

**CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS
FOR**

**BID – 21-11
2021 CITY WIDE MISCELLANEOUS CONCRETE AND DRAINAGE
IMPROVEMENTS
FOR
CITY OF KINGSVILLE, TEXAS**

City Manager

Mark McLaughlin

Mayor

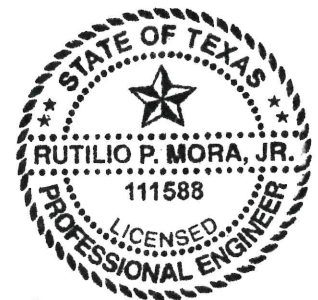
Sam Fugate

Commissioner(s)

Hector Hinojosa
Norma Nelda Alvarez
Edna Lopez
Ann Marie Torres

JULY 2021

Prepared by:



Rutilio P. Mora Sr
7/9/2021

Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

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CONTRACT DOCUMENTS

ADVERTISEMENT AND INVITATION FOR BIDS

The City of Kingsville, Texas will receive sealed bids for **BID 21-11 “2021 CITY- WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS”** until 2:00pm on Tuesday, August 3rd, 2021. Sealed proposals will be addressed to, Charley Sosa, Purchasing Manager, City of Kingsville, 400 W. King Ave., Kingsville, TX 78363. The bids will be publicly opened and read aloud immediately thereafter. A Pre-Bid Conference will be held at 9:00 am on July 27th, 2021, at the Kingsville City Hall Community Room, 400 W. King Ave., Kingsville, TX 78363 with an on-site visit being a portion of the proceedings.

Major items of work include the following:

This project consists of various concrete and drainage improvements that include but are not limited to curb, gutter, sidewalk, pavement, and other concrete & drainage improvements in accordance with the contract documents, technical specifications, and plans.

Bid/Contract Documents, including Drawings and Technical Specifications can be found on the City of Kingsville website at the following web address.

<http://www.cityofkingsville.com/departments/purchasing/rfpbid-openings-fy-2021/>

A bid bond by an acceptable surety, in the amount of 5% of the bid amount shall be submitted with each bid.

Attention is called to the fact that not less than, the federally determined prevailing (Davis-Bacon and Related Acts) wage rate, as issued by the Texas Department of Agriculture Office of Rural Affairs and contained in the contract documents, must be paid on this project. In addition, the successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin.

The City of Kingsville is an Affirmative Action/Equal Opportunity Employer that reserves the right to reject any and all bids and/ or waive any formalities in the bidding.

Bids may be held by the City for a period not to exceed 30 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidder's qualifications prior to the contract award.

City of Kingsville, Texas
Mark McLaughlin, City Manager
AIFB 1 OF 1

INSTRUCTION TO BIDDERS

Use of Separate Bid Forms:

These contract documents include a complete set of bid and contract forms which are for the convenience of the bidders and are not to be detached from the contract document, completed, or executed. **Separate bid forms are provided and are to be used for preparation of the bid.**

Interpretations or Addenda:

No oral interpretations will be made to any bidder. Each request for an interpretation shall be made in writing to the City of Kingsville Engineering Department no less than four (4) days prior to the bid opening. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than three (3) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidders.

Inspection of Site:

Each bidder should visit the site of the proposed work and should become acquainted with the existing conditions and facilities, the difficulties and restrictions pertaining to the performance of the contract. **A Pre-Bid conference will be held on 9:00a.m. on July 27th, 2021, at the City Hall Community Room, 400 W. King Ave., Kingsville, Texas 78363 with an on-site visit being a portion of the proceedings.** The bidder should thoroughly examine and become familiar with the drawings, technical specifications, and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal document or to visit the site or the conditions existing at the site. The City will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

Bids:

- A. All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.
- B. All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.
- C. Bid documents, including the bid, the bid bond, and the statement of bidder's qualifications shall be sealed in an envelope and clearly labeled with the words "Bid Documents", the project number, name of bidder and the date and time of bid opening.
- D. The City may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.
- E. If a contract is awarded, it will be awarded to a responsible, responsive bidder who provides goods or services at the best value for the City and the selected alternate bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

- F. In addition to the other requirements stated herein, contractor must bid the following Base bid, Alternate 1, and Alternate 2 (substitute HP storm pipe for RCP) in order for the Bid proposal to be considered a responsive bid.

Bid Modification Prior to Bid Opening:

- A. Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the City prior to the closing time, and provided further, the City is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition, subtractions, or other modifications so that the final prices or terms will not be known by the Owner until the sealed bid is open. If written confirmation is not received within two (2) days from the closing time, no consideration will be given to the telegraphic communication.
- B. Likewise, any bidder may modify a bid by submitting a supplemental bid in person prior to the scheduled closing time for receipt of bids. Such supplemental bid should mention only additions or subtractions to the original bid so as to not reveal the final prices or terms to the City until the sealed bid is open.

Bid Bond:

- A. A bid bond in the amount of 5% of the bid issued by an acceptable surety shall be submitted with each bid
- B. The bid bond, or its comparable, will be returned to the bidder as soon as practical after the opening of the bids.

Statement of Bidder's Qualifications:

Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. The City shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations under the contract, and the bidder shall furnish the City all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy the City that the bidder is qualified to carry out properly the terms of the contract.

Unit Price:

The unit price for each of the several items in the bid shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the quantity for each item by the unit price bid represents the total bid. Any bid not conforming to this requirement may be rejected as informal. Special attention is drawn to this condition, as the unit prices will be used to determine the amount of any change orders resulting from an increase or decrease in quantities.

Corrections:

Erasures or other corrections in the bid must be noted over the signature of the bidder.

Time for Receiving Bids:

Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the City that the late arrival of the bid was solely due to delay in the mail for which the bidder was not responsible, such bid will be received and considered.

Opening of Bids:

The City shall, at the time and place fixed for the opening of bids, open each bid and publicly read it aloud, irrespective of any irregularities therein. Bidders and other interested individuals may be present.

Withdrawal of Bids:

Bidder may withdraw the bid before the time fixed for the opening of bids, by communicating his purpose in writing to the locality. Upon receipt of such notice, the unopened bid will be returned to the bidder. The bid guaranty of any bidder withdrawing his bid will be returned promptly.

Award of Contract/Rejection of Bids:

- A. The contract will be awarded to the responsive, responsible Bidder submitting a bid that provides goods or services at the best value for the City. The bidder selected will be notified at the earliest possible date. The City reserves the right to reject any or all bids and to waive any informality in bids received where such rejection or waiver is in its interest.
- B. The City reserves the right to consider as unqualified to do the work any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in this contract.

Execution of Agreement/Performance and Payment Bonds:

- A. Performance and Payment Bonds are required of all Prime Contractors which enter into a formal contract in excess of \$50,000 with the State, any department, board, agency, municipality, county, school district, or any division or subdivision thereof, to obtain a Payment Bond in the amount of the contract before commencing with work and a performance bond for public works contracts in excess of \$100,000.
- B. The failure of the successful bidder to execute the agreement and supply the required bonds within then (10) days after the prescribed forms are presented for signature, or within such extended period as the City may grant, shall constitute a default and the City may, at its option either award the contract to the next bidder to who provides goods or services at the best value for the City, or re-advertise for bids. In either case, the City may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against the City for a refund.

Equal Employment Opportunity:

Attention is called to the fact that not less than, the federally determined prevailing (Davis-Bacon and Related Acts) wage rate, as issued by the Texas Department of Agriculture Office of Rural Affairs and contained in the contract documents, must be paid on this project. In addition, the successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin.

BID PROPOSAL

Proposal of _____

a * _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of Texas to City of Kingsville, Texas (hereinafter called "OWNER.")

BIDDER hereby proposes to perform all WORK for the construction of the **"2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS"** in accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the Project within **120** consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of **\$ 200.00** for each consecutive calendar day thereafter as provided in the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

*Insert "a corporation", "a partnership", or "an Individual" as applicable.

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following amount:

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
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BASE BID - 2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS

1)	281	SY	REMOVE/DISPOSE OF ASPHALT PAVEMENT per plans and specifications, complete in place per linear foot.	_____	_____
2)	4417	SF	REMOVE/DISPOSE OF CONCRETE per plans and specifications, complete in place per linear foot.	_____	_____
3)	1679	SY	LIMESTONE BASE (6" AVG. DEPTH) per plans and specifications, complete in place per linear foot.	_____	_____
4)	7254	LF	6" "L" TYPE CURB AND GUTTER per plans and specifications, complete in place per square foot.	_____	_____
5)	146	LF	4" ROLL CURB AND GUTTER per plans and specifications, complete in place per square foot.	_____	_____
6)	921	LF	2' CONCRETE VALLEY GUTTER per plans and specifications, complete in place per square foot.	_____	_____
7)	50	LF	3' CONCRETE VALLEY GUTTER per plans and specifications, complete in place per square foot.	_____	_____

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
8)	723	SF	4" THICK CONCRETE SIDEWALK per plans and specifications, complete in place per square foot.	_____	_____
9)	2547	SF	6" THICK CONCRETE DRIVEWAY per plans and specifications, complete in place per square foot.	_____	_____
10)	135	EA	6" THICK CONCRETE APRON per plans and specifications, complete in place per each.	_____	_____
11)	82	SF	2" HOT MIX ASPHALT REPAIR per plans and specifications, complete in place per linear foot.	_____	_____
SUBTOTAL BASE BID – (ITEMS 1 – 11)				\$ _____	

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
ALTERNATIVE BID NO. 1 - 2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS					
A1-1)	50.3	STA	ROW PREPARATION AND DRAINAGE EXCAVATION per plans and specifications, complete in place per each.	_____	_____
A1-2)	455	SY	REMOVE/DISPOSE OF ASPHALT, GRAVEL, OR BASE DRIVEWAY per plans and specifications, complete in place per each.	_____	_____
A1-3)	3335	SF	REMOVE/DISPOSE OF CONCRETE per plans and specifications, complete in place per each.	_____	_____

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
A1-4)	455	SY	1-1/2" HOT MIX ASPHALT REPAIR per plans and specifications, complete in place per each.	_____	_____
A1-5)	455	SY	LIMESTONE BASE (6" AVERAGE DEPTH) per plans and specifications, complete in place per each.	_____	_____
A1-6)	3195	SF	6" THICK CONCRETE DRIVEWAY per plans and specifications, complete in place per each.	_____	_____
A1-7)	672	LF	18" DIAMETER CL III RCP PIPE per plans and specifications, complete in place.	_____	_____
A1-8)	800	LF	24" DIAMETER HDPE CORRUGATED PIPE per plans and specifications, complete in place per each.	_____	_____
A1-9)	4	EA	CONCRETE SAFETY END TREATMENT per plans and specifications, complete in place per each.	_____	_____
SUBTOTAL ALTERNATIVE BID NO. 1 – (ITEMS A1-1 – A1-9)				\$	_____

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
ALTERNATIVE BID NO. 2 - 2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS					

A2-1)	800	LF	24" DIAMETER CL III RCP PIPE (IN LIEU OF ALTERNATIVE BID ITEM A1-8) per plans and specifications, complete in place per each.	_____	_____
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**BP 4 OF 5
BID SCHEDULE (CONTINUED)**

SUBTOTAL ALTERNATIVE BID NO. 2 – (ITEMS A2-1) \$ _____

TOTAL BASE BID \$ _____

TOTAL BASE BID + ALT. NO. 1 \$ _____

TOTAL BASE BID + ALT. NO. 1 – ALT. NO. 2 \$ _____

Respectfully submitted:

Signature

Address

Title

Date

License number (if applicable)

Date

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)

County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ of _____, the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title

Subscribed and sworn to me this _____ day of _____.

By: _____
Notary Public

My commission expires _____

CONTRACTOR CERTIFICATIONS

U.S. Department of Housing and Urban Development

CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS

INSTRUCTIONS

CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.

NAME AND ADDRESS OF BIDDER (include ZIP Code)

CERTIFICATION BY BIDDER

Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations.

Yes

No

The undersigned hereby certifies that:

- The Provision of Local Training, Employment, and Business Opportunities clause (Section 3 provision) is included in the Contract. A written Section 3 plan (Local Opportunity Plan) was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$100,000).
- The Equal Opportunity clause is included in the Contract (if bid equals or exceeds \$10,000).

Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

Yes

No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE

DATE

**STANDARD FORM OF AGREEMENT
BETWEEN CITY AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE**

THIS AGREEMENT is dated as of the _____ day of _____ in the year _____ by and between the City of Kingsville, 400 W. King Avenue, Kingsville, Texas 78363 (hereinafter called CITY) and _____ (hereinafter called CONTRACTOR).

CITY and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK:

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

“City of Kingsville – BID 21-11 2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS”

Article 2. ENGINEER:

The Project has been designed by:



City of Kingsville - Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

Who is hereinafter called ENGINEER and who is to act as CITY’S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

- 3.1 The Work will be completed and ready for final payment in accordance with the General Conditions within **120** calendar days from the date when the work order commences for each work order.
- 3.2 Liquidated Damages. CITY and CONTRACTOR recognize that time is of the essence of this Agreement and that CITY will suffer financial loss if the Work is not completed within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with the General Conditions.

They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by CITY if the Work is not completed on time. Accordingly, instead of requiring any such proof, CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay CITY two hundred & 00/100 dollars (\$200.00) for each calendar day that expires after the time specified in Article 3.1 of this Agreement for Substantial Completion until the Work is substantially complete.

After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by CITY, CONTRACTOR shall pay CITY two hundred dollars (\$200.00) for each calendar day that expires after the time specified in Article 3.1 of this Agreement for completion and readiness for final payment.

Article 4. CONTRACT PRICE:

- 4.1 CITY shall pay CONTRACTOR for completion of Work in accordance with the Contract Documents in current funds as follows: Per Contractors Proposal dated _____ in the total base bid + total alternative bid No. ___ in the amount of _____, as attached and a part of this contract document.

Article 5. PAYMENT PROCEDURES:

CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

Article 6. INTEREST:

All moneys not paid when due as provided in the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

Article 7. CONTRACTORS REPRESENTATIONS:

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

- 7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 7.2 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance of furnishing of the Work at the Contract Price, within the Contract Time and in accordance with other terms and conditions of the Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigation, explorations, tests reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 7.3 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of the General and Special Conditions.
- 7.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

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

Article 8. CONTRACT DOCUMENTS:

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

8.1 A bound set of executed documents and specifications titled:

**CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS
FOR**

**BID- 21-11
2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS
FOR
CITY OF KINGSVILLE, TEXAS**

City Manager
Mark McLaughlin

Mayor
Sam Fugate

Commissioner(s)
Hector Hinojosa
Norma Nelda Alvarez
Edna Lopez
Ann Marie Torres

JULY 2021

Prepared by:



Engineering Department
400 W. King Avenue
Kingsville, Texas 78363
(361) 595-8007

together with all of the items or sections listed in the Table of Contents thereof.

- 8.2 A Notice of Award consisting of one page.
- 8.3 A Notice to Proceed with Construction consisting of one page which shall be executed at a later date.
- 8.4 A set of drawings consisting of THIRTY-NINE (39) sheets titled:

Description

- 1. COVER SHEET
- 2. GENERAL NOTES
- 3. PROJECT LOCATIONS AND LIMITS
- 4. E. RAGLAND AVE. – S. 9TH ST. TO S. 13TH ST. STA. -0+20 TO 5+00
- 5. E. RAGLAND AVE. – S. 9TH ST. TO S. 13TH ST. STA. 5+00 TO 10+00
- 6. E. RAGLAND AVE. – S. 9TH ST. TO S. 13TH ST. STA. 10+00 TO 15+00
- 7. E. RAGLAND AVE. – S. 9TH ST. TO S. 13TH ST. STA. 15+00 TO END
- 8. E. WARREN AVE. – S. 9TH ST. TO S. 11TH ST. STA. -0+10 TO 5+00
- 9. E. WARREN AVE. – S. 9TH ST. TO S. 11TH ST. STA. 5+00 TO END
- 10. W. HUISACHE – S. WILLIAMS ST. TO S. FRANCIS ST. STA. -0+20 TO 5+00
- 11. W. HUISACHE – S. WILLIAMS ST. TO S. FRANCIS ST. STA. 5+00 TO END
- 12. E. HOFFMAN AVE. – S. 6TH ST. TO S. 7TH ST. STA. -0+20 TO END
- 13. N. 19TH ST. – E. HENRIETTA AVE. TO E. KING AVE. STA. -0+50 TO 4+50
- 14. N. 19TH ST. – E. HENRIETTA AVE. TO E. KING AVE. STA. 4+50 TO 9+50
- 15. N. 19TH ST. – E. HENRIETTA AVE. TO E. KING AVE. STA. 9+50 TO END
- 16. MISCELLANEOUS DETAILS 1
- 17. MISCELLANEOUS DETAILS 2
- 18. TRAFFIC CONTROL
- 19-21. EROSION CONTROL
- 22-24. BARRICADE AND CONSTRUCTION
- 25-28. PEDESTRIAN FACILITIES
- 29. ALT. BID 1 – SAGE ROAD DRAINAGE STA. -0+20 TO 5+50
- 30. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 5+50 TO 11+00
- 31. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 11+00 TO 16+50
- 32. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 16+50 TO 22+00
- 33. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 22+00 TO 27+50
- 34. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 27+50 TO 33+00
- 35. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 33+00 TO 38+50
- 36. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 38+50 TO 44+00
- 37. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 44+00 TO 49+50
- 38. ALT. BID 1 – SAGE ROAD DRAINAGE STA. 49+50 TO END
- 39. ALT. BID 1 – SAGE ROAD DRAINAGE TYPICAL SECTIONS

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

Article 9. MISCELLANEOUS

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

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

Article 10. OTHER PROVISIONS

10.1 The successful bidder who is awarded this bid will be required to complete and return a Conflict of Interest Disclosure Form and a Form 1295 – Certificate of Interested Parties

10.2 This contract gives no rights or benefits to anyone other than the CITY and CONTRACTOR.

10.3 CONTRACTOR agrees to abide by all local, state, and federal nondiscrimination and fair wages, and all other laws applicable to this contract.

IN WITNESS WHEREOF, CITY and CONTRACTOR have signed this Agreement in five counterparts. Two counterparts each have been delivered to CITY and CONTRACTOR and one counterpart to ENGINEER. All portions of the Contract Documents have been signed or identified by CITY and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20____

CITY:
City of Kingsville, Texas

CONTRACTOR:

By: _____
Mark McLaughlin, City Manager

By: _____

Attest: _____

Attest: _____

Address for giving notices:

Address for giving notices:

**City of Kingsville
400 W. King Avenue
Kingsville, Texas, 78363**

EQUAL OPPORTUNITY CLAUSE

(b) Federally assisted construction contracts. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause:

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The contractor will not discourage or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- (4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- (7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.
- (c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts.
- (d) Incorporation by reference. The equal opportunity clause may be incorporated by reference in all Government contracts and subcontracts, including Government bills of lading, transportation requests, contracts for deposit of Government funds, and contracts for issuing and paying U.S. savings bonds and notes, and such other contracts and subcontracts as the Deputy Assistant Secretary may designate.
- (e) Incorporation by operation of the order. By operation of the order, the equal opportunity clause shall be considered to be a part of every contract and subcontract required by the order and the regulations in this part to include such a clause whether or not it is physically incorporated in such contracts and whether or not the contract between the agency and the contractor is written.
- (f) Adaptation of language. Such necessary changes in language may be made in the equal opportunity clause as shall be appropriate to identify properly the parties and their undertakings.

[43 FR 49240, Oct. 20, 1978, as amended at 62 FR 66971, Dec. 22, 1997; 79 FR 72993, Dec. 9, 2014; 80 FR 54934, September 11, 2015]

Equal Opportunity Guidelines for Construction Contractors

Note: To be included in bid packet and distributed at the preconstruction conference (optional)

1. **What are the responsibilities of the offeror or bidder to ensure equal employment opportunity?**
For contracts over \$ 10,000, the offeror or bidder must comply with the "Equal Opportunity Clause" and the "Standard Federal Equal Opportunity Construction Contract Specifications."
2. **Are construction contractors required to ensure a legal working environment for all employees?**
Yes, it is the construction contractor's responsibility to provide an environment free of harassment, intimidation, and coercion to all employees and to notify all foremen and supervisors to carry out this obligation, with specific attention to minority or female individuals.
3. **To alleviate developing separate facilities for men and women on all sites, can a construction contractor place all women employees on one site?**
No, two or more women should be assigned to each site when possible.
4. **Are construction contractors required to make special outreach efforts to Section 3 or minority and female recruitment sources?**
Yes, construction contractors must establish a current list of Section 3, minority and female recruitment sources. Notification of employment opportunities, including the availability of on-the-job training and apprenticeship programs, should be given to these sources. The efforts of the construction contractors should be kept in file.
5. **Should records be maintained on the number of Section 3 residents, minority and females applying for positions with construction contractors?**
Yes, records must be maintained to include a current list of names, addresses and telephone numbers of all Section 3, minority and female applicants. The documentation should also include the results of the applications submitted.
6. **What happens if a woman or minority is sent to the union by the Contractor and is not referred back to the Contractor for employment?**
If the unions impede the construction contractor's responsibility to provide equal employment opportunity, a written notice should be submitted to TDA.
7. **What efforts are made by construction contractors to create entry-level positions for Section 3 residents, women and minorities?**
Construction contractors are required to develop on-the-job training programs, or participate in training programs, especially those funded by the Department of Labor, to create positions for Section 3 residents, women and minorities and to meet employment needs.
8. **Are any efforts made by the Contractor to publicize their Equal Employment Opportunity (EEO) policy?**
Yes, the construction contractor is responsible for notifying unions and sources of training programs of their equal employment opportunity policy. Unions should be requested to cooperate in the effort of equal opportunity. The policy should be included in any appropriate manuals, or collective bargaining agreements. The construction contractor is encouraged to publicize the equal employment opportunity policy in the company newspaper and annual report. The Contractor is also responsible to include the EEO policy in all media advertisement.

9. **Are any in-service training programs provided for staff to update the EEO policy?**
At least annually a review of the EEO policy and the affirmative action obligations are required of all personnel employees of a decision-making status. A record of the meeting including date, time, location, persons present, subject matter discussed, and disposition of the subject matter should be maintained.
10. **What recruitment efforts are made for Section 3 residents, minorities and women?**
The construction contractor must notify both orally and in writing, Section 3, minority and female recruitment sources one month prior to the date of acceptance for apprenticeship or other training programs.
11. **Are any measures taken to encourage promotions for minorities and women?**
Yes, an annual evaluation should be conducted for all minority and female personnel to encourage these employees to seek higher positions.
12. **What efforts are taken to ensure that personnel policies are in accordance with the EEO policy?**
Personnel policies in regard to job practices, work assignments, etc. should be continually monitored to ensure that the EEO policy is carried out.
13. **Can women be excluded from utilizing any facilities available to men?**
No, all facilities and company activities are non-segregated except for bathrooms or changing facilities to ensure privacy.
14. **What efforts should be utilized to include minority and female contractors and suppliers?**
Take affirmative steps to ensure that small, minority, and women owned businesses are included on all lists for contractors/service providers. Solicit these businesses when issuing RFPs and RFQs and soliciting construction bids. Divide project activities into small tasks to allow participation. Keep records of all offers to minority and female construction contractors.
15. **If a construction contractor participates in a business related association that does not comply with equal opportunity affirmative action standards, does that show his/her failure to comply?**
No, the construction contractor is responsible for its own compliance.
16. **Can a construction contractor hire a subcontractor who has been debarred from government contracts pursuant to EEO?**
No. The construction contractor must suspend, terminate or cancel its contract with any Subcontractor who is in violation of the EEO policy.
17. **What effort has been taken by the construction contractor to monitor all employment to insure the company EEO policy is being carried out?**
The construction contractor must designate a responsible individual to keep accurate records of all employees that includes specific information required by the government.

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where

appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part

of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section I(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section I(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll

period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the

journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 of this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable only where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subpara-

graph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable only where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, 40 USC 3701 et seq.

(3) The Contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Title 29 — LABOR

Subtitle A — Office of the Secretary of Labor

PART 3 — CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES

Sec.		June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally-assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.
3.1	Purpose and scope	
3.2	Definitions	
3.3	Weekly statement with respect to payment of wages	
3.4	Submission of weekly statements and the preservation and inspection of weekly payroll records.	
3.5	Payroll deductions permissible without application to or approval of the Secretary of Labor.	
3.6	Payroll deductions permissible with the approval of the Secretary of Labor.	
3.7	Applications for the approval of the Secretary of Labor	
3.8	Action by the Secretary of Labor upon applications.	
3.9	Prohibited payroll deductions.	
3.10	Methods of payment of wages.	
3.11	Regulations part of contract.	

AUTHORITY: The provisions of this Part 3 issued under R.S. 161, sec. 2, 48 Stat. §48; Reorg. Plan No. 14 of 1950, 64 Stat. 1267, 5 U.S.C. Appendix; 5 U.S.C. 301; 40 U.S.C. 276c.

SOURCE: The provisions of this Part 3 appear at 29 F.R. 97, Jan. 4, 1964, unless otherwise noted.

Section 3.1 Purpose and Scope.

This part prescribes “anti-kickback” regulations under section 2 of the Act of

Section 3.2 Definitions.

As used in the regulations in this part:

(a) The terms “building” or “work” generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, powerlines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a “building” or “work” within the meaning of the regulations in this part.

(b) The terms “construction,” “prosecution,” “completion,” or “repair” mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms “public building” or “public work” include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term “building or work financed in whole or in part by loans or grants from the United States” includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term includes building or work for which the Federal assistance granted is in the form of loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is “employed” and receiving “wages,” regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term “any affiliated person” includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term “Federal agency” means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentality’s of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentality’s.

{29 FR 97, Jan. 4, 1964, as amended at 33 FR 32575, Nov. 27, 1973}

Section 3.3 Weekly statement with respect to payment of wages.

- (a) As used in this section, the term “employee” shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.
- (b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH 348, “Statement of Compliance,” or on an identical form on the back of WH 347, “Payroll (For Contractors Optional Use)” or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office.
- (c) The requirements of this section shall not apply to any contract of \$2,000 or less.
- (d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such

conditions as the Secretary of Labor may specify.

{29 F.R. 95, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968}

Section 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

- (a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.
- (b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

(a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A “bona fide prepayment of wages” is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless, the deduction is in favor of the contractor, subcontractor or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions, or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their

families and dependents: Provided, however, That the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments:

Provided, however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under §516.27(a) of this title shall be kept.

(k) Any deduction for the cost of safety equipment of nominal value purchased by the employee as his own property for his personal protection in his work, such as safety shoes, safety glasses, safety gloves, and hard hats, if such equipment is not required by law to be furnished by the employer, if such deduction is not violative of the Fair Labor Standards Act or prohibited by other law, if the cost on which the deduction is based does not exceed the actual cost to the employer where the equipment is purchased from him and does not include any direct or indirect monetary return to the employer where the equipment is purchased from a third person, and if the deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance; or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees. {36 F.R. 9770, May 28, 1971.}

Section 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under §3.5. The Secretary may grant permission whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and
(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under §3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application need not identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions on all current and future contracts of the applicant for a period of 1 year. A renewal of permission to make such payroll deduction will be granted

upon the submission of an application which makes reference to the original application, recites the date of the Secretary of Labor's approval of such deductions, states affirmatively that there is continued compliance with the standards set forth in the provisions of §3.6, and specifies any conditions which have changed in regard to the payroll deductions.
{36 F.R. 9770, May 28, 1971.}

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of §3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of §3.6; and

shall notify the applicant in writing of his decision.

Section 3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under §3.6 are prohibited.

Section 3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see §5.5(a) of this subtitle.

SECTION 504 CERTIFICATION

**POLICY OF NONDISCRIMINATION ON THE BASIS
OF DISABILITY**

The _____ does not discriminate on the basis of disability in the admission or access to, or treatment or employment in, its federally assisted programs or activities.

(Name) _____

(Address) _____

City State Zip

Telephone Number () _____ - _____ Voice

() _____ - _____ TDD

has been designated to coordinate compliance with the nondiscrimination requirements contained in the Department of Housing and Urban Development's (HUD) regulations implementing Section 504 (24 CFR Part 8. dated June 2, 1988).

(d) The names and addresses of all other persons having a substantial interest in the undersigned, and the nature of the interest are:

NAME	ADDRESS	NATURE OF INTEREST

(e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are:

NAME	ADDRESS	TRADE CLASSIFICATION

Date _____

(Contractor)

By _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____, as PRINCIPAL, and _____, as SURETY are held and firmly bound unto The City of Kingsville, Texas hereinafter called the "Owner", in the penal sum of _____ Dollars, (\$_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____, for Bid 21-11, 2021 City-Wide Miscellaneous Concrete and Drainage Improvements

NOW, THEREFOR, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

(SEAL)

Attest:

By: _____

Affix
Corporate
Seal

Attest:

By: _____

Affix
Corporate
Seal

Attest:

By: _____

Countersigned

By _____

* Attorney-in-Fact, State of _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____, Secretary of the Corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, for and in behalf of said corporation by authority of this governing body.

Corporate
Seal

Title: _____

* Power-of-attorney for person signing for surety company must be attached to bond.

INSERT CERTIFICATE OF LIABILITY INSURANCE

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that:

(Name of Contractor or Company)

(Address)

a _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

(Address)

hereinafter called Surety, are held and firmly bound unto

The City of Kingsville, Texas
(Name of Recipient)

400 West King Ave., Kingsville, Texas 78363
(Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____

Dollars, \$ _____ in lawful money of the United States, for this payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Bid 21-11, 2021 City-Wide Miscellaneous Concrete and Drainage Improvements
(Project Name)

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed

thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of (Number) which shall be deemed an original, this the _____ day of _____.

ATTEST: _____ (Principal)

_____ By _____ (s)
(Principal Secretary)

(SEAL)

(Witness as to Principal) (Address)

(Address)

ATTEST: _____ (Surety)

_____ By _____
(Witness as to Surety) (Attorney in Fact)

(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that:

(Name of Contractor or Company)

(Address)

a _____ hereinafter called Principal, and

(Name of Surety Company)

(Address)

hereinafter called Surety, are held and firmly bound unto

The City of Kingsville, Texas
(Name of Grant Recipient)

400 West King Ave., Kingsville, TX 78363
(Grant Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____

Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Bid 21-11, 2021 City-Wide Miscellaneous Concrete and Drainage Improvements

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the

Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____
counterparts, each one of which shall be deemed an original, this the _____
day of _____.

ATTEST: _____
(Principal)

By _____ (s)
(Principal Secretary)

(SEAL)

(Witness as to Principal) (Address)

(Address)

ATTEST: _____
(Surety)

By _____
(Witness as to Surety) (Attorney in Fact)

(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If PRINCIPAL/CONTRACTOR is Partnership, all partners should execute BOND.

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____
_____ as PRINCIPAL, and _____, as SURETY
are held and firmly bound unto (City of Kingsville, Texas) hereinafter called the "Local Public
Agency", in the penal sum of _____ Dollars, (\$_____),
lawful money of the United States, for the payment of which sum well and truly to be made, we
bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and
severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted
the Accompanying Bid, dated _____, for _____

NOW, THEREFORE, the Principal shall not withdraw said Bid within the period specified therein
after the opening of the same, or, if no period be specified, within thirty (30) days after the said
opening, and shall within the period specified therefor, or if no period be specified, within ten (10)
days after the prescribed forms are presented to him for signature, enter into a written contract with
the Local Public Agency in accordance with the Bid as accepted, and give bond with good and
sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment
of such contract; or in the event of the withdrawal of said Bid within the period specified, or the
failure to enter into such Contract and give such bond within the time specified, if the Principal
shall pay the Local Public Agency the difference between the amount specified in said Bid and the
amount for which the local Public Agency may procure the required work or supplies or both, if
the latter be in excess of the former, then the above obligation shall be void and of no effect,
otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above parties have executed this instrument this _____ day of
_____, the name and corporate seal of each corporate party being hereto
affixed and these present signed by its undersigned representative, pursuant to authority of its
governing body.

(SEAL)

(SEAL)

Attest:

By: _____

Affix
Corporate
Seal

Attest:

By: _____

Affix
Corporate
Seal

Attest:

By: _____

Countersigned

By _____

* Attorney-in-Fact, State of Texas

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as Principal in the bid bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, on behalf of said corporation by authority of its governing body.

Corporate
Seal

Title: _____

* Power-of-attorney for person signing for Surety Company must be attached to bond.

GENERAL CONDITIONS

GENERAL CONDITIONS FOR CONSTRUCTION

1. Contract and Contract Documents

- (a) The Plans, Specifications and Addenda shall form part of this contract and the provisions thereof shall be binding upon the parties as if they were herein fully set forth.

2. Definitions

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms here in defined:

- (a) The term "Contract" means the Contract executed between the City of Kingsville, hereinafter called the "City" and (Name of Construction Co.), hereinafter called "Contractor", of which these GENERAL CONDITIONS, form a part.
- (b) The term "Project Area" means the area within the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
- (c) The term "Engineer" means the City of Kingsville Engineer, Engineer in charge, serving the City with architectural or engineering services, his successor, or any other person or persons, employed by the City for the purpose of directing or having in charge the work embraced in this Contract.
- (d) The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

3. Supervision by Contractor

- (a) Except where the Contractor is an individual and personally supervises the work, the Contractor shall provide a competent superintendent, satisfactory to the Engineer, on the work at all times during working hours with full authority to act as Contractor's agent. The Contractor shall also provide adequate staff for the proper coordination and expediting of his work.
- (b) The Contractor shall be responsible for all work executed under the Contract. Contractor shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

4. Subcontracts

- (a) No proposed subcontractor shall be disapproved by the City except for cause.
- (b) The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- (c) Nothing contained in the Contract shall create any contractual relation between any subcontractor and the City.

5. Fitting and Coordination of Work

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

(a) Partial Payments

- 1) The Contractor shall prepare the requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment, and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer.
- 2) Monthly or partial payments made by the City to the Contractor are advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the City. Such payments shall not constitute a waiver of the right of the City to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the City in all details.

(b) Final Payment

- 1) After final inspection and the acceptance by the City of all work under the Contract, the Contractor shall prepare the requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Contract. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments.
- 2) Before paying the final estimate, City shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor. The City may make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.
- 3) Any amount due the City under Liquidated Damages shall be deducted from the final payment due the contractor.

(c) Payments Subject to Submission of Certificates

Each payment to the Contractor by the City shall be made subject to submission by the Contractor of all written certifications required of it and its subcontractors.

(d) Withholding Payments

The City may withhold any payment due the Contractor as deemed necessary to protect the City, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the City and will not require the City to determine or adjust any claims or disputes between the Contractor and its subcontractors or material dealers, or to withhold any moneys for their protection unless the City elects to do so. The failure or refusal of the City to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

7. Changes in the Work

- (a) The City may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any obligations under the Contract or any guarantee given pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise. Additionally, all such change orders must be approved by TxCDBG prior to execution of same.
- (b) Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.
- (c) If applicable unit prices are contained in the Contract, the City may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).
- (d) Each change order shall include in its final form:
 - 1) A detailed description of the change in the work.
 - 2) The Contractor's proposal (if any) or a confirmed copy thereof.
 - 3) A definite statement as to the resulting change in the contract price and/or time.
 - 4) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.
 - 5) The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Claims for Extra Cost

- (a) If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the City, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

- (b) Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- (c) Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the City and work shall not proceed except at the Contractor's risk, until written instructions have been received from the City.
- (d) If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

9. Termination, Delays, and Liquidated Damages

(a) Right of the City to Terminate Contract for Convenience

City may at any time and for any reasons terminate Contractor's services and work at City's convenience upon providing written notice to the Contractor specifying the extent of termination and the effective date. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by City; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against City for any additional compensation or damages in the event of such termination and payment.

(b) Right of the City to Terminate Contract for Cause

In the event that any of the provisions of this contract are violated by the Contractor, or by any subcontractors, the City may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the City shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the City may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the City for any excess cost incurred. In such event the City may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

(c) Liquidated Damages for Delays.

If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the City as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of \$200.00 for each calendar day of delay, until the work is completed. The Contractor and Contractor's sureties shall be liable to the City for the amount thereof.

(d) Excusable Delays.

- 1) The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
- 2) Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
- 3) Any acts of the City;
- 4) Causes not reasonably foreseeable by the parties to this Contract at the time of execution which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, terrorism, war, acts of another Contractor in the performance of some other contract with the City, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
- 5) Provided, however, that the Contractor promptly notifies the City within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

10. Assignment or Novation

The Contractor shall not assign nor transfer, whether by assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the City. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, Contractors, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

11. Technical Specifications and Drawings

Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the City for review. Contractor shall be liable for any issues or expenses in the event the discrepancy is not submitted to the City.

12. Shop Drawings

- (a) All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer in hard copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at Contractor's own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.
- (b) Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- (c) If a shop drawing is in accordance with the contract or involves only minor adjustment in the interest of the City not involving a change in contract price or time, the engineer may approve the drawing. The approval shall not relieve the Contractor from responsibility to adhere to the contract or for any error in the drawing.

13. Requests for Supplementary Information

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information which should be furnished by the City under the terms of this Contract, and which is required in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

14. Materials and Workmanship

- (a) Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- (b) The Contractor shall furnish to the City for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.
- (c) Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

- (d) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- (e) The City may require the Contractor to dismiss from the work such employee or employees as the City or the Engineer may deem unqualified.

15. Samples, Certificates and Tests

- (a) The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.
- (b) Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- (c) Approval of any materials shall be general only and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- (d) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - 1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
 - 2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
 - 3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;
 - 4) The City will pay all other expenses.

16. Permits and Codes

- (a) The Contractor shall give all notices required by and comply with all applicable federal and state laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the City. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the City will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.
- (b) Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the Contractor shall remove such work without cost to the City.
- (c) The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- (d) The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.
- (e) The Contractor will be required to make arrangements for and pay the water, electrical power, or any other utilities required during construction.
- (f) During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the City, shall moisten the surrounding area to prevent a dusty condition.

17. Care of Work

- (a) The Contractor shall be responsible for all damages to person or property that occur as a result of its fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- (b) In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City is authorized to act to prevent such threatened loss or injury. Contractor shall follow all instructions of City.
- (c) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and shall be responsible for completely repairing any damage thereto caused by the operations.

- (d) The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the City from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

18. Accident Prevention

- (a) No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Department of Labor.
- (b) The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- (c) The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the City with reports concerning these matters.
- (d) The Contractor shall indemnify and hold harmless the City from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- (e) The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.
- (f) The contractor shall at all time conduct work in such a manner as to ensure the least possible inconvenience to vehicular and pedestrian traffic. At the close of the work each day, all streets where possible in the opinion of the City, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the City at the expense of the Contractor.

19. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for laborers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

20. Use of Premises

- (a) The Contractor shall confine equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the City, and shall not unreasonably encumber the site or public rights of way with materials and construction equipment.
- (b) The Contractor shall comply with all reasonable instructions of the City and all existing federal, state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

21. Removal of Debris, Cleaning, Etc.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

22. Inspection

- (a) All materials and workmanship shall be subject to inspection, examination, or test by the City and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The City shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the City.
- (b) The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the City will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.
- (c) The Contractor shall notify the City sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the City, the Contractor shall uncover for inspection and recover such facilities at Contractor's expense, when so requested by the City.
- (d) Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be reimbursable and if completion of the work of the entire Contract has been delayed, a suitable extension of time will be approved.

- (e) Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards to: (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- (f) Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the City or its agents shall relieve the Contractor or its sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

23. Review by City

The City and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the City through its authorized representatives or agents.

24. Final Inspection

When the Improvements included in this Contract are substantially completed, the Contractor shall notify the City in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The City will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

25. Deduction for Uncorrected Work

If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the City and subject to settlement, in case of dispute, as herein provided.

26. Insurance

The Contractor shall not commence work under this contract until all required insurance under this paragraph has been secured and approved by the City.

- (a) **Worker's Compensation Insurance:** The Contractor shall procure and shall maintain during the life of this contract Worker's Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.
- (b) **Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance:** Please see the following Exhibit for the City of Kingsville's Insurance Requirements:

EXHIBIT

INSURANCE REQUIREMENTS

I. CONTRACTOR’S LIABILITY INSURANCE

- A. Contractor must not commence work under this contract until all insurance required has been obtained and such insurance has been approved by the City. Contractor must not allow any subcontractor to commence work until all similar insurance required of any subcontractor has been obtained.

- B. Contractor must furnish to the City’s Risk Manager and Public Works Director, 1 copy of Certificates of Insurance (COI) with applicable policy endorsements showing the following minimum coverage by an insurance company(s) acceptable to the City’s Risk Manager. The City of Kingsville must be listed as an additional insured on the General Liability and Auto Liability policies **by endorsement**, and a waiver of subrogation is required on all applicable policies including Workers’ Compensation. **Endorsements** must be provided with COI. Project name and or number must be listed in Description Box of COI.

TYPE OF INSURANCE	MINIMUM INSURANCE COVERAGE
30-written day notice of cancellation, required on all certificates or by applicable policy endorsements	Bodily Injury and Property Damage Per occurrence - aggregate
Commercial General Liability including: 1. Commercial Broad Form 2. Premises – Operations 3. Products/ Completed Operations 4. Contractual Liability 5. Independent Contractors	\$1,000,000 Per Occurrence \$2,000,000 Aggregate
AUTO LIABILITY (including) 1. Owned 2. Hired and Non-Owned 3. Rented/Leased	\$1,000,000 Combined Single Limit
WORKERS’ COMPENSATION	Statutory
EMPLOYER’S LIABILITY	\$500,000 /\$500,000 /\$500,000

- C. In the event of accidents of any kind related to this agreement, Contractor must furnish the Risk Manager with copies of all reports of any accidents within 10 days of the accident.

II. ADDITIONAL REQUIREMENTS

- A. Applicable for paid employees, Contractor must obtain workers’ compensation coverage through a licensed insurance company.

The coverage must be written on a policy and endorsements approved by the Texas Department of Insurance. The workers' compensation coverage provided must be in an amount sufficient to assure that all workers' compensation obligations incurred by the Contractor will be promptly met.

B. Contractor shall obtain and maintain in full force and effect for the duration of this Contract, and any extension hereof, at Contractor's sole expense, insurance coverage written on an occurrence basis, by companies authorized and admitted to do business in the State of Texas and with an A.M. Best's rating of no less than A- VII.

C. Contractor shall be required to submit a copy of the replacement certificate of insurance to City at the address provided below within 10 days of the requested change. Contractor shall pay any costs incurred resulting from said changes. All notices required by this exhibit shall be given to City at the following address:

City of Kingsville
Attn: Risk Manager
P.O. Box 1458
Kingsville, TX 78364

D. **Contractor agrees that with respect to the above required insurance, all insurance policies are to contain or be endorsed to contain the following required provisions:**

- List the City of Kingsville and its officers, officials, employees, volunteers, and elected representatives as additional insured by endorsement, as respects operations, completed operation and activities of, or on behalf of, the named insured performed under contract with the City, with the exception of the workers' compensation policy;
- Provide for an endorsement that the "other insurance" clause shall not apply to the City of Kingsville where the City is an additional insured shown on the policy;
- Workers' compensation and employers' liability policies will provide a waiver of subrogation in favor of the City. An All States Endorsement will be required for companies not domiciled in Texas; and
- Provide thirty (30) calendar days advance written notice directly to City of any suspension, cancellation, non-renewal or material change in coverage, and not less than ten (10) calendar days advance written notice for nonpayment of premium.

E. Within five (5) calendar days of a suspension, cancellation, or non-renewal of coverage, Contractor shall provide a replacement Certificate of Insurance and applicable endorsements to City. City shall have the option to suspend Contractor's work should there be a lapse in coverage at any time during this contract. Failure to provide and to maintain the required insurance shall constitute a material breach of this contract.

F. In addition to any other remedies the City may have upon Contractor's failure to provide and maintain any insurance or policy endorsements to the extent and within the time herein required, the City shall have the right to order Contractor to stop work hereunder, and/or withhold any payment(s) if any, which become due to Contractor hereunder until Contractor demonstrates compliance with the requirements hereof.

- G. Nothing herein contained shall be construed as limiting in any way the extent to which Contractor may be held responsible for payments of damages to persons or property resulting from Contractor's or its subcontractor's performance of the work covered under this contract.
 - H. It is agreed that Contractor's insurance shall be deemed primary and non-contributory with respect to any insurance or self-insurance carried by the City of Kingsville for liability arising out of operations under this contract.
 - I. It is understood and agreed that the insurance required is in addition to and separate from any other obligation contained in this contract.
- (c) Proof of Insurance: The Contractor shall furnish the City with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the City."

27. Warranty of Title

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same, together with all improvements and appurtenances constructed or placed by Contractor, to the City free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

28. Warranty of Workmanship and Materials

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the City or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 1 month from the date of final acceptance of the work.

29. Job Offices

- (a) The Contractor and its subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The City shall be consulted with regard to locations.
- (b) Upon completion of the improvements, or as directed by the City, the Contractor shall remove all such temporary structures and facilities from the site, and leave the site of the work in the condition required by the Contract.

30. Partial Use of Site Improvements

The City may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

- (a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- (b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

31. Local Program Liaison

For purposes of this Agreement, the City Manager or equivalent authorized person will serve as the Local Program Liaison and primary point of contact for the Contractor. All required progress reports and communication regarding the project shall be directed to this liaison and other local personnel as appropriate.

32. Records Retention

- (a) The Contractor shall retain all required records for three years after the City makes its final payment and all pending matters are closed.
- (b) Contractor shall include the substance of this clause in all subcontracts it awards.

33. Conflicts of interest.

- (a) Governing Body. No member of the governing body of the City and no other officer, employee, or agent of the City, who exercises any functions or responsibilities in connection with administration, construction, engineering, or implementation of TxCDBG award between TDA and the City, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Firm shall take appropriate steps to assure compliance.
- (b) Other Local Public Officials. No other public official, who exercises any functions or responsibilities in connection with the planning and carrying out of administration, construction, engineering or implementation of the TxCDBG award between TDA and the City, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Contractor shall take appropriate steps to assure compliance.

34. Debarment and Suspension (Executive Orders 12549 and 12689)

The Contractor certifies, by entering into this Contract, that neither it nor its principals are presently debarred, suspended, or otherwise excluded from or ineligible for participation in federally-assisted programs under Executive Orders 12549 (1986) and 12689 (1989). The term "principal" for purposes of this Contract is defined as an officer, director, owner, partner, key employee, or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

The Contractor understands that it must not make any award or permit any award (or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension."

35. Procurement of Recovered Materials

The Contractor shall comply with section 6002 of the Solid Waste Act, as amended by the Resource Conservation and Recovery Act, procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded \$10,000 as long as such procurement is economically feasible.

36. [For Contracts > \$100K] Overtime Requirements

No Contractor or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of 40 hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of 40 hours in such work week, as the case may be.

37. [For Contracts > \$150K] Clean Air Act and the Federal Water Pollution Control Act

The Contractor or subcontractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

38. Contract Documents and Drawings

The City will furnish the Contractor without charge 3 copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

39. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the City in the Notice to Proceed, and shall be fully completed within 120 calendar days thereafter.

40. Liquidated Damages

Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the City the sum of Two-Hundred Dollars (\$200) as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for completion.

SPECIAL CONDITIONS

SPECIAL CONDITIONS

DESCRIPTION OF WORK:

“2021 CITY-WIDE MISCELLANEOUS CONCRETE AND DRAINAGE IMPROVEMENTS”

The Contractor shall furnish all labor, materials, equipment, tools, services and supervision necessary to perform all the work as described in the Proposal and shall deliver the work complete in all respects and in full accordance with the Contract Documents. All incidental services and materials which may be reasonably inferred as necessary to accomplish the intended end result shall be provided by the Contractor whether or not specifically shown on the Drawings or itemized in the Specifications.

CONSTRUCTION SEQUENCE:

Within ten (10) days after receiving a written “Notice to Proceed” the Contractor will be expected to pursue continuous progress of the overall Project from beginning of the work to completion. The Contractor will, in general, be left to schedule his work as he sees fit in so far as the Owner remains satisfied that an orderly progress is being made on the project to the extent of finishing within the stated contract time.

The Contractor will, however, be required to coordinate the sequencing of this work with the Owner and various utility companies, and any other individual or entity which may suffer inconvenience or damage as a result of a lack of cooperation in the construction of the project.

TIME OF COMPLETION:

Construction time is to start ten (10) days after receipt of a written “Notice to Proceed”. All items of work contemplated in these Specifications and the accompanying drawings are to be fully complete in the number of days specified in the bid proposal. After the notification of final completion and a final inspection, Contractor shall have thirty (30) days to remedy any incomplete or defective work.

PROJECT MEETINGS:

Prior to starting work, the Contractor shall attend a pre-construction conference to review the Contractor’s schedules, to establish procedures for processing applications for payment, and to establish a working understanding between Owner, Engineer and Contractor. Representatives of all parties shall be in attendance. Other meetings will be scheduled during the construction as need dictates.

LIQUIDATED DAMAGES FOR DELAY:

The Contractor agrees that a delay in substantial completion of the project beyond the total number of days anticipated for substantial completion plus such extensions to the allotted time as may be provided for in the General Conditions shall cause a damage to the Owner and that the Owner may withhold, permanently, from the Contractor’s total compensation a sum of two hundred dollars (\$200.00) per calendar day as the stipulated damages for such delay.

GUARANTEES:

The Contractor shall provide a warranty which shall guarantee work against defective materials and workmanship for a period of one (1) year from the date of issue of certificate of acceptance. Neither final acceptance nor final payment or any provision in the contract documents will relieve Contractor of above guarantee. Failure to repair or replace defect upon notice entitles Owner to repair or replace same and recover reasonable cost thereof from the Contractor and/or his surety.

PERMITS AND RIGHT-OF-WAY:

The Owner will provide right-of-way for the purpose of construction without cost to the Contractor by securing permits in areas of public dedication or by obtaining easements across privately owned property. It shall be the responsibility of the Contractor prior to the initiation of construction on easements through private property, or upon areas of public dedication, to familiarize himself with the requirements of the pertinent easement or permit and to abide by all of the stated terms of such easements or permits. The Contractor shall give notice of intent to begin construction on privately owned property or permitted areas as required by the relevant easement or permit but in no case less than 48 hours before commencing work.

MATERIALS AND EQUIPMENT:

Incorporate into work only new materials and equipment of domestic manufacture unless otherwise designated. Store these materials and equipment in manner to protect them from damage.

REPAIR OF DAMAGE:

Driveways, curbs, culverts, yards or items of private or public ownership, if damaged during the course of construction of this project, shall be, to the greatest extent practicable, repaired or replaced to the condition of such items before their being damaged, at no cost.

SITE MAINTENANCE AND CLEAN-UP:

Maintain work site during construction neat and free of trash, rubbish or other debris. In cleanup operations, remove from site temporary structures, rubbish and waste materials, and leave site in a neat and presentable condition throughout. Dispose of excavated material beyond that which is needed to bring site to required final elevations.

MEASUREMENT AND PAYMENT:

Estimated quantities shown in the Contract Documents are provided solely for the purpose of allowing a uniform comparison of submitted bids. Payment will be made on either the basis of actual measured quantities or a lump sum as may be relevant to the particular item. For those items for which payment is based on actual measured quantities, the Contractor shall verify all measurements at the site and shall be responsible for the correctness of same. Unit prices shall then be used to calculate payment. Methods of measurement shall be given in the Technical Specifications for each measured item.

RETAINAGE:

The Owner will retain from the Contractor's monthly estimate and request for payment an amount equal to 10% of the invoice amount. This 10% shall be retained by the Owner until final acceptance of the total project and then paid to the Contractor.

PAYMENT FOR MATERIALS ON SITE:

Contractor shall present to the Owner with his monthly estimate of production and request for payment a list of all material delivered to the project site, but not installed, with the total invoice cost of that material and the Owner shall pay to the Contractor the invoice cost of such material as has been verified by the Engineer to be "on site", less a 10% retainage. "On site" shall mean on or immediately adjacent to the work area or point of material installation, or a central storage yard or office area which has been set up for the project in the immediate project area. This does not include material in transit to the job site, material stored in yards or areas located in other towns, or materials stored in a manufacturer's warehouse, even though Contractor may have been invoiced for such material. Materials considered as consumables, i.e. chlorine for disinfection, testing pipe and equipment, etc., shall not be considered as material on-site, and only principle material items shall be considered for payment for material on-site.

STATE SALES TAX:

The improvements proposed for construction under the terms of these Contract Documents shall become a part of the roadway and drainage system of the Owner. The Owner qualifies as an exempt organization under the Limited Sales Excise Tax Rules and Regulations of the State of Texas. Since the Owner and the Contractor shall be exempt from the state sales tax, the state sales tax shall not be included in the Bid.

Prior to the execution of the Contract, the Contractor shall obtain a Limited Sales Tax Permit and shall show evidence of this permit when signing the Contract. The Contractor shall then issue Resale Certificates in lieu of payment of the sales tax, on material purchased for incorporation into the project. These instructions are in strict compliance with the State Sales Tax Code, Section 151.311. The Contractor is assumed to be fully aware of the sales tax regulations and agrees to cooperate fully with the Owner claiming its lawful exemption from the state sales tax.

TRAFFIC CONTROL:

It will be the Contractor's responsibility to adequately provide for the safety of the public during the course of the construction of the project to include flagmen. No separate compensation will be paid to the Contractor for traffic control.

MATERIALS TESTING:

The Owner will provide for the initial testing of materials to be incorporated into the project to such extent as may be desired including the testing of concrete samples taken at the time of concrete placement. The Contractor shall be responsible for supplying samples of materials as may be required for testing. Any re-testing required shall be at the Contractor's expense as stated in the General Conditions.

WATER FOR CONSTRUCTION:

Water used for the mixing of concrete, jetting or flooding trenches, or testing, or any other purposes incidental to this project, will be furnished by the Contractor. If water is obtained from the Owner's water supply, the Contractor shall make the necessary arrangements for securing and transporting such water and shall take such water in a manner and at such times that will not produce a harmful drain or decrease pressure in the Owner's water system. There will be no charge to Contractor for water used in the construction of this project.

LINES AND GRADES:

The Engineer will set control stakes (both horizontal and vertical), but detailed construction staking shall be the full responsibility of the Contractor.

LOCATION OF AND DAMAGE TO EXISTING UTILITIES:

The Contractor shall be solely responsible for all above ground utilities, structures, and appurtenances in regard to protection and replacement or repair of same. The Contractor shall also be solely responsible for visible below ground utilities, structures and appurtenances that may be accurately located by removing manhole covers, valve box covers, and other access point coverings, with a reasonable effort on the part of two workmen, using hand tools for such removal and inspection. The cost of protecting, replacing, or repairing the utilities, structures, and appurtenances covered by this paragraph shall be borne solely by the Contractor and shall be included in the prices bid for the various affected items in the Contract.

The Contractor shall notify all private and public utilities 48 hours prior to performing any work in the vicinity of said utilities. Such 48-hour notice shall not include Saturdays, Sundays and holidays.

In those instances where faults, caverns or subsidence zones are encountered during construction, the design engineer will make the necessary adjustments and/or modifications to ensure proper installation. This subject is further defined in the detailed specification list which governs this project.

CONTRACTOR'S FIELD ADMINISTRATION STAFF:

The Contractor shall employ for this project, as its field administration staff, superintendents and foremen who are careful and competent and acceptable to the Owner. The criteria upon which the Owner shall make this determination shall include the following:

- A. The superintendent shall have at least five (5) years' experience in the day-to-day field management and oversight of projects of a similar size and complexity to the project which is the subject of this Contract. This experience shall include, but is not limited to, scheduling of manpower and materials, safety, coordination of subcontractors, and familiarity with the submittal process, federal and state wage rate requirements, and contract close-out procedures.
- B. The foreman shall have at least five (5) years' experience in oversight and management of the work of various subcontractors and crafts. Should the scope of the project be such that a foreman is not required, the Contractor's superintendent shall assume the responsibilities of a foreman.

Documentation concerning these matters shall be reviewed by the Owner. The Contractor's field administration staff, and any subsequent substitutions or replacements thereto, shall be approved by the Owner in writing prior to such superintendent or foreman assuming responsibilities on the project.

Such written approval of field administration staff is a prerequisite to the Owner's obligation to execute a contract for this project. If such approval is not obtained, the award may be rescinded. Further, such written approval is also necessary prior to a change in field administration staff during the term of this Contract. If the Contractor fails to obtain prior written approval of the Owner concerning any substitutions or replacements in its field administration staff for this project, the award may be rescinded. Further, such written approval is also necessary prior to a change in field administration staff during the term of this Contract. If the Contractor fails to obtain prior written approval of the Owner concerning any substitutions or replacements in its field administration staff for this project during the term of the Contract, such a failure will constitute a basis to annul the Contract.

CHARACTER OF WORKMEN AND CONDITION OF EQUIPMENT:

The Contractor shall employ such superintendents, foremen, and workmen as are careful and competent and the Engineer may demand the dismissal of any person or persons employed by the Contractor, in, about or on the work who shall misconduct himself or be incompetent or negligent in the proper performance of his or their duties or neglect or refuse to comply with the directions of the Engineer, and such person or persons shall not be employed thereon again without the written consent of the Engineer. All workmen shall have sufficient skill and experience to perform properly the work assigned them.

The Contractor shall furnish such equipment as is considered necessary for the prosecution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools and machinery used for handling materials and executing any part of the work shall be subject to the approval of the Engineer and shall be maintained in a satisfactory working condition. Equipment on any portion of the work shall be such that no injury to the work or adjacent property will result from its use.

AS-BUILT DRAWINGS:

Contractor shall maintain daily a set of "As-Built" drawings detailing the location and depths of new and existing utilities. The completed set of "As-Built" shall be submitted to the ENGINEER at the completion of the project.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. **This statement must be notarized.** If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

Date: _____

Bidder (Legal Name of Firm): _____

Date Organized: _____

Address : _____
: _____

Date Incorporated _____

Federal ID Number: _____

Number of Years in contracting business under present name _____

List all other names under which your business has operated in the last 10 years:

Work Presently Under Contract:

Contract	Amount \$	Completion Date
_____	_____	_____
_____	_____	_____
_____	_____	_____

Type of work performed by your company: _____

Total Staff employed by Firm (Break down by Managers and Trades on separate sheet):

Have you ever failed to complete any work awarded to you? Yes No
(If yes, please attach summary of details on a separate sheet. Include brief explanation of cause and resolution)

Have you ever defaulted on a contract? Yes No
(If yes, please attach summary of details on a separate sheet.)

Has your organization had any disbarments or suspensions that have been imposed in the past five years or that was still in effect during the five-year period or is still in effect? Yes No

(If yes, list and explain; such list must include disbarments and suspensions of officers, principals, partners, members, and employees of your organization.)

List the projects most recently completed by your firm (include project of similar importance):

Project	Amount \$	Mo/Yr. Completed
---------	-----------	------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____

Major equipment available for this contract: _____

Are you in compliance with all applicable EEO requirements? Yes No
(If no, please attach summary of details on a separate sheet.)

Bank References

Address: _____ Contact Name: _____

City & State: _____ Zip: _____

Phone Number: _____

Credit available: \$ _____

Has the firm or predecessor firm been involved in a bankruptcy or reorganization? Yes No
(If yes, please attach summary of details on a separate sheet.)

List on a sheet attached hereto all judgements, claims, arbitration proceedings, or suits pending or outstanding against bidder over the last five (5) years with amount of claim and brief description.

List on a sheet attached hereto all lawsuits or requested arbitration with regard to construction contracts which bidder has initiated within the last five (5) years and brief explanation of claim and outcome.

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Signed this _____ day of _____, 20____.

Signature

Printed Name and Title

Company Name

Notary Statement:

_____, being duly sworn, says that he/she is the _____ Position/Title _____ of _____ (Firm Name), and hereby swears that the answers to the foregoing questions and all statements therein contained are true and correct. He/she hereby authorizes and requests any person, firm, or corporation to furnish any information requested City of _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Subscribed and sworn before me this _____ day of _____, 20_____.

Notary Public

Signature

Printed Name

My Commission Expires: _____.

The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, _____, the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

Texas State Bar Number: _____

SECTION 021020
SITE CLEARING AND STRIPPING

1. DESCRIPTION

This specification shall govern all work necessary for clearing, grubbing and stripping of objectionable matter as required to complete the project, and shall include removing and disposing of trees, stumps, brush, roots, vegetation, rubbish and other objectionable matter from the project site.

2. CONSTRUCTION METHODS

The site shall be cleared of all trees, stumps, brush, roots, vegetation, rubbish and other objectionable matter as indicated on the drawings and/or as directed by the Engineer or his designated representative. Tree stumps and roots shall be grubbed to a minimum depth of 2 feet below natural ground or 2 feet below base of subgrade, whichever is lower. Areas that underlie compacted backfill shall be stripped of all vegetation, humus and other objectionable matter encountered within the top six (6) inches of the soil. All material removed from the site under this operation shall become the Contractor's responsibility. The material shall be disposed of either at a disposal site indicated on the drawings or at a disposal site obtained by the Contractor.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, site clearing and stripping or clear right-of-way shall be measured by the acre.

Payment shall be full compensation for all labor, equipment, tools and incidentals necessary for removing, handling, and disposing of objectionable matter from the site as indicated above.

SECTION 021040
SITE GRADING

1. DESCRIPTION

This specification shall govern all work necessary for backfill and grading of the site to complete the project.

2. CONSTRUCTION METHODS

Prior to site grading, the site shall be cleared in accordance with City Standard Specification Section 021020 "Site Clearing and Stripping". Unless specified otherwise on the drawings, the existing surface shall be loosened by scarifying or plowing to a depth of not less than six (6) inches. The loosened material shall be recompacted with fill required to bring the site to the required grades and elevations indicated on the plans.

Fill shall be uniform as to material, density and moisture content. Fill shall be free of large clods, large rocks, organic matter, and other objectionable material. No fill that is placed by dumping in a pile or windrow shall be incorporated into a layer in that position; all such piles and windrows shall be moved by blading or similar method. All fill shall be placed in layers approximately parallel to the finish grade in layers not to exceed six (6) inches of uncompacted depth, unless indicated otherwise on drawings. The fill shall be compacted to a density which approximates that of natural ground unless indicated otherwise on drawings.

The Engineer may order proof rolling to test the uniformity of compaction. All irregularities, depressions and soft spots that develop shall be corrected by the Contractor.

Excess material from excavation, which is not incorporated into the site as fill, shall become property of the Contractor and disposed of away from the job site, unless indicated otherwise on the drawings.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, site grading shall not be measured for pay, but shall be considered subsidiary to other work.

SECTION 021080
REMOVING ABANDONED STRUCTURES

1. DESCRIPTION

This specification shall provide for the demolition, removal and disposal of abandoned structures or portions of abandoned structures, as noted on the drawings, and shall include all excavation and backfilling necessary to complete the removal. The work shall be done in accordance with the provisions of these specifications.

2. METHOD OF REMOVAL

Culverts or Sewers. Pipe shall be removed by careful excavation of all dirt on top and the sides in such manner that the pipe will not be damaged. Removal of sewer appurtenances shall be included for removal with the pipe. Those pipes which are deemed unsatisfactory for reuse by the Engineer may be removed in any manner the Contractor may select.

Concrete Structures. Unwanted concrete structures or concrete portions of structures shall be removed to the lines and dimensions shown on the drawings, and these materials shall be disposed of as shown on the drawings or as directed by the Engineer. Any portion of the existing structure outside of the limits designated for removal which is damaged by the Contractor's operations shall be restored to its original condition at the Contractor's entire expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Portions of the abandoned structure shall be removed to the lines and dimensions shown on the plans, and these materials shall be disposed of as shown on the drawings or as directed by the Engineer. Any portion of the existing structure, outside of the limits designated for removal, damaged during the operations of the Contractor, shall be restored to its original condition entirely at the Contractor's expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Concrete portions of structures below the permanent ground line, which will not interfere in any manner with the proposed construction, may be left in place, but removal shall be carried at least five (5) feet below the permanent ground line and neatly squared off. Reinforcement shall be cut off close to the concrete.

Steel Structures. Steel structures or steel portions of structures shall be dismantled in sections as determined by the Engineer. The sections shall be stored if the members are to be salvaged and reused. Rivets and bolts connecting steel railing members, steel beams of beam spans and steel stringers of truss spans, shall be removed by butting the heads with a "cold cut" and punching or drilling from the hole, or by such other method that will not injure the members for re-use and will

meet the approval of the Engineer. The removal of rivets and bolts from connections of truss members, bracing members, and other similar members in the structure will not be required unless specifically called for on the plans or special provisions, and the Contractor shall have the option of dismantling these members by flame-cutting the members immediately adjacent to the connections. Flame-cutting will not be permitted, however, when the plans or special provisions call for the structure unit to be salvaged in such manner as to permit re-erection. In such case, all members shall be carefully matchmarked with paint in accordance with diagrams furnished by the Engineer prior to dismantling, and all rivets and bolts shall be removed from the connections in the manner specified in the first portion of this paragraph.

Timber Structures. Timber structures or timber portions of structures to be reused shall be removed in such manner as to damage the timber for further use as little as possible. All bolts and nails shall be removed from such lumber as deemed salvable by the Engineer.

Unless otherwise specified on the drawings, timber piles shall be either pulled or cut off at the point not less than five (5) feet below ground line, with the choice between these two methods resting with the Contractor, unless otherwise specified.

Brick or Stone Structures. Unwanted brick or stone structures or stone portions of structures shall be removed. Portions of such structures below the permanent ground line, which will not in any manner interfere with the proposed construction, may be left in place, but removal shall be carried at least five (5) feet below the permanent ground line and neatly squared off.

Salvage. All material such as pipe, timbers, railings, etc., which the Engineer deems as salvable for reuse, and all salvaged structural steel, shall be delivered to a designated storage area.

Materials, other than structural steel, which are not deemed salvable by the Engineer, shall become the property of the Contractor and shall be removed to suitable disposal sites off of the right-of-way arranged for by the Contractor, or otherwise disposed of in a manner satisfactory to the Engineer.

Where temporary structures are necessary for a detour adjacent to the present structure, the Contractor will be permitted to use the material in the old structure for the detour structure, but he shall dismantle and stack or dispose of the material as required above as soon as the new structure is opened for traffic.

Backfill. All excavations made in connection with this specification and all openings below the natural ground line caused by the removal of abandoned structures or portions thereof shall be backfilled to the level of the original ground line, unless otherwise provided on the drawings. Backfill in accordance with applicable requirements of Sections 022020 "Excavation and Backfill for Utilities" and 022080 "Embankment". All open ends of abandoned pipe or other structures shall be filled or plugged as specified.

That portion of the backfill which will support any portion of the roadbed, embankment, levee, or other structural feature shall be placed in layers of the same depth as those required for placing embankment, maximum 10" loose lifts unless otherwise specified. Material in each layer shall be wetted uniformly, if required, and shall be compacted to a minimum of 95% Standard Proctor density, unless otherwise specified. In places inaccessible to blading and rolling equipment, mechanical or hand tamps or rammers shall be used to obtain the required compaction.

That portion of the backfill which will not support any portion of the roadbed, embankment, or other structural feature shall be placed as directed by the Engineer in such manner and to such state of compaction as will preclude objectionable amount of settlement, maximum 10" loose lifts to minimum 95% Standard Proctor density unless otherwise specified.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the work governed by this specification shall not be measured for pay, but shall be subsidiary to the project.

**SECTION 022010
TRAFFIC CONTROL**

1. DESCRIPTION

Traffic control by the CONTRACTOR shall follow the guidelines as set forth in the Texas Manual of Uniform Traffic Control Devices. CONTRACTOR shall furnish traffic control plan to ENGINEER and the Texas Department of Transportation, and obtain approval of plan from both prior to start of operation.

2. LIMITS OF INTERSECTION CLOSING

No intersections may be closed without specific authorization of the ENGINEER/CITY and the Texas Department of Transportation.

3. ACCESS TO PROPERTY

The CONTRACTOR shall provide and maintain at all times an all weather driving surface and unencumbered ingress and egress to businesses and residences.

4. MODIFICATIONS OF TRAFFIC CONTROL PLAN

Modifications of the traffic control plan described herein shall be approved by the ENGINEER and the Texas Department of Transportation.

5. MEASUREMENT AND PAYMENT

Measurement and payment for Traffic Control shall be considered subsidiary to the appropriate bid items. .

END OF SECTION

SECTION 022020
EXCAVATION AND BACKFILL FOR UTILITIES

1. DESCRIPTION

This specification shall govern all work for excavation and backfill for utilities required to complete the project.

2. CONSTRUCTION

- (1) Unless otherwise specified on the drawings or permitted by the Engineer, all pipe and conduit shall be constructed in open cut trenches with vertical sides. Trenches shall be sheathed and braced as necessary throughout the construction period. Sheathing and bracing shall be the responsibility of the Contractor (refer to Section 022022 "Trench Safety for Excavations" of the City Standard Specifications).

Trenches shall have a maximum width of one foot beyond the horizontal projection of the outside surfaces of the pipe and parallel thereto on each side unless otherwise specified.

The Contractor shall not have more than 200 feet of open trench left behind the trenching operation and no more than 500 feet of ditch behind the ditching machine that is not compacted as required by the plans and specifications. No trench or excavation shall remain open after working hours.

For all utility conduit and sewer pipe to be constructed in fill above natural ground, the embankment shall first be constructed to an elevation not less than one foot above the top of the pipe or conduit, after which excavation for the pipe or conduit shall be made.

If quicksand, muck, or similar unstable material is encountered during the excavation, the following procedure shall be used unless other methods are called for on the drawings. If the unstable condition is a result of ground water, the Contractor, prior to additional excavation, shall control it. After stable conditions have been achieved, unstable soil shall be removed or stabilized to a depth of 2 feet below the bottom of pipe for pipes 2 feet or more in height; and to a depth equal to the height of pipe, 6 inches minimum, for pipes less than 2 feet in height. Such excavation shall be carried at least one foot beyond the horizontal limits of the structure on all sides. All unstable soil so removed shall be replaced with suitable stable material, placed in uniform layers of suitable depth as directed by the Engineer, and each layer shall be wetted, if necessary, and compacted by mechanical tamping as required to provide a stable condition. For unstable trench conditions requiring outside forms, seals, sheathing and bracing, any additional excavation and backfill required shall be done at the Contractor's expense.

- (2) Shaping of Trench Bottom. The trench bottom shall be undercut a minimum depth sufficient to accommodate the class of bedding indicated on the plans and specifications.
- (3) Dewatering Trench. Pipe or conduit shall not be constructed or laid in a trench in the presence of water. All water shall be removed from the trench sufficiently prior to the pipe or conduit planing operation to insure a relatively dry (no standing water), firm bed. The trench shall be maintained in such dewatered condition until the trench has been backfilled to a height at least one foot above the top of pipe. Removal of water maybe accomplished by bailing, pumping, or by installation of well-points, as conditions warrant. Removal of wellpoints shall be at rate of 1/3 per 24 hours (every third well-point). The Contractor shall prevent groundwater from trench or excavation dewatering operations from discharging directly into the storm water system. Groundwater from dewatering operations shall be sampled and tested, if applicable, and disposed of, in accordance with City Standard Specification Section 022021 "Control of Ground Water".
- (4) Excavation in Streets. Excavation in streets, together with the maintenance of traffic where specified, and the restoration of the pavement riding surface, shall be in accordance with drawing detail or as required by other applicable specifications.
- (5) Removing Abandoned Structures. When abandoned masonry structures or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth one foot below the bottom of the trench. When abandoned inlets or manholes are encountered and no plan provision is made for adjustment or connection to the new utility, such manholes and inlets shall be removed completely to a depth one foot below the bottom of the trench. In each instance, the bottom to the trench shall be restored to grade by backfilling and compacting by the methods provided hereinafter for backfill. Where the trench cuts through utility lines which are known to be abandoned, these lines shall be cut flush with the sides of the trench and blocked with a concrete plug in a manner satisfactory to the Engineer.
- (6) Protection of Utilities. The Contractor shall conduct his work such that a reasonable minimum of disturbance to existing utilities will result. Particular care shall be exercised to avoid the cutting or breakage of water and gas lines. Such lines, if broken, shall be restored promptly by the Contractor. When active wastewater lines are cut in the trenching operations, temporary flumes shall be provided across the trench while open, and the lines shall be restored when the backfilling has progressed to the original bedding line of the sewer so cut.

The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the Contractor may proceed with his work with a minimum of delay. The Contractor shall not hold the City liable for any expense due to delay or additional work because of utility adjustments or conflicts.

- (7) Excess Excavated Material. All materials from excavation not required for backfilling the trench shall be removed by the Contractor from the job site promptly following the completion of work involved.
- (8) Backfill

A. Backfill Procedure Around Pipe (Initial Backfill)

All trenches and excavation shall be backfilled as soon as is practical after the pipes or conduits are properly laid. In addition to the specified pipe bedding material, the backfill around the pipe as applicable shall be granular material as shown on the standard details or as described in the applicable specification section, and shall be free of large hard lumps or other debris. If indicated on the plans, pipe shall be encased with cement-stabilized sand backfill as described below. The backfill shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench, in layers not to exceed ten (10) inches (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to a density comparable to the adjacent undisturbed soil or as otherwise specified on the plans, but not less than 95% Standard Proctor density. A thoroughly compacted material shall be in place between the external wall of the pipe and the undisturbed sides of the trench and to a level twelve (12) inches above the top of the pipe.

B. Backfill Over One Foot Above Pipe (Final Backfill)

UNPAVED AREAS: The backfill for that portion of trench over one (1) foot above the pipe or conduit not located under pavements (including waterlines, gravity wastewater lines, wastewater force mains and reinforced concrete storm water pipe) shall be imported select material or clean, excess material from the excavation meeting the following requirements:

- Free of hard lumps, rock fragments, or other debris,
- No clay lumps greater than 2" diameter
- Moisture Content: +/-3%

Backfill material shall be placed in layers not more than ten (10) inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to the natural bank density but not less than 95% Standard Proctor density, unless otherwise indicated. Flooding of backfill is not allowed. Jetting of backfill may only be allowed in sandy soils and in soils otherwise approved by the Engineer. Regardless of backfill method, no lift shall exceed 10 inches and density shall not be less than 95% Standard Proctor density. A period of not less than twenty-four (24) hours shall elapse between the time of jetting and the placing of the top four (4) feet of backfill. If jetting is used, the top four (4) feet of backfill shall be placed in layers not more than 10 inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to the natural bank density but not less than 95% Standard Proctor density (ASTM D698).

PAVED AREAS: At utility line crossings under pavements (including waterlines, gravity wastewater lines, wastewater force mains, and reinforced concrete storm water

pipe), and where otherwise indicated on the drawings, trenches shall be backfilled as shown below:

From top of initial backfill (typically twelve (12) inches above top of the pipe) to three (3) feet below bottom of road base course, backfill shall be select material meeting the requirements of 022100 "Select Material".

Asphalt Roadways

The upper three (3) feet of trench below the road base course shall be backfilled to the bottom of the road base course with cement-stabilized sand containing a minimum of 2 sacks of Standard Type I Portland cement per cubic yard of sand and compacted to not less than 95% Standard Proctor density.

Concrete Roadways

The Contractor may elect to backfill the upper three (3) feet of trench below the road base course with cement stabilized sand as noted above, or in the case of storm water pipe or box installation the Contractor may backfill and compact select material to 98% Standard Proctor density (ASTM D698) following City Standard Specification Section 022100.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, excavation and backfill for utilities, including select material or cement-stabilized sand backfill, shall not be measured and paid for separately. It shall be considered subsidiary to the items for which the excavation and backfill is required.

SECTION 022022
TRENCH SAFETY FOR EXCAVATIONS

1. DESCRIPTION

This specification shall govern all work for providing for worker safety in excavations and trenching operations required to complete the project.

2. REQUIREMENTS

Worker Safety in excavations and trenches shall be provided by the Contractor in accordance with Occupational Safety and Health Administration (OSHA) Standards, 29 CFR Part 1926 Subpart P - Excavations.

It is the sole responsibility of the Contractor, and not the City or Engineer, to determine and monitor the specific applicability of a safety system to the field conditions to be encountered on the job site during the project.

The Contractor shall indemnify and hold harmless the City and Engineer from all damages and cost that may result from failure of methods or equipment used by the Contractor to provide for worker safety.

Trenches as used herein, shall apply to any excavation into which structures, utilities, or sewers are placed regardless of depth.

Trench Safety Plan as used herein, shall apply to all methods and materials used to provide for worker safety in excavation and trenching operations required during the project.

3. MEASUREMENT AND PAYMENT

Measurement of Trench Safety Plan shall be by the linear foot of trench or excavation, regardless of depth. Measurement shall be taken along the center line for trenches and along the longest horizontal distance across the bottom for other shape of excavations.

Payment for Trench Safety Plan shall be at the unit price bid and shall fully compensate the Contractor for all work, equipment, materials, personnel, and incidentals as required to provide for worker safety in trenches and excavations for the project.

Revision current for Texas H.B. No. 1569, dated 5/23/89.

END OF SECTION

SECTION 022040
STREET EXCAVATION

1. DESCRIPTION

This specification shall govern all work for Street Excavation required to complete the project.

2. CONSTRUCTION METHODS

(A) Stripping and Excavation

Strip the top 6 inches in all areas to underlay compacted fill, curbs, base or pavement, by removing all humus, vegetation and other unsuitable materials. Unless otherwise noted, remove existing trees, shrubs, fences, curb, gutter, sidewalk, drives, paving, pipe and structures and other items within the graded area which interfere with new construction of finished grading.

All suitable excavated materials shall be utilized, insofar as practicable, in constructing the required roadway sections or in uniformly widening embankments, flattening slopes, etc., as directed by the Engineer, provided that the material meets the requirements for roadway embankment as specified in Article 3 below. Unwanted or unsuitable roadway excavation and roadway excavation in excess of that needed for construction shall become the property of the Contractor to be disposed of by him outside the limits of the right-of-way at a location suitable to the Engineer. "Unsuitable" material encountered below subgrade elevation in roadway cuts, when declared unwanted by the Engineer, shall be replaced as directed by the Engineer with suitable material from the roadway excavation or with other suitable material.

Maintain moisture and density until covered and protected by the subbase or base course. Remove soft or wet areas found at any time, replace with suitable material, and recompact (especially utility trenches).

(B) Subgrade Preparation

That area shown on the drawings for street construction shall be cut to grade, scarified to a depth not less than 6 inches, or as otherwise indicated on the drawings, and compacted to 95% Standard Proctor density (ASTM D698) to within 0 to +3% of optimum moisture. The section may be accepted if no more than 1 in 5 of the most recent moisture or density tests is beyond $\pm 1\%$ deviation from the required moisture or density requirement. Irregularities exceeding $\frac{1}{4}$ inch in 16 feet shall be corrected. Soft areas found at anytime shall be removed, replaced with suitable material and compacted (especially at utility trenches). The correct moisture density relationship shall be maintained until the subgrade is protected. Excessive loss of moisture shall be prevented by sprinkling, sealing, or covering with a subsequent layer.

Should the subgrade, due to any reason or cause, lose the required stability, density, or moisture before it is protected by placement of the next layer, it shall be re-compacted and refinished and retested at the expense of the Contractor until acceptable to the City.

(C) Curb Backfill and Topsoil (Sidewalk* Parkways, Islands, etc.)

Fill and compact areas behind curbs and adjacent to sidewalks and driveways within 48 hours after completion of concrete work. The top 6 inches (where disturbed by construction or where unsatisfactory material is exposed by excavation) of finish earth grade shall be clean excavated material or topsoil capable of supporting a good growth of grass when fertilized and seeded or sodded. It shall be free of concrete, asphalt, shell, caliche, debris and any other material that detracts from its appearance or hampers the growth of grass. Topsoil shall meet the requirements specified in City Standard Specification Section 028020 "Seeding".

(D) Matching Grades at Right-of-Way. Line

Finish grade at the property line shall be as shown on the drawings. The Engineer may require a reasonable amount of filling on private property where the sidewalk grade is above the property elevation. Use suitable material from the excavation. Unless otherwise directed, cuts at right-of way lines shall be made at a slope of three horizontal to one vertical (3:1) or flatter.

(E) Drainage

During construction, the roadbed and ditches shall be maintained in such condition as to insure proper drainage at all times, and ditches and channels shall be so constructed and maintained as to avoid damage to the roadway section.

All slopes which, in the judgment of the Engineer, require variation, shall be accurately shaped, and care shall be taken that no material is loosened below the required slopes. All breakage and slides shall be removed and disposed of as directed.

3. SELECTION OF ROADBED MATERIALS

Where shown on the plans, Select Material shall be utilized to improve the roadbed, in which case the work shall be performed in such manner and sequence that suitable materials may be selected, removed separately, and deposited in the roadway within limits and at elevations required. Material used for roadway embankment shall meet the requirements of City Standard Specification Section 022100 Select Material.

4. GEOGRID

If indicated on the drawings, geogrid shall be placed in the base layer according to the pavement details to provide a mechanically-stabilized aggregate base layer within the pavement structure. Geogrid shall be "Tensar TX5 Triaxial Geogrid", or pre-approved equivalent. Use (and approval)

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of a different product must be supported by documentation showing that the alternate pavement section will meet or exceed the required number of 18-kip equivalent single axle loads (ESAL) and structural number (SN) over the stated pavement design life, and the pavement design must be sealed and signed by a Texas professional engineer. Documentation must also include the structural design value used for the geogrid structural contribution, based on and supported by validated test data. Alternate pavement designs shall utilize the same structural design values for other pavement structural components (HMAC, base, sub-base) as used in the original pavement design, and the pavement designs must be approved by the Engineer and the geotechnical consultant.

Contractor shall take care to protect geogrid from damage. Overlap edges of geogrid in accordance with the manufacturer's recommendations, but not less than 12 inches. Do not drive tracked equipment directly on the geogrid. Provide at least 6 inches of compacted aggregate base material over the geogrid before driving any tracked equipment over the geogrid area. Standard highway-legal rubber-tired trucks may drive over the geogrid at very slow speeds (less than 5 mph). Avoid turns and sudden starts and stops when driving on the geogrid. Any damaged geogrid shall be replaced by the Contractor at no additional cost to the City. Proper replacement shall consist of replacing the affected area adding 3 feet of geogrid in each direction beyond the limits of the affected area.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, street excavation shall be measured and paid for by the square yard to the limits shown on the drawings including excavation for street transitions. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, borrow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, compacted subgrade shall be measured and paid for by the square yard to the limits shown on the drawings. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, bon-ow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, geogrid shall be measured and paid for by the square yard to the limits shown on the drawings, excluding overlaps. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

All work required for disposing of waste, including hauling will not be paid for directly but shall be considered subsidiary to the various contract items.

SECTION 022080
EMBANKMENT

1. DESCRIPTION

This specification shall govern all work for Embankment required to complete the project.

2. CONSTRUCTION METHODS

Prior to placing embankment, the area to be covered shall be stripped of all vegetation and the material so removed shall be disposed of off the job site. Washes, gulleys, wet areas, and yielding areas shall be corrected as directed by the Engineer.

Unless otherwise indicated on the drawings, the surface of the ground which is to receive embankment shall be loosened by scarifying or plowing to a depth of not less than 6 inches. The loosened material shall be recompacted with the new embankment as hereinafter specified. Embankment shall be placed in layers not to exceed ten (10) inches uncompacted (loose) depth for the full width of the embankment, unless otherwise noted.

Where embankment is adjacent to a hillside or old roadbed, the existing slope shall be cut in steps to not less than the vertical depth of an uncompacted layer. The fill material shall be placed from the low side and compacted. Each layer shall overlap the existing embankment by at least the width indicated by the embankment slope.

Trees, stumps, roots, vegetation, debris or other unsuitable materials shall not be placed in embankment.

Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction. Where layers of unlike materials abut each other, each layer shall be feather-edged for at least 100 feet or the material shall be so mixed as to prevent abrupt changes in the soil. No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or similar methods. Clods or lumps of material shall be broken and the embankment material mixed by blading, harrowing, disking or similar methods to the end that a uniform material of uniform density is secured in each layer. Except as otherwise required by the drawings, all embankments shall be constructed in layers approximately parallel to the finished grade and each layer shall be so constructed as to provide a uniform slope of 1/4 inch per foot from the centerline of the embankment to the outside.

Each layer shall be compacted to the required density and moisture by any method, type and size of equipment that will give the required compaction. Prior to and in conjunction with the rolling operation, each layer shall be brought to the moisture content necessary to obtain the required density and shall be kept leveled with suitable equipment to insure uniform compaction over the entire layer.

For each layer of earth embankment and select material, it is the intent of this specification to provide the density as required herein; unless otherwise shown on the drawings. Soils for

embankment shall be sprinkled with water as required to provide not less than optimum moisture and compacted to the extent necessary to provide not less than 95% Standard Proctor density (ASTM D698). Field density determinations will be made in accordance with approved methods.

After each layer of earth embankment or select material is complete, tests, as necessary, will be made by the Engineer. If the material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified compaction, and the compaction method shall be altered on subsequent work to obtain specified density. Such procedure shall be determined by, and subject to, the approval of the Engineer.

The Engineer may order proof rolling to test the uniformity of compaction of the embankment layers. All irregularities, depressions, weak or soft spots which develop shall be corrected immediately by the Contractor.

Should the embankment, due to any reason or cause, lose the required stability, density or moisture before the pavement structure is placed, it shall be recompacted and refinished at the sole expense of the Contractor. Excessive loss of moisture in the subgrade shall be prevented by sprinkling, sealing or covering with a subsequent layer of granular material.

3. SELECTION OF MATERIAL

In addition to the requirement in the excavation items of the specifications covering the general selection and utilization of materials to improve the roadbed, embankments shall be constructed in proper sequence to receive the select material layers shown on drawings, with such modifications as may be directed by the Engineer. The layer of embankment immediately preceding the upper layer of select material shall be constructed to the proper section and grade within a tolerance of not more than 0.10 foot from the established section and grade when properly compacted and finished to receive the select material layer. Select material, when specified, shall meet the requirements in City Standard Specification Section 022100 "Select Material".

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, embankment shall not be measured and paid for separately, but shall be subsidiary to other items of work.

SECTION 022100
SELECT MATERIAL (S-15)

1. DESCRIPTION

This specification shall govern the use of select material to be used to treat designated sections of roadways, embankments, trenches, etc. Select material shall be a mixture of sand and clay or other suitable granular material. The material shall be free from vegetation, debris and clay lumps. That portion of the select material passing a 40-mesh sieve shall have a liquid limit of 45 maximum, a plasticity index range from 6 to 13, and a calculated linear shrinkage of 8.5 maximum.

2. CONSTRUCTION METHODS

Select material shall be mixed uniformly and placed in layers not to exceed 6" loose depth. The material shall be brought to approximately optimum moisture content and compacted to 95% Standard Proctor Density. Each layer shall be complete before the succeeding layer is placed.

The finished surface of the select material shall conform to the grade and section shown on the plans.

3. MEASUREMENT & PAYMENT

Select material shall not be measured and paid for separately. It shall be considered subsidiary to the items for which the select material is required.

END OF SECTION

SECTION 022420
SILT FENCE

1. DESCRIPTION

This specification shall govern all work necessary for providing and installing silt fencing required to control sedimentation and erosion during construction of the project.

2. MATERIAL REQUIREMENTS

A. Geotextile shall meet the requirements for temporary silt fence per AASHTO M288.

B. Fence Reinforcement Materials:

Silt fence reinforcement shall be one of the following systems.

Type 1 : Self-Supported Fence - This system consists of fence posts, spaced no more than 8 1/2 feet apart, and geotextile without net reinforcement. Fence posts shall be a minimum of 42 inches long, embedded at least one (1) foot into the ground, and constructed of either wood or steel. Soft wood posts shall be at least 3 inches in diameter or nominal 2 x 4 inches in cross section and essentially straight. Hardwood posts shall be a minimum of 1.5 x 1.5 inches in cross section. Fabric attachment may be by staples or locking plastic ties at least every 6 inches, or by sewn vertical pockets. Steel posts shall be T or L shaped with a minimum weight of 1.3 pounds per foot. Attachment shall be by pockets or by plastic ties if the posts have suitable projections

Type 2: Net-Reinforced Fence - This system consists of fence posts, spaced no more than 8-1/2 feet apart, and geotextile with an attached reinforcing net. Fence posts shall meet the requirements of Self-Supported Fence. Net reinforcement shall be galvanized welded wire mesh of at least 12.5-gauge wire with maximum opening size of 4 x 2 inches. The fabric shall be attached to the top of the net by crimping or cord at least every 2 feet, or as otherwise specified.

Type 3: Triangular Filter Dike - This system consists of a rigid wire mesh, at least 6-gauge, formed into an equilateral triangle cross-sectional shape with sides measuring 18 inches, wrapped with geotextile silt fence fabric. The fabric shall be continuously wrapped around the dike, with a skirt extending at least 12 inches from its upslope corner.

C. Packaging Requirements: Prior to installation, the fabric shall be protected from damage due to ultraviolet light and moisture by either wrappers or inside storage.

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D. Certification and Identification: Each lot or shipment shall be accompanied by a certification of conformance to this specification. The shipment must be identified by a ticket or by labels securely affixed to the fabric rolls. This ticket or label must list the following information:

- a. Name of manufacturer or supplier
- b. Brand name and style
- c. Manufacturer's lot number or control number
- d. Roll size (length and width)
- e. Chemical composition

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, silt fence shall be measured by the linear foot. Payment shall be at the bid price for the unit of measurement specified and shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work. Payment shall include, but not be limited to, placing, maintaining and removing the silt fence.

SECTION 025205
PAVEMENT REPAIR CURB GUTTER SIDEWALK AND DRIVEWAY REPLACEMENT

1. DESCRIPTION

This specification shall govern the removal and replacing of all types of pavements and surfacing required to complete the project.

2. MATERIALS

Unless otherwise specified on the drawings, materials and proportions used along with this specification shall conform to the respective following specifications:

City Standard Specifications

Section 022020 "Excavation and Backfill for Utilities"
Section 022100 "Select Material"
Section 025223 "Crushed Limestone Flexible Base"
Section 025424 "Hot Mix Asphaltic Concrete Pavement"
Section 025610 "Concrete Curb and Gutter"
Section 025612 "Concrete Sidewalks and Driveways"
Section 025620 "Portland Cement Concrete Pavement"
Section 030020 "Portland Cement Concrete", Class "A" Concrete Section
032020 "Reinforcing Steel"
Section 038000 "Concrete Structures".

3. METHOD OF CUTTING

The outline of the trench shall be marked upon the surface of the pavement to be cut, and all cuts into the pavement shall be saw-cut as nearly vertical as it is possible to make them. All unwanted materials removed shall be disposed of by the Contractor and shall not be used as backfill material.

4. BACKFILL OF TRENCH

Excavation and backfilling of trench shall be in accordance with City Standard Specification Section
022020 "Excavation and Backfill for Utilities."

5. REPLACNG STREET AND OTHER PAVEMENT

All pavements, driveways, sidewalks, and curbs and gutters which are cut shall be replaced in a workmanlike manner, with like or better materials or per pavement repair details to be provided on the drawings. The installation of a utility that crosses the ROW at a perpendicular or near perpendicular angle and has an OD of 6" or less will not be permitted to be installed by cutting the road section. Street excavation/cut for a utility in an asphalt roadway shall include a full lane overlay or pavement repair for parallel cuts, or a 12' wide pavement repair for perpendicular cuts. Street excavation/cut for a utility in a concrete roadway shall include full panel replacement. The drawings and/or permit application should include a site specific pavement cut and restoration plan that indicates the general nature of the pavement and roadway (for examples, concrete arterial, asphalt residential) to be cut and restored, the existing pavement section (if known), the location and approximate area of the excavation/pavement repair, including the approximate length and width of the pavement repair in relation to the roadway travel lane(s).

6. REPLACING DRIVEWAY PAVEMENT

On all concrete driveway pavements, the replacement shall consist of a reinforced Class "A" concrete slab with a minimum thickness of six (6) inches. The type of finish for the replaced section shall be the same as that appearing on the old pavement. Reinforcement shall be #4 bars at 12 inches each way with additional diagonal bars as indicated on the drawings. Any other type shall be replaced with like or better replacement. Replacement shall, in general, be to original joint or score mark.

7. REPLACNG SIDEWALKS

On all sidewalk pavements, the replacement shall consist of a reinforced Class "A" concrete slab four (4) inches thick. The type of finish for the replaced section shall be the same as that appearing on the old sidewalk. Replacement shall, in general, be to original joint or score marks. Reinforcement shall be 4" x 4" - W2.9 x W2.9 welded wire fabric located at mid-depth in the slab.

8. REPLACNG CURB AND GUTTER

On all curb and gutter, the replacement shall consist of a section conforming in all details to the original section or to City of Kingsville Standard curb and gutter section, if required by the Engineer. Cuts through the curb shall be replaced with Class "A" concrete. Preserve the original steel reinforcing and reinforce all new curbs with three #4 bars. Adjust grades for positive drainage. Replacement shall, in general, be to original joint or score mark. For jointed concrete roadways, the joints in curb or in curb and gutter should match the concrete roadway joints.

9. REPAIRNG STREET SHOULDERS AND UNIMPROVED STREETS

On streets or roads without curb and gutter where a shoulder is disturbed, it shall be restored to like or better condition. The shoulder surface shall be rolled to an acceptably stable condition.

10. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, pavement repair shall be measured by the square yard of the type of repair specified; curb and gutter replacement shall be measured by the linear foot; and sidewalk and driveway replacement shall each be measured by the square foot. Payment will be made at the unit price bid for the completed work and shall be full compensation for all labor, materials, equipment, tools, and incidentals required to complete the work. No separate measurement or payment will be made for subgrade compaction, sand leveling course, geogrid, ordinary backfill, cement-stabilized sand backfill, flexible base, prime coat, hot-mix asphaltic concrete, etc.

SECTION 025220
FLEXIBLE BASE – LIMESTONE

1. DESCRIPTION

The specifications presented in this item are intended to present a minimum level of quality in the construction of flexible base which must be equaled or exceeded by the flexible base construction incorporated into work being a part of the proposed paving repairs for which this set of specifications is applicable.

Flexible Base may be used for a foundation for a surface course or for other base courses; shall be composed of crusher run broken stone; and shall be constructed as herein specified, in conformity with sections shown on plans, and to the lines and grades as established by the ENGINEER.

2. MATERIAL

The materials shall be crushed limestone from an approved source and shall consist of durable particles of stone mixed with approved binding material. The material shall conform to TxDOT Specifications (2014) Item 247, "Flexible Base", Type A, Grade 1.

3. CONSTRUCTION METHODS

Flexible base shall be placed by methods conforming to TxDOT Specifications (2014) Item 247.4. Compacted thickness of crushed limestone base shall be as shown on the plans with not less than 95% of maximum dry unit weight obtained by compaction of ASTM D-1557 procedure.

END OF SECTION

SECTION 025223
CRUSHED Limestone FLEXIBLE BASE

1. DESCRIPTION

This Specification shall govern all work for furnishing and placing Crushed Limestone Flexible Base required to complete the project.

2. MATERIAL

Crushed Limestone Flexible Base shall consist of crushed limestone produced from oversize quarried aggregate, sized by crushing and produced from a naturally occurring single source, meeting the requirements for Type 'A' material as specified in Texas Department of Transportation (TxDOT) Specification Item 247 "Flexible Base". Crushed gravel or uncrushed gravel shall not be acceptable. No blending of sources and/or additive materials will be allowed. The material shall be free of vegetation and shall be approved by the Engineer. All acceptable material shall be screened and the oversize shall be crushed and returned to the screened material in such a manner that a uniform product will be produced which meets all of the physical requirements for Grade 1-2 as specified in TxDOT Specification Item 247 "Flexible Base".

3. TESTING

The City will engage a laboratory and pay for one test each gradation, liquid limit, plasticity index, modified proctor, moisture-density relation, CBR, and necessary field densities. The Engineer may call for additional tests at any time. The cost of all retests, in case of failure to meet specifications, will be deducted from the Contractor's payment. The City will pay for proctor and soil constants and abrasion tests at the rate described in the materials testing schedule. If material changes, the Contractor shall pay the cost of additional tests required by the Engineer. The Engineer may waive testing and/or lime admix for small amounts for unimportant uses.

4. CONSTRUCTION METHODS

Prior to placement of flexible base, the surface of the previous underlying course shall be finished true to line and grade as established, and in conformity with the typical section shown on the drawings. Grade tolerance shall be generally 1/2 inch, and highs and lows must approximately balance. If called for in the drawings or elsewhere in the contract documents, geogrid, as specified in City Standard Specification Section 022040 "Street Excavation", shall be placed as indicated.

Flexible base shall be delivered and spread the same day if possible (no later than the next day).

Base shall be mixed as required to produce a uniform mixture with water. Base shall be placed in uniform lifts not to exceed 10-inch loose lifts or 8 inch compacted lifts. Moisture and density requirements shall be as indicated on the drawings, typical minimum 98% Modified Proctor

(ASTM DI 557) under flexible pavements or typical minimum 98% Standard Proctor (ASTM D698) under concrete pavement and to within $\pm 2\%$ of optimum moisture. The section may be accepted if no more than 1 of the 5 most recent moisture or density tests is outside of the specified limits, and the failed test is within +1 % deviation from specified moisture or density requirements.

The surface of the compacted base, after meeting moisture and density requirements, shall be primed in accordance with City Standard Specification Section 025412 "Prime Coat".

On completion of compaction and priming, the surface shall be smooth and conform to lines, grades, and sections shown on the drawings. Areas with any deviation in excess of 1/4 inch in cross-section and in lengths of 16 feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping, and recompacting by repriming and rolling.

Moisture and density shall be maintained until the paving is complete. Excessive loss of moisture shall be prevented by sprinkling, sealing, or covering with a subsequent layer. Should the base, due to any reason or cause, lose the required stability, density, or moisture before it is protected by placement of the next layer, it shall be re-compacted, refinished, and retested at the expense of the Contractor until acceptable to the City.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, crushed limestone flexible base shall be measured by the square yard complete in place. Payment shall be full compensation for all materials, royalty, hauling, placing, compacting, labor, equipment, tools, and incidentals necessary for the completion of work.

Prime shall be measured and paid under separate bid item if specified on the Bid Form.

Geogrid shall be measured and paid under separate bid item if specified on the Bid Form.

SECTION 025610
CONCRETE CURB AND GUTTER

1. DESCRIPTION

This specification shall consist of Portland cement concrete combined concrete curb and gutter or separate concrete curb with or without reinforcing steel as required, constructed on an approved subgrade or foundation material in accordance with these specifications, in conformity with the lines and grades established by the Engineer and details shown on the drawings.

2. MATERIALS

Unless otherwise specified on the drawings, materials and proportions for concrete used in construction under this specification shall conform to the requirements as specified for Class "A" Concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". Expansion joint filler shall be redwood material meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures".

3. CONSTRUCTION METHODS

The foundation shall be excavated and shaped to line, grade and cross-section, and hand tamped and sprinkled. If dry, the subgrade or foundation material shall be sprinkled lightly with water and compacted to not less than 98% Standard Proctor density, or as required on the drawings. Flexible base shall be compacted to specified density and moisture immediately before concrete is deposited thereon.

Outside forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free of warp, and of a depth equal to the depth of the curb and gutter. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete. Inside forms for the curb shall be approved material, shall be of such design as to provide the curb required, and shall be rigidly attached to the outside forms. For reinforced concrete roadways, all jointing must be reflected through the curb, including redwood expansion joints and construction joints. Driveway gutter shall be placed integrally with the driveway as shown on the City Standard Details.

The reinforcing steel shall be placed in position as shown on the typical details. Care shall be exercised to keep all reinforcing steel in its proper location.

Concrete for curb and gutter shall be mixed in a manner satisfactory to the Engineer. The curb and gutter shall be placed in sections of the length indicated on the plans, and each section shall be

separated by a pre-molded insert or board joint of cross-section specified for the curb and gutter, and of the thickness indicated on the drawings.

After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded by the use of an edging tool to the radius indicated on the drawings. All exposed surfaces of curb and gutter, or curb, shall be brushed to a smooth and uniform surface.

The completed curb and gutter shall be cured with Type 2, white pigmented curing compound unless shown otherwise on the drawings. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

The area behind the curb shall be backfilled, tamped, and sloped as directed as soon as possible and no later than 48 hours after the removal of forms. Backfill shall be placed to the full height of the curb, or as otherwise specified.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete curb and gutter or concrete curb will be measured by the linear foot for each type of curb, complete in place. Payment shall be full compensation for preparing the subgrade; for furnishing and placing all materials including reinforcing steel and expansion joint material; for furnishing, placing, shaping and tamping backfill; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work.

SECTION 025612
CONCRETE SIDEWALKS AND DRIVEWAYS

1. DESCRIPTION

This specification shall consist of sidewalks and driveways, with or without reinforcing steel, composed of Portland cement concrete, constructed as herein specified on an approved subgrade, in conformity with the lines and grades established by the Engineer and the details shown on the drawings.

2. MATERIALS

Materials and proportions used in construction under this item shall conform to the requirements as specified for Class "A" concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". Expansion joint filler shall be redwood meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures". Cap seal shall be "Greenstreak" or approved equal.

3. CONSTRUCTION METHODS

The subgrade shall be excavated, compacted and shaped to line, grade and cross-section and hand tamped and sprinkled with water. Subgrade under concrete sidewalks and driveways shall be compacted to not less than 95% Standard Proctor density. The subgrade shall be within 0-3% of optimum moisture content at the time the concrete is placed.

Forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free from warp, and of a depth equal to the thickness of the finished work. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete.

The reinforcing steel shall be placed in position as shown on the drawings. Care shall be exercised to keep all reinforcing steel in its proper location.

Driveways shall incorporate the gutter in a unified concrete placement as shown in the City Standard Detail for driveways.

Sidewalks shall be constructed in sections of the lengths shown on drawings. Unless otherwise provided by the drawings, no section shall be of a length less than 8 feet, and any section less than 8 feet shall be removed by the Contractor at his own expense.

The different sections shall be separated by a pre-molded insert or board joint of the thickness shown on the drawings, placed vertically and at right angles to the longitudinal axis of the sidewalks. Where the sidewalk or driveways abut a curb or retaining wall, approved expansion joint material shall be placed along their entire length. Similar expansion joint material shall be placed around all obstructions protruding through sidewalks or driveways.

Concrete shall be mixed in a manner satisfactory to the Engineer, placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar entirely covers the surface. The top surface shall be floated with a wooden float to a gritty texture. The outer edges and joints shall then be rounded with approved tools to the radii shown on drawings.

5-foot wide sidewalks shall be marked into separate sections, each 5 feet in length, by the use of approved jointing tools. For other widths of sidewalk, joints to be spaced longitudinally to match the transverse width.

When completed, the sidewalks and driveways shall be cured with Type 2, white pigmented curing compound. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete sidewalks and driveways shall be measured by the square foot of surface area of completed sidewalks, driveways, or sidewalks and driveways, as indicated on the drawings.

Payment shall be full compensation for preparing and compacting the subgrade; for furnishing and placing all materials including concrete, reinforcing steel and expansion joint material; and for all manipulation, labor, tools, equipment and incidentals necessary to complete the work.

SECTION 025614
CONCRETE CURB RAMPS

1. DESCRIPTION

This specification shall govern all work necessary for constructing Concrete Curb Ramps required to complete the project.

2. MATERIALS

Concrete shall be Class "A" in accordance with Section 030020 "Portland Cement Concrete" of the City Standard Specifications.

Reinforcement shall be 4x4 - W2.9xW2.9 welded wire fabric or #4 steel reinforcing bars spaced at 12 inches each way in accordance with Section 032020 "Reinforcing Steel" of the City Standard Specifications.

3. CONSTRUCTION METHODS

The subgrade shall be shaped to line, grade and cross-section, and shall be of uniform density and moisture when concrete is placed. The subgrade shall be hand tamped and sprinkled with water to achieve the desired consistency and uniform support. Subgrade compaction shall not be less than 95% Standard Proctor density.

Ramps shall be constructed of Class "A" concrete to line and section as shown on the plans. Unless shown otherwise on the drawings, ramps shall have a minimum concrete thickness in excess of 5 inches, prior to application of the detectable warning surfacing.

Slopes, S, shall be as follows, unless shown otherwise on the drawings:

RAMPS

- Ramp in direction of travel. $s \leq 1:12$
- Side slope of ramp (flare). $s \leq 1:10$
- Cross slope. $1:100 \leq S \leq 1:50$

ADJOINING AREAS

- Landings adjacent to ramp $s \leq 1:20$
- Driveways abutting tied sidewalks $s \leq 1:10$

Width of ramp shall be 60 inches (minimum), exclusive of flare, unless specifically shown otherwise on the drawings. No ramp shall be less than 36 inches wide under any circumstances. Obstructions shall be removed or relocated, as appropriate, or the location of the ramp may be shifted, if authorized.

Detectable warning surface shall be polymer composite material detectable warning panels as shown on the drawings. Surfacing shall be flush with abutting areas and placed using a template as required to achieve an esthetic well-defined edge. Surfacing shall be subsidiary work and will not be measured for separate pay.

Pavement markings for street crossings shall be placed such that the crosswalk is properly aligned with respect to the curb ramp. See striping details for proper alignment of pavement markings with respect to intersection and curb ramp.

Properly constructed curb ramp shall be tilted to line, section and grade, and shall be free of loose material and irregularities.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, concrete curb ramps shall be measured by the horizontal square foot of ramp surface area, including side flares when used. Adjoining curbs, gutters, sidewalks, and driveways will be excluded from said measurement.

Payment shall include, but not be limited to, subgrade preparation, formwork, concrete, rebar, detectable warning surfaces, borders, molding and curing required to complete the curb ramp, and shall be full compensation for all labor, materials, equipment and incidentals required to complete the work.

SECTION 025620
PORTLAND CEMENT CONCRETE PAVEMENT

1. DESCRIPTION

This specification shall govern for the construction of Portland cement concrete pavement on a prepared subgrade or base course, in accordance with the typical sections shown on the drawings.

The concrete shall be composed of Portland cement, aggregates (fine and coarse), admixtures if desired or required, and water, proportioned and mixed as hereinafter provided.

All subsurface utilities must be inspected, tested, and accepted prior to any paving.

2. MATERIALS

(1) Cement

The cement shall be either Type I, Type II or Type III Portland cement conforming to ASTM Designation: C150, modified as follows:

Unless otherwise specified by the Engineer, the specific surface area of Type I and II cements shall not exceed 2000 square centimeters per gram (Wagner Turbidimeter — TxDOT Test Method Tex-310-D). The Contractor shall furnish the Engineer with a statement as to the specific surface area of the cement, expressed in square centimeters per gram, for each shipment.

For concrete pavements, strength requirements shall be demonstrated using flexural (beam) or compressive (cylinder) tests as required in the drawings.

Either Type I or II cement shall be used unless Type II is specified on the plans. Except when Type II is specified on the plans, Type III cement may be used when the anticipated air temperature for the succeeding 12 hours will not exceed 60⁰F. Type III cement shall be used when high early strength concrete pavement is specified on the drawings.

Different types of cement may be used in the same project, but all cement used in any one monolithic placement of concrete pavement shall be of the same type and brand. Only one brand of each type of cement will be permitted in any one project unless otherwise authorized by the Engineer.

Cement may be delivered in bulk where adequate bin storage is provided. All other cement shall be delivered in bags marked plainly with the name of the manufacturer and the type of cement. Similar information shall be provided in the bills of lading accompanying each shipment of packaged or bulk cement. Bags shall contain 94 pounds net. All bags shall be in good condition at time of delivery.

All cement shall be properly protected against dampness. No caked cement will be accepted.

Cement remaining in storage for a prolonged period of time may be retested and rejected if it fails to conform to any of the requirements of these specifications.

(2) Mixing Water

Water for use in concrete and for curing shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

(3) Coarse Aggregate

Coarse aggregate for use in concrete mixture shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete", Grade No. 2.

(4) Fine Aggregate

Fine aggregate for use in concrete mixture shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete", Grade No. 1.

(5) Mineral Filler

Mineral filler shall consist of stone dust, clean crushed sand, or other approved inert material.

(6) Mortar (Grout)

Mortar for repair of concrete pavements shall consist of 1 part cement, 2 parts finely graded sand, and enough water to make the mixture plastic. When required to prevent color difference, white cement shall be added to produce the color required. When required by the Engineer, latex adhesive shall be added to the mortar.

(7) Admixtures

Calcium chloride will not be permitted. Unless otherwise noted, air-entraining, retarding and water-reducing admixtures may be used in all concrete and shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

(8) Reinforcing Steel

Unless otherwise designated on the plans, all steel reinforcement shall be deformed bars, and shall conform to ASTM Designation: A615, Grade 60, and shall be open hearth, basic oxygen or electric furnace new billet steel in accordance with City Standard Specification Section 032020 "Reinforcing Steel".

Dowels shall be plain billet steel smooth bars conforming to ASTM Designation: A615, Grade 60, and shall have hot-dip galvanized finish.

3. STORAGE OF MATERIALS

All cement and aggregate shall be stored and handled in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

4. MEASUREMENT OF MATERIALS

Measurement of the materials, except water, used in batches of concrete, shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".

5. CLASSIFICATION AND MIX DESIGN

It shall be the responsibility of the Contractor to furnish the mix design to comply with the requirements herein and in accordance with THD Bulletin C-II. The Contractor shall perform, at his own expense, the work required to substantiate the design, except the testing of strength specimens, which will be done by the Engineer. Complete concrete design data shall be submitted to the Engineer for approval.

It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, so that the mix conforms to these specifications and any other requirements shown on the plans.

In lieu of the above mix design responsibility, the Contractor may accept a design furnished by the Engineer; however, this will not relieve the Contractor of providing concrete meeting the requirements of these specifications.

Trial batches will be made and tested using all of the proposed ingredients prior to placing the concrete, and when the aggregate and/or brand of cement or admixture is changed. Trial batches shall be made in the mixer to be used on the job. When transit mix concrete is to be used, the trial designs will be made in a transit mixer representative of the mixers to be used. Batch size shall not be less than 50 percent of the rated mixing capacity of the truck.

Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

This specification section incorporates the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

6. CONSISTENCY

In cases where the consistency requirements cannot be satisfied without exceeding the maximum allowable amount of water, the Contractor may use, or the Engineer may require, an approved water-reducing or retarding agent, or the Contractor shall furnish additional aggregates or aggregates with different characteristics, which will produce the required results. Additional cement may be required or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or admixture.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When field conditions are such that additional moisture is needed for the final concrete surface finishing operation, the required water shall be applied to

the surface by fog spray only, and shall be held to a minimum. The concrete shall be workable, cohesive, possess satisfactory finishing qualities, and of the stiffest consistency that can be placed and vibrated into a homogenous mass. Excessive bleeding shall be avoided. Slump requirements shall be as specified in Table 1.

TABLE 1
Slump Requirements

<u>Construction Method</u>	<u>Desired Slump</u>	<u>Minimum Slump</u>	<u>Maximum Slump</u>
Concrete Pavement (slipformed)	1.5 inches	1 inch	3 inches
Concrete Pavement (formed)	4 inches	2.5 inches	6.5 inches

NOTE: No concrete will be permitted with slump in excess of the maximum shown.

7. QUALITY OF CONCRETE

The concrete shall be uniform and workable. The cement content, maximum allowable water cement ratio, desired slump, minimum slump, maximum slump, and the strength requirements of the class of concrete for concrete pavement shall conform to the requirements of Table 1 and Table 2 and as required herein.

During the process of the work, the Engineer will cast test beams or cylinders as a check on the flexural or compressive strength of the concrete actually placed. Testing shall be in accordance with City Standard Specification Section 030020 "Portland Cement Concrete". If the required flexural or compressive strength is not secured with the cement specified in Table 2, changes in the batch design will be made. The concrete shall meet either the minimum flexural (beam) strength (7-day or 28-day) or minimum compressive strength (7-day or 28-day) shown in Table 2.

TABLE 2
Class of Concrete for Concrete Pavement

Class	Minimum	Minimum	Maximum	
of Concrete	Flexural (Beam) Strength	Compressive <u>Strength</u>	Water-Cement <u>Ratio</u>	Coarse <u>Aggregate</u>
P*	450 psi (7 days)	3200 psi (7 days)	5.6 gal./sack	No. 2 (1 1/2")
	570 psi (28 days)	4000 psi (28 days)	0.50	

* 5% entrained air

8. MIXING CONDITIONS

The concrete shall be mixed in quantities required for immediate use. Any concrete which is not in place within the limits outlined in City Standard Specification Section 038000 "Concrete

Structures", Article "Placing Concrete-General", shall not be used. Re-tamping of concrete will not be permitted.

Mixing conditions shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

9. MDCING AND MIXNG EQUIPMENT

Mixing and mixing equipment shall conform to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete".

10. READY-MD(PLANTS

The requirements for ready-mix plants shall be as specified in City Standard Specification Section 030020 "Portland Cement Concrete".

11. PLACING CURING AND FNISHING

All subsurface utilities must be inspected, tested, and accepted prior to any paving.

Subgrade preparation shall be as specified on the plans. The placing of concrete, including construction of forms and falsework, curing and finishing shall be in accordance with City Standard Specification Section 038000 "Concrete Structures". For membrane curing, curing material shall conform to Type 2, Class A curing compound, or as otherwise shown on the drawings.

12. JOINTS CONCRETE PAVEMENT

The placing of joints in concrete pavement shall be in accordance with City Standard Specification Section 038000 "Concrete Structures" and as detailed on the drawings.

13. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the quantities of concrete for concrete pavement(s), which will constitute the completed and accepted pavement(s) in-place, will be measured by the square yard or square foot for the indicated thickness and type of cement.

Payment shall be full compensation for furnishing, hauling, mixing, placing, curing and finishing all concrete; all grouting and pointing; furnishing and placing reinforcing steel and steel dowels as shown on the plans; furnishing and placing drains; furnishing and placing metal flashing strips; furnishing and placing expansion joint material, joint filler and sealants, and contraction (control) joints required by this specification or shown on the plans; and for all forms and falsework, labor, tools, equipment and incidentals necessary to complete the work.

Any paving placed prior to inspection, testing, and acceptance of underground utilities may be rejected by the City and will be replaced at the Contractor's expense after correcting any subsurface utility defects.

SECTION 025802
TEMPORARY TRAFFIC CONTROLS DURING CONSTRUCTION

1. DESCRIPTION

This specification shall govern all work required for Temporary Traffic Controls during construction. The work shall include furnishing, installing, moving, replacing, and maintaining all temporary traffic controls including, but not limited to, barricades, signs, barriers, cones, lights, signals, temporary detours, temporary striping and markers, flagger, temporary drainage pipes and structures, blue business signs, and such temporary devices as necessary to safely complete the project.

2. MATERIALS

Traffic control devices shall conform to the latest edition of the "Texas Manual on Uniform Traffic Control Devices", unless indicated otherwise on the Traffic Control Plan.

3. METHODS

Sufficient traffic control measures shall be used to assure a safe condition and to provide a minimum of inconvenience to motorists and pedestrians.

If the Traffic Control Plan (TCP) is included in the drawings, any changes to the TCP by the Contractor shall be prepared by a Texas licensed professional engineer and submitted to the City Traffic Engineer for approval, prior to construction. If the TCP is not included in the drawings, the Contractor shall provide the TCP prepared by a Texas licensed professional engineer and submit the TCP to the City Traffic Engineer for approval, prior to construction.

The Contractor is responsible for implementing and maintaining the traffic control plan and will be responsible for furnishing all traffic control devices, temporary signage and ATSSA certified flaggers. The construction methods shall be conducted to provide the least possible interference to traffic so as to permit the continuous movement of traffic in all allowable directions at all times. The Contractor shall cleanup and remove from the work area all loose material resulting from construction operations at the end of each workday.

All signs, barricades, and pavement markings shall conform to the BC standard sheets, TCP sheets and the latest version of the "Texas Manual on Uniform Traffic Control Devices".

The Contractor may be required to furnish additional barricades, signs, and warning lights to maintain traffic and promote motorist's safety. Any such additional signs and barricades will be considered subsidiary to the pay item for traffic control. All signs, barricades, and posts will be either new or freshly painted.

The contractor and any traffic control subcontractor must be ATSSA certified for Traffic Control.

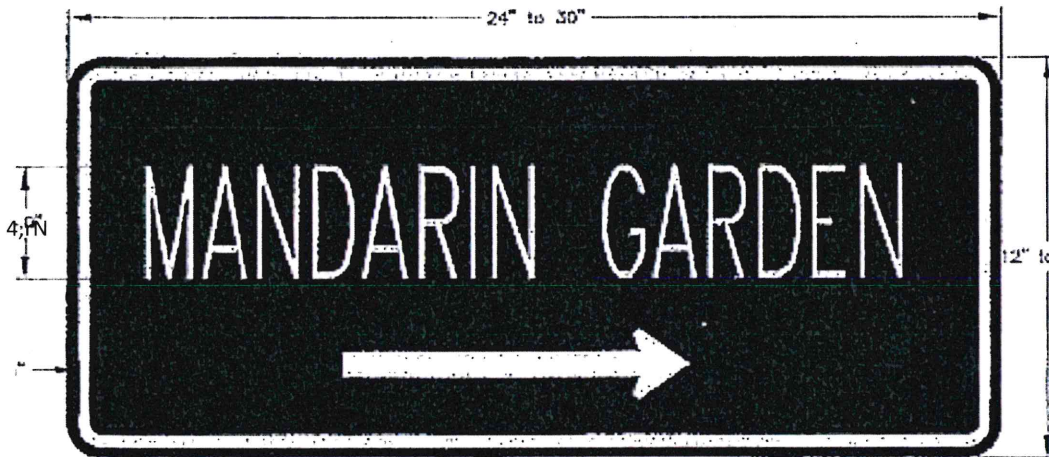
A competent person, responsible for implementation of the TCP and for traffic safety, shall be designated by the Contractor.

The name and off-hours phone number of the competent person shall be provided in writing at the Pre-Construction Conference.

The competent person shall be on site, during working hours and on call at all times in the event of off-hour emergency.

The contractor must provide temporary blue sign boards that direct traffic to businesses and driveways during each phase of construction — see example below. The sign boards may be either skid mounted, or barrel mounted. The City will assist the contractor in determining which businesses and driveways will receive signage during various construction phases. The provision, installation, and removal of signage will be subsidiary to the contract items provided for "Traffic Control."

Example Blue Sign



4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, temporary traffic controls during construction shall be measured as a lump sum. Payment shall include, but not be limited to, furnishing, installing, moving, replacing and maintaining all temporary traffic controls including, but not limited to, barricades, signs, banners, cones, lights, signals, temporary striping and markers, flaggers, removable and non-removable work zone pavements markings and signage, channelizing devices, temporary detours, temporary flexible-reflective roadway marker tabs, temporary traffic markers, temporary drainage pipes and structures, blue business signs, and such temporary devices and relocation of existing signs and devices. Payment shall be full compensation for all labor,

equipment, materials, personnel, and incidentals necessary to provide a safe condition during construction of all phases and elements of the project and to complete the work.

Payment will be made on the following basis: The initial monthly estimate will include 50% of the lump sum bid amount minus retention (typically 5%). The balance will be paid with the final estimate, upon completion of the project.

SECTION 027402
RENFORCED CONCRETE PIPE CULVERTS

1. DESCRIPTION

This specification shall govern the furnishing and placing of reinforced concrete pipe culverts and the material and incidental construction requirements for reinforced concrete pipe sewers. The culvert pipe shall be installed in accordance with the requirements of these specifications to the lines and grades shown on the plans, and shall be of the classes, sizes and dimensions shown thereon. The installation of pipe shall include all joints or connections to new or existing pipe, headwalls, etc., as may be required to complete the work.

2. MATERIALS

1. General. Except as modified herein, materials, manufacture and design of pipe shall conform to ASTM C-76 for Circular Pipe. All pipe shall be machine made or cast by a process which will provide for uniform placement of the concrete in the form and compaction by mechanical devices which will assure a dense concrete. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured. Transit mixed concrete will not be acceptable for use in precast concrete pipe.
2. Design. All pipe shall be Class III (Wall "B") unless otherwise specified on the plans. The shell thickness, the amount of circumferential reinforcement and the strength of the pipe shall conform to the specified class as summarized in ASTM C-76 for Circular Pipe.
3. Sizes and Permissible Variations.
 - a. Variations in diameter, size, shape, wall thickness, reinforcement, placement of reinforcement, laying length and the permissible underrun of length shall be in accordance with the applicable ASTM Specification for each type of pipe as referred to previously.
 - b. Where rubber gasket pipe joints are to be used, the design of the Joints and Permissible Variations in Dimensions shall be in accordance with ASTM C-443.
4. Workmanship and Finish. Pipe shall be substantially free from fractures, large or deep cracks and surface roughness. The ends of the pipe shall be normal to the walls and centerline of the pipe within the limits of variations allowed under the applicable ASTM specification.
5. Curing. Pipe shall be cured in accordance with the applicable ASTM Specification for each type of pipe as referred to above.

6. Marking. The following information shall be clearly marked on each section of pipe:
- a. The class of pipe.
 - b. The date of manufacture.
 - c. The name or trademark of the manufacturer.
 - d. Marking shall be indented on the pipe section or painted thereon with waterproof paint.
7. Minimum Age for Shipment. Pipe shall be considered ready for shipment when it conforms to the requirements of the tests specified herein.
8. Inspection. The quality of materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Engineer at the pipe manufacturing plant. In addition, the finished pipe shall be subject to further inspection by the Engineer at the project site prior to and during installation.
9. Causes for Rejection. Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements. Individual sections of pipe may be rejected because of any of the following:
- a. Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint.
 - b. Defects that indicate imperfect proportioning, mixing, and molding.
 - c. Surface defects indicating honeycombed or open texture.
 - d. Damaged ends, where such damage would prevent making a satisfactory joint.
10. Repairs. Pipe may be repaired, if necessary, because of occasional imperfections in manufacture or accidental injury during the handling, and will be acceptable if, in the opinion of the Engineer, the repairs are sound and properly finished and cured and the repaired pipe conforms to the requirements of the specifications.
11. Rejections. All rejected pipe shall be plainly marked by the Engineer and shall be replaced by the Contractor with pipe that meets the requirements of these specifications. Such rejected pipe shall be removed immediately from the worksite.

12. Jointing Materials. Unless otherwise specified on the plans, the Contractor shall have the option of making the joints by any of the following methods:

- a. Ram-Nek, a pre-formed plastic base joint material manufactured by K. T. Knyder Company, Houston, Texas, or an approved equal. Use of Talcote as joint material will not be permitted. Ram-Nek joint material and primer shall be supplied for

use on pipe in the following sizes, which is the minimum that will be required. Additional Ram-Nek may be required if, in the opinion of the Engineer, a proper joint is not secured.

<u>Pipe Size</u>	<u>Primer Per 100 Jts.</u>	<u>Cut Lengths Per Joint</u>
12"	1.5 gals.	1½ pcs 1" x 2'-5"
15"	1.9 gals.	2 pcs 1" x 2'-5"
18"	2.7 gals.	1 ½ pcs 1½ " x 3'-5"
21"	3.8 gals.	2 pcs 1½ " x 3'-5"
24"	6.2 gals.	2 pcs 1½ " x 3'-5"
30"	8.5 gals.	2½ pcs 1½ " x 3'-5"
36"	9.5 gals.	3 pcs 1 ¾" X 3'-5"
42"	12.0 gals.	3½ pcs 1 ¾" x 3'-5"
48"	15.0 gals.	4 pcs 1 ¾" x 3'-5"
54"	20.0 gals.	4½ pcs 1 ¾" x 3'-5"
60"	25.0 gals.	5 pcs 1 ¾" x 3'-5"
66"	30.0 gals.	5½ pcs 1¾" x 3'-5"
72"	32.0 gals	6 pcs 2" x 3'-5"
84"	35.0 gals	7 pcs 2" x 3'-5"

- a. TYLOX Types "C", "C-P" or "CR" rubber gaskets, as applicable, as manufactured by Hamilton Kent Manufacturing Company, Kent, Ohio, or approved equal. All gaskets, lubricants, adhesives, etc., shall be manufactured, constructed, installed, etc., as recommended by the manufacturer of the rubber gasket material and conform to ASTM Designation: C-443. In addition, the Contractor shall furnish to the City, for approval, manufacturer's brochures detailing the complete use,

installation, and specifications of concrete pipe and rubber gaskets before any rubber gasket material is used on the project. All rubber gaskets shall be fabricated from synthetic rubber.

- b. Cement Mortar is prohibited from jointing pipe except at manholes, pipe junctions, etc., or where specifically approved by the Engineer.
- c. Geotextile for wrapping pipe joints shall be Class "A" subsurface drainage type in accordance with AASHTO M288.

3. CONSTRUCTION METHODS

Reinforced concrete pipe culverts shall be constructed from the specified materials in accordance with the following methods and procedures:

1. Excavation. All excavation shall be in accordance with the requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities," except where tunneling or jacking methods are shown on the plans or permitted by the Engineer. When pipe is laid in a trench, the trench, when completed and shaped to receive the pipe, shall be of sufficient width to provide free working space for satisfactory bedding and jointing and thorough tamping of the backfill and bedding material under and around the pipe. The Contractor shall make such temporary provisions as may be necessary to insure adequate drainage of the trench and bedding during the construction operation. Pipe shall be placed such that the identification markings are visible at the top prior to backfill.
2. Bedding. The pipe shall be bedded in accordance with the bedding details shown on the drawings. Bedding shall not be measured for pay but shall be subsidiary to other work.

If the subgrade of the trench is unstable, even if this condition occurs at relatively shallow depths, full encasement of the pipe with crushed stone shall be required.

3. Laying Pipe. Unless otherwise authorized by the Engineer, the laying of pipe on the prepared foundation shall be started at the outlet (downstream) end with the spigot or tongue end pointing downstream and shall proceed toward the inlet (upstream) end with the abutting sections properly matched, true to the established lines and grades. Where bell and spigot pipe are used, cross trenches shall be cut in the foundation to allow the barrel of the pipe to rest firmly upon the prepared bed. These cross trenches shall be not more than two inches larger than the bell ends of the pipe. Proper facilities shall be provided for hoisting and lowering the sections of pipe into the trench without disturbing the prepared foundation and the sides of the trench. The ends of the pipe shall be carefully cleaned before the pipe is placed. As each length of pipe is laid, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material. The pipe shall be fitted and

matched so that when laid in the bed, it shall form a smooth, uniform conduit. When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such position that the markings "TOP" or "BOTTOM" shall not be more than 5 degrees from the vertical plane through the longitudinal axis of the pipe.

For pipe over 42 inches in diameter, the Contractor may drill two holes not larger than 2 inches in diameter, in the top of each section of the pipe, to aid in lifting and placing.

The holes shall be neatly drilled, without spalling of the concrete, and shall be done without the cutting of any reinforcement. After the pipe is laid, the holes shall be filled with mortar and properly cured and placed such that they are visible from the top for inspection prior to backfill.

Multiple installations of reinforced concrete pipe shall be laid with the center lines of individual barrels parallel. When not otherwise indicated on plans, the following clear distances between outer surfaces of adjacent pipe shall be used.

Diameter of Pipe	18"	24"	30"	36"	42"	48"	54"	60" to 84"
Clear Distance Between Pipes	0'-9"	0'-11"	1'-1"	1'-3"	1'-5"	1'-7"	1'-11"	2'-0"

- a. If the use of Portland cement mortar joints is allowed, all pipe shall be jointed tight and sealed with stiff mortar, composed of one part Portland cement and two parts sand, so placed as to form a durable water-tight joint. The installation shall be as required by the Engineer.
- b. Joints using Rubber Gaskets: Where rubber gasket pipe joints are required by the plans, the joint assembly shall be made according to the recommendations of the gasket manufacturer. Water-tight joints will be required when using rubber gaskets.
- c. Joints using Cold-Applied Preformed Plastic Gaskets shall be made as follows:

A suitable primer of the type recommended by the manufacturer of the gasket joint sealer shall be brush-applied to the tongue and groove joint surfaces and the end surfaces and allowed to dry and harden. No primer shall be applied over mud, sand or dirt or sharp cement protrusions. The surface to be primed must be clean and dry when primer is applied.

Before laying the pipe in the trench, the plastic gasket sealer shall be attached around the tapered tongue or tapered groove near the shoulder or hub of each pipe

joint. The paper wrapper shall be removed from one side only of the two-piece wrapper on the gasket and pressed firmly to the clean, dry pipe joint surface. The outside wrapper shall not be removed until immediately before pushing the pipe into its final position.

When the tongue is correctly aligned with the flare of the groove, the outside wrapper on the gasket shall be removed and the pipe shall be pulled or pushed home with sufficient force and power (backhoe shovel, chain hoist, ratchet hoist or winch) to cause the evidence of squeeze-out of the gasket material on the inside or outside around the complete pipe joint circumference. The extruded gasket material shall be smoothed out over the joint on the exterior and interior of the pipe. Any joint material pushed out into the interior of the pipe that would tend to obstruct the flow shall be removed. (Pipe shall be pulled home in a straight line with all parts of the pipe on line and grade at all times.) Backfilling of pipe laid with plastic gasket joints may proceed as soon as the joint has been inspected and approved by the Engineer. Special precautions shall be taken in placing and compacting backfill to avoid damage to the joints.

When the atmospheric temperature is below 60 degrees F, plastic joint seal gaskets shall either be stored in an area warmed to above 70 degrees F, or artificially warmed to this temperature in a manner satisfactory to the Engineer. Gaskets shall then be applied to pipe joints immediately prior to placing pipe in the trench, followed by connection to previously laid pipe.

- d. Pipe Joints for storm sewers shall be wrapped with geotextile material. The geotextile wrap shall be at least 2 feet wide and shall be centered on each joint.

5. After the pipe has been placed, bedded and jointed as specified, filling and/or backfilling shall be done in accordance with the applicable requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities." If unstable conditions are encountered, fully encase the pipe with crushed stone as described above. When mortar joints are allowed, no fill or backfill shall be placed until the jointing material has been cured for at least six (6) hours.

Special precautions shall be taken in placing and compacting the backfill to avoid any movement of the pipe or damage to the joints. For side drain culverts and all other culverts where joints consist of materials other than mortar, immediate backfilling will be permitted.

6. Unless otherwise shown on the plans or permitted in writing by the Engineer, no heavy earth moving equipment will be permitted to haul over the structure until a minimum of 4 feet of permanent or temporary compacted fill has been placed thereon. Pipe damaged by the Contractor's equipment shall be removed and replaced by the Contractor at no additional cost.

7. Cleaning and Television Inspection. All enclosed reinforced concrete pipe and manholes installed on this project shall be cleaned and televised in accordance with City Standard Specification Section 027611 "Cleaning and Televised Inspection of Conduits."

4. MEASUREMENT

Unless otherwise specified on the Bid Form, reinforced concrete pipe will be measured by the linear foot. Such measurement will be made between the ends of the pipe barrel along its central axis. Where spurs or branches, or connections to existing pipe lines are involved, measurement of the spur or new connecting pipe will be made from the intersection of its center axis with the outside surfaces of the pipe into which it connects. Where inlets, headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, that length of pipe tying into the structure wall will be included for measurement but no other portion of the structure length or width will be so included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels measured as prescribed above.

5. PAYMENT

Payment for reinforced concrete pipe measured as prescribed above will be made at the contract unit price bid per linear foot for the various sizes of "Reinforced Concrete Pipe" of the class specified.

Payment shall be full compensation for furnishing and transporting the pipe; hauling and placing of earth cushion material where required for bedding pipe; for the preparation and shaping of beds; for hauling, placing and jointing of pipes; for furnishing and installing geotextile pipe joint wrapping; for end finish; for all connections to existing and new structures; for cleaning and television inspection; and for all other items of materials, labor, equipment, tools, excavation, backfill and incidentals necessary to complete the culvert or storm sewer in accordance with the plans and these specifications.

SECTION 030020
PORTLAND CEMENT CONCRETE

1. DESCRIPTION

This specification shall govern for the materials used; for the storing and handling of materials; and for the proportioning and mixing of concrete for culverts, manholes, inlets, curb and gutter, sidewalks, driveways, curb ramps, headwalls and wingwalls, riprap, and incidental concrete construction.

The concrete shall be composed of Portland cement, aggregates (fine and coarse), admixtures if desired or required, and water, proportioned and mixed as hereinafter provided.

2. MATERIALS

(1) Cement

The cement shall be either Type I, II or III Portland cement conforming to ASTM Designation: C150, modified as follows:

Unless otherwise specified by the Engineer, the specific surface area of Type I and II cements shall not exceed 2000 square centimeters per gram (Wagner Turbidimeter — TxDOT Test Method Tex-310-D). For concrete piling, the above limit on specific surface area is waived for Type II cement only. The Contractor shall furnish the Engineer, with each shipment, a statement as to the specific surface area of the cement expressed in square centimeters per gram.

For cement strength requirements, either the flexural or compressive test may be used.

Either Type I or II cement shall be used unless Type II is specified on the plans. Except when Type II is specified on the plans, Type III cement may be used when the anticipated air temperature for the succeeding 12 hours will not exceed 60°F. Type III cement may be used in all precast prestressed concrete, except in piling when Type II cement is required for substructure concrete.

Different types of cement may be used in the same structure, but all cement used in any one monolithic placement shall be of the same type and brand. Only one brand of each type will be permitted in any one structure unless otherwise authorized by the Engineer.

Cement may be delivered in bulk where adequate bin storage is provided. All other cement shall be delivered in bags marked plainly with the name of the manufacturer and the type of cement. Similar

information shall be provided in the bills of lading accompanying each shipment of packaged or bulk cement. Bags shall contain 94 pounds net. All bags shall be in good condition at time of delivery.

All cement shall be properly protected against dampness. No caked cement will be accepted.

Cement remaining in storage for a prolonged period of time may be retested and rejected if it fails to conform to any of the requirements of these specifications.

(2) Mixing Water

Water for use in concrete and for curing shall be free from oils, acids, organic matter or other deleterious substances and shall not contain more than 1000 parts per million of chlorides as CL nor more than 1000 parts per million of sulfates as S04.

Water from municipal supplies approved by the State Health Department will not require testing, but water from other sources will be sampled and tested before use in structural concrete.

Tests shall be made in accordance with the "Method of Test for Quality of Water to be Used in Concrete" (AASHTO Method T26), except where such methods are in conflict with provisions of this specification.

(3) Coarse Aggregate

Coarse aggregate shall consist of durable particles of gavel, crushed blast furnace slag, crushed stone, or combinations thereof; free from frozen material or injurious amount of salt, alkali, vegetable matter, or other objectionable material either free or as an adherent coating; and its quality shall be reasonably uniform throughout. It shall not contain more than 0.25 percent by weight of clay lumps, nor more than 1.0 percent by weight of shale, nor more than 5 percent by weight of laminated and/or friable particles when tested in accordance with TxDOT Test Method Tex-413-A. It shall have a wear of not more than 40 percent when tested in accordance with TxDOT Test Method Tex-410-A.

Unless otherwise specified on the plans, coarse aggregate will be subjected to five cycles of the soundness test in accordance with TxDOT Test Method Tex-411-A. The loss shall not be greater than 12 percent when sodium sulfate is used, or 18 percent when magnesium sulfate is used.

Permissible sizes of aggregate shall be governed by Table 4 and Table 1, except that when exposed aggregate surfaces are required, coarse aggregate gradation will be as specified on the plans.

When tested by approved methods, the coarse aggregate, including combinations of aggregates when used, shall conform to the grading requirements shown in Table 1.

TABLE 1
Coarse Aggregate Gradation Chart

<u>Percent Retained on Each Sieve</u>										
<u>Aggregate Grade No.</u>	<u>Nominal Size</u>	<u>2-1/2 In.</u>	<u>2 In.</u>	<u>1-1/2 In.</u>	<u>1 In.</u>	<u>3/4 In.</u>	<u>1/2 In.</u>	<u>3/8 In.</u>	<u>No. 4</u>	<u>No. 8</u>
1	2 in.	0	0 to 20	15 to 50		60 to 80			95 to 100	
2 (467)*	1-1/2 in.		0	0 to 5		30 to 65		70 to 90	95 to 100	
4 (57)*	1 in.			0	0 to 5		40 to 75		90 to 100	95 to 100
8	3/8 in.						0	0 to 5	24 to 80	90 to 100

*Numbers in parenthesis indicate conformance with ASTM C33.

The aggregate shall be washed. The Loss by Decantation (TxDOT Test Method Tex-406-A) plus the allowable weight of clay lumps, shall not exceed one percent, or the value shown on the plans, whichever is smaller.

(4) Fine Aggregate

Fine aggregate shall consist of clean, hard, durable and uncoated particles of natural or manufactured sand or a combination thereof, with or without a mineral filler. It shall be free from frozen material or injurious amounts of salt, alkali, vegetable matter or other objectionable material and it shall not contain more than 0.5 percent by weight of clay lumps. When subjected to the color test for organic impurities (TxDOT Test Method Tex-408-A), it shall not show a color darker than standard.

The fine aggregate shall produce a mortar having a tensile strength equal to or greater than that of Ottawa sand mortar when tested in accordance with TxDOT Test Method Tex-317-D.

Where manufactured sand is used in lieu of natural sand for slab concrete subject to direct traffic, the acid insoluble residue of the fine aggregate shall be not less than 28 percent by weight when tested in accordance with TxDOT Test Method Tex-612-J.

When tested by approved methods, the fine aggregate or combination of aggregates, including mineral filler, shall conform to the grading requirements shown in Table 2.

TABLE 2
Fine Aggregate Gradation Chart

Percent Retained on Each Sieve								
<u>Aggregate Grade No.</u>	<u>3/8 In.</u>	<u>No. 4</u>	<u>No. 8</u>	<u>No. 16</u>	<u>No. 30</u>	<u>No. 50</u>	<u>No. 100</u>	<u>No. 200</u>
1	0	0 to 5	0 to 20	15 to 50	35 to 75	70 to 90	90 to 100	97 to 100

NOTE 1: Where manufactured sand is used in lieu of natural sand, the percent retained on the No.200 sieve shall be 94 to 100.

NOTE 2: Where the sand equivalent value is greater than 85, the retainage on the No. 50 sieve may be 70 to 94 percent.

Fine aggregate will be subjected to the Sand Equivalent Test (TxDOT Test Method Tex-203-F). The sand equivalent shall not be less than 80 nor less than the value shown on the plans, whichever is greater.

For concrete Classes 'A' and 'C', the fineness modulus as defined below for fine aggregates shall be between 2.30 and 3.10.

The fineness modulus will be determined by adding the percentages by weight retained on the following sieves, and dividing by 100; Nos. 4, 8, 16, 30, 50 and 100.

(5) Mineral Filler

Mineral filler shall consist of stone dust, clean crushed sand, or other approved inert material.

(6) Mortar (Grout)

Mortar for repair of concrete shall consist of 1 part cement, 2 parts finely graded sand, and enough water to make the mixture plastic. When required to prevent color difference, white cement shall be added to produce the color required. When required by the Engineer, latex adhesive shall be added to the mortar.

(7) Admixtures

Calcium Chloride will not be permitted. Unless otherwise noted, air-entraining, retarding and water reducing admixtures may be used in all concrete and shall conform to the following requirements:

A "water-reducing, retarding admixture" is defined as a material which, when added to a concrete mixture in the correct quantity, will reduce the quantity of mixing water required to produce concrete of a given consistency and will retard the initial set of the concrete.

A "water-reducing admixture" is defined as a material which, when added to a concrete mixture in the correct quantity, will reduce the quantity of mixing water required to produce concrete of a given consistency.

(a) Retarding and Water-Reducing Admixtures. The admixture shall meet the requirements for Type A and Type D admixture as specified in ASTM Designation: C494, modified as follows:

- (1) The water-reducing retarder shall retard the initial set of the concrete a minimum of 2 hours and a maximum of 4 hours, at a specified dosage rate, at a temperature of 90°F.
- (2) The cement used in any series of tests shall be either the cement proposed for specific work or a "reference" Type I cement from one mill.
- (3) Unless otherwise noted on the plans, the minimum relative durability factor shall be 80.

The air-entraining admixture used in the referenced and test concrete shall be neutralized Vinsol resin.

(b) Air-Entraining Admixture. The admixture shall meet the requirements of ASTM Designation: C260, modified as follows:

- (1) The cement used in any series of tests shall be either the cement proposed for specific work or a "reference". Type I cement from one mill.
- (2) Unless otherwise noted on the plans, the minimum relative durability factor shall be 80.

The air-entraining admixture used in the referenced concrete shall be neutralized Vinsol resin.

3. STORAGE OF CEMENT

All cement shall be stored in well-ventilated weatherproof buildings or approved bins, which will protect it from dampness or absorption of moisture. Storage facilities shall be ample, and each shipment of packaged cement shall be kept separated to provide easy access for identification and inspection.

The Engineer may permit small quantities of sacked cement to be stored in the open for a maximum of 48 hours on a raised platform and under waterproof covering.

4. STORAGE OF AGGREGATE

The method of handling and storing concrete aggregate shall prevent contamination with foreign materials. If the aggregates are stored on the ground, the sites for the stockpiles shall be clear of all vegetation and level. The bottom layer of aggregate shall not be disturbed or used without recleaning.

When conditions require the use of two or more sizes of aggregates, they shall be separated to prevent intermixing. Where space is limited, stockpiles shall be separated by physical barriers.

Methods of handling aggregates during stockpiling and subsequent use shall be such that segregation will be minimized.

Unless otherwise authorized by the Engineer, all aggregate shall be stockpiled at least 24 hours to reduce the free moisture content.

5. MEASUREMENT OF MATERIALS

The measurement of the materials, except water, used in batches of concrete, shall be by weight. The fine aggregate, coarse aggregate and mineral filler shall be weighed separately. Where bulk cement is used, it shall be weighed separately, but batch weighing of sacked cement will not be required. Where sacked cement is used, the quantities of material per batch shall be based upon using full bags of cement. Batches involving the use of fractional bags will not be permitted.

Allowance shall be made for the water content in the aggregates.

Bags of cement varying more than 3 percent from the specified weight of 94 pounds may be rejected, and when the average weight per bag in any shipment, as determined by weighing 50 bags taken at random, is less than the net weight specified, the entire shipment may be rejected. If the shipment is accepted, the Engineer will adjust the concrete mix to a net weight per bag fixed by an average of all individual weights which are less than the average weight determined from the total number weighed.

6. CLASSIFICATION AND MIX DESIGN

It shall be the responsibility of the Contractor to furnish the mix design, using a coarse aggregate factor acceptable to the Engineer, for the class(es) of concrete specified. The mix shall be designed by a qualified concrete technician to conform with the requirements contained herein and in accordance with the THD Bulletin C-11. The Contractor shall perform, at his own expense, the work required to

substantiate the design, except the testing of strength specimens, which will be done by the Engineer. Complete concrete design data shall be submitted to the Engineer for approval.

It shall also be the responsibility of the Contractor to determine and measure the batch quantity of each ingredient, including all water, so that the mix conforms to these specifications and any other requirements shown on the plans.

Trial batches will be made and tested using all of the proposed ingredients prior to placing the concrete, and when the aggregate and/or brand of cement or admixture is changed. Trial batches shall be made in the mixer to be used on the job. When transit mix concrete is to be used, the trial designs will be made in a transit mixer representative of the mixers to be used. Batch size shall not be less than 50 percent of the rated mixing capacity of the truck.

Mix designs from previous or concurrent jobs may be used without trial batches if it is shown that no substantial change in any of the proposed ingredients has been made.

The coarse aggregate factor shall not be more than 0.82, except that when the voids in the coarse aggregate exceed 48 percent of the total dry loose volume, the coarse aggregate factor shall not exceed 0.85. The coarse aggregate factor shall not be less than 0.70 for Grades 1, 2 and 3 aggregates.

If the strength required for the class of concrete being produced is not secured with the cement specified in Table 4, the Contractor may use an approved water-reducing or retarding admixture, or he shall furnish aggregates with different characteristics which will produce the required results. Additional cement may be required or permitted as a temporary measure until the redesign is checked.

Water-reducing or retarding agents may be used with all classes of concrete at the option of the Contractor.

When water-reducing or retarding agents are used at the option of the Contractor, reduced dosage of the admixture will be permitted.

Entrained air will be required in accordance with Table 4. The concrete shall be designed to entrain 5 percent air when Grade 2 coarse aggregate is used and 6 percent when Grade 3 coarse aggregate is used. Concrete as placed in the structure shall contain the proper amount as required above with a tolerance of plus or minus 1.5 percentage points. Occasional variations beyond this tolerance will not be cause for rejection. When the quantity of entrained air is found to be above 7 percent with Grade 2 coarse aggregate or above 8 percent for Grade 3 coarse aggregate, additional test beams or cylinders will be made. If these beams or cylinders pass the minimum flexural or compressive requirements, the concrete will not be rejected because of the variation in air content.

7. CONSISTENCY

In cases where the consistency requirements cannot be satisfied without exceeding the maximum allowable amount of water, the Contractor may use, or the Engineer may require, an approved water reducing or retarding agent, or the Contractor shall furnish additional aggregates or aggregates with different characteristics, which will produce the required results. Additional cement may be required

or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or admixture.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When field conditions are such that additional moisture is needed for the final concrete surface finishing operation, the required water shall be applied to the surface by fog spray only, and shall be held to a minimum. The concrete shall be workable, cohesive, possess satisfactory finishing qualities, and of the stiffest consistency that can be placed and vibrated into a homogenous mass. Excessive bleeding shall be avoided. Slump requirements will be as specified in Table 3.

TABLE 3
Slump Requirements

<u>Concrete Designation</u>	<u>Structural</u>	<u>Desired Slump</u>	<u>Max. Slump</u>
Concrete:			
(1) Thin-Walled Sections (9" or less)		4 inches	5 inches
(2) Slabs, Caps, Columns, Piers, Wall Sections over 9", etc.		3 inches	4 inches
Underwater or Seal Concrete		5 inches	6 inches
Riprap, Curb, Gutter and Other Miscellaneous Concrete		2.5 inches	4 inches

NOTE: No concrete will be permitted with slump in excess of the maximums shown.

8. QUALITY OF CONCRETE

General

The concrete shall be uniform and workable. The cement content, maximum allowable water-cement ratio, the desired and maximum slump and the strength requirements of the various classes of concrete shall conform to the requirements of Table 3 and Table 4 and as required herein.

During the process of the work, the Engineer or his designated representative will cast test cylinders or beams as a check on the compressive or flexural strength of the concrete actually placed. Test cylinders must be picked up by the testing lab within 24 hours.

A test shall be defined as the average of the breaking strength of two cylinders or two beams, as the case may be. Specimens will be tested in accordance with TxDOT Test Methods Tex-418-A or Tex-420-A.

Test beams or cylinders will be required as specified in the contract documents. For small placements on structures such as manholes, inlets, culverts, wingwalls, etc., the Engineer may vary the number of tests to a minimum of one for each 25 cubic yards placed over a several day period.

All test specimens, beams or cylinders, representing tests for removal of forms and/or falsework shall be cured using the same methods, and under the same conditions as the concrete represented.

'Design Strength" beams and cylinders shall be cured in accordance with THD Bulletin C-11.

The Contractor shall provide and maintain curing facilities as described in THD Bulletin C-11 for the purpose of curing test specimens. Provision shall be made to maintain the water in the curing tank at temperatures between 70°F and 90°F.

When control of concrete quality is by twenty-eight-day compressive tests, job control will be by seven-day compressive tests which are shown to provide the required twenty-eight-day strength, based on results from trial batches. If the required seven-day strength is not secured with the cement specified in Table 4, changes in the batch design will be made.

TABLE 4

Classes of Concrete

Class of Concrete	Sacks cement per C.Y. (min)	Minimum Compressive Strength (fc) 28-Day (psi)	Min. Beam Strength 7-Day (psi)	Maximum Water-Cement Ratio (gal/sack)	Coarse Aggregate No.
A*	5.0	3000	500***	6.5	2-4-8****
B*	4.5	2500	417	8.0	2-4-8****
C*	6.0	3600	600***	6.0	1-2-4**
D	6.0	3000	500	7.0	2-4
S	6.5	4000	570	5.0	2-4

*Entrained Air (slabs, piers and bent concrete).

**Grade 1 Coarse Aggregate may be used in foundation only (except cased drilled shafts).

***When Type II Cement is used with Class C Concrete, the 7-day beam break requirement will be 550 psi; with Class A Concrete, the minimum 7-day beam break requirement will be 460 psi.

****Permission to use Grade 8 Aggregate must have prior approval of the Engineer.

9. MIXING CONDITIONS

The concrete shall be mixed in quantities required for immediate use. Any concrete which is not in place within the limits outlined in City Standard Specification Section 038000 "Concrete Structures", Article "Placing Concrete-General", shall not be used. Retamping of concrete will not be permitted.

In threatening weather, which may result in conditions that will adversely affect the quality of the concrete to be placed, the Engineer may order postponement of the work. Where work has been started and changes in weather conditions require protective measures, the Contractor shall furnish adequate shelter to protect the concrete against damage from rainfall, or from freezing temperatures. If necessary to continue operations during rainfall, the Contractor shall also provide protective coverings for the material stockpiles. Aggregate stockpiles need be covered only to the extent necessary to control the moisture conditions in the aggregates to adequately control the consistency of the concrete.

10. MIXING AND MIMNG EQUIPMENT

All equipment, tools, and machinery used for hauling materials and performing any part of the work shall be maintained in such condition to insure completion of the work underway without excessive delays for repairs or replacements.

The mixing shall be done in a batch mixer of approved type and size that will produce uniform

distribution of the material throughout the mass. Mixers may be either the revolving drum type or the revolving blade type, and shall be capable of producing concrete meeting the requirements of these specifications.

After all the ingredients are assembled in the drum, the mixing shall continue not less than 1 minute for mixers of one cubic yard or less capacity plus 15 seconds for each additional cubic yard or portion thereof.

The mixer shall operate at the speed and capacity designated by the Mixer Manufacturers Bureau of the Associated General Contractors of America. The mixer shall have a plate affixed showing the manufacturer's recommended operating data.

The absolute volume of the concrete batch shall not exceed the rated capacity of the mixer.

The entire contents of the drum shall be discharged before any materials are placed therein for the succeeding batch.

The first batch of concrete materials placed in the mixer for each placement shall contain an extra quantity of sand, cement and water sufficient to coat the inside surface of the drum.

Upon the cessation of mixing for any considerable length of time, the mixer shall be thoroughly cleaned.

The concrete mixer shall be equipped with an automatic timing device which is put into operation when the skip is raised to its full height and dumping. This device shall lock the discharging mechanism and prevent emptying of the mixer until all the materials have been mixed together for the minimum time required, and it shall ring a bell after the specified time of mixing has elapsed.

The water tank shall be arranged so that the amount of water can be measured accurately, and when the tank starts to discharge, the inlet supply shall cut off automatically.

Whenever a concrete mixer is not adequate or suitable for the work, it shall be removed from the site upon a written order from the Engineer and a suitable mixer provided by the Contractor.

Pick-up and thro-over blades in the drum of the mixer which are worn down more than 10 percent in depth shall be repaired or replaced with new blades.

Improperly mixed concrete shall not be placed in the structure.

Job mix concrete shall be concrete mixed in an approved batch mixer in accordance with the requirements stated above, adjacent to the structure for which the concrete is being mixed, and moved to the placement site in non-agitating equipment.

11. READY-MIX PLANTS

A. General. It shall be the Contractor's responsibility to furnish concrete meeting all requirement of the governing specification sections, and concrete not meeting the slump, workability and consistency requirements of the governing specification sections shall not be placed in the structure or pavement.

Ready-Mixed Concrete shall be mixed and delivered by means of one of the following approved methods.

- (1) Mixed completely in a stationary mixer and transported to the point of delivery in a truck agitator or a truck mixer operating at tuck agitator or tuck mixer agitation speed. (Central-Mix Concrete)
- (2) Mixed complete in a tuck mixer and transported to the placement site at mixing and/or agitating speed (Transit-Mix Concrete), subject to the following provisions:
 - (a) Truck mixers will be permitted to transport concrete to the job site at mixing speed if equipped with double actuated counters which will separate revolutions at mixing speed from total revolutions.
 - (b) Truck mixers equipped with a single actuated counter counting total revolutions of the drum shall mix the concrete at the plant not less than 50 nor more than 70 revolutions at mixing speed, transport it to the job site at agitating speed and complete the required mixing before placing the concrete.
- (3) Mixed completely in a stationery mixer and transported to the job site in approved non-agitating. trucks with special bodies. This method of transporting will be permitted for concrete pavement only.

B. Equipment.

- (1) Batching Plant. The batching plant shall be provided with adequate bins for batching all aggregates and materials required by the specifications.

Bulk cement shall be weighed on a scale separate from those used for other materials and in a hopper entirely free and independent of that used for weighing the aggregates.

- (2) Mixers and Agitators.

- (a) General: Mixers shall be of an approved stationary or truck-type capable of combining the ingredients into a thoroughly mixed and uniform mass.

Facilities shall be provided to permit ready access to the inside of the drum for inspection, cleaning and repair of blades.

Mixers and agitators shall be subject to daily examination for changes in condition due to accumulation of hardened concrete and/or wear of blades, and any hardened concrete shall be removed before the mixer will be permitted to be used. Worn blades shall be repaired or replaced with new in accordance with the manufacturer's design and arrangement for that particular unit when any part or section is worn as much as 10 percent below the original height of the manufacturer's design.

- (b) Stationary Mixers: These shall conform to the requirements of Article "Mixing and Mixing Equipment". Truck mixers mounted on a stationary base will not be considered as a stationary mixer.

- (c) Truck Mixers: In addition, truck mixers shall comply with the following requirements:

An engine in satisfactory working condition and capable of accurately gauging the desired speed of rotation shall be mounted as an integral part of the mixing unit for the purpose of rotating the drum. Truck mixers equipped with a transmission that will govern the speed of the drum within the specified revolutions per minute (rpm) will not require a separate engine.

All truck mixers shall be equipped with actuated counters by which the proper number of revolutions of the drum, as specified in Article 11. A. above, may be readily verified. The counters shall be read and recorded at the start of mixing at mixing speeds.

Each until shall have adequate water supply and accurate metering or gauging devices for measuring the amount used.

- (d) Agitators: Concrete agitators shall be of the truck type, capable of maintaining a thoroughly mixed and uniform concrete mass and discharging it within the same degree of uniformity specified for mixers. Agitators shall comply with all of the requirements for truck mixers, except for the actual mixing requirements.

C. Operation of Plant and Equipment.

Delivery of ready-mixed concrete shall equal or exceed the rate approved by the Engineer for continuous placement. In all cases, the delivery of concrete to the placement site shall assure compliance with the time limits in the applicable specification for depositing successive batches in any monolithic unit. The Contractor shall satisfy the Engineer that adequate standby trucks are available.

A standard ticket system will be used for recording concrete batching, mixing and delivery date.

Tickets will be delivered to the job inspector.

Loads arriving without ticket and/or in unsatisfactory condition shall not be used.

When a stationary mixer is used for the entire mixing operation, the mixing time for one cubic yard of concrete shall be one minute plus 15 seconds for each additional cubic yard or portion thereof. This mixing time shall start when all cement, aggregates and initial water have entered the drum.

The mixer shall be charged so that some of the mixing water will enter the drum in advance of the cement and aggregate. All of the mixing water shall be in the drum by the end of the first one-fourth of the specified mixing time. Water used to flush down the blades after charging shall be accurately measured and included in the quantity of mixing water. The introduction of the initial mixing water, except blade wash down water and that permitted in this Article, shall be prior to or simultaneous with the charging of the aggregates and cement.

The loading of truck mixers shall not exceed 63 percent of the total volume of the drum. When used as an agitator only, the loading shall not exceed 80 percent of the drum volume.

When Ready-Mix Concrete is used, additional mortar (one sack cement, three parts sand and sufficient water) shall be added to the batch to coat the drum of the mixer or agitator truck, and this shall be required for every load of Class C concrete only and for the first batch from central mix plants.

A portion of the mixing water, required by the batch design to produce the desired slump, may be withheld and added at the job site, but only with permission of the Engineer and under his supervision. When water is added under the above conditions, it shall be thoroughly mixed as specified below for water added at the job site.

Mixing speed shall be attained as soon as all ingredients are in the mixer, and each complete batch (containing all the required ingredients) shall be mixed not less than 70 nor more than 100 revolutions of the drum at mixing speed except that when water is added at the job site, 25 revolutions (minimum) at mixing speed will be required to uniformly disperse the additional water throughout the mix. Mixing speed shall be as designated by the manufacturer.

All revolutions after the prescribed mixing time shall be at agitating speed. The agitating speed shall be not less than one (1) nor more than five (5) rpm. The drum shall be kept in continuous motion from the time mixing is started until the discharge is completed.

12. PLACING, CURING AND FINISHING

The placing of concrete, including construction of forms and falsework, curing and finishing, shall be in accordance with City Standard Specification Section 038000 "Concrete Structures".

13. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the quantities of concrete of the various classifications which will constitute the completed and accepted structure(s) in-place will be measured by the cubic yard, per each, square foot, square yard or linear foot, as the case may be. Measurement will be as shown on the drawings and/or in the Bid Form.

Payment shall be full compensation for furnishing, hauling, mixing, placing, curing and finishing all concrete; all grouting and pointing; furnishing and placing drains; furnishing and placing metal flashing strips; furnishing and placing expansion joint material required by this specification or shown on the plans; and for all forms and falsework, labor, tools, equipment and incidentals necessary to complete the work.

SECTION 032020
REINFORCING STEEL

1. DESCRIPTION

This specification shall govern the furnishing and placing of reinforcing steel, deformed and smooth, of the size and quantity designated on the plans and in accordance with these specifications.

2. MATERIALS

Unless otherwise designated on the plans, all bar reinforcement shall be deformed, and shall conform to ASTM Designation: A 615, Grades 60 or 75, and shall be open hearth, basic oxygen, or electric furnace new billet steel.

Large diameter new billet steel (Nos. 14 and 18), Grade 75, will be permitted for straight bars only.

Where bending of bar sizes No. 14 or No. 18 of Grade 60 is required, bend testing shall be performed on representative specimens as described for smaller bars in the applicable ASTM Specification. The required bend shall be 90 degrees around a pin having a diameter of 10 times the nominal diameter of the bar.

Spiral reinforcement shall be smooth (not deformed) bars or wire of the minimum diameter shown on the plans, and shall be made by one or more of the following processes: open hearth, basic oxygen, or electric furnace. Bars shall be rolled from billets reduced from ingots and shall comply with ASTM Designation: A 306, Grade 65 minimum (references to ASTM Designation: A 29 is voided). Dimensional tolerances shall be in accordance with ASTM Designation: A 615, or ASTM Designation: A 615, Grade 60, except for deformations. Wire shall be cold-drawn from rods that have been hot-rolled from billets and shall comply with ASTM Designation: A 185.

In cases where the provisions of this specification are in conflict with the provisions of the ASTM Designation to which reference is made, the provisions of this specification shall govern.

Report of chemical analysis showing the percentages of carbon, manganese, phosphorus and sulphur will be required for all reinforcing steel when it is to be welded.

The nominal size and area and the theoretical weight of reinforcing steel bars covered by this specification are as follows:

Bar Size Number	Nominal Diameter, In.	Nominal Area, Sq. In.	Weight per Linear Foot, Pounds
2	0.250	0.050	0.167
3	0.375	0.110	0.376
4	0.500	0.200	0.668
5	0.625	0.310	1.043
6	0.750	0.440	1.502
7	0.875	0.600	2.044
8	1.000	0.790	2.670
9	1.128	1.000	3.400
10	1.270	1.270	4.303
11	1.410	1.560	5.313
14	1.693	2.250	7.600

Smooth round bars shall be designated by size number through No. 4. Smooth bars larger than No. 4 shall be designated by diameter in inches.

When wire is ordered by gauge numbers, the following relation between gauge number and diameter, in inches, shall apply unless otherwise specified:

<u>Gauge Number</u>	<u>Equivalent Diameter, Inches</u>	<u>Gauge Number</u>	<u>Equivalent Diameter, Inches</u>
0	0.3065	8	0.1620
1	0.2830	9	0.1483
2	0.2625	10	0.1350
3	0.2437	11	0.1205
4	0.2253	12	0.1055
5	0.2070	13	0.0915
6	0.1920	14	0.0800
7	0.1770		

3. BENDING

The reinforcement shall be bent cold, true to the shapes indicated on the plans. Bending shall preferably be done in the shop. Irregularities in bending shall be cause for rejection.

Unless otherwise shown on the plans, the inside diameter of bar bends, in terms of the nominal bar diameter (d), shall be as follows:

Bends of 90 degrees and greater in stirrups, ties and other secondary bars that enclose another bar in the bend:

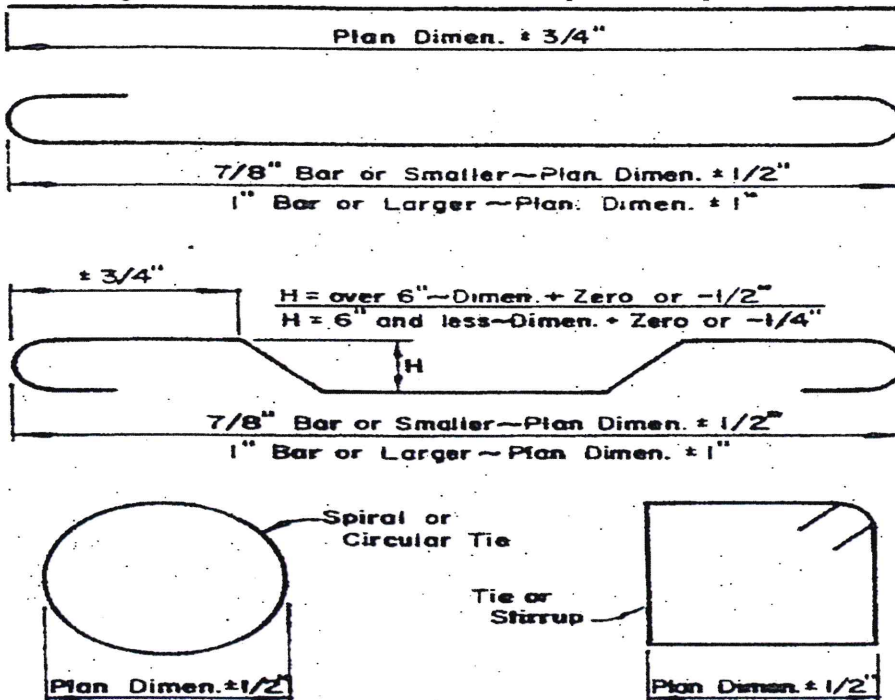
	<u>Grade 60</u>
#3, #4, #5	4d
#6, #7, #8	5d

All bends in main bars and in secondary bars not covered above:

	<u>Grade 60</u>	<u>Grade 75</u>
#3 thru #8	6d	--
#9, #10	8d	--
#11	8d	8d
#14, #18	10d	--

4. TOLERANCES

Fabricating tolerances for bars shall be within 3 percent of specified or as follows:



5. STORING

Steel reinforcement shall be stored above the surface of the ground upon platforms, skids or other supports, and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area and tensile properties of a hand wire crushed specimen meets the physical requirements for size and grade of steel specified.

6. SPLICES

No splicing of bars, except when provided on the plans or specified herein, will be permitted without written approval of the Engineer.

Splices will not be permitted in main reinforcement at points of maximum stress. When permitted in main bars, splices in adjacent bars shall be staggered a minimum of two splice lengths.

TABLE 1
Minimum Lap Requirements

<u>Lap</u>	<u>Uncoated</u>	<u>Coated</u>
Lap in inches \geq	40d	60d

Where: d = bar diameter in inches

Welding of reinforcing bars may be used only where shown on the plans or as permitted herein. All welding operations, processes, equipment, materials, workmanship and inspection shall conform to the requirements of the drawings and industry standards. All splices shall be of such dimension and character as to develop the full strength of bar being spliced.

End preparation for butt welding reinforcing bars shall be done in the field. Delivered bars shall be of sufficient length to permit this practice.

For box culvert extensions with less than one foot of fill, the existing longitudinal bars shall have a 20-diameter lap with the new bars. For box culvert extensions with more than one foot of fill, a minimum of 6 inches lap will be required.

Unless otherwise shown on the plans, dowel bars transferring tensile stresses shall have a minimum embedment equal to the minimum lap requirements shown in Table 1. Shear transfer dowels shall have a minimum embedment of 12 inches.

7. PLACING

Reinforcement shall be placed as near as possible in the position shown on the plans. Unless otherwise shown on the plans, dimensions shown for reinforcement are to the centers of the bars. In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from plan placement by more than one-twelfth of the spacing between bars. In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from plan placement by more than one-quarter inch. Cover of concrete to the nearest surface of steel shall meet the above requirements but shall never be less than one inch or as otherwise shown on the plans.

Vertical stirrups shall always pass around the main tension members and be attached securely thereto. The reinforcing steel shall be spaced its required distance from the form surface by means of approved galvanized metal spacers, metal spacers with plastic coated tips, stainless steel spacers, plastic spacers, or approved pre-cast mortar or concrete blocks. For approval of plastic spacers on the project, representative samples of the plastic shall show no visible indications of deterioration after immersion in a 5 percent solution of sodium hydroxide for 120 hours.

All reinforcing steel shall be tied at all intersections, except that where spacing is less than one foot in each direction, alternate intersections only need be tied.

Before any concrete is placed, all mortar shall be cleaned from the reinforcement. Precast mortar or concrete blocks to be used for holding steel in position adjacent to formed surfaces shall be cast in molds meeting the approval of the Engineer and shall be cured by covering with wet burlap or cotton

mats for a period of 72 hours.

The blocks shall be cast in the form of a frustum of a cone or pyramid with the smaller face placed against the forms.

A suitable tie wire shall be provided in each block, to be used for anchoring to the steel. Except in unusual cases, and when specifically otherwise authorized by the Engineer, the size of the surface to be placed adjacent to the forms shall not exceed two and one-half inches square or the equivalent thereof in cases where circular or rectangular areas are provided. Blocks shall be cast accurately to the thickness required, and the surface to be placed adjacent to the forms shall be a true plane free of surface imperfections.

Reinforcement shall be supported and tied in such manner that a sufficiently rigid cage of steel is provided. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measures are taken. Sufficient measurements shall be made during concrete placement to insure compliance with the first paragraph of Article 7 of this specification.

Mats of wire fabric shall overlap each other sufficiently to maintain a uniform strength and shall be fastened securely at the ends and edges.

No concrete shall be deposited until the Engineer has inspected the placement of the reinforcing steel and given permission to proceed.

8. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, reinforcing steel is considered subsidiary to the various items shown in the Bid Form and shall not be measured and paid for as a separate item.

SECTION 37040
EPOXY COMPOUNDS (S-44)

1 . DESCRIPTION

This specification shall govern all work necessary to provide and apply Epoxy compounds .

2. MATERIALS (USE TYPE)

- (1) Epoxy Bonding Compound for bonding new concrete to hardened concrete or other structural material : Epoxy Bonding Compound shall be a two component, 100 % solids, moisture insensitive system. Epoxy shall be "FX-752 Bonding Agent" as manufactured by Fox Industries Inc. of Baltimore, Maryland or "Sikastix 370, Sikadur Hi -Mod" as manufactured by Sika Chemical Corporation of Lyndhurst, New Jersey or approved equal .
- (2) Epoxy Grout for Epoxy patch on non-horizontal surfaces to concrete: Epoxy Compound shall be a low-modulus, high viscosity, moisture insensitive system. Epoxy shall be "Sikastix 3 60, Skadur Lo-Mod Gel" as manufactured by Sika Chemical Corporation or approved equal .

3. CONSTRUCTION METHODS

- (1) Bond new concrete to existing concrete:
 - a. Surface Preparation : The existing concrete or structural surface to which the new concrete is to be bonded shall be cleaned. The existing surface shall be made free from dust, laitance, grease, curing compounds, waxes and all foreign material . Cleaning shall be done by sandblasting, mechanical abrasion, or (by washing only if authorized by the Engineer) . During application of bonding compound, surface may be dry, moist, or wet, but surface shall be free of standing water.
 - b. Proportioning and Mixing : The epoxy shall be proportioned and mixed in strict accordance with the manufacturer's instructions . The epoxy shall be used in a neat condition (without aggregate filler) .
 - c. Application of Epoxy: The epoxy bonding compound shall be applied to the prepared surface with the minimum allowable coverages as follows :
 - Concrete (float finished, cleaned by washing) 75 SF/gal
 - Concrete (rough finish, cleaned by sandblast or mechanical abrasion) 50 SF/gal
 - Other surfaces as specified on the drawings
 - d. Concrete Overlay: The concrete overlay shall be in accordance with the drawings or 030020 of standard specifications . The concrete overlay shall be applied over the epoxy within a period of time which SHALL NOT EXCEED 60 % of the tack free time of the epoxy.

It is important for the Contractor to note that these times vary with the temperature and pot time . The following allowable times (60% of tack free time, where the tack free time is the period of time from initial mixing of the two components until the thin film of epoxy hardens) are provided below . The allowable times must be

determined from the tack free times which are provided by the manufacturer . The following allowable times are averages and provided only as an aid to the Contractor:

Temperature	Allowable Elapse Time from Mixing Epoxy Until Concrete Overlay	Placing
900F	40 min .	
800F	12 hrs.	
700F	22 hrs.	
600F	32 hrs .	

If the allowable period of time is allowed to elapse before concrete overlay can be placed, another layer of epoxy shall be applied prior to placement of the concrete .

(2) Epoxy Grout for patch to non-horizontal surfaces to concrete:

- a. Surface Preparation: The surface shall be prepared as described in (1) Bond new concrete to existing concrete Part a.
- b. Proportioning and Mixing : The epoxy shall be proportioned and mixed in strict accordance with the manufacturer instruction. The epoxy may be mixed with dry masonry sand. Sand shall conform to A. S.T. M. C-144 with 100 % passing a No. 8 sieve and not more than 15% to 35% passing a No. 50 mesh sieve. The amount of sand filler shall not exceed 3/4 to 1 (loose sand to epoxy by volume) .
- c. Application : Epoxy shall be applied in strict accordance with manufacturer instructions. Area adjacent to work shall be cleaned free of epoxy spills as to provide a neat appearance before work will be accepted.

4. GENERAL PRECAUTION

The Contractor is advised to become familiar with type of epoxy, method of application, and its basic limitations prior to using the epoxy.

5. MEASUREMENT AND PAYMENT

Unless indicated otherwise in the Proposal, Epoxy Compounds shall be considered subsidiary to the appropriate bid item.

SECTION 038000
CONCRETE STRUCTURES

1. DESCRIPTION

This specification shall govern for construction of all types of structures involving the use of structural concrete, except where the requirements are waived or revised by other governing specifications.

All concrete structures shall be constructed in accordance with the design requirements and details shown on the plans; in conformity with the pertinent provisions of the items contracted for; the incidental specifications referred to; and in conformity with the requirements herein.

2. MATERIALS

- (1) Concrete. All concrete shall conform to the provisions of City Standard Specification Section 030020 "Portland Cement Concrete".

The class of concrete for each type of structure or unit shall be as specified on the plans or by pertinent governing specifications.

- (2) Expansion Joint Material.

- (a) Preformed Fiber Material. Preformed fiber expansion joint material shall be of the dimensions shown on the plans. The material shall be one of the following types, unless otherwise noted on the plans:

1. Preformed Bituminous Fiber Materials shall meet the requirements of ASTM Designation: DI 751 "Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)".
2. Preformed Non-Bituminous Fiber Material shall meet the requirements of ASTM Designation: DI 751 "Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types) ", except that the requirements pertaining to bitumen content, density and water absorption shall be voided.
3. Redwood.

- (b) Joint Sealing Materials. Unless otherwise shown on the drawings, joint sealing material shall conform to the following requirements. The material shall adhere to the sides of the concrete joint or crack and shall form an effective seal against infiltration of water and incompressibles. The material shall not crack or break when exposed to low temperatures.

1. Class I-a. (Two-Component, Synthetic Polymer, Cold-Extruded Type). Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles. This type is specifically designed for vertical or sloping joints and hence not self-leveling. It shall cure sufficiently at an average temperature of 77 degrees F \pm 3 degrees F in a maximum of 24 hours. For performance requirements see under 2.(2)(b)2. below.
2. Class I-b. (Two-Component, Synthetic Polymer, Cold-Pourable, Self-Leveling Type). Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles. It shall cure sufficiently at an average temperature of 77 degrees F \pm 3 degrees F in a maximum of 3 hours.

Performance Requirements: Class I-a and Class I-b joint materials, when tested in accordance with TxDOT Test Method Tex-525-C, shall meet the above curing times and the following requirements:

It shall be of such consistency that it can be mixed and poured, or mixed and extruded into joints at temperatures above 60 degrees F.

Penetration, 77° F . :	
150 gm. cone, 5 sec., max, cm	0.90
Bond and Extension 75%, 0° F, 5 cycles:	
Dry Concrete Blocks	Pass
Wet Concrete Blocks	Pass
Steel Blocks...(Primed if specified by manuf.).	Pass
Flow at 200° F	None
Water Content % by weight, max	5.0
Resilience:	
Original sample min. % (cured)	50
Oven aged at 158° F min. %	50
For Class 2-a Material Only:	
Cold Flow (10 min.)	None

(c) Asphalt Board. Asphalt Board shall consist of two liners of 0.016-inch asphalt impregnated paper, filled with a mastic mixture of asphalt and vegetable fiber and/or mineral filler. Boards shall be smooth, flat and sufficiently rigid to permit installation. When tested in accordance with TxDOT Test Method Tex-524-C, the asphalt board shall not deflect from the horizontal more than one inch in three and one-half inches (1 " in 3 h').

(d) Rebonded Neoprene Filler. Rebonded neoprene filler shall consist of ground closed-cell neoprene particles, rebonded and molded into sheets of uniform thickness, of the dimensions shown on plans.

Filler material shall have the following physical properties and shall meet the requirements of ASTM Designation: D 1752 "Standard Specification for Preformed

Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction", Type 1, where applicable:

<u>PROPERTY</u>	<u>METHOD</u>	<u>REQUIREMENT</u>
Color	ASTM DI 752, Type 1	Black
Density	ASTM D1752, Type 1	40 lb./ft ³ Min.
Recovery	ASTM DI 752, Type 1	90% Min.
Compression	ASTM D1752, Type 1	50 to 500 psi
Extrusion	ASTM DI 752, Type 1	0.25 inch Max.
Tensile Strength	ASTM D1752, Type 1	20 psi Min.
Elongation		75% Min.

The manufacturers shall furnish the Engineer with certified test results as to compliance with the above requirements and a 12 inch x 12 inch x 1 inch sample from the shipment for approval.

(3) Curing Materials.

(a) Membrane curing materials shall comply with ASTM Designation: C 309 "Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete", Type 1 clear or translucent, or Type 2 white-pigmented. The material shall have a minimum flash-point of 80 degrees F when tested by the "Pensky-Martin Closed Cup Method".

It shall be of such consistency that it can be satisfactorily applied as a fine mist through an atomizing nozzle by means of approved pressure spraying equipment at atmospheric temperatures above 40 degrees F.

It shall be of such nature that it will not produce permanent discoloration of concrete surfaces nor react deleteriously with the concrete or its components. Type 1 compound shall contain a fugitive dye that will be distinctly visible not less than 4 hours nor more than 7 days after application. The compound shall produce a firm, continuous, uniform moisture impermeable film free from pinholes and shall adhere satisfactorily to the surfaces of damp concrete. It shall, when applied to the damp concrete surface at the rate of coverage specified herein, be dry to the touch in not more than 4 hours, and shall adhere in a tenacious film without running off or appreciable sagging. It shall not disintegrate, check, peel or crack during the required curing period.

The compound shall not peel or pick up under traffic and shall disappear from the surface of the concrete by gradual disintegration.

The compound shall be delivered to the job only in the manufacturer's original containers, which shall be clearly labeled with the manufacturer's name, the trade name of the material, and a batch number or symbol with which test samples may be correlated.

The water retention test shall be in accordance with TxDOT Test Method Tex-219-F. Percentage loss shall be defined as the water lost after the application of the curing material was applied. The permissible percentage moisture loss (at the rate of coverage specified herein) shall not exceed the following:

- 24 hours after application.....2 percent
- 72 hours after application.....4 percent

Type 1 (Resin Base Only) curing compound will be permitted for slab concrete in bridge decks and top slabs of direct traffic culverts.

(b) Mat curing of concrete is allowed where permitted by Table 1 in this specification or where otherwise approved by the Engineer.

3. EXPANSION JOINTS

Joints and devices to provide for expansion and contraction shall be constructed where and as indicated herein or on the plans.

All open joints and joints to be filled with expansion joint material, shall be constructed using forms adaptable to loosening or early removal. To avoid expansion or contraction damage to the adjacent concrete, these forms shall be loosened as soon as possible after final concrete set to permit free movement without requiring full form removal.

Prior to placing the sealing material, the vertical facing the joint shall be cleaned of all laitance by sandblasting or by mechanical routing. Cracked or spalled edges shall be repaired. The joint shall be blown clean of all foreign material and sealed. Where preformed fiber joint material is used, it shall be anchored to the concrete on one side of the joint by light wire or nails, to prevent the material from falling out. The top one inch (1") of the joint shall be filled with joint sealing material.

Finished joints shall conform to the indicated outline with the concrete sections completely separated by the specified opening or joint material.

Soon after form removal and again where necessary after surface finishing, all projecting concrete shall be removed along exposed edges to secure full effectiveness of the expansion joints.

4. CONSTRUCTION JOINTS

The joint formed by placing plastic concrete in direct contact with concrete that has attained its initial set shall be deemed a construction joint. The term "monolithic placement" shall be interpreted to mean at the manner and sequence of concrete placing shall not create construction joints.

Construction joints shall be of the type and at the locations shown on the plans. Additional joints will not be permitted without written authorization from the Engineer, and when authorized, shall have details equivalent to those shown on the plans for joints in similar locations.

Unless otherwise provided, construction joints shall be square and normal to the forms. Bulkheads shall be provided in the forms for all joints, except when horizontal.

Construction joints requiring the use of joint sealing material shall be as detailed on the plans. The material will be specified on the plans without referenced to joint type.

A concrete placement terminating at a horizontal construction joint shall have the top surface roughened thoroughly as soon as practicable after initial set is attained. The surfaces at bulkheads shall be roughened as soon as the forms are removed.

The hardened concrete surface shall be thoroughly cleaned of all loose material, laitance, dirt or foreign material, and saturated with water so it is moist when placing fresh concrete against it. Forms shall be drawn tight against the placing of the fresh concrete.

5. FORMS

(1) General. Except where otherwise specified, forms may be of either timber or metal.

Forms for round columns exposed to view shall be of steel, except that other materials will be allowed with written permission of the Engineer.

Forming plans shall be submitted to the Engineer for approval as specified. Forms shall be designed for the pressure exerted by a liquid weighing 150 pounds per cubic foot. The rate of placing the concrete shall be taken into consideration in determining the depth of the equivalent liquid. For job fabricated forms, an additional live load of 50 pounds per square foot shall be allowed on horizontal surfaces. The maximum unit stresses shall not exceed 125 percent of the allowable stresses used by the Texas Department of Transportation for the design of structures.

Commercially produced structural units used in formwork shall not exceed the manufacturer's maximum allowable working load for moment, shear or end reaction. The maximum working load shall include a live load of 35 pounds per square foot of horizontal form surface, and

sufficient details and data shall be submitted for use in checking formwork details for approval.

Forms shall be practically mortar-tight, rigidly braced and strong enough to prevent bulging between supports, and maintained to the proper line and grade during concrete placement. Forms shall be maintained in a manner that will prevent warping and shrinkage.

Offset at form joints shall not exceed one-sixteenth of an inch (1/16").

Deflections due to cast-in-place slab concrete and railing shown in the dead load deflection diagram shall be taken into account in the setting of slab forms.

All forms and footing areas shall be cleaned of any extraneous matter before placing concrete.

Permission to place concrete will not be given until all such work is completed to the satisfaction of the Engineer.

If, at any stage of the work, the forms show signs of bulging or sagging, the portion of the concrete causing such condition shall be removed immediately, if necessary, and the forms shall be reset and securely braced against further movement.

(2) Timber Forms. Lumber for forms shall be properly seasoned, of good quality, and free from imperfections which would affect its strength or impair the finished surface of the concrete. The lumber used for facing or sheathing shall be finished on at least one side and two edges and shall be sized to uniform thickness.

Form lining will be required for all formed surfaces, except for the inside of culvert barrels, inlets and manholes; surfaces that are subsequently covered by backfill material or are completely enclosed; and, any surface formed by a single finished board. Lining will not be required when plywood forms are used.

Form lining shall be of an approved type such as Masonite or plywood. Thin membrane sheeting, such as polyethylene sheets, shall not be used for form lining.

Forms may be constructed of plywood not less than one-half inch in thickness, with no form lining required. The grain of the face plies on plywood forms shall be placed parallel to the span between the supporting studs or joists.

Plywood used for forming surfaces that remain exposed shall be equal to that specified as B-B Plyform Class I or Class II Exterior, of the U. S. Department of Commerce, National Bureau of Standards and Technology, latest edition.

Forms or form lumber to be reused shall be maintained clean and in good condition. Any lumber which is split, warped, bulged, marred, or has defects that will produce inferior work, shall not be used and, if condemned, shall be promptly removed from the work.

Studs and joists shall be spaced so that the facing form material remains in true alignment under the imposed loads.

Wales shall be spaced close enough to hold forms securely to the designated lines and scabbed at least 4 feet on each side of joints to provide continuity. A row of wales shall be placed near the bottom of each placement.

Facing material shall be placed with parallel and square joints and securely fastened to supporting studs.

Forms for surfaces receiving only an ordinary finish and exposed to view shall be placed with the form panels symmetrical, i.e., long dimensions set in the same direction. Horizontal joints shall be continuous.

Molding specified for chamfer strips or other uses shall be made of materials of a grade that will not split when nailed and which can be maintained to a true line without warping. Wood molding shall be mill cut and dressed on all faces. Unless otherwise provided, forms shall be filleted at all sharp corners and edges with triangular chamfer strips measuring three-quarter inch (3/4") on the sides.

Forms for railing and ornamental work shall be constructed to standards equivalent to first-class millwork. All moldings, panel work and bevel strips shall be straight and true with nearly mitered joints designed so the finished work is true, sharp and clean cut.

All forms shall be constructed to permit their removal without marring or damaging the concrete. The forms may be given a slight draft to permit ease of removal.

Metal form ties of an approved type or a satisfactory substitute shall be used to hold forms in place and shall be of a type that permits ease of removal of the metal as hereinafter specified.

All metal appliances used inside of forms for alignment purposes shall be removed to a depth of at least one-half inch (1/2") from the concrete surface. They shall be made so the metal may be removed without undue chipping or spalling, and when removed, shall leave a smooth opening in the concrete surface. Burning off of rods, bolts or ties will not be permitted.

Any wire ties used shall be cut back at least one-half inch (1/2") from the face of the concrete.

Devices holding metal ties in place shall be capable of developing the strength of the tie and adjustable to allow for proper alignment.

Metal and wooden spreaders which are separate from the forms shall be removed entirely as the concrete is being placed.

Adequate clean-out openings shall be provided for narrow walls and other locations where access to the bottom of the forms is not readily attainable.

Prior to placing concrete, the facing of all forms shall be treated with oil or other bond breaking coating of such composition that it will not discolor or otherwise injuriously affect the concrete surface. Care shall be exercised to prevent coating of the reinforcing steel.

(3) Metal Forms. The foregoing requirements for timber forms regarding design, mortar-tightness, filleted corners, beveled projections, bracing, alignment, removal, reuse and wetting shall also apply to metal forms, except that these will not require lining, unless specifically noted on the plans.

The thickness of form metal shall be as required to maintain the true shape without warping or bulging. All bolt and rivet heads on the facing sides shall be countersunk. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Metal shall be kept free from rust, grease or other foreign materials.

6. PLACING REINFORCEMENT

Reinforcement in concrete structures shall be placed carefully and accurately and rigidly supported as provided in the City Standard Specification Section 032020 "Reinforcing Steel". Reinforcing steel supports shall not be welded to I-beams or girders.

7. PLACING CONCRETE-GENERAL

The minimum temperature of all concrete at the time of placement shall be not less than 50 degrees F.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When conditions are such that additional moisture is needed for finishing, the required water shall be applied to the surface by fog spray only, and shall be held to a minimum amount. Fog spray for this purpose may be applied with hand operated fogging equipment.

The maximum time interval between the addition of cement to the batch and the placing of concrete in the forms shall not exceed the following:

<u>Air or Concrete Temperature</u>	<u>Maximum Time</u>
<u>Non-Agitated Concrete:</u>	
Above 80 degrees F	15 minutes
Up to 80 degrees F	30 minutes
<u>Agitated Concrete:</u>	
Above 90 degrees F	45 minutes
75 degrees F to 90 degrees F	60 minutes
35 degrees F to 74 degrees F	90 minutes

The use of an approved retarding agent in the concrete will permit the extension of each of the above temperature-time maximums by 30 minutes for direct traffic culverts, and one hour for all other concrete except that the maximum time shall not exceed 30 minutes for non-agitated concrete.

Before starting work, the Contractor shall inform the Engineer fully of the construction methods he proposes to use, the adequacy of which shall be subject to the approval of the Engineer.

The Contractor shall give the Engineer sufficient advance notice before placing concrete in any unit of the structure to permit the inspection of forms, reinforcing steel placement, and other preparations. Concrete shall not be placed in any unit prior to the completion of formwork and placement of reinforcement therein.

Concrete mixing, placing and finishing shall be done during daylight hours, unless adequate provisions are made to light the entire site of all operations.

Concrete placement will not be permitted when impending weather conditions will impair the quality of the finished work. If rainfall should occur after placing operations are started, the Contractor shall provide ample covering to protect the work. In case of drop in temperature, the provisions set forth in Article "Placing Concrete in Cold Weather" of this specification shall be applied.

The placing of concrete shall be regulated so the pressures caused by the plastic concrete shall not exceed the loads used in form design.

The method of handling, placing and consolidation of concrete shall minimize segregation and displacement of the reinforcement, and produce a uniformly dense and compact mass. Concrete shall not have a free fall of more than 5 feet, except in the case of thin walls such as in culverts. Any hardened concrete spatter ahead of the plastic concrete shall be removed.

The method and equipment used to transport concrete to the forms shall be capable of maintaining the rate of placement approved by the Engineer. Concrete may be transported by buckets, chutes, buggies, belt conveyors, pumps or other acceptable methods.

When belt conveyors or pumps are used, sampling for testing will be done at the discharge end. Concrete transported by conveyors shall be protected from sun and wind, if necessary, to prevent loss of slump and workability. Pipes through which concrete is pumped shall be shaded and/or wrapped with wet burlap, if necessary, to prevent loss of slump and workability. Concrete shall not be transported through aluminum pipes, tubes or other aluminum equipment.

Chutes, troughs, conveyors or pipes shall be arranged and used so that the concrete ingredients will not be separated. When steep slopes are necessary, the chutes shall be equipped with baffle boards or made in short lengths that reverse the direction of movement, or the chute ends shall terminate in vertical downspouts. Open troughs and chutes shall extend, if necessary, down inside the forms or through holes left in them. All transporting equipment shall be kept clean and free from hardened concrete coatings. Water used for cleaning shall be discharged clear of the concrete.

Each part of the forms shall be filled by depositing concrete as near its final position as possible. The coarse aggregate shall be worked back from the face and the concrete forced under and around the reinforcement bars without displacing them. Depositing large quantities at one point and running or working it along the forms will not be allowed.

Concrete shall be deposited in the forms in layers of suitable depth but not more than 36 inches in thickness, unless otherwise directed by the Engineer.

The sequence of successive layers or adjacent portions of concrete shall be such that they can be vibrated into a homogenous mass with the previously placed concrete without a cold joint. Not more than one hour shall elapse between adjacent or successive placements of concrete. Unauthorized construction joints shall be avoided by placing all concrete between the authorized joints in one continuous operation.

An approved retarding agent shall be used to control stress cracks and/or unauthorized cold joints in mass placements where differential settlement and/or setting time may induce stress cracking.

Openings in forms shall be provided, if needed, for the removal of laitance of foreign matter of any kind.

All forms shall be wetted thoroughly before the concrete is placed therein.

All concrete shall be well consolidated and the mortar flushed to the form surfaces by continuous working with immersion type vibrators. Vibrators which operate by attachment to

forms or reinforcement will not be permitted, except on steel forms. At least one stand-by vibrator shall be provided for emergency use in addition to those required for placement.

The concrete shall be vibrated immediately after deposit. Prior to the beginning of work, a systematic spacing of the points of vibration shall be established to insure complete consolidation and thorough working of the concrete around the reinforcement, embedded fixtures, and into the corners and angles of the forms. Immersion type vibrators shall be inserted vertically, at points 18 to 30 inches apart, and slowly withdrawn. The vibrator may be inserted in a sloping or horizontal position in shallow slabs. The entire depth of each lift shall be vibrated, allowing the vibrator to penetrate several inches into the preceding lift. Concrete along construction joints shall be thoroughly consolidated by operating the vibrator along and close to but not against the joint surface, The vibration shall continue until thorough consolidation, and complete embedment of reinforcement and fixtures is produced, but not long enough to cause segregation. Vibration maybe supplemented by hand spading or rodding, if necessary, to insure the flushing of mortar to the surface of all forms.

Slab concrete shall be mixed in a plant located off the structure. Carting or wheeling concrete batches over completed slabs will not be permitted until they have aged at least four (4) full curing days. If carts are used, timber planking will be required for the remainder of the curing period. Carts shall be equipped with pneumatic tires. Curing operations shall not be interrupted for the purpose of wheeling concrete over finished slabs.

After concrete has attained its initial set, at least one (1) curing day shall elapse before placing strain on projecting reinforcement to prevent damage to the concrete.

The storing of reinforcing or structural steel on completed roadway slabs generally shall be avoided and, when permitted, shall be limited to quantities and distribution that will not induce excessive stresses.

8. PLACING CONCRETE IN COLD WEATHER

(1) Cast-in-Place Concrete. Concrete maybe placed when the atmospheric temperature is not less than 35 degrees F. Concrete shall not be placed in contact with any material coated with frost or having a temperature less than 32 degrees F.

Aggregates shall be free from ice, frost and frozen lumps. When required, in order to produce the minimum specified concrete temperature, the aggregate and/or the water shall be heated uniformly, in accordance with the following:

The water temperature shall not exceed 180 degrees F, and/or the aggregate temperature shall not exceed 150 degrees F. The heating apparatus shall heat the mass of aggregate uniformly. The temperature of the mixture of aggregates and water shall be between 50 degrees F and 85 degrees F before introduction of the cement.

All concrete shall be effectively protected as follows:

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(a) The temperature of slab concrete of all unformed surfaces shall be maintained at 50 degrees F or above for a period of 72 hours from time of placement and above 40 degrees F for an additional 72 hours.

(b) The temperature at the surface of all concrete in piers, culverts walls, retaining walls, parapets, wingwalls, bottoms of slabs, and other similar formed concrete shall be maintained at 40 degrees F or above for a period of 72 hours from time of placement.

(c) The temperature of all concrete, including the bottom slabs of culverts placed on or in the ground, shall be maintained above 32 degrees 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 covering with artificial heating. Curing as specified under Article "Curing Concrete" of this specification shall be provided during this period until all requirements for curing have been satisfied.

When impending weather conditions indicate the possibility of the need for such temperature protection, all necessary heating and covering material shall be on hand ready for use before permission is granted to begin placement.

Sufficient extra test specimens will be made and cured with the placement to ascertain the condition of the concrete as placed, prior to form removal and acceptance.

(2) Precast Concrete. A fabricating plant for precast products which has adequate protection from cold weather in the form of permanent or portable framework and covering, which protects the concrete when placed in the forms, and is equipped with approved steam curing facilities, may place concrete under any low temperature conditions provided:

(a) The framework and covering are placed and heat is provided for the concrete and the forms within one hour after the concrete is placed. This shall not be construed to be one hour after the last concrete is placed, but that no concrete shall remain unprotected longer than one hour.

(b) Steam heat shall keep the air surrounding the concrete between 50 degrees F and 85 degrees F for a minimum of three hours prior to beginning the temperature rise which is required for steam curing.

(c) For fabricating plants without the above facilities and for job site precast products, the requirements of the Article "Curing Concrete" of this specification shall apply.

The Contractor is responsible for the protection of concrete placed under any and all weather conditions. Permission given by the Engineer for placing concrete during freezing weather will in no way relieve the Contractor of the responsibility for producing concrete equal in quality to that placed under normal conditions. Should concrete placed under such conditions prove unsatisfactory, it shall be removed and replaced at no additional cost.

9. PLACING CONCRETE IN WATER

Concrete shall be deposited in water only when specified on the plans or with written permission by the Engineer. The forms or cofferdams shall be sufficiently tight to prevent any water current passing through the space in which the concrete is being deposited. Pumping will not be permitted during the concrete placing, nor until it has set for at least 36 hours.

The concrete shall be placed with a tremie, closed bottom-dump bucket, or other approved method, and shall not be permitted to fall freely through the water nor shall it be disturbed after it has been placed. The concrete surface shall be kept approximately level during placement.

The tremie shall consist of a water-tight tube 14 inches or less in diameter. It shall be constructed so that the bottom can be sealed and opened after it is in place and fully charged with concrete. It shall be supported so that it can be easily moved horizontally to cover all the work area and vertically to control the concrete flow.

Bottom-dump buckets used for underwater placing shall have a capacity of not less than one-half cubic yard. It shall be lowered gradually and carefully until it rests upon the concrete already placed and raised very slowly during the upward travel; the intent being to maintain still water at the point of discharge and to avoid agitating the mixture.

The placing operations shall be continuous until the work is complete.

10. PLACING CONCRETE BOX CULVERTS

In general, construction joints will be permitted only where shown on the plans.

Where the top slab and walls are placed monolithically in culverts more than 4 feet in clear height, an interval of not less than one (1) nor more than two (2) hours shall elapse before placing the top slab to allow for shrinkage in the wall concrete.

The base slab shall be finished accurately at the proper time to provide a smooth uniform surface. Top slabs which carry direct traffic shall be finished as specified for roadway slabs in Article "Finish of Roadway Slabs". Top slabs of fill type culverts shall be given a reasonably smooth float finish.

11. PLACING CONCRETE IN FOUNDATIONS AND SUBSTRUCTURE

Concrete shall not be placed in footings until the depth and character of the foundation has been inspected by the Engineer and permission has been given to proceed.

Placing of concrete footings upon seal concrete courses will be permitted after the caissons or cofferdams are free from water and the seal concrete course cleaned. Any necessary pumping or bailing during the concreting operation shall be done from a suitable sump located outside the forms.

All temporary wales or braces inside cofferdams or caissons shall be constructed or adjusted as the work proceeds to prevent unauthorized construction joints in footings or shafts.

When footings can be placed in a dry excavation without the use of cofferdams or caissons, forms may be omitted, if desired by the Contractor and approved by the Engineer, and the entire excavation filled with concrete to the elevation of the top of footing; in which case, measurement for payment will be based on the footing dimensions shown on the plans.

12. TREATMENT AND FINISHING OF HORIZONTAL SURFACES EXCEPT ROADWAY SLABS

All unformed upper surfaces shall be struck off to grade and finished. The use of mortar topping for surfaces under this classification will not be permitted.

After the concrete has been struck off, the surface shall be floated with a suitable float. Sidewalks shall be given a wood float or broom finish, or may be striped with a brush, as specified by the Engineer. Other surfaces shall be wood float finished and striped with a fine brush leaving a fine grained texture.

13. FINISH OF ROADWAY SLABS

As soon as the concrete has been placed and vibrated in a section of sufficient width to permit working, the surface shall be approximately leveled, struck off and screeded, carrying a slight excess of concrete ahead of the screed to insure filling of all low spots. The screed shall be designed rigid enough to hold true to shape and shall have sufficient adjustments to provide for the required camber. A vibrating screed may be used if heavy enough to prevent undue distortion. The screeds shall be provided with a metal edge.

Longitudinal screeds shall be moved across the concrete with a saw-like motion while their ends rest on headers or templates set true to the roadway grade or on the adjacent finished slab.

The surface of the concrete shall be screeded a sufficient number of times and at such intervals to produce a uniform surface, true to grade and free of voids.

If necessary, the screeded surface shall be worked to smooth finish with a long handled wood or metal float of the proper size, or hand floated from bridges over the slab.

When required by the Engineer, the Contractor shall perform sufficient checks with a long handled 10-foot straightedge on the plastic concrete to insure that the final surface will be within the tolerances specified below. The check shall be made with the straightedge parallel to the centerline. Each pass thereof shall lap half of the preceding pass. All high spots shall be removed and all depressions over one-sixteenth inch (1/16") in depth shall be filled with fresh concrete and floated. The checking and floating shall be continued until the surface is true to grade and free of depressions, high spots, voids or rough spots.

Rail support holes shall be filled with concrete and finished to match the top of the slab.

Surface Texturing.

Perform surface texturing using either a carpet drag or metal tinning as indicated on the drawings. Complete final texturing before the concrete has attained its initial set. Draw the carpet drag longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface. A metal-tine texture finish is required using a tinning machine unless otherwise shown on the plans. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tinning. Operate the metal-tine device to obtain grooves spaced at 1 in., approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods for achieving similar results on ramps and other irregular sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid.

Upon completion of the floating and/or straight edging and before the disappearance of the moisture sheen, the surface shall be given a broom or burlap drag finish. The grooves of these finishes shall be parallel to the structure centerline. It is the intent that the average texture depth resulting from the number of tests directed by the Engineer be not less than 0.035 inch with a minimum texture depth of 0.030 inch for any one test when tested in accordance with TxDOT Test Method Tex-436-A. Should the texture depth fall below that intended, the finishing procedures shall be revised to produce the desired texture.

After the concrete has attained its final set, the roadway surface shall be tested with a standard 10-foot straightedge. The straightedge shall be placed parallel to the centerline of roadway to bridge any depressions and touch high spots. Ordinates of irregularities measured from the face of the straightedge to the surface of the slab shall not exceed one-eighth of an inch (1/8"), making proper allowances for camber, vertical curvature and surface texture. Occasional variations, not exceeding three-sixteenth of an inch (3/16") will be acceptable, if in the opinion of the Engineer it will not affect the riding qualities.

When directed by the Engineer, irregularities exceeding the above requirements shall be corrected.

In all roadway slab finishing operations, camber for specified vertical curvature and transverse slopes shall be provided.

14. CURING CONCRETE

The Contractor shall inform the Engineer fully of the methods and procedures proposed for curing; shall provide the proper equipment and material in adequate amounts; and shall have the proposed methods, equipment and material approved prior to placing concrete.

Inadequate curing and/or facilities, therefore, shall be cause for the Engineer to stop all construction on the job until remedial action is taken. All concrete shall be cured for a period of four (4) curing days except as noted herein.

EXCEPTIONS TO 4-DAY CURING

<u>Description</u>	<u>Required Curing</u>
Upper Surfaces of Bridge Slabs and	8 curing days (Type I or III) cement
Top Slabs of Direct Traffic Culverts	10 curing days (Type II cement)
Concrete Piling (non-prestressed)	6 curing days

When the air temperature is expected to drop below 35 degrees F, the water curing mats shall be covered with polyethylene sheeting, burlap-polyethylene blankets or other material to provide the protection required by Article "Placing Concrete in Cold Weather" of these specifications.

A curing day is defined as a calendar day when the temperature, taken in the shade away from artificial heat, is above 50 degrees F for at least 19 hours (colder days if satisfactory provisions are made to maintain the temperature of all surfaces of the concrete above 40 degrees F for the entire 24 hours). The required curing period shall begin when all concrete therein has attained its initial set.

The following methods are permitted for curing concrete subject to the restrictions of Table I and the following requirements for each method of curing.

(1) Form Curing. When forms are left in contact with the concrete, other curing methods will not be required except for cold weather protection.

(2) Water Curing. All exposed surfaces of the concrete shall be kept wet continuously for the required curing time. The water used for curing shall meet the requirements for concrete mixing water as specified in the specification Section 030020 "Portland Cement Concrete". Seawater will not be permitted. Water which stains or leaves an unsightly residue shall not be used.

(a) Wet Mat. Cotton mats shall be used for this curing method. They shall be placed as soon as possible after the surface has sufficiently hardened to prevent damage to the concrete. (See Article, "Placing Concrete" of this specification.) Damp burlap blankets

made from nine-ounce stock may be placed on the damp concrete surface for temporary protection prior to the application of the cotton mats which may be placed dry and wetted down after placement.

The mats shall be weighted down adequately to provide continuous contact with all concrete surfaces where possible. The surfaces of the concrete shall be kept wet for the required curing time. Surfaces which cannot be cured by contact shall be enclosed with mats and anchored positively to the forms or to the ground so that outside air cannot enter the enclosure. Sufficient moisture shall be provided inside the enclosure to keep all surfaces of the concrete wet.

(b) Water Spray. This curing method shall consist of overlapping sprays or sprinklers that keep all unformed surfaces continuously wet.

(c) Ponding. This curing method requires the covering of the surfaces with a minimum of two inches (2") of clean granular material, kept wet at all times, or a minimum of one-inch (1") depth of water. Satisfactory provisions shall be made to provide a dam to retain the water or saturated granular material.

(3) Membrane Curing. This consists of curing concrete pavement, concrete pavement (base), curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete riprap, cement-stabilized riprap, concrete structures and other concrete as indicated on the plans by impervious membrane method.

Unless otherwise provided herein or shown on the plans, either Type I-D or Type 2 membrane curing compound may be used where permitted except that Type I-D (Resin Base Only) will be required for slab concrete in bridge decks and top slabs of direct traffic culverts.

TABLE 1

	STRUCTURE UNIT DESCRIPTION	REQUIRED		PERMITTED	
		WATER FOR CURING	MEMBRANE FOR INTERIM CURING	WATER FOR CURING	MEMBRANE FOR INTERIM CURING
1	Top slabs of direct traffic culverts	X	X		
2	Top surface of any concrete unit upon which	X			

	concrete is to be placed and bonded at a later interval (Stub walls, risers, et.). Other superstructure concrete (wing walls, parapet walls, etc.)				
3	Concrete pavement (base), curbs, gutters, retards, sidewalks, driveways, medians, islands, concrete structures, concrete riprap, etc.			X*	X*
4	All substructure concrete, culverts, box sewers. Inlets, manholes, retaining walls			X*	X*

*Polyethylene sheeting, burlap-polyethylene mats or laminated mats to prevent outside air from entering will be considered equivalent to water or membrane curing for items 3 and 4.

Membrane curing shall not be applied to dry surfaces, but shall be applied just after free moisture has disappeared. Formed surfaces and surfaces which have been given a first rub shall be dampened and shall be moist at the time of application of the membrane.

When membrane is used for complete curing, the film shall remain unbroken for the minimum curing period specified. Membrane which is damaged shall be corrected immediately by reapplication of membrane. Unless otherwise noted herein or on the plans, the choice of

membrane type shall be at the option of the Contractor. Only one type of curing compound will be permitted on any one structure.

The membrane curing compound shall be applied after the surface finishing has been completed, and immediately after the free surface moisture has disappeared. The surface shall be sealed with a single uniform coating of curing compound applied at the rate of coverage recommended by the manufacturer and directed by the Engineer, but not less than 1 gallon per 180 square feet of area. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of application of the compound.

The compound shall be thoroughly agitated during its use and shall be applied by means of approved mechanical power pressure sprayers. The sprayers used to apply the membrane to concrete pavement or concrete pavement (base) shall travel at uniform speed along the forms and be mechanically driven. The equipment shall be of such design that it will insure uniform and even application of the membrane material. The sprayers shall be equipped with satisfactory atomizing nozzles. Only on small miscellaneous items will the Contractor be permitted to use hand-powered spray equipment. For all spraying equipment, the Contractor shall provide facilities to prevent the loss of the compound between the nozzle and the concrete surface during the spraying operations.

The compounds shall not be applied to a dry surface. If the surface of the concrete has become dry, it shall be moistened prior to application of membrane by fogging or mist application. Sprinkling or coarse spraying will not be allowed.

At locations where the coating shows discontinuities, pinholes or other defects, or if rain falls on the newly-coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

To insure proper coverage, the Engineer shall inspect all treated areas after application of the compound for the period of time designated in the governing specification for curing, either for membrane curing or for other methods. Should the foregoing indicate that any area during the curing period is not protected, an additional coat or coats of the compound shall be applied immediately, and the rate of application of the membrane compound shall be increased until all areas are uniformly covered.

When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

If at any time there is reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method and shall change to curing by one of the other methods specified under this contract.

15. REMOVAL OF FORMS

Except as herein provided, forms for vertical surfaces may be removed when the concrete has aged not less than one day (24 hours) when Type I and Type II cement is used, and not less than one-half day (12 hours) when Type III cement is used, provided it can be done without damage to the concrete.

Forms for inside curb faces may be removed in approximately three hours provided it can be done without damage to the curb.

16. FINISHING EXPOSED SURFACES

Concrete shall be finished as required in the specification Section for the respective item or as otherwise specified on the plans.

An ordinary surface finish shall be applied to all concrete surfaces either as a final finish or preparatory to a higher finish.

Ordinary Surface Finish shall be as follows:

After form removal, all porous or honey-combed areas and spalled areas shall be corrected by chipping away all loose or broken material to sound concrete..

Feather edges shall be eliminated by cutting a face perpendicular to the surface. Shallow cavities shall be repaired using adhesive grout or epoxy grout. If judged repairable by the Engineer, large defective areas shall be corrected using concrete or other material approved by the Engineer.

Holes and spalls caused by removal of metal ties, etc., shall be cleaned and filled with adhesive grout or epoxy grout. Exposed parts of metal chairs on surfaces to be finished by rubbing, shall be chipped out to a depth of one-half inch (1/2") and the surface repaired.

All fins, runs, drips or mortar shall be removed from surfaces which remain exposed. Form marks and chamfer edges shall be smoothed by grinding and/or dry rubbing.

Grease, oil, dirt, curing compound, etc., shall be removed from surfaces requiring a higher grade of finish. Discolorations resulting from spillage or splashing of asphalt, paint or other similar material shall be removed.

Repairs shall be dense, well bonded and properly cured, and when made on surfaces which remain exposed and do not require a higher finish, shall be finished to blend with the surrounding concrete.

17. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, no direct measurement or payment will be made for the work to be done or the equipment to be furnished under this specification, but it shall be considered subsidiary to the particular items required by the plans and the contract documents.

SECTION 055420
FRAMES, GRATES, RINGS AND COVERS

1. DESCRIPTION

This specification shall govern for the furnishing and installation of frames, grates, rings and covers for inlets, manholes and other structures in accordance with those details. Steel shall conform to the requirements of ASTM Designation: A36 "Standard Specification for Carbon Structural Steel".

2. MATERIALS

Welded steel grates and frames shall conform to the member size, dimensions and details shown on the plans and shall be welded into an assembly in accordance with those details. Steel shall conform to the requirements of ASTM Designation: A36.

Castings, whether Carbon-Steel, Gray Cast Iron or Ductile Iron, shall conform to the shape and dimensions shown on the plans and shall be clean substantial castings, free from burnt-on sand or blow holes, and shall be reasonable smooth. Runners, risers, fins, and other cast-on pieces shall be removed from the castings and such areas ground smooth. Bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter contact area. Pairs of machined castings shall be matchmarked to facilitate subsequent identification at installation.

Steel castings shall conform to the requirements of ASTM Designation: A27 "Standard Specification for Steel Castings, Carbon, for General Application". Grade 70-36 shall be furnished unless otherwise specified.

Cast Iron castings shall conform to the requirements of ASTM Designation: A48 "Standard Specification for Gray Iron Castings", Class 30.

Ductile iron castings shall conform to the requirements of ASTM Designation: A536 "Standard Specification for Ductile Iron Castings". Grade 60-40-18 shall be used otherwise specified.

3. CONSTRUCTION METHODS

Frames, grates, rings and covers shall be constructed of the materials as specified and in accordance with the details shown on the plans, and shall be placed carefully to the lines and grades indicated on the plans or as directed by the Engineer.

All welding shall conform to the requirements of the latest American Welding Society Specifications. Frames, grates, rings and covers shall be given one coat of a commercial grade red lead and oil paint and two coats of commercial grade aluminum paint. Painting on gray iron castings will not be required, except when used in conjunction with structural steel shapes. Commercial grade galvanized bolts and nuts shall be used. The zinc coating shall be uniform in thickness, smooth and continuous.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, frames, grates, rings and covers will not be measured for payment, but shall be considered subsidiary to other bid items.

SECTION 330531

HP (HIGH PERFORMANCE POLYPROPYLENE) STORM PIPE CULVERTS

1. DESCRIPTION

This specification describes 12- through 30-inch (300 to 750 mm) ADS N-12 HP Storm (or approved equal) pipe for use in gravity-flow applications.

2. MATERIALS

Virgin material for pipe and fitting production shall be impacted modified copolymer polypropylene conforming to the requirements of ASTM D4101.

3. PIPE REQUIREMENTS

- 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations.
- 12- through 30-inch (300 to 750 mm) pipe shall have a minimum pipe stiffness of 46 pii when tested in accordance with ASTM D2412.
- Manning's "n" value for use in design shall be 0.012.

4. INSTALLATION

Installation shall be in accordance with ASTM D2321 and recommended installation guidelines, with the exception that minimum cover in traffic areas for 12- through 30-inch (300 to 750 mm) diameters shall be one foot (0.3 m) in single run applications. Backfill for minimum cover situations shall consist of Class 1, Class 2 (minimum 90% SPD), or Class 3 (minimum 95% SPD) material. Maximum fill heights depend on embedment material and compaction level.

5. JOINT PERFORMANCE

Pipe shall be joined with a gasketed integral bell & spigot joint.

12- through 30-inch (300 to 750 mm) shall be watertight according to the requirements of ASTM D3212. Spigot shall have two gaskets meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gaskets are free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

6. FITTINGS

Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Fitting joints shall meet the watertight joint performance requirements of ASTM D3212.

7. MEASUREMENT

Unless otherwise specified on the Bid Form, HP Storm pipe (or approved equal) shall be measured by the linear foot. Such measurement will be made between the ends of the pipe barrel along its central axis. Where spurs or branches, or connections to existing pipelines are involved, measurement of the spur or new connecting pipe will be made from the intersection of its center axis with the outside surfaces of the pipe into which it connects. Where inlets, headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, that length of pipe tying into the structure wall will be included for measurement, but no other portion of the structure length or width will be so included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels measure as prescribed above.

8. PAYMENT

Payment for HP Storm Pipe measured as prescribed above will be made at the contract unit price bid per linear foot for the various sizes of "HP Storm Pipe" of the class specified.

Payments shall be full compensation for furnishing and transporting the pipe; hauling and placing of earth cushion material where required for bedding pipe; for the preparation of shaping of beds; for hauling, placing and jointing of pipes; for furnishing and installing geotextile pipe joint wrapping; for end finish; for all connections to existing and new structures; for cleaning and television inspection; and for all other items of materials, labor, equipment, tools, excavation, backfill and incidentals necessary to complete the culvert or storm sewer in accordance with the plans an these specifications.