environmental services. If at any time during the construction, operation or monitoring of a well, suspected hazardous or toxic substance is encountered, the director of the department of environmental services shall be immediately notified by the permittee.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.120 - Appeal.

Any applicant or permittee aggrieved by the decision of the permit official concerning the issuance, denial, revocation or suspension of a permit may appeal such decision to the construction board of appeals in accordance with the requirements and procedures of Chapter 2.30.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.130 - Authority to issue citations.

The permit official is authorized to enforce the provisions of this chapter and shall have the power to issue misdemeanor citations to any persons violating the provisions of this chapter.

(Ord. No. 17487, § 1, 1-18-2011)

13.08.140 Violation—Penalty.

Any person who shall violate any provision of this chapter shall, upon conviction, be guilty of a misdemeanor and punished by a fine not exceeding five hundred dollars. Each day the violation occurs shall constitute a separate offense.

(Ord. No. 17487, § 1, 1-18-2011)

Appendix B

Site Information and Permit Samples

El Paso Water Emergency Site Information Worksheet

Address: _____

Location: _____

Size of Cut 1: _____

Size of Cut 2: _____

Size of Cut 3: _____

Number Of Plates / TCS Barricade: _____

Contractor Supplying Plates: _____

Foreman: _____

Backfill Date: _____

Inspector Name: _____

Proposed Restoration Line Items: _____

Account Number: _____

Emergency Work Start Date: _____

Emergency Work End Date: _____

R-O-W: _____

City Emergency Permit (EPEP): _____

Date EPEP Was Submitted: _____

Notes:

SKETCH OF SITE WILL BE SHOWN HERE

☐ Base

Requisition No. _____ ☐ Not Based

Address _____

Size of Cuts _____

_____

Area _____ Item Cost _____

Cost _____ Foreman _____

Sub Item _____

Account # _____

Date _____ Date Issued _____

FCRM 5008-0484

PAVING CUT REPORT

el paso WATER

City of El Paso
Streets and Maintenance
Utility Emergency Permit

Site Address: 4944 Titanic, el paso, tx 79904

Permit No: **EPEP26-00153**

Issued: **04/20/2026**

Permit Created Date: **04/15/2026**

Utility Company and Utility Emergency Contact	Barricade Company
JESUS MENDOZA El Paso Water 9751 Pan american el paso, tx 79927 9155035481 0000000000	JESUS MENDOZA LEEDSMANN CONSTRUCTION INC. DBA TCS 3120 TRAWOOD DR EL PASO, TX 79936 9159210300 0000000000

DESCRIPTION OF EMERGENCY: repaired water service line leak

TYPE OF TRAFFIC CONTROL SET UP: Street Closure

DATE OF EMERGENCY: 04/15/2026

PLATE INSTALLATION DATE:

ESTIMATED REMOVAL DATE:

RIGHT OF WAY IMPACTS: Travel Lane

*** NOTICE ***

1. THIS PERMIT IS ISSUED IN ACCORDANCE WITH PROVISIONS OF CHAPTER 12.30 OF THE MUNICIPAL CODE AND CURRENT EDITION OF CHAPTER SIX OF THE TEXAS MANUAL OF UNIFORMED TRAFFIC CONTROL DEVICES AND THE APPLICANT, IN ACCEPTING IT, OBLIGATES THEM TO COMPLY FULLY WITH ALL THE PROVISIONS OF THE MUNICIPAL CODE.

2. THIS TRAFFIC CONTROL PERMIT AND APPROVED TRAFFIC CONTROL PLAN, OR A COPY THEREOF, SHALL BE KEPT ON THE JOB SITE UNTIL COMPLETION OF THE PROJECT.

3. I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS PERMIT AND STATE THAT THE ABOVE INFORMATION IS CORRECT, AND AGREE TO COMPLY WITH ALL CITY, STATE AND FEDERAL LAWS REGULATING ACTIVITIES COVERED BY THIS PERMIT.

City Traffic Engineer

Contractor's, Owner's or Agent's Signature

City of El Paso
Streets and Maintenance
Traffic Control Permit

Site Address: 3430 HUECO & GRAMA, EL PASO, TX 79903

Permit No: **EPTC23-00694**

Issued: **02/20/2023**

Expires: **03/20/2023**

Applicant	Phone Number	Barricade Company
MARIA BETANCOURT 1154 HAWKINS BLVD EL PASO, TX 79925	Applicant:915-594-5672 Barricade:915-921-0300	TRAFFIC CONTROL SPECIALIST 3120 TRAWOOD DR SUITE F EL PASO, TEXAS 79936

WORK AUTHORIZED: EPWU / INSTALL NEW SANITARY SEWER LINE / 3430 HUECO BETWEEN GRAMA & LUNA / SET UP A STREET CLOSURE WITH SIDEWALK CLOSURE / TRAFFIC DETOURS TO GRAMA & LA LUZ / WATER BARRIERS WILL BE PLACED FOR EXTRA PROTECTION / NOTE: MUST NOTIFY RESIDENTS IN ADVANCE ALL RESIDENTS AND BUSINESSES AFFECTED BY ROAD CLOSURE / PROVIDE ACCESS FOR LOCAL RESIDENTS AND EMERGENCY VEHICLES AT ALL TIMES. NO EQUIPMENT, MATERIALS, TRAFFIC CONTROL DEVICES, SPOILS OR DEBRIS TO BE LEFT ON THE STREET OUTSIDE WORK HOURS, UNLESS WORK ZONE AREA IS SECURED.

TYPE OF TRAFFIC CONTROL SET UP: STREET CLOSURE AND A SIDEWALK CLOSURE

Start Date: 02/20/2023

Expiration Date: 03/20/2023

Length of Term: Long

*** NOTICE ***

1. THIS PERMIT IS ISSUED IN ACCORDANCE WITH PROVISIONS OF CHAPTER 12.30 OF THE MUNICIPAL CODE AND CURRENT EDITION OF CHAPTER SIX OF THE TEXAS MANUAL OF UNIFORMED TRAFFIC CONTROL DEVICES AND THE APPLICANT, IN ACCEPTING IT, OBLIGATES THEM TO COMPLY FULLY WITH ALL THE PROVISIONS OF THE MUNICIPAL CODE.

2. THIS TRAFFIC CONTROL PERMIT AND APPROVED TRAFFIC CONTROL PLAN, OR A COPY THEREOF, SHALL BE KEPT ON THE JOB SITE UNTIL COMPLETION OF THE PROJECT.

3. I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS PERMIT AND STATE THAT THE ABOVE INFORMATION IS CORRECT, AND AGREE TO COMPLY WITH ALL CITY, STATE AND FEDERAL LAWS REGULATING ACTIVITIES COVERED BY THIS PERMIT.

City Traffic Engineer | **Contractor's, Owner's or Agent's Signature** | **Issued By Ana Wells**

EPTC3-00694

TRAFFIC CONTROL PLAN

SHALL COMPLY WITH THE LATEST EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

ONE DAY PERMIT UNLESS NOTED

CLOSURE DATE: 2/20/23-3/20/23

TIME : 8AM-5PM/24 HOURS

BY: aw DATE: 02/20/2023

CITY OF EL PASO STREETS AND MAINTENANCE

Date: 1/13/2023 Author: TCS ADAM MIJARES Project: EPWU HUECO AVE AND GRAMA ST

Comments:
SET UP A STREET CLOSURE WITH A SIDEWALK CLOSURE TO ALLOW EPWU TO INSTALL A 8' SEWER LINE .

Posted Speed	Formula	Minimum Desirable Taper Lengths 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacs of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	L = WS² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

LEGEND:

225' X 8'

FILLED WATER BARRIERS

NO PARKING

City of El Paso
Streets and Maintenance
Paving Cut Permit

Permit No:	**NEDP23-00609**
Scope:	**EPWU / INSTALL NEW SANITARY SEWER LINE**
Location:	3430 HUECO & GRAMA AVE, EL PASO, TX 79903
Issued:	**2/20/2023**
Expires:	**3/20/2023**

Contractor

MARIA BETANCOURT
1154 HAWKINS BLVD
EL PASO, TX 79925

Applicant / Contact

MARIA BETANCOURT
1154 HAWKINS BLVD
EL PASO, TX 79925

DIG TESS: 2354137151

START DATE: 02/20/2023

FEES: ($1.00)

**** NOTICE ****

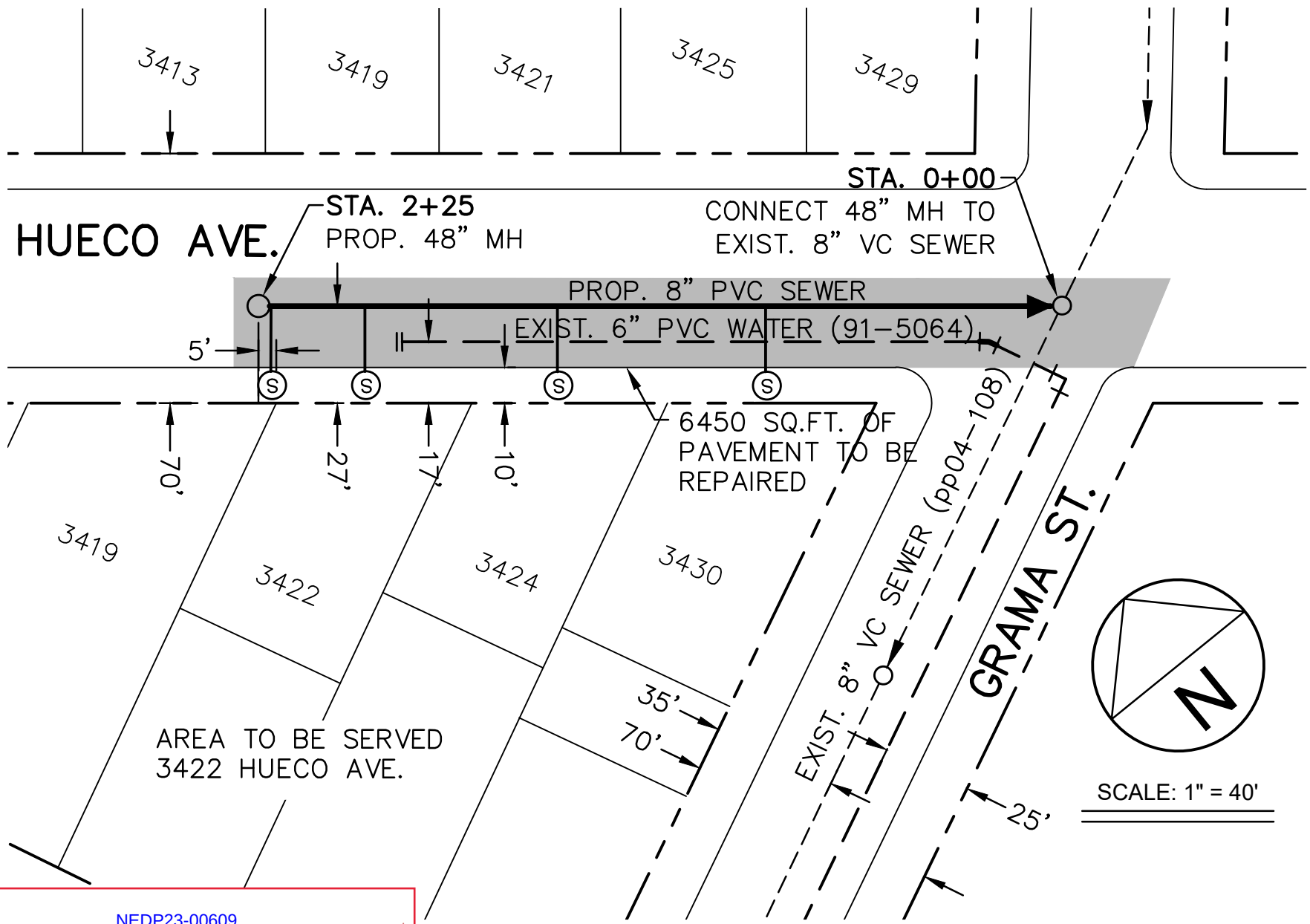
INSPECTION REQUEST SHALL BE MADE ON OR BEFORE THE CITY WORK DAY PRIOR TO THE DAY THE PERMITTEE WISHES THE INSPECTION TO TAKE PLACE BY CALLING THE STREETS AND MAINTENANCE DEPARTMENT @ 212-7028. INSPECTION WILL BE MADE SUBJECT TO THE AVAILABILITY OF THE CITY INSPECTORS. A COPY OF APPROVED PAVING CUT PERMIT, TRAFFIC CONTROL PERMIT, AND PROPOSED EXCAVATION DRAWING SHALL BE KEPT AT THE PERMIT ADDRESS SITE AND SHALL BE MADE AVAILABLE TO THE CITY INSPECTOR UPON REQUEST.

Given under my hand and The City of El Paso Seal on this date:

Contractor's Signature

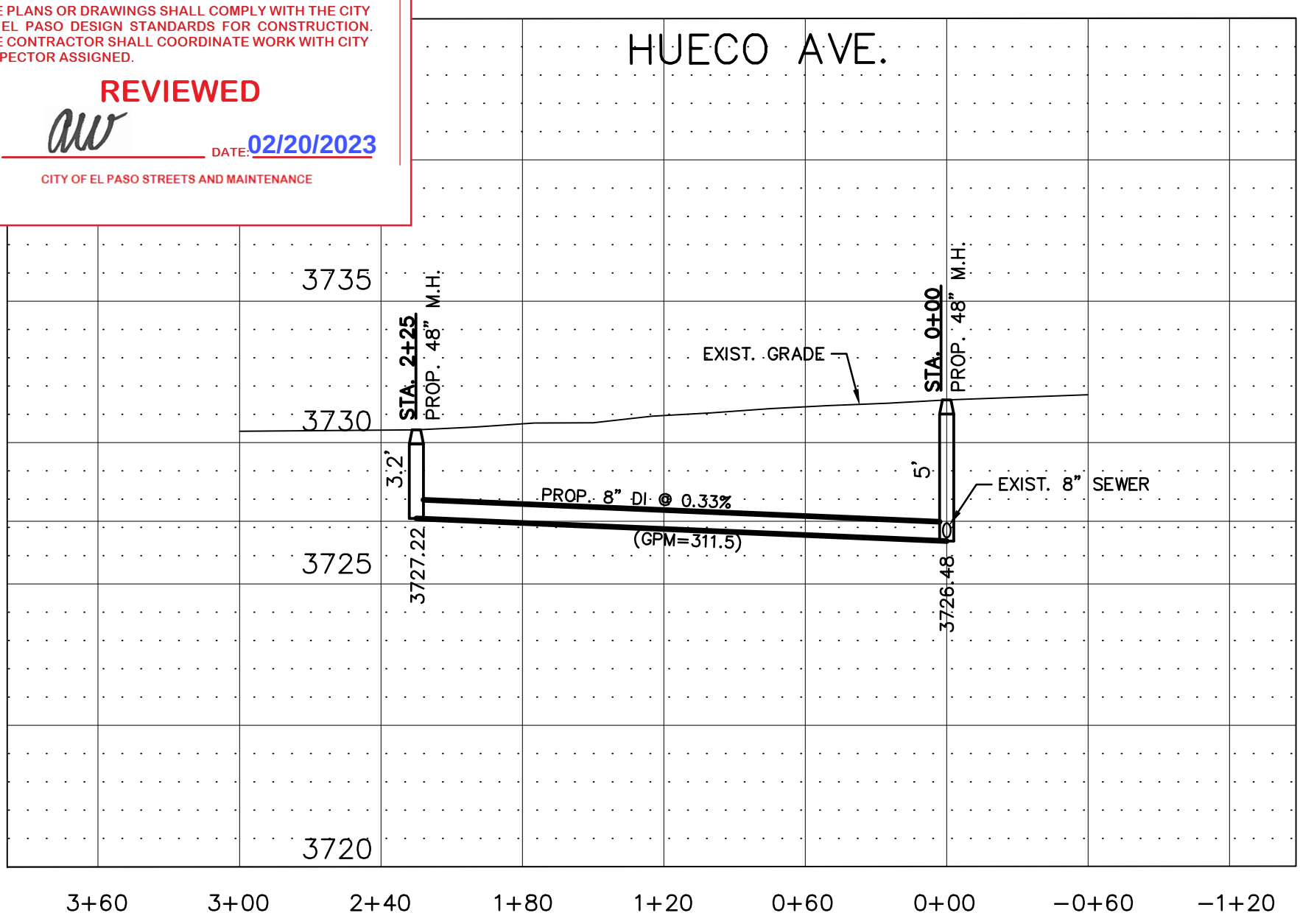
City Traffic Engineer

FOR INSPECTIONS PLEASE CONTACT 915-212-7028 OR EMAIL REQUEST AT pavementcut@elpasotexas.gov



NEDP23-00609
PAVING
THE PLANS OR DRAWINGS SHALL COMPLY WITH THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WORK WITH CITY INSPECTOR ASSIGNED.

REVIEWED
BY: aw DATE: 02/20/2023
CITY OF EL PASO STREETS AND MAINTENANCE



SEWER NOTES:

1.) CONTACT UTILITY COMPANIES FOR EXACT LOCATION OF UNDERGROUND UTILITIES IN THIS AREA BEFORE EXCAVATION.
2.) INSTALL A TRENCH SAFETY SYSTEM TO PROVIDE FOR THE SAFE EXCAVATION OF ALL TRENCHES EXCEEDING A DEPTH OF (5') FEET AS PER O.S.H.A. STANDARDS.
3.) PROVIDE MANHOLE ADAPTER WHERE P.V.C. PIPE CONNECTS TO MANHOLE.
4.) P.V.C. PIPE SHALL BE PLACED WITH SELECT BEDDING MATERIAL ALL AROUND.
5.) CITY PAVING CUT PERMIT REQUIRED BEFORE EXCAVATION.
6.) **BENCHMARK:** CITY MONUMENT AT THE CENTERLINE INTERSECTION OF GRAMA ST. & PERSHING DR. ELEV: 3737.68

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD	HUECO AVE. SANITARY SEWER IMPROVEMENTS	SCALE 1" = 40'	DRAWN BY RE	JOB NO. XX-XXXX	DATE 10/26/2022	el paso WATER
			CHECKED BY D.T.	ACC'T NO.	SHT 1 OF 1	

PAVING CUT APPLICATION FORM

CONTRACTOR CONTACT INFORMATION

STREET & MAINTENANCE DEPARTMENT

FIRM: EPWater
NAME: MARIA BETANCOURT
ADDRESS: 1154 HAWKINS BLVD
EL PASO (CITY) TX (STATE) 79925 (ZIP CODE)
BUSINESS PHONE: (915) 594-5672 MOBILE: ( )
E-MAIL ADDRESS: MBetancourt@epwater.org

UTILITY CONTACT INFORMATION

UTILITY COMPANY: EPWater
CONTACT NAME: MARIA BETANCOURT
ADDRESS: 1154 HAWKINS BLVD
EL PASO (CITY) TX (STATE) 79925 (ZIP CODE)
BUSINESS PHONE: (915) 594-5672 MOBILE: ( )
E-MAIL ADDRESS: LVillarreal@EPWater.org

JOB INFORMATION

FOREMAN ON SITE: Oscar Perez MOBILE: (915) 238-4350
WORK LOCATION: Hueco Ave and Grama St
WORK DESCRIPTION: INSTALL: 8" Sewer line
BARRICADE COMPANY: TRAFFIC CONTROL SPECIALIST
START DATE: upon approval END DATE:
DIG TESS No: 2354137151 SIGNATURE: Oscar Perez DATE: 2-14-23

ATTACHEMENTS REQUIRED:		INSPECTION TYPE:			
PROPOSED EXCAVATION DRAWING	☑	ASPHALT REPAIRS:		CONCRETE REPAIRS:	
APPROVED TRAFFIC CONTROL	☑	BACK FILL	☑	SIDEWALK	☐
PERMIT BOND	☐	2-SACK	☑	CURB & GUTTER	☐
CERTIFICATE OF INSURANCE	☐	ASPHALT	☑	DRIVEWAY	☐
				CONCRETE PAVEMENT	☐

NOTICE

1. INSPECTION REQUEST SHALL BE MADE ON OR BEFORE THE CITY WORK DAY PRIOR TO THE DESIRE INSPECTION DAY BY CALLING THE STREET AND MAINTENANCE DEPARTMENT AT (915) 212-0151. 2. INSPECTION WILL BE MADE SUBJECT TO THE AVAILABILITY OF THE CITY INSPECTORS. 3. A COPY OF THE APPROVED PAVING CUT PERMIT, TRAFFIC CONTROL PERMIT, AND PROPOSED EXCAVATION DRAWING SHALL BE KEPT AT THE PERMIT ADDRESS SITE AND SHOULD BE MADE AVAILABLE TO THE CITY INSPECTOR UPON REQUEST.

:Paving Cut Application-2016-vSCS2.2

Good Morning Mayra,

See below. Ticket number for 811 for Hueco

Maria

From: texas811locates@texas811.org <texas811locates@texas811.org>
Sent: Friday, February 10, 2023 5:36 PM
To: Maria Betancourt <MBetancourt@epwater.org>
Subject: Locate Message

To update or view a map of the dig location click here to go to the Texas811 Portal Site.

Texas811 Locate Request

Ticket Number:	2354137151	Old Ticket:	
Source:	Voice	Hours Notice:	48
Type:	Normal	Taken Date:	2/10/2023 6:35:28 PM
Seq Num:	1		

Company Information

NOTICE

UPCOMING CONSTRUCTION

It has become necessary to install or replace the water / wastewater line in the area of your residence. Construction work will begin on or about 2-15-23 and will continue through 3-15-23
Monday- Saturday 9:00am-4:00pm

When you are in a construction and maintenance work area, be prepared to:

1. Slow down or stop as you approach workers and equipment.
2. Obey all warning signs and barricades.
3. Watch for unexpected movements of workers and equipment.
4. Obey instructions of flaggers or workers.
5. Yield the right of way heavy equipment or machinery in motion.

We apologize for the inconvenience this may cause you and hope you will understand our need to improve service to our customers.

Thank you,
In Case of Emergency Contact

El Paso Water
(915) 594-5784

Traffic Control Specialist
(915) 921-0300

el paso WATER

1154 Hawkins Blvd. ▪ 915.594.5500
P.O. Box 511 ▪ El Paso, Texas 79961

NOTICIA

PRÓXIMA CONSTRUCCIÓN

Ha sido necesario instalar o reemplazar la línea de agua / drenaje que abestece su residencia. La construcción comenzara aproximadamente el **11 de Mayo de 2022** y continúa hasta el **10 de Junio de 2022**.
Lunes-Sábado 9:00am-4:00pm

Cuando se encuentre en un área donde se realizan trabajos de construcción y mantenimiento, prepárese para:

1. Reducir la velocidad y detenerse al acercarse a los trabajadores y a los equipos.
2. Obedecer todas las sañales de adventencia y barricadas.
3. Reaccionar ante los movimientos inesperados de los trabajadores y los equipos.
4. Obedecer todas las instrucciones de los señaleros o trabajadores.
5. Ceda el paso a equipos pesados o maquinaria en movimiento.

Usted puede ser responsable para los daños causados por el equipo móvil en movimiento.

Le pedimos nos disculpe por la incoveniencia que le pueda causar esta contrucción. Esperamos que compreda que queremos mejorar el servicio a nuestros clientes.

Gracias,
En caso de emergencia contactar:

El Paso Water	**Traffic Control Specialist**
(915) 594-5784	(915) 921-0300

el paso WATER

1154 Hawkins Blvd. ▪ 915.594.5500
P.O. Box 511 ▪ El Paso, Texas 79961

Appendix C

Title 19 - Subdivision Ordinance Design Standards for Construction Section 3

PAVING CUT TRENCH REPAIR

GENERAL NOTES

CITY OF EL PASO SPECIFICATIONS FOR TYPE C ASPHALT SHALL BE USED FOR PAVEMENT REPAIRS UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER. CONTRACTOR MUST USE INDUSTRY STANDARD EQUIPMENT & METHODS FOR PAVING.

REPAIRS PERPENDICULAR TO THE STREET THAT ARE MORE THE 8' IN WIDTH AND EXTEND FROM EITHER GUTTER TO GUTTER OR FROM GUTTER TO THE CENTER OF THE STREET WILL REQUIRE THE USE OF A PAVING MACHINE.

LONGITUDINAL REPAIRS THAT ARE MORE THAN 8' IN WIDTH AND MORE THAN 15' IN LENGTH WILL REQUIRE THE USE OF A PAVING MACHINE.

TWO-SACK MATERIAL SHALL BE TWO SACKS OF CEMENT PER ONE CUBIC YARD OF SOIL, MATERIAL MUST BE PRE-MIXED, MIXING ON THE JOBSITE WILL NOT BE ALLOWED. THE MATERIAL MUST BE LEFT TO CURE FOR A MINIMUM OF 24 HOURS & CONTRACTOR MUST ASSURE THAT THE MATERIAL IS DRY PRIOR TO APPLYING EMULSION AND SETTING PAVING INSPECTION.

EMULSIFIED ASPHALT SS-1, SS-1h, CSS-1, OR CSS-1h SHALL BE EVENLY APPLIED THROUGHOUT THE CUT.

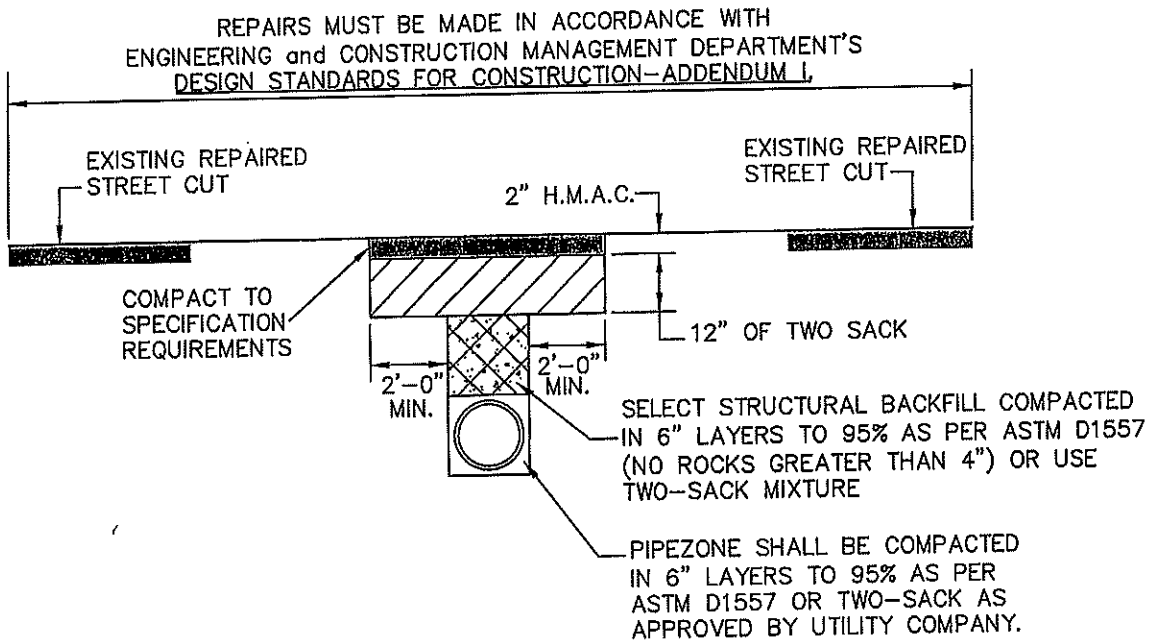
REPLACE ALL PAVING MARKINGS. MATERIALS MUST MEET CITY OF EL PASO STREET DEPARTMENT SPECIFICATIONS.

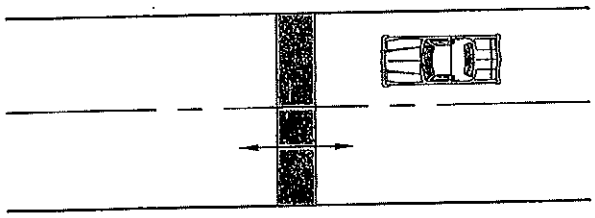
ASPHALT MUST BE COMPACTED WITH A STEEL DRUM ROLLER; USE OF A PLATE TAMPER WILL NOT BE ALLOWED.

THE USE OF VIBRATORY EQUIPMENT MUST BE APPROVED BY THE CITY ENGINEER.

A 1" THICK STEEL PLATE MUST BE PLACED OVER THE ENTIRE CUT & HAVE AN ASPHALT TRANSITION; REFER TO SHEET 3-59G.

CONTRACTOR MUST COMPLY WITH OSHA SAFETY GUIDELINES THAT APPLY TO TRENCH EXCAVATIONS. PAVING CUT INSPECTIONS WILL NOT BE CONDUCTED IF CONTRACTOR IS NOT IN COMPLIANCE WITH SAFETY GUIDELINES TO INCLUDE TRENCH SHORING.





PLAN VIEW

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

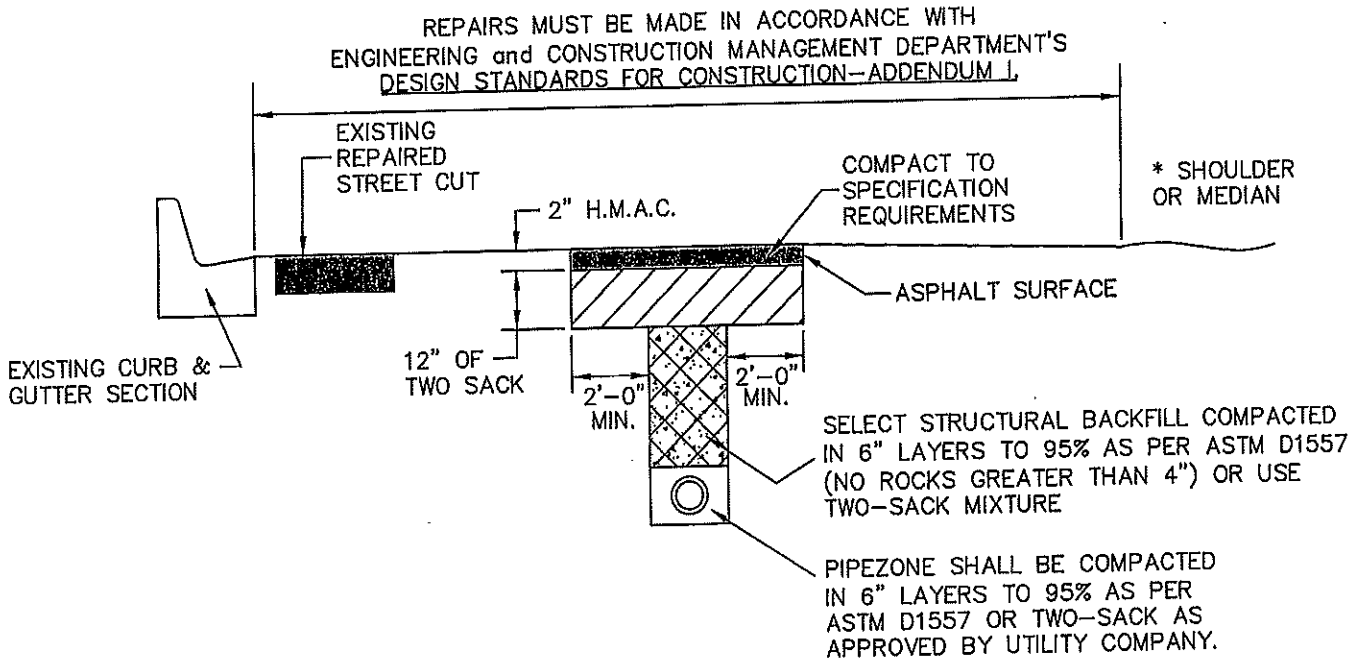
DESIGN STANDARDS FOR CONSTRUCTION

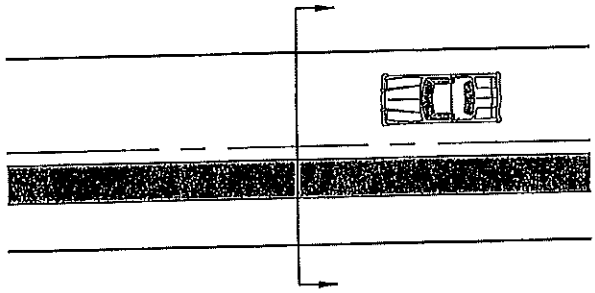
ADDENDUM 1

PAVEMENT CUT TRENCH REPAIR

3-59B

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF

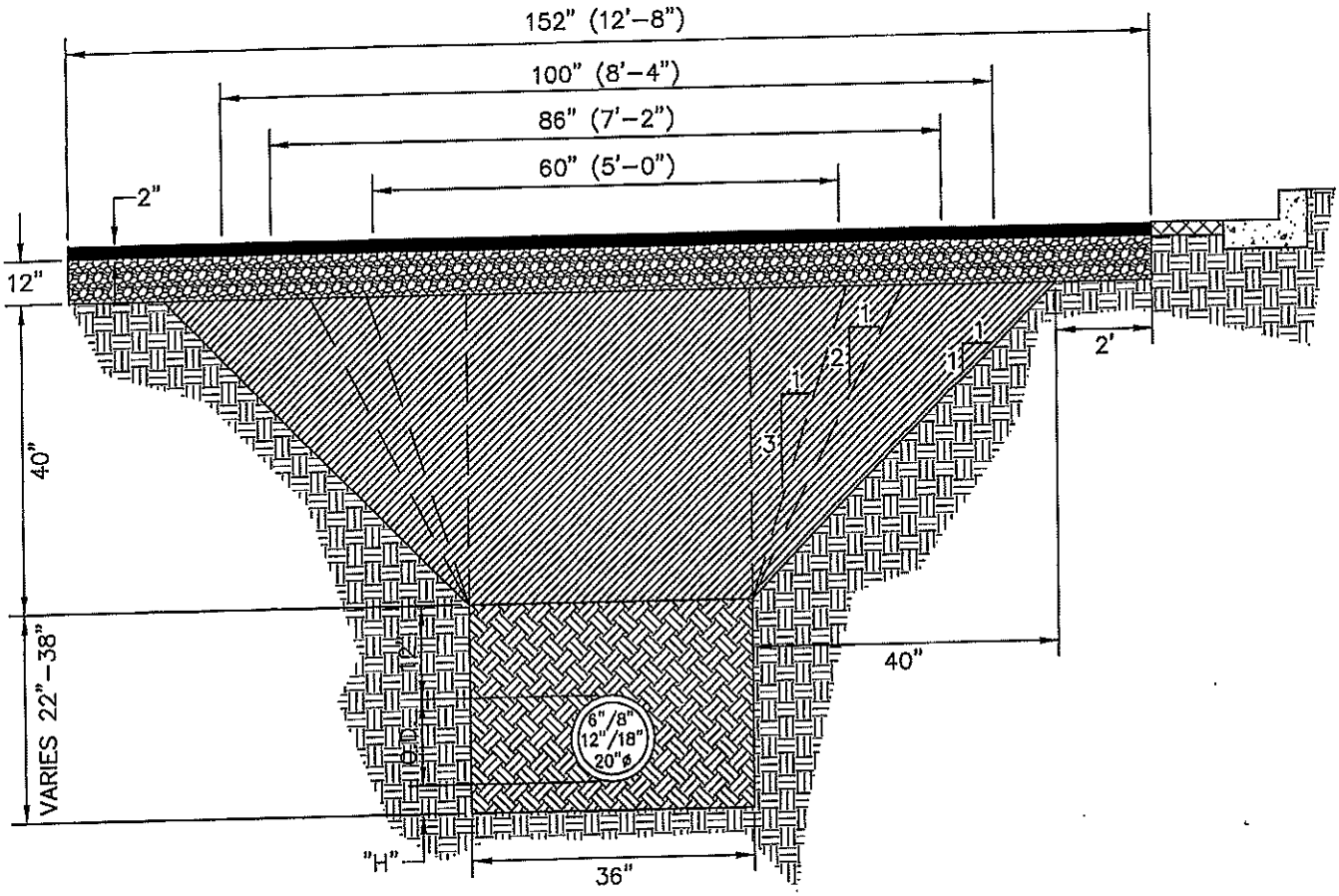




PLAN VIEW

Transverse section view of parallel utility cut repair.

TITLE 19 - SUBDIVISION ORDINANCE ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT DESIGN STANDARDS FOR CONSTRUCTION	*ADDENDUM 1* *PAVEMENT CUT TRENCH REPAIR* *3-59C*	
	Approved By R. A. SHUBERT Date SEPT. XX, 2010	Checked By RAS / IR / RS Drawn By CoEP STAFF



PAVEMENT REPLACEMENT
36" TRENCH WIDTH
PAVEMENT REPLACEMENT WIDTH
DEPENDS ON SOIL TYPE

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and
CONSTRUCTION MANAGEMENT
DEPARTMENT
DESIGN STANDARDS
FOR CONSTRUCTION

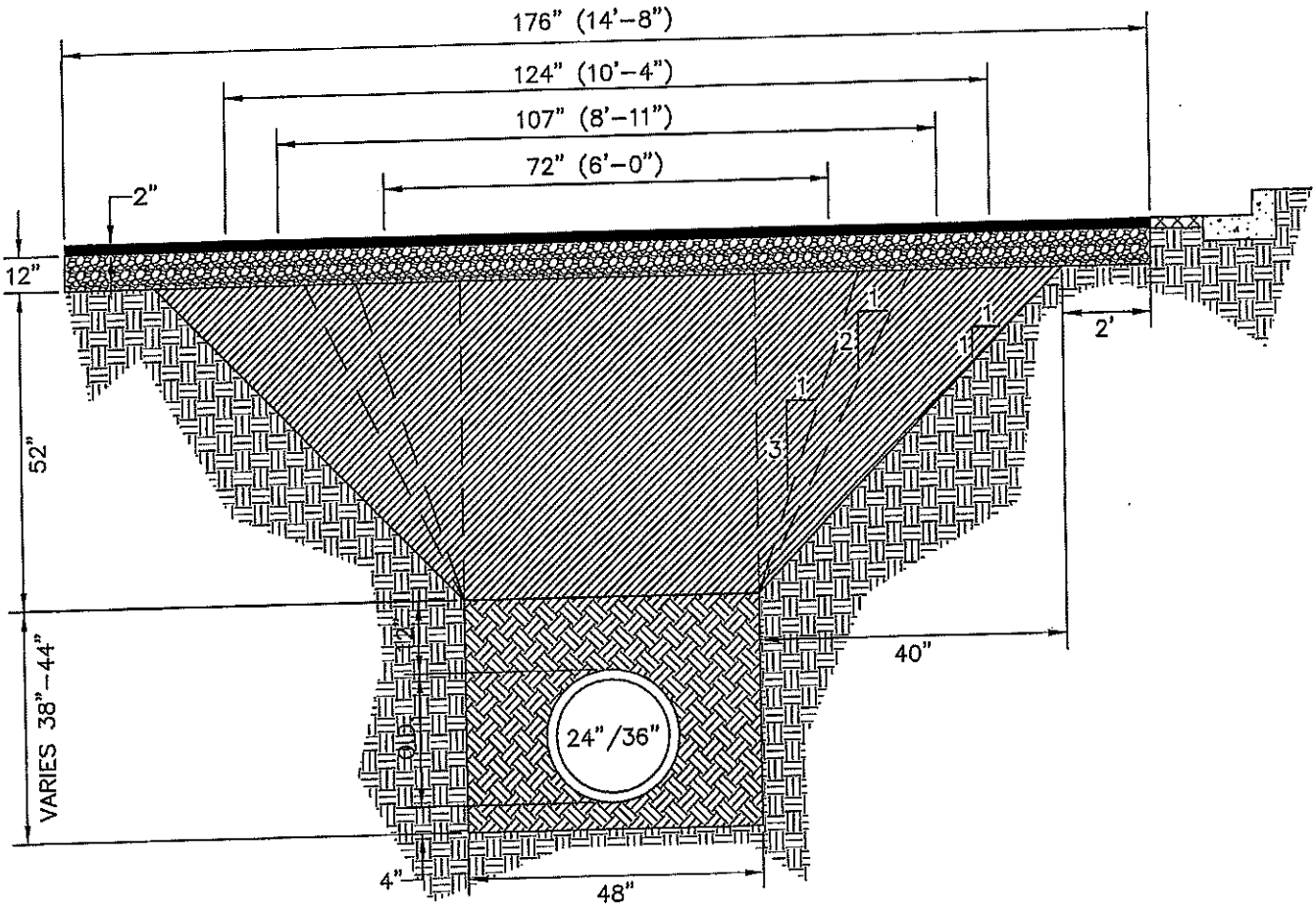
ADDENDUM 1

PAVEMENT CUT TRENCH REPAIR

3-59D

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

Checked By RAS / IR / RS
Drawn By CoEP STAFF



PAVEMENT REPLACEMENT
48" TRENCH WIDTH
PAVEMENT REPLACEMENT WIDTH
DEPENDS ON SOIL TYPE

TITLE 19 - SUBDIVISION ORDINANCE

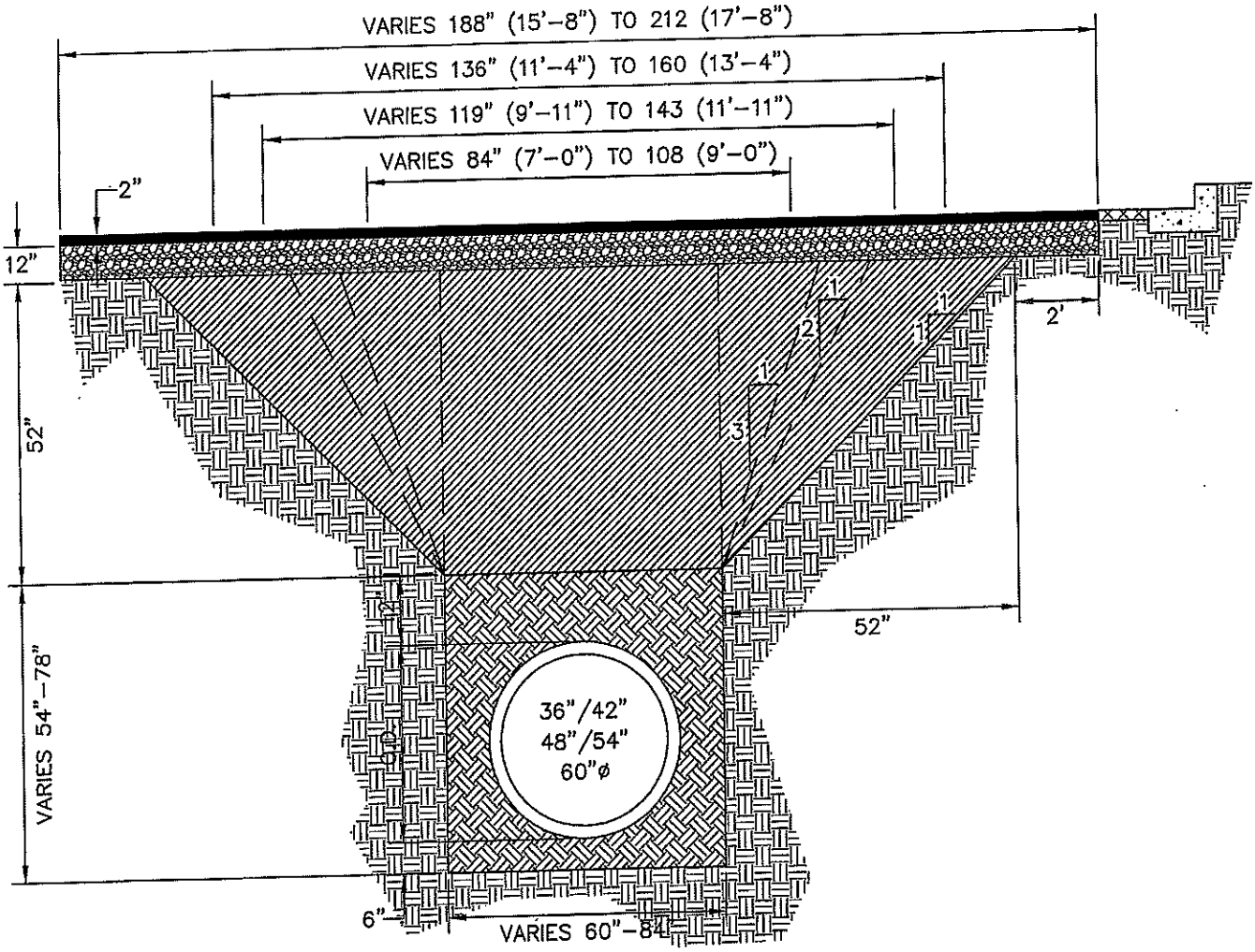
ENGINEERING and
CONSTRUCTION MANAGEMENT
DEPARTMENT
DESIGN STANDARDS
FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT CUT TRENCH REPAIR

3-59E

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF



PAVEMENT REPLACEMENT
TRENCH WIDTH AND
PAVEMENT REPLACEMENT WIDTH
DEPENDS ON SIZE OF PIPE AND
SOIL TYPE

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and
CONSTRUCTION MANAGEMENT
DEPARTMENT
DESIGN STANDARDS
FOR CONSTRUCTION

ADDENDUM 1

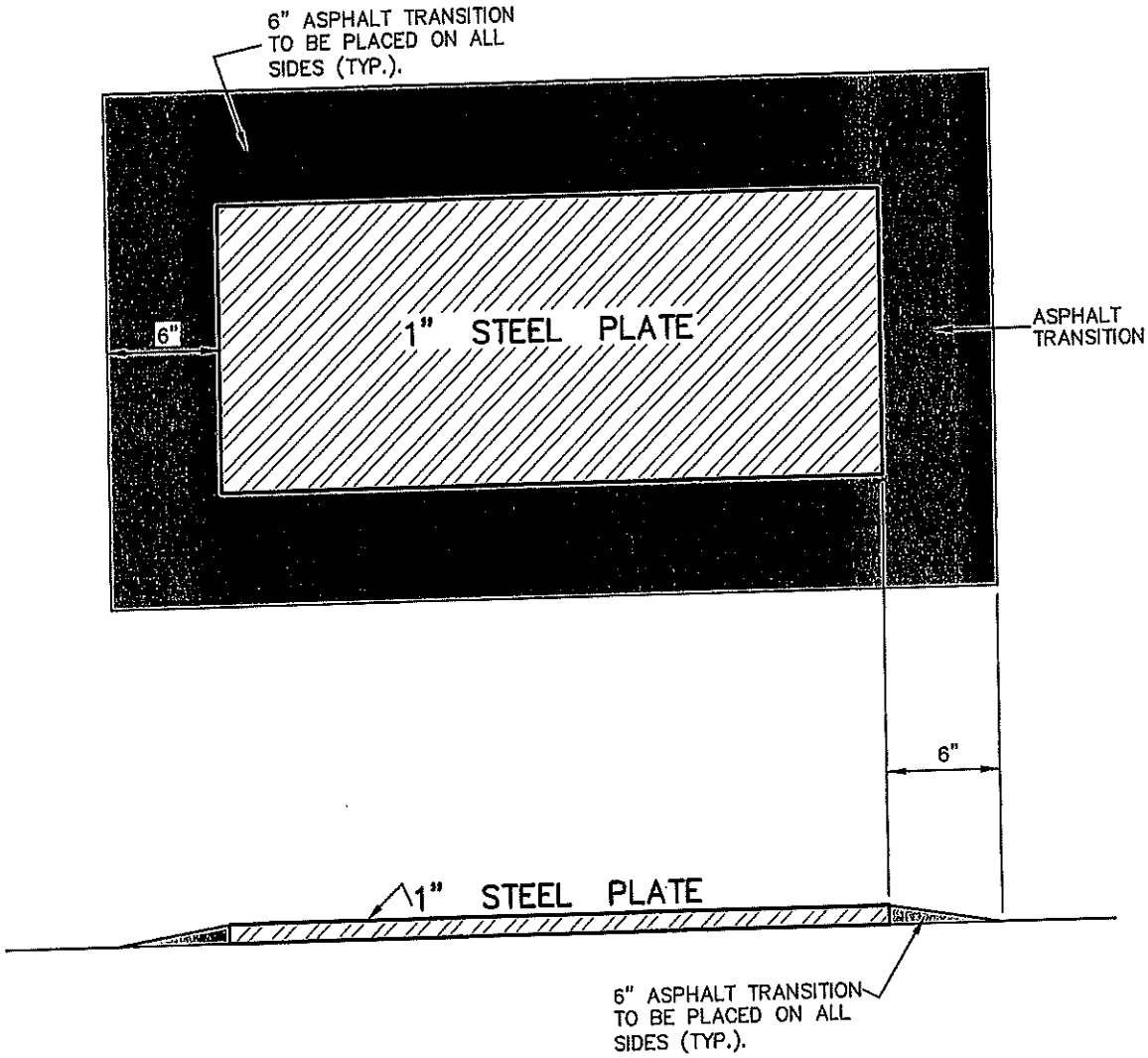
PAVEMENT CUT TRENCH REPAIR

3-59F

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

Checked By RAS / IR / RS
Drawn By CoEP STAFF

STEEL PLATES



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

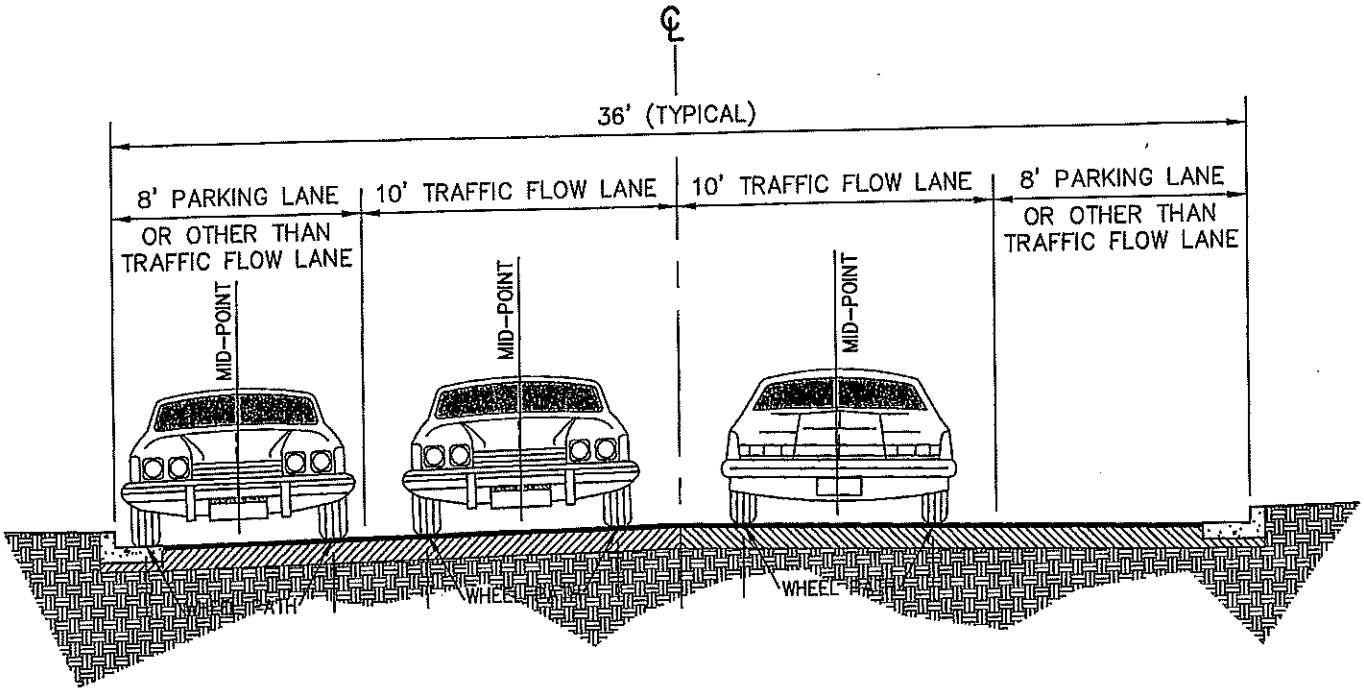
DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT CUT TRENCH REPAIR

3-59G

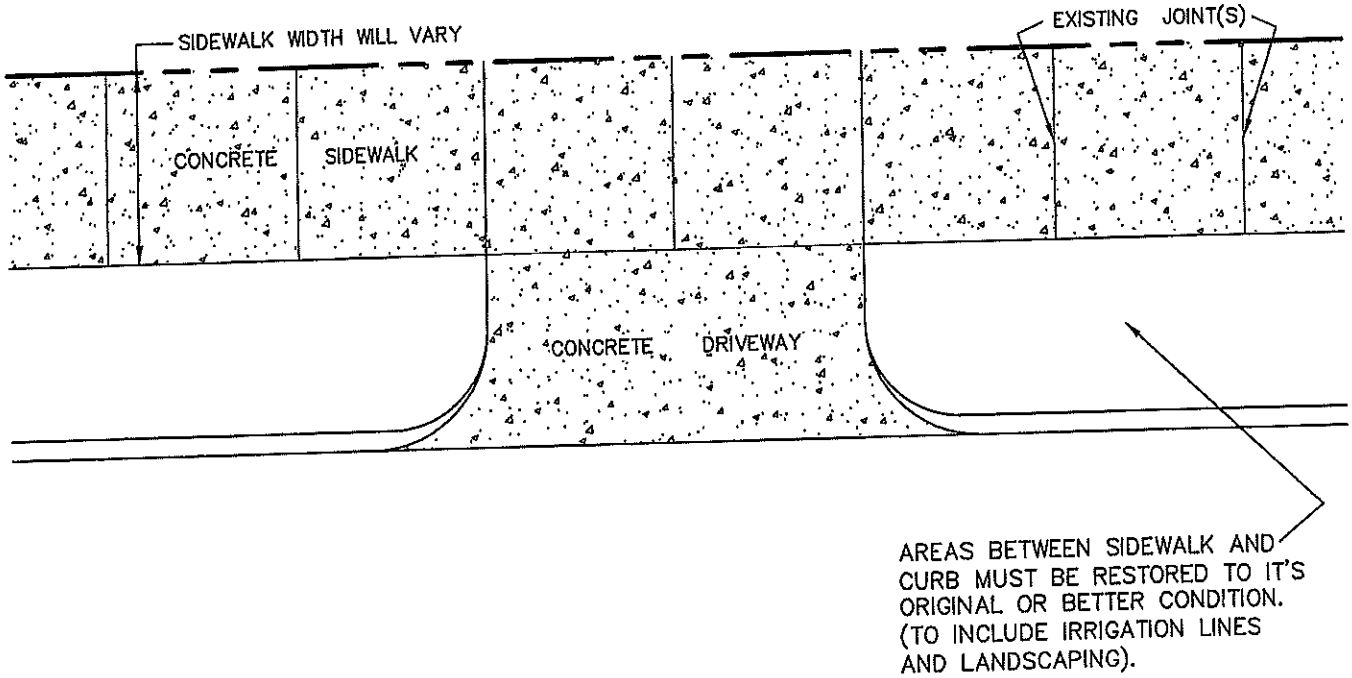
Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF



NOTES:

1. PAVING CUTS MADE WITHIN THE TRAFFIC FLOW LANE MUST BE REPAIRED BY PAVING FROM THE STREET CENTERLINE TO THE MID-POINT OF THE WHEEL PATH OR FROM THE MID-POINT OF THE WHEEL PATH TO THE OUTER EDGE OF THE TRAFFIC FLOW LANE.
2. PAVING CUTS MADE WITHIN THE PARKING LANE OR OTHER THAN TRAFFIC FLOW LANE MUST BE REPAIRED BY PAVING FROM THE MIDPOINT TO THE GUTTER OR FROM THE MIDPOINT TO THE TRAFFIC FLOW LANE.
3. THIS STANDARD APPLIES TO ALL STREET CROSS-SECTIONS AND WILL BE EVALUATED ON A CASE BY CASE BASIS.

TYPICAL FOR UTILITY REPAIRS ON SIDEWALKS, DRIVEWAYS AND PARKWAYS.



NOTES:

SIDEWALKS – REPLACE TO NEAREST JOINT. NO PATCHING WILL BE ALLOWED. REPLACEMENT MUST COMPLY WITH THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION (DSC) SECTION 6.

DRIVEWAYS – REPLACE TO NEAREST EXPANSION JOINT OR ENTIRE SECTION. NO PATCHING WILL BE ALLOWED. REPLACEMENT MUST COMPLY WITH THE CITY OF EL PASO DESIGN STANDARDS FOR CONSTRUCTION (DSC) SECTION 6.

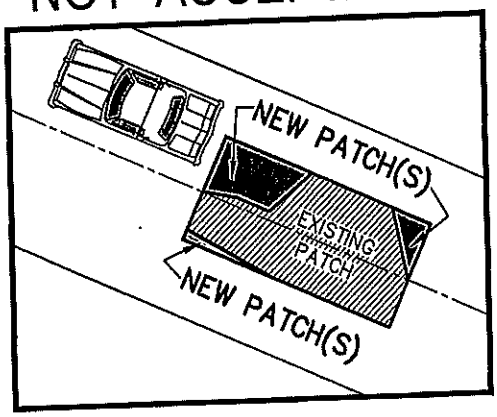
EXCAVATIONS – EXCAVATION IN THE PARKWAY MUST BE COMPACTED IN ONE FOOT LIFTS TO 95% AS PER ASTM D1557.

NOTE;

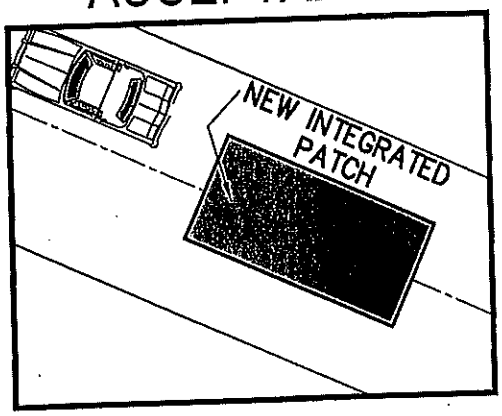
Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

NOT ACCEPTABLE

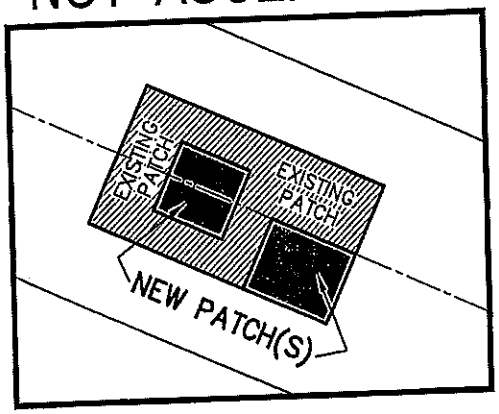


ACCEPTABLE



Do not construct patches with angled sides and irregular shapes.

NOT ACCEPTABLE



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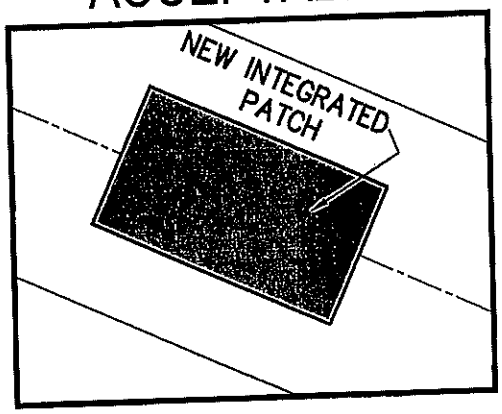


Patches within existing patches are not allowed.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59J

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

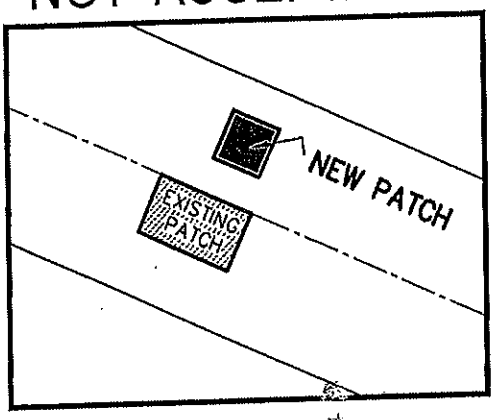
Checked By RAS / IR / RS
Drawn By CoEP STAFF

NOTE;

Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

NOT ACCEPTABLE



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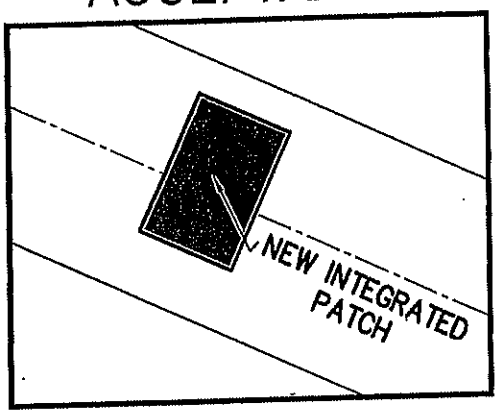
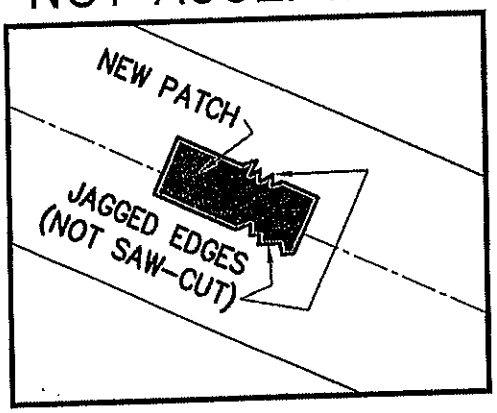


Patch no more than eight feet in each direction

NOT ACCEPTABLE



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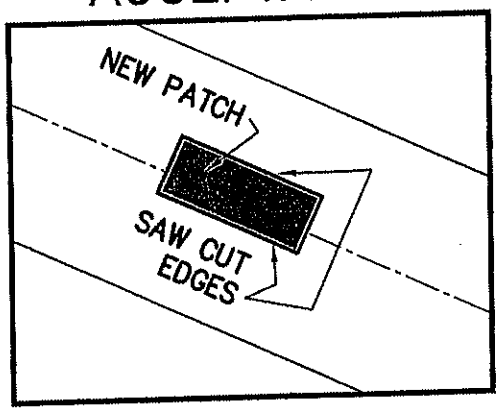


All edges shall be saw cut.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59K

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

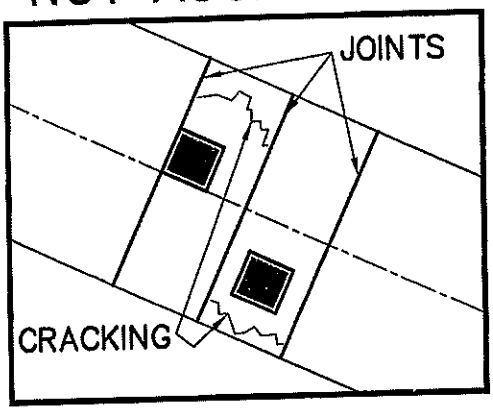
Checked By RAS / JR / RS
Drawn By CoEP STAFF

NOTE;
Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

CONCRETE PAVEMENT

NOT ACCEPTABLE



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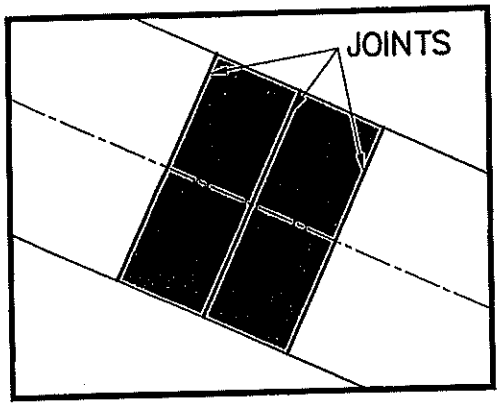


In concrete pavements, remove sections to existing joints.

NOTE;
Concrete pavement repairs must match existing design or as directed by the City Engineer.

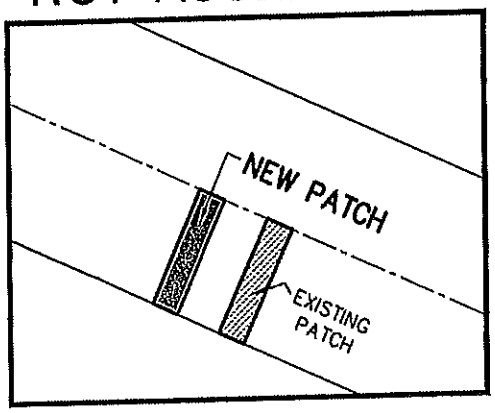
Concrete shall be 4,000 P.S.I. @ 3 day high early strength.

NOTE;

Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

NOT ACCEPTABLE



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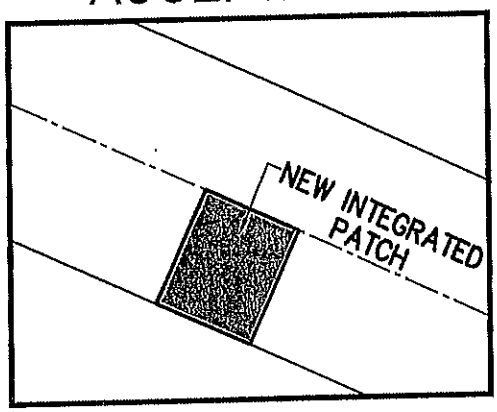
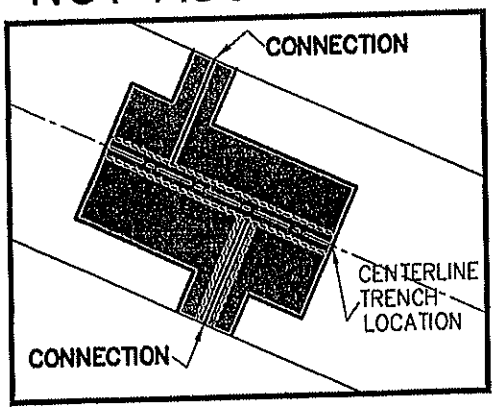


Patch no more than eight feet in each direction

NOT ACCEPTABLE



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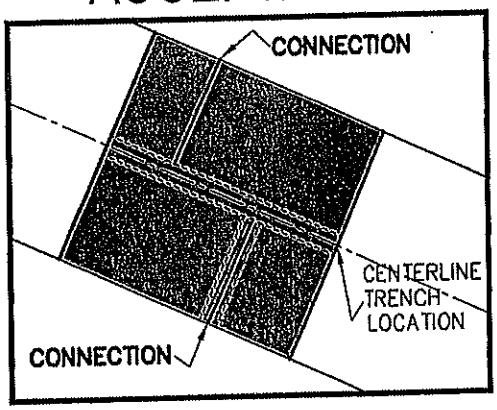


Patches must avoid frequent width changes.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59M

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

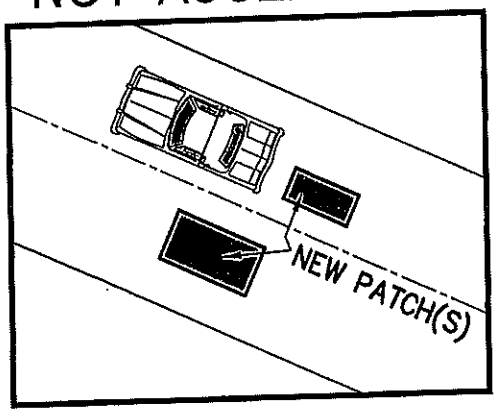
Checked By RAS / IR / RS
Drawn By CoEP STAFF

NOTE;

Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

NOT ACCEPTABLE



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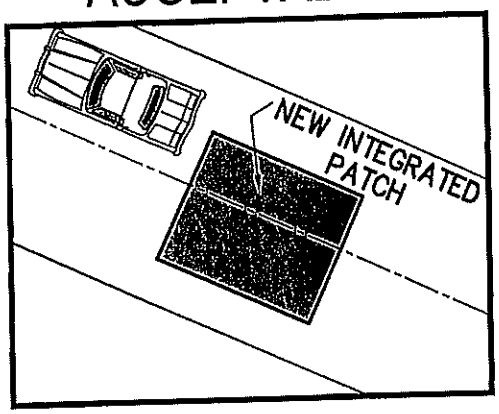
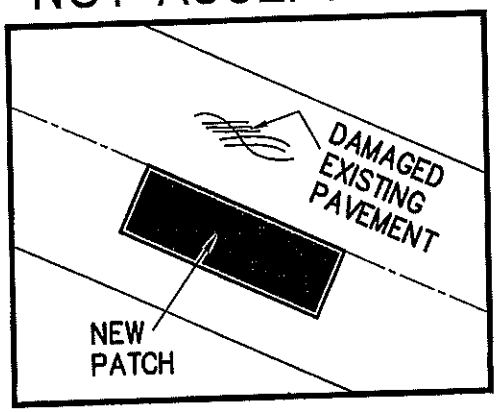


Do not allow the edges of patches to fall in wheel paths.

NOT ACCEPTABLE



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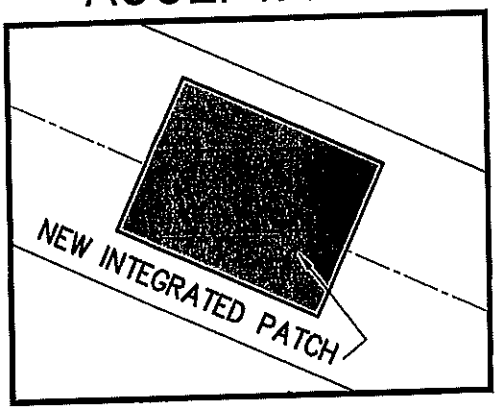


Damaged pavement caused by contractor's equipment must also be included as part of the repair.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59N

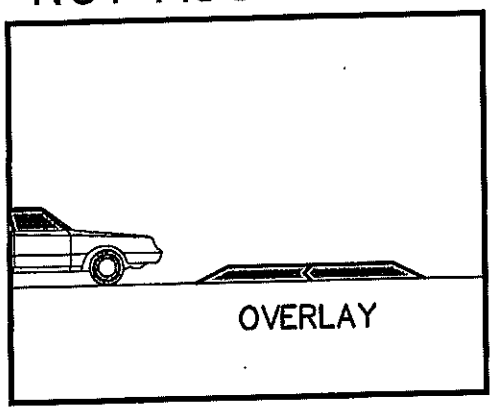
Approved By R. A. SHUBERT
Date SEPT. XX, 2010

Checked By RAS / IR / RS
Drawn By CoEP STAFF

NOTE;
Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

Patch slope and grade must match existing pavement.

NOT ACCEPTABLE



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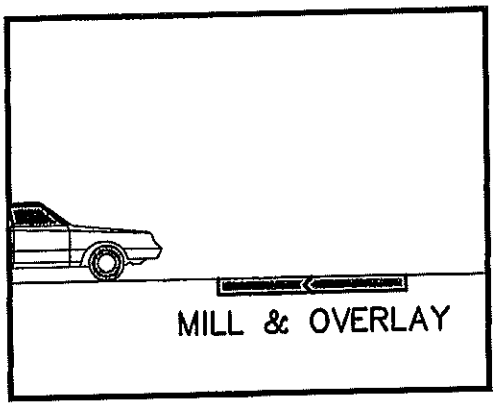
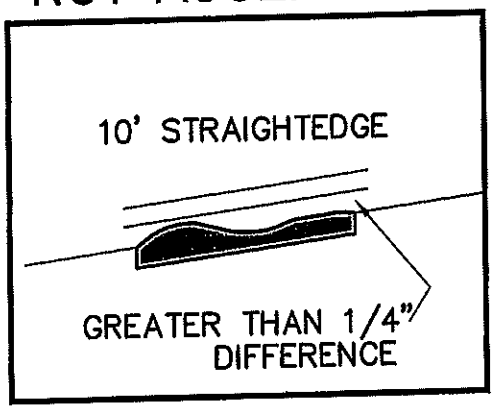


Patches may not decrease rideability.

NOT ACCEPTABLE



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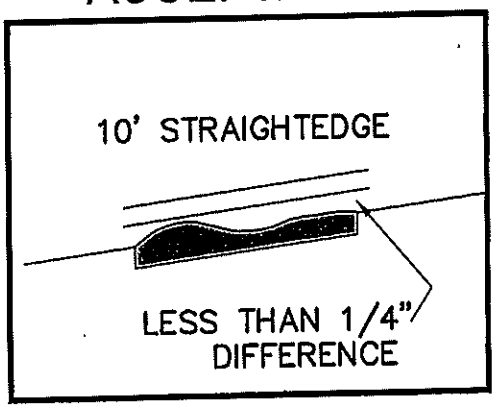


Surface tolerances for street repairs shall meet the standard for new construction.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

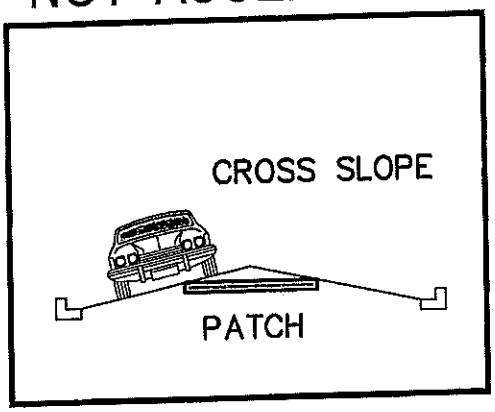
PAVEMENT REPAIR AREA

3-59O

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF

NOTE;
Drawings are conceptual only. See detailed cross-section sheets for repair procedures.

NOT ACCEPTABLE



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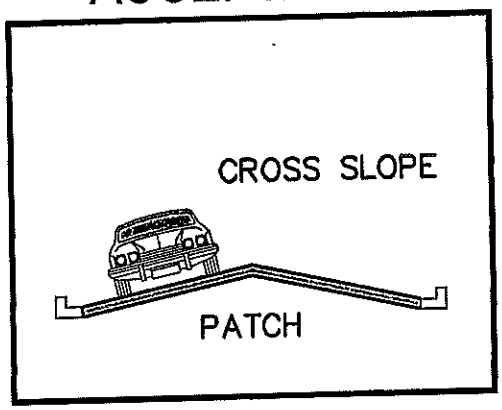


Patch slope and grade must match existing pavement.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

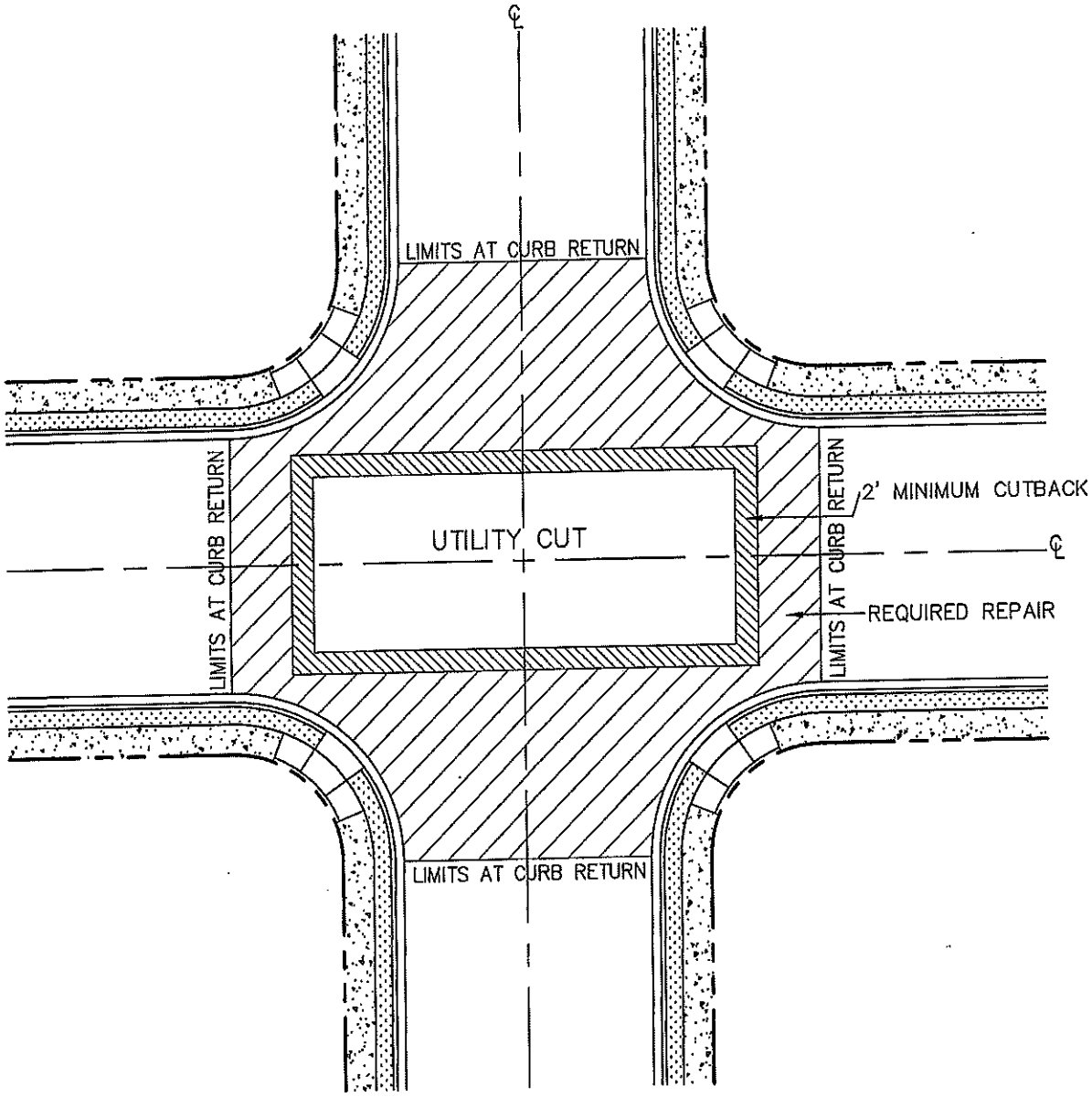
DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59P

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

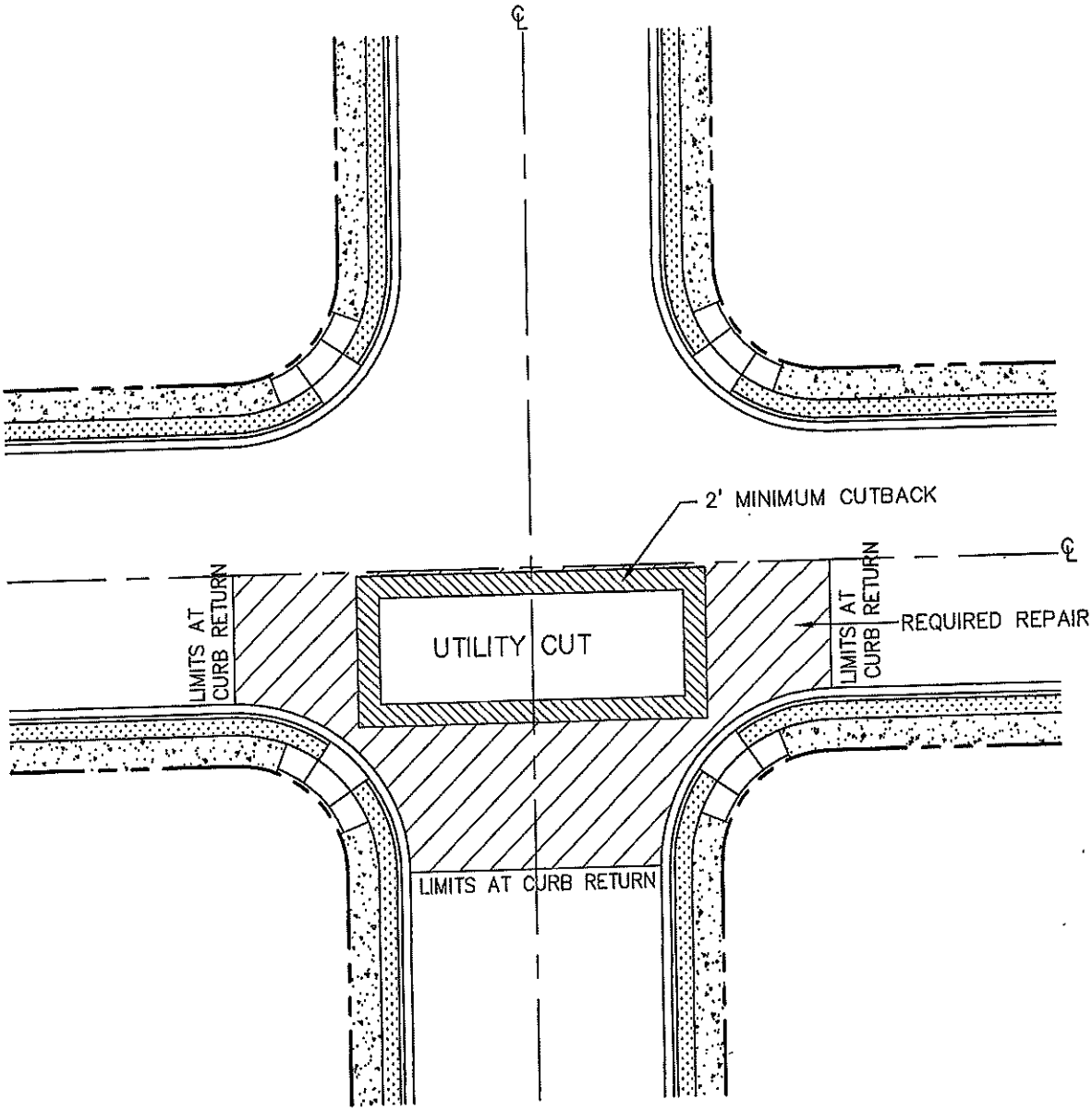
DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59Q

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

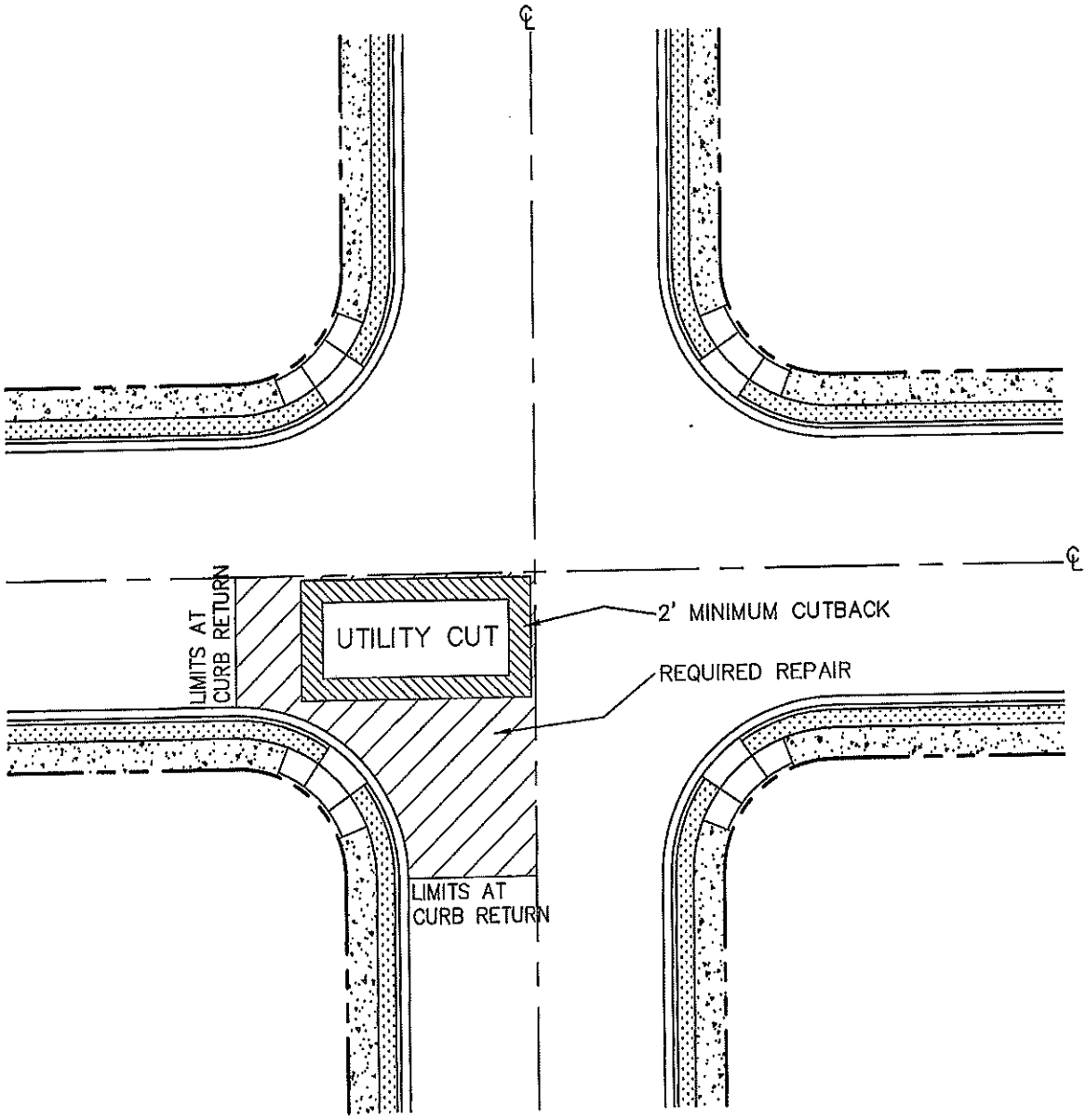
ADDENDUM 1

PAVEMENT REPAIR AREA

3-59R

Approved By R. A. SHUBERT
Date SEPT. XX, 2010

Checked By RAS / IR / RS
Drawn By CoEP STAFF



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING and CONSTRUCTION MANAGEMENT DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ADDENDUM 1

PAVEMENT REPAIR AREA

3-59S

Approved By R. A. SHUBERT	Checked By RAS / IR / RS
Date SEPT. XX, 2010	Drawn By CoEP STAFF

Appendix D

Flowable Fill (2-sack)

FLOWABLE FILL

A. GENERAL

1. DEFINITION: Flowable Fill, also known as Controlled Low Strength Material (CLSM), Controlled Density Fill (CDF), 2-Sack or 2-Sack Grout, Flowcrete, Liquid Dirt, and various other trademark names is a self-compacting, self-leveling cementitious backfill material that is used in lieu of compacted soil fill material. Flowable Fill should not be considered as, or tested like, a type of low strength concrete. Applications of Flowable Fill under this specification are considered "excavatable" and require 28 day strengths less than 200 psi. Upon curing, Flowable Fill has the properties of high quality, well compacted, load bearing soil.

2. DESCRIPTION: Furnish and place Flowable Fill as backfill for trench, foundation, hole, tank pipeline abandonment, or void filling. The material may also be used where long flowable horizontal movements are required such as pipe filling, annular rings, in jacked pipes, and difficult to access areas requiring long lateral placements.

3. SAMPLING: Sampling of Flowable Fill will be in accordance with ASTM D5971.

B. MATERIALS

1. CEMENT: Cement shall conform to ASTM C150 Type II, or Type I/II.

   a. Source Approval and Acceptance

   The Utility will accept Portland cement based on certification of the approved sources and satisfactory test results from verification samples. The following information shall be included in the request for source approval:

   a. Supplier or company
   b. Cement plant location
   c. Storage facility type and capacity
   d. Average and maximum production capabilities
   e. Production procedures
   f. In-house Quality Control Program information:
      1) Routine sampling and testing frequency;
      2) Documentation that the laboratory responsible for the certified ASTM C150, ASTM C595, and ASTM C1157 test results is currently participating in the Cement and Concrete Reference Laboratory (CCRL) proficiency sample and pozzolan inspection programs;
      3) A copy of the Laboratory's letter authorizing CCRL to send copies of the CCRL inspection programs and proficiency result reports directly to the Utility;
      4) Documentation that measures have been taken to assure that the Supplier keeps unacceptable cement separated from acceptable cement.
   g. Copies of Quality Control program test reports for the previous six (6) months.

2. FLY ASH: Use fly ash that will comply with the physical and chemical requirements of ASTM C618, Class F. Fly ash may be used to increase flowability and/or pumpability. Type C fly ash or high lime fly ash is not to be used as the it tends to increase the long-term strength and may, with time, cause the mix to become unexcavatable. The use of fly ash is not required in the mix design.

   a. Source Approval and Acceptance

Documentation concerning test results shall be supplied to the Utility for acceptance. The request for approval of the fly ash source shall include:

a. Supplier or company

b. Source Power plant location

c. Coal type and origin

d. Combustion process

e. Storage facility type and capacity

f. Production procedures

g. In-house Quality Control Program information:

1) Routine sampling and testing frequency;
2) Documentation that the laboratory responsible for the certified ASTM C618 test results is currently participating in the CCRL proficiency sample and pozzolan inspection programs;
3) A copy of the Laboratory's letter authorizing CCRL to send copies of the CCRL inspection programs and proficiency result reports directly to the Utility;
4) Documentation that measures have been taken to assure that the Supplier keeps unacceptable fly ash separated from acceptable fly ash.

h. Copies of Quality Control program test reports for the previous six (6) months.

3. AGGREGATE: Provide a mixture of aggregate with a uniform gradation range in accordance with Table 3.1, "Aggregate Mixture Gradation Requirements". Test aggregates in accordance with ASTM C117 and ASTM C136.

Table 3.1
Aggregate Mixture Gradation Requirements

Sieve Size	Percent Passing
½"	100
#4	80-100
#200	0-30

The Plasticity Index (PI) shall not exceed six (6) when tested in accordance with ASTM 4318.

4. MIXING WATER: Mixing water from potable water supplies approved by a public health department may be used without further testing. The producer shall provide test data of water samples from other sources. To determine chemical properties, use a laboratory accredited by the National Environmental Laboratory or Construction Engineering Council Accreditation Program.

a. Non-potable Water Testing

Water to be used as mixing water from non-potable sources such as recycled water, reclaimed water, water from open bodies, and water taken from untreated wells, whether used individually or in combination, shall be tested before use and shall not exceed the limits in Table 4.1:

Table 4.1
Required Water Quality for Combined or Individual Sources of Mixing Water

Chemical Test	Limits	ASTM Test Method
Total Solids by Mass (ppm)	50,000 ppm	C1603
Chloride as Cl^- (ppm)	1,000 ppm	C114
Sulfate as SO_4^- (ppm)	3,000 ppm	C114
Alkalis as $Na_2O + 0.658\ (K_2)$ (ppm)	600 ppm	C114

5. CHEMICAL ADMIXTURES: The Flowable Fill producer may use any admixtures meeting the requirements identified below in their mix designs, as they may require, to provide the desired product properties. Air-entraining admixtures may be added to the mix to increase flowability and/or reduce strength. Other specialty admixtures may also be used to increase flowability, reduce shrinkage, and reduce segregation by maintaining solids in suspension, or accelerate set and curing times as required. Use and proportion all admixtures in accordance with the manufacturer's recommendations.

   Water reducing admixtures may be used; however, where it is demonstrated that any admixture can increase the strength of the mix over time, it shall not be used.

   The use of calcium chloride is allowable provided the flowable fill will not contact metallic materials such as reinforcing, conduits, piping, or any other element that may be affected by the potential for corrosion. Calcium chloride may be introduced when fully dissolved in the mixing water or when in a liquid form. Calcium chloride shall meet the criteria set forth in ASTM D98 as well as a Type C Additive in accordance with ASTM C494. Mix designs utilizing calcium chloride shall be submitted for approval that demonstrates rapid set time and that it will not reach a strength greater than the maximum 28-day requirement.

   Air entraining admixtures shall meet the requirements of ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.

   All other concrete chemical admixtures shall meet the requirements of ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.

C. MIX DESIGN REQUIREMENTS

1. GENERAL: The following are general physical properties of the mix design. Mix designs submitted by the supplier may vary somewhat depending on the application required for various projects. Multiple mix designs may be required to satisfy the needs for any given project.

2. PHYSICAL PROPERTY REQUIREMENTS: Unless otherwise shown on the plans, furnish a mix design meeting the following requirements:

Table 2.1
Flowable Fill Physical Requirements

Property	Excavatable	Test Method
28-day Compressive Strength, (psi)	60 – 200	ASTM D4832
Flow Consistency, (in)	8 – 11	ASTM D6103 *
Unit Weight, (pcf)	90 – 125	ASTM D6023
Air Content (%)	<30	ASTM D6023

*Withdrawn Standard

Mix designs will be referred to based on flowability using the flow consistency as determined using ASTM D6103.

Table 2.2
Flowable Fill Classification Based on ASTM D6103

Classification	Flow Consistency (in)
Low Flowability	6 Maximum
Normal Flowability	6 – 8
High Flowability	8 Minimum

D. CONSTRUCTION

1. GENERAL: Mix the Flowable Fill using a central-mixed concrete plant, ready-mix concrete truck, pug mill, or, other approved method. Documentation in the form of a "Batch Ticket" showing the supplier name, batch time, mix design identification, materials, batch scale weights, water volume, additives and amounts and any other information necessary to convey that the delivered product meets the requirements of the proportions required in the approved mix design.

   Submit a mix design to the Utility for approval.

2. PLACEMENT: When required by EPWater, submit for approval a construction method, plan, means of filling the entire void volume, and method of demonstrating the void area is filled.

   Filling below pipe annulus may be demonstrated by placing the pipe on sand bags then placing Flowable fill on one side of the pipe and allowing the fill to flow beneath the pipe so that it may be observed on the other side. All pipe should be secured to prevent displacement during the flowable fill placement.

   Flowable Fill may be placed using chutes, pump, or buckets to its final location. The contractor is responsible for assuring the delivery and placement method and equipment is adequate for the application. The maximum time from batching of the Flowable Fill to placement at its final location shall be ninety (90) minutes.

   Contractor, at their expense, shall assure the prevention of movement, or flotation, of any inserted or backfilled structure, pipe, or other appurtenances from their designated location. This may be accomplished by using adequate tie-down structures or devices, or, by limiting the lift thickness of the Flowable Fill to prevent the fluid material from lifting (or floating) the pipe or other structure until the Flowable Fill has hardened.

   Because the Flowable Fill generates significant hydraulic loads when fluid, individual lift thicknesses that will load structures or pipe should be limited to four (4) feet unless pipe loading calculations indicate more loading can be applied without damage. Curing time prior to the addition of additional lifts should be a minimum of eight (8) hours.

   Cure time prior to placement of other structural elements should be a minimum of twenty (24) hours. Structural elements such as pavements, slabs or similar project components may be placed earlier if testing to determine suitability for load application using the Ball Drop method (ASTM 6042) indicates an indentation diameter of four (4) inches or less on a freshly exposed Flowable Fill surface.

   The final decision concerning the hardening time requirement for any placement shall be made by the representative of the Owner and communicated through them to the Contractor's representative.

3. ADDITION OF WATER: Water may be added one time on the site to bring the flow consistency to that required to achieve the needed flowability for the application as long as there is no evidence of segregation of the mix components. If there is evidence of segregation, as evidenced visually by separation of aggregate from the cement paste matrix, the mix shall not be placed. The Contractor shall take sole responsibility for performance of the Flowable Fill if water is added on the site, unless specifically directed to do so by the project inspector.

Flowable Fill shall not be placed in areas containing standing water such that the water can mix or be blended with the Flowable Fill material.

4. TEMPERATURE REQUIREMENTS: Flowable Fill does not require curing like concrete, but should be protected from freezing until it has hardened. Ambient air temperature must remain above 40°F (4°C) when placing Flowable Fill. The temperature of the flowable fill shall not be less than 50°F (10°C) at the time of placement. Flowable Fill must not be placed such that the material is in contact with frozen ground, nor, should the Flowable Fill be placed in areas containing frozen material. If the Flowable Fill will be exposed to freezing temperatures during the first twenty-four (24) hours after placement, it should be protected from freezing using concrete blankets, or, after the initial set a minimum of twelve (12) inches of moist soil cover.

E. QUALITY

1. "Flowable Fill" placement shall be witnessed by the Owner's designated representative (Project Inspector).

   All testing of Flowable Fill will be authorized by the Owner's representative in advance of the placement. Need for testing will be determined by the Owner. Material testing performed by the Owner's Laboratory of Record for the project will determine compliance with project specifications.

   Material testing frequency may be determined based on Table 5.1; however, the project inspector shall have the authority to increase, reduce, or eliminate testing as the project needs dictate.

Table 5.1

Property	Test Method	Frequency
28-day Compressive Strength, (psi)	ASTM D4832	** 1 set/50yd^3 or portion thereof
Flow Consistency, (in)	ASTM D6103 *	** 1 per 50yd^3 or portion thereof
Unit Weight, (pcf)	ASTM D6023	** 1 per 100yd^3 or portion thereof
Air Content (%)	ASTM D6023	** 1 per 50yd^3 or portion thereof
Temperature (F)	ASTM C1064	** 1 per 50yd^3 or portion thereof
Ball Drop (indentation dia. - inches)	ASTM D6024	As Requested By Owner

* Withdrawn Standard
** Or As Requested by Owner

   Quality assurance may be subject to City or Governmental Agency regulations and standards.

2. Non-Compliance: At the option of the owner, Flowable Fill material may be required to be removed at the contractor's expense if it is found to be non-compliant with the requirements of the contract documents.

F. MEASUREMENT:

"Flowable Fill" will be measured by the cubic yard of material placed. Measurement will not include additional volume caused by slips, slides, cave-ins, and or form failures resulting from the Contractor's operations.

G. PAYMENT

The work performed and materials furnished in accordance with this item and measured as provided under Section F "Measurement" will be paid for at the unit price bid for "Flowable Fill". This price is full compensation for furnishing, hauling, and placing materials and for equipment, tools, labor, and incidentals.

Appendix E

Title 19 - Subdivision Ordinance Design Standards for Construction Section 6

SECTION 6

SECTION 6

SIDEWALKS, DRIVEWAYS AND CURB RAMPS

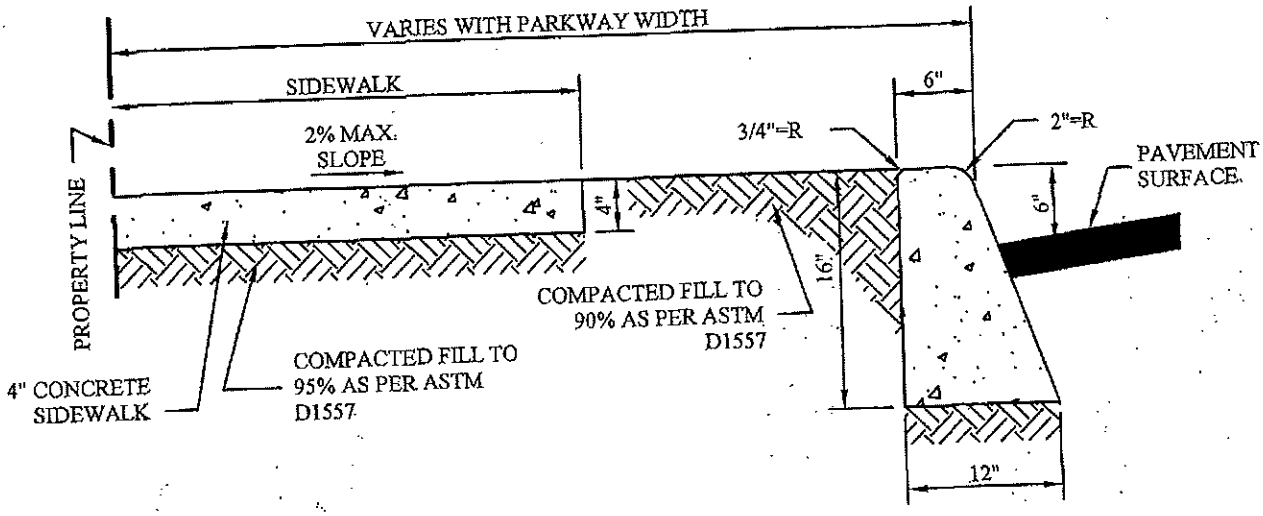
TITLE	PAGE
CURB WITH SIDEWALK SECTION	6-1
SIDEWALK ADJACENT TO CURB SECTION	6-2
CURB WITH SIDEWALK SECTION	6-3
ROLLED CURB SECTIONS	6-4
ROLLED CURB SECTIONS WITH SIDEWALK AGAINST CURB	6-5
TYPE "A" CURB AND GUTTER	6-6
TYPE "B" AND "C" CURB AND GUTTER	6-7
TYPE "D" CURB AND GUTTER	6-8
TYPE "E" CURB	6-9
TEMPORARY CURBS TYPE "F" AND "G"	6-10
TYPE "H" DRIVEWAY CURB	6-11
CONCRETE HEADER WITH SIDEWALK SECTION	6-12
SIDEWALK FOR ON-SITE PONDING	6-13
ACCESSIBLE PASSING SPACE DESIGN	6-14
RESIDENTIAL DRIVEWAYS	6-15
COMMERCIAL/INDUSTRIAL DRIVEWAYS	6-15A
DRIVEWAY APPROACHES	6-16
CONCRETE APRON FOR DRIVEWAYS/ALLEYWAYS	6-17
DRIVEWAY WITH ON-SITE PONDING	6-18
ASPHALTIC WALKWAY/JOGGING PATH	6-19
STRAIGHT CURB RAMP DESIGN WITH CURB RETURNS	6-20
DIAGONAL CURB RAMP DESIGN WITH CURB RETURNS	6-21

SECTION 6

SIDEWALKS, DRIVEWAYS AND CURB RAMPS

TITLE	PAGE
DIAGONAL CURB RAMP DESIGN WITH FLARED SIDES	6-22
STRAIGHT CURB RAMP DESIGN WITH FLARED SIDES	6-23
WHEEL CHAIR CURB RAMP WIDTH	6-24
RAMP SURFACE	6-25
TRANSITION RAMP WITH DETECTABLE WARNING	6-26
LOCATION OF DETECTABLE WARNINGS ON VARIOUS RAMPS	6-27
DOME SIZE AND SPACING	6-28
BUILT-UP CURB RAMP	6-29
DIAGONAL SHARED RAMP	6-30
CURB RAMPS AT MEDIAN ISLANDS	6-31
MEDIAN CURB RAMP DESIGN (ARTERIAL)	6-32
MEDIAN CURB RAMP DESIGN (LOCAL)	6-33

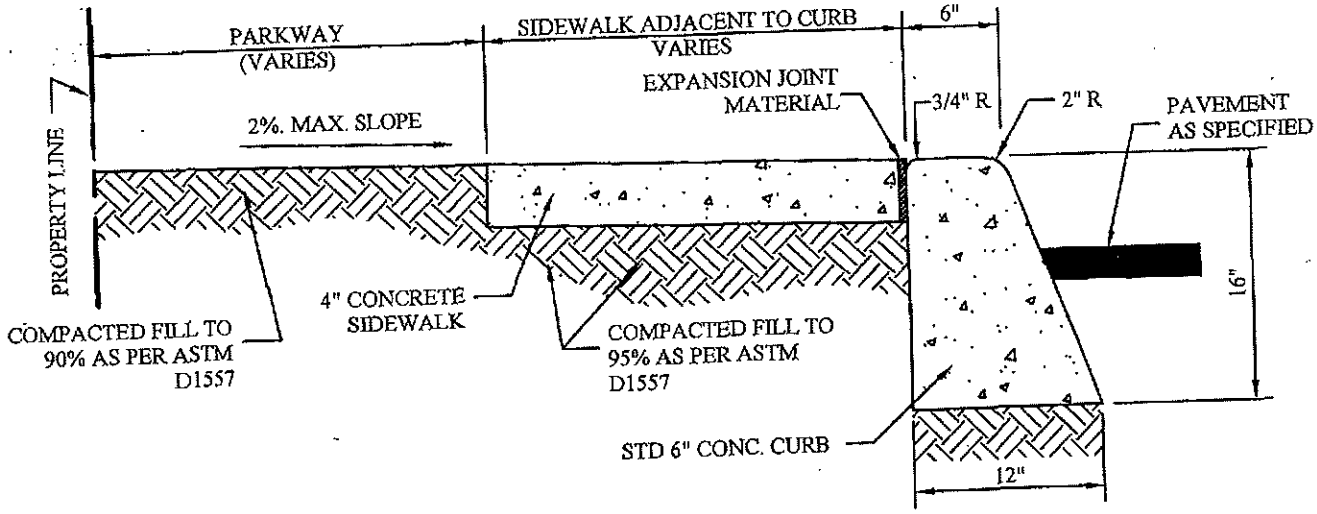
BACK TO TITLE INDEX PAGE



STANDARD CURB & SIDEWALK SECTION

NOTES:

1. CONCRETE SHALL BE 3000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR CURB & GUTTER AND 5' O.C. FOR SIDEWALK.
3. EXPANSION MATERIAL REQUIRED AT CURB RETURNS AND AT 20' ON CENTER FOR SIDEWALKS WITH 1/2" PREMOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL OR EQUAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR CURBS.



STANDARD 6" CURB WITH SIDEWALK SECTION

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

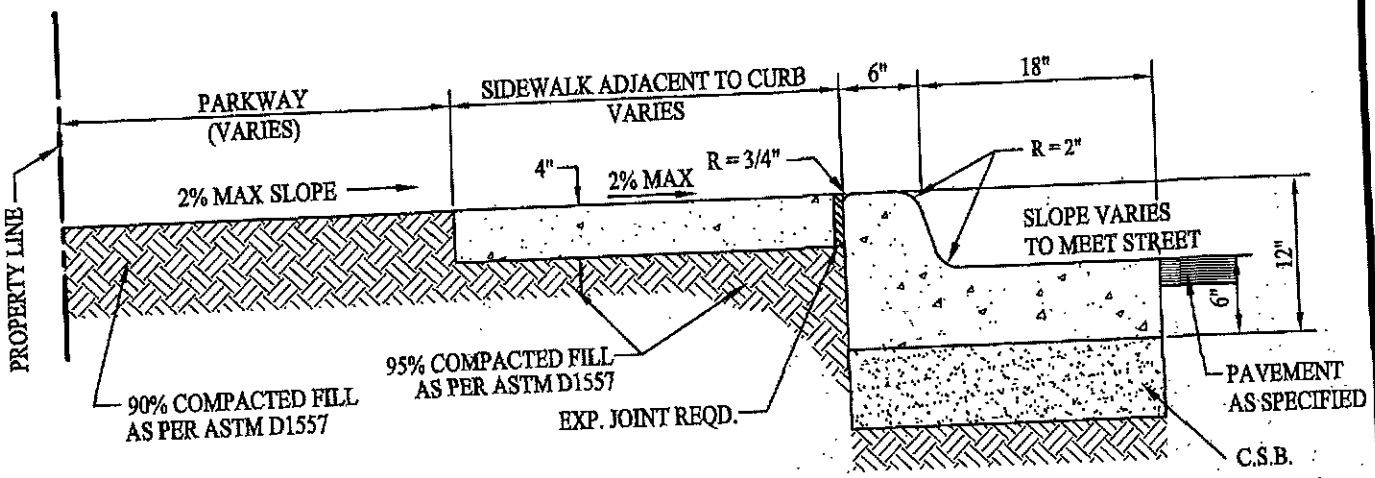
DESIGN STANDARDS FOR CONSTRUCTION

CURB WITH SIDEWALK SECTION

6-1

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / I. R.

BACK TO TITLE INDEX PAGE



CURB & GUTTER WITH SIDEWALK SECTION

C.S.B.

NOTES:

1. CONCRETE SHALL BE 3000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR CURB & GUTTER AND 5'O.C. FOR SIDEWALK.
3. EXPANSION MATERIAL REQUIRED AT CURB RETURNS, AND AT 20' ON CENTER FOR SIDEWALKS WITH 1/2" PREMOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL OR EQUAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR CURBS.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

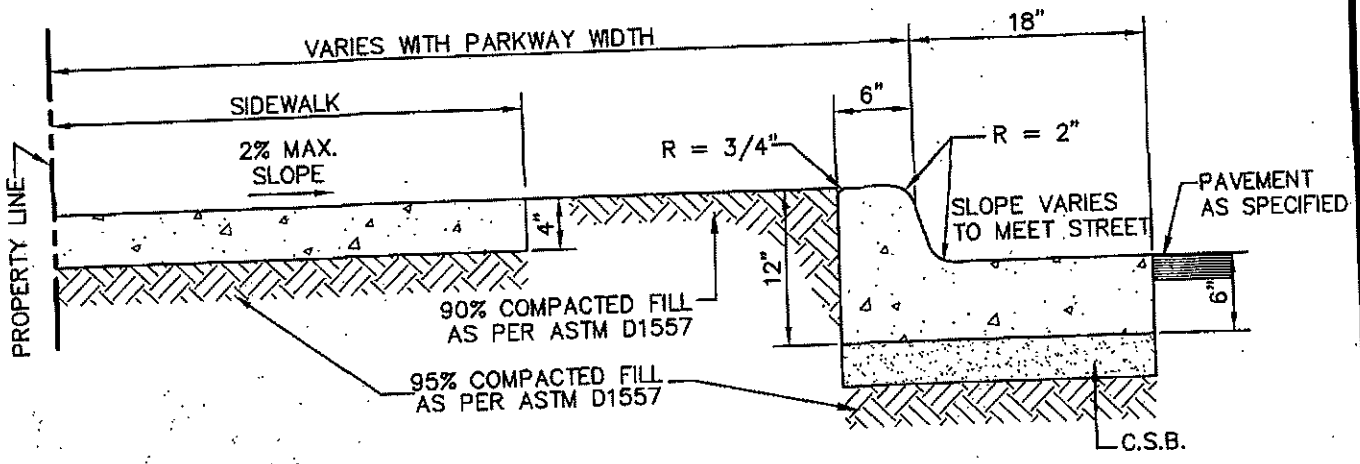
DESIGN STANDARDS FOR CONSTRUCTION

SIDEWALK ADJACENT TO CURB SECTION
6-2

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



CURB & GUTTER WITH SIDEWALK SECTION

NOTES:

1. CONCRETE SHALL BE 3000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR CURB & GUTTER AND 5' O.C. FOR SIDEWALK.
3. EXPANSION MATERIAL REQUIRED AT CURB RETURNS AND AT 20' ON CENTER FOR SIDEWALKS WITH 1/2" PREMOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL OR EQUAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR CURBS.

TITLE 19 - SUBDIVISION ORDINANCE

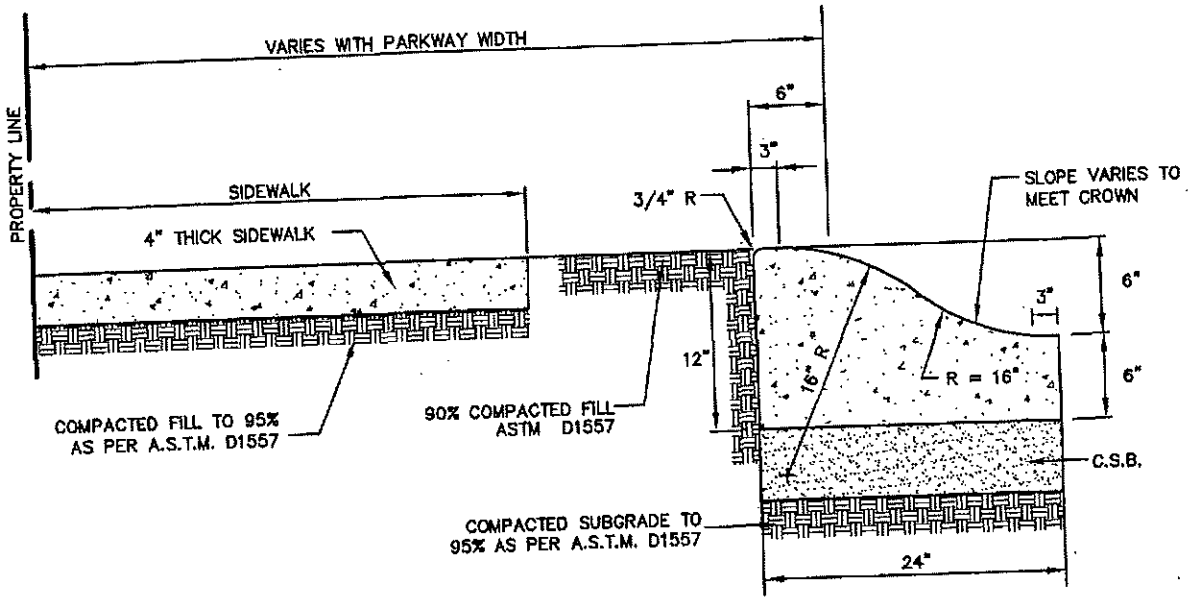
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

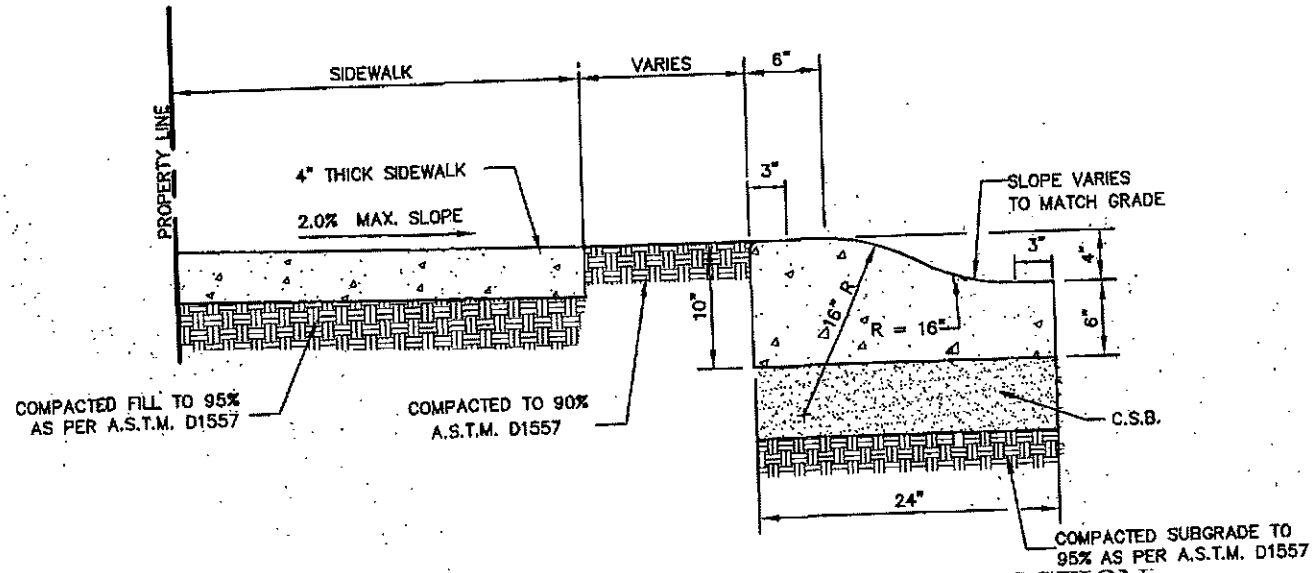
CURB WITH SIDEWALK SECTION
6-3

Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. E.
Drawn By OEC / J. R.

BACK TO TITLE INDEX PAGE



6" ROLLED CURB WITH SIDEWALK SECTION



4" ROLLED CURB WITH SIDEWALK SECTION

NOTES:
1. CONCRETE SHALL BE 3000 P.S.I. MINIMUM.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR HEADERS AND 5' O.C. FOR SIDEWALK.
3. EXPANSION JOINT MATERIAL REQUIRED AT CURB RETURNS, AND AT 20' O.C. FOR SIDEWALKS WITH 1/2" PRE-MOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR HEADERS.
5. PROVIDE EXPANSION JOINT MATERIAL WHERE SIDEWALK MEETS CURB, AND AT ALL SIDES WHERE CONCRETE PARKWAY MEETS SIDEWALK AND CURB.

TITLE 19 - SUBDIVISION ORDINANCE

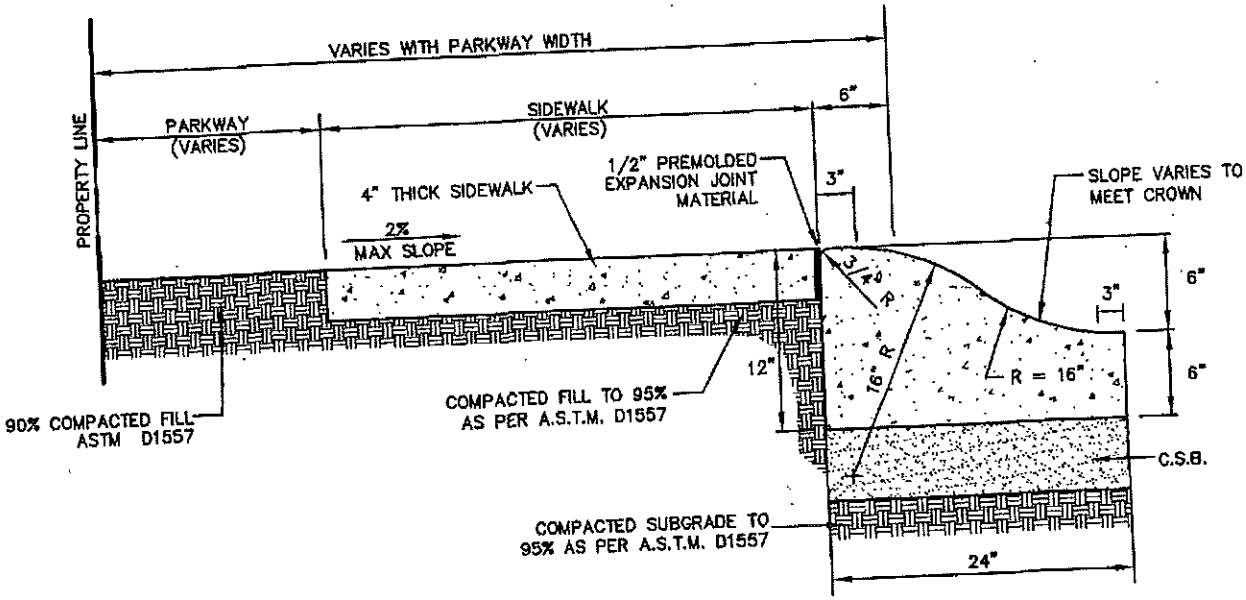
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

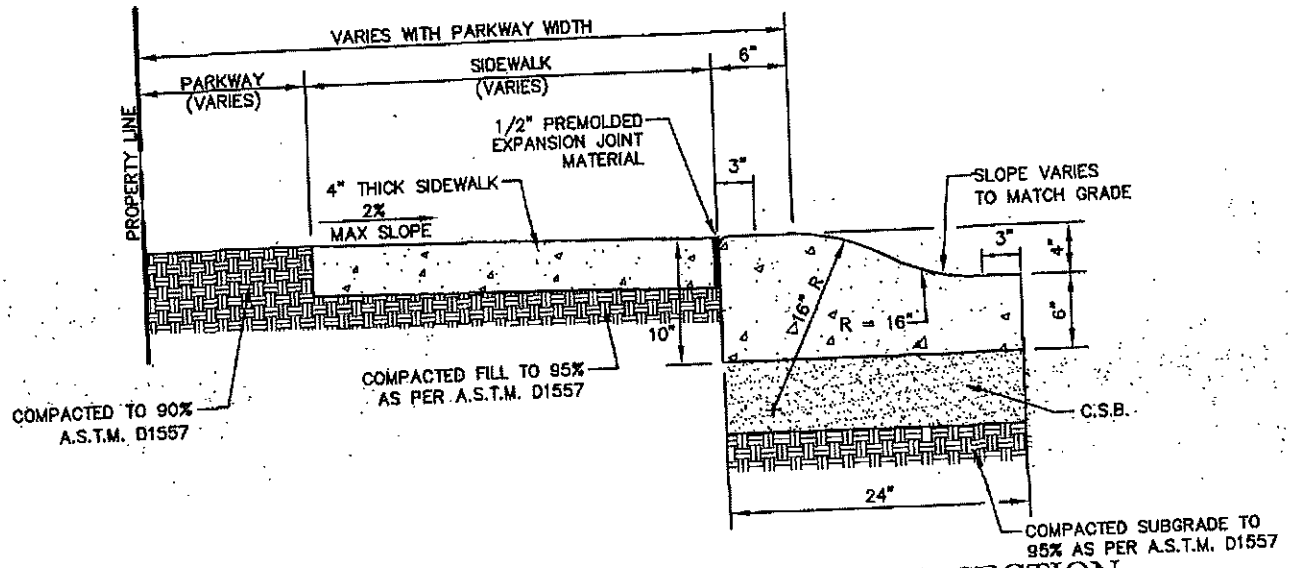
ROLLED CURB SECTIONS 6-4

Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



6" ROLLED CURB WITH SIDEWALK SECTION



4" ROLLED CURB WITH SIDEWALK SECTION

NOTES:
1. CONCRETE SHALL BE 3000 P.S.I. MINIMUM.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR HEADERS AND 5' O.C. FOR SIDEWALK.
3. EXPANSION JOINT MATERIAL REQUIRED AT CURB RETURNS, AND AT 20' O.C. FOR SIDEWALKS WITH 1/2" PRE-MOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR HEADERS.
5. PROVIDE EXPANSION JOINT MATERIAL WHERE SIDEWALK MEETS CURB, AND AT ALL SIDES WHERE CONCRETE PARKWAY MEETS SIDEWALK AND CURB.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS
FOR CONSTRUCTION

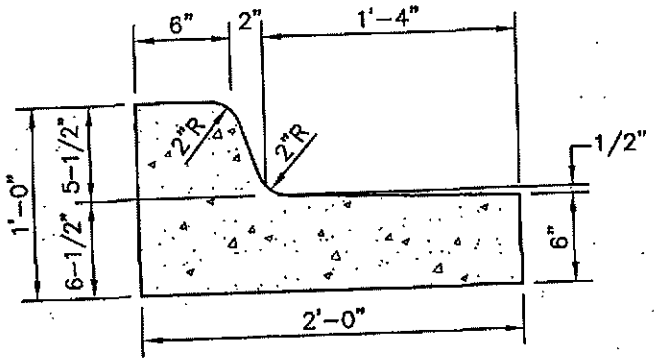
ROLLED CURB SECTIONS
WITH SIDEWALK
AGAINIST CURB
6-5

Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

THE FOLLOWING CURB STANDARDS (PLATES 6-6 THROUGH 6-11) CAN ONLY BE USED WITH APPROVAL BY THE CITY ENGINEER:

FOR USE ON ALL CITY STREETS WHERE THE ROADWAY IS SUPERELEVATED. I.E. THE PAVEMENT SLOPES AWAY FROM THE CURB AND DRAINAGE IS TO BE DIVERTED FROM THE GUTTER SECTION.



TYPE "A" MODIFIED CURB & GUTTER

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

TYPE "A" MODIFIED CURB AND GUTTER

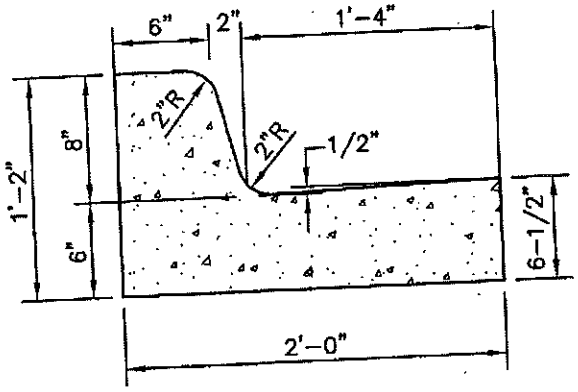
6-6

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. B.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

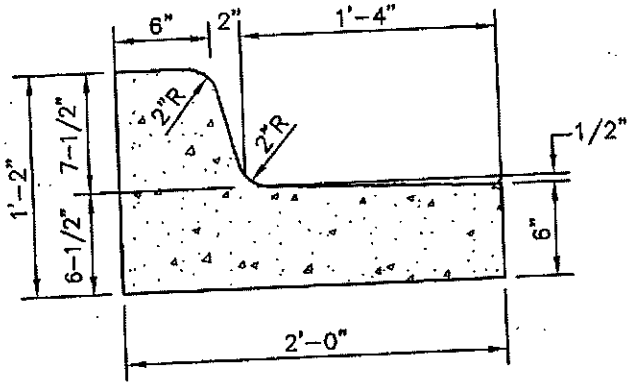
FOR USE ON ALL CITY STREET CLASSIFICATIONS AS A FUNCTION OF DRAINAGE AND TRAFFIC CONTROL. IT IS PERMISSIBLE TO MIX CURB HEIGHTS OF 6" & 8" WHEN APPROPRIATE FOR PROPER DRAINAGE CONVEYANCE. MINIMUM TRANSITION LENGTH OF 10' FROM 6" TO 8" CURB.
8" CURB NOT RECOMMENDED FOR STREETS WITH ON-STREET PARKING.



TYPE "B" 8" CURB & GUTTER

N.T.S.

FOR USE ON CITY STREETS WHERE THE ROADWAY IS SUPERELEVATED, I.E. THE PAVEMENT SLOPES AWAY FROM THE CURB AND DRAINAGE IS TO BE DIVERTED.



TYPE "C" 8" MODIFIED CURB & GUTTER

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

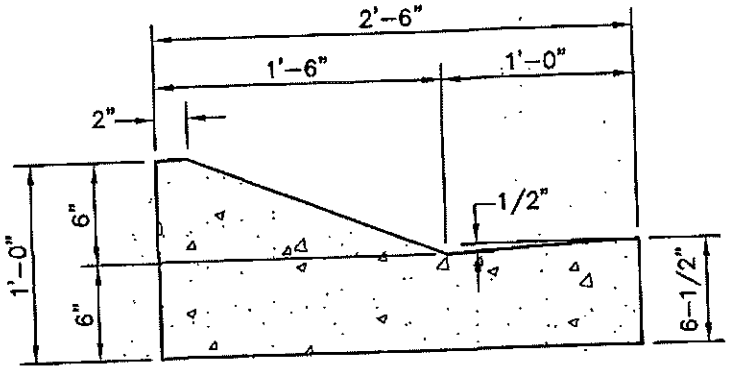
DESIGN STANDARDS FOR CONSTRUCTION

TYPE "B" AND "C" CURB AND GUTTER
6-7

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



TYPE "D" DRIVE OVER CURB & GUTTER

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

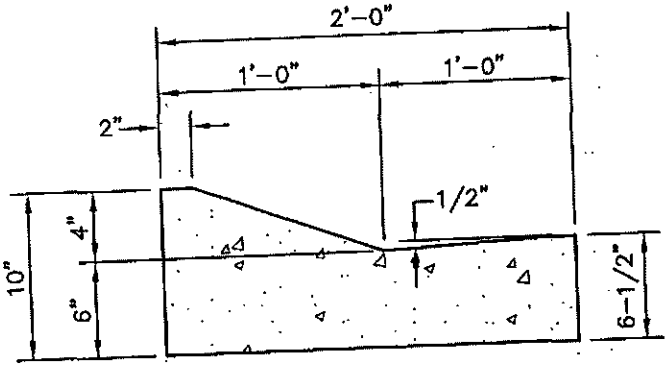
TYPE "D" CURB AND GUTTER

6-8

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By OEC / J. R.

BACK TO TITLE INDEX PAGE



TYPE "E" DRIVE OVER CURB & GUTTER

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

TYPE "E" CURB

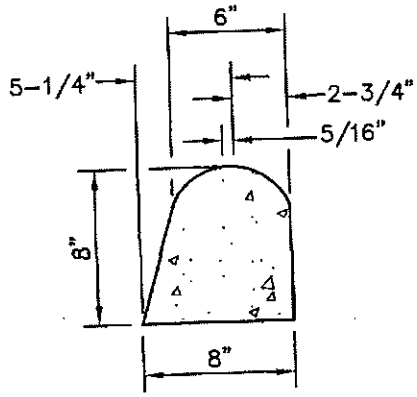
6-9

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

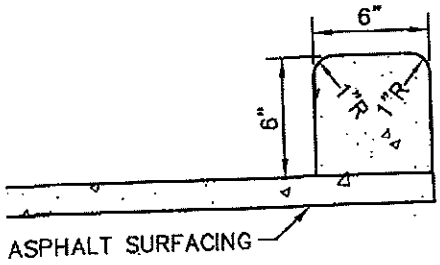
FOR USE ON STREETS WHERE THE ESTIMATED EXPANSION OF THE ROAD IS TO OCCUR WITHIN THE NEXT FIVE (5) YEARS.



TYPE "F" TEMPORARY ASPHALT CURB

N.T.S.

FOR USE ON STREETS WHEN EXPANSION TO THE CENTER IS PLANNED IN EXCESS OF FIVE (5) YEARS. NO DRAINAGE IS TO BE CONVEYED IN OR ON THE MEDIAN. CURB IS TO BE REMOVED.



TYPE "G" TEMPORARY EXTRUDED CONCRETE MEDIAN CURB

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

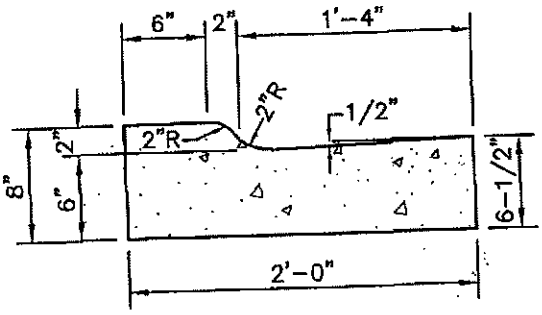
DESIGN STANDARDS FOR CONSTRUCTION

TEMPORARY CURB
TYPES "F" AND "G"
6-10

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

CAN BE USED ON DRIVEWAYS WITH APPROVAL BY THE CITY ENGINEER: EXCEPT WHERE ROLLOVER OR MOUNTABLE CURBING IS INSTALLED.



TYPE "H" DRIVEWAY CURB

N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

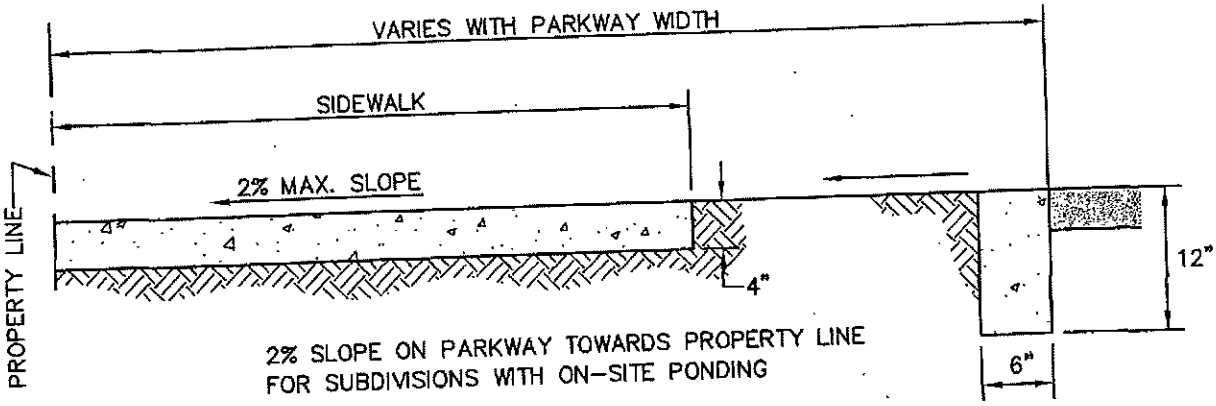
DESIGN STANDARDS FOR CONSTRUCTION

TYPE "H"
DRIVEWAY CURB
6-11

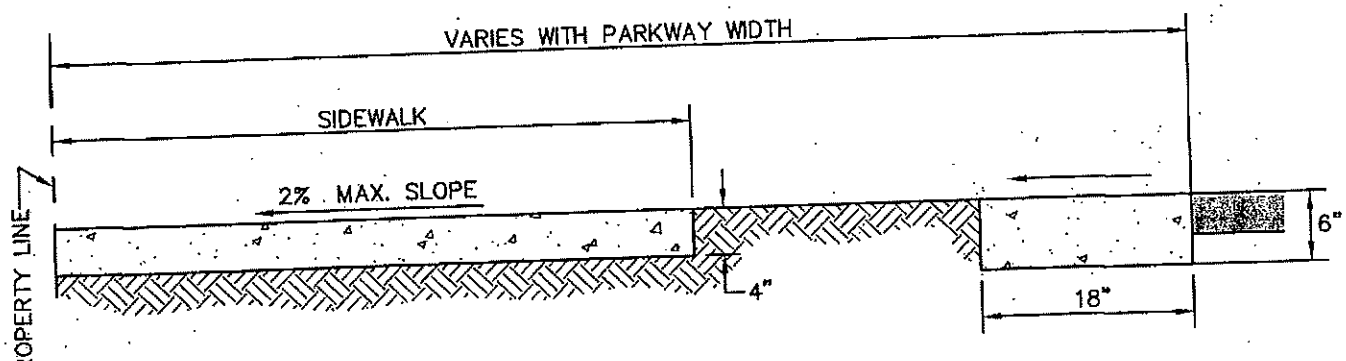
Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



HEADER FOR EXPANSIVE SOIL



HEADER FOR ROCKY OR MOUNTAINOUS TERRAIN

NOTES:

1. CONCRETE TO BE 3000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C. FOR HEADERS AND 5' O.C. FOR SIDEWALKS.
3. EXPANSION MATERIAL REQUIRED AT CURB RETURNS AND AT 20" O.C. FOR SIDEWALKS WITH 1/2" PREMOLDED ASPHALT IMPREGNATED EXPANSION MATERIAL OR EQUAL.
4. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR HEADERS.
5. EXPANSION JOINTS REQUIRED FOR SIDEWALK AT 20' O.C.

TITLE 19 - SUBDIVISION ORDINANCE

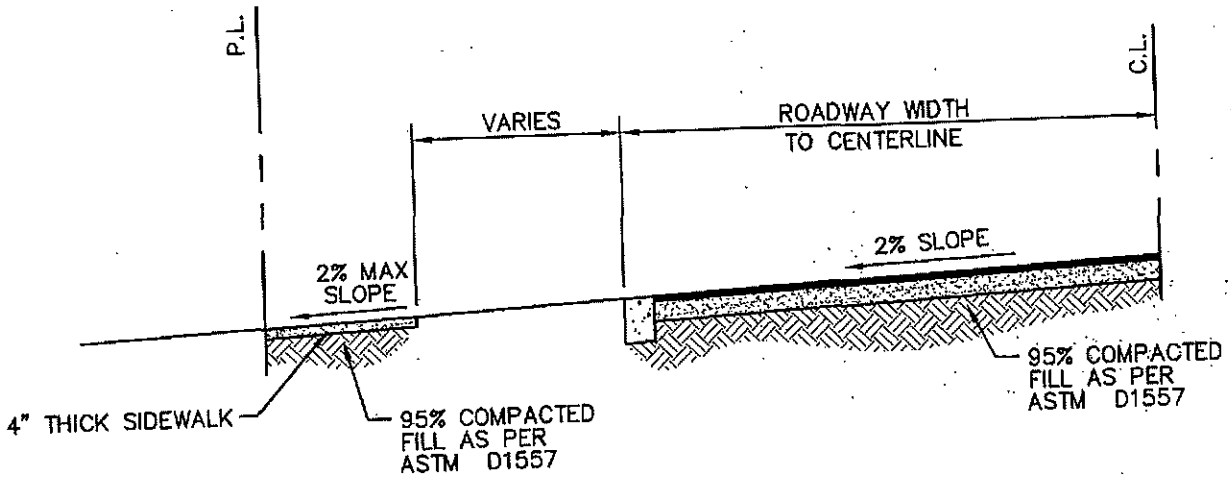
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

CONCRETE HEADER WITH SIDEWALK SECTION
6-12

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

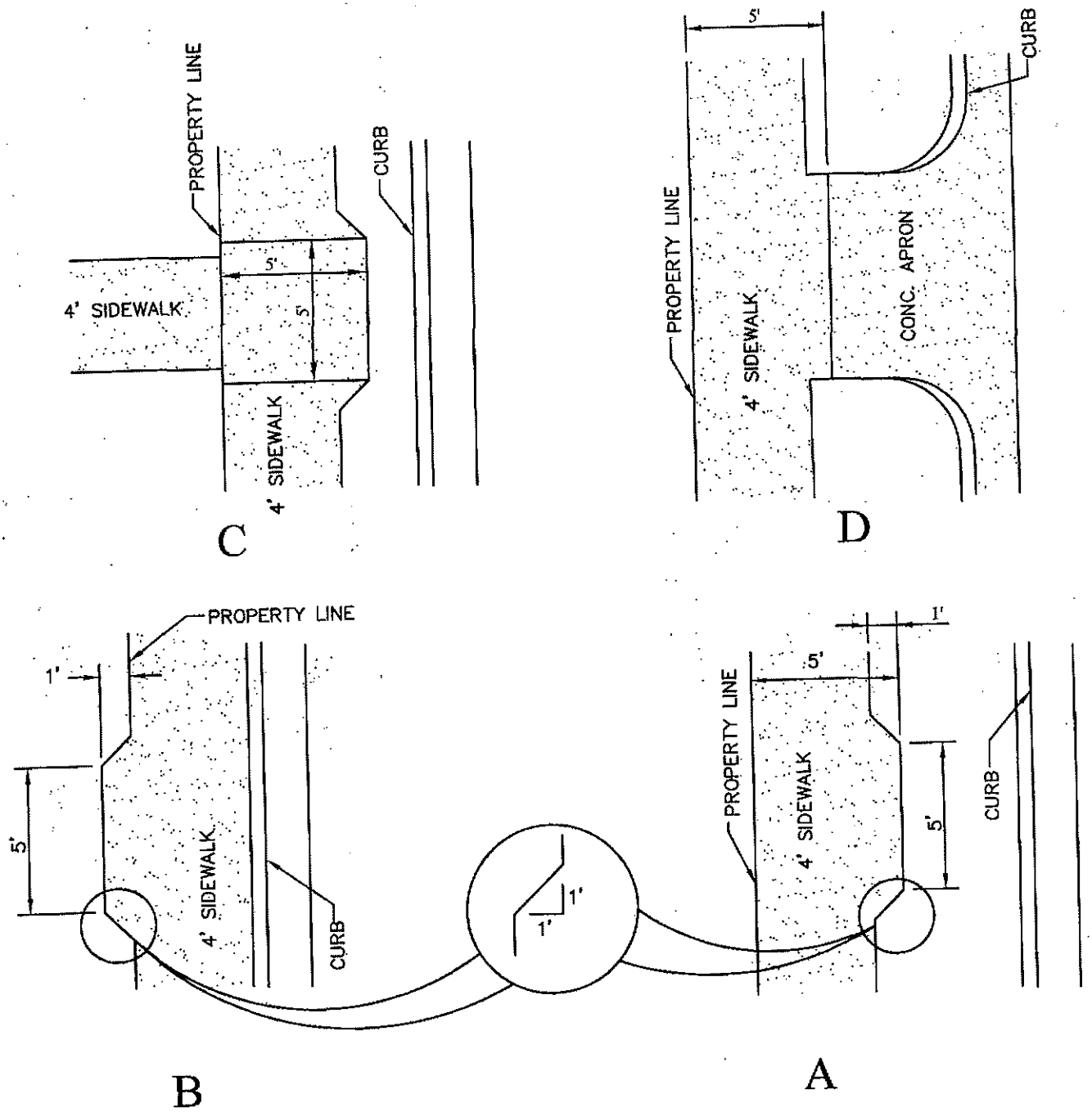


SIDEWALK FOR ON-SITE PONDING

NOTES:

1. CONCRETE FOR HEADERS AND SIDEWALKS SHALL BE 3000 P.S.I. (MIN.).
2. DUMMY JOINT AT 5'-0" O.C., MINIMUM 1/2" PREMOLDED ASPHALT IMPREGNATED EXPANSION JOINT AT 20' O.C. (SIDEWALK ONLY)

BACK TO TITLE INDEX PAGE



ACCESSIBLE PASSING SPACE DESIGN FOR 4 FT. SIDEWALKS

(SHALL BE SPACED AT EVERY 200' MAXIMUM)

TITLE 19 - SUBDIVISION ORDINANCE

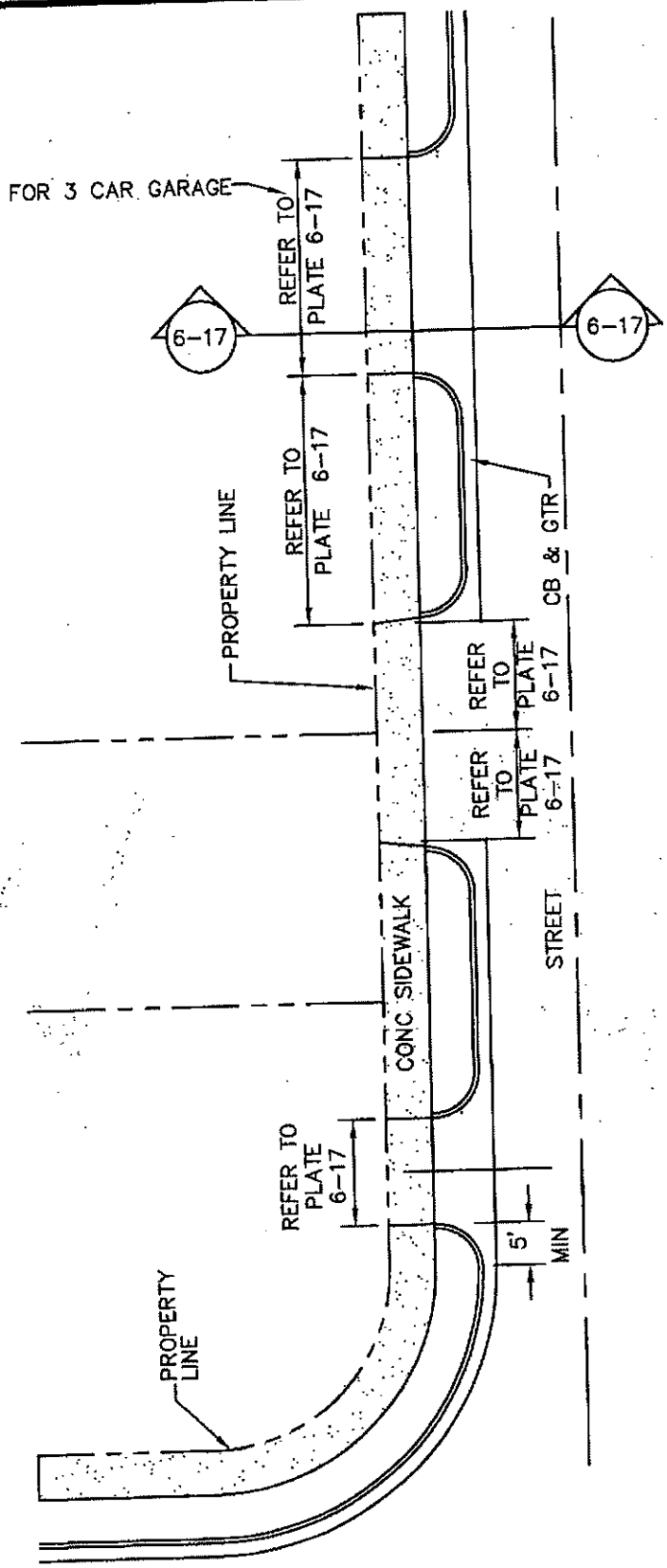
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

ACCESSIBLE PASSING SPACE DESIGN
6-14

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



RESIDENTIAL DRIVEWAY
NTS

NOTE:
A MINIMUM PARKING SPACE LENGTH OF TWENTY (20) FEET SHALL BE PROVIDED MEASURED FROM THE PROPERTY LINE TO A GARAGE, CARPORT OR PARKING SPACE.

TITLE 19 - SUBDIVISION ORDINANCE

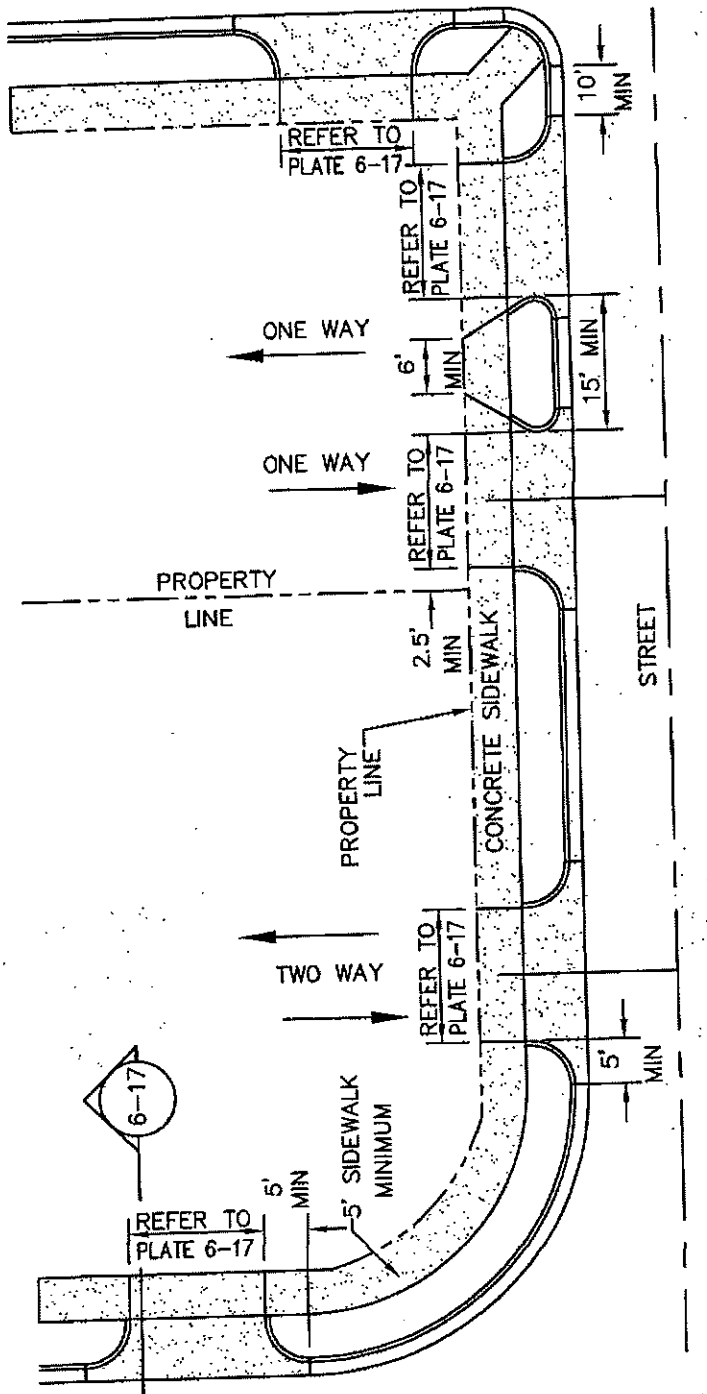
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

RESIDENTIAL DRIVEWAYS
6-15

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / I. R.

BACK TO TITLE INDEX PAGE



THE CITY ENGINEER MAY GRANT VARIANCES TO THE DRIVEWAY REQUIREMENTS PURSUANT TO SECTION 13.12.210 OF THE EL PASO MUNICIPAL CODE

COMMERCIAL/INDUSTRIAL DRIVEWAYS

NTS

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

COMMERCIAL / INDUSTRIAL DRIVEWAYS

6-15A

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By OEC / J. R.

Type I and Type II Two-Way Driveway Standards

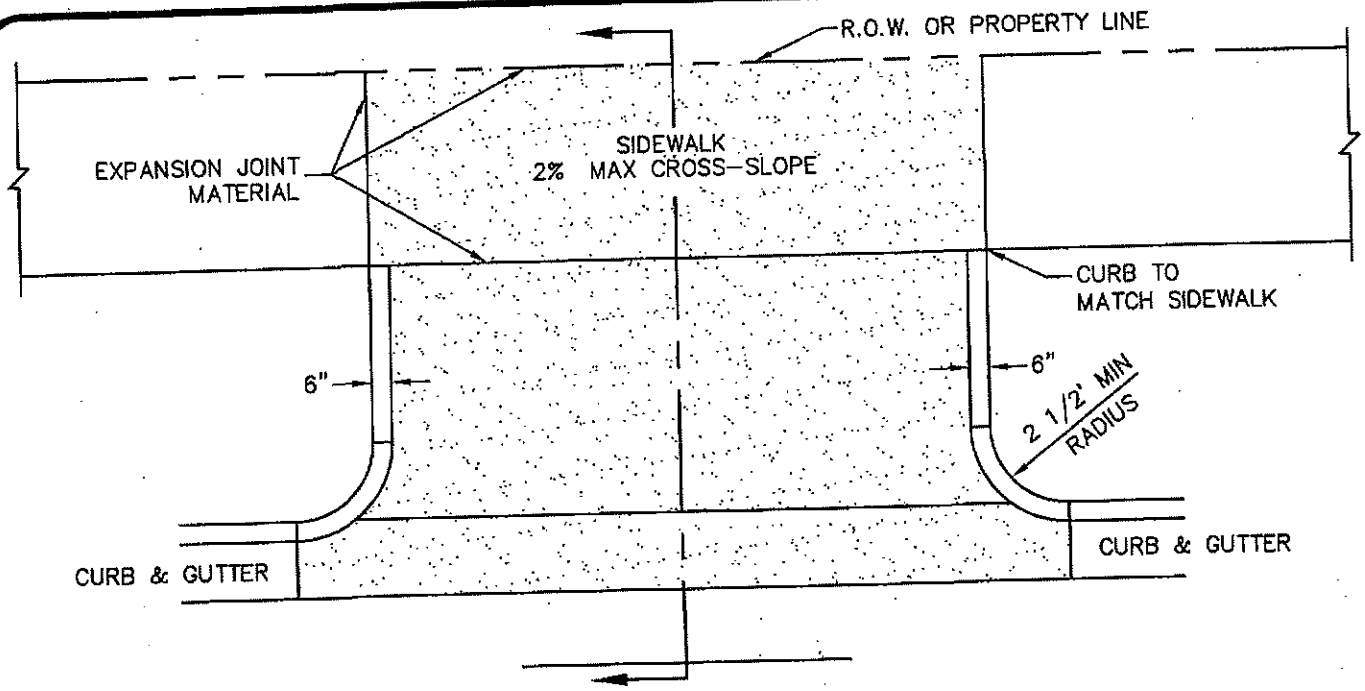
Driveway	Type of Development	Curb				Minimum Edge to Edge Spacing Between Drives (ft.)
		Width (ft.)		Radius (ft.)		
		Min.	Max.	Min.	Max.	
Type I	Single-Family-60' lots	10	20	5	5	10
	Less than 60' lots, Duplex and Townhouse	15	25	10	10	20
	Multi-Resident Apartments	25	30*	10	10	20
Type II	Office, Commercial and Parking Lots	25	35	10	15	20
	Industrial	24	45	10	15	20
	Banks, Service Stations, and Convenience Stores with Gasoline Pumps	25	35**	10	15	1/3 x Frontage

* On 50 MPH streets

** Special approval required by City Engineer, or designee depending on location, traffic count, speed and angle of driveway

(TO BE MODIFIED BY THE CITY OF EL PASO TRAFFIC AND TRANSPORTATION DEPARTMENT)

BACK TO TITLE INDEX PAGE



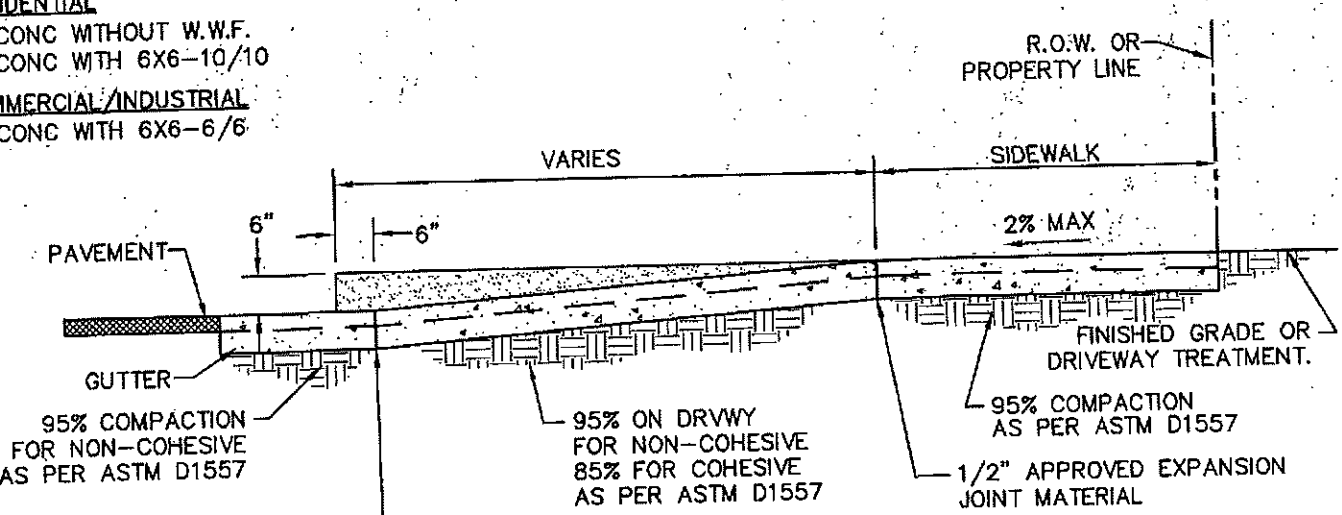
DRIVEWAY PLAN

NTS

DRIVEWAY WIDTH	MIN	MAX
COMMERCIAL/INDUSTRIAL	24'	35'
RESIDENTIAL (SINGLE FAMILY 60' LOTS)	10'	20'
LESS THAN 60' LOTS, DUPLEX, AND TOWNHOMES (REFER TO PLATE 6-16)	15'	25'

RESIDENTIAL
6" CONC WITHOUT W.W.F.
4" CONC WITH 6X6-10/10

COMMERCIAL/INDUSTRIAL
6" CONC WITH 6X6-6/6



DRIVEWAY SECTION

NTS

10% MAX SLOPE FOR 1ST 12 FT, 14% MAX THEREAFTER

TITLE 19 - SUBDIVISION ORDINANCE

THE CITY OF EL PASO TEXAS

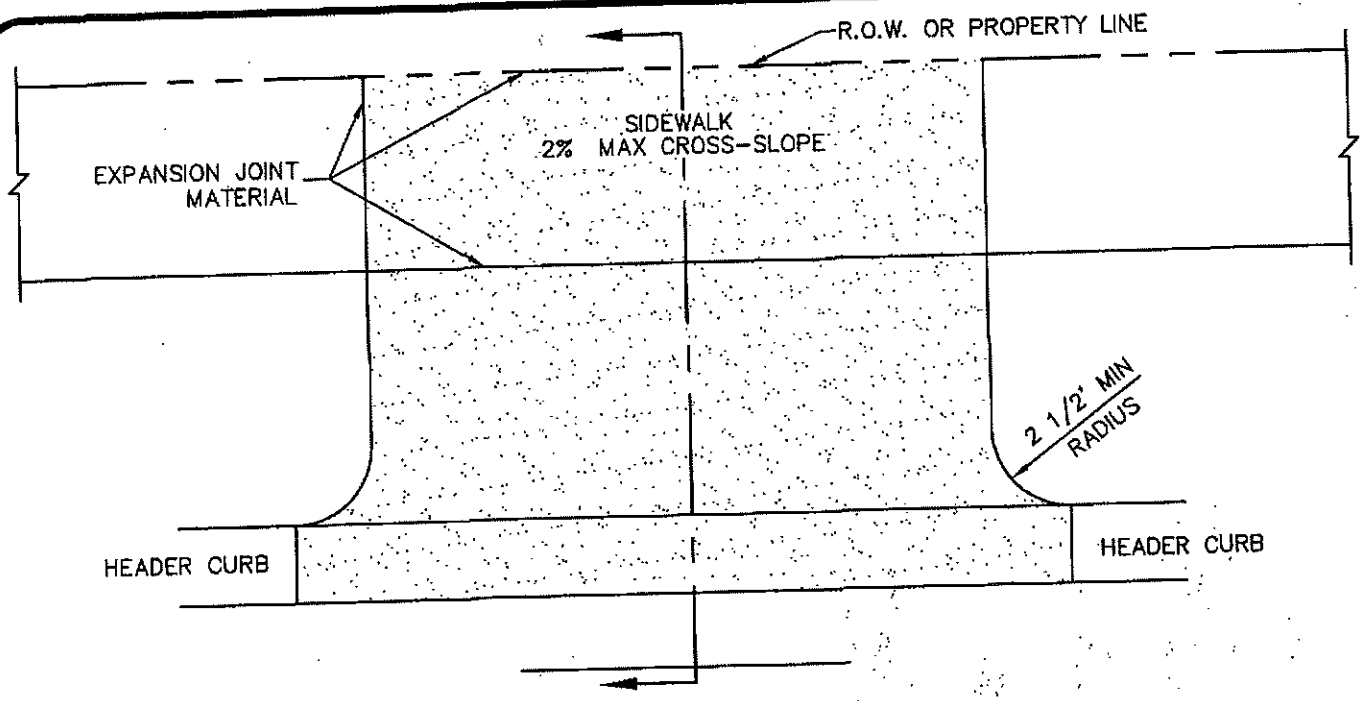
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

CONCRETE APRON FOR DRIVEWAYS/ALLEYWAYS
6-17

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

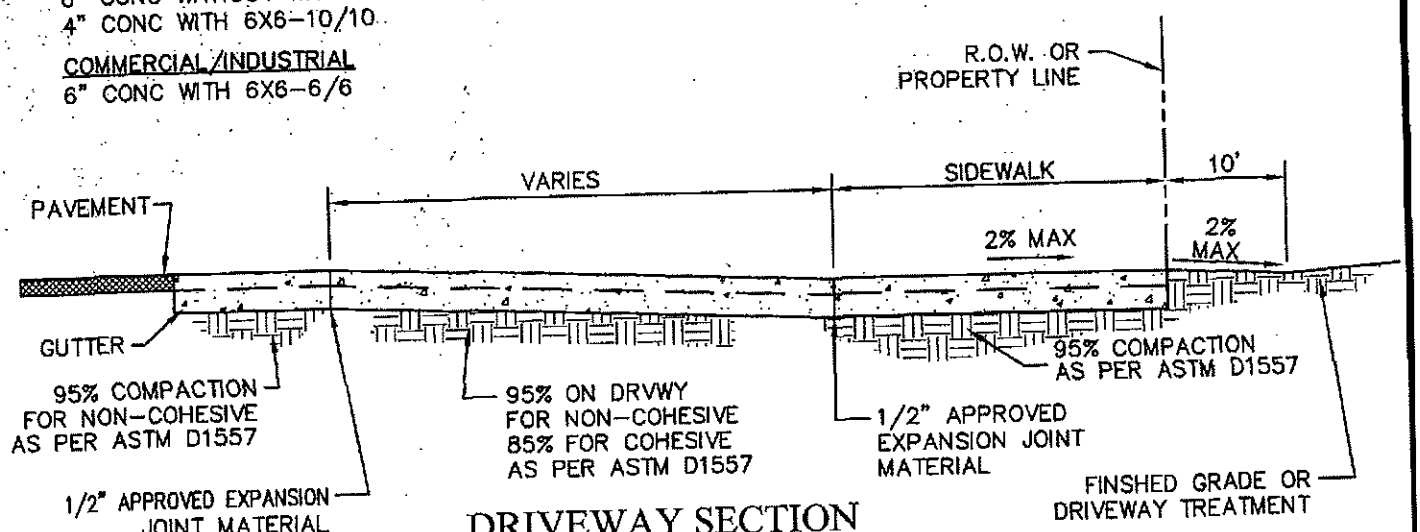


DRIVEWAY PLAN
NTS

DRIVEWAY WIDTH	MIN	MAX
COMMERCIAL/INDUSTRIAL	24'	35'
RESIDENTIAL (SINGLE FAMILY 60' LOTS)	10'	20'
LESS THAN 60' LOTS, DUPLEX, AND TOWNHOMES (REFER TO PLATE 6-16)	15'	25'

RESIDENTIAL
6" CONC WITHOUT W.W.F.
4" CONC WITH 6X6-10/10

COMMERCIAL/INDUSTRIAL
6" CONC WITH 6X6-6/6



DRIVEWAY SECTION
NTS

TITLE 19 - SUBDIVISION ORDINANCE

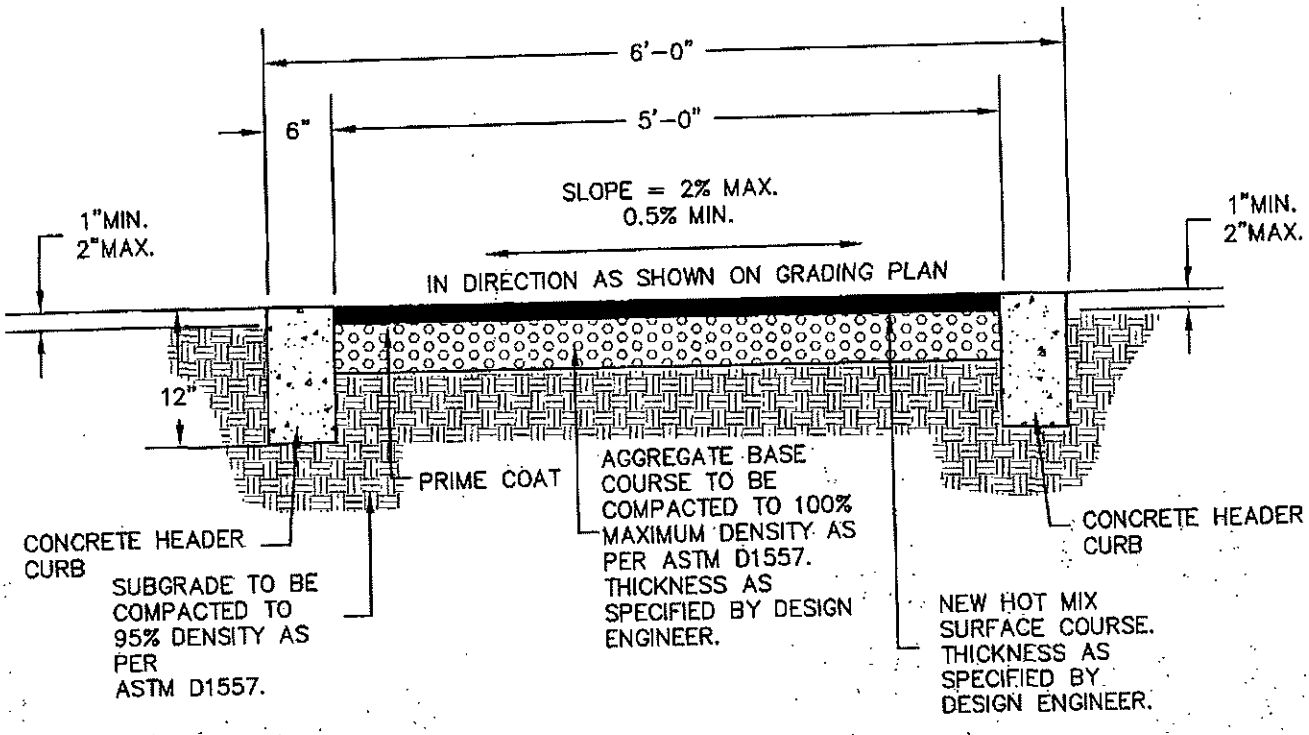
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

DRIVEWAY WITH ON-SITE PONDING
6-18

Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. B.
Drawn By OEC / I. R.

BACK TO TITLE INDEX PAGE



NOTES:

1. CONCRETE HEADER CURBS SHALL BE 3,000 P.S.I. MIN.
2. DUMMY JOINT REQUIRED AT 10' O.C.
3. 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT (AASHTO M-33) IS REQUIRED FOR ALL CURB RETURNS.
4. SUBGRADE UNDER CURB MUST BE FORMED AND COMPACTED TO 95% ASTM D1557.
5. EXPANSION JOINTS REQUIRED AT 50' O.C. WHEN FORMING FOR CURBS.
6. REFER TO GRADING & DRAINAGE PLAN FOR DIRECTION OF FLOW.

ASPHALTIC WALKWAY/JOGGING PATH

SCALE: N.T.S.

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

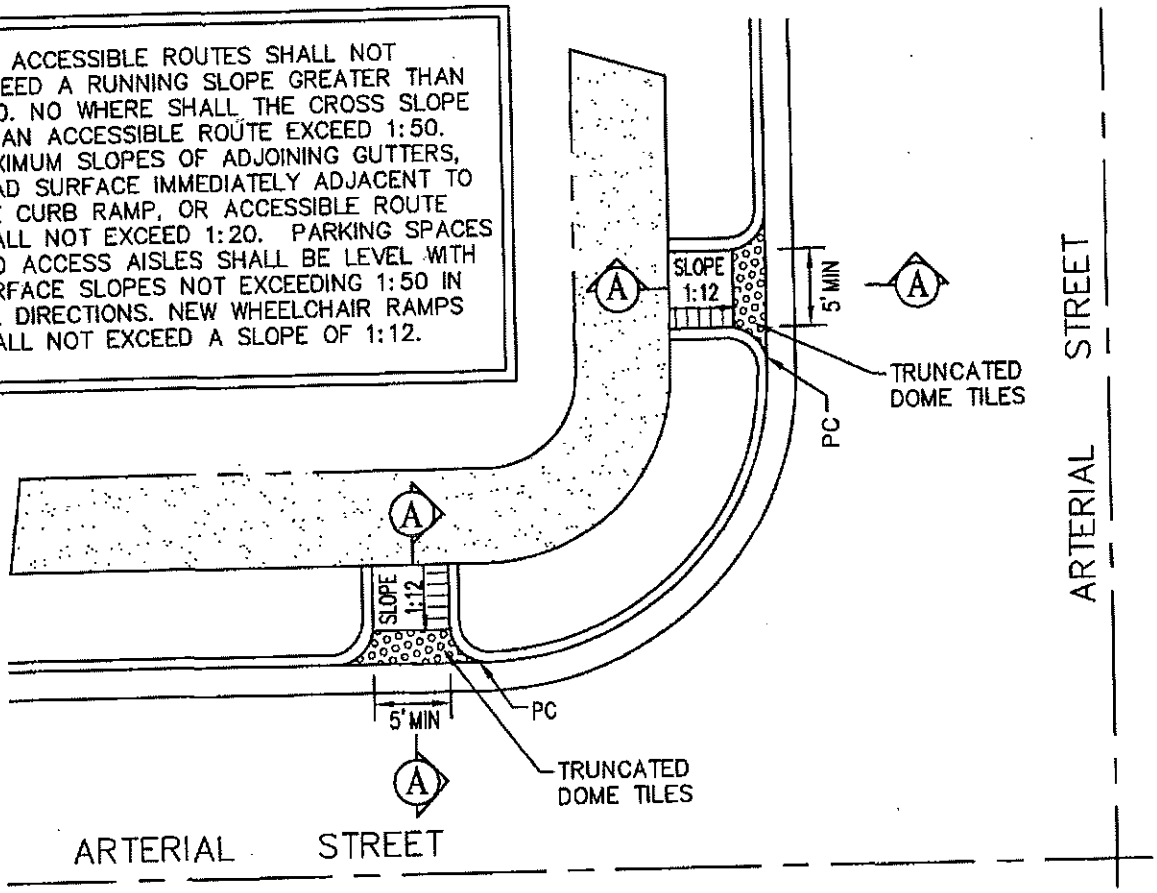
ASPHALTIC WALKWAY/JOGGING PATH
6-19

Approved By R. A. SHUBERT
Date JUNE 03, 2008

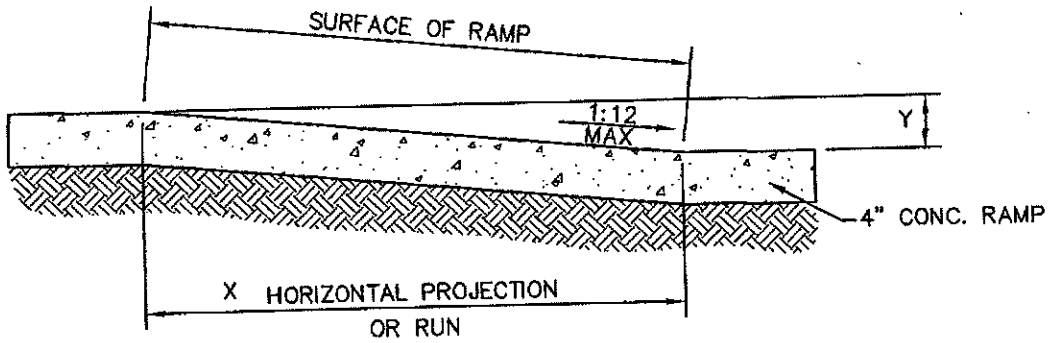
Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

ALL ACCESSIBLE ROUTES SHALL NOT EXCEED A RUNNING SLOPE GREATER THAN 1:20. NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS. NEW WHEELCHAIR RAMPS SHALL NOT EXCEED A SLOPE OF 1:12.



STRAIGHT CURB RAMP DESIGN WITH CURB RETURNS



SECTION A

NOTES:
(1) SLOPE = y:x, where x is level plane
(2) Cross-slope shall not exceed 1:50

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

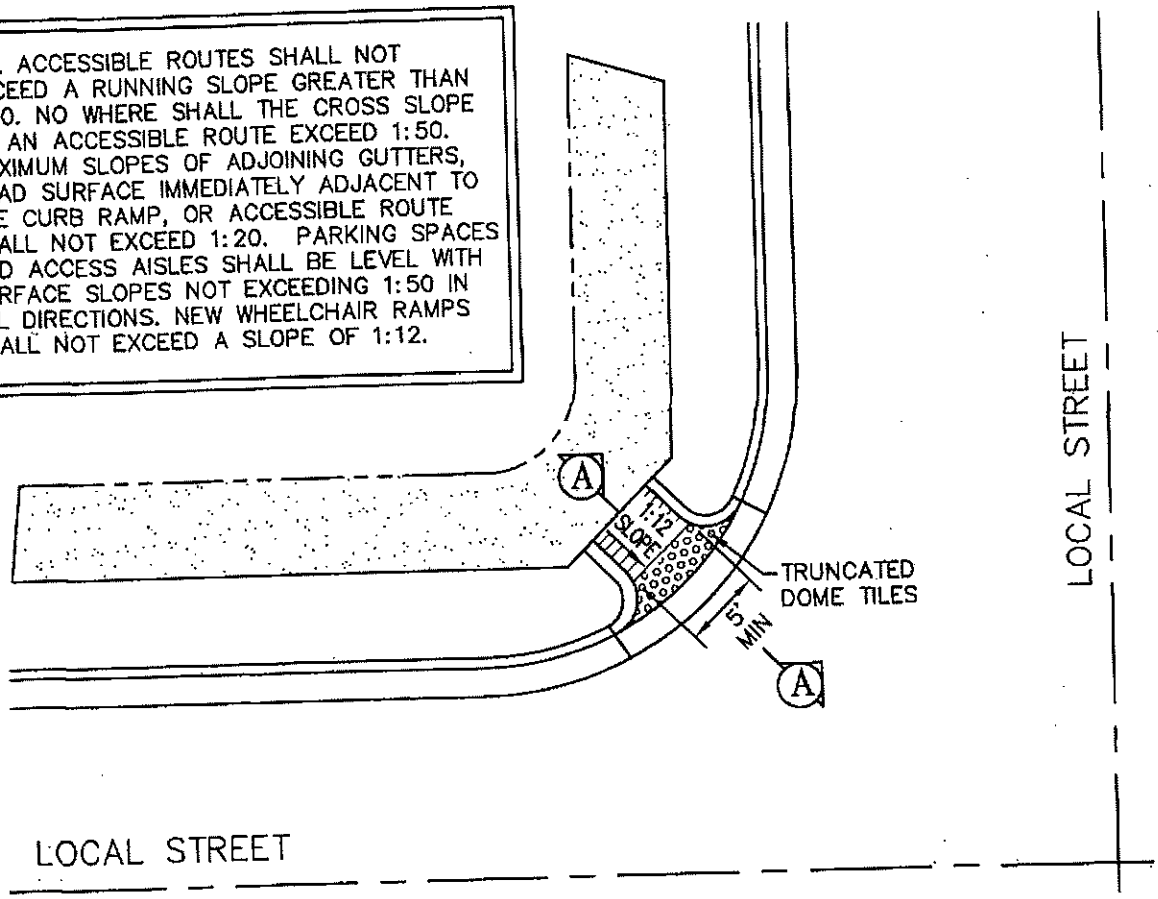
DESIGN STANDARDS FOR CONSTRUCTION

STRAIGHT CURB RAMP DESIGN W/ CURB RETURNS 6-20

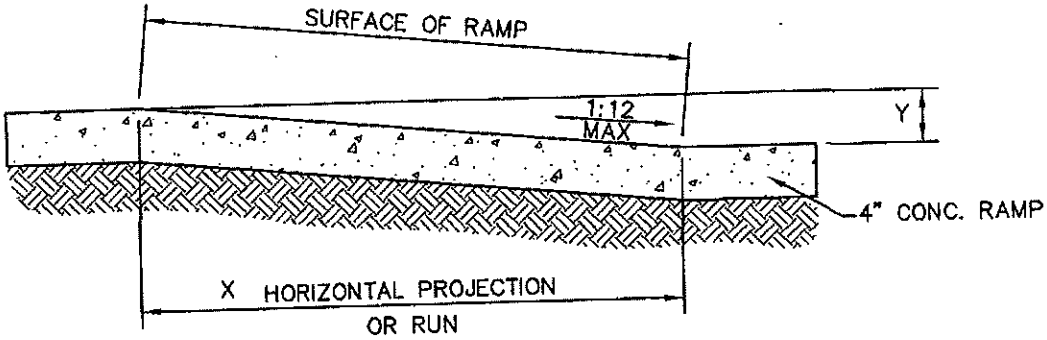
Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE

ALL ACCESSIBLE ROUTES SHALL NOT EXCEED A RUNNING SLOPE GREATER THAN 1:20. NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS. NEW WHEELCHAIR RAMPS SHALL NOT EXCEED A SLOPE OF 1:12.



DIAGONAL CURB RAMP DESIGN WITH CURB RETURNS



SECTION A

NOTES:

(1) SLOPE = y:x, where x is level plane

(2) Cross-slope shall not exceed 1:50

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

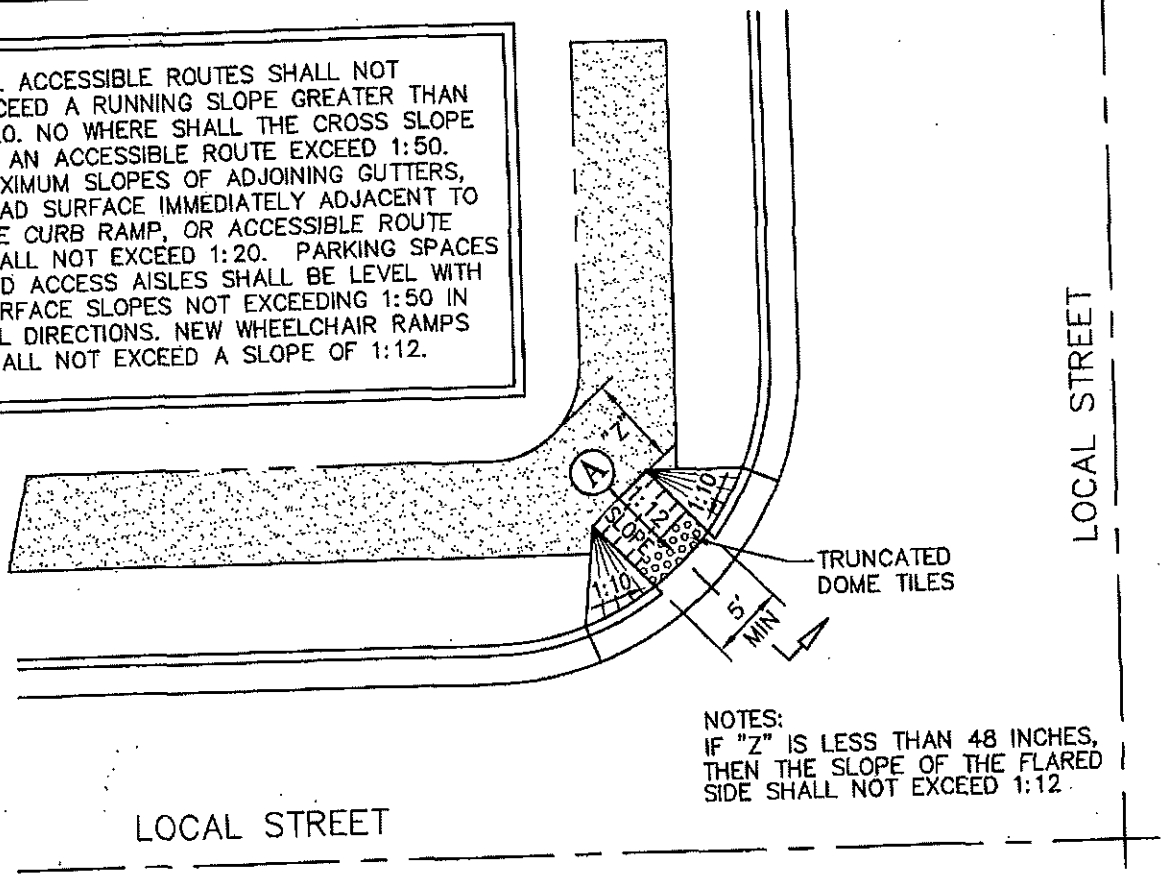
DESIGN STANDARDS FOR CONSTRUCTION

DIAGONAL CURB RAMP DESIGN W/ CURB RETURNS 6-21

Approved By R. A. SHUBERT	Checked By H. M. B.
Date JUNE 03, 2008	Drawn By QEC / J. R.

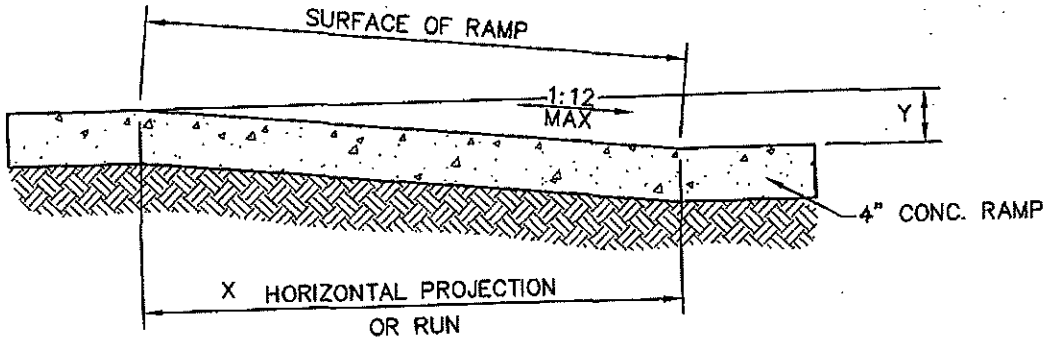
BACK TO TITLE INDEX PAGE

ALL ACCESSIBLE ROUTES SHALL NOT EXCEED A RUNNING SLOPE GREATER THAN 1:20. NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS. NEW WHEELCHAIR RAMPS SHALL NOT EXCEED A SLOPE OF 1:12.



NOTES:
IF "Z" IS LESS THAN 48 INCHES, THEN THE SLOPE OF THE FLARED SIDE SHALL NOT EXCEED 1:12

DIAGONAL CURB RAMP DESIGN WITH FLARED SIDES



SECTION A

NOTES:

(1) SLOPE = y:x, where x is level plane

(2) Cross-slope shall not exceed 1:50

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

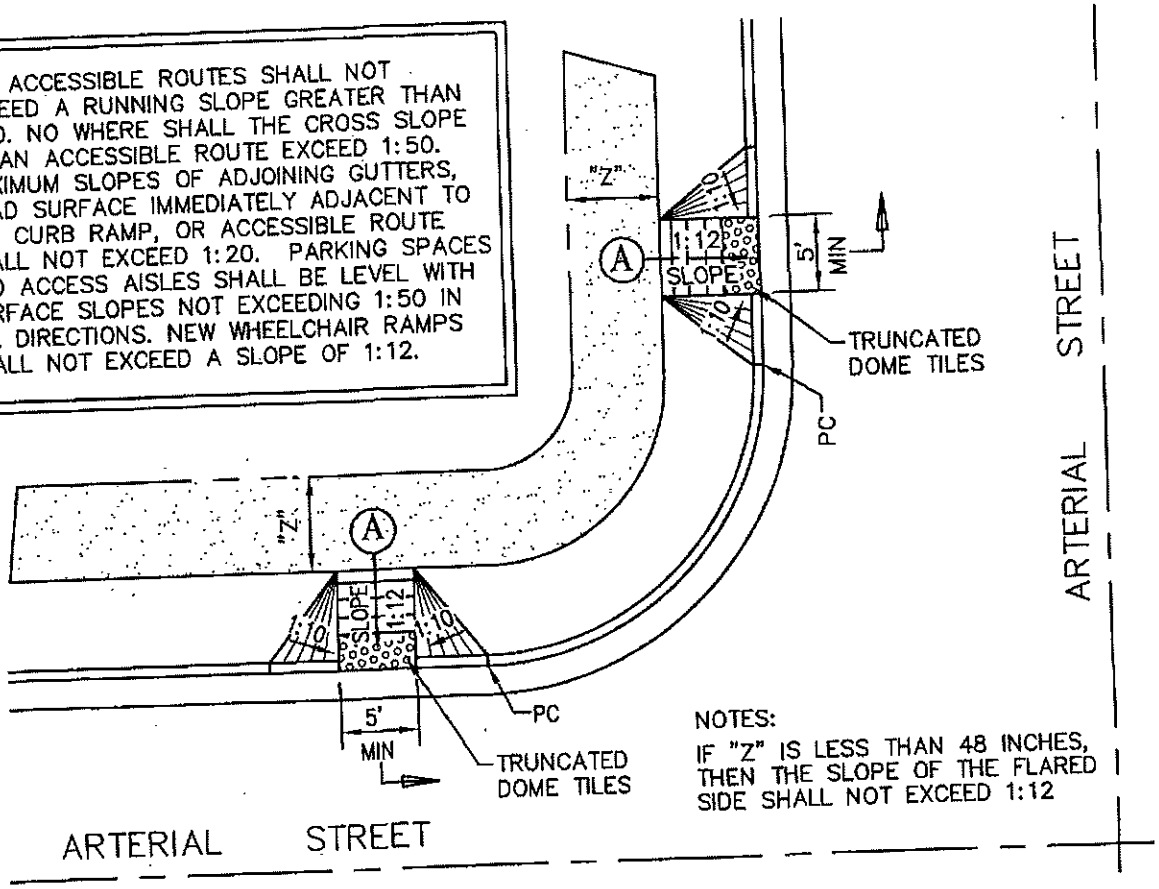
DIAGONAL CURB RAMP DESIGN W/ FLARED SIDES 6-22

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

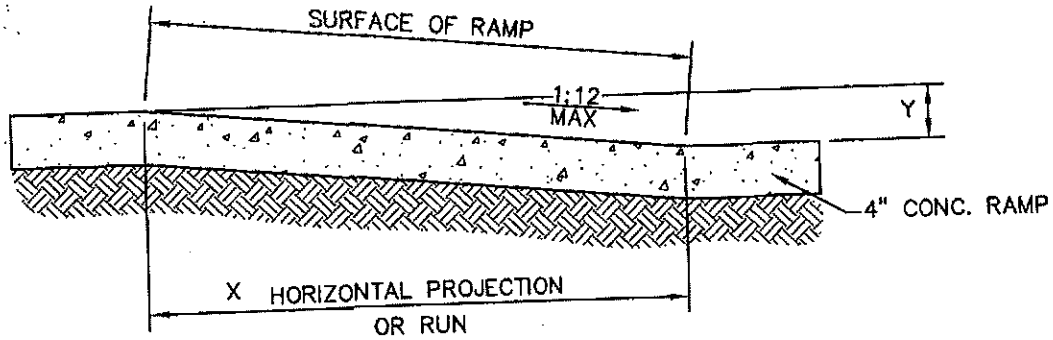
BACK TO TITLE INDEX PAGE

ALL ACCESSIBLE ROUTES SHALL NOT EXCEED A RUNNING SLOPE GREATER THAN 1:20. NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS. NEW WHEELCHAIR RAMPS SHALL NOT EXCEED A SLOPE OF 1:12.



NOTES:
IF "Z" IS LESS THAN 48 INCHES, THEN THE SLOPE OF THE FLARED SIDE SHALL NOT EXCEED 1:12

STRAIGHT CURB RAMP DESIGN WITH FLARED SIDES



SECTION A

NOTES:

(1) SLOPE = y:x, where x is level plane

(2) Cross-slope shall not exceed 1:50

TITLE 19 - SUBDIVISION ORDINANCE

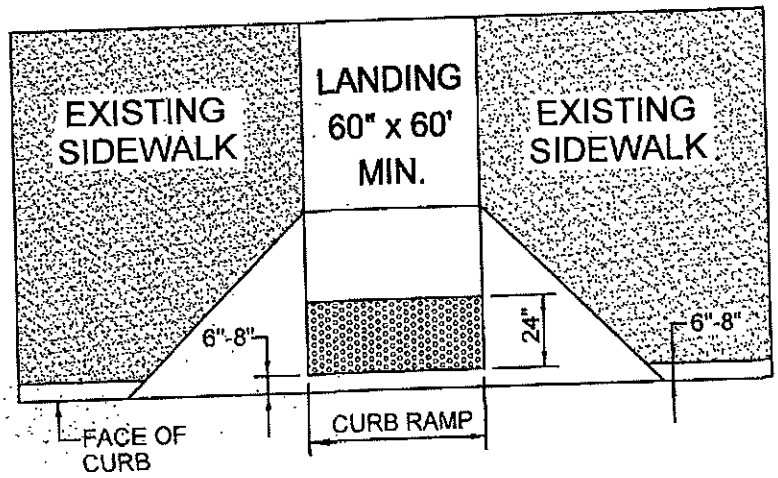
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

STRAIGHT CURB RAMP DESIGN W/ FLARED SIDES 6-23

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

Width. The minimum width of curb ramps shall be 60 inches exclusive of flared sides. In areas where space does not permit a 60 inch width, the minimum width shall be no less than 36 inches as determined by the owner (Note; Landing can not exceed 2% slope on every direction). See Figure



LANDING CAN NOT EXCEED 2% SLOPE ON EVERY DIRECTION

TITLE 19 - SUBDIVISION ORDINANCE

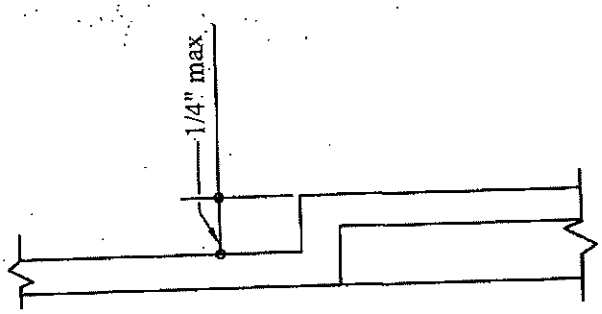
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

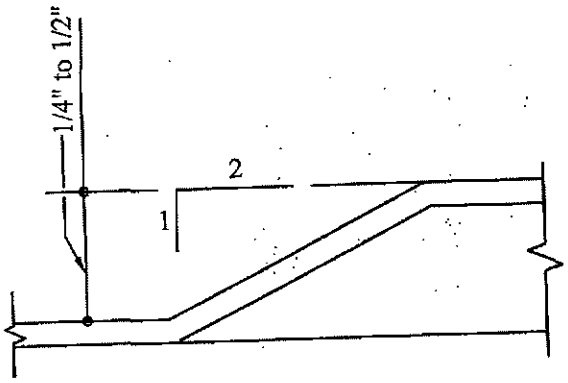
WHEEL CHAIR CURB RAMP WIDTH
6-24

Approved By R. A. SHUBERT
Date JUNE 03, 2008
Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



Changes in Level



Changes in Level

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

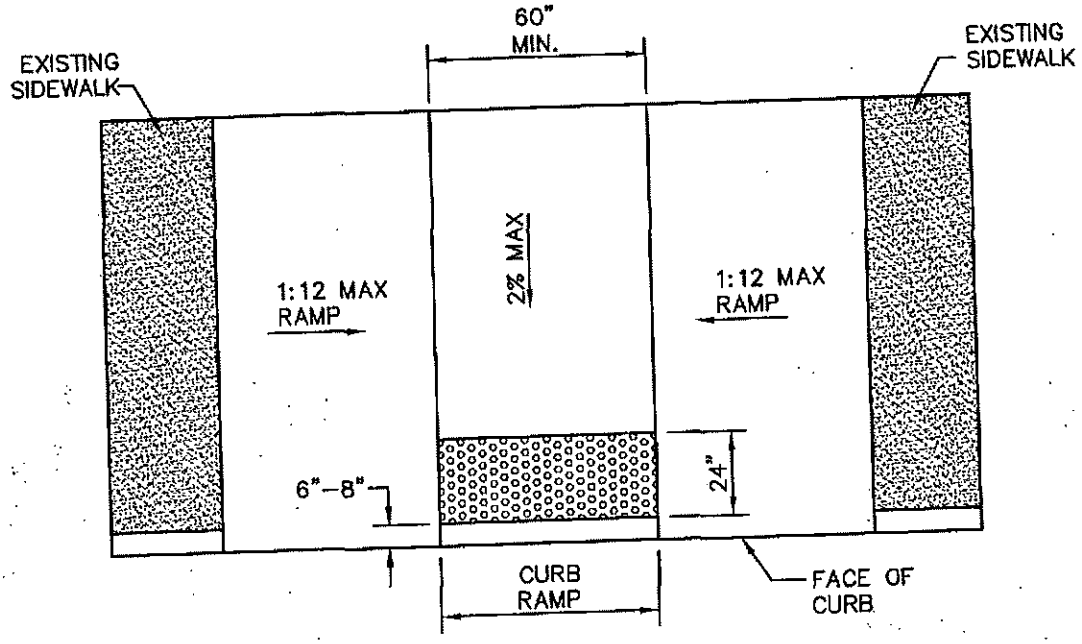
DESIGN STANDARDS FOR CONSTRUCTION

RAMP SURFACE
6-25

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

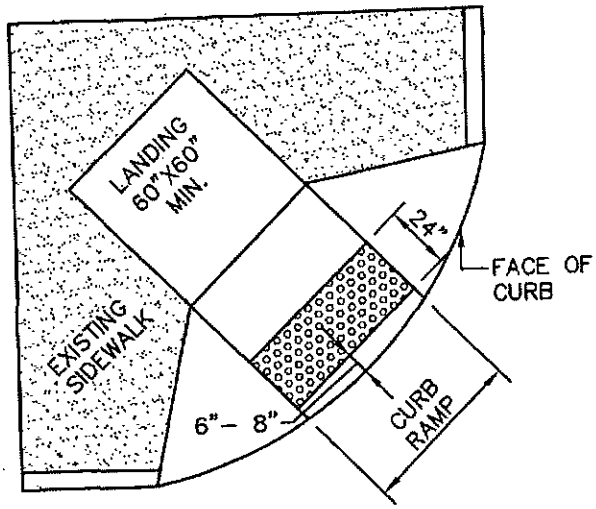
DESIGN STANDARDS
FOR CONSTRUCTION

TRANSITION RAMP
WITH DETECTABLE
WARNING
6-26

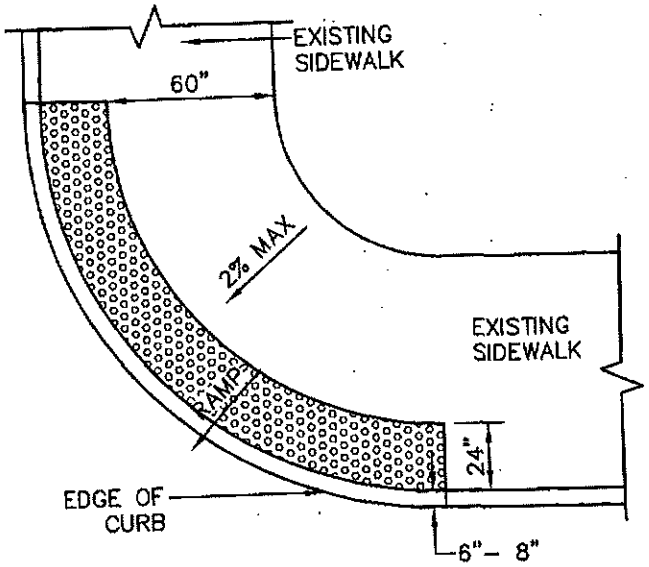
Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By OEC / J. R.

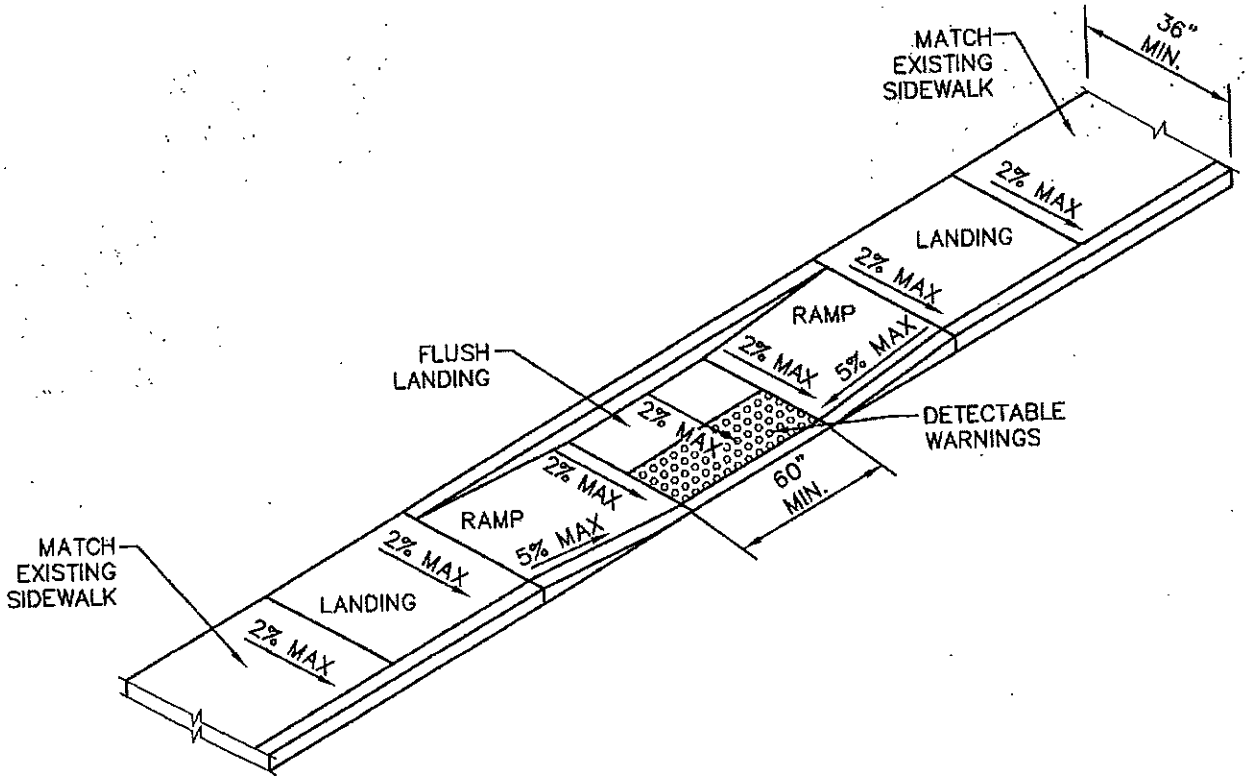
BACK TO TITLE INDEX PAGE



(SHARED CURB RAMP)



(BLENDED CURB)



(TRANSITION RAMP: ISOMETRIC VIEW OF A TRANSITION RAMP AS CURRENTLY DEFINED. THE ILLUSTRATION IS BASED ON THE OLD "PARALLEL" STYLE RAMP)

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

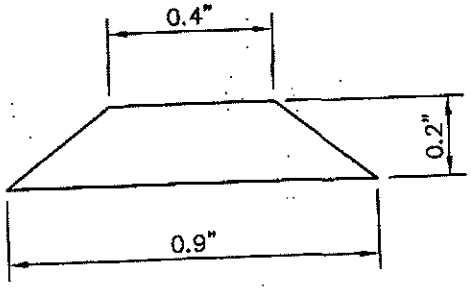
DESIGN STANDARDS
FOR CONSTRUCTION

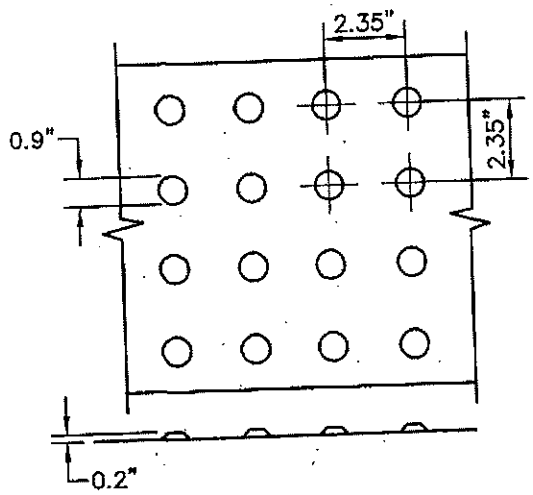
LOCATION OF
DETECTABLE WARNINGS
ON VARIOUS RAMPS
6-27

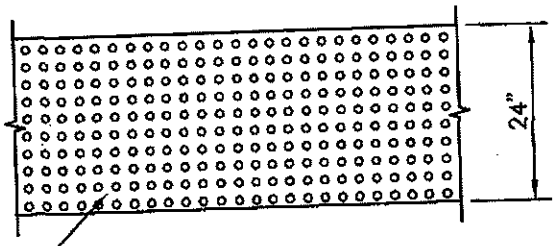
Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. B.
Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE







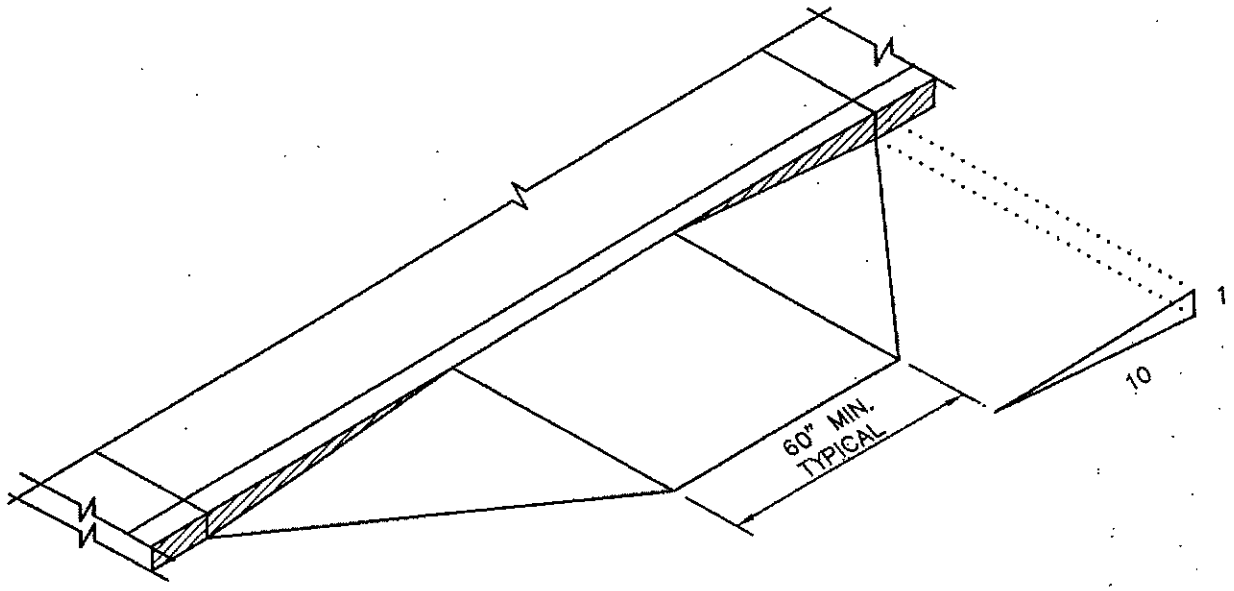
TRUNCATED DOME TILES. ADA CERTIFIED "ARMOR –TILE" TACTILE SYSTEMS OR APPROVED EQUAL

DOME SIZE AND SPACING. TRUNCATED DOMES SHALL HAVE A DIAMETER OF NOMINAL 0.9 INCHES (23 mm) AT THE BOTTOM, A DIAMETER OF 0.4 INCH (10 mm) AT THE TOP, A HEIGHT OF NOMINAL 0.2 INCHES (5 mm), AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35 INCHES (60 mm) MEASURED ALONG ONE SIDE OF A SQUARE ARRANGEMENT.

DOME ALIGNMENT. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES. DETECTABLE WARNING SURFACES SHALL EXTEND 24 INCHES (610 mm) MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION.

CONTRAST. THERE SHALL BE A MINIMUM OF 70 PERCENT CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AND AN ADJOINING SURFACE, OR THE DETECTABLE WARNING SHALL BE "RED BRICK" COLOR, UNLESS OTHERWISE DIRECTED BY THE OWNER. THE MATERIAL USED TO PROVIDE VISUAL CONTRAST SHALL BE AN INTEGRAL PART OF THE DETECTABLE WARNING SURFACE. CONTRAST SHALL BE PROVIDED BY PLACING AND MIXING TINT IN THE PLASTIC CONCRETE USED FOR THE DETECTABLE WARNING SURFACE. NO PAINTING OF SURFACE SHALL BE PERMITTED.

BACK TO TITLE INDEX PAGE



SIDES OF CURB RAMPS.
IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST TRAVEL ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES; THE MAXIMUM SLOPE OF THE FLARE SHALL BE 1:12. CURB RAMPS WITH RETURNED CURBS MAY BE USED WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP.

TITLE 19 - SUBDIVISION ORDINANCE

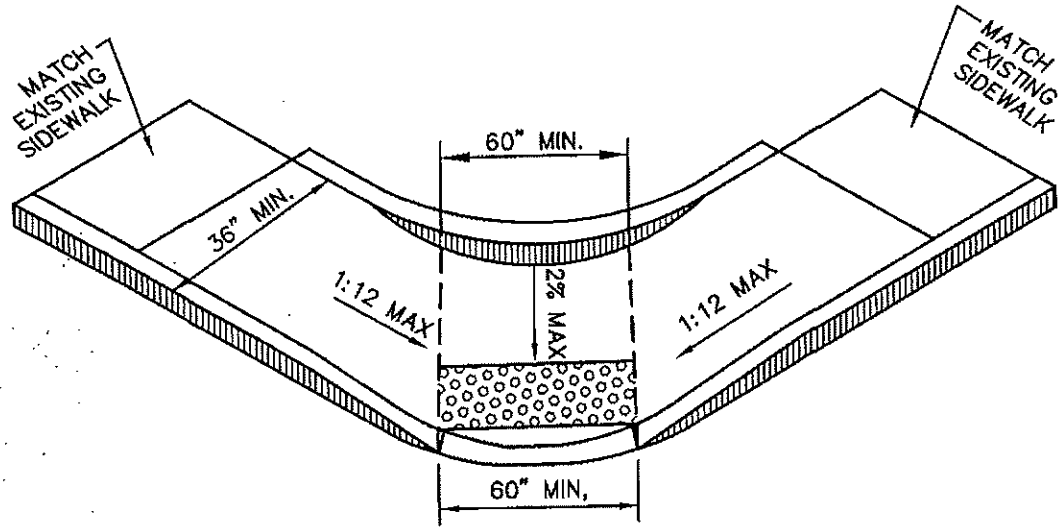
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

BUILT-UP CURB RAMP
6-29

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



TITLE 19 - SUBDIVISION ORDINANCE

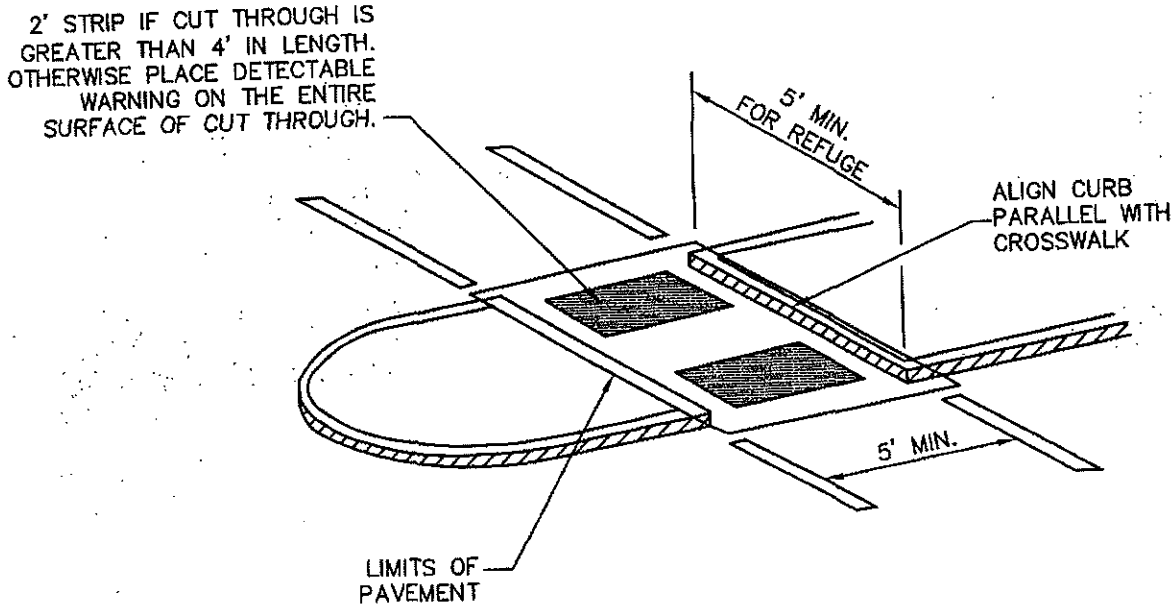
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

DIAGONAL SHARED RAMP
6-30

Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



CURB RAMPS AT MEDIAN ISLANDS

TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

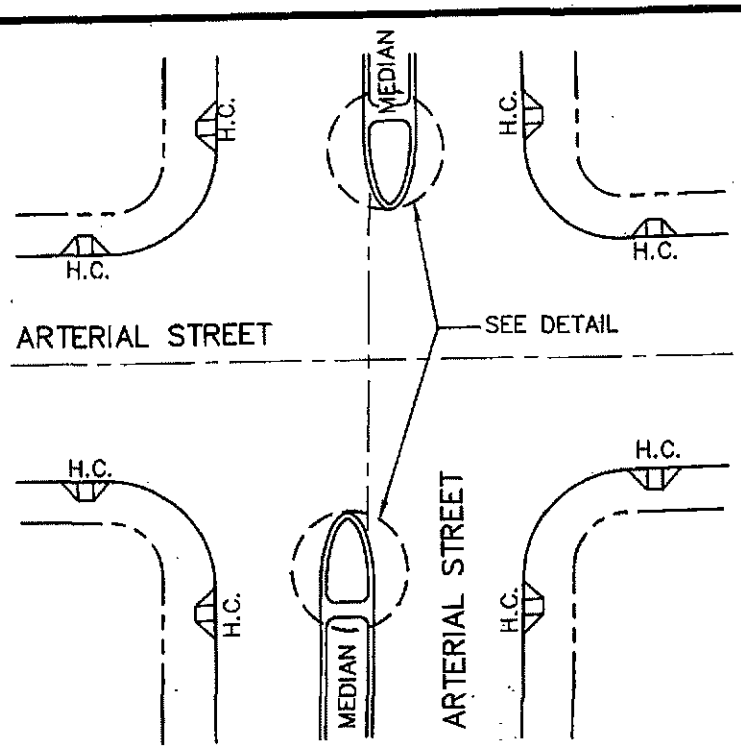
DESIGN STANDARDS FOR CONSTRUCTION

CURB RAMPS AT MEDIAN ISLANDS
6-31

Approved By R. A. SHUBERT
Date JUNE 03, 2008

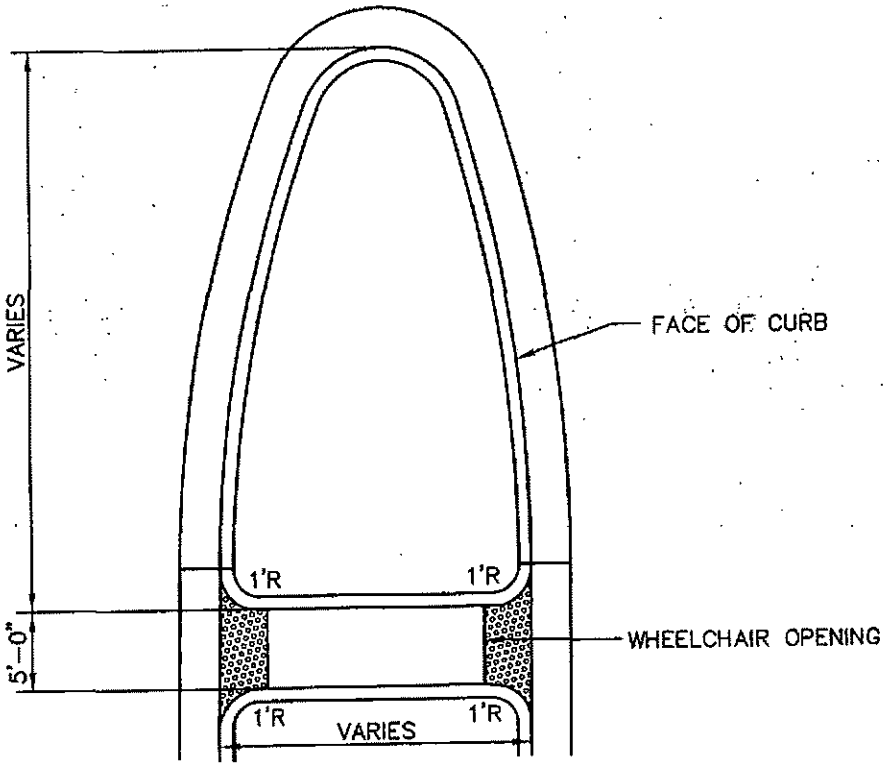
Checked By H. M. E.
Drawn By OEC / J. R.

BACK TO TITLE INDEX PAGE



MEDIAN CURB RAMP DESIGN

ARTERIAL STREET



TITLE 19 - SUBDIVISION ORDINANCE

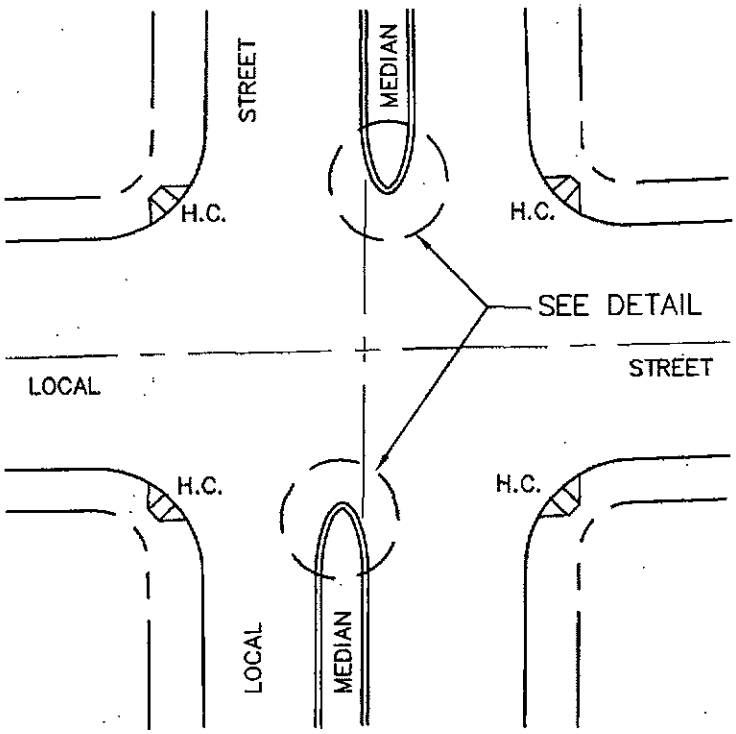
ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

MEDIAN CURB RAMP DESIGN (ARTERIAL) 6-32

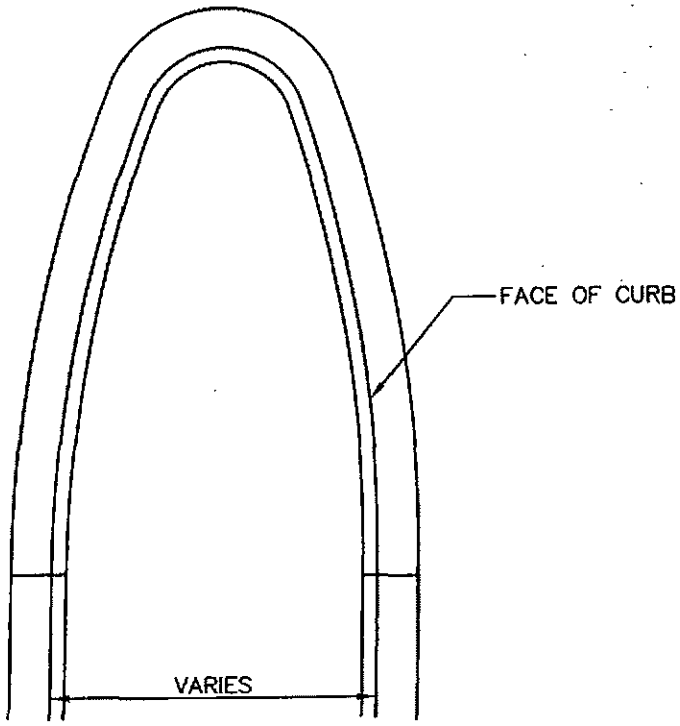
Approved By R. A. SHUBERT	Checked By H. M. E.
Date JUNE 03, 2008	Drawn By QEC / J. R.

BACK TO TITLE INDEX PAGE



MEDIAN CURB RAMP DESIGN

LOCAL STREET



TITLE 19 - SUBDIVISION ORDINANCE

ENGINEERING DEPARTMENT

DESIGN STANDARDS FOR CONSTRUCTION

MEDIAN CURB RAMP DESIGN (LOCAL)

6-33

Approved By R. A. SHUBERT
Date JUNE 03, 2008

Checked By H. M. E.
Drawn By QEC / J. R.

Appendix F

Item 105: Removing Stabilized Base and Asphalt Pavement

Removing retaining wall footings will not be paid for directly, but will be considered subsidiary to this Item.

ITEM 105
REMOVING STABILIZED BASE AND ASPHALT PAVEMENT

105.1. Description. Break, remove, and store or dispose of existing asphalt pavement or stabilized base materials.

105.2. Construction. Break material retained by the Department into pieces not larger than 24 in. Remove existing asphalt pavement prior to disturbing stabilized base. Avoid contamination of the asphalt materials and damage to adjacent areas. Repair material damaged by operations outside the designated locations.

When shown on the plans and as directed, stockpile materials designated salvageable at designated sites. Prepare stockpile site by removing vegetation and trash and by providing for proper drainage. Dispose of materials not designated as salvageable in accordance with federal, state, and local regulations.

105.3. Measurement. This Item will be measured by the 100-ft. station along the baseline of each roadbed, by the square yard of existing stabilized base and asphalt pavement in its original position, or by the cubic yard of existing stabilized base and asphalt pavement in its original position, as calculated by the average end area method. Square yard and cubic yard measurement will be established by the widths and depths shown in the plans and the lengths measured in the field.

105.4. Payment. The work performed in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Removing Stabilized Base and Asphalt Pavement," of the depth specified. This price is full compensation for breaking the material, loading, hauling, unloading, stockpiling or disposing; repair to areas outside designated locations for removal; and equipment, labor, tools, and incidentals.

Appendix G

Item 132: Embankment

112.4. Measurement. This Item will be measured by the 100-ft. station along the baseline of each roadbed.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

112.5. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Subgrade Widening (Ordinary Compaction)" or "Subgrade Widening (Density Control)." This price is full compensation for excavation; hauling of embankment material from cuts to fills; finishing of the subgrade widening; hauling and disposing of excess excavated material; furnishing and operating equipment; scarifying; shaping; and labor, fuel, materials, tools, and incidentals.

No payment will be made for thickness or width exceeding that shown on the typical sections. "Sprinkling" and "Rolling" will not be paid for directly but will be considered subsidiary to this Item.

Corrections of unstable areas in the widened subgrade will be at the Contractor's expense. In a cut section, work involved in removing and replacing unsuitable material encountered below the finished subgrade will be paid for as specified under Item 110, "Excavation," when included; otherwise it will be paid for under Article 9.4, "Payment for Extra Work."

ITEM 132
EMBANKMENT

132.1. Description. Furnish, place, and compact materials for construction of roadways, embankments, levees, dikes, or any designated section of the roadway where additional material is required.

132.2. Materials. Furnish approved material capable of forming a stable embankment from required excavation in the areas shown on the plans or from sources outside the right of way. Provide 1 or more of the following types as shown on the plans:

- **Type A.** Granular material that is free from vegetation or other objectionable material and meets the requirements of Table 1.

Table 1
Testing Requirements

Property	Test Method	Specification Limit
Liquid limit	Tex-104-E	≤ 45
Plasticity index (PI)	Tex-106-E	≤ 15
Bar linear shrinkage	Tex-107-E	≥ 2

The Linear Shrinkage test only needs to be performed as indicated in Tex-104-E.

- **Type B.** Materials such as rock, loam, clay, or other approved materials.
- **Type C.** Material meeting the specification requirements shown on the plans.
- **Type D.** Material from required excavation areas shown on the plans.

Retaining wall backfill material must meet the requirements of the pertinent retaining wall Items.

132.3. Construction. Meet the requirements of Item 7, "Legal Relations and Responsibilities to the Public," when off right of way sources are used. To allow for required testing, notify the Engineer before opening a material source. Complete preparation of the right of way, in accordance with Item 100, "Preparing Right of Way," for areas to receive embankment.

Backfill tree-stump holes or other minor excavations with approved material and tamp. Restore the ground surface, including any material disked loose or washed out, to its original slope. Compact the ground surface by sprinkling in accordance with Item 204, "Sprinkling," and by rolling using equipment complying with Item 210, "Rolling," when directed.

Scarify and loosen the unpaved surface areas, except rock, to a depth of at least 6 in., unless otherwise shown on the plans. Bench slopes before placing material. Begin placement of material at the toe of slopes. Do not place trees, stumps, roots, vegetation, or other objectionable material in the embankment. Simultaneously recompact scarified material with the placed embankment material. Do not exceed the layer depth specified in Section 132.3.D, "Compaction Methods."

Construct embankments to the grade and sections shown on the plans. Construct the embankment in layers approximately parallel to the finished grade for the full width of the individual roadway cross sections, unless otherwise shown on the plans. Ensure that each section of the embankment

conforms to the detailed sections or slopes. Maintain the finished section, density, and grade until the project is accepted.

A. **Earth Embankments.** Earth embankment is mainly composed of material other than rock. Construct embankments in successive layers, evenly distributing materials in lengths suited for sprinkling and rolling.

Obtain approval to incorporate rock and broken concrete produced by the construction project in the lower layers of the embankment. When the size of approved rock or broken concrete exceeds the layer thickness requirements in Section 132.3.D, "Compaction Methods," place the rock and concrete outside the limits of the completed roadbed. Cut and remove all exposed reinforcing steel from the broken concrete.

Move the material dumped in piles or windrows by blading or by similar methods and incorporate it into uniform layers. Featheredge or mix abutting layers of dissimilar material for at least 100 ft. to ensure there are no abrupt changes in the material. Break down clods or lumps of material and mix embankment until a uniform material is attained.

Apply water free of industrial wastes and other objectionable matter to achieve the uniform moisture content specified for compaction.

When ordinary compaction is specified, roll and sprinkle each embankment layer in accordance with Section 132.3.D.1, "Ordinary Compaction." When density control is specified, compact the layer to the required density in accordance with Section 132.3.D.2, "Density Control."

B. **Rock Embankments.** Rock embankment is mainly composed of rock. Construct rock embankments in successive layers for the full width of the roadway cross-section with a depth of 18 in. or less. Increase the layer depth for large rock sizes as approved. Do not exceed a depth of 2-1/2 ft. in any case. Fill voids created by the large stone matrix with smaller stones during the placement and filling operations.

Ensure the depth of the embankment layer is greater than the maximum dimension of any rock. Do not place rock greater than 2 ft. in its maximum dimension, unless otherwise approved. Construct the final layer with graded material so that the density and uniformity is in accordance with Section 132.3.D, "Compaction Methods." Break up exposed oversized material as approved.

When ordinary compaction is specified, roll and sprinkle each embankment layer in accordance with Section 132.3.D.1, "Ordinary Compaction." When density control is specified, compact each layer to

the required density in accordance with Section 132.3.D.2, "Density Control." When directed, proof-roll each rock layer where density testing is not possible, in accordance with Item 216, "Proof Rolling," to ensure proper compaction.

C. **Embankments Adjacent to Culverts and Bridges.** Compact embankments adjacent to culverts and bridges in accordance with Item 400, "Excavation and Backfill for Structures."

D. **Compaction Methods.** Begin rolling longitudinally at the sides and proceed toward the center, overlapping on successive trips by at least 1/2 the width of the roller. On super elevated curves, begin rolling at the lower side and progress toward the high side. Alternate roller trips to attain slightly different lengths. Compact embankments in accordance with one of the following methods as shown on the plans:

1. **Ordinary Compaction.** Use approved rolling equipment complying with Item 210, "Rolling," to compact each layer. The plans or the Engineer may require specific equipment. Do not allow the loose depth of any layer to exceed 8 in., unless otherwise approved. Before and during rolling operations, bring each layer to the moisture content directed. Compact each layer until there is no evidence of further consolidation. Maintain a level layer to ensure uniform compaction. If the required stability or finish is lost for any reason, recompact and refinish the subgrade at no additional expense to the Department.

2. **Density Control.** Compact each layer to the required density using equipment complying with Item 210, "Rolling." Determine the maximum lift thickness based on the ability of the compacting operation and equipment to meet the required density. Do not exceed layer thickness of 16 in. loose or 12 in. compacted material, unless otherwise approved. Maintain a level layer to ensure uniform compaction.

   The Engineer will use Tex-114-E to determine the maximum dry density (D_a) and optimum moisture content (W_{opt}). Meet the requirements for field density and moisture content in Table 2, unless otherwise shown on the plans.

Table 2
Field Density Control Requirements

Description	Density[1]	Moisture Content[1]
	Tex-115-E	
PI ≤ 15	≥ 98% D_a	
15 < PI ≤ 35	≥ 98% D_a and ≤ 102% D_a	≥ $W_{opt.}$
PI > 35	≥ 95% D_a and ≤ 100% D_a	≥ $W_{opt.}$

Each layer is subject to testing by the Engineer for density and moisture content. During compaction, the moisture content of the soil should not exceed the value shown on the moisture-density curve, above optimum, required to achieve

- 98% dry density for soils with a PI greater than 15 but less than or equal to 35 or
- 95% dry density for soils with PI greater than 35.

When required, remove small areas of the layer to allow for density tests. Replace the removed material and recompact at no additional expense to the Department. Proof-roll in accordance with Item 216, "Proof Rolling," when shown on the plans or as directed. Correct soft spots as directed.

E. **Maintenance of Moisture and Reworking.** Maintain the density and moisture content once all requirements in Table 2 are met. For soils with a PI greater than 15, maintain the moisture content no lower than 4 percentage points below optimum. Rework the material to obtain the specified compaction when the material loses the required stability, density, moisture, or finish. Alter the compaction methods and procedures on subsequent work to obtain specified density as directed.

F. **Acceptance Criteria.**

1. **Grade Tolerances.**

   a. **Staged Construction.** Grade to within 0.1 ft. in the cross-section and 0.1 ft. in 16 ft. measured longitudinally.

   b. **Turnkey Construction.** Grade to within 1/2 in. in the cross-section and 1/2 in. in 16 ft. measured longitudinally.

2. **Gradation Tolerances.** When gradation requirements are shown on the plans, material is acceptable when not more than 1 of the 5

most recent gradation tests is outside the specified limits on any individual sieve by more than 5 percentage points.

3. **Density Tolerances.** Compaction work is acceptable when not more than 1 of the 5 most recent density tests is outside the specified density limits, and no test is outside the limits by more than 3 lb. per cubic foot.

4. **Plasticity Tolerances.** Material is acceptable when not more than 1 of the 5 most recent PI tests is outside the specified limit by no more than 2 points.

132.4. Measurement. Embankment will be measured by the cubic yard. Measurement will be further defined for payment as follows:

A. **Final.** The cubic yard will be measured in its final position using the average end area method. The volume is computed between the original ground surface or the surface upon which the embankment is to be constructed and the lines, grades, and slopes of the embankment. In areas of salvaged topsoil, payment for embankment will be made in accordance with Item 160, "Topsoil." Shrinkage or swell factors will not be considered in determining the calculated quantities.

B. **Original.** The cubic yard will be measured in its original and natural position using the average end area method.

C. **Vehicle.** The cubic yard will be measured in vehicles at the point of delivery.

When measured by the cubic yard in its final position, this is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

Shrinkage or swell factors are the Contractor's responsibility. When shown on the plans, factors are for informational purposes only.

Measurement of retaining wall backfill in embankment areas is paid for as embankment, unless otherwise shown on plans. Limits of measurement for embankment in retaining wall areas are shown on the plans.

132.5. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Embankment (Final)," "Embankment (Original)," or "Embankment (Vehicle)," of the compaction method and type specified. This price is full compensation for furnishing

Appendix H

Item 247: Flexible Base

ITEM 216
PROOF ROLLING

216.1. Description. Proof-roll earthwork, base, or both to locate unstable areas.

216.2. Equipment.

A. **Specified Equipment.** Furnish rollers that when loaded weigh at least 25 tons. The maximum acceptable load is 50 tons. Provide rollers that meet the requirements of Section 210.2.D, "Pneumatic Tire Rollers."

B. **Alternative Equipment.** Instead of the specified equipment, the Contractor may, as approved, operate other compaction equipment that produces equivalent results in the same period of time. Discontinue the use of the alternative equipment and furnish the specified equipment if the desired results are not achieved.

216.3. Construction. Perform proof rolling as directed. Adjust the load and tire inflation pressures within the range of the manufacturer's charts or tabulations, as directed. Make at least 2 coverages with the proof roller. Offset each trip of the roller by at most 1 tire width. Operate rollers at a speed between 2 and 6 miles per hour, as directed. If an unstable or non-uniform area is found, correct the area in accordance with the applicable Item.

216.4. Measurement. Rolling will be measured by the hour operated on surfaces being tested.

216.5. Payment. The work performed and equipment furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Proof Rolling." This price is full compensation for furnishing and operating equipment and for labor, materials, tools, and incidentals.

ITEM 247
FLEXIBLE BASE

247.1. Description. Construct a foundation course composed of flexible base.

247.2. Materials. Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications. Notify the Engineer

of the proposed material sources and of changes to material sources. The Engineer may sample and test project materials at any time before compaction throughout the duration of the project to assure specification compliance. Use Tex-100-E material definitions.

A. **Aggregate.** Furnish aggregate of the type and grade shown on the plans and conforming to the requirements of Table 1. Each source must meet Table 1 requirements for liquid limit, plasticity index, and wet ball mill for the grade specified. Do not use additives such as but not limited to lime, cement, or fly ash to modify aggregates to meet the requirements of Table 1, unless shown on the plans.

Table 1
Material Requirements

Property	Test Method	Grade 1	Grade 2	Grade 3	Grade 4
Master gradation sieve size (% retained)	Tex-110-E				As shown on the plans
2-1/2 in.		–	0	0	
1-3/4 in.		0	0–10	0–10	
7/8 in.		10–35	–	–	
3/8 in.		30–50	–	–	
No. 4		45–65	45–75	45–75	
No. 40		70–85	60–85	50–85	
Liquid limit, % max.[1]	Tex-104-E	35	40	40	As shown on the plans
Plasticity index, max.[1]	Tex-106-E	10	12	12	As shown on the plans
Plasticity index, min.[1]		As shown on the plans			
Wet ball mill, % max.[2]	Tex-116-E	40	45	–	As shown on the plans
Wet ball mill, % max. increase passing the No. 40 sieve		20	20	–	
Classification[3]	Tex-117-E	1.0	1.1–2.3	–	As shown on the plans
Min. compressive strength[3], psi					As shown on the plans
lateral pressure 0 psi		45	35	–	
lateral pressure 15 psi		175	175	–	

1. Determine plastic index in accordance with Tex-107-E (linear shrinkage) when liquid limit is unattainable as defined in Tex-104-E.
2. When a soundness value is required by the plans, test material in accordance with Tex-411-A.
3. Meet both the classification and the minimum compressive strength, unless otherwise shown on the plans.

1. **Material Tolerances.** The Engineer may accept material if no more than 1 of the 5 most recent gradation tests has an individual sieve outside the specified limits of the gradation.

   When target grading is required by the plans, no single failing test may exceed the master grading by more than 5 percentage points on sieves No. 4 and larger or 3 percentage points on sieves smaller than No. 4.

   The Engineer may accept material if no more than 1 of the 5 most recent plasticity index tests is outside the specified limit. No single failing test may exceed the allowable limit by more than 2 points.

2. **Material Types.** Do not use fillers or binders unless approved. Furnish the type specified on the plans in accordance with the following.

   a. **Type A.** Crushed stone produced and graded from oversize quarried aggregate that originates from a single, naturally occurring source. Do not use gravel or multiple sources.

   b. **Type B.** Crushed or uncrushed gravel. Blending of 2 or more sources is allowed.

   c. **Type C.** Crushed gravel with a minimum of 60% of the particles retained on a No. 4 sieve with 2 or more crushed faces as determined by Tex-460-A, Part I. Blending of 2 or more sources is allowed.

   d. **Type D.** Type A material or crushed concrete. Crushed concrete containing gravel will be considered Type D material. Crushed concrete must meet the requirements in Section 247.2.A.3.b, "Recycled Material (Including Crushed Concrete) Requirements," and be managed in a way to provide for uniform quality. The Engineer may require separate dedicated stockpiles in order to verify compliance.

   e. **Type E.** As shown on the plans.

3. **Recycled Material.** Recycled asphalt pavement (RAP) and other recycled materials may be used when shown on the plans. Request approval to blend 2 or more sources of recycled materials.

   a. **Limits on Percentage.** When RAP is allowed, do not exceed 20% RAP by weight unless otherwise shown on the plans. The percentage limitations for other recycled materials will be as shown on the plans.

b. **Recycled Material (Including Crushed Concrete) Requirements.**

(1) **Contractor Furnished Recycled Materials.** When the Contractor furnishes the recycled materials, including crushed concrete, the final product will be subject to the requirements of Table 1 for the grade specified. Certify compliance with DMS-11000, "Evaluating and Using Nonhazardous Recyclable Materials Guidelines," for Contractor furnished recycled materials. In addition, recycled materials must be free from reinforcing steel and other objectionable material and have at most 1.5% deleterious material when tested in accordance with Tex-413-A. For RAP, do not exceed a maximum percent loss from decantation of 5.0% when tested in accordance with Tex-406-A. Test RAP without removing the asphalt.

(2) **Department Furnished Required Recycled Materials.** When the Department furnishes and requires the use of recycled materials, unless otherwise shown on the plans:

- Department required recycled material will not be subject to the requirements in Table 1,
- Contractor furnished materials are subject to the requirements in Table 1 and this Item,
- the final product, blended, will be subject to the requirements in Table 1, and
- for final product, unblended (100% Department furnished required recycled material), the liquid limit, plasticity index, wet ball mill, classification, and compressive strength is waived.

Crush Department-furnished RAP so that 100% passes the 2 in. sieve. The Contractor is responsible for uniformly blending to meet the percentage required.

(3) **Department Furnished and Allowed Recycled Materials.** When the Department furnishes and allows the use of recycled materials or allows the Contractor to furnish recycled materials, the final blended product is subject to the requirements of Table 1 and the plans.

c. **Recycled Material Sources.** Department-owned recycled material is available to the Contractor only when shown on the plans. Return unused Department-owned recycled materials to

the Department stockpile location designated by the Engineer unless otherwise shown on the plans.

The use of Contractor-owned recycled materials is allowed when shown on the plans. Contractor-owned surplus recycled materials remain the property of the Contractor. Remove Contractor-owned recycled materials from the project and dispose of them in accordance with federal, state, and local regulations before project acceptance. Do not intermingle Contractor-owned recycled material with Department-owned recycled material unless approved by the Engineer.

B. **Water.** Furnish water free of industrial wastes and other objectionable matter.

C. **Material Sources.** When non-commercial sources are used, expose the vertical faces of all strata of material proposed for use. Secure and process the material by successive vertical cuts extending through all exposed strata, when directed.

247.3. Equipment. Provide machinery, tools, and equipment necessary for proper execution of the work. Provide rollers in accordance with Item 210, "Rolling." Provide proof rollers in accordance with Item 216, "Proof Rolling," when required.

247.4. Construction. Construct each layer uniformly, free of loose or segregated areas, and with the required density and moisture content. Provide a smooth surface that conforms to the typical sections, lines, and grades shown on the plans or as directed.

Stockpile base material temporarily at an approved location before delivery to the roadway. Build stockpiles in layers no greater than 2 ft. thick. Stockpiles must have a total height between 10 and 16 ft. unless otherwise shown on the plans. After construction and acceptance of the stockpile, loading from the stockpile for delivery is allowed. Load by making successive vertical cuts through the entire depth of the stockpile.

Do not add or remove material from temporary stockpiles that require sampling and testing before delivery unless otherwise approved. Charges for additional sampling and testing required as a result of adding or removing material will be deducted from the Contractor's estimates.

Haul approved flexible base in clean trucks. Deliver the required quantity to each 100-ft. station or designated stockpile site as shown on the plans. Prepare stockpile sites as directed. When delivery is to the 100-ft. station, manipulate in accordance with the applicable Items.

A. **Preparation of Subgrade or Existing Base.** Remove or scarify existing asphalt concrete pavement in accordance with Item 105, "Removing Stabilized Base and Asphalt Pavement," when shown on the plans or as directed. Shape the subgrade or existing base to conform to the typical sections shown on the plans or as directed.

When new base is required to be mixed with existing base, deliver, place, and spread the new flexible base in the required amount per station. Manipulate and thoroughly mix the new base with existing material to provide a uniform mixture to the specified depth before shaping.

When shown on the plans or directed, proof roll the roadbed in accordance with Item 216, "Proof Rolling," before pulverizing or scarifying. Correct soft spots as directed.

B. **Placing.** Spread and shape flexible base into a uniform layer with an approved spreader the same day as delivered unless otherwise approved. Construct layers to the thickness shown on the plans. Maintain the shape of the course. Control dust by sprinkling, as directed. Correct or replace segregated areas as directed, at no additional expense to the Department.

Place successive base courses and finish courses using the same construction methods required for the first course.

C. **Compaction.** Compact using density control unless otherwise shown on the plans. Multiple lifts are permitted when shown on the plans or approved. Bring each layer to the moisture content directed. When necessary, sprinkle the material in accordance with Item 204, "Sprinkling."

Begin rolling longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least 1/2 the width of the roller unit. On superelevated curves, begin rolling at the low side and progress toward the high side. Offset alternate trips of the roller. Operate rollers at a speed between 2 and 6 mph as directed.

Rework, recompact, and refinish material that fails to meet or that loses required moisture, density, stability, or finish before the next course is placed or the project is accepted. Continue work until specification requirements are met. Perform the work at no additional expense to the Department.

1. **Ordinary Compaction.** Roll with approved compaction equipment as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or

removing approved material as required, reshaping, and recompacting.

2. **Density Control.** Compact to at least 100% of the maximum density determined by Tex-113-E unless otherwise shown on the plans. Determine the moisture content of the material at the beginning and during compaction in accordance with Tex-103-E.

   The Engineer will determine roadway density of completed sections in accordance with Tex-115-E. The Engineer may accept the section if no more than 1 of the 5 most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

D. **Finishing.** After completing compaction, clip, skin, or tight-blade the surface with a maintainer or subgrade trimmer to a depth of approximately 1/4 in. Remove loosened material and dispose of it at an approved location. Seal the clipped surface immediately by rolling with a pneumatic tire roller until a smooth surface is attained. Add small increments of water as needed during rolling. Shape and maintain the course and surface in conformity with the typical sections, lines, and grades as shown on the plans or as directed.

   In areas where surfacing is to be placed, correct grade deviations greater than 1/4 in. in 16 ft. measured longitudinally or greater than 1/4 in. over the entire width of the cross-section. Correct by loosening, adding, or removing material. Reshape and recompact in accordance with Section 247.4.C, "Compaction."

E. **Curing.** Cure the finished section until the moisture content is at least 2 percentage points below optimum or as directed before applying the next successive course or prime coat.

247.5. Measurement. Flexible base will be measured as follows:

- **Flexible Base (Complete In Place).** The ton, square yard, or any cubic yard method.
- **Flexible Base (Roadway Delivery).** The ton or cubic yard in vehicle.
- **Flexible Base (Stockpile Delivery).** The ton, cubic yard in vehicle, or cubic yard in stockpile.

Measurement by the cubic yard in final position and square yard is a plans quantity measurement. The quantity to be paid for is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

Appendix I

Item 251: Reworking Base Courses

be paid in accordance with pertinent Items or Article 4.2, "Changes in the Work."

A. **Flexible Base (Complete In Place).** Payment will be made for the type and grade specified. For cubic yard measurement, "In Vehicle," "In Stockpile," or "In Final Position" will be specified. For square yard measurement, a depth will be specified. This price is full compensation for furnishing materials, temporary stockpiling, assistance provided in stockpile sampling and operations to level stockpiles for measurement, loading, hauling, delivery of materials, spreading, blading, mixing, shaping, placing, compacting, reworking, finishing, correcting locations where thickness is deficient, curing, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.

B. **Flexible Base (Roadway Delivery).** Payment will be made for the type and grade specified. For cubic yard measurement, "In Vehicle" will be specified. The unit price bid will not include processing at the roadway. This price is full compensation for furnishing materials, temporary stockpiling, assistance provided in stockpile sampling and operations to level stockpiles for measurement, loading, hauling, delivery of materials, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.

C. **Flexible Base (Stockpile Delivery).** Payment will be made for the type and grade specified. For cubic yard measurement, "In Vehicle" or "In Stockpile" will be specified. The unit price bid will not include processing at the roadway. This price is full compensation for furnishing and disposing of materials, preparing the stockpile area, temporary or permanent stockpiling, assistance provided in stockpile sampling and operations to level stockpiles for measurement, loading, hauling, delivery of materials to the stockpile, furnishing scales and labor for weighing and measuring, and equipment, labor, tools, and incidentals.

ITEM 251
REWORKING BASE COURSES

251.1. Description. Refinish existing base material or rework existing base material with or without asphaltic concrete pavement. Incorporate new base material when shown on plans.

251.2. Materials. Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications. Notify the Engineer

of the proposed material sources and of changes to material sources. The Engineer will verify that the specification requirements are met before the sources can be used. The Engineer may sample and test project materials at any time before compaction. Use Tex-100-E for material definitions.

A. **Flexible Base.** Furnish new base material that meets the requirements of Item 247, "Flexible Base," for the type and grade shown on the plans.

B. **Water.** Furnish water free of industrial wastes and other objectionable matter.

251.3. Equipment. Provide machinery, tools, and equipment necessary for proper execution of the work.

A. **Compaction Equipment.** Provide rollers in accordance with Item 210, "Rolling." Provide rollers in accordance with Item 216, "Proof Rolling," when required.

B. **Pulverization Equipment.** Provide pulverization equipment that:
   - cuts and pulverizes material uniformly to the proper depth with cutters that plane to a uniform surface over the entire width of the cut,
   - provides a visible indication of the depth of cut at all times, and
   - uniformly mixes the materials.

251.4. Construction. Perform work to the width and depth shown on the typical sections for the type of work shown on the plans. Construct and shape exposed subgrade to conform to typical sections as shown on the plans or as directed. Proof roll in accordance with Item 216, "Proof Rolling," when shown on the plans. Correct soft spots as directed.

Before scarifying, clean the existing base of objectionable materials by blading, brooming, or other approved methods, unless otherwise shown on the plans. Perform this work in accordance with applicable Items.

A. **Types of Work:**
   1. **Type A.** Scarifying only.
   2. **Type B.** Scarifying, salvaging, and replacing.
   3. **Type C.** Scarifying, salvaging, and stockpiling.
   4. **Type D.** Scarifying and reshaping.
   5. **Type E.** Refinishing.

B. Performance of Work.

1. **Scarifying.** Loosen and break existing base material, with or without existing asphaltic concrete pavement. Remove asphalt concrete pavement, surface treatment, plant-mix seal, and micro-surfacing when shown on the plans and in accordance with applicable items. Prevent contamination of asphalt material during and after removal. When the existing pavement consists of only a surface treatment, do not remove before scarifying. Scarify existing material for its full width and depth, unless otherwise shown on the plans. Do not disturb the underlying subgrade. Break material into particles of not more than 2-1/2 in., unless otherwise shown on the plans.

2. **Salvaging.** Remove the existing base material and stockpile. Windrow if allowed. Perform salvage operations without interfering with traffic, proper drainage, or the general requirements of the work. Remove scarified material using a method approved by the Engineer. Keep material free of contamination.

3. **Replacing.** Before replacing salvaged material, prepare subgrade as shown on the plans or as directed. Proof roll in accordance with Item 216, "Proof Rolling," when shown on the plans. Correct soft spots as directed.

   Return and rework salvaged base material, with or without additional new base material, on the prepared roadbed. Deposit salvaged material on the prepared subgrade and sprinkle, blade, and shape the base to conform to the typical sections shown on the plans or as directed. When shown on the plans, place new base material and uniformly mix with salvaged material. Correct, or remove and replace, segregated material with satisfactory material, as directed.

4. **Stockpiling.** Store salvaged base material at a location shown on the plans or as directed. Prepare stockpile sites by removing and disposing of trash, wood, brush, stumps, vegetation, and other objectionable materials as directed. Deliver salvaged material and construct stockpiles as directed.

5. **Reshaping.** Rework scarified base material with or without additional new base material. Mix and shape scarified base to conform to the typical sections shown on the plans. When shown on the plans, furnish new base material, and uniformly mix with

scarified material before shaping. Do not disturb the underlying subgrade. Correct, or remove and replace, segregated material with satisfactory material as directed.

6. **Refinishing.** Blade existing base surface to remove irregularities. Cure before placing the pavement on the refinished base, as shown on the plans or as directed.

C. **Compaction.** Compact using ordinary compaction or density control as shown on the plans. Bring each layer to the moisture content directed. When necessary, sprinkle the material in accordance with Item 204, "Sprinkling."

Begin rolling longitudinally at the sides and proceed toward the center, overlapping on successive trips by at least one-half the width of the roller unit. On superelevated curves, begin rolling at the low side and progress toward the high side. Offset alternate trips of the roller. Operate rollers at a speed between 2 and 6 MPH, as directed.

Rework, recompact, and refinish material that fails to meet or that loses required moisture, density, stability, or finish before the next course is placed or the project is accepted. Continue work until specification requirements are met. Perform the work at no additional expense to the Department.

1. **Ordinary Compaction.** Roll with approved compaction equipment as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing approved material as required, reshaping, and recompacting.

2. **Density Control.** Determine the moisture content in the mixture at the beginning of and during compaction in accordance with Tex-103-E. Compact to at least 98% of the maximum density determined by Tex-113-E, unless otherwise shown on the plans.

   The Engineer will determine roadway density of completed sections in accordance with Tex-115-E. The Engineer may accept the section if no more than 1 of the 5 most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

D. **Finishing.** Immediately after completing compaction, clip, skin, or tight-blade the surface with a maintainer or subgrade trimmer to a depth of approximately 1/4 in. Remove and dispose of loosened material at an approved location. Seal the clipped surface immediately by rolling with a pneumatic tire roller until a smooth surface is attained. Add small

amounts of water as needed during rolling. Shape and maintain the course and surface in conformity with the typical sections, lines, and grades shown on the plans or as directed.

In areas where surfacing is to be placed, correct grade deviations in excess of 1/4 in. in 16 ft. measured longitudinally for the entire width of the cross-section. Correct by loosening, adding, or removing material. Reshape and recompact in accordance with Section 251.4.C, "Compaction."

E. **Curing.** Cure the finished section until the moisture content is at least 2 percentage points below optimum or as directed before applying the next successive course or prime coat.

251.5. Measurement. This Item will be measured by the station, square yard, cubic yard, or ton.

Square yard and cubic yard in original position measurement will be established by the widths and depths shown in the plans and the lengths measured in the field.

When material is measured in trucks, the weight of the material will be determined on certified scales, or the Contractor must provide a set of standard platform truck scales at a location approved by the Engineer. Scales must conform to the requirements of Item 520, "Weighing and Measuring Equipment."

Measurement is further defined for payment as follows.

A. **Station.** By the 100-ft. station measured along the centerline of each roadbed.

B. **Square Yard.** By the square yard of existing base or pavement in its original position. When square yard measurement is used, limits of measurement will be as shown on the plans.

C. **Cubic Yard in Vehicle.** By the cubic yard of salvaged material in vehicles as delivered at the stockpile.

D. **Cubic Yard in Stockpile.** By the cubic yard of salvaged material in the final stockpile position by the method of average end areas.

E. **Cubic Yard in Original Position.** By the cubic yard in its original position measured by the method of average end areas.

F. **Ton.** By the ton of dry weight in the trucks as delivered at the stockpile. The dry weight is determined by deducting the weight of the moisture in the material at the time of weighing from the gross weight of the material. The Engineer will determine the moisture content in the

Appendix J

Item 300: Asphalts, Oils, and Emulsions

300 ITEMS — SURFACE COURSES AND PAVEMENT

ITEM 300
ASPHALTS, OILS, AND EMULSIONS

300.1. Description. Provide asphalt cements, cutback and emulsified asphalts, performance-graded asphalt binders, and other miscellaneous asphalt materials as specified on the plans.

300.2. Materials. Provide asphalt materials that meet the stated requirements when tested in accordance with the referenced Department, AASHTO, and ASTM test methods. Refer to the Material Inspection Guide (maintained by the Construction Division), Section 11. "Asphalt Inspection, Quality Control and Quality Assurance," for sampling and testing requirements.

Acronyms used in this Item are defined in Table 1.

Table 1
Acronyms

Acronym	Definition
	Test Procedure Designations
Tex	Department
T or R	AASHTO
D	ASTM
	Polymer Modifier Designations
P	polymer-modified
SBR or L	styrene-butadiene rubber (latex)
SBS	styrene-butadiene-styrene block co-polymer
TR	tire rubber (from ambient temperature grinding of truck and passenger tires)
AC	asphalt cement
AE	asphalt emulsion
AE-P	asphalt emulsion prime
A-R	asphalt-rubber
C	cationic
EAP&T	emulsified asphalt prime and tack
H-suffix	harder residue (lower penetration)
HF	high float
MC	medium-curing

Table 1 (continued)
Acronyms

Acronym	Definition
MS	medium-setting
PCE	prime, cure, and erosion control
PG	performance grade
RC	rapid-curing
RS	rapid-setting
S-suffix	stockpile usage
SCM	special cutback material
SS	slow-setting

A. **Asphalt Cement.** Asphalt cement must be homogeneous, water-free, and nonfoaming when heated to 347°F, and must meet Table 2 requirements.

Table 2
Asphalt Cement

Property	Test Procedure	Viscosity Grade									
		AC-0.6		AC-1.5		AC-3		AC-5		AC-10	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity	T 202										
140°F, poise		40	80	100	200	250	350	400	600	800	1,200
275°F, poise		0.4	–	0.7	–	1.1	–	1.4	–	1.9	–
Penetration, 77°F, 100g, 5 sec.	T 49	350	–	250	–	210	–	135	–	85	–
Flash point, C.O.C., °F	T 48	425	–	425	–	425	–	425	–	450	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.		Neg.		Neg.	
Tests on residue from Thin-Film Oven Test:											
Viscosity, 140°F, poise	T 179 T 202	–	180	–	450	–	900	–	1,500	–	3,000
Ductility[1], 77°F 5 cm/min., cm	T 51	100	–	100	–	100	–	100	–	100	–

1. If AC-0.6 or AC-1.5 ductility at 77°F is less than 100 cm, material is acceptable if ductility at 60°F is more than 100 cm.

B. **Polymer-Modified Asphalt Cement.** Polymer-modified asphalt cement must be smooth and homogeneous, and comply with the requirements of Table 3. If requested, supply samples of the base asphalt cement and polymer additives.

Table 3
Polymer-Modified Asphalt Cement

Property	Test Procedure	Polymer-Modified Viscosity Grade							
		AC-5 w/2% SBR		AC-10 w/2% SBR		AC-15P		AC-20-5TR	
		Min	Max	Min	Max	Min	Max	Min	Max
Polymer		SBR		SBR		SBS		TR	
Polymer content, % (solids basis)	Tex-533-C	2.0	–	2.0	–	3.0	–	5.0	–
Dynamic shear, G*/sin δ, 64°C, 10 rad/s, kPa	T 315	–	–	–	–	–	–	1.0	–
Viscosity									
140°F, poise	T 202	700	–	1,300	–	1,500	–	2,000	–
275°F, poise	T 202	–	7.0	–	8.0	–	8.0	–	10.0
Penetration, 77°F, 100 g, 5 sec.	T 49	120	–	80	–	100	150	75	115
Ductility, 5cm/min., 39.2°F, cm	T 51	70	–	60	–	–	–	–	–
Elastic recovery, 50°F, %	Tex-539-C	–	–	–	–	55	–	55	–
Softening point, °F	T 53	–	–	–	–	–	–	120	–
Polymer separation, 48 hr.	Tex-540-C	None		None		None		None	
Flash point, C.O.C., °F	T 48	425	–	425	–	425	–	425	–
Tests on residue from Thin-Film Oven Test: Retained penetration ratio, 77°F	T 179 T 49	–	–	–	–	0.60	1.00	0.60	1.00
Tests on residue from RTFOT aging and pressure aging:	Tex-541-C and R 28 T 313								
Creep stiffness									
S, -18°C, MPa		–	–	–	–	–	–	–	300
m-value, -18°C		–	–	–	–	–	–	0.300	–

C. **Cutback Asphalt.** Cutback asphalt must meet the requirements of Tables 4, 5, and 6 for the specified type and grade. If requested, supply samples of the base asphalt cement and polymer additives.

Table 4
Rapid-Curing Cutback Asphalt

Property	Test Procedure	Type–Grade					
		RC-250		RC-800		RC-3000	
		Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	250	400	800	1,600	3,000	6,000
Water, %	T 55	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	80	–	80	–	80	–
Distillation test:	T 78						
Distillate, percentage by volume of total distillate to 680°F							
to 437°F		40	75	35	70	20	55
to 500°F		65	90	55	85	45	75
to 600°F		85	–	80	–	70	–
Residue from distillation, volume %		70	–	75	–	82	–
Tests on distillation residue:							
Penetration, 100 g, 5 sec., 77°F	T 49	80	120	80	120	80	120
Ductility, 5 cm/min., 77°F, cm	T 51	100	–	100	–	100	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.	

Table 5
Medium-Curing Cutback Asphalt

Property	Test Procedure	Type–Grade							
		MC-30		MC-250		MC-800		MC-3000	
		Min	Max	Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	30	60	250	500	800	1,600	3,000	6,000
Water, %	T 55	–	0.2	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	100	–	150	–	150	–	150	–
Distillation test:	T 78								
Distillate, percentage by volume of total distillate to 680°F									
to 437°F		–	25	–	10	–	–	–	–
to 500°F		40	70	15	55	–	35	–	15
to 600°F		75	93	60	87	45	80	15	75
Residue from distillation, volume %		50	–	67	–	75	–	80	–
Tests on distillation residue:									
Penetration, 100 g, 5 sec., 77°F	T 49	120	250	120	250	120	250	120	250
Ductility, 5 cm/min., 77°F, cm[1]	T 51	100	–	100	–	100	–	100	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.		Neg.	

1. If the penetration of residue is more than 200 and the ductility at 77°F is less than 100 cm, the material is acceptable if its ductility at 60°F is more than 100 cm.

Table 6
Special-Use Cutback Asphalt

Property	Test Procedure	Type–Grade					
		MC-2400L		SCM I		SCM II	
		Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	2,400	4,800	500	1,000	1,000	2,000
Water, %	T 55	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	150	–	175	–	175	–
Distillation test:	T 78						
Distillate, percentage by volume of total distillate to 680°F		–	–	–	–	–	–
to 437°F		–	35	–	0.5	–	0.5
to 500°F		35	80	20	60	15	50
to 600°F		78	–	76	–	82	–
Residue from distillation, volume %							
Tests on distillation residue:							
Polymer		SBR		–		–	
Polymer content, % (solids basis)	Tex-533-C	2.0	–	–	–	–	–
Penetration, 100 g, 5 sec., 77°F	T 49	150	300	180	–	180	–
Ductility, 5 cm/min., 39.2°F, cm	T 51	50	–	–	–	–	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–

D. Emulsified Asphalt. Emulsified asphalt must be homogeneous, not separate after thorough mixing, and meet the requirements for the specified type and grade in Tables 7, 8, 9, and 10.

Table 7
Emulsified Asphalt

Property	Test Procedure	Type–Grade									
		Rapid-Setting		Medium-Setting				Slow-Setting			
		HFRS-2		MS-2		AES-300		SS-1		SS-1H	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol	T 72										
77°F, sec.		–	–	–	–	75	400	20	100	20	100
122°F, sec.		150	400	100	300	–	–	–	–	–	–
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1	–	0.1	–	0.1
Miscibility	T 59	–		–		–		Pass		Pass	
Cement mixing, %	T 59	–	–	–	–	–	–	–	2.0	–	2.0
Coating ability and water resistance:	T 59										
dry aggregate/after spray		–		–		Good/Fair		–		–	
wet aggregate/after spray		–		–		Fair/Fair		–		–	
Demulsibility, 35 ml of 0.02 N $CaCl_2$, %	T 59	50	–	–	30	–	–	–	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	1	–	1	–	1
Freezing test, 3 cycles[1]	T 59	–		Pass		–		Pass		Pass	
Distillation test:	T 59										
Residue by distillation, % by wt.		65	–	65	–	65	–	60	–	60	–
Oil distillate, % by volume of emulsion		–	0.5	–	0.5	–	5	–	0.5	–	0.5
Tests on residue from distillation:											
Penetration, 77°F, 100 g, 5 sec.	T 49	100	140	120	160	300	–	120	160	70	100
Solubility in trichloroethylene, %	T 44	97.5	–	97.5		97.5	–	97.5	–	97.5	–
Ductility, 77°F, 5 cm/min., cm	T 51	100	–	100		–	–	100	–	80	–
Float test, 140°F, sec.	T 50	1,200	–	–		1,200	–	–	–	–	–

1. Applies only when the Engineer designates material for winter use.

Table 8
Cationic Emulsified Asphalt

Property	Test Procedure	Type–Grade											
		Rapid-Setting				Medium-Setting				Slow-Setting			
		CRS-2		CRS-2H		CMS-2		CMS-2S		CSS-1		CSS-1H	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol	T 72												
77°F, sec.		–	–	–	–	–	–	–	–	20	100	20	100
122°F, sec.		150	400	150	400	100	300	100	300	–	–	–	–
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1	–	0.1	–	0.1	–	0.1
Cement mixing, %	T 59	–	–	–	–	–	–	–	–	–	2.0	–	2.0
Coating ability and water resistance:	T 59												
dry aggregate/after spray		–		–		Good/Fair		Good/Fair		–		–	
wet aggregate/after spray		–		–		Fair/Fair		Fair/Fair		–		–	
Demulsibility, 35 ml of 0.8% sodium dioctyl sulfosuccinate, %	T 59	70	–	70	–	–	–	–	–	–	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	1	–	1	–	1	–	1
Particle charge	T 59	Positive		Positive		Positive		Positive		Positive		Positive	
Distillation test:	T 59												
Residue by distillation, % by wt.		65	–	65	–	65	–	65	–	60	–	60	–
Oil distillate, % by volume of emulsion		–	0.5	–	0.5	–	7	–	5	–	0.5	–	0.5
Tests on residue from distillation:													
Penetration, 77°F, 100 g, 5 sec.	T 49	120	160	70	110	120	200	300	–	120	160	70	110
Solubility in trichloroethylene, %	T 44	97.5	–	97.5	–	97.5	–	97.5	–	97.5	–	97.5	–
Ductility, 77°F, 5 cm/min., cm	T 51	100	–	80	–	100	–	–	–	100	–	80	–

Table 9
Polymer-Modified Emulsified Asphalt

Property	Test Procedure	Type–Grade											
		Rapid-Setting				Medium-Setting				Slow-Setting			
		RS-1P		HFRS-2P		AES-150P		AES-300P		AES-300S		SS-1P	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol	T 72												
77°F, sec.		–	–	–	–	75	400	75	400	75	400	30	100
122°F, sec.		50	200	150	400	–	–	–	–	–	–	–	–
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1	–	0.1	–	0.1	–	0.1
Miscibility	T 59	–		–		–		–		–		Pass	
Coating ability and water resistance:	T 59												
dry aggregate/after spray		–		–		Good/Fair		Good/Fair		Good/Fair		–	
wet aggregate/after spray		–		–		Fair/Fair		Fair/Fair		Fair/Fair		–	
Demulsibility, 35 ml of 0.02 N $CaCl_2$, %	T 59	60	–	50	–	–	–	–	–	–	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	1	–	1	–	1	–	1
Breaking index, g	Tex-542-C	–	80	–	–	–	–	–	–	–	–	–	–
Distillation test:[1]	T 59												
Residue by distillation, % by wt.		65	–	65	–	65	–	65	–	65	–	60	–
Oil distillate, % by volume of emulsion		–	3	–	0.5	–	3	–	5	–	7	–	0.5
Tests on residue from distillation:													
Polymer content, wt. % (solids basis)	Tex-533-C	–	–	3.0	–	–	–	–	–	–	–	3.0	–
Penetration, 77°F, 100 g, 5 sec.	T 49	225	300	90	140	150	300	300	–	300	–	100	140
Solubility in trichloroethylene, %	T 44	97.0	–	97.0	–	97.0	–	97.0	–	97.0	–	97.0	–
Viscosity, 140°F, poise	T 202	–	–	1,500	–	–	–	–	–	–	–	1,300	–
Float test, 140°F, sec.	T 50	–	–	1,200	–	1,200	–	1,200	–	1,200	–	–	–
Ductility[2], 39.2°F, 5 cm/min., cm	T 51	–	–	50	–	–	–	–	–	–	–	50	–
Elastic recovery[2], 50°F, %	Tex-539-C	55	–	55	–	–	–	–	–	–	–	–	–
Tests on RTFO curing of distillation residue	Tex-541-C												
Elastic recovery, 50°F, %	Tex-539-C	–	–	–	–	50	–	50	–	30	–	–	–

1. Exception to T 59: Bring the temperature on the lower thermometer slowly to 350°F ±10°F. Maintain at this temperature for 20 min. Complete total distillation in 60 ±5 min. from the first application of heat.
2. HFRS-2P must meet one of either the ductility or elastic recovery requirements.

Table 10
Polymer-Modified Cationic Emulsified Asphalt

Property	Test Procedure	Type-Grade					
		Rapid-Setting				Slow-Setting	
		CRS-1P		CRS-2P		CSS-1P	
		Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol	T 72						
77°F, sec.		–	–	–	–	20	100
122°F, sec.		50	150	150	400	–	–
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1
Demulsibility, 35 ml of 0.8% sodium dioctyl sulfosuccinate, %	T 59	60	–	70	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	1
Breaking index, g	Tex-542-C	–	80	–	–	–	–
Particle charge	T 59	Positive		Positive		Positive	
Distillation test:[1]	T 59						
Residue by distillation, % by weight		65	–	65	–	62	–
Oil distillate, % by volume of emulsion		–	3	–	0.5	–	0.5
Tests on residue from distillation:							
Polymer content, wt. % (solids basis)	Tex-533-C	–	–	3.0	–	3.0	–
Penetration, 77°F, 100 g, 5 sec.	T 49	225	300	90	150	55	90
Viscosity, 140°F, poise	T 202	–	–	1,300	–	–	–
Solubility in trichloroethylene, %	T 44	97.0	–	97.0	–	97.0	–
Softening point, °F	T 53	–	–	–	–	135	–
Ductility, 77°F, 5 cm/min., cm	T 51	–	–	–	–	70	–
Ductility[2], 39.2°F, 5 cm/min., cm	T 51	–	–	50	–	–	–
Elastic recovery[2], 50°F, %	Tex-539-C	45	–	55	–	–	–

1. Exception to T 59: Bring the temperature on the lower thermometer slowly to 350°F ±0°F. Maintain at this temperature for 20 min. Complete total distillation in 60 ±5 min. from the first application of heat.
2. CRS-2P must meet one of either the ductility or elastic recovery requirements.

E. Specialty Emulsions. Specialty emulsions may be either asphalt-based or resin-based and must meet the requirements of Table 11.

Table 11
Specialty Emulsions

Property	Test Procedure	Type–Grade					
		Medium-Setting				Slow-Setting	
		AE–P		EAP&T		PCE[1]	
		Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol	T 72						
77°F, sec.		–	–	–	–	10	100
122°F, sec.		15	150	–	–	–	–
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1
Miscibility[2]	T 59	–		Pass		Pass	
Demulsibility, 35 ml of 0.10 N $CaCl_2$, %	T 59	–	70	–	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	–
Particle size[5], % by volume < 2.5 µm	Tex-238-F[3]	–	–	90	–	90	–
Asphalt emulsion distillation to 500°F followed by Cutback asphalt distillation of residue to 680°F:	T 59 & T 78						
Residue after both distillations, % by wt.		40	–	–	–	–	–
Total oil distillate from both distillations, % by volume of emulsion		25	40	–	–	–	–
Residue by distillation, % by wt.	T 59	–	–	60	–	–	–
Residue by evaporation[4], % by wt.	T 59	–	–	–	–	60	–
Tests on residue after all distillation(s):							
Viscosity, 140°F, poise	T 202	–	–	800	–	–	–
Kinematic viscosity[5], 140°F, cSt	T 201	–	–	–	–	100	350
Flash point C.O.C., °F	T 48	–	–	–	–	400	–
Solubility in trichloroethylene, %	T 44	97.5	–	–	–	–	–
Float test, 122°F, sec.	T 50	50	200	–	–	–	–

1. Supply with each shipment of PCE:
a) a copy of a lab report from an approved analytical lab, signed by a lab official, indicating the PCE formulation does not meet any characteristics of a Resource Conservation Recovery Act (RCRA) hazardous waste;
b) a certification from the producer that the formulation supplied does not differ from the one tested and that no listed RCRA hazardous wastes or PCBs have been mixed with the product; and
c) a Material Safety Data Sheet.
2. Exception to T 59: In dilution, use 350 ml of distilled or deionized water and a 1,000-ml beaker.
3. Use Tex-238-F, beginning at "Particle Size Analysis by Laser Diffraction," with distilled or deionized water as a medium and no dispersant, or use another approved method.
4. Exception to T 59: Leave sample in the oven until foaming ceases, then cool and weigh.
5. PCE must meet either the kinematic viscosity requirement or the particle size requirement.

F. Recycling Agent. Recycling agent and emulsified recycling agent must meet the requirements in Table 12. Additionally, recycling agent and residue from emulsified recycling agent, when added in the specified proportions to the recycled asphalt, must meet the properties specified on the plans.

Table 12
Recycling Agent and Emulsified Recycling Agent

Property	Test Procedure	Recycling Agent		Emulsified Recycling Agent	
		Min	Max	Min	Max
Viscosity, Saybolt Furol, 77°F, sec.	T 72	–	–	15	100
Sieve test, %	T 59	–	–	–	0.1
Miscibility[1]	T 59	–		No coagulation	
Residue by evaporation[2], % by wt.	T 59	–	–	60	–
Tests on recycling agent or residue from evaporation:					
Flash point, C.O.C., °F	T 48	400	–	400	–
Kinematic viscosity,	T 201				
140°F, cSt		75	200	75	200
275°F, cSt		–	10.0	–	10.0

1. Exception to T 59: Use 0.02 N $CaCl_2$ solution in place of water.
2. Exception to T 59: Maintain sample at 300°F until foaming ceases, then cool and weigh.

G. **Crumb Rubber Modifier.** Crumb rubber modifier (CRM) consists of automobile and truck tires processed by ambient temperature grinding.

CRM must be:

- free from contaminants including fabric, metal, and mineral and other nonrubber substances;
- free-flowing; and
- nonfoaming when added to hot asphalt binder.

When tested in accordance with Tex-200-F, Part I, using a 50-g sample, the rubber gradation must meet the requirements of the grades in Table 13.

Table 13
CRM Gradations

Sieve Size (% Passing)	Grade A		Grade B		Grade C		Grade D	Grade E
	Min	Max	Min	Max	Min	Max		
#8	100	–	–	–	–	–	As shown on the plans	As approved
#10	95	100	100	–	–	–		
#16	–	–	70	100	100	–		
#30	–	–	25	60	90	100		
#40	–	–	–	–	45	100		
#50	0	10	–	–	–	–		
#200	–	–	0	5	–	–		

H. Crack Sealer. Polymer modified asphalt-emulsion crack sealer must meet the requirements of Table 14. Rubber-asphalt crack sealer must meet the requirements of Table 15.

Table 14
Polymer-Modified Asphalt Emulsion Crack Sealer

Property	Test Procedure	Min	Max
Rotational viscosity, 77°F, cP	D 2196, Method A	10,000	25,000
Sieve test, %	T 59	–	0.1
Storage stability, 1 day, %	T 59	–	1
Evaporation Residue by evaporation, % by wt.	Tex-543-C	65	–
Tests on residue from evaporation: Penetration, 77°F, 100 g, 5 sec. Softening point, °F Ductility, 39.2°F, 5 cm/min., cm	 T 49 T 53 T 51	 35 140 100	 75 – –

Table 15
Rubber-Asphalt Crack Sealer

Property	Test Procedure	Class A		Class B	
		Min	Max	Min	Max
CRM content, Grade A or B, % by wt.	Tex-544-C	22	26	–	–
CRM content, Grade B, % by wt.	Tex-544-C	–	–	13	17
Virgin rubber content[1], % by wt.		–	–	2	–
Flash point[2], COC, °F	T 48	400	–	400	–
Penetration[3], 77°F, 150 g, 5 sec.	T 49	30	50	30	50
Penetration[3], 32°F, 200 g, 60 sec.	T 49	12	–	12	–
Softening point, °F	T 53	–	–	170	–
Bond[4]	D5329	–		Pass	

1. Provide certification that the min. % virgin rubber was added.
2. Before passing the test flame over the cup, agitate the sealing compound with a 3/8- to 1/2-in. (9.5- to 12.7-mm) wide, square-end metal spatula in a manner so as to bring the material on the bottom of the cup to the surface, i.e., turn the material over. Start at one side of the thermometer, move around to the other, and then return to the starting point using 8 to 10 rapid circular strokes. Accomplish agitation in 3 to 4 sec. Pass the test flame over the cup immediately after stirring is completed.
3. Exception to T 49: Substitute the cone specified in ASTM D 217 for the penetration needle.
4. No crack in the crack sealing materials or break in the bond between the sealer and the mortar blocks over 1/4 in. deep for any specimen after completion of the test.

I. Asphalt-Rubber Binders. Asphalt-rubber (A-R) binders are mixtures of asphalt binder and CRM, which have been reacted at elevated temperatures. The A-R binders meet D 6114 and contain a minimum of 15% CRM by weight. Types I or II, containing CRM Grade C, are used

for hot mixed aggregate mixtures. Types II or III, containing CRM Grade B, are used for surface treatment binder. Table 16 describes required binder properties.

Table 16
A-R Binders

Property	Test Procedure	Binder Type					
		Type I		Type II		Type III	
		Min	Max	Min	Max	Min	Max
Apparent viscosity, 347°F, cP	D 2196, Method A	1,500	5,000	1,500	5,000	1,500	5,000
Penetration, 77°F, 100 g, 5 sec.	T 49	25	75	25	75	50	100
Penetration, 39.2°F, 200 g, 60 sec.	T 49	10	–	15	–	25	–
Softening point, °F	T 53	135	–	130	–	125	–
Resilience, 77°F, %	D 5329	25	–	20	–	10	–
Flash point, C.O.C., °F	T 48	450	–	450	–	450	–
Tests on residue from Thin-Film Oven Test:	T 179						
Retained penetration ratio, 39.2°F, 200 g, 60 sec., % of original	T 49	75	–	75	–	75	–

J. **Performance-Graded Binders.** PG binders must be smooth and homogeneous, show no separation when tested in accordance with Tex-540-C, and meet Table 17 requirements.

Separation testing is not required if:

- a modifier is introduced separately at the mix plant either by injection in the asphalt line or mixer,
- the binder is blended on site in continuously agitated tanks, or
- binder acceptance is based on field samples taken from an in-line sampling port at the hot mix plant after the addition of modifiers.

Table 17
Performance-Graded Binders

Property and Test Method	Performance Grade																	
	PG 58			PG 64				PG 70				PG 76				PG 82		
	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28
Average 7-day max pavement design temperature, °C[1]	< 58			< 64				< 70				< 76				< 82		
Min pavement design temperature, °C[1]	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28
ORIGINAL BINDER																		
Flash point, T 48, Min, °C	230																	
Viscosity, T 316:[2,3] Max, 3.0 Pa·s, test temperature, °C	135																	
Dynamic shear, T 315:[4] G*/sin(δ), Min, 1.00 kPa Test temperature @ 10 rad/sec., °C	58			64				70				76				82		
Elastic recovery, D 6084, 50°F, % Min	–	–	30	–	–	30	50	–	30	50	60	30	50	60	70	50	60	70
ROLLING THIN-FILM OVEN (Tex-541-C)																		
Mass loss, Tex-541-C, Max, %	1.0																	
Dynamic shear, T 315: G*/sin(δ), Min, 2.20 kPa Test temperature @ 10 rad/sec., °C	58			64				70				76				82		
PRESSURE AGING VESSEL (PAV) RESIDUE (R 28)																		
PAV aging temperature, °C	100																	
Dynamic shear, T 315: G*/sin(δ), Max, 5000 kPa Test temperature @ 10 rad/sec., °C	25	22	19	28	25	22	19	28	25	22	19	28	25	22	19	28	25	22

Table 17 (continued)
Performance-Graded Binders

Property and Test Method	Performance Grade																	
	PG 58			PG 64				PG 70				PG 76				PG 82		
	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28
Average 7-day max pavement design temperature, °C[1]	< 58			< 64				< 70				< 76				< 82		
Min pavement design temperature, °C[1]	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28	>-34	>-16	>-22	>-28
Creep stiffness, T 313:[5,6] *S*, max, 300 MPa, *m*-value, min, 0.300 Test temperature @ 60 sec., °C	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18
Direct tension, T 314:[6] Failure strain, min, 1.0% Test temperature @ 1.0 mm/min., °C	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18

1. Pavement temperatures are estimated from air temperatures using an algorithm contained in a Department-supplied computer program, may be provided by the Department, or by following the procedures outlined in AASHTO MP 2 and PP 28.
2. This requirement may be waived at the Department's discretion if the supplier warrants that the asphalt binder can be adequately pumped, mixed, and compacted at temperatures that meet all applicable safety, environmental, and constructability requirements. At test temperatures where the binder is a Newtonian fluid, any suitable standard means of viscosity measurement may be used, including capillary (T 201 or T 202) or rotational viscometry (T 316).
3. Viscosity at 135°C is an indicator of mixing and compaction temperatures that can be expected in the lab and field. High values may indicate high mixing and compaction temperatures. Additionally, significant variation can occur from batch to batch. Contractors should be aware that variation could significantly impact their mixing and compaction operations. Contractors are therefore responsible for addressing any constructability issues that may arise.
4. For quality control of unmodified asphalt binder production, measurement of the viscosity of the original asphalt binder may be substituted for dynamic shear measurements of $G^*/\sin(\delta)$ at test temperatures where the asphalt is a Newtonian fluid. Any suitable standard means of viscosity measurement may be used, including capillary (T 201 or T 202) or rotational viscometry (T 316).
5. Silicone beam molds, as described in AASHTO TP 1-93, are acceptable for use.
6. If creep stiffness is below 300 MPa, direct tension test is not required. If creep stiffness is between 300 and 600 MPa, the direct tension failure strain requirement can be used instead of the creep stiffness requirement. The *m*-value requirement must be satisfied in both cases.

300.3. Equipment. Provide all equipment necessary to transport, store, sample, heat, apply, and incorporate asphalts, oils, and emulsions.

300.4. Construction.

A. **Typical Material Use.** Table 18 shows typical materials used for specific applications. These are typical uses only. Circumstances may require use of other material.

Table 18
Typical Material Use

Material Application	Typically Used Materials
Hot-mixed, hot-laid asphalt mixtures	PG binders, A-R binders Types I and II
Surface treatment	AC-5, AC-10, AC-5 w/2% SBR, AC-10 w/2% SBR, AC-15P, AC-20-5TR, HFRS-2, MS-2, CRS-2, CRS-2H, HFRS-2P, CRS-2P, A-R binders Types II and III
Surface treatment (cool weather)	RS-1P, CRS-1P, RC-250, RC-800, RC-3000, MC-250, MC-800, MC-3000, MC-2400L
Precoating	AC-5, AC-10, PG 64-22, SS-1, SS-1H, CSS-1, CSS-1H
Tack coat	PG Binders, SS-1H, CSS-1H, EAP&T
Fog seal	SS-1, SS-1H, CSS-1, CSS-1H
Hot-mixed, cold-laid asphalt mixtures	AC-0.6, AC-1.5, AC-3, AES-300, AES-300P, CMS-2, CMS-2S
Patching mix	MC-800, SCM I, SCM II, AES-300S
Recycling	AC-0.6, AC-1.5, AC-3, AES-150P, AES-300P, recycling agent, emulsified recycling agent
Crack sealing	SS-1P, polymer mod AE crack sealant, rubber asphalt crack sealers (Class A, Class B)
Microsurfacing	CSS-1P
Prime	MC-30, AE-P, EAP&T, PCE
Curing membrane	SS-1, SS-1H, CSS-1, CSS-1H, PCE
Erosion control	SS-1, SS-1H, CSS-1, CSS-1H, PCE

B. **Storage and Application Temperatures.** Use storage and application temperatures in accordance with Table 19. Store and apply materials at the lowest temperature yielding satisfactory results. Follow the manufacturer's instructions for any agitation requirements in storage. Manufacturer's instructions regarding recommended application and storage temperatures supercede those of Table 19.

Appendix K

Item 340: Dense-Graded Hot Mix Asphalt (Method)

334.5. Measurement. This Item will be measured by the by the ton of composite asphalt concrete mixture of the type used in the completed and accepted work.

Measurement will be made on scales in accordance with Item 520, "Weighing and Measuring Equipment."

For mixture produced by a weigh-batch plant or a modified weigh-batch plant, measurement will be determined on the batch scales unless surge-storage or stockpiling is used. Keep records of the number of batches, batch design, and the weight of the composite asphalt concrete mixture. The composite asphalt concrete mixture is defined as the asphalt, primer, aggregate, additives, and any residual moisture that is not designated to be deducted. Where surge-storage or stockpiling is used, measurement of the material taken from the surge-storage bin or stockpile will be made on truck scales or suspended hopper scales.

334.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under Article 334.5, "Measurement," will be paid for at the unit price bid for "Hot-Mix Cold-Laid Asphalt Concrete Pavement" of the type, surface aggregate classification, and asphalt binder specified.

This price is full compensation for surface preparation, materials including tack coat, placement, equipment, labor, tools, and incidentals.

Pay adjustment for ride quality, when required, will be determined in accordance with Item 585, "Ride Quality for Pavement Surfaces."

ITEM 340
DENSE-GRADED HOT-MIX ASPHALT (METHOD)

340.1. Description. Construct a pavement layer composed of a compacted, dense-graded mixture of aggregate and asphalt binder mixed hot in a mixing plant.

340.2. Materials. Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications.

Notify the Engineer of all material sources. Notify the Engineer before changing any material source or formulation. When the Contractor makes a source or formulation change, the Engineer will verify that the requirements of this Item are met and may require a new laboratory mixture design, trial

batch, or both. The Engineer may sample and test project materials at any time during the project to verify compliance.

A. **Aggregate.** Furnish aggregates from sources that conform to the requirements shown in Table 1, and as specified in this Section, unless otherwise shown on the plans. Provide aggregate stockpiles that meet the definition in this Section for either coarse aggregate or fine aggregate. When reclaimed asphalt pavement (RAP) is allowed by plan note, provide RAP stockpiles in accordance with this Section. Aggregate from RAP is not required to meet Table 1 requirements unless otherwise shown on the plans. Supply mechanically crushed gravel or stone aggregates that meet the definitions in Tex-100-E. The Engineer will designate the plant or the quarry as the sampling location. Samples must be from materials produced for the project. The Engineer will establish the surface aggregate classification (SAC) and perform Los Angeles abrasion, magnesium sulfate soundness, and Micro-Deval tests. Perform all other aggregate quality tests listed in Table 1. Document all test results on the mixture design report. The Engineer may perform tests on independent or split samples to verify Contractor test results. Stockpile aggregates for each source and type separately. Determine aggregate gradations for mixture design and production testing based on the washed sieve analysis given in Tex-200-F, Part II. Do not add material to an approved stockpile from sources that do not meet the aggregate quality requirements of the Department's *Bituminous Rated Source Quality Catalog* (BRSQC) unless otherwise approved.

1. **Coarse Aggregate.** Coarse aggregate stockpiles must have no more than 20% material passing the No. 8 sieve. Provide aggregates from sources listed in the BRSQC. Provide aggregate from nonlisted sources only when tested by the Engineer and approved before use. Allow 30 calendar days for the Engineer to sample, test, and report results for nonlisted sources.

   Provide coarse aggregate with at least the minimum SAC shown on the plans. SAC requirements apply only to aggregates used on the surface of travel lanes, unless otherwise shown on the plans. The SAC for sources on the Department's AQMP is listed in the BRSQC.

   Class B aggregate meeting all other requirements in Table 1 may be blended with a Class A aggregate in order to meet requirements for Class A materials. When blending Class A and B aggregates to meet a Class A requirement, ensure that at least 50% by weight of

the material retained on the No. 4 sieve comes from the Class A aggregate source. Blend by volume if the bulk specific gravities of the Class A and B aggregates differ by more than 0.300. When blending, do not use Class C or D aggregates. For blending purposes, coarse aggregate from RAP will be considered as Class B aggregate.

2. **RAP.** RAP is salvaged, milled, pulverized, broken, or crushed asphalt pavement. Crush or break RAP so that 100% of the particles pass the 2-in. sieve.

   RAP from either Contractor- or Department-owned sources, including RAP generated during the project, is permitted only when shown on the plans. Department-owned RAP, if allowed for use, will be available at the location shown on the plans. When RAP is used, determine asphalt content and gradation for mixture design purposes. Perform other tests on RAP when shown on the plans.

   When RAP is allowed by plan note, use no more than 30% RAP in Type A or B mixtures unless otherwise shown on the plans. For all other mixtures, use no more than 20% RAP unless otherwise shown on the plans.

   Do not use RAP contaminated with dirt or other objectionable materials. Do not use the RAP if the decantation value exceeds 5% and the plasticity index is greater than 8. Test the stockpiled RAP for decantation in accordance with the laboratory method given in Tex-406-A, Part I. Determine the plasticity index using Tex-106-E if the decantation value exceeds 5%. The decantation and plasticity index requirements do not apply to RAP samples with asphalt removed by extraction.

   Do not intermingle Contractor-owned RAP stockpiles with Department-owned RAP stockpiles. Remove unused Contractor-owned RAP material from the project site upon completion of the project. Return unused Department-owned RAP to the designated stockpile location.

3. **Fine Aggregate.** Fine aggregates consist of manufactured sands, screenings, and field sands. Fine aggregate stockpiles must meet the gradation requirements in Table 2. Supply fine aggregates that are free from organic impurities. The Engineer may test the fine aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. At most 15% of the total aggregate may be field sand or other uncrushed fine aggregate. With the

exception of field sand, use fine aggregate from coarse aggregate sources that meet the requirements shown in Table 1, unless otherwise approved.

If 10% or more of the stockpile is retained on the No. 4 sieve, test the stockpile and verify that it meets the requirements in Table 1 for coarse aggregate angularity (Tex-460-A) and flat and elongated particles (Tex-280-F).

Table 1
Aggregate Quality Requirements

Property	Test Method	Requirement
Coarse Aggregate		
SAC	AQMP	As shown on plans
Deleterious material, %, max	Tex-217-F, Part I	1.5
Decantation, %, max	Tex-217-F, Part II	1.5
Micro-Deval abrasion, %, max	Tex-461-A	Note 1
Los Angeles abrasion, %, max	Tex-410-A	40
Magnesium sulfate soundness, 5 cycles, %, max	Tex-411-A	30[2]
Coarse aggregate angularity, 2 crushed faces, %, min	Tex 460-A, Part I	85[3]
Flat and elongated particles @ 5:1, %, max	Tex-280-F	10
Fine Aggregate		
Linear shrinkage, %, max	Tex-107-E	3
Combined Aggregate[4]		
Sand equivalent, %, min	Tex-203-F	45

1. Not used for acceptance purposes. Used by the Engineer as an indicator of the need for further investigation.
2. Unless otherwise shown on the plans.
3. Unless otherwise shown on the plans. Only applies to crushed gravel.
4. Aggregates, without mineral filler, RAP, or additives, combined as used in the job-mix formula (JMF).

Table 2
Gradation Requirements for Fine Aggregate

Sieve Size	% Passing by Weight or Volume
3/8"	100
#8	70–100
#200	0–30

B. Mineral Filler. Mineral filler consists of finely divided mineral matter such as agricultural lime, crusher fines, hydrated lime, cement, or fly ash. Mineral filler is allowed unless otherwise shown on the plans. Do not use more than 2% hydrated lime or cement, unless otherwise shown on the plans. The plans may require or disallow specific mineral fillers. When used, provide mineral filler that:

- is sufficiently dry, free-flowing, and free from clumps and foreign matter;
- does not exceed 3% linear shrinkage when tested in accordance with Tex-107-E; and
- meets the gradation requirements in Table 3.

Table 3
Gradation Requirements for Mineral Filler

Sieve Size	% Passing by Weight or Volume
#8	100
#200	55–100

C. **Baghouse Fines.** Fines collected by the baghouse or other dust-collecting equipment may be reintroduced into the mixing drum.

D. **Asphalt Binder.** Furnish the type and grade of performance-graded (PG) asphalt binder specified on the plans in accordance with Section 300.2.J, "Performance-Graded Binders."

E. **Tack Coat.** Unless otherwise shown on the plans or approved, furnish CSS-1H, SS-1H, or a PG binder with a minimum high-temperature grade of PG 58 for tack coat binder in accordance with Item 300, "Asphalts, Oils, and Emulsions."

Do not dilute emulsified asphalts at the terminal, in the field, or at any other location before use. If required, verify that emulsified asphalt proposed for use meets the minimum residual asphalt percentage specified in Item 300, "Asphalts, Oils, and Emulsions."

The Engineer will obtain at least 1 sample of the tack coat binder per project and test it to verify compliance with Item 300. The Engineer will obtain the sample from the asphalt distributor immediately before use.

F. **Additives.** When shown on the plans, use the type and rate of additive specified. Other additives that facilitate mixing or improve the quality of the mixture may be allowed when approved.

If lime or a liquid antistripping agent is used, add in accordance with Item 301, "Asphalt Antistripping Agents." Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that reintroduces the lime back into the drum.

340.3. Equipment. Provide required or necessary equipment in accordance with Item 320, "Equipment for Asphalt Concrete Pavement."

340.4. Construction. Design, produce, store, transport, place, and compact the specified paving mixture in accordance with the requirements of this Item. Unless otherwise shown on the plans, provide the mix design. The Department will perform quality assurance (QA) testing. Provide quality control (QC) testing as needed to meet the requirements of this Item.

A. Mixture Design.

1. **Design Requirements.** Use a Level II specialist certified by a Department-approved hot-mix asphalt certification program to develop the mixture design. Have the Level II specialist sign the design documents. Unless otherwise shown on the plans, use the typical weight design example given in Tex-204-F, Part I, to design a mixture meeting the requirements listed in Tables 1 through 6. Use an approved laboratory to perform the Hamburg Wheel test and provide results with the mixture design, or provide the laboratory mixture and request that the Department perform the Hamburg Wheel test. The Construction Division maintains a list of approved laboratories. Furnish the Engineer with representative samples of all materials used in the mixture design. The Engineer will verify the mixture design. If the design cannot be verified by the Engineer, furnish another mixture design.

   The Contractor may submit a new mixture design at anytime during the project. The Engineer will approve all mixture designs before the Contractor can begin production.

   Provide the Engineer with a mixture design report using Department-provided software. Include the following items in the report:

   - the combined aggregate gradation, source, specific gravity, and percent of each material used;
   - results of all applicable tests;
   - the mixing and molding temperatures;
   - the signature of the Level II person or persons who performed the design;
   - the date the mixture design was performed; and
   - a unique identification number for the mixture design.

Table 4
Master Gradation Bands (% Passing by Weight or Volume) and Volumetric Properties

Sieve Size	A Coarse Base	B Fine Base	C Coarse Surface	D Fine Surface	F Fine Mixture
1-1/2"	98.0–100.0	–	–	–	–
1"	78.0–94.0	98.0–100.0	–	–	–
3/4"	64.0–85.0	84.0–98.0	95.0–100.0	–	–
1/2"	50.0–70.0	–	–	98.0–100.0	–
3/8"	–	60.0–80.0	70.0–85.0	85.0–100.0	98.0–100.0
#4	30.0–50.0	40.0–60.0	43.0–63.0	50.0–70.0	80.0–86.0
#8	22.0–36.0	29.0–43.0	32.0–44.0	35.0–46.0	38.0–48.0
#30	8.0–23.0	13.0–28.0	14.0–28.0	15.0–29.0	12.0–27.0
#50	3.0–19.0	6.0–20.0	7.0–21.0	7.0–20.0	6.0–19.0
#200	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0
Design VMA[1], % Minimum					
–	12.0	13.0	14.0	15.0	16.0
Plant-Produced VMA, % Minimum					
–	11.0	12.0	13.0	14.0	15.0

1. Voids in Mineral Aggregates.

Table 5
Laboratory Mixture Design Properties

Property	Test Method	Requirement
Target laboratory-molded density, %	Tex-207-F	96.0[1]
Tensile strength (dry), psi (molded to 93% ±1% density)	Tex-226-F	85–200[2]
Boil test[3]	Tex-530-C	–

1. Unless otherwise shown on the plans.
2. May exceed 200 psi when approved and may be waived when approved.
3. Used to establish baseline for comparison to production results. May be waived when approved.

Table 6
Hamburg Wheel Test Requirements[1]

High-Temperature Binder Grade	Minimum # of Passes[2] @ 0.5" Rut Depth, Tested @ 122°F
PG 64 or lower	10,000
PG 70	15,000
PG 76 or higher	20,000

1. Tested in accordance with Tex-242-F.
2. May be decreased or waived when shown on the plans.

B. Job-Mix Formula Approval. The job-mix formula (JMF) is the combined aggregate gradation and target asphalt percentage used to establish target values for mixture production. JMF is the original

laboratory mixture design used to produce the trial batch. The Engineer and the Contractor will verify JMF based on plant-produced mixture from the trial batch unless otherwise approved. The Engineer may accept an existing mixture design previously used on a Department project and may waive the trial batch to verify JMF. If the JMF is not verified by the Engineer from the trial batch, adjust the JMF or redesign the mix and produce as many trial batches as necessary to verify the JMF.

Provide the Engineer with split samples of the mixtures and blank samples used to determine the ignition oven correction factors. The Engineer will determine the aggregate and asphalt correction factors from the ignition oven using Tex-236-F.

The Engineer will use a Texas gyratory compactor calibrated in accordance with Tex-914-F in molding production samples.

The Engineer will perform Tex-530-C and retain the tested sample for comparison purposes during production. The Engineer may waive the requirement for the boil test.

C. **JMF Field Adjustments.** Produce a mixture of uniform composition closely conforming to the approved JMF.

If, during initial days of production, the Contractor or Engineer determines that adjustments to the JMF are necessary to achieve the specified requirements, or to more nearly match the aggregate production, the Engineer may allow adjustment of the JMF within the tolerances of Table 7 without a laboratory redesign of the mixture.

The Engineer will adjust the asphalt content to maintain desirable laboratory density near the optimum value while achieving other mix requirements.

Table 7
Operational Tolerances

Description	Test Method	Allowable Difference from JMF Target
Individual % retained for #8 sieve and larger	Tex-200-F or Tex-236-F	±5.0[1]
Individual % retained for sieves smaller than #8 and larger than #200		±3.0[1]
% passing the #200 sieve		±2.0[1]
Asphalt content, %	Tex-236-F	±0.3[1]
Laboratory-molded density, %	Tex-207-F	±1.0
VMA, %, min		Note 2

1. When within these tolerances, mixture production gradations may fall outside the master grading limits; however, the percent passing the #200 sieve will be considered out of tolerance when outside the master grading limits.
2. Test and verify that Table 4 requirements are met.

D. Production Operations. Perform a new trial batch when the plant or plant location is changed. The Engineer may suspend production for noncompliance with this Item. Take corrective action and obtain approval to proceed after any production suspension for noncompliance.

1. **Operational Tolerances.** During production, do not exceed the operational tolerances in Table 7. Stop production if testing indicates tolerances are exceeded on:
   - 3 consecutive tests on any individual sieve,
   - 4 consecutive tests on any of the sieves, or
   - 2 consecutive tests on asphalt content.

   Begin production only when test results or other information indicate, to the satisfaction of the Engineer, that the next mixture produced will be within Table 7 tolerances.

2. **Storage and Heating of Materials.** Do not heat the asphalt binder above the temperatures specified in Item 300, "Asphalts, Oils, and Emulsions" or outside the manufacturer's recommended values. On a daily basis, provide the Engineer with the records of asphalt binder and hot-mix asphalt discharge temperatures in accordance with Item 320, "Equipment for Asphalt Concrete Pavement." Unless otherwise approved, do not store mixture for a period long enough to affect the quality of the mixture, nor in any case longer than 12 hr.

3. **Mixing and Discharge of Materials.** Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck

before shipping to ensure that it does not exceed 350°F. The Department will not pay for or allow placement of any mixture produced at more than 350°F. Control the mixing time and temperature so that substantially all moisture is removed from the mixture before discharging from the plant.

E. **Hauling Operations.** Before use, clean all truck beds to ensure mixture is not contaminated. When a release agent is necessary to coat truck beds, use a release agent on the approved list maintained by the Construction Division.

F. **Placement Operations.** Prepare the surface by removing raised pavement markers and objectionable material such as moisture, dirt, sand, leaves, and other loose impediments from the surface before placing mixture. Remove vegetation from pavement edges. Place the mixture to meet the typical section requirements and produce a smooth, finished surface with a uniform appearance and texture. Offset longitudinal joints of successive courses of hot mix by at least 6 in. Place mixture so longitudinal joints on the surface course coincide with lane lines, or as directed. Ensure that all finished surfaces will drain properly. Place mixture within the compacted lift thickness shown in Table 8, unless otherwise shown on the plans or allowed.

Table 8
Compacted Lift Thickness and Required Core Height

Mixture Type	Compacted Lift Thickness	
	Minimum (in.)	Maximum (in.)
A	3.00	6.00
B	2.50	5.00
C	2.00	4.00
D	1.50	3.00
F	1.25	2.50

1. **Weather Conditions.** Place mixture when the roadway surface temperature is 60°F or higher unless otherwise approved. Measure the roadway surface temperature with a handheld infrared thermometer. Unless otherwise shown on the plans, place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable in the opinion of the Engineer.

2. **Tack Coat.** Clean the surface before placing the tack coat. Unless otherwise approved, apply tack coat uniformly at the rate directed by the Engineer. The Engineer will set the rate between 0.04 and 0.10 gal. of residual asphalt per square yard of surface area. Apply

a thin, uniform tack coat to all contact surfaces of curbs, structures, and all joints. Prevent splattering of tack coat when placed adjacent to curb, gutter, and structures. Roll the tack coat with a pneumatic-tire roller when directed. The Engineer may use Tex-243-F to verify that the tack coat has adequate adhesive properties. The Engineer may suspend paving operations until there is adequate adhesion.

G. **Lay-Down Operations.**

1. **Minimum Mixture Placement Temperatures.** Use Table 9 for suggested minimum mixture placement temperatures.

2. **Windrow Operations.** When hot mix is placed in windrows, operate windrow pickup equipment so that substantially all the mixture deposited on the roadbed is picked up and loaded into the paver.

Table 9
Suggested Minimum Mixture Placement Temperature

High-Temperature Binder Grade	Minimum Placement Temperature (Before Entering Paver)
PG 64 or lower	260°F
PG 70	270°F
PG 76	280°F
PG 82 or higher	290°F

H. **Compaction.** Use air void control unless ordinary compaction control is specified on the plans. Avoid displacement of the mixture. If displacement occurs, correct to the satisfaction of the Engineer. Ensure pavement is fully compacted before allowing rollers to stand on the pavement. Unless otherwise directed, use only water or an approved release agent on rollers, tamps, and other compaction equipment. Keep diesel, gasoline, oil, grease, and other foreign matter off the mixture. Unless otherwise directed, operate vibratory rollers in static mode when not compacting, when changing directions, or when the plan depth of the pavement mat is less than 1-1/2 in.

Use tamps to thoroughly compact the edges of the pavement along curbs, headers, and similar structures and in locations that will not allow thorough compaction with the rollers. The Engineer may require rolling with a trench roller on widened areas, in trenches, and in other limited areas.

Allow the compacted pavement to cool to 160°F or lower before opening to traffic unless otherwise directed. When directed, sprinkle the finished mat with water or limewater to expedite opening the roadway to traffic.

1. **Air Void Control.** Compact dense-graded hot-mix asphalt to contain from 5% to 9% in-place air voids. Do not increase the asphalt content of the mixture to reduce pavement air voids.

   a. **Rollers.** Furnish the type, size, and number or rollers required for compaction, as approved. Use a pneumatic-tire roller to seal the surface, unless otherwise shown on the plans. Use additional rollers as required to remove any roller marks.

   b. **Air Void Determination.** Unless otherwise shown on the plans, obtain 2 roadway specimens at each location selected by the Engineer for in-place air void determination. The Engineer will measure air voids in accordance with Tex-207-F and Tex-227-F. Before drying to a constant weight, cores may be predried using a Corelok or similar vacuum device to remove excess moisture. The Engineer will use the average air void content of the 2 cores to calculate the in-place air voids at the selected location.

   c. **Air Voids Out of Range.** If the in-place air void content in the compacted mixture is below 5% or greater than 9%, change the production and placement operations to bring the in-place air void content within requirements. The Engineer may suspend production until the in-place air void content is brought to the required level, and may require a test section as described in Section 340.4.H.1.d, "Test Section."

   d. **Test Section.** Construct a test section of 1 lane-width and at most 0.2 mi. in length to demonstrate that compaction to between 5% and 9% in-place air voids can be obtained. Continue this procedure until a test section with 5% to 9% in-place air voids can be produced. The Engineer will allow only 2 test sections per day. When a test section producing satisfactory in-place air void content is placed, resume full production.

2. **Ordinary Compaction Control.** Furnish the type, size, and number or rollers required for compaction, as approved. Furnish at least 1 medium pneumatic-tire roller (minimum 12-ton weight). Use the control strip method given in Tex-207-F, Part IV, to establish rolling patterns that achieve maximum compaction.

Follow the selected rolling pattern unless changes that affect compaction occur in the mixture or placement conditions. When such changes occur, establish a new rolling pattern. Compact the pavement to meet the requirements of the plans and specifications.

When rolling with the 3-wheel, tandem or vibratory rollers, start by first rolling the joint with the adjacent pavement and then continue by rolling longitudinally at the sides. Proceed toward the center of the pavement, overlapping on successive trips by at least 1 ft., unless otherwise directed. Make alternate trips of the roller slightly different in length. On superelevated curves, begin rolling at the low side and progress toward the high side unless otherwise directed.

I. **Irregularities.** Immediately take corrective action if surface irregularities, including but not limited to segregation, rutting, raveling, flushing, fat spots, mat slippage, color, texture, roller marks, tears, gouges, streaks, or uncoated aggregate particles, are detected. The Engineer may suspend production or placement operations until the problem is corrected.

At the expense of the Contractor and to the satisfaction of the Engineer, remove and replace any mixture that does not bond to the existing pavement or that has other surface irregularities identified above.

J. **Ride Quality.** Use Surface Test Type A to evaluate ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces," unless otherwise shown on the plans.

340.5. Measurement. Hot mix will be measured by the ton of composite hot mix, which includes asphalt, aggregate, and additives. Measure the weight on scales in accordance with Item 520, "Weighing and Measuring Equipment."

340.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Dense-Graded Hot-Mix Asphalt (Method)" of the type, surface aggregate classification, and binder specified. These prices are full compensation for surface preparation, materials including tack coat, placement, equipment, labor, tools, and incidentals.

Trial batches will not be paid for unless they are incorporated into pavement work approved by the Department.

Appendix L

Item 666: Reflectorized Pavement Markings

this Item during the 30-day period, remove and replace them at the Contractor's expense. The 30-calendar day performance requirement will begin again after replacement of the markings.

The daytime and nighttime reflected color of the markings must be distinctly white or yellow. The markings must exhibit uniform retroreflective characteristics.

662.4. Measurement. This Item will be measured by the foot or by each word, shape, symbol, or temporary flexible reflective roadway marker tab. Each stripe will be measured separately. Raised pavement markers used to simulate a marking will be measured by the foot of marking or by each raised pavement marker.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

662.5. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Work Zone Pavement Markings" of the type and color specified and the shape, width, and size specified as applicable. This price is full compensation for furnishing, placing, maintaining, and removing work zone pavement markings and for materials, equipment, labor, tools, and incidentals.

Elimination of nonremovable markings will be paid for under Item 677, "Eliminating Existing Pavement Markings and Markers." Removal of short-term and removable markings will not be paid for directly, but will be subsidiary to this Item.

Type II work zone pavement markings (paint and beads) used as a sealer for Type I pavement markings (thermoplastic) will be paid for under this Item.

ITEM 666
REFLECTORIZED PAVEMENT MARKINGS

666.1. Description. Furnish and place reflectorized pavement markings.

666.2. Materials.

A. **Type I Marking Materials.** Furnish in accordance with DMS-8220, "Hot Applied Thermoplastic."

B. **Type II Marking Materials.** Furnish in accordance with DMS-8200, "Traffic Paint."

C. **Glass Traffic Beads.** Furnish drop-on glass beads conforming to DMS-8290, "Glass Traffic Beads."

1. **Type I Markings.** Furnish Type III drop-on glass beads. Furnish Type II or double-drop of Type II and Type III drop-on glass beads where each type bead is applied separately in equal portions (by weight), only when specified in the plans. When furnishing a double-drop system, apply the Type III beads before applying the Type II beads.

2. **Type II Markings.** Furnish Type III drop-on glass beads or other beads specified on the plans.

D. **Labeling.** Use clearly marked containers that indicate color, mass, material type, manufacturer, and batch number.

666.3. Equipment.

A. **General Requirements.** Use equipment that:

- is maintained in satisfactory condition,
- meets or exceeds the requirements of the National Board of Fire Underwriters and the RRC for this application,
- uses an automatic bead dispenser attached to the pavement marking equipment, and
- can provide continuous mixing and agitation of the pavement marking material.

Provide a hand-held thermometer capable of measuring the temperature of the marking material when applying Type I material.

B. **Material Placement Requirements.** Use equipment that can place:

- at least 40,000 ft. of 4-in. solid or broken markings per day at the specified thickness;
- linear markings up to 8 in. wide in a single pass;
- markings other than solid or broken lines;
- a center-line and no-passing barrier-line configuration consisting of 1 broken line with 2 solid lines at the same time to the alignment, spacing, and thickness shown on the plans, for 3-line application;
- white line from both sides;
- lines with clean edges, uniform cross section and thickness, and reasonably square ends;

- skip lines between 10 and 10-1/2 ft., an approximate stripe-to-gap ratio of 1 to 3, and a stripe-gap cycle between 39-1/2 ft. and 40-1/2 ft., automatically;
- beads uniformly and almost instantly on the marking as the marking is being applied;
- beads uniformly during the application of all lines (each line must have an equivalent bead yield rate and embedment); and
- double-drop bead applications using both Type II and Type III beads from separate independent bead applicators, if double-drop bead application is used.

666.4. Construction. Place markings before opening to traffic unless short-term or work zone markings are allowed.

A. **General.** Obtain approval for the sequence of work and estimated daily production. On roadways already open to traffic, place markings with minimal interference to the operations of that roadway. Use traffic control as shown on the plans or as approved. Protect all markings placed under open-traffic conditions from traffic damage and disfigurement.

Establish guides to mark the lateral location of pavement markings as shown on the plans or as directed, and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.

Apply markings on pavement that is completely dry and passes the following tests:

- Type I Marking Application—Place a sample of Type I marking material on a piece of tarpaper placed on the pavement. Allow the material to cool to ambient temperature, and then inspect the underside of the tarpaper in contact with the pavement. Pavement will be considered dry if there is no condensation on the tarpaper.
- Type II Marking Application—Place a 1-sq. ft. piece of clear plastic on the pavement, and weight down the edges. The pavement is considered dry if, when inspected after 15 min., no condensation has occurred on the underside of the plastic.

Apply markings:

- that meet the requirements of Tex-828-B,
- using widths and colors shown on the plans,
- at locations shown on the plans,

- in proper alignment with the guides without deviating from the alignment more than 1 in. per 200 ft. of roadway or more than 2 in. maximum,
- without abrupt deviations,
- free of blisters and with no more than 5% by area of holes or voids,
- with uniform cross section and thickness,
- with clean and reasonably square ends,
- that are reflectorized, and
- using personnel skilled and experienced with installation of pavement markings.

Remove all applied markings that are not in alignment or sequence as stated in the plans or as stated in the specifications at the Contractor's expense in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment.

B. **Surface Preparation.** Unless otherwise shown on the plans, prepare surfaces in accordance with this section.

1. **Cleaning for New Asphalt Surfaces and Retracing of All Surfaces.** For new asphalt surfaces (less than 3 years old) and retracing of all surfaces, air-blast or broom the pavement surface to remove loose material, unless otherwise shown on the plans. A sealer for Type I markings is not required unless otherwise shown on the plans.

2. **Cleaning for Old Asphalt and Concrete Surfaces (Excludes Retracing).** For old asphalt surfaces (more than 3 years old) and all concrete surfaces, clean in accordance with Item 678, "Pavement Surface Preparation for Markings," to remove curing membrane, dirt, grease, loose and flaking existing construction markings, and other forms of contamination.

3. **Sealer for Type I Markings.** For asphalt surfaces more than 3 years old or for concrete, apply a pavement sealer before placing Type I markings on locations that do not have existing markings, unless otherwise approved. The pavement sealer may be either a Type II marking or an acrylic or epoxy sealer unless otherwise shown on the plans. Follow the manufacturer's directions for application of acrylic or epoxy sealers. When the sealer becomes dirty after placement, clean by washing or in accordance with Section 666.4.B.1, "Cleaning for New Asphalt Surfaces and Retracing of All Surfaces," as directed. Place the sealer in the same configuration and color (unless clear) as the Type I markings unless otherwise shown on the plans.

C. **Application.** Apply markings during good weather unless otherwise directed. If markings are placed at Contractor option when inclement weather is impending and the markings are damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the markings if required.

1. **Type I Markings.** Place the Type I marking after the sealer cures. Apply within the temperature limits recommended by the material manufacturer. If during a spray application, operations cease for 5 min. or longer, flush the spray head by spraying marking material into a pan or similar container until the material being applied is at the recommended temperature.

   Apply on clean, dry pavements passing the moisture test described in Section 666.4.A, "General," and with a surface temperature above 50°F when measured in accordance with Tex-829-B.

   Apply Type I markings with a minimum thickness of:
   - 0.100 in. (100 mils) for new markings and retracing water-based markings on surface treatments involving Item 316, "Surface Treatments," or Item 318, "Hot Asphalt-Rubber Surface Treatments,"
   - 0.060 in. (60 mils) for retracing on thermoplastic pavement markings, or
   - 0.090 in. (90 mils) for all other Type I markings.

   The maximum thickness for Type I markings is 0.180 in. (180 mils). Measure thickness for markings in accordance with Tex-854-B using the tape method.

2. **Type II Markings.** Apply on surfaces with a minimum surface temperature of 50°F. Apply at least 20 gal. per mile on concrete and asphalt surfaces and at least 22 gal. per mile on surface treatments for a solid 4-in. line. Adjust application rates proportionally for other widths. When Type II markings are used as a sealer for Type I markings, apply at least 15 gal. per mile using Type II drop-on beads.

3. **Bead Coverage.** For Type I and Type II markings, provide a uniform distribution of beads across the surface of the stripe, with 40 to 60% bead embedment.

D. **Performance Period.** All markings and replacement markings must meet the requirements of Tex-828-B for at least 30 calendar days after installation. Unless otherwise directed, remove pavement markings that

fail to meet requirements, and replace at the Contractor's expense. Replace failing markings within 30 days of notification.

666.5. Measurement. This Item will be measured by the foot; by each word, symbol, or shape; or by any other unit shown on the plans. Each stripe will be measured separately.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

Acrylic or epoxy sealer, or Type II markings when used as a sealer for Type I markings, will be measured by the foot; by each word, symbol, or shape; or by any other unit shown on the plans.

666.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pavement Sealer" of the size specified or "Reflectorized Pavement Markings" of the type and color specified and the shape, width, size, and thickness (Type I markings only) specified as applicable. This price is full compensation for materials, application of pavement markings, equipment, labor, tools, and incidentals.

Surface preparation of new concrete and asphalt concrete pavements more than 3 years old, where no stripe exists, will be paid for under Item 678, "Pavement Surface Preparation for Markings." Surface preparation of all other asphalt and old concrete pavement, except for sealing, will not be paid for directly but is subsidiary to this Item.

Work-zone pavement markings (Type II, paint and beads) used as a sealer for Type I markings (thermoplastic) will be paid for under Item 662, "Work Zone Pavement Markings."

If the Engineer requires that markings be placed in inclement weather, repair or replacement of markings damaged by the inclement weather will be paid for in addition to the original plans quantity.

ITEM 668
PREFABRICATED PAVEMENT MARKINGS

668.1. Description. Furnish and place prefabricated pavement markings.

Appendix M

Item 678: Pavement Surface Preparation for Markings

This is a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

677.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Eliminating Existing Pavement Markings and Markers" of the type and width as applicable. This price is full compensation for the elimination method used and equipment, materials, tools, labor, and incidentals. Removal of raised pavement markers will not be paid for directly and will be subsidiary to the pertinent bid items.

ITEM 678
PAVEMENT SURFACE PREPARATION FOR MARKINGS

678.1. Description. Prepare pavement surface areas before placement of pavement markings and raised pavement markers. Item 677, "Eliminating Existing Pavement Markings or Markers," governs complete removal of existing markings.

678.2. Materials. Use a commercial abrasive-blasting medium capable of producing the specified surface cleanliness. Use potable water, when water is required.

678.3. Equipment. Furnish and maintain equipment in good working condition. Use moisture and oil traps in air compression equipment to remove all contaminants from the blasting air and prevent the deposition of moisture, oil, or other contaminants on the roadway surface.

678.4. Construction. Prepare pavement surface of sufficient area for the pavement markings or raised pavement markers shown on the plans. Remove all contamination and loose material. Avoid damaging the pavement surface. When existing pavement markings are present, remove loose and flaking material. Approved pavement surface preparation methods are sweeping, air blasting, flail milling, and blast cleaning unless otherwise specified on the plans.

For concrete pavement surfaces, in addition to the above, air blast after the removal of contamination or existing material and just prior to placing the stripe. Perform the air blasting with a compressor that is capable of

generating compressed air at a minimum of 150 cfm and 100 psi using 5/16-in. or larger hosing for the air blast.

Contaminants up to 0.5 sq. in. may remain if they are not removed by the following test, performed just before application of markings:

Step 1. Air-blast the surface to be tested, to simulate blasting during application of markings.

Step 2. Firmly press a 10-in.-long, 2-in.-wide strip of monofilament tape onto the surface, leaving approximately 2 in. free.

Step 3. Grasp the free end and remove the tape with a sharp pull.

678.5. Measurement. This Item will be measured by the foot for each width specified; by each word, shape, or symbol; or by any other unit except lump sum.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

678.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pavement Surface Preparation for Markings" of the type and width as applicable. This price is full compensation for the cleaning method used, and equipment, materials, tools, labor, and incidentals.

ITEM 680
INSTALLATION OF HIGHWAY TRAFFIC SIGNALS

680.1. Description. Install highway traffic signals.

680.2. Materials. Ensure electrical materials and construction methods conform to the current NEC and additional local utility requirements.

Furnish new materials. Ensure all materials and construction methods conform to the details shown on the plans, the requirements of this Item, and the pertinent requirements of the following Items:

- Item 610, "Roadway Illumination Assemblies"
- Item 625, "Zinc-Coated Steel Wire Strand"
- Item 627, "Treated Timber Poles"
- Item 634, "Plywood Signs"

Appendix N

Non-Applicable TxDOT Specifications

NOTE: The purpose of this appendix is to specify which Articles and Sections within the noted appendices will not apply to this contract. The Appendixes listed below are excerpts from the TXDOT Standard Specification Book, "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges" adopted by the Texas Department of Transportation June 01, 2004. The page numbering of each appendix corresponds to the Items as shown on TXDOT Standard Specification Book. Any references made in the above mentioned Appendixes within the applicable Articles and/or Sections regarding the measurement of materials or method of payment shall be disregarded. All measurements and payments will be done in accordance with the Technical Specifications for the contract and not as specified in these appendices.

APPENDIX F: ITEM 105: REMOVING STABILIZIED BASE AND ASPHALT PAVEMENT

Articles 105.3-105.4 and first two lines on page 79, "Removing retaining wall footing....subsidiary to this Item." will not apply to this contract.

APPENDIX G: ITEM 132: EMBANKMENT

Articles 112.4-112.5 and 132.4-132.5 will not apply to this contract.

APPENDIX H: ITEM 216: PROOF ROLLING

Articles 216.1-216.5 and 247.5 will not apply to this contract.

APPENDIX I: ITEM 251: REWORKING BASE COURSES

Article 247.6 Sections A, B, C, Article 251.5 and the first two lines on page 146, "be paid in accordance with pertinent Items or Article 4.2, "Changes in the Work."" will not apply to this contract.

APPENDIX J: ITEM 300: ASPHALTS, OILS, AND EMULSIONS

Articles 300.5 and 301.1 will not apply to this contract.

APPENDIX K: ITEM 340: DENSE-GRADED HOT MIX ASPHALT (METHOD)

Articles 334.5-334.6 and 340.5-340.6 will not apply to this contract.

APPENDIX L: ITEM 666: REFLECTORIZED PAVEMENT MARKINGS

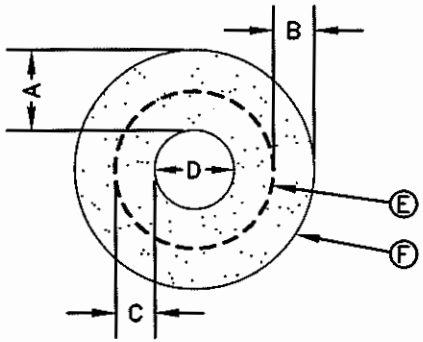
Articles 662.4-662.5, 666.5-666.6, 668.1 and the first six lines on page 939 "this Item during the 30-day period, remove and replace them....The Markings must exhibit uniform retroreflective characteristics." will not apply to this contract.

APPENDIX M: ITEM 678: PAVEMENT SURFACE PREPARATION FOR MARKINGS

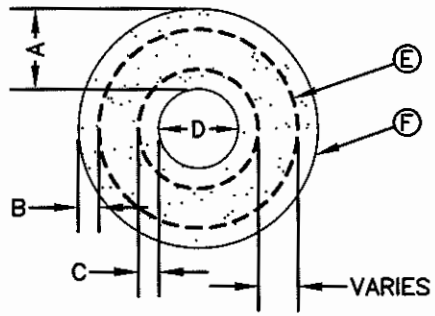
Articles 677.6, 678.5-678.6, 680.1-680.2 and the first four lines on page 951, "This is a plans quantity measurement item....calculation will be made if adjustments of quantities are required." will not apply to this contract.

Appendix O

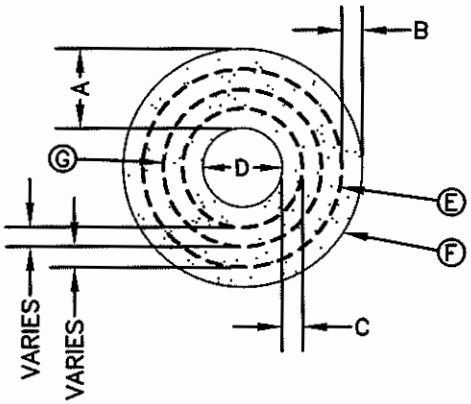
EPWater Standard Details - Concrete Collars and Meter Boxes



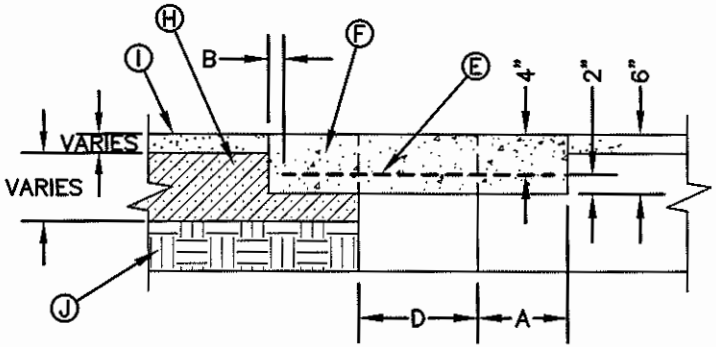
PLAN VIEW – SINGLE REBAR



PLAN VIEW – TWO REBARS



PLAN VIEW – THREE REBARS



SECTION VIEW – ASPHALT JUNCTURE

GENERAL NOTES:

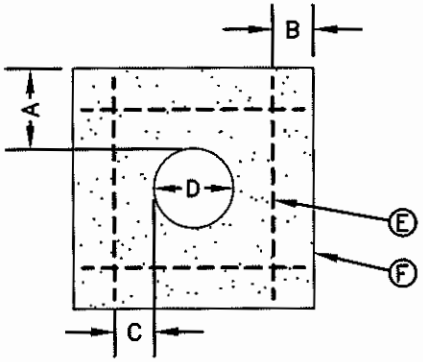
1. THE CONCRETE COLLAR SHOULD BE CAST IN–PLACE CONCRETE. (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI. HIGH EARLY CONCRETE IS REQUIRED)
2. TOPS OF CONCRETE COLLAR SHALL BE FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. ANY DISTURBED SUBGRADE UNDER THE CONCRETE COLLAR SHALL BE COMPACTED TO 95% DENSITY ± 3% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D–1557.
4. ANY DISTURBED BASE COARSE UNDER THE CONCRETE COLLAR SHALL BE COMPACTED TO 100% DENSITY ± 2% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D–1557.
5. PROVIDE A MINIMUM OF 1 1/2" OF CONCRETE COVER FOR ALL REINFORCEMENT STEEL.
6. REINFORCING SHALL MEET ASTM C–478 AND TRAFFIC LOADING (HS–20).
7. NO. 3 REINFORCING STEEL HOOPS SHALL BE SPACED EQUALLY.

CONSTRUCTION KEY NOTES:

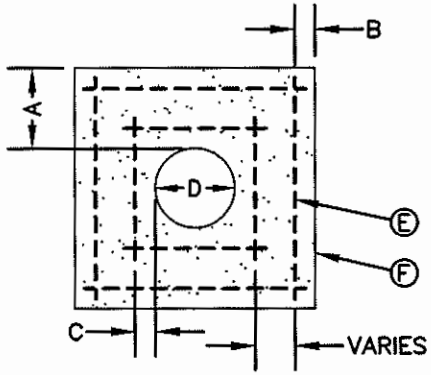
E. #3 REINFORCING STEEL TYP.
F. CONCRETE COLLAR.
G. #3 REINFORCING STEEL EQUALLY SPACED.
H. COMPACTED BASE COARSE.
I. PAVEMENT.
J. COMPACTED SUBGRADE.

"D" DIAMETER OF PENETRATION	NUMBER OF #3 REINFORCING STEEL BARS	"A" MINIMUM CONCRETE HORIZONTAL DIMENSION FROM PENETRATION	"B" MINIMUM CLEARANCE FROM EDGE OF CONCRETE COLLAR TO CENTER OF NEAREST REBAR	"C" MINIMUM CLEARANCE FROM PENETRATION EDGE TO CENTER OF NEAREST REBAR
0" TO 6"	1	6"	1½"	1½"
6.1" TO 18"	2	8"	1½"	1½"
18.1" AND OVER	3	12"	1½"	1½"

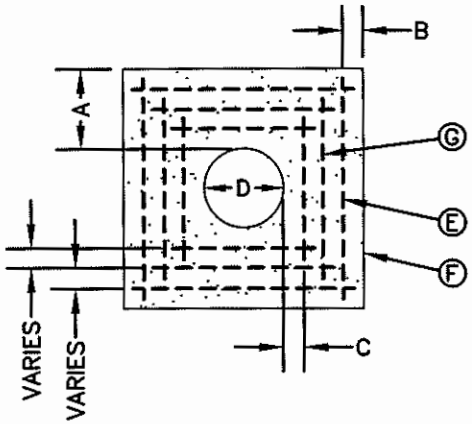
STANDARD DETAIL	DATE: 8/9/2006 REV: 5/11/2017	CONCRETE COLLAR INSTALLATION IN PAVED AREAS N.T.S.	el paso WATER	DETAIL No. 184–1



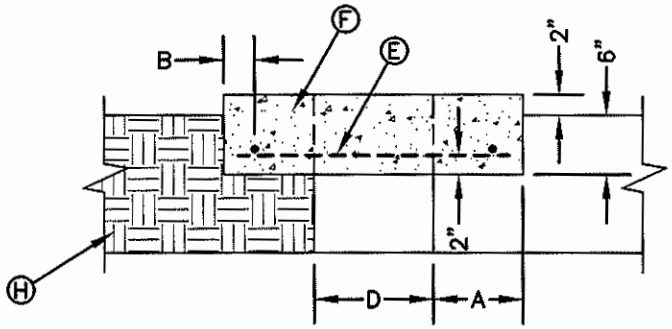
PLAN VIEW – SINGLE REBAR



PLAN VIEW – TWO REBARS



PLAN VIEW – THREE REBARS



SECTION VIEW

GENERAL NOTES:

1. THE CONCRETE APRON SHOULD BE CAST IN-PLACE CONCRETE. (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI. HIGH EARLY CONCRETE IS REQUIRED)
2. TOPS OF CONCRETE APRON SHALL BE FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. PROVIDE A MINIMUM OF 1 1/2" OF CONCRETE COVER FOR ALL REINFORCEMENT STEEL.
4. REINFORCING SHALL MEET ASTM C-478 AND TRAFFIC LOADING (HS-20).
5. NO. 3 REBARS SPACED EQUALLY MAY BE LAP TIED OR SQUARE HOOPS.

CONSTRUCTION KEY NOTES:

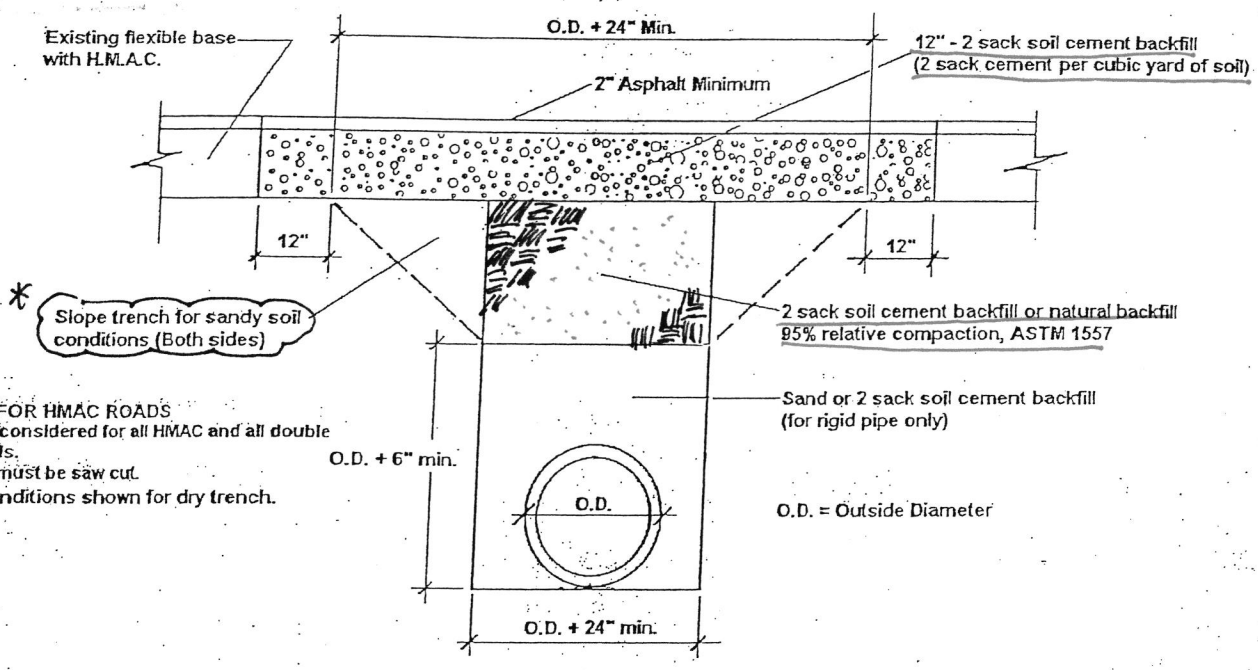
E. #3 REINFORCING STEEL TYP.
F. CONCRETE APRON.
G. #3 REINFORCING STEEL EQUALLY SPACED.
H. COMPACTED BACKFILL.

"D" DIAMETER OF PENETRATION	NUMBER OF #3 REINFORCING STEEL BARS	"A" MINIMUM CONCRETE HORIZONTAL DIMENSION FROM PENETRATION	"B" MINIMUM CLEARANCE FROM EDGE OF CONCRETE APRON TO CENTER OF NEAREST REBAR	"C" MINIMUM CLEARANCE FROM PENETRATION EDGE TO CENTER OF NEAREST REBAR
0" TO 6"	1	4"	1½"	4½"
6.1" TO 18"	2	6"	1½"	1½"
18.1" AND OVER	3	8"	1½"	1½"

STANDARD DETAIL	DATE: 11/6/2008 REV:	CONCRETE APRON INSTALLATION IN NON PAVED AREAS N.T.S.	el paso WATER	DETAIL No. 184-2

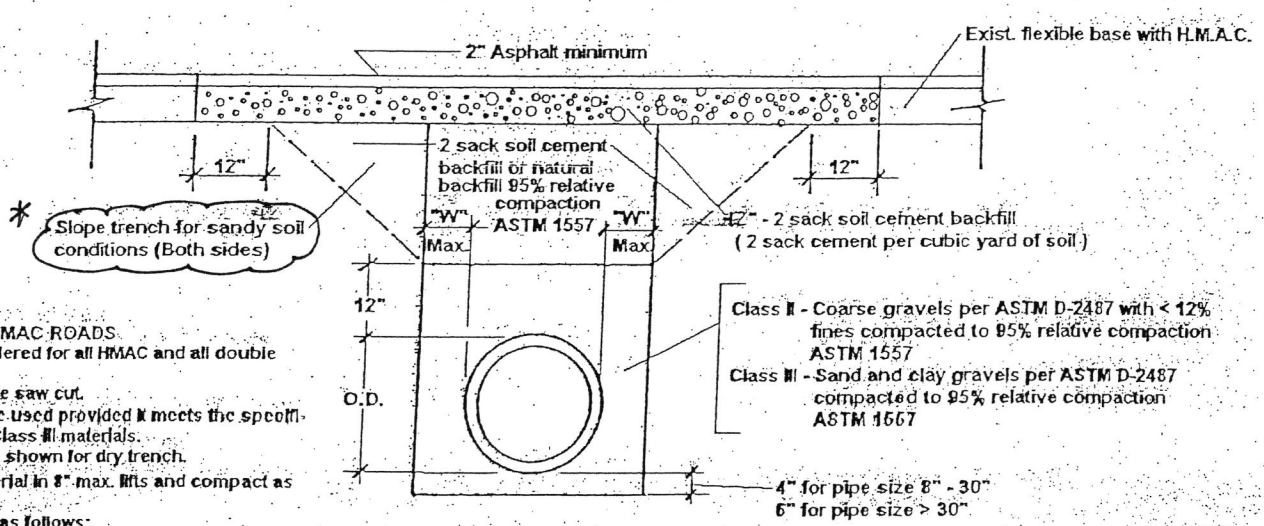
Appendix P

El Paso County Standard Details – Driveways and Street Paving Cut



GENERAL NOTES FOR HMAC ROADS
1. Boring must be considered for all HMAC and all double penetration roads.
2. All asphalt cuts must be saw cut.
3. Embedment conditions shown for dry trench.

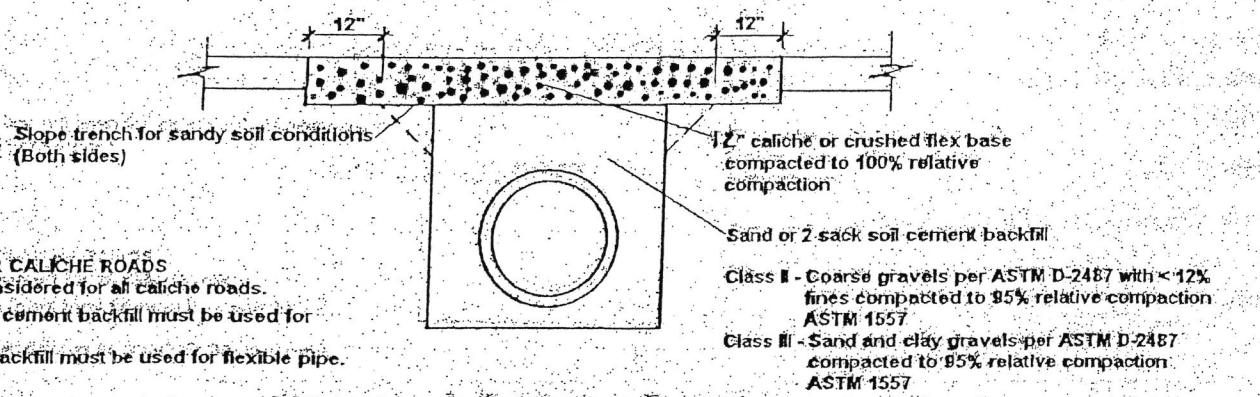
Street Paving Cut for Rigid Pipe



GENERAL NOTES FOR HMAC ROADS
1. Boring must be considered for all HMAC and all double penetration roads.
2. All asphalt cuts must be saw cut.
3. Natural material may be used provided it meets the specifications for Class II or Class III materials.
4. Embedment conditions shown for dry trench.
5. Place embedment material in 8" max. lifts and compact as specified.
6. Trench dimension "W" as follows:

Pipe Diameter	"W"
Less than 24"	9"
24" thru 48"	12"
Greater than 48"	O.D./4

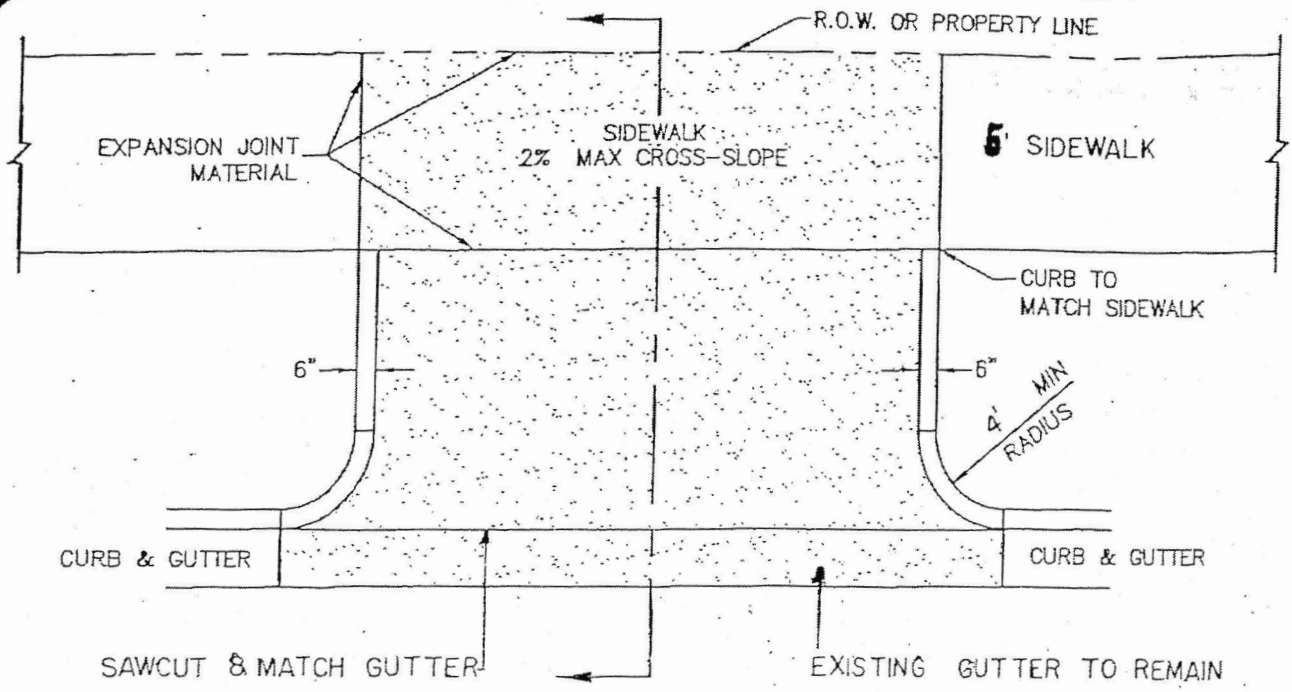
Street Paving Cut for Flexible Pipe



GENERAL NOTES FOR CALICHE ROADS
1. Boring must be considered for all caliche roads.
2. Sand or 2 sack soil cement backfill must be used for rigid pipe.
3. Class II or Class III backfill must be used for flexible pipe.

Unpaved Caliche Roads

Revised April 2006



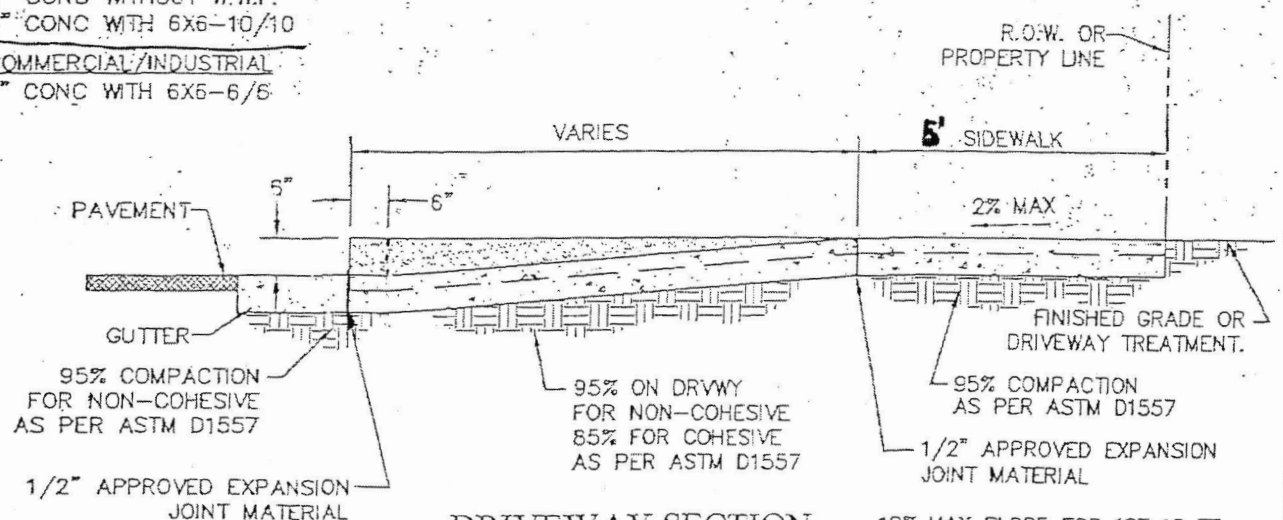
DRIVEWAY PLAN

NTS

DRIVEWAY WIDTH	MIN	MAX
COMMERCIAL/INDUSTRIAL	24'	35'
RESIDENTIAL (SINGLE FAMILY 60' LOTS)	10'	20'
LESS THAN 60' LOTS, DUPLEX, AND TOWNHOMES (REFER TO PLATE 6-16)	15'	25'

RESIDENTIAL
6" CONC WITHOUT W.W.F.
4" CONC WITH 6X6-10/10

COMMERCIAL/INDUSTRIAL
6" CONC WITH 6X6-6/6



DRIVEWAY SECTION

NTS

10% MAX SLOPE FOR 1ST 12 FT, 14% MAX THEREAFTER