TECHNICAL SPECIFICATIONS

FOR

PAVING REPAIRS AT BLINN BLVD ENTRANCE AT BLINN COLLEGE IN BRYAN

RFP No. 225

LOCATED IN

BRAZOS COUNTY, TEXAS

PREPARED FOR

Blinn College

October 2024

STATE OF TEXAS
DAVID L. BESLY
81873
LICENSED
PROFESSIONAL ENGINEER
10-21-2024

BLEYL ENGINEERING

PLANNING • DESIGN • MANAGEMENT

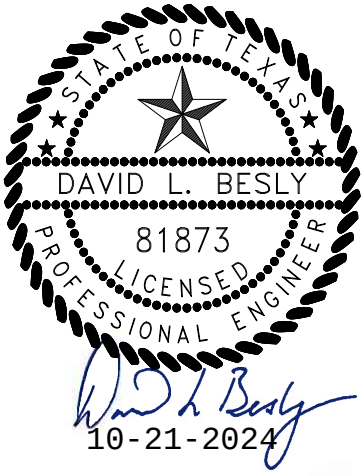
Bleyl Project No. 13512
1722 Broadmoor, Ste 210
Bryan, Texas 77802
(979) 268-1125 ph
(979) 260-3849 fax
Texas Registered Firm No. F-678

DOCUMENT 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

A. Civil Engineer:

1. David L. Besly, P.E.
2. TX 81873
3. Responsible for Divisions 01-49 Sections except where indicated as prepared by other design professionals of record.



END OF DOCUMENT 000107

SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR CONSTRUCTION OF
RFP#225 PAVING REPAIRS AT BLINN BLVD ENTRANCE AT BLINN COLLEGE IN BRYAN
FOR
BLINN COLLEGE
IN
BRAZOS COUNTY, TEXAS

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1.1 LIST OF DRAWINGS

A. Drawings: Drawings consist of the Contract Drawings and other drawings listed on the Table of Contents page of the separately bound drawing set titled **2025 Bryan Paving Repairs** dated **October 10, 2024**, as modified by subsequent Addenda and Contract modifications.

B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:

1. Paving Exhibit
2. Traffic Control Plan Exhibit
3. Median and Sections Exhibit
4. Dowelled in Curbs Detail ST1-02
5. Concrete Pavement Joint Layout ST3-00

END OF DOCUMENT 000115

REQUEST FOR PROPOSAL #225

Blinn College District invites qualified firms to submit Competitive Sealed Proposals for:

GENERAL CONTRACTOR SERVICES
Bryan Campus Paving Repairs at Blinn Boulevard

Proposals will close on:

November 21, 2024 @ 2:15 PM C.D.T

Sealed Proposals must be submitted to the following location with the RFP # in the lower left corner of the envelope.

Vendors are encouraged to register and submit proposals through the Blinn College District E- procurement site: https://blinn.ionwave.net/Login.aspx

Faxed and e-mailed qualifications will not be accepted.

Mail Proposals to:
Blinn College District Purchasing
902 College Avenue
Brenham, Texas 77833

Deliver Proposals to:
Blinn College District Purchasing
Old Main – 806 College Avenue, Room 207
Brenham, Texas 77833

RFP # 225
Competitive Sealed Proposals for General Contractor Services – Paving Repairs at Blinn Boulevard Entrance at Blinn College in Bryan

Proposals that arrive after the closing date and time will be rejected. Time/date stamp clock in the Purchasing Department shall be the official time of receipt. Responses received in the Purchasing Department after submission deadline shall be returned unopened and will be considered void and unacceptable. Mailing of a Proposal does not ensure that the RFP will be delivered on time or delivered at all. The proposer (not the college mail system) is solely responsible for ensuring the RFP is received prior to the closing date and time. **Delivery at any other campus location or any other department is unacceptable.**

Blinn College District reserves the right to reject any and/or all RFP's, to award contracts as may appear advantageous to the Blinn College District, and to waive all formalities in offering.

Ross Schroeder – Director of Purchasing

Blinn College District, a Junior College District of Washington County is receiving competitive sealed proposals for **Paving Repairs at Blinn Boulevard Entrance at Blinn College in Bryan**. The selection of the General Contractor will be in compliance with the provisions of the Texas Educational Code Section 44.031 and consist of the one-step process set forth in Section 2269 of the Texas Government Code.

1. Response to Request for Competitive Sealed Proposals

Respondents are required to provide detailed written responses to this RFP no later than **November 21, 2024 @ 2:15 PM C.D.T.** Responses must be delivered to the Blinn College District, Purchasing Department, Old Main 806 College Avenue, Room 207 Brenham, Texas 77833. Responses may also be submitted through Blinn College's E-procurement site at https://blinn.ionwave.net/Login.aspx. Responses received after this date will not be considered or accepted.

Written responses shall address each requirement identified in this RFP. Failure to provide all requested information will be considered an incomplete response. Blinn College District reserves the right to reject any or all proposals and to accept any proposal deemed as providing the best value to the Blinn College District. Blinn College District shall rank the respondents in the order that they provide the "best value" for the College based on the published selection criteria and on the ranking evaluations. Interviews of General Contractor firms may follow at the Owner's option.

Respondents are required to submit one (1) bound (8 ½" x 11" format) copies and one (1) electronic copy (USB flash drive or Disk) of the proposal statement.

Questions regarding the project and this Request for Proposals are to be directed to:

Ross Schroeder
Blinn College District
Director of Purchasing
902 College Ave.
Brenham, Texas 77833
Phone: 979-830-4118
Email: Ross.Schroeder@Blinn.edu

RFP #225 Calendar

Date/Time	Action
October 29, 2024	Advertisement #1
November 5, 2024	Advertisement #2
November 12, 2024, 11:00am	Pre-Proposal Meeting Blinn-Bryan Campus Building G, Room 151 2423 Blinn Blvd. Bryan, TX 77802 **CLICK HERE FOR CAMPUS MAP**
November 15, 2024, 5:00 pm	Last day and time to submit email inquires Submit to: Ross.Schroeder@Blinn.edu
November 18, 2024	Addenda issued, if any, communicated by e-mail
November 21, 2024, 2:15 p.m.	Deadline for Submission, RFP #225 Blinn College District Purchasing Attn: Mr. Ross Schroeder, Director of Purchasing

	902 College Ave. Brenham, Texas 77833 **CLICK HERE FOR CAMPUS MAP**
December 2024	Submit Agenda Item to Administration
January 21, 2025	Recommendation of selected firm to the Board of Trustees for approval

2. Scope of Work:

A. The scope of work for the paving repairs project at Blinn Blvd Entrance at Blinn College Campus in Bryan will include the following, as illustrated, and described within the Contract Documents issued by Bleyl Engineering and as outlined in the Bid Form:

B. Base Bid:

1. Mobilization
2. Traffic Control
3. Erosion Control
4. Remove 8" of Asphalt Pavement and Base
5. Install 8" Concrete Pavement
6. Install Type-II Concrete Curb Median, including Landscape Paver surface
7. Install Small Roadway Sign and Supports
8. Relocate Existing Stop Sign and Support
9. Replace Existing Aluminum Sign Face with R3-8LS
10. Adjust Existing Storm Grate to match Existing Pavement Grade
11. Apply pavement markings and curb paint

Project Schedule:
The anticipated schedule will allow submittals and procurement to commence with the execution of the construction contract and will allow construction to commence on May 15, 2025. The success of this project relies on completion of all construction by August 1, 2025.

3. Evaluation Criteria and Selection Process

Proposal Evaluation Criteria and Requirements

All proposals will be evaluated based on the criteria listed below by the evaluation committee. The committee shall consist of individuals who have knowledge or experience of the subject matter in the RFP; or beneficiaries and /or users of the RFP's subject matter.

1. Qualifications, Experience, & Reputation (30 pts.)

A. Provide your company profile including history, company principals, number of employees, annual revenues, date the company was established, and any lawsuits/liens within the past five years in accordance with the format included in this RFP.

B. Provide a list of five (5) completed projects within the last five (5) years, which are similar/relevant to the project under this RFP in accordance with the format included in this RFP.

C. Relevant Client References – Provide three (3) references of completed projects within the last five (5) years, which are similar/relevant to the project under this RFP in accordance with the format included in this RFP.

2. Proposed Lead Personnel (20 pts.)

   A. Provide a list of all your proposed personnel indicating the position they will hold within the project and their years of experience as it relates to this project.
   B. Provide an organization chart that depicts all your lead personnel. Include current domicile location for each person and employment duration with the firm.
   C. Provide resumes for all your lead personnel.
   D. Indicate where the office providing the services under this RFP is located.
   E. Indicate if any of the lead personnel are in a different office and the location of that office.
   F. List any current projects that your lead personnel are currently participating.

3. Ability to meet Project Completion Timeline (15 pts.)

   A. Indicate in a brief paragraph whether your company can meet the project timeline as specified under this RFP.
   B. Provide an overview of the approach and methodology that will be followed to accomplish the project's timeline.
   C. Provide a detail schedule of how the project will be accomplished.

4. Completeness and Thoroughness of Qualifications Package (5 pts.)

   A. RFP submittal packet must be clear, concise, and easy to follow. Provide materials in tabs that correspond with all requested information on the criteria factors.

5. Proposal Cost: Provide on Bid form included in the project specifications (30 pts.)

4. TERMS, CONDITIONS AND AGREEMENTS

1.000 **ANNULMENTS AND RESERVATIONS**:

1.001 Blinn College District reserves the right to reject any and all bids and waive any and all formalities and conditions. The College reserves the right to retain all bids received for 30 days prior to taking any action and vendors shall not withdraw their bid at any time thereafter. Blinn College shall accept the bid determined by the College to be in its best interest. It is not the intent of any condition or specification in the RFB to prohibit any responsible vendor from submitting a bid.

1.002 This Request for Bid is not construed as a CONTRACT or a COMMITMENT of any kind. The request for bid does not commit Blinn College to pay for any costs incurred in the preparation and submission of specifications or for any costs incurred prior to the execution of a final offer.

1.003 Blinn is not obligated to purchase any item or service, if funds are not allocated by the Grant, legislative session, or the Board of Trustees.

2.000 **VENDOR'S OBLIGATIONS:**

2.001 Substitutions will not be allowed after a bid has been submitted for review and will not be delivered instead of the item bid, unless the item is of a higher quality than the item specified and approved by the Director of Purchasing.

2.002 Any item that does not perform or meet the specifications or warranty, or as claimed by the vendor, will be replaced at no cost to the College.

2.003 Any specification a vendor may not agree with must be submitted in writing to the Purchasing Office four (4) days in advance of the bid closing date.

2.004 Prompt payment discounts shall be listed on the bid form.

2.005 In bidding, give complete information in spaces provided; otherwise, your bid offer may not be given consideration. All bid offers must be signed to be considered.

3.000 **AWARD DETERMINATION / OBLIGATIONS BY THE COLLEGE:**

3.001 Blinn College will award this service to the vendor providing the best value as it deems to be in the best interest of the college.

3.002 In determining to whom to award a contract, the district shall consider:

A. the price(s) bid.
B. the quality of the vendor's goods or services.
C. delivery of services in a timely manner.
D. the reputation of the vendor and of the vendor's goods or warranty services.
E. the extent to which the goods or services meet the district's needs.
F. the vendor's past relationship with the district.
G. the total long-term cost to the district to acquire the vendor's goods or services; and
H. any other relevant factor that a private business entity would consider in selecting a vendor.

3.003 The College may make such investigations, as it deems necessary, to determine the ability of the vendor to provide satisfactory performance in accordance with the specifications. The vendor shall furnish to the College all such information and data for this purpose as the College may request.

4.000 **INTERPRETATIONS OF THE SPECIFICATIONS:**

4.001 Only the interpretation or correction so given by the College, in writing, shall be binding and prospective vendors are advised that no other source, outside of the college, is authorized to give information concerning, explain or interpret, the bid document.

4.002 Every request for such interpretation or correction must be in writing to the Director of Purchasing. All such interpretation and supplemental instructions will be in the form of written addenda to the bidding documents prior to the bid opening. Your questions concerning the bid specifications must be submitted in writing. We will return a written answer to your company.

5.000 **DELIVERY:**

5.001 Delivery of equipment and services must be made by the successful vendor to:

Blinn College District
902 College Avenue
Brenham, Texas 77833

5.002 No allowance for loss, breakage, damage, or difficulties shall be made.

6.000 **BILLING AND PAYMENT/DISCOUNTING:**

6.001 All invoices are to be submitted and mailed to:

Blinn College District
902 College Avenue

Brenham, Texas 77833

6.002 Unless otherwise stated on the purchase order, payment will be net thirty (30) days after receipt of a correct invoice. If a cash discount is allowed for prompt payment, please indicate on the invoice. Partial payments may be paid if partial shipments have been made. Any penalty for delayed payment must be stated on the invoice.

7.000 **TAX EXEMPTIONS:**

7.001 Prices Bid SHALL NOT INCLUDE FEDERAL EXCISE OR STATE SALES AND USE TAXES as the COLLEGE is exempt from the payment of these taxes. Exemption Certificates for the Federal Excise Tax and State of Texas Sales Tax will be furnished upon request.

8.000 **PRICE QUOTATIONS:**

8.001 Lump sum price. The unit price shall include all costs of labor, profit, insurance, FOB freight, etc. to make operational and cover all work outlined in the specifications of this project.

8.002 Bids must be submitted on the forms provided to insure complete uniformity of wording of all bids. Bids may be rejected if they show any omissions, alterations in wording, conditional clauses, or irregularities of any kind.

9.000 **RIGHT OF VENDOR SELECTION:**

9.001 You are notified that although the College is required to submit purchases of all contracts of $50,000 to competitive bidding, it is not required to accept the lowest bid. In such purchasing the lowest bid may be rejected if the College, in the exercise of its best judgment, feels that the bid of one other than the low bidder will best serve the interest of the College.

9.002 Blinn College District reserves the right to accept or reject any or all bids in its entirety and/or waive all formalities. This inquiry implies no obligation on the part of the buyer, nor does the buyer' silence imply any acceptance or rejection of any quotation offer.

10.000 **REFERENCES:**

10.001 Please provide educational references in addition to non-educational references.

11.000 **CONFLICT OF INTEREST:**

11.001 No public official shall have interest in this contract, in accordance with Vernon's Texas Codes Annotated, Local Government Code Title 5, Subtitled C, Chapter 171 and Chapter 176.

12.000 **ETHICS:**

12.001 The vendor shall not accept or propose gifts or anything of value nor enter any business arrangement with any employee, official or agent of Blinn.

12.002 House Bill 1295

Effective January 1, 2016, Blinn College shall comply with the "Disclosure of Interested Parties" requirements mandated by HB 1295, as implemented by the Texas Ethics Commission. Briefly stated, contracts for goods or services which require an action vote by Blinn's governing body may not be executed by the college until the awarded vendor presents a signed and notarized form disclosing the interested parties to the contract. The awarded vendor will be required to complete the form prior to execution of the contract. If the awarded vendor does not comply, the award may be revoked. The filing application and information can be accessed at:

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

13.000 **STATE LAW REQUIREMENTS:**

13.001 This agreement will be governed and construed according to the laws of the State of Texas.

VENUE The parties agree that regarding any dispute or litigation that may arise in the execution and performance of this contract, that venue for all proceedings, judicial or otherwise shall be in "Washington County", Texas

13.002 All equipment and services furnished under this contract shall comply with applicable laws, ordinances, and regulations. The bidder shall give all notices and comply with all laws, ordinances, rules, and regulations, and without such notice to the authorized Owner's representative, the bidder shall bear all costs arising there from.

13.003 On May 30, 1995, Governor, George Bush, signed Senate Bill 1. It became effective on the day he signed it. The following is a requirement included in this law. It is mandatory that the College must include this in all Bids. Each vendor must respond to this section of the law.

Section 44.034 TEC. Notification of Criminal History of Contractor. (This section does not apply to a publicly held corporation).

(a) A person or business entity that enters a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony.

The school district must have advance notice that a person, owner, or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

(b) A school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.

13.004 **State of Texas Government Code Chapter 176 –**

Vendors submitting a response to a Blinn College RFB/RFP are responsible for complying with all applicable laws, ordinances and regulations including the provisions of the State of Texas Government Code Chapter 176. As applicable, the person submitting a response to a RFB/RFP must complete and submit a Conflict of Interest Questionnaire form CIQ, in a format approved by the Texas Ethics Commission. This form is to be included with your bid. A copy of the CIQ form can be found at the Texas Ethics Commission Web site.

14.000 **UNIFORM & COMMERCIAL CODE:**

14.001 This writing and subsequent interview information given and forward to the College shall be a sole and final expression of the agreement between the College and the vendor and is intended also as a complete an exclusive statement of the terms of their agreement. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is controlling.

14.002 This agreement shall be governed by the laws of the State of Texas. By submitting a signed bid, the vendor certifies that the company does not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, and certifies that the company complies with equal employment opportunity regulations.

15.000 **ENTIRE AGREEMENT**

15.001 This bid document, the authorized purchase order, and/or a signed contract constitute the entire agreement. No other document will prevail.

16.000 **CANCELLATION**

16.001 Blinn College District shall have the right to cancel for default all or any part of the undelivered portion of this contract if the Awarded Vendor breaches any of the terms hereof including warranties as bid or if the Awarded Vendor becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any remedies which Blinn College District may have in law or equity.

Bidding questions should be referred to:

Ross Schroeder, Director of Purchasing
Blinn College District
902 College Ave
Brenham, TX 77833
(979) 830 4118
e-mail: ross.schroeder@blinn.edu

Felony Conviction Notification

State of Texas Legislative Senate Bill No. 1, Section 44,034, Notification of Criminal History, Subsection (a), states a person or business entity that enters into a contract with a College must give advance notice to the College if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

(I) (We), the undersigned agent for the firm named below, certify that the information concerning notification of felony convictions has been reviewed by me and the following information furnished is true to the best of my knowledge.

COMPANY NAME: _____

AUTHORIZED PRINTED NAME: _____

Title:_____

Check the appropriate box and sign the form.

☐ My firm is a publicly held corporation, therefore, this reporting requirement is not applicable.

AUTHORIZED SIGNATURE:

☐ My firm is not owned nor operated by anyone who has been convicted of a felony.

AUTHORIZED SIGNATURE:

☐ My firm is owned or operated by the following individual(s) who has/have been convicted of a felony.

Name of Felony: _____

Details of Conviction(s) _____

_____

_____

_____

_____

AUTHORIZED SIGNATURE: _____

VENDOR CERTIFICATION FORM

1. Vendor hereby acknowledges that it is unlawful to offer, give, agree to give to any person, or solicit, demand, accept, or agree to accept from another person, a bribe, or unlawful gift, benefit, advantage, gratuity, payment, or an offer of employment in connection with or arising from this RFP or subsequent contract.

2. Persons submitting a response to this RFP must comply with all applicable laws, ordinances and regulations including the provisions of the State of Texas "Local Government Code Chapter 176. As applicable, the person submitting a response to this RFP must complete and submit a Conflict of Interest Questionnaire form CIQ, in a format approved by the Texas Ethics Commission. A copy of the form can be found below or at the Texas Ethics Commission web site http://www.ethics.state.tx.us/forms/CIQ.pdf

3. Texas Resident Information: Chapter 2252, Subchapter A, of the Texas Government Code, establishes certain requirement applicable to proposers who are not Texas Residents. Under the Statute, a "Resident" vendor is one whose principal place of business is in Texas, including one whose ultimate parent company or majority owner has its principal place of business in Texas or employs at least 500 persons in the State of Texas:

   Location of Principal Place of Business (City / State) and or Number of employees based in Texas:
   Address_____

   Or Number of Employees that reside in Texas: _____

4. **Debarment Certification:** Vendor certifies neither the owner or principal owner has been debarred, suspended,

or otherwise made ineligible for participation in Federal Assistance programs under Executive Order 12549 "Debarment and Suspension" as described in the Federal Register and Rules and Regulations:

___ No, Vendor is not currently debarred, suspended or otherwise ineligible.
___ Yes, Vendor is currently debarred, suspended or otherwise ineligible.

5. In accordance with Chapter 2270 of the Texas Government Code, by accepting this contract, you verify that your firm does not Boycott Israel, and agree that during the term of this agreement will not Boycott Israel as that term is defined in the Texas Government Code, Section 808.001 as amended.

6. Texas Government Code, Subchapter F, Prohibition on Contracts with Certain Companies, Section 2252.152, Vendor certifies they do not do business with companies engaged in business with Iran, Sudan, or Foreign Terrorist Organization that is identified on a list prepared and maintained under Section 806.051, 807.051, or 2252.153.

VENDOR CERTIFICATION. The undersigned, on behalf of Vendor, certifies that this proposal is made without previous understanding, agreement or connection with any person, firm, or corporation submitting a proposal on the same project, and is in all respects fair and without collusion, fraud, or unlawful acts.

It is further certified that the person whose signature appears below is legally empowered to bind the Company in whose name the proposal is entered.

Submitted this _____ day of _____, 2024 by and for the Company identified as follows:

Signature: _____

Printed Name:_____

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

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

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

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

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

OFFICE USE ONLY

Date Received

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

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

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

_____

Name of Officer

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

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

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

7

_____ _____

Signature of vendor doing business with the governmental entity Date

DOCUMENT 002600 - PROCUREMENT SUBSTITUTION PROCEDURES

1.1 DEFINITIONS

A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.

B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.3 PROCUREMENT SUBSTITUTIONS

A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.

B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Engineer; otherwise requests will be returned without action:

1. Extensive revisions to the Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
3. The request is fully documented and properly submitted.

1.4 SUBMITTALS

A. Procurement Substitution Request: Submit to Engineer. Procurement Substitution Request must be made in writing in compliance with the following requirements:

1. Requests for substitution of materials and equipment will be considered if received no later than ten (10) days prior to the date of bid opening.
2. Submittal Format: Submit pdf copies of each written Procurement Substitution Request, including the information below.

a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.
b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:

    1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
    2) Copies of current, independent third-party test data of salient product or system characteristics.
    3) Samples where applicable or when requested by Architect.
    4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    6) Research reports, where applicable, evidencing compliance with building code in effect for Project.
    7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.

c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Engineer's Action:

1. Engineer may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Engineer will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Engineer's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

END OF DOCUMENT 002600

DOCUMENT 003119 - EXISTING CONDITION INFORMATION

1.1 EXISTING CONDITION INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. Existing drawings that include information on existing conditions including previous construction at Project site are available for viewing at the office of Owner.

END OF DOCUMENT 003119

DOCUMENT 00411 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

1.1 BID INFORMATION

A. Bidder: _____.

B. Project Name: **Bryan Campus Paving Repairs at Blinn Boulevard**

C. Project Location: **2423 Blinn Blvd. Bryan, TX 77802**

D. Owner: **Blinn College District**

E. Architect: **Bleyl Engineering**

F. Architect Project Number: **13512**

1.2 CERTIFICATIONS AND BASE BID

A. BASE BID – Bryan Campus Paving Repairs at Blinn Boulevard: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Bleyl Engineering and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

1. _____ Dollars ($_____).
2. The above bid amount shall include the sum of Twenty-Eight Thousand Five Hundred Dollars and Zero Cents ($28,500.00) for use as the Owner’s Contingency.
3. Lead time for materials for Base Bid: _____ calendar days
4. Construction Schedule in calendar days to complete project from start of 5/12/2025: _____ calendar days

1.3 ALTERNATE BID ITEMS

A. ALTERNATE BID 1 – Median Construction

B. The amount by which the base bid is changed to furnish and install of curb median with 4” landscape pavers and 2” sand bedding, relocation of stop signs and supports, as indicated in Drawings and Specifications.

1. _____ Dollars ($_____).
2. The above bid amount shall include the sum of Four Thousand Dollars and Zero Cents ($4,000.00) for use as the Owner’s Contingency.

1.4 UNIT PRICES

A. Unit-Price No. 1: Removal of unsatisfactory soil and replacement with satisfactory soil material.

1. _____ Dollars ($_____) per cubic yard.

B. Unit-Price No. 2: Removal of existing concrete/asphalt pavement.

1. _____ Dollars ($_____) per square yard.

C. C. Unit-Price No. 3: Removal of existing concrete curb and gutter.

1. _____ Dollars ($_____) per linear foot.

D. Unit-Price No. 4: Furnish and install 4” Concrete Sidewalk.

1. _____ Dollars ($_____) per square yard.

E. Unit-Price No. 5: Furnish and install 6” Concrete Curb and Gutter.

1. _____ Dollars ($_____) per linear foot.

F. Unit-Price No. 6: Furnish and install concrete pavement.

1. _____ Dollars ($_____) per square yard.

G. Unit-Price No. 7: Furnish and install asphalt pavement.

1. _____ Dollars ($_____) per square yard.

H. Unit-Price No. 8: Furnish and install subgrade with fill.

1. _____ Dollars ($_____) per cubic yard.

I. Unit-Price No. 9: Furnish and install cement treatment of subgrade (7-day, 100 psi).

1. _____ Dollars ($_____) per cubic yard.

J. Unit-Price No. 10: Furnish and install cement stabilized sand backfill.

1. _____ Dollars ($_____) per cubic yard.

1.5 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within (10) ten days after a written Notice of Award, if offered within (60) sixty days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:

1. _____ Dollars ($_____).

B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.6 SUBCONTRACTORS AND SUPPLIERS

A. The following companies shall execute subcontracts for the portions of the Work indicated:

1. Concrete Work: _____.
2. Masonry Work: _____.

1.7 EXTRA WORK FEES

A. The undersigned agrees that for additional work added to the Contract and for extra costs resulting from changes in the work, the allowance for overhead and profit shall be in accordance with the following schedule, but in no case shall it exceed a maximum of 15 percent (Overhead shall include payroll taxes and supervision):

1. For the Contractor, for any work provided by his own forces: 10% of the cost. For the Contractor, for work produced by his subcontractors: 5% of the amount due the subcontractor.

2. The General Contractor shall not be allowed to charge the Owner for “extended overhead” charges relating to change orders or weather delays.

1.8 TIME OF COMPLETION

A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect and shall fully complete the Work by **August 1, 2025**.

1.9 LIQUIDATED DAMAGES

A. The undersigned Bidder agrees to pay Liquidated Damages in the amount of Five Hundred Dollars and Zero Cents ($500.00) per calendar day for failure to complete the work within the contracted time in accordance with the Supplementary Conditions as established in the Contract.

1.10 ACKNOWLEDGEMENT OF ADDENDA

A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated _____.
2. Addendum No. 2, dated _____.
3. Addendum No. 3, dated _____.

1.11 BID SUPPLEMENTS

A. The following supplements are a part of this Bid Form and are attached hereto.
   1. Bid Form Supplement - Bid Bond Form (AIA Document A310).
   2. Bid Form Supplement – Proposed Schedule of Values form (AIA Document G703)

1.12 CONTRACTOR'S LICENSE

A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in City of Bryan, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.13 SUBMISSION OF BID

A. Respectfully submitted this ____ day of _____, 2024.

B. Submitted By:_____(Name of bidding firm or corporation).

C. Authorized Signature:_____(Handwritten signature).

D. Signed By:_____(Type or print name).

E. Title:_____(Owner/Partner/President/Vice President).

F. Witness By:_____(Handwritten signature).

G. Attest:_____(Handwritten signature).

H. By:_____(Type or print name).

I. Title:_____(Corporate Secretary or Assistant Secretary).

J. Street Address:_____.

K. City, State, Zip:_____.

L. Phone:_____.

M. License No.:_____.

N. Federal ID No.:_____(Affix Corporate Seal Here).

END OF DOCUMENT 004113

DOCUMENT 004313 - BID SECURITY FORMS

1.1 BID FORM SUPPLEMENT

A. A completed bid bond form is required to be attached to the Bid Form.

1.2 BID BOND FORM

A. AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.

B. Copies of AIA standard forms may be obtained from The American Institute of Architects; www.aia.org/contractdocs/purchase/index.htm; email: docspurchases@aia.org; (800) 942-7732.

END OF DOCUMENT 004313

DOCUMENT 004373 - PROPOSED SCHEDULE OF VALUES FORM

1.1 BID FORM SUPPLEMENT

A. A completed Proposed Schedule of Values form is required to be attached to the Bid Form.

1.2 PROPOSED SCHEDULE OF VALUES FORM

A. Proposed Schedule of Values Form: Provide a breakdown of the bid amount, including alternates, in enough detail to facilitate continued evaluation of bid. Coordinate with the Project Manual table of contents. Provide multiple line items for principal material and subcontract amounts in excess of five percent (5%) of the Contract Sum.

B. Arrange schedule of values consistent with format of AIA Document G703.

1. Copies of AIA standard forms may be obtained from the American Institute of Architects; http://www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732.

END OF DOCUMENT 004373

SECTION 00 80 00

SUPPLEMENTARY CONDITIONS

1 - GENERAL

1.01 SUPPLEMENTS

A. The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A201, 2017. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provision of the Article, Paragraph, Subparagraph or Clause shall remain in effect.

1.02 REFERENCE TO DIVISION 01

A. With regard to provisions of General Conditions related to project administrative or work related requirements of the Contract, some of those paragraphs are modified or deleted from General Conditions, and are specified in Division 01, "General Requirements" of the Specifications.

ARTICLE 1 - GENERAL PROVISIONS

§ 1.1 Basic Definitions
Add the following new paragraphs:

§ 1.1.9 Product
The term "Product" as used in these Contract Documents includes materials, systems, and equipment.

§ 1.1.10 Provide
The term "provide" as used in this Project Manual means to furnish and install.

§ 1.2 Correlation and Intent of the Contract Documents
Add the following new subparagraphs:

§ 1.2.4 The inter-relation of the Project Manual, the Drawings and the schedules is as follows: The Project Manual determines the quality, nature and setting of the several materials; the Drawings establish the quantities, dimensions and details; and the schedules give the location. The documents are to be considered as one and whatever is called for by any one shall be as binding as if called for by all.

§ 1.2.5 Should the drawings disagree in themselves, or with the Project Manual, or if proprietary information disagrees with performance requirements in either the Drawings or the Project Manual, the better quality or greater quantity of the Work or materials shall be estimated upon, and unless otherwise ordered by the Architect in writing, shall be performed or furnished. Should discrepancies or doubt occur, do not proceed with the Work without clarification from the Architect. Contractor shall request clarification in sufficient time to avoid delays and increases in the contract sum.

Add the following new paragraphs:

§ 1.9 Wage Rates
The contractor shall not pay less than the wage scale of the various classes of labor as published in the Davis Bacon Act for Austin, Fayette, and Washington Counties; and as published by the Texas A&M University System for Brazos County. The specified wage rates are minimum rates only. The owner is not bound to pay any claims for additional compensation made by any contractor because the contractor pays wages in excess of the applicable minimum rate contained in the Contract.

ARTICLE 2 – LAWS GOVERNING CONSTRUCTION

Modify the following paragraphs as follows:

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

Add following paragraphs:

§ 2.6 The Owner qualifies for exemption from certain State and Local Sales and Use Taxes pursuant to the provisions of Tex. Tax Code, Chapter 151. The Contractor may claim exemption from payment of applicable State taxes by complying with such procedures as prescribed by State Comptroller of Public Accounts. Contractor shall not be entitled to reimbursement for taxes paid on items that are exempt from taxation.

ARTICLE 3 - CONTRACTOR

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

Modify the following paragraphs as follows:

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. If a dimensional discrepancy exists, Contractor shall take field measurements required for proper fabrication and installation of work. Upon commencement of any item of work, Contractor shall be responsible for dimensions related to such item of Work and shall make any corrections necessary to make work properly fit at no additional cost to Owner. Before ordering any material or doing any work, Contractor shall verify dimensions and check conditions in order to assure himself that they properly reflect those on the Drawings. Any inconsistency shall be brought to attention of the Architect. In the event that discrepancies occur between ordered material and actual conditions, of which Architect was not notified beforehand, costs to correct such discrepancies shall be borne by Contractor.

§ 3.3 Supervision and Construction Procedures

Add the following new paragraphs:

§ 3.3.4 Supplement as provided in Division 1.

§ 3.4 Labor and Materials

Add the following new paragraph:

§ 3.4.4 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements of the Specifications, Division 1. Refer to Division 01 for supplemental information.

§ 3.5 Warranty
Add the following new paragraphs:

§ 3.5.3 Supplement as provided in Division 01.

§ 3.8 Allowances
Add the following new paragraphs:

§ 3.8.4 Supplement as provided in Division 01.

§ 3.10 Contractor's Construction and Submittal Schedules
Add the following new paragraphs:

§ 3.10.4 Supplement as provided in Division 01.

§ 3.11 Documents and Samples at the Site
Add the following new paragraphs:

§ 3.11.1 Supplement as provided in Division 01.

§ 3.12 Shop Drawings, Product Data and Samples
Add the following new paragraphs:

§ 3.12.11 Supplement as provided in Division 01.

§ 3.13 Use of Site
Add the following new paragraphs:

§ 3.13.1 Supplement as provided in Division 01.

§ 3.14 Cutting and Patching
Add the following new paragraphs:

§ 3.14.3 Supplement as provided in Division 01.

§ 3.15 Cleaning Up
Add the following new paragraphs:

§ 3.15.3 Supplement as provided in Division 01.

§ 3.18 Indemnification
Modify the following paragraphs as follows:

§ 3.18.1 To the fullest extent permitted by applicable law, the Contractor agrees to indemnify, defend and hold harmless Owner, its officers, trustees, agents, employees, and representatives from and against any liability, damages, costs, loss, expenses, claims, actions, proceedings, suits (including attorneys' fees, court costs and other expenses of suit), whether groundless or not, judgements and awards, arising out of, in connection with or related to the performance of Work by Contractor, its employees, any subcontractor, or other person performing services or work on behalf of any of them, including a default by Contractor under the provisions of the Contract Documents or a

failure to obtain or maintain insurance required by the Contract Documents. This indemnification shall apply to, but not be limited to, any damage to property or injury (including death) to person (including any damage or injury to property or person or any employee of the Contractor, its subcontractors, Owner, or the Architect) which may occur or be alleged to have occurred in connection with the performance of this Contract. Contractor shall not be obligated to indemnify any of the indemnified parties against their own negligence; however, to the fullest extent permitted by applicable law, Contractor shall be required to defend the indemnified parties against liability, damages, costs, loss, expenses, claims, actions, proceedings, or suits (including attorneys' fees, court costs and other expenses of suit), whether groundless or not, for the bodily injury or death of an employee of the Contractor, its agent or its subcontractor of any tier, regardless of whether the action giving rise to such liability, damages, costs, loss, expenses, claim, action, proceeding or suit (including attorneys' fees, court costs and other expenses of suit), is founded in whole or in part upon the alleged negligence of one or more parties indemnified hereunder. The Contractor assumes all risk of damage or injury (including death) to the Contractor's own property or person or to the property or person of the Contractor's employees or subcontractors from any cause whatsoever. This indemnification shall survive termination of the Contract or completion by the Contractor of all of its obligations under this Contract, as to events arising prior to such termination or completion.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this section shall not be limited by a limitation on amount or type of damages, insurance, compensation or benefits payable by or for the Contractor or a subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

Add the following new paragraphs:

§ 3.18.3 The provisions of this indemnification and all other indemnification obligations set out in the Contract Documents, shall survive the termination of this Contract, howsoever caused, or completion of the Contract as to events occurring prior to such termination or completion, and no payment, partial payment, nor issuance of a certificate of Substantial Completion nor a certificate of Final Completion nor acceptance or occupancy in whole or in part of the Work shall waive or release any of the provisions of this section or of any other indemnification contained in the Contract Documents.

ARTICLE 4 ARCHITECT

Modify the following paragraphs as follows:

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner.

§ 4.2 Administration of the Contract

Modify the following paragraphs as follows:

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.2 Mutual Responsibility

Add the following new paragraph

§ 6.2.6 Coordinated construction work under this Contract includes, but not be limited to, providing concealed blocking as noted for attachment of separate contract items in locations necessary for the actual items to be installed. Providing proper dimensional coordination of separate contract supplied items for general construction work and trim that is to meet and/or adjoin Furniture, Fixtures, Equipment and Accessories.

§ 6.2.7 It is a requirement of the Contractor's work schedule to provide the cooperation, coordination and exchange of information necessary for a timely execution of separate contract work.

ARTICLE 7 - CHANGES IN THE WORK

§ 7.1 General
Add the following new paragraphs:

§ 7.1.4 Supplement as provided in Division1.

§ 7.1.5 Except as provided in this article, no oral statement, or direction of Architect or Owner shall be treated as a Change Order or entitle Contractor to an adjustment to the Contract Sum or the Contract Time.

§ 7.1.6 Unit prices shall be inclusive of all costs including mark-up for overhead and profit and shall be applied to units of measure as defined in the Contract Documents for each category of Work.

ARTICLE 8 - TIME

§ 8.3 Delays and Extensions of Time
Modify the following paragraphs as follows:

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner ; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

Add the following new paragraphs

§ 8.3.4 Apart from extension of time, no payment or claim for damages shall be made to Contractor as compensation for damages for any ordinary delays or hindrances from any cause whatsoever in the progress of the Work, notwithstanding whether such delay be avoidable or unavoidable.

§ 8.3.5 In order to claim an inclement weather delay day, Contractor must:

.1 Document, in writing, that the weather on the particular day was of such nature (rain, wind, snow, ice, and subsequent resultant effects) that it significantly impacted its ability to make progress on critical path work items. Inclement weather delay days will not be granted for weekends or holidays unless Contractor can demonstrate that it had been and intended to work on these days.

.2 Submit such delay claims on a weekly basis, not more than 7 days following the day of occurrence.

.3 Summarize the number of days claimed for the entire month accompanying each month's application for payment.

ARTICLE 9 - PAYMENTS AND COMPLETION

§ 9.2 Schedule of Values
Add the following new paragraphs:

§ 9.2.1 Supplement as provided in Division 01.

§ 9.3 Applications for Payment
Add the following new subparagraph:

§ 9.3.4 Supplement as provided in Division 01.

§ 9.3.5 Unless otherwise stated in the Owner-Contractor Agreement, the Owner will retain, until Final Payment, Five (5) percent of the amount due the Contractor on account of progress payments, payable 30 days after Substantial Completion and/or satisfactory evidence to the owner that all payments, bills, and claims have been paid.
Add following Sub-subparagraphs:

§ 9.3.6 Monthly Applications for Payment shall include waivers of liens for all work included in previous months' application for payment. Waiver of Liens for subcontractors and materialmen shall be total amount paid prior to previous months' application for payment.

§ 9.5 Decisions to Withhold Certification
Add the following new subparagraph:

§ 9.5.1.8 Failure to submit written plan indicating action by Contractor to regain time schedule for completion of Work within Contract Time.

§ 9.5.1.8 Failure to keep record documents current.

§ 9.8 Substantial Completion
Add the following new paragraphs:

§ 9.8.6 Supplement as provided in Division 01.

§ 9.10 Final Completion and Final Payment
Modify the following paragraphs as follows:

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees. The Contractor shall deliver 4 sets of the following items to the Owner before final payment will be made:

1. Other close-out submittals as specified in Division 01.
2. Project record documents as specified in Division 01.
3. Operations and maintenance data as specified in Division 01.
4. All warranties as required on specific products or portions of the Work, in format outlined in Division 01.
5. Spare parts, overages, and maintenance materials as outlined in Division 1 and described in the various technical sections.
6. Certificates of occupancy.
7. Copies of all inspection tags from authorities having jurisdiction.
8. Executed Certificate of Substantial Completion.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.2 Safety of Persons and Property

Modify the following paragraphs as follows:

§ 10.2.1 The Contractor shall be solely responsible for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

1. employees on the Work and other persons who may be affected thereby;
2. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
3. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

ARTICLE 11 - INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

Add the following new Sub-subparagraphs:

§ 11.1.5 Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises Operations (including X-C-U).
2. Independent Contractor's Protective.
3. Products and Completed Operations.
4. Contractual including specified provisions for the Contractor's obligations under Paragraph 3.18.
5. Broad Form Property Damage including Completed Operations.
6. Personal Injury Liability with Employment Exclusion Deleted.
7. Owner's and Contractor's Protective.
8. Excess Umbrella.

§ 11.1.6 Insurance certificate(s) shall specify Owner as the certificate holder and (except for Workers' Compensation) as an additional insured.

§ 11.1.7 The limits of liability for the insurance shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Contractor's Commercial General Liability:

a.	General Aggregate	$2,000,000
b.	Products – Completed Operations Aggregate	$1,000,000
c.	Personal and Advertising Injury	$1,000,000
d.	Each Occurrence (Bodily Injury and Property Damage)	$1,000,000
e.	Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.	

2.	Automobile Liability – Combined Single Limit		$1,000,000
3.	Workers' Compensation and related coverages:		
	a.	State:	Statutory
	b.	Applicable Federal:	Statutory
	c.	Employer's Liability:	$1,000,000
4.	Excess or Umbrella Liability		
	a.	Per Occurrence	$2,000,000
	b.	General Aggregate	$2,000,000

§ 11.1.8 The Contractor shall provide a Maintenance Bond for the 100% of the value of the contract.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.2 Correction of Work
Modify the following paragraphs as follows:

§ 12.2.2.3 The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law
Modify the following paragraphs as follows:

§ 13.1 Governing Law
The Contract shall be governed by the law of the place where the Project is located.

§ 13.4 Tests and Inspections
Add the following new paragraphs:

§ 13.4.6 Supplement as provided in Division 01.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor
Modify the following paragraphs as follows:

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit.

§ 14.2 Termination by the Owner for Cause
Modify the following paragraphs as follows:

§ 14.2.1 The Owner may terminate the Contract if the Contractor

1. repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
2. fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;
3. repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
4. otherwise is guilty of substantial breach of a provision of the Contract Documents.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims
Delete the following paragraphs:

§ 15.1.7 Waiver of Claims for Consequential Damages – Intentionally deleted

§ 15.2 Initial Decision
Modify the following paragraphs as follows:

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefore; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both.

Delete the following paragraphs:

§ 15.2.6 Intentionally Deleted.

§ 15.2.6.1 Intentionally Deleted.

§ 15.3 Mediation

§ 15.4 Arbitration

END OF SECTION

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Future work.
7. Purchase contracts.
8. Owner-furnished products.
9. Contractor-furnished, Owner-installed products.
10. Access to site.
11. Coordination with occupants.
12. Work restrictions.
13. Specification and drawing conventions.
14. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: **RFP 225: Paving Repairs at Blinn Blvd Entrance at Blinn College in Bryan**..

1. Project Location: **Blinn Blvd Entrance at Blinn College in Bryan, Texas**.

B. Owner: **Blinn College District**.

1. Owner's Representative: Jessica Gaida
902 College Ave.
Brenham, Texas 77833
Phone: 979-830-4467

2. Email: jessica.gaida@blinn.edu

C. Engineer: Bleyl Engineering.

1. Design Engineer: Davd L. Besly, Transportation Department Manager
1722 Broadmoor, Suite 210
Bryan, Texas 77802
Phone: 979-422-1942
Email: dbesly@bleylengineering.com

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The scope of work for the paving repairs project at Blinn Blvd Entrance at Blinn College Campus in Bryan will include the following, as illustrated, and described within the Contract Documents issued by Bleyl Engineering and as outlined in the Bid Form:

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Coordinate with Owner for access to driveways and parking lots as shown in the Traffic Control Plan

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption with Owner.

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

E. Nonsmoking Building: Smoking is not permitted within 25 feet of entrances, operable windows, or outdoor-air intakes.

F. Controlled Substances: Use of controlled substances on Project site is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:
1. Contingency allowances.

1.3 ACTION SUBMITTALS

A. Submit proposals for use of allowances, in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.7 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Contingency Allowance: Include a contingency allowance of $32,500.00 for use according to Owner's written instructions.

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Section 014000 "Quality Requirements" for general testing and inspecting requirements.

1.3 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Section 004113 Bid Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION(Not Used)

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included in Section 004113 Bid Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 012100 "Allowances" for products selected under an allowance.
2. Section 012300 "Alternates" for products selected under an alternate.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within seven business days of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 business days of receipt of request, or seven business days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order.
b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than [**15**] fifteen days prior to time required for preparation and review of related submittals.

1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Engineer will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Engineer.

1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.

i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on written form provided by the Engineer.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
2. Within 5 business days, when not otherwise specified after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use forms acceptable to Engineer.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Engineer.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
2. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
3. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
4. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Engineer at earliest possible date, but no later than five business days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.
b. Name of Engineer.
c. Engineer's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.

4. Round amounts to nearest penny; total shall equal the Contract Sum.

5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment five business days prior to due date for review by Engineer.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit electronically one signed and notarized pdf copies of each Application for Payment to Engineer. Include waivers of lien and similar attachments if required.

1. Transmit with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Schedule of unit prices.
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.

J. Application for Payment at Substantial Completion: After Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.

4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 01 30 00

DIGITAL CONSTRUCTION PICTURES

(Sentences and/or paragraphs that are double underlined indicate revisions that were made from the 2012 specification.)

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Contractor is required to photographically document site conditions prior to the start and during construction operations. Provide monthly, and within one month of the completion of work, photographs, showing the sequence and progress of work, devices, equipment, material and fitting installations.

1.2 MEASUREMENT AND PAYMENT

A. The digital photographs serve as one of the methods of documentation of the work performed each month and the associated monthly invoice will not be processed without them. Photographs shall be provided for unrestricted use by the City.

1.3 SUBMITTALS

A. Take a minimum of 20 digital photographs each week (more may be required to accurately document work). Provide an electronic copy on a CD-R of each photograph taken. Photographs for each month shall be in a separate weekly directory. Submit digital photographs with the monthly invoice on a CD-R, cumulative of all photos to date. Hard copies are not required.

PART 2 – PRODUCTS

N/A

PART 3 – EXECUTION

A. All photos shall be taken with a camera or other device capable of embedding geocoding information for each photograph. All digital photos submitted shall be geocoded. Geo-referencing shall be in the metadata for each digital photograph and shall include the location and directional information for the image. Time and date information shall be correct and contained in the metadata for each image. All prints shall show good details in both shadow and sunlit areas. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software. Provide images in JPG format, produced by digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

B. Alternate Procedure (If Approved By Project Engineer)

Instead of using physical signs in photographs, file names shall include the date, station, and any other descriptive labels required by the Project Engineer. For example, a photograph of a storm sewer curb inlet along Willhelm Dr. at Sta. 9+85, Right could be labeled “20161031_Willhelm 9+85 Rt_Storm.jpg” and a photograph of a sidewalk along E. 29th Street at Sta. 14+50, Right could be labeled “2016-10-31 E 29th St Rt_Sidewalk.jpg”.

END OF SECTION

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Special reports.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Engineer.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

B. Startup construction schedule.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Site Condition Reports: Submit at time of discovery of differing conditions.

G. Special Reports: Submit at time of unusual event.

1.5 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice of Award to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Engineer.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.
5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Tests and inspections.
   b. Adjusting.
   c. Curing.

D. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

F. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of the Notice of Award. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or

effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Engineer's final release or approval.
    g. Scheduled date of fabrication.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the

Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow five business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow five business days for review of each resubmittal.

C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

    a. Project name.
    b. Date.
    c. Name and address of Engineer.
    d. Name of Construction Manager.
    e. Name of Contractor.
    f. Name of firm or entity that prepared submittal.
    g. Names of subcontractor, manufacturer, and supplier.
    h. Category and type of submittal.
    i. Submittal purpose and description.
    j. Specification Section number and title.
    k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    l. Drawing number and detail references, as appropriate.
    m. Location(s) where product is to be installed, as appropriate.
    n. Related physical samples submitted directly.
    o. Indication of full or partial submittal.
    p. Transmittal number.
    q. Submittal and transmittal distribution record.
    r. Other necessary identification.
    s. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

D. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

E. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.

F. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

G. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.

h. Availability and delivery time information.

4. Submit Product Data before or concurrent with Samples.
5. Submit Product Data in the following format:

a. PDF electronic file.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.

D. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

E. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.

J. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

N. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

O. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

P. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

Q. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

R. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads.

Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION

A. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Engineer.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Engineer without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following as applicable:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.

7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

E. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

F. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

    a. Provide test specimens representative of proposed products and construction.
    b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Engineer, with copy to Contractor.

Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Engineer.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
2. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
3. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
4. AI - Asphalt Institute; www.asphaltinstitute.org.
5. AISC - American Institute of Steel Construction; www.aisc.org.
6. AISI - American Iron and Steel Institute; www.steel.org.
7. ANSI - American National Standards Institute; www.ansi.org.
8. API - American Petroleum Institute; www.api.org.
9. ASCE - American Society of Civil Engineers; www.asce.org.
10. ASTM - ASTM International; (American Society for Testing and Materials International); www.astm.org.
11. AWS - American Welding Society; www.aws.org.
12. AWWA - American Water Works Association; www.awwa.org.
13. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
14. CSI - Construction Specifications Institute (The); www.csinet.org.
15. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
16. ICBO - International Conference of Building Officials; (See ICC).
17. ICC - International Code Council; www.iccsafe.org.
18. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
19. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
20. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
21. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
22. IESNA - Illuminating Engineering Society of North America; (See IES).
23. ISO - International Organization for Standardization; www.iso.org.
24. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
25. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
26. NSPE - National Society of Professional Engineers; www.nspe.org.
27. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
28. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
29.

B. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; http://dodssp.daps.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; http://eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeia; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

C. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; http://dodssp.daps.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from Department of Defense Single Stock Point; http://dodssp.daps.dla.mil.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.

6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.

8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Engineer, testing agencies, and authorities having jurisdiction.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS(Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

3.3 SUPPORT FACILITIES INSTALLATION

A. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

B. Parking: Coordinate with Owner to use designated existing parking areas for construction personnel.

C. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Stormwater Control: Comply with the requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal.

B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
2. At Substantial Completion, repair, permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 01 55 26

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Specification includes the general description of the "TRAFFIC CONTROL" and the requirements of that plan. This specification applies to the furnishing of all labor, equipment, and materials and in performing all operations in connection with the "TRAFFIC CONTROL" in accordance with the plans and these specifications.

1.2 MEASUREMENT AND PAYMENT

The work and materials as prescribed by this item will be paid on the following schedule:

A. 50% of the bid value shall be paid when the traffic control plan is fully implemented, and all of the initial traffic control devices have been installed and are in working order.

B. 25% of the value will be prorated for the installation and maintenance of traffic control devices during the course of construction as a percent of the total contract value.

C. 25% will be paid at the completion of construction and all traffic control devices are removed from the site.

1.3 SUBMITTALS

A. The contractor shall submit a "TRAFFIC CONTROL PLAN" or modifications to the plan provided in the construction documents prior to commencing construction. All plans must be in accordance with the Texas Manual of Uniform Traffic Control Devices requirements. No plan may be implemented until approved by the Engineer.

PART 2 – PRODUCTS

N/A

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. The "TRAFFIC CONTROL PLAN" and the installation of all devices should be continuously reviewed and updated to reflect the current stage of construction. The inspector may review minor changes; the engineer shall review major changes. The construction foreman shall provide the current "TRAFFIC CONTROL PLAN" to the inspector upon request on the site at any time during the construction of the project.

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012100 "Allowances" for products selected under an allowance.
2. Section 012300 "Alternates" for products selected under an alternate.
3. Section 012500 "Substitution Procedures" for requests for substitutions.
4. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within five business days of receipt of request, or five business days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
    b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Engineer will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

    a. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

    a. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 01 71 13

MOBILIZATION

PART 1 - GENERAL

1.1 DESCRIPTION:

A. This item shall govern for the establishment of office and other facilities at the project site and the movement of personnel, construction equipment and supplies to the project site or to the vicinity of the project site in order to enable the Contractor to begin work on the other contract items that will be performed by the Contractor. The cost of the payment bond and performance bond on projects that cannot begin because of a closed construction season or for the convenience of the City will be considered part of the mobilization item under this contract.

1.2 MEASUREMENT AND PAYMENT

A. This Item will be measured by the "Lump Sum", as the work progresses.

B. Partial payments of the "Lump Sum" bid for mobilization will be as follows. The adjusted contract amount for construction items as used below is defined as the total contract amount less the lump sum bid for Mobilization.

1. Upon presentation of a paid invoice for the payment bond, performance bond and/or required insurance, the Contractor will be paid that cost from the amount bid for mobilization.
2. When 1% of the adjusted contract amount for construction items is earned, 50% of the mobilization lump sum bid or 5% of the total contract amount, whichever is less, will be paid. Previous payments under this Item will be deducted from this amount.
3. When 5% of the adjusted contract amount for construction items is earned, 75% of the mobilization lump sum bid or 10% of the total contract amount, whichever is less, will be paid. Previous payments under this Item will be deducted from this amount.
4. When 10% of the adjusted contract amount for construction items is earned, 90% of the mobilization lump sum bid or 10% of the total contract amount, whichever is less, will be paid. Previous payments under this Item will be deducted from this amount.
5. Payment for the remainder of the lump sum bid for "Mobilization" will be made on the monthly estimate cycle before the retainage is released .

PART 2 – PRODUCTS

N/A

PART 3 – EXECUTION

N/A

END OF SECTION

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Installation of the Work.
2. Progress cleaning.
3. Starting and adjusting.
4. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS(Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, irrigation lines, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each element of the Work, examine areas and conditions, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Engineer.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the existing features. If discrepancies are discovered, notify Engineer promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

B. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

C. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

D. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

E. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily. Enforce requirements strictly. Dispose of materials lawfully.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 017300 "Execution" for progress cleaning of Project site.
2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 business days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, damage or settlement surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer. Label with manufacturer's name and model number where applicable.
5. Submit test records.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 business days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
3. Complete final cleaning requirements, including touchup painting.
4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 business days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 business days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Engineer.
d. Name of Contractor.
e. Page number.

2. Submit list of incomplete items in PDF electronic file. Engineer will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

PART 2 - PRODUCTS(Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

B. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls.".

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one PDF electronic file set(s) of marked-up record prints.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.

d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Locations and depths of underground utilities.
d. Revisions to routing of piping and conduits.
e. Revisions to electrical circuitry.
f. Duct size and routing.
g. Changes made by Change Order.
h. Field records for variable and concealed conditions.
i. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Engineer for resolution.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Engineer's reference during normal working hours.

END OF SECTION 017839

SECTION 03 30 00

CONCRETE

(Sentences and/or paragraphs that are double underlined indicate revisions that were made from the 2012 specification.)

PART 1 - GENERAL

1.1 DESCRIPTION

A. This specification shall govern for Portland cement concrete to be used in concrete pavement, concrete structures and other concrete construction. All concrete shall be from a NRMCA certified plant and shall comply with ASTM C94 for ready-mixed concrete.

1.2 MEASUREMENT AND PAYMENT

A. In general and unless otherwise specified, no separate payment will be made for concrete as an item. The cost of concrete including all materials and equipment, furnishing and placing all reinforcing steel, and performing all labor for the manufacturing, transporting, placing, finishing, and curing of concrete will be included in the unit price bid for specific items as set forth in the Proposal. Payment will not be made for unauthorized work.

1.3 SUBMITTALS

List of Admixtures proposed
Concrete Mix Designs and three sets of tests on the mix designs submitted
Certification for cement conformance to specification
Test reports for all required concrete tests
Mill report/Certifications for all Reinforcing Bar
Material Data on Control, Expansion and Contraction Joint materials and sealants
Provide a current NRMCA plant certification and current mix designs (with and without admixtures)

PART 2 – PRODUCTS

2.1 MATERIALS

A. PORTLAND CEMENT:

Cement shall be Type I, II or III Portland Cement conforming to ASTM C150, or Type IA, IIA or IIIA, conforming to ASTM C175 except as noted below.

1. Different types of cement, as prescribed above may be used in the same structure, but all cement used in any one monolithic placement shall be of the same type and brand.
2. Type III cement shall not be used when the anticipated air temperature for the succeeding 12 hours will exceed 60° F.

B. FLY ASH:

Fly Ash shall be Type C or F Fly Ash in accordance with ASTM C618. When fly ash is used, "cement" shall be defined as "cement plus fly ash". "Cement plus fly ash" shall be composed of Type I, II or III Portland cement up to 25 percent fly ash by weight of cementitious materials.

C. AGGREGATE:

1. Concrete aggregate shall conform to all requirements of Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges Section 421.2 E 1, 2 and 3, and ASTM C33.
2. The maximum size of aggregate shall not be larger than one-fifth of the narrowest dimension between forms of the member for which concrete is to be used nor larger than three-fourths of the minimum clear spacing between reinforcing bars.

D. WATER:

Water for use in concrete and for curing shall be from municipal supplies approved by the Texas Commission on Environmental Quality and Texas Department of Health or shall have a maximum concentration of 50,000 ppm of total suspended solids according to AASHTO T26 for quality of water and conform to ASTM 1602 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.

E. REINFORCING STEEL:

1. The reinforcing steel shall be Grade 60.
2. Steel reinforcing bars as required, shall be of the type and size as shown on Plans and shall be open hearth new billet steel of structural, intermediate, or hard grade, or shall be rail steel concrete reinforcement bars. All steel shall be bent cold.
3. New billet steel shall conform to the requirements of the Standard Specifications for Billet-Steel Concrete Reinforcement Bars, ASTM Designation A-15.
4. When fabricated steel bar or rod mats are specified, the mats shall meet the current requirements of specifications for Fabricated Steel Bar or Rod Mats for Concrete Reinforcement ASTM Designation A-184.
5. In the event reinforcing bars manufactured outside of the Continental United States or its territories are used, two sets of tests from an independent testing laboratory acceptable to the Engineer shall be submitted showing that the steel meets the ASTM Standards for tensile strength, phosphorus content, bend, deformations and such other requirements outlined in the ASTM Standards for the grade used. These tests shall be made by and independent testing laboratory at the Contractor's expense and shall be submitted for each 25 tons of steel supplied from each individual mill.
6. At the time of placement in the concrete, reinforcing steel shall be free of dirt, loose rust, mill scale, paint, grease, oil or other deleterious materials that would impair the bonding of the concrete to the steel.
7. Reinforcement shall be accurately positioned and, unless otherwise shown or specified, shall be secured against displacement by using at intersection, annealed iron wire of not less than No. 18 gauge or suitable metal clips. It shall be supported by plastic or metal chairs or spacers. In general, reinforcement shall be placed, spliced, lapped, located, etc., in accordance with the recommendations of the Concrete Reinforcement Steel Institute or Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges Section 440.
8. Under no circumstances shall reinforcing steel or dowel bars be “stabbed” into fresh concrete. When reinforcing steel or dowel bars are required to extend beyond the slip-formed surface, holes shall be drilled and the steel shall be epoxyed into place using a pre-approved epoxy.

F. STORAGE OF MATERIALS:

1. All cement, fly ash and mineral filler shall be stored in well-ventilated weatherproof buildings or pre-approved bins, which will protect them from dampness or absorption of moisture.

2. The method of handling and storing concrete aggregates shall prevent contamination with foreign materials. To assure uniform concrete, aggregate stockpiles shall be maintained at reasonably uniform moisture content.

2.2 TESTING REQUIREMENTS

A. CONCRETE QUALITY AND ALLOWABLE STRESSES

1. Concrete Quality:

Concrete mixes will be designed and made in sufficient number to represent the required water-cement ratios. These mixes shall comply with the requirements prescribed for strength and consistency as shown below. The Contractor shall furnish the results on trial mixes from a testing laboratory pre-approved by the Engineer.

Minimum Compressive Strength, psi at 28 days	**Minimum Cement Content Sack/cubic yard**	**Maximum Water Content Gal/sack of cement**	**General Usage**
1,500	3.0	11.0	Riprap
3,000	4.5	6.0	Drilled Pier, Manholes, Headwalls, Sidewalks, Driveways
3,500	5.0	6.0	Concrete Pavement, Curb and Gutters, Inlets
4,000	5.5	5.0	Bridge slab, Culverts

The slump of concrete mixtures shall be within the following limits when measured according to "Test for Slump of Portland Cement Concrete" (ASTM C142). When admixtures are used to increase the workability, the mix design shall indicate the slump before and after its introduction into the mix.

TYPE OF CONSTRUCTION	**MAXIMUM SLUMP (before admixtures)**
Concrete Pavement, Curb and Gutter; Manhole Bases, Inlets, Headwalls	3”
Sidewalks, Thin Walled Sections (9” or less), Driveways	5”
Drilled Piers	7”
Thick Walls; Rip Rap, Bridge Slab, Culverts	By Special Design

B. TESTS ON CONCRETE

1. During the progress of the work, compression test specimens shall be made and cured in accordance with "Standard Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Field" (ASTM C31). Not less than three specimens shall be made for each test, nor less than one test for each 50 cubic yards or fraction thereof of concrete placed or for each day's pour. These tests shall be made by an independent testing laboratory at the Owner's expense.
2. Specimens shall be tested in accordance with "Standard Method of Test for Compressive Strength of Molded Concrete Cylinders" (ASTM C39).
3. The standard age of test shall be 7 days and 28 days.
4. If the average strength of the control cylinders for any portion of the structure falls below the specified compressive strength, the Engineer shall have the right to order changes in the proportions or the cement content for the remaining portion of the structure. If the concrete minimum 28 day strength is not achieved the Engineer shall have the right to order its removal.
5. An air-entraining admixture may be used with Type I, II, or III Portland Cement in lieu of an Air-Entraining Portland Cement. The admixture shall meet the requirements of "Specifications for Air-Entraining Admixtures for Concrete" (ASTM C260). Concrete produced from either Type IA, IIA, or IIIA cement or the use of air-entraining admixtures shall have an air content from 3 to 5 percent when determined by means of the test for air-content, ASTM C231.

C. TEST CYLINDERS

Preparation of test cylinders and tests on concrete cylinders shall be made at the expense of the Owner. The cost of all failed tests shall be charged to the Contractor.

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. PREPARATION OF EQUIPMENT AND PLACE OF DEPOSIT:

1. Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned. All debris shall be removed from the place to be occupied by the concrete.
2. Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Engineer.

B. MIXING OF CONCRETE

1. The concrete shall be mixed until there is a uniform distribution of materials and shall be discharged completely, before the mixer is recharged.

2. For job-mixed concrete, the mixer shall be rotated at a speed recommended by the manufacturer. Mixing shall be continued at least one (1) minute after all materials are in the mixer. Job-mixed concrete shall be rejected and disposed of as directed if not placed as prescribed within thirty (30) minutes after beginning of mixing. Job-mixed concrete is only allowed with written approval from the City Engineer 72-hours prior to the pour.

3. Ready-mixed concrete shall be measured, mixed and delivered in accordance with the requirements set forth in "Standard Specifications for Ready-Mixed Concrete" (ASTM C-94).

C. CONVEYING

1. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of the materials.

2. Equipment for chuting, pumping, and pneumatically conveying concrete shall be of a size and design to insure a continuous flow of the concrete at the delivery point, without separation of the materials.

D. TRANSPORTATION EQUIPMENT

Transportation of concrete mixed completely in a stationary mixer, from the mixer to the point of placement, shall be by truck agitator, or in a truck mixer operating at agitator speed, or in non-agitating equipment conforming to ASTM Standard C-94 except as modified herein. Truck agitators, truck mixers, and non-agitating equipment shall be capable of delivering concrete without segregation in transit. Slump tests of individual samples taken at approximately the one-quarter and three-quarter points of the load during discharge shall not vary by more than 1 inch. Vehicles transporting concrete mixed partially or completely in stationary mixers shall be equipped with discharge chutes or other devices when operating outside of the prepared subgrade, or shall be supplemented by additional transfer equipment capable of discharging or transferring the concrete from the transporting vehicle to its final position in the form without segregation.

E. FACILITIES FOR SAMPLING

Suitable facilities shall be provided for readily obtaining representative samples of aggregate from each of the bins or compartments for test purposes. Suitable facilities shall be provided for obtaining representative samples of concrete for uniformity tests. All necessary platforms, tools, and equipment for obtaining samples shall be furnished by the Contractor.

F. PLACING CONCRETE

1. The Contractor shall give the Engineer a minimum 24 hours advance notice before placing concrete to permit the inspection of forms, reinforcing steel placement and other preparations.

2. Concrete placement will not be permitted when impending weather conditions would impair the quality of the finished work.

3. Transporting Time: The maximum time interval between the addition of cement to the batch and the placing of concrete in the forms shall conform to the requirements below:

Concrete Temp (at point of placement)	**Max Time (No Retarding Agent Minutes)**	**Max Time (with Retarding Agent) Minutes**
Non-Agitated Concrete		
Above 80 F	15	30
80 F and Below	30	45
Agitated Concrete		
Above 90 F	45	75
Above 75 F thru 90 F	60	90
75 F and Below	90	120

4. All forms, sub grade and steel shall be dampened before placement of concrete to assist with retaining moisture in the concrete.

5. Cold Weather Precautions:

   Concrete shall not be placed when the ambient temperature is below 40° F and falling. Concrete may be placed when the ambient temperature is above 35° F and rising, the ambient temperature being taken in the shade and away from artificial heat. Concrete shall not be placed when the forecast predicts 72 continuous hours of temperatures less than 32° F.

   The Contractor shall have available a sufficient supply of pre-approved cotton mats, polyethylene sheeting or other pre-approved covering materials to immediately protect concrete if the air temperature falls to 32° F, or below, before concrete has been in place for less than four (4) hours. Such protection shall remain in place during the period the temperature continues below 32° F, or for a period of not more than five (5) days. Neither salt nor other chemical admixtures shall be added to the concrete to prevent freezing. The Contractor shall be responsible for the quality and strength of concrete under cold weather conditions and any concrete damaged by freezing shall be removed and replaced at the Contractor's expense.

   The surface of all concrete in bents, piers, culvert walls, retaining walls, bottom of slabs, and similar formed concrete shall be maintained at 40° F or above for a period of 72 hours from the time of placements. The temperature of all concrete, including the bottom slabs (footings) of culverts placed on or in the ground, shall be maintained above 32° F for a period of 72 hours from time of placement.

   Protection shall consist of providing additional covering, insulated forms or other means, and if necessary, supplementing such coverings with artificial heating.

6. Warm Weather Precautions

   The following precautions shall be taken in placing, curing, and protecting the concrete when local weather records show that the maximum daily temperature is likely to exceed 95° F. The forms and the subgrade, subbase or base course shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete exceed 95° F when deposited on the subgrade, subbase or base course. The temperature of the concrete shall not exceed 85° F for bridge slabs or in the top slab of direct-traffic culverts. The aggregates and/or mixing water will be cooled as necessary to maintain the concrete temperature within the specified maximum. Concrete shall be placed in the forms continuously and rapidly at a rate of not less than 100 feet of paving lane per hour. The surface of the newly laid pavement shall be kept damp by means of a water fog or mist applied with pre-approved spraying equipment until the pavement is covered by the pre-approved curing medium.

7. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. The deposition shall be at a rate that allows the concrete to be plastic at all times and permits flow readily into the space between the rebar. Retempered concrete shall not be used and concrete shall not have a free fall of more than five (5) feet, except in the case of thin walls such as in culverts or as specified in other items. Any hardened concrete spatter ahead of the plastic concrete shall be removed.

8. Concrete deposition shall be a continuous operation until completed at the panel or section. Cold joints in a monolithic placement shall be avoided. The sequence of successive layers or adjacent portions of concrete shall be such that they can be vibrated into a homogeneous mass with the previously placed concrete. Not more than one (1) hour shall elapse between adjacent or successive placements of concrete.

9. Concrete shall be thoroughly consolidated and vibrated in the forms with pre-approved mechanical vibrators of a type considered in the design of forms.

G. FINISHING

Unless noted otherwise, apply an ordinary surface finish as the final finish to the following exposed surfaces:

- inside and top of inlets,
- inside and top of manholes,
- inside of sewer appurtenances,
- inside of culvert barrels, bottom of bridge slabs between girders and beams, and
- vertical and bottom surfaces of interior concrete beams or girders.

An ordinary surface finish shall be as follows:

- Chip away all loose or broken material to sound concrete where porous, spalled, or honeycombed areas are visible after form removal.
- Repair spalls by saw-cutting and chipping at least 1/2 in. deep, perpendicular to the surface to eliminate feather edges. Repair shallow cavities using a latex adhesive grout, cement mortar, or epoxy mortar as pre-approved. Repair large areas using concrete as directed or pre-approved.

- Clean and fill holes or spalls caused by the removal of form ties, etc., with latex grout, cement grout, or epoxy grout as pre-approved. Fill only the holes. Do not blend the patch with the surrounding concrete. On surfaces to receive a rub finish in accordance with Item 427, "Surface Finishes for Concrete," chip out exposed parts of metals chairs to a depth of 1/2 in. and repair the surface.
- Remove all fins, runs, drips, or mortar from surfaces that will be exposed. Smooth all form marks and chamfer edges by grinding or dry-rubbing.
- Ensure that all repairs are dense, well bonded, and properly cured. Finish exposed large repairs to blend with the surrounding concrete where a higher class of finish is not specified.

Finish of Bridge Slabs and related features shall be in compliance with TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges Section 420.4.

F. CURING

The concrete shall be kept wet by spraying with water after attaining its final set and before removing the forms. Bottom forms supporting floor or roof slabs shall remain in place for not less than seven (7) days. The concrete shall have attained a compressive strength of not less than 2,000 psi prior to removal of bottom forms. All other forms may be removed twenty-four hours after completion of concrete placement, providing the weather has allowed the concrete to attain its final set in less than five (5) hours. The forms shall be left on for forty-eight (48) hours whenever the temperature of the air in the shade during pouring is 90° F or over. Curing shall be continued for five days after placement of concrete. This may be done with wet mats, with two applications of Type I (White in color) Liquid-Membrane-Forming Compound meeting requirements of ASTM C309, or with waterproof curing paper meeting the requirements of ASTM C171.

G. CONSTRUCTION JOINTS

Construction joints will be made only at locations shown on the Plans unless written permission is granted by the Engineer to make additional joints. Unless otherwise required, make construction joints square and normal to the forms. Use bulkheads in the forms for all vertical joints. Thoroughly roughen the top surface of a concrete placement terminating at a horizontal construction joint as soon as practical after initial set is attained. Thoroughly clean the hardened concrete surface of all loose material, laitance, dirt, and foreign matter. The surface is to be dampened just prior to casting of concrete against the joint.

END OF SECTION

SECTION 04 05 12

MORTAR AND GROUT

PART 1 - GENERAL

1.1 DESCRIPTION

A. Mortar and grout where specified and/or shown on the Plans shall conform to this section of the Specifications. Mortar and grout shall be designated by type as set forth. The uses and purposes of said types shall be consistent with the uses and purposes as designated. For grout filling existing lines please refer to SECTION 03 34 00 – GROUT FILL EXISTING LINE.

1.2 MEASUREMENT AND PAYMENT

A. Where mortar and/or grout are measured for payment the unit of measurement will be cubic yards of mortar and/or grout, complete and in place. Payment shall be at the unit price bid in the Proposal. However, unless otherwise specified or directed, mortar and/or grout will not be measured as pay quantities but will be included in the unit price bid for the specific item or items into which they are incorporated as set forth in the bid proposal.

1.3 SUBMITTALS

A. Mix Design

PART 2 – PRODUCTS

2.1 MATERIALS

A. MASONRY MORTAR shall be composed of fine aggregate thoroughly mixed with cement and water. The mixture produced shall be homogeneous with a consistency required for ease of handling and spreading by a trowel.

B. STANDARD GROUT shall have a consistency that will permit flow into the joints, completely filling them.

C. PIPE JOINT MORTAR shall have consistency and workability for use as dictated by accepted practices and/or as required for specific job conditions.

D. NEAT CEMENT GROUT shall be composed of Portland Cement and water mixed to the consistency required for specific job conditions.

2.2 TESTING REQUIRMENTS

Mortar and grout may be rejected for failure to meet any of the requirements of the Specifications, and specifically for:

A. Re-tempered mortar and/or grout.
B. Mortar and grout attaining initial set before use.
C. Improper mixing.
D. Mortar and grout containing frozen aggregates.
E. Mortar and grout subjected to freezing within three (3) days after being placed in the work.

-

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

The proportions by volume or weight of cement, fine aggregate and water shall produce a plastic mixture. The degree of workability shall be consistent with the use to which the mixture is placed, and shall be pre-approved by the Engineer.

A. CEMENT: Cement used in mortar and grout shall be Type I or Type III Portland Cement which shall conform to the current ASTM Designation C-150.

B. FINE AGGREGATE: Fine aggregate to be used in mortar and grout shall consist of sand or a mixture of sands, with or without a mineral filler. The sand or mixture of sands in fine aggregate shall consist of clean, hard, durable, uncoated grains, free from lumps. Fine aggregate shall not contain deleterious substances in excess of the following percentages by weight:

Material removed by decantation	3.0%
Clay lumps	0.5%
Other deleterious substances (such as coal, shale, coated grains, and soft, flaky particles)	2.0%

Fine aggregate shall be free from an excess of harmful salts or alkali. When subjected to the color test for organic impurities the sand or mixture of sands shall not show a color darker than the standard color. The fine aggregate shall be well graded from coarse to fine, and when tested by laboratory methods shall meet the following requirements for percentages by weight:

Retained on 3/8 inch screen	0%
Retained on 1/4 inch screen	0 - 5%
Retained on No. 20 mesh sieve	15 - 50%
Retained on No. 100 mesh sieve	85 - 100%

Combining two sands of different gradations may be the most economical way to meet these specifications. If this is done, each sand shall be separately and accurately measured by volume or weight in such proportions as the Engineer may direct. Sands and mineral filler shall not be mixed prior to batching. Mineral filler and the use of it shall be pre-approved by the Engineer. In no case shall the added amount of mineral filler exceed ten (10) percent of the weight of the fine aggregate. The mineral filler, when tested by laboratory methods, shall meet the following percentages by weight:

Retained on No. 20 mesh sieve	0%
Retained on No. 30 mesh sieve	0 - 5%
Retained on No. 100 mesh sieve	0 - 30%

C. WATER: Water for use in mortar and grout shall be reasonably clean and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances. Water suitable for drinking or ordinary household uses may be considered acceptable for use in mortar and grout.

D. EQUIPMENT

All equipment, tools and machinery used in handling and mixing mortar and grout shall meet the approval of the Engineer. Mortar and grout shall be machine mixed when the amount required justifies machine mixing. Machine mixers shall be of the batch type.

E. MIXING

Mortar and grout shall be mixed only in the quantities required for immediate use. Where machine mixing is indicated or directed, the fine aggregate along with the cement and water shall be measured separately, introduced into the mixer, and mixed for a period of time of not less than one and one-half (1 1/2) minutes. This is the time measured from the entry of the last aggregate into the drum until the discharging of mortar or grout. The required water shall be introduced into the mixing drum during the first fifteen (15) seconds of mixing. The entire contents of the drum shall be discharged before introducing any materials for the succeeding batch. Any hand mixing as pre-approved by the Engineer shall be done in a pre-approved watertight box, and the sequence of mixing operations shall be as follows:

1. The box shall first be filled with the required amount of sand; the sand shall be leveled with the required amount of cement spread uniformly on top of the sand; the materials shall then be dry mixed by turning not less than three (3) times with a mortar hoe; the required amount of water shall then be added and the hoe mixing continued until the batch is of uniform color and consistency.
2. All mortar and grout shall be used within one (1) hour after mixing or before any visible signs of setting become discernible. Retempering of mortar or grout will not be permitted.

The types, uses and proportions of mortar and grout shall be as follows:

TYPES	USES	SACKS OF CEMENT	CUBIC FEET OF FINE AGGREGATE
"A"	Masonry mortar	1	2
"B"	Standard grout	1	3
"C"	Pipe joint mortar	1	1
"D"	Neat cement grout	1	none

F. ADMIXTURES

Lime may be added to increase workability in an amount not to exceed ten (10) percent of the cement content of the masonry mortar. Admixtures for the purposes of curing, accelerating the setting, or lowering the freezing point will not be permitted.

END OF SECTION

SECTION 31 25 13

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of the installation and maintenance of all erosion siltation control devices, wash down areas, or seeding and sodding applications necessary to effectively prevent storm water pollution of adjoining or downstream areas that may occur as a direct or indirect result of the construction of this project. The contractor is responsible for creating and maintaining the storm water pollution prevention plan by utilizing the base sheets and narrative provided in the bid documents. The contractor is also responsible for submitting the Notice of Intent (NOI) and Notice of Termination (NOT) and conducting inspections as required by the Texas Commission on Environmental Quality (TCEQ.) The required forms for these activities are included in the bid documents.

The engineer will provide:

1. Base Sheets for Erosion Control Plan (ECP)
2. The Narrative for the Storm Water Pollution Prevention Plan (SWPPP)

The contractor will generate, submit, and maintain the:

1. ECP
2. SWPPP
3. NOI (if required)
4. NOT (if required)
5.

1.2 MEASUREMENT AND PAYMENT

Erosion and Sediment Control is measured as a lump sum item.

The work and materials as prescribed by this item will be paid on the following schedule:

A. 25% of the bid value shall be paid when the erosion control plan is fully detailed and implemented, the NOI (if required) is submitted to both TCEQ and the City Inspector, and all of the initial erosion control devices have been installed and are in working order.

B. 50% of the value will be prorated for the installation and maintenance of erosion control devices during the course of construction as a percent of the total contract value. If the sediment trapping devices on the site appear to be un-maintained, no payment of this portion of the item shall be paid.

C. 25% will be paid at the completion of construction when the site is stabilized, the NOT is submitted to both TCEQ and the City Inspector and all erosion control devices are removed from the site.

1.3 SUBMITTALS

A. The contractors shall submit the initial erosion control plan along with the NOI (if required) prior to receiving a notice to proceed.

B. If required, the Contractor is responsible for filing a "Notice of Intent" (NOI.) The contractor shall comply with all TCEQ and EPA regulations and pay the filing fees associated with the regulations. Fees associated with these regulations are subsidiary to the bid item Storm Water Prevention. The forms are available at: http://www.tceq.state.tx.us/assets/public/permitting/waterquality/forms/20023.pdf

C. Said NOI must be postmarked two days before construction begins. NOI's and NOT's shall be submitted to the address shown on the forms. It is the Contractor's responsibility to file and provide the owner a copy of the Notice of Termination (NOT) at the completion of the project.

PART 2 – PRODUCTS

N/A

PART 3 – EXECUTION

3.1 GENERAL

A. It is the responsibility of the Contractor to utilize whatever techniques are necessary to address erosion problems as they occur during construction.

B. Siltation control and sediment trapping devices shall be installed prior to site clearing, grading or utility construction operations. All devices should be positioned so as to effectively remove silt from storm water before it leaves the site. Of particular concern, are gravel or stone blankets placed at construction traffic exits and entrances. These controls should be closely monitored to see that they trap sediment before it reaches the existing street and drainage system.

C. Construction activities should be phased to expose a minimum of graded area at one time. Earth exposed by the construction process shall be re-vegetated every two weeks until vegetation is established. Re-vegetation shall require seeding, hydromulching or sodding. Fresh growth of vegetation shall eliminate the need for additional re-vegetation but does not constitute stabilization.

D. Should a construction process remove any portion of the perimeter controls, the controls should be replaced in accordance with the TCEQ guidelines. Prior to the completion of the project, all bare areas shall be re-vegetated with a cellulose fiber hydromulch seeding process or sodded.

E. Siltation control devices placed at storm drain inlets and culverts shall be removed by the Contractor once the site has been stabilized.

3.2 MAINTENANCE AND INSPECTION

A. The contractor shall familiarize himself with the erosion control requirements of TCEQ. The site superintendent, or his representative, shall make a visual inspection of all structural and/or natural controls and newly stabilized areas as required by TCEQ, especially after a rainfall to insure that all controls are maintained and properly functioning. Any damaged controls shall be repaired prior to the end of the work day, including re-seeding and mulching or re-sodding if necessary. All inspections shall be documented with a written report. Reports shall include the effectiveness of erosion control measures, construction activities conducted since the last report and their location. Reports shall be maintained by the Contractor along with the Erosion Control Plan per the TCEQ guidelines.

B. The contractor is responsible for the ECP. The contractor shall continuously update the plan with all changes. Areas already stabilized shall be noted on the plan. All sediment trapping devices shall be installed as soon as practical after the area has been disturbed (never more than 14 days). All sediment trapping devices shall be cleaned when the sediment level reaches 25% capacity. Sediment shall be disposed of by spreading on site or hauling away if not suitable for fill.

C. The Contractor shall be responsible for any and all materials, improvements, and maintenance activities necessary to keep dust, silt, and mud from leaving the work zone, including being tracked by vehicles traveling throughout the zone.

D. Should, in the opinion of the Owner, the Contractor fail to prevent the escape of dust or contain silt and mud within the project, after due notification by the City Representative, Owner forces will be used to clean up those affected areas, and the cost of same will be deducted from the contract.

E. Prior to Substantial Completion, the Contractor shall verify that no dust, silt, or mud exists within the work zone in deposits deeper than two inches (2") as a result of the contractor's containment procedures. Should the Contractor claim final completion without removing such deposits, they will be removed by Owner forces and the cost of which shall be deducted from the contract.

END OF SECTION

SECTION 32 11 16

SUBGRADE PREPARATION AND COMPACTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item shall consist of scarifying, blading and rolling the sub-grade to obtain a uniform texture and a uniform density throughout the required depth as shown on the Plans.

1.2 MEASUREMENT AND PAYMENT

A. When the Contractor thinks the sub-grade is ready for acceptance by the Engineer, he will have field densities performed on the sub-grade at his expense by an independent testing laboratory approved by the Engineer. These tests shall be taken at points directed by the Engineer with a maximum of one test per station of construction. These tests shall be performed by the method outlined in A.S.T.M. Designation D-698, or an equivalent method approved by the Engineer (Balloon Density or Harris Cup). A section will be considered satisfactory as to density when no single test indicates less than 98% Standard ASTM D-698. A written report containing the dry density, the moisture content and location of each in place sample taken shall be submitted to the Engineer.

B. Payment for compacted sub-grade shall be included in the unit price bid for "Concrete Pavement", "Flexible Base" or "Compacted Sand Sub-base" as the case may be. Price will be full compensation for removing excess material, shaping, fine grading and compacting the sub-grade; for furnishing and hauling all materials, blading, shaping, rolling and finishing, and all labor, tools and incidentals necessary to complete the work except roadway excavation. Payment will not be made for unauthorized work.

PART 2 – PRODUCTS

N/A

PART 3 – EXECUTION

3.1 GENERAL

A. The roadbed shall be excavated and shaped in conformity with the typical sections shown on the Plans and to the lines and grades established by the Engineer. The entire roadway cross-section including an area two (2) feet back of the proposed curb line shall be bladed clear of vegetation and scarified as directed by the Engineer. All unstable or otherwise objectionable material shall be removed or broken off to a depth of not less than six (6) inches below the surface of the sub-grade. Holes or depressions resulting from the removal of such material shall be backfilled with suitable material compacted in layers not to exceed six (6) inches. All soft and unstable material and other portions of the sub-grade which will not compact readily or serve the intended purpose shall be removed as directed. No direct payment will be made for such removal, except where each separate spot or area requiring removal exceeds ten (10) cubic yards, in which case measurement and payment will be made as provided in the SECTION 31 23 00 – EXCAVATION AND EMBANKMENT.

B. The sub-grade shall be scarified to the depth shown on the Plans and bladed and compacted in the manner directed in the section on "Finishing and Compaction". The surface of the sub-grade shall be finished to line and grade as established, and be in conformity with the typical sections shown on the Plans. Any deviation in excess of one-half (1/2) inch in cross-section and in a length of sixteen (16) feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping or compacting by sprinkling and rolling. Material excavated in the preparation of the sub-grade shall be disposed of as directed by the Engineer.

3.2 FINISHING AND COMPACTION

A. The sub-grade course, including an area two (2) feet back of the proposed curb line, shall be sprinkled as required and rolled as directed until a uniform compaction and required density is obtained. Compaction of the sub-grade may be done using any of the rolling equipment outlined in SECTION 31 11 29.02 - ROLLING. However, required densities must be met. Should the Engineer feel that too much time is being required to obtain those densities he can require that a heavy pneumatic roller be applied. Rolling shall continue until the sub-grade has been compacted to ninety-eight (98) percent of the Standard Density (A.S.T.M. Method D-698). The allowable deviation from optimum moisture content is 0 to +4%.

B. Rolling shall progress gradually from the sides to the center of the lane under construction, by lapping uniformly each proceeding track by at least twelve (12) inches.

C. After rolling and watering, the sub-grade shall be checked by the use of string line or instrument. All portions that do not conform to the lines and grades as shown on the Plans, shall be scarified for at least six (6) inches and re-compacted to correct elevation.

D. Until the base course or pavement is placed, the sub-grade shall be maintained free from ruts and depressions, in a smooth and compacted condition true to lines and grade and to the density requirements contained herein. All of the Contractor's hauling and other equipment used in such a way as to cause rutting and raveling of the sub-grade shall either be removed from the work or suitable runways or other equivalent means shall be provided to prevent rutting.

E. The Contractor shall be responsible for maintaining and protecting the roadbed for the entire length of the project.

F. During construction, grading of the sub-grade shall be conducted so that the berm of earth or other material does not prevent immediate drainage of water to the side. Ditches and drains along the sub-grade shall be maintained so as to drain effectively.

END OF SECTION

SECTION 32 13 13

CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

This item shall consist of a pavement of Portland cement concrete as herein specified on the prepared base, subbase or subgrade course in conformity with the thickness, typical cross-sections, and to the lines and grades shown on the Plans by the Engineer.

1.2 MEASUREMENT AND PAYMENT

A. Concrete pavement shall be measured by the square yard of surface area of completed and accepted pavement or as shown on the bid documents. When the Plans, Specifications and Proposal required the construction of a "Monolithic Curb" the limits of measurement for concrete pavement shall be from back to back of curb.

B. The work performed and the materials furnished under this item and measured as provided under "Measurement" shall be paid for at the unit price bid per square yard for the thickness indicated in the Proposal. The unit price bid for "Concrete Pavement" shall be full compensation for shaping and fine grading the subgrade, forming, mixing, placing, jointing, finishing and curing all concrete; for furnishing all labor, tools, equipment, materials, and incidentals necessary to complete the work..

1.3 SUBMITTALS

See SECTION 03 30 00 - CONCRETE

Paving Plan

Joint Sealing Compound

Expansion Joint Material

PART 2 – PRODUCTS

2.1 MATERIALS

See SECTION 03 30 00 - CONCRETE

2.2 TESTING REQUIREMENTS

See SECTION 03 30 00 – CONCRETE

PART 3 – EXECUTION

3.1 GRADE CONTROL

The lines and grades shown on the contract drawings for each pavement category of the contract shall be established and maintained by means of line and grade stakes. The finished pavement grade lines and elevations shown on the contract drawings shall be established and controlled at the site of the work by the Contractor in accordance with benchmark elevations furnished by the Owner. The pavements shall be constructed to the indicated thicknesses and elevations. The tolerances permitted in thickness, smoothness, and grades are the normal deviations that may occur in pavement construction under good supervision. However, construction of pavement or any part thereof with intent to use maximum tolerances will not be permitted.

3.2 SUBGRADE, SUBBASE, BASE AND FORMS

A. EQUIPMENT:

1. Subgrade Planer: Subgrade planer mounted on visible rollers riding on the forms or edges or previously constructed slabs shall be provided for shaping the final surface of the subgrade, subbase, or base course. Any power equipment used to pull the subgrade planer shall not produce ruts or indentations in the subgrade, subbase or base course. The subgrade planer shall be equipped with steel cutting edge capable of being accurately adjusted to the required cross section. When the subgrade planer rides on the edges of the surface of previously constructed slabs, the planer shall be provided with rubber-tired rollers to prevent damage to surfaces and edges of the existing concrete.

2. Templates: The Contractor shall provide and operate a scratch template for checking the contour of the subgrade, subbase, or base course. The template or roller is to be mounted with the wheels supported on the side forms or concrete in adjacent lanes. It shall be of such strength and rigidity that under a test made by changing the support to the center the template will not show a deflection of more than 1/8 inch. The template shall be provided with adjustable rods projecting downward to the subgrade at not more than 1-foot intervals. These rods shall be adjusted to the required cross section of the bottom of the slab when the ends of the template are supported on the side forms or concrete in the adjacent lanes. The template shall be checked frequently during use to assure that the rods are in the correct position.

3. Forms: The forms shall be made of metal unless noted. Wood forms may be used on curves having a radius of 150 feet or less, as well as for fillets. Forms shall be equal in depth to the edge thickness of the slab as shown on the drawings. Forms shall be in one piece for the full depth required, except as noted. Where the drawings provide several different slab thicknesses, forms may be built up of metal or wood as provided. Forms may be increased in depth 25 percent by securely bolting or welding to the bottom a tubular metal section of the proper thickness or by securely bolting wood planks to the bottom of the steel form. The tubular metal section or wood planks shall completely cover the under side of the base of the steel form. It shall extend beyond the edge of the base a sufficient distance to provide the necessary stability against movement along the vertical face. The base width of the one-piece form, or built-up form, shall be not less than eight-tenths of the vertical height of the form.

    a.) *Metal Forms:* Metal forms shall be of a cross section and shall be furnished in sections not less than 10 feet in length. Curves having a radius of 150 feet or less the length of the sections shall be 5 feet unless the sections are flexible or curved to the proper radius. Each 10-foot length of form shall be provided with at least three form braces and pin sockets. The number and spacing of the form braces and pin sockets shall be such that the form will be rigidly braced uniformly throughout its length and at the joints between form sections. Lock joints between form sections shall be free from play or movement. Metal forms shall have such strength that when tested as simple beam with a load equal to the weight of the heaviest machine to be used on the forms, the deflection will not exceed 1/8 inch in 10 feet. Forms shall be provided with adequate devices for secure setting to prevent springing, weaving, or settling from the impact and vibrations of the machine. Forms shall be free of warps, bends, or kinks. The top surface of a form shall not vary more than 1/8 inch in 10 feet from a true line. The face of the form shall not vary more than 1/4 inch in 10 feet from a true plane. Forms with battered top surfaces distorted faces or bases shall not be used. They are to be removed from the project site.

b.) *Wood Forms:* Wood forms for curves and fillets shall be made from well-seasoned, surfaced plank or plywood. The wood shall also be straight, free from warp or bend, and not less than 2 inches in nominal thickness. Wood forms shall be furnished in sections approximately 5 feet in length and shall be provided with adequate devices for secure setting to withstand springing, weaving, or settling from the impact and vibration of the placing and finishing operations.

4. Subgrade, Subbase or Base Course: The subgrade, subbase or base course shall be tested as to crown, elevation, and density in advance of setting the forms. The subgrade prior to final planing shall be completed to or above the plane of the typical sections shown on the drawings and the lines and grades established by the drawings or as directed. Any discrepancies shall be corrected in accordance with the requirements for subgrade, subbase or base course construction as specified.

5. Form Setting: After the subgrade, subbase or base course has been prepared as described above, the forms shall be set. The subgrade, subbase, or base course under the forms shall be firm and cut true to grade so that each in place form section will be firmly in contact for its entire length and base width. The form shall be staked into position. The top of the form will conform to the requirements specified for the finished surface of the concrete, and the longitudinal axis of the upstanding leg will not vary more than 1/4 inch from the straight-edge when tested by a 12-foot straight-edge. The length and number of pins in any section shall be sufficient to hold the form at the correct line and grade. Form sections shall be tightly locked together. Conformity to the alignment and grade elevations shown on the drawings shall be checked and necessary corrections made by the Contractor immediately prior to placing the concrete. Forms shall be set well in advance of concrete placement. At least 250 feet of forms and prepared subgrade, subbase or base course shall be provided before concrete placement starts. The forms shall be cleaned and oiled each time before concrete is placed.

6. Subgrade Between Forms: The subgrade, subbase, leveling course or base course shall be free of foreign matter, waste concrete, cement and debris at all times; shall be finished to the required section of the bottom of the pavement as shown on the drawings with specified equipment; shall be tested with a template operated and maintained by the Contractor; shall be maintained in a smooth, compacted condition, in conformity with the required section and established grade until the concrete is in place; shall be wetted down sufficiently in advance to insure a firm, moist, and satisfactory condition when the concrete is placed; shall, if required, be thoroughly wetted down the previous night or not less than 6 hours before placing the concrete; shall not be traversed with equipment or hauling on the prepared surface between forms; in cold weather shall be prepared and protected in a satisfactory condition and entirely free from frost when the concrete is place; and shall not be treated with chemicals to eliminate frost.

7. Form Removal: Forms shall remain in place at least 12 hours after the concrete has been placed. Should weather conditions delay the early-strength gain of the concrete, the forms shall remain in place for a longer period. Forms shall be removed without injuring the concrete. Bars or heavy tools are not to be used against the concrete in removing the forms. Any concrete damaged in form removal will be repaired promptly by the Contractor at no cost to the Owner.

3.3 FINISHING

Finishing operations shall be started immediately after placement of the concrete. The sequence of operations shall be as follows: transverse finishing, longitudinal floating, straight-edge finishing, carpet drag finishing, and finally the edging of joints. The machine method of finishing shall be employed, except that hand methods may be permitted as approved by the engineer. Finishing equipment and tools shall be maintained clean, free from hardened concrete or grout, and in an approved condition.

A. MACHINE FINISHING:

1. Equipment: The transverse and longitudinal finishing machines shall be power driven, be of ample weight and power to produce proper finishing, and be able to withstand the roughest treatment anticipated under job conditions. The transverse-finishing machine shall be designed and operated to strike off, screed, and consolidate the concrete. It shall be equipped with two screeds readily and accurately adjustable for changes in pavement crown and compensation for wear and other causes. The longitudinal - finishing machine shall be provided with a longitudinal float not less than 10 feet in length, readily adjustable to a true plane and properly stiffened to prevent distortion during use. Screed and float adjustments of these machines shall be checked at the start of each day's paving operations and as often as required. Machines that cause frequent delays due to mechanical failure shall be replaced. Finishing machines that ride the edge of a previously constructed slab shall have rubber-tired wheels to prevent damaging the surface and edges of the concrete.

2. Transverse finishing: Concrete, as soon as placed, shall be accurately struck off and screeded to the crown and cross section shown on the drawings. The final surface elevation or grade is to be non-porous when properly consolidated and finished. The finishing machine shall make at least two trips over each area of pavement, and may make one or two additional trips as necessary to properly compact the concrete and produce a surface of uniform texture, as well as true to grade. However, excessive manipulation that brings to the surface an excess of mortar and water will not be permitted. Any equipment that cannot produce the required compaction and surface finish with the indicated number of trips will be considered unsatisfactory. The top of the form or pavement edge upon which the finishing machine travels shall be kept clean by an effective device attached to the machine, and by necessary hand methods. This will insure that the travel of the machine will be maintained true without lift, wobble, or other variation that would affect the precision of the finish.

3. Longitudinal Floating: After completion of finishing with the transverse-finishing machine, the longitudinal mechanical float shall be operated to smooth and finish the pavement to grade. The float shall be operated parallel to the centerline of the pavement with a short, quick motion, and shall travel slowly along the pavement, maintaining contact with the surface at all times. If contact with the surface is not made at all points, additional concrete as required shall be placed and screeded. The float is to be operated over the same area until a satisfactory surface is produced. In advancing the float, each new position shall lap the previous position by not less than one-half the float length.

4. Other Types of Finishing Equipment: Other types of concrete finishing equipment may be used on a trial basis. Such finishing equipment shall be approved by the Engineer before being put into service. The use of equipment that fails to produce approved results when finishing concrete of the quality and consistency required by these specifications shall be discontinued. The concrete shall then be floated and finished with equipment in the manner as specified above.

B. HAND FINISHING: This method shall be employed only under the conditions previously specified, except as otherwise permitted and authorized by the Engineer.

1. Equipment: An approved strike and tamping template and a longitudinal float shall be provided for hand finishing. The template shall be at least 1 foot longer than the pavement width, be equipped with handles, and have edges at least 4 inches wide. The longitudinal float shall be 10 to 16 feet in length, with a cross section of an inverted T made of a 2 X 6 inch or wider plank for the base and a 2 X 8 inch plank for the vertical leg. The float shall be rigid, substantially braced, be able to maintain a plane surface on the bottom of the base, and shall have suitable handles for smooth and effective manipulation from the foot bridges. The bottom edges of the base of the float shall be rounded on a radius not exceeding 3/8 inch. Floats made of metal or a combination of wood and metal may be used provided they conform to the requirements for wood floats.

2. Finishing and Floating: Immediately after placement, concrete shall be struck off and screeded to the crown and cross section shown on the drawing. The consolidated and furnished surface elevation shall be in accordance with the drawings or as specified. The entire surface shall be tamped, and the tamping operation is to be continued until accomplishing the required compaction and reduction of internal and surface voids. Concrete that is inaccessible to the vibrating consolidating equipment shall be consolidated with the aid of hand-manipulated vibrators under provisions of the subparagraph 125.06 (C)"Vibration". Immediately following the final tamping of the surface, the pavement shall be floated longitudinally by hand from bridges resting on the side forms and spanning but not touching the concrete. If contact with the pavement is not made at all points by the float, additional concrete shall be placed as required and screeded, and the float operated until a satisfactory surface has been produced. After a section has been smoothed so that the float maintains contact with the surface of the concrete at all points, the bridges may be moved forward half the length of the float. The operation is to be repeated over the new and previously floated surfaces.

3. Straight-edge Finishing: Minor irregularities and score marks in the pavement surface shall be eliminated by means of long-handled wood floats and straight-edges after the longitudinal floating is completed, but while the concrete is still plastic. When necessary, excess water and laitance shall be removed from the surface transversely by means of a finishing straight-edge. The long-handled floats may be used to smooth and fill in open-textured areas in the pavement surfaces. The final finish shall be made with the straight-edges. The use of long-handled floats shall be held to a minimum as necessary to correct local surface unevenness not corrected by the longitudinal float. Long-handled floats shall not be used to float the entire pavement surface. Straight-edges shall be 12 feet in length and may be operated from bridges and from the side of the pavement. A straight-edge operated from the side of the pavement shall be equipped with a handle 3 feet longer than one-half the width of the pavement. The surface shall then be tested for trueness with a 12-foot straight-edge held in successive positions parallel and at right angles to the centerline of the pavement in contact with the surface. The whole area is to be covered as to detect variations.

The straight-edge shall be advanced along the pavement in successive stages of not more than one-half the length of the straight-edge. Depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. Projections above the required elevation shall also be struck off and refinished. The straight-edge testing and finishing shall continue until the entire surface of the concrete is free from observable departure from the straight-edge, conforms to the required grade and contour and when hardened, will satisfy the surface requirements specified under subparagraph 125.13(B) "Surface Smoothness".

4. Carpet Drag Finishing*:* Use an artificial grass-type carpet having a molded polyethylene pile face with a blade length of 5/8 inch to 1 inch, a minimum weight of 70 ounces/square yard, and a strong, durable, rot-resistant backing material bonded to the facing. The surface of the pavement shall be dragged longitudinally in the direction of the concrete placement with the carpet drag when most of the water glaze or sheen has disappeared and before the concrete becomes non-plastic. The carpet drag should be of sufficient transverse length to span the full width of the pavement being placed and adjustable so that a sufficient longitudinal length of carpet is in contact with the concrete being placed to produce the desired texture. The leading transverse edge of the drag shall be securely fastened to a traveling bridge or a moveable support system. The carpet drag shall be cleaned and changed as required. The dragging shall be carefully done to produce a finished surface having a fine granular or sandy texture without leaving disfiguring marks. The surface of the pavement at joint edges shall be dragged as necessary with a small hand-operated drag following edge tooling. No tool marks of any kind shall be present on the finished surface.

3.4 CONSTRUCTION JOINTS

Construction joints shall be prepared for receiving the next pour by sweeping the surface of the joint clean with a stiff broom or wire brush to remove all laitance. All loose particles and debris shall be removed. The surface is to be dampened just prior to casting of concrete against the joint. Construction joints will be made only at locations shown on the Plans unless written permission is granted by the Engineer to make additional joints.

A. LONGITUDINAL CONSTRUCTION JOINTS: Longitudinal construction joints between paving lanes shall be located as indicated on the drawings. Dowels or keys shall be installed in the longitudinal construction joints as required and in accordance with the indicated details. Metal keyway forms shall be used for forming horizontal keyways. The dimensions of the keyway forms shall not vary more than plus or minus 1/16 inch from the indicated dimensions. The keyway form shall be securely fastened to the concrete form so that it will be at the mid-depth of the pavement within a tolerance of plus or minus 1/8 inch. All longitudinal construction joints shall be edged and subsequently sawed to provide a groove at the top conforming to the indicated details and dimensions.

B. TRANSVERSE CONSTRUCTION JOINTS: Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for 30 minutes or longer. All transverse construction joints in non-reinforced pavements shall be installed in the location of a planned transverse contraction or expansion joint. Transverse construction joints located at planned transverse joints shall be of the doweled type with one end of each dowel painted and greased to permit movement at the joint. These joints shall be edged and subsequently sawed to provide a groove at the top conforming to the indicated details and dimensions. When concrete placing is resumed, the planned joint spacing shall be used beginning with the first regularly scheduled transverse joint.

3.5 EXPANSION JOINTS

Three quarter (3/4) inch expansion joints shall be provided at forty (40) feet on center or of the type, size, and spacing shown on the Plans. The expansion joint materials shall be as shown on the plans or a recycled material, ¾" thick as manufactured by J.D. Russel Co., or approved equal. The joint sealing compound shall be Sonneborn SL-1 or approved equal. Manufacturers' recommendations must be strictly adhered to. Devices used for installing the joints shall be adequate to hold the parts of the joint in proper position while protecting the filler from damage during concreting operation. The devices shall also be removable without permanent detriment to the pavement. Adjacent sections of filler shall be fitted tightly together and held in line to insure continuity. Concrete shall be prevented from entering the expansion space. Any concrete that has flowed into a gap between an expansion joint strip and edge forms of the pavement shall be cut out immediately after removing the forms. Expansion joints shall be formed about structures and features that project through, into, or against the pavement. Joint filler must be of the type, thickness, and width as indicated or directed and installed to form a complete, uniform separation between the structure and pavement.

3.6 CONTRACTION JOINTS

A. Contraction joints shall be provided at twenty (20) feet on center or of the type, size, and spacing shown on the Plans. Contraction joints may be either tooled or sawed but must provide a minimum depth of ¼ of the thickness of the concrete and sealed as shown on the plans or with Sonneborn SL-1 or approved equal. When sawed joints are used, the sawing should begin as soon as the concrete has obtained adequate strength to resist raveling of the joint edges, generally between 4 and 24 hours. The joints must be flushed or blown clean immediately after sawing to keep the residue from setting up.

B. Transverse and longitudinal contraction joints shall be of the weakened-plane or dummy type, and shall be constructed in conformance with the indicated details and dimensions. Longitudinal contraction joints shall be constructed by sawing a groove in the hardened concrete with a power-driven saw. Tie bars in longitudinal contraction joints shall be prepared and placed across joints where indicated in the plans. They shall be correctly aligned and securely held in the proper horizontal and vertical position during the placing and finishing operations to the satisfaction of the Engineer.

1. Sawed Joints: The groove of contraction joints shall be not less than 1/4 inch nor greater than 3/8 inch in width for the entire depth of saw cut shown on the drawings. The upper portion of the groove is to be widened to not less than 3/8 inch nor more than 5/8 inch for a depth of 1/4 of the pavement thickness, plus or minus 1/8 inch, below the pavement surface.

   The time of sawing shall be varied, depending on existing and anticipated weather conditions. Uncontrolled cracking of the pavement shall be prevented. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting the concrete without excessive chipping, spalling, or tearing. The sawed faces of joints will be inspected for undercutting or washing of the concrete due to early sawing. If this action is sufficiently deep to cause structural weakness or excessive cleaning difficulty, as determined by the Engineer, the sawing operation shall be delayed until directed to resume. The sawing operation shall be carried on regardless of weather conditions. The joints shall be sawed at the required spacing consecutively in the sequence of the concrete placement. A chalk line or other suitable guide shall be used to mark the alignment of the joints. The saw cut shall be straight from edge to edge of the pavement and shall not vary more than 1/2 inch from the true joint alignment. Before sawing a

joint, the concrete shall be examined closely for cracks. The joint shall not be sawed if a crack has occurred near the location chosen for a joint. Sawing shall be discontinued when a crack develops ahead of the saw cut.
The surface of pavement cured with membrane-curing compound shall be wetted with water in the region of the intended saw cut prior to sawing to protect the curing membrane from abrasion. Workmen and inspectors shall wear clean, rubber soled footwear, and the number of persons walking on the pavement shall be limited to those actually performing the sawing operation. Immediately after each joint is sawed, the saw cut and adjacent concrete surface shall be thoroughly flushed with water until all waste from sawing is removed from the joint. Any membrane-cured surface damaged during the sawing operations shall be re-sprayed as soon as the free water disappears. The sawing equipment shall be adequate in number of units and power to complete the sawing at the required rate. An ample supply of saw blades shall be available on the job before concrete placement is started. At least one standby sawing unit in good working order shall be available at the job site at all times during the sawing operations.

2. Dowels and Tie Bars*:* Dowels and tie bars shall be prepared and placed across joints where indicated. They are to be correctly aligned, and securely held in the proper horizontal and vertical position during the placing and finishing operations. Dowels shall be placed by the bonded-in-place method. The portion of the dowel inside the form shall be the bonded end. Dowels may be cut to length at the mill or shop by shearing in lieu of sawing, provided the deformation from true shape caused by shearing does not exceed the diameter of the bar by more than 0.04 inch and provided such deformation does not extend more than 0.04 inch from the end of the dowel. Dowels shall be clean, straight, and cut true to length with ends square and free from burs.

   In longitudinal and transverse construction joints, threaded split dowels may be used in lieu of one-piece dowels. The assembled split dowels shall have a length and diameter at least equal to that of a one-piece dowel of the required size. The screw-threaded portions of split dowels shall have a pitch diameter at least equal to the diameter of the one-piece dowel of the required size. The sleeve connector shall be of such length that when the split dowel is assembled the entire screw-threaded portions of the dowel are encased by the sleeve with dowel ends butting each other. Dowels in longitudinal and transverse construction joints shall be held securely in place by means of devices fastened to the forms.

   Dowels and tie bars installed within the paving lane shall be held securely in position by means of rigid metal frames or basket assemblies. The assemblies shall consist of a framework of metal bars or wires arranged to provide rigid support for the dowels and tie bars throughout the paving operation. The assemblies shall also have a minimum of four transverse bars or wires, one of which shall be at or near each end of the dowel or tie bars with one for each end of the dowel bar at or near the subgrade. The dowels shall be welded to the assembly or held firmly by mechanical locking arrangements that will prevent the dowels from rising, sliding out, or becoming distorted under paving operations. The wires shall not be used as locking devices. The dowel-holding devices shall be held securely in the proper location by means of suitable pins or anchors. Dowels in longitudinal and transverse construction joints shall be held securely in place parallel to the surface and within 1/2 dowel diameter of the center of the slab depth. Dowels in expansion joints and tie bars installed within the paving lane shall be held securely in place with the center of the dowel or tie bar within 1/8 inch of the center of the slab depth.

The spacing of dowels in longitudinal construction joints shall be as indicated except where the planned spacing cannot be maintained due to form length or interference with form braces. Spacing shall be closer with additional dowels. Dowels in longitudinal joints shall be omitted when the center of the dowel would be located within a horizontal distance from a transverse joint equal to 1/4 of the slab thickness. The method used in holding dowels in position shall be accurate to detect errors in alignment of any dowel from its required position after the finished pavement. There shall not be an angle greater than one whose tangent is 1/96. The Contractor shall furnish a template for checking the position of the dowels.

The portion of each dowel intended to move within the concrete or expansion cap shall be coated with a thin film of grease or other approved de-bonding material. Provide dowel caps on the lubricated end of each dowel bar used in an expansion joint. Provide dowel caps filled with a soft compressive material with enough range to allow complete closure of the expansion joint.

3.7 LONGITUDINAL JOINTS

Longitudinal joints may be provided to assist in grade control or of the type, size, and frequency shown on the Plans. The longitudinal joint shall consist of a steel keyway or as shown on the plans. Manufacturer's recommendations must be strictly adhered to.

3.8 PAVEMENT PROTECTION:

The Contractor shall protect the paving against all damage prior to final acceptance of the work by the Owner. Traffic shall be excluded from the pavement by erecting and maintaining barricades and signs until the concrete is at least 3 days old or for a longer period if so directed. As a construction expedient in paving intermediate lanes between newly paved lanes, operation of the paving mixer and batch-hauling equipment will be permitted on the pavement after the pavement has been cured for seven days and the joints have been sealed or otherwise protected. Also, the subgrade planer, concrete finishing machines, and similar equipment may be permitted to ride upon the edges of the previously constructed slabs provided the concrete is more than 72 hours old and has attained a minimum flexural strength of 450 psi or a compressive strength of 2,800 psi. Additional protection to the slab edge may be required to prevent damage. The pavement carrying traffic or equipment shall be kept clean. All spillage of materials on concrete shall be cleaned up immediately upon occurrence, at no cost to the Owner.

3.9 PLAN GRADE AND SURFACE-SMOOTHNESS REQUIREMENTS:

The finished surfaces of all pavements shall conform to the grade line and elevations shown on the contract drawings and the surface-smoothness requirements:

A. PLAN GRADE: The finished surfaces of all pavements shall conform, within the tolerances specified and to the lines, grades, and cross sections shown on the contract drawings. The finished surfaces of the pavements shall not vary more than 0.04 foot above or below the plan-grade line or elevation established and approved at the site of the work. The finished surfaces of new abutting pavements shall coincide at their juncture. An approved transition pavement strip of the type and width shown on the drawings or as directed shall be installed where a new pavement abuts an existing pavement to provide the required and satisfactory pavement surface at the juncture of the new and existing pavements. Further, the 0.04 foot deviation from the approved grade line and elevation will not be permitted in any area of these pavements where closer conformance with planned grade and elevation is required for the proper functioning of any and all applicable structures.

B. SURFACE SMOOTHNESS: The finished surfaces of all pavements shall not deviate from the testing edge of an approved 12-foot straight-edge more than the tolerance shown for the respective pavement category of Table 350-1. In no instance shall the tolerance exceed more than 1/16 of an inch per foot.

TABLE 350-1

Pavement Category	Direction of Testing	Tolerances
Pavements having cross slopes of 1% or less	Longitudinal Transverse	1/8 inch 3/16 inch
Pavements having cross slopes greater than 1%	Longitudinal Transverse	1/8 inch 1/4 inch

C. EQUIPMENT: The Contractor shall furnish and maintain at the site one straight-edge in good condition for each longitudinal finishing machine for use by the Owner in testing the hardened portland-cement-concrete surfaces. These straight-edges shall be constructed of aluminum or other approved lightweight metal. They shall have blades with a box or box-girder cross-section with a flat bottom, adequately reinforced to insure rigidity and accuracy. Straight-edges shall be equipped with handles for operation on the pavement. The Contractor shall furnish and maintain at the site devices other than straight-edges, if approved, for surface-smoothness determinations. There shall be one such device for each longitudinal finishing machine for use by the Owner.

3.10 CURING

See SECTION 03 30 00 - CONCRETE

END OF SECTION

SECTION 32 13 16

CONCRETE PAVERS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item shall consist of the placement of a sand laying course on an approved subgrade or base and the installation of interlocking concrete pavers in the quality, shape, thickness and color specified.

1.2 MEASUREMENT AND PAYMENT

A. Accepted work performed as prescribed by this item will be measured by the square foot of surface area.

B. The work performed by this item will be paid for at the unit price bid for "Concrete Pavers" which price shall be full compensation for preparing the subgrade, placement of base course, placement of lateral restraint curb, installation of concrete pavers on a sand laying course and for furnishing all materials, labor, tools, equipment and incidentals necessary to complete the work.

1.3 QUALITY ASSURANCE

A. Manufacturer: Company specializing in the manufacturing of solid concrete interlocking pavers for a minimum of four (4) years.

B. Installer: Company specializing in the installation of solid concrete interlocking pavers with three (3) years documented experience (and accredited by the manufacturer in relation to the paver type and project requirements).

PART 2 – PRODUCTS

2.1 MATERIALS

A. Pavers shall be solid concrete interlocking paving units complying with ASTM Designation C936.

1. The stone's thickness shall be 80 millimeters in all areas or as shown on the plans.
2. Contractor shall submit color samples for City selection prior to any construction activity relative to this item. Color shall be "River Red" or as shown on the plans.
3. Cementious Material: Portland cement shall conform to ASTM Specification C-150.
4. Aggregates shall conform to ASTM Specification C-33 for Normal Weight Concrete Aggregate (no expanded shale or lightweight aggregates) except that grading requirements shall not necessarily apply.
5. Other Constituents: Coloring pigments, air-intraining agents, integral water repellants, finely ground silica, etc., shall conform to ASTM standards where applicable, or shall be previously established as suitable for use in concrete.
6. Compressive Strength – At the time of delivery to the work site, the average compressive strength shall not be less than 8,000 psi with no individual unit strength less than 7,200 psi, with testing procedures in accordance with ASTM Standard C-140.

7. Absorption – The average absorption shall not be greater than 5% with no individual unit absorption greater than 7%.

8. Proven Field Performance – Satisfying field performance is indicated when units smaller in composition, and made with the same manufacturing equipment as those to be supplied to the purchaser, do not exhibit objectionable deterioration after at least one (1) year.

9. All units shall be sound and free of defects that would interfere with the proper placing of unit or impair the strength or performance of the construction. Minor cracks incidental to the usual methods of handling in shipment and delivery, shall not be deemed ground for rejection.

10. The purchaser or his authorized representative shall be accorded proper facilities to inspect and sample the units at the place of manufacture from lots ready for delivery.

11. Sample and test units in accordance with ASTM Method C-140.

    a.) Manufacturer shall provide a minimum of three (3) years testing backup data showing manufactured products that meet and exceed ASTM 936-82 when tested in compliance with ASTM C-140.

    b.) Sampling shall be random with a minimum of nine (9) specimens per 20,000 sq.ft. per product shape and size, with repeated samples taken every additional 20,000 sq.ft or fraction thereof.

    c.) Test units in accordance with ASTM for compressive strength, absorption and dimensional tolerance. A minimum of three (3) specimens per test required for average value.

12. Rejection – In case the shipment fails to conform to the specified requirements, manufacturer may sort it, and new test units shall be selected at random by the purchaser from the retained lot and tested at the expense of the manufacturer. In case the second set of test units fails to conform to the specified requirements, the entire lot shall be rejected.

13. Expense of Tests – The expense of inspection and testing shall be borne by the Contractor unless otherwise agreed.

B. SAND LAYING COURSE: the sand laying course shall be well-graded, clean, washed, sharp sand with 100% passing a 3/8" sieve size and a maximum 2% passing a No. 200 sieve size. Use concrete sand or similar. **DO NOT USE MASON SAND OR LIMESTONE SCREENING**. The sand shall contain no more than 10% of acid soluble material. The sand laying course is the responsibility of the paving stone installer.

C. EDGE RESTRAINT: All edges of the installed pavers shall be restrained. The type of edge restraint shall be approved at locations and to details noted on plans.

D. BASE COURSE: The material shall consist of reinforced concrete placed on a stabilized subgrade as detailed in the plans.

E. JOINT FILLING SAND: The joint filling sand shall be graded, clean, washed sand with 100% passing the No. 16 sieve size and a maximum of 5-10% passing the No. 200 sieve size. The sand shall contain no more than 10% of acid soluble material.

PART 3 – EXECUTION

3.1 GENERAL

A suitable base shall be prepared as specified and detailed in the construction drawings. The base course shall be shaped to grade and the cross section with an allowable tolerance of 0-1/4" (relative to specified dimensions below finish design elevation with a 10-foot straight edge).

A. The Contractor shall inspect and approve the finished base course prior to placement of the sand laying course.

B. The un-compacted sand laying course shall be spread evenly over the area to be paved and then screeded to a level that will produce 1" (26mm) thickness when the paving stones have been placed and vibrated. Provide the proper level of sand such that the final elevation of paving stones will be nominally ¼" to 3/8" higher than adjacent curb, gutters, other paving, to allow for free drainage from chambers or block edges any minor settling that may occur within the base.

C. Once screeded and leveled to the desired elevation, the sand laying course shall not be disturbed in any way.

D. Placement

1. The pavers shall be placed in the approved pattern as noted or shown on the drawings. (Herringbone pattern is recommended for vehicular traffic.)
2. The pavers shall be placed in such a manner that the desired pattern is maintained and the joints between the pavers are nominally 1/8" with no individual gap exceeding 3/16".
3. Use string lines to hold all patterns true. Lines shall not deviate more than ± ½ of an inch in 100 linear feet.
4. The gaps at the edge of the paver surface shall be filled with standard pavers or with pavers cut to fit. No pavers shall be installed which are less than ½ of the original unit's surface area.
5. The cutting of pavers, using a double headed breaker or a masonry saw shall leave a maximum ¼" underbite.
6. The finished elevation of pavers shall not deviate more than ¼" within a 10' straight edge.
7. When cutting precision designed areas, as directed by the engineer, a masonry saw shall be used.
8. Pavers to be alternately selected from at least three (3) pallets, working from top to bottom of each pallet stack.
9. Pavers shall be vibrated into the sand laying course using a vibrator capable of 3,000 to 5,000 pounds compaction force with the surface clean and the joints open.
10. After vibration, washed sand shall be spread over the paver stone surface, allowed to dry, and vibrated into the joints with additional vibrator passes and brushing so as to completely fill the joints.
11. Surplus material shall be swept from the surface. (Or left on the surface during construction to insure complete filling of the joints during initial use. This sand may also provide surface protection from construction debris.)

12. Upon completion of work covered in this section, the contractor shall clean up all work by removing all debris, surplus material, and equipment from the site.
13. The re-sanding as necessary of paver joints shall be provided by Contractor for a period of 90 days after completion of work.

END OF SECTION

SECTION 32 16 13

CONCRETE CURB AND GUTTER

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item shall consist of Reinforced CONCRETE CURB AND GUTTER constructed on approved subgrade in conformity with the lines and grades established by the City Engineer. CONCRETE CURB AND GUTTER shall also be in accordance with the standard section, specifications and ordinances for sidewalks adopted by the city in which CONCRETE CURB AND GUTTER is to be placed.

1.2 MEASUREMENT AND PAYMENT

A. Concrete curb and gutter shall be measured by the linear foot of length when complete and in place.

B. The work performed and the materials furnished and measured shall be paid for at the contract unit price bid for concrete curb and gutter. This shall include full compensation of all materials, labor, tools, equipment and incidentals necessary to complete the work. Payment will not be made for unauthorized work.

1.3 SUBMITTALS

See SECTION 03 30 00 - CONCRETE.

PART 2 – PRODUCTS

2.1 MATERIALS

This item shall consist of a mixture of reinforcing steel, coarse aggregate, fine aggregate, cement and water. The mixture shall conform to SECTION 03 30 00 - CONCRETE.

2.2 TESTING REQUIREMENTS

See SECTION 03 30 00 - CONCRETE.

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. CONVENTIONALLY FORMED CONCRETE: Shape and compact subgrade, foundation, or pavement surface to the line, grade and cross section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement. Pour concrete into forms, and strike off with a template ¼ to 3/8 inches less than the dimensions of the finished curb unless otherwise approved. After initial set, plaster surface with mortar consisting of 1 part hydraulic cement and 2 parts fine aggregate. Brush exposed surfaces to a uniform texture.

B. EXTRUDED OR SLIP FORMED CONCRETE: Hand tamp and sprinkle subgrade or foundation material before concrete placement. Provide clean surfaces for concrete placement. If required, coat cleaned surfaces with approved adhesive or coating at the rate of application shown on the plans or as directed. Place concrete with approved self-propelled equipment. The forming tube of the extrusion machine or the form of the slip form machine must be easily adjustable vertically during the forward motion of the machine to provide variable heights necessary to conform to the established grade line. Attach a pointer or gauge to the machine so that a continual comparison can be made between the extruded or slip form work and the grade guideline. Other methods may be used when approved. Finish surfaces immediately after extrusion or slip forming.

C. JOINTS: Unless otherwise shown on the plans, the walk shall be cut transversely with a jointing tool every ten (10) feet after the concrete has been thoroughly worked and has sufficiently set. Expansion joints shall be located every forty (40) feet.

D. CURING: After the finished concrete has sufficiently set, it shall be covered with burlap and kept wet for a period of four (4) days. As an alternate the concrete may be cured by the application of a clear membrane seal coat that will retain 85% of the original mixing water at the end of three (3) days.

E. CLEANUP: After the construction work has been completed, the Contractor shall remove all debris, trash, excess materials, forms, stakes, empty sacks, etc. occasioned by his work from the premises. The site shall be left with a neat appearance. All excavation shall be backfilled and all excess excavated materials shall be disposed of.

END OF SECTION

SECTION 33 05 13

ADJUSTING MANHOLES AND INLETS

1 - GENERAL

1.01 SUMMARY

A. This Section shall govern for the furnishing of materials and for adjusting, abandoning or capping existing sewer manholes, inlets, or cleanouts where required by the plans. Manholes and inlets shall be adjusted to positions and/or elevations as shown on the plans or as ordered by the Engineer and in accordance with theses specifications. Subject to the approval of the Engineer, prefabricated steel extension rings may be furnished for the adjustment of manholes.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement
Manholes or inlets adjusted, abandoned, or capped as prescribed above, will be measured by the unit of each manhole or inlet adjusted.

B. Payment
Each manhole or inlet adjusted, measured as prescribed above, complete in accordance with these specifications, will be paid for at the unit price bid for "Adjusting Manholes", "Adjusting Inlets", or "Adjusting Manholes and Inlets", as the case may be, which price shall be full compensation for furnishing all required materials, including backfill as required, excavation, tools, labor, equipment and incidentals required to complete the work.

2 - PRODUCTS

2.01 GENERAL

A. Reuse manhole or inlet rings, plates, grates, and covers and brick in good condition, removed from the manholes and inlets.

B. Additional materials required shall conform to the pertinent provisions for those materials of the Item "Manholes" or the Item "Inlets".

C. Prefabricated, steel rings shall conform to ASTM A36, or equal.

3 - EXECUTION

3.01 PREPARATION

A. Carefully remove manhole or inlet rings, covers, plates, and grates and clean the contact areas of all mortar and grease. Rings, covers, plates or grates broken in the process of removal and cleaning shall be replaced in kind, by the Contractor, at his expense.

3.02 PREFABRICATED STEEL EXTENSION RINGS

A. Provide prefabricated steel extension rings of either the one-piece or two-piece type, as necessary, for the amount of adjustment. Install in accordance with the manufacturer's instructions.

3.03 BRICK ADJUSTMENT OR PRECAST RING ADJUSTMENT

A. Selection

1. Brick adjustment may only be used for existing brick storm sewers.

2. Pre-cast adjustment rings are required for sanitary sewers, and concrete storm sewers.

B. Lowering

1. Remove a sufficient depth of concrete or brick courses to permit reconstruction on a batter not exceeding 1-inch horizontal to 2-inches vertical.
2. In the case of brickwork, clean the mortar from the top course of brick remaining in place and from all brick to be re-used.
3. Rebuild the manhole or inlet to the original top dimensions.
4. Install the manhole or inlet ring, cover, plate or grate with the top conforming to the proposed new surface of street or grading as the case may be.

C. Raising

1. Clean the top surface of concrete.
2. Construct to the proper new elevation using prefabricated metal extension rings, concrete rings, or Class "C" concrete.
3. In the case of brickwork clean the top course of brick of mortar and build up vertically to the new elevation using new brick, brick salvaged from other manhole or inlet adjustments, or Class "C" concrete.,
4. Install the manhole or inlet ring, cover, plate or grate with the top conforming to the proposed new surface of street or grading as the case may be.

3.04 ABANDONMENT

A. Remove the inlet or manhole to a minimum of one foot below subgrade elevation, or as indicated on the Drawings and cap. Backfill from the flow line to subgrade with special sewer backfill.

3.05 EXCAVATION AND BACKFILL

A. Excavation and backfill shall conform to the Section "Construction of Underground Utilities".

END OF SECTION

SECTION 33 40 03

STANDARD STORM SEWER INLETS

(Sentences and/or paragraphs that are double underlined indicate revisions that were made from the 2012 specification.)

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item shall include Reinforced Concrete Standard Storm Sewer Inlets, which shall be constructed in true conformity with lines, grades, dimensions and designs as shown on the Plans and Standard Detail Sheet and in accordance with this Specification.

1.2 MEASUREMENT AND PAYMENT

A. This item shall be measured and payment will be made at the unit price bid for each in the Proposal for each Standard Storm Sewer Inlet based upon length of opening. Such payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals necessary to complete the work, including excavation, forming, reinforcing steel, furnishing and placing concrete, covers, appurtenances, etc. Payment shall not be made for unauthorized work.

1.3 SUBMITTALS

A. Manufacturers cut sheet for inlet and covers.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Concrete shall be 3500 psi reinforced concrete.

B. Manhole Rings and Covers

The standard rings and covers (V-1432-3) and storm plate (V-7001PL2) shall be manufactured by East Jordan Iron Works (or approved equal with approval of City Engineer.)

2.2 TESTING REQUIREMENTS

Concrete test results shall be furnished in accordance with SECTION 03 30 00 – CONCRETE.

PART 3 – EXECUTION

3.1 GENERAL

A. This construction of reinforced concrete inlets shall be in accordance with standard procedure and shall conform to the location, line, grade, dimension and detail as shown on the Plans and/or directed by the Engineer. All inlets shall be cast in place unless approved by the City Engineer in writing. All excavation, forming and placing of reinforcing steel shall be approved by the Engineer before any concrete is placed. All backfill for inlets shall be in accordance with the Plans.

END OF SECTION

SECTION 34 41 13

SIGNAGE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide all products, equipment, transportation, protection and labor required to construct and install warning, regulatory, directional, entrance and information signage, including sign posts and associated hardware, as shown on the plans, or as directed by the City.

1.2 MEASUREMENT AND PAYMENT

A. Signage will be paid for per each unit sign. All sign components (substrate, sheeting, post, support, mounting hardware, etc.) will not be measured or paid for directly but will be subsidiary to each unit sign. This compensation shall include all labor, materials, equipment and incidentals necessary to complete the work. The signage to be installed includes warning, regulatory, directional, entrance and information types.

1.3 SUBMITTALS

A. Shop Drawings: Show shop drawings, not necessarily to scale, but sufficient enough in detail to show color, wording, lettering size and style, overall sign size, construction details and installation details for each type of sign.

PART 2 - PRODUCTS

2.1 SIGN SUBSTRATE

A. Sign substrate (except street name signs) shall meet requirements for ASTM B 209 and have the following thicknesses: 0.080" for signs less than 7.5 sq. feet, 0.100" for signs 7.5 to 15 sq. feet, and 0.125" for signs greater than 15 sq. feet.

B. For street name signs in the areas governed by the City of College Station, contact the city's Planning and Development Services Department for the requirements and standards.

C. In the City of Bryan, all street name signs shall be green unless otherwise specified or located within the bounds of Sims Street to the east, Texas Avenue to the west, Martin Luther King Boulevard to the north, and E. 29th Street to the south, where street name signs shall be brown and include the Downtown Bryan logo as provided by the City of Bryan Traffic Department.

2.2 SIGN SHEETING

A. All sign sheeting materials shall meet the requirements of ASTM D 4956 Type, as follows:

1. Red background – ASTM Type VII, VIII, IX, or X (or TxDOT Type D), with ASTM Type III or IV (TxDOT Type C) legend/border
2. White background – ASTM Type III or IV (TxDOT Type C), with black acrylic legend/border
3. Fluorescent Yellow-Green background – ASTM Type VII, VIII, IX, or X (TxDOT Type E), with black acrylic legend/border (school-related warning signs)
4. Green, Brown, Blue backgrounds – ASTM Type III or IV (TxDOT Type C), with white ASTM Type VII, VIII, IX, or X (TxDOT Type D) legend/border

2.3 SIGN POST

A. All sign posts shall be 13 BWG galvanized steel tubing (as per ASTM 123 or ASTM A653 G210), and have 2.375" outside diameter and 0.095" nominal wall thickness. In the City of Bryan, posts shall be black powder-coated when specified and in the City of College Station, posts shall always be bronze powder-coated. Painted or spliced posts are not acceptable. Posts shall be seamless steel tubing, with 50,000 PSI minimum yield strength, and 70,000 PSI minimum tensile strength. Length shall be determined as per Texas MUTCD sign height requirements. All sign posts shall be delineated with a 12-inch retroreflective strip (yellow or red) as per Section 2A.21 of the Texas MUTCD.

2.4 SIGN SUPPORT

A. For the City of Bryan, sign supports shall meet crashworthy requirements of NCHRP 350, and unless otherwise specified, shall be the steel "Wedge Anchor System", except for when sign is in the TxDOT right-of-way. Signs located within TxDOT right-of-way shall be the "Triangular Slipbase System" as shown on TxDOT standard detail SMD (Slip-1)-08.

B. City of College Station shall require, as shown on the TxDOT standard details, the Triangular Slipbase System" on collectors and above and the "Wedge Anchor Systems" on local streets.

2.5 MISCELLANEOUS

A. Use galvanized steel, stainless steel, or dichromate-sealed aluminum for bolts, nuts, washers, lock washers, screws, and other sign assembly hardware. Use plastic or nylon washers to avoid tearing the sheeting material.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Erect signs in their designated locations, as indicated and in accordance with the approved shop drawings and the applicable requirements of DOT Section 645.
B. Examine proposed sign location, mark with stake and seek City representative's approval prior to installation.
C. Protect surfaces and finishes from abrasion and other damage during handling and installation.
D. Replace damaged or faulty signs.

END OF SECTION

SECTION 34 41 17

REFLECTORIZED PAVEMENT MARKINGS

1 - GENERAL

1.01 SUMMARY

A. Furnish and place reflectorized pavement markings.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement

1. Pavement markings will be measured by the foot; by each word, symbol, or shape. Each stripe will be measured separately.
2. 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.
3. Eliminating existing pavement markings and markers will be measured by the foot; by each word, symbol, or shape.

B. Payment

1. The work performed and materials furnished in accordance with this Section 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.
2. Acrylic or epoxy sealer, or Type II markings when used as a sealer for Type I markings, will be paid for directly by the foot; by each word, symbol, or shape.
3. Eliminating existing pavement markings and markers will be paid for directly by the foot; by each word, symbol, or shape.
4. Surface preparation for pavement markings will not be paid for directly but is subsidiary to this Section.
5. 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 Drawings quantity.

1.03 REFERENCE SPECIFICATIONS

A. Texas Department of Transportation
Departmental Material Specifications
http://www.dot.state.tx.us/services/construction/material_specifications/

1.04 SUBMITTALS

A. Submit a separate "Certification of Compliance" furnished by the Manufacturer for each class and type of material furnished.

2 - PRODUCTS

2.01 MATERIALS.

A. Furnish Type I materials in accordance with TxDOT DMS-8220,"Hot Applied Thermoplastic."

B. Furnish Type II materials in accordance with TxDOT DMS-8200,"Traffic Paint."

C. Furnish Type III drop-on glass beads conforming to TxDOT DMS-8290, "Glass Traffic Beads."

D. Furnish either Type II materials or an acrylic or epoxy sealer as a sealer for Type I markings.

E. Furnish surface treatment materials for eliminating existing pavement markings and markers. These materials must be in accordance with TxDOT specification 300, "Asphalts, Oils, and Emulsions;" specification 302, "Aggregates for Surface Treatments;" and specification 316, "Surface Treatments." Use approved patching materials for repairing damaged surfaces.

F. Labeling. Use clearly marked containers that indicate color, mass, material type, manufacturer, and batch number.

2.02 EQUIPMENT.

A. General Requirements. Use equipment that:

1. is maintained in satisfactory condition,
2. meets or exceeds the requirements of the National Board of Fire Underwriters and the RRC for this application,
3. uses an automatic bead dispenser attached to the pavement marking equipment, and
4. can provide continuous mixing and agitation of the pavement marking material.

B. Provide a hand-held thermometer capable of measuring the temperature of the marking material when applying Type I material.

C. Material Placement Requirements. Use equipment that can place:

1. at least 40,000 ft. of 4-in. solid or broken markings per day at the specified thickness;
2. linear markings up to 8 in. wide in a single pass;
3. markings other than solid or broken lines;
4. 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;
5. white line from both sides;
6. lines with clean edges, uniform cross section and thickness, and reasonably square ends;
7. 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;
8. beads uniformly and almost instantly on the marking as the marking is being applied; and
9. beads uniformly during the application of all lines (each line must have an equivalent bead yield rate and embedment);

3 - EXECUTION

3.01 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS

A. Eliminate existing pavement markings and markers on both concrete and asphaltic surfaces in such a manner that color and texture contrast of the pavement surfaces will be held to a minimum. Repair damage to asphaltic surfaces, such as spalling, shelling, etc., greater than 1/4 inch in depth resulting from the removal of pavement markings and markers. Dispose of markers in accordance with federal, state, and local regulations. Use any of the following methods unless overwise shown on the plans.

1. Surface Treatment Method. Apply surface treatment material at rates shown on the plans as directed. Place a surface treatment a minimum of 2ft. wide to cover the existing marking. Place a surface treatment,

thin overlay, or microsurfacing a minimum of 1 lane in width in areas where directional changes of traffic are involved or in other areas as directed by the Engineer.

2. Burn Method. Use an approved burning method. For thermoplastic pavement markings or prefabricated pavement markings, heat may be applied to remove the bulk of the marking materials prior to blast cleaning. When using heat, avoid spalling pavement surfaces. Sweeping or light blast cleaning may be used to remove minor residue.

3. Blasting method. Use a blasting method such as water blasting, abrasive blasting, water-abrasive blasting, shot blasting, slurry blasting, water-injected abrasive blasting, or brush blasting as approved. Remove pavement markings on concrete surfaces by a blasting method only.

4. Mechanical Method. Use any mechanical method except grinding. Flail milling is acceptable in the removal of markings on asphalt and concrete surfaces.

3.02 CONSTRUCTION

A. Place markings before opening to traffic unless short term or work zone markings are allowed.

3.03 GENERAL

A. 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 Drawings or as approved. Protect all markings placed under open-traffic conditions from traffic damage and disfigurement.

B. Establish guides to mark the lateral location of pavement markings as shown on the Drawings or as directed, and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.

C. Apply markings on pavement that is completely dry and passes the following tests:

1. 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.

2. 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.

D. Apply markings:

1. using widths and colors shown on the Drawings,

2. at locations shown on the Drawings,

3. 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,

4. without abrupt deviations,

5. free of blisters and with no more than 5% by area of holes or voids,

6. with uniform cross section and thickness,

7. with clean and reasonably square ends,

8. that are reflectorized, and

9. using personnel skilled and experienced with installation of pavement markings.

E. Remove and replace all applied markings that are not in alignment or sequence as stated in the Drawings or as stated in the specifications at the Contractor's expense.

3.04 SURFACE PREPARATION.

A. Cleaning for New Asphalt Surfaces and Retracing of All Surfaces

1. 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 Drawings.

2. A sealer for Type I markings is not required unless otherwise shown on the Drawings.

B. Cleaning for Old Asphalt and Concrete Surfaces (Excludes Retracing)

1. For old asphalt surfaces (more than 3 years old) and all concrete surfaces, blast clean to remove curing membrane, dirt, grease, loose and flaking existing construction markings, and other forms of contamination.

C. Sealer for Type I Markings

1. 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.

2. The pavement sealer may be either a Type II marking or an acrylic or epoxy sealer unless otherwise shown on the Drawings.

3. Follow the manufacturer's directions for application of acrylic or epoxy sealers.

4. When the sealer becomes dirty after placement, clean by washing, air blasting, or brooming.

5. Place the sealer in the same configuration and color (unless clear) as the Type I markings unless otherwise shown on the Drawings.

3.05 APPLICATION

A. 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.

B. Type I Markings

1. Place the Type I marking after the sealer cures.

2. Apply within the temperature limits recommended by the material manufacturer.

3. 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.

4. Apply on clean, dry pavements passing the moisture test described in Section 3.02.C, "General," and with a surface temperature above 50ºF.

5. Apply Type I markings with a minimum thickness of:

   a. 0.100 in. (100 mils) for new markings on newly applied surface treatments or retracing water based markings on newly applied surface treatments.

   b. 0.060 in. (60 mils) for retracing over thermoplastic pavement markings, or

   c. 0.090 in. (90 mils) for all other Type I markings.

6. The maximum thickness for Type I markings is 0.180 in. (180 mils).

C. Type II Markings

1. Apply on surfaces with a minimum surface temperature of 50°F.

2. 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.

3. 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.

D. 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.

3.06 PERFORMANCE PERIOD

A. All markings and replacement markings will be visually inspected 30 calendar days after installation.

B. When observed at night the markings shall exhibit a smooth, uniform, retroreflectance that makes the entire surface of the pavement marking stripe appear to glow, regardless of the observation distance, from immediately in front of the vehicle to the effective distance of the headlights on high beam.

C. Unless otherwise directed, remove pavement markings that fail to meet the inspection, and replace at the Contractor's expense. Replace failing markings within 30 days of notification.

END OF SECTION

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