

REQUEST FOR SCHEDULING

AGENDA ITEM

I/We request that the following item be placed on the Agenda for the meeting of the Harrison County Commissioners' Court to be **June 20, 2023**.

THIS REQUEST FORM IN TYPEWRITTEN FORMAT WITH ONE (1) HARDCOPY OF THE EXHIBITS AS WELL AS AN ELECTRONIC COPY, are to be submitted to the County Judge's Assistant no later than **3:00 p.m.** of the Wednesday before the Commissioner's Court meeting. If the exhibits are not timely submitted, this matter may not be posted as an agenda item.

Any request which concerns employee compensation or benefits shall also be submitted to Human Resources within the same deadline.

1. Exact title as you wish it to appear on the Agenda:

Consideration to approve the sealed bid specifications for the following bid and authorization of publication for the notice of bidders:

Bid #2023-14 Holly Street Drainage Improvements Project

2. Brief description of the subject to be discussed:

3. Has this been the subject of previous Commissioners' Court action?

(YES) _____

(NO) _____

If so, give the approximate date of the meeting at which this matter was discussed or action taken thereon:

**HARRISON COUNTY
NOTICE TO PROPOSERS**

Harrison County will accept Proposals for the following:

BID # 2023-14 Holly Street Drainage Improvements Project

Payment will be made in accordance with Chapter 2251, Texas Government Code. Specifications on the above may be obtained from the **Harrison County Purchasing Department, 200 W. Houston St., 1st Floor, Room 107, Marshall, Texas, 75670** and on the Harrison County website: www.harrisoncountytexas.org

The Harrison County Commissioners Court reserves the right to accept or reject any or all proposals. All bids shall be marked on the outside of the sealed envelope with the appropriate **BID # 2023-14 Holly Street Drainage Improvements Project** and must be in the hands of the **Harrison County Purchasing Agent, 200 W. Houston Street, 1st Floor, Room 107 on or before 9:30 a.m., July 12, 2023 via hand delivery or mail.**

Bids will be publicly opened at 9:30 a.m. in the Harrison County Purchasing Department, 200 West Houston Street, 1st Floor, Room 107, Marshall, Texas on the same date.

Sadie Harkins
Harrison County
Purchasing Agent

Publish:
June 21, 2023
July 5, 2023

The County of Harrison
State of Texas

Bid # 2023-14 Holly Street Drainage Improvements Project

For: Holly Street Drainage Improvements Project

Bid opens date/time: July 12th @ 9:30 a.m.

Project information: To be completed between July 20, 2023 and October 31, 2023

The enclosed *Invitation to Bid* (ITB) and accompanying *Specifications/Bidder's Response Form* are for your convenience in bidding the referenced products or services for Harrison County.

Sealed bids shall be submitted no later than:

Date/Time: July 12th, 2023 @ 9:30 a.m.

Mark Envelope: Bid 2023-14 Holly Street Drainage Improvements Project

Project information: To be completed between July 20, 2023 and October 31, 2023

Bids must be signed by a person having the authority to bind the vendor in a contract. Bids that are not signed will be rejected. Harrison County reserves the right to waive simple informalities in this Invitation to Bid.

Harrison County appreciates your time and effort in preparing a bid. Please note that all bids must be received at the designated location by the deadline shown. Bids received after the deadline **will not** be considered for award of the contract. Bids will be opened in the Harrison County Purchasing Department, 200 West Houston Street, 1st Floor, Room 107, Marshall, Texas. You are invited to attend.

Bids may be withdrawn by the bidder at any time prior to the official opening, but must be withdrawn in person. Alterations may not be made to a bid once submitted, but a new bid may be submitted if the substitution occurs before opening time. After the official opening, bids may not be amended or altered and may not be withdrawn without the approval of the Commissioners Court.

Harrison County is aware of the time and effort expended in preparing and submitting bids to the County. Please let us know if any bid requirements that are causing you difficulty in responding to our bids. We want to make the process as easy and efficient as possible so that all responsible vendors can compete for the County's business.

Awards ordinarily will be made approximately two weeks after the bid opening date. To obtain results or if you have any questions, please contact **Sadie Harkins, Harrison County Purchasing Agent, at 903-935-8412.**

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Harrison County Purchasing Department

Important Notice! The State of Texas has enacted a new law that concerns Vendors doing business with local governments effective January 1, 2006. All Vendors must now register with Harrison County before they submit a bid or proposal. Please take the time to read the information on Conflict of Interest Disclosure provided below.

Harrison County Employees may not accept any gifts from vendors. Please do not offer or provide gifts or favors to Harrison County employees or to County offices.

Conflict of Interest Disclosure

Beginning January 1, 2006, a new state law (Chapter 176 of the Local Government Code) requires all persons contracting, or negotiating to contract, or making a bid to sell goods or services, with or to Harrison County, to file a completed Conflict of Interest Questionnaire with the County Clerk. Failure to comply with this law is a criminal offense. You can read this law at:

<http://www.capitol.state.tx.us/cgi-bin/tlo/textframe.cmd?LEG=79&SESS=R&CHAMBER=H&BILLTYPE=B&BILLSUFFIX=00914&VERSION=5&TYPE=B>

The form can be found through the Purchasing link on the Harrison County Home page: [Harrison County \(harrisoncountytexas.org\)](http://www.harrisoncountytexas.org), or at <http://www.ethics.state.tx.us/forms/CIQ.pdf>.

This law does not apply to certain court appointed persons such as attorneys, physicians, interpreters and the like. It is your responsibility to determine whether it applies to you.

The following information applies ONLY to an awarded Bidder/Respondent

The County of Harrison

State of Texas

Certificates of Interested Parties (Form 1295)

In 2015, the Texas Legislature adopted House Bill 1295, which added Section 2252.908 of the Government Code. The law states that a governmental entity may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the governmental entity. The disclosure of interested parties will be submitted online via Form 1295 and must be submitted to the governmental entity prior to any signed contract and/or vote by the governing authority.

The Filing Process:

1. Prior to award by Commissioners Court, your firm will be required to log in to the Texas Ethics Commission, https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and fill out the Electronic Filing Application.
2. Once submitted, the system will generate an electronic Form 1295 displaying a "Certificate Number." Your firm must print, sign, and notarize Form 1295.
3. **Within ten (10) business days** from notification of pending award by the Harrison County Purchasing Agent, the completed Form 1295 **must** be submitted to Harrison County.
4. Your firm will need to repeat this process and obtain a separate Form 1295 each time you enter into a new contract, renew a contract or make modification and/or amendments to a Harrison County contract.

Instruction and information are available at <https://www.ethics.state.tx.us/tec/1295-Info.htm> or you may call the Texas Ethics Commission at (512)463-5800

By Signing on the "Compliance Page"
Your Firm agrees to adhere to HB 1295 referenced above.

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COMPLIANCE WITH FEDERAL AND STATE LAWS

CERTIFICATION OF ELIGIBILITY

By submitting a bid or proposal in response to this solicitation, the bidder/proposer certifies that at the time of submission, he/she is not on the Federal Government's list of suspended, ineligible, or debarred contractors.

In the event of placement on the list between the time of bid/proposal submission and time of award, the bidder/proposer will notify the Harrison County Purchasing Agent. Failure to do so may result in termination this contract for default.

DISCLOSURE OF INTERESTED PARTIES

By submitting a bid or proposal in response to this solicitation, the Bidder/Respondent agrees to comply with HB 1295, Government Code 2252.908. Bidder/Respondent agrees to provide Harrison County Purchasing Agent, and/or requesting department, the "Certificates of Interested Parties," Form 1295 as required, within **ten (10)** business days from notification of award, renewal, amended or extended contract.

Visit https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm for more information.

Signature X _____

This Form must be SIGNED.

The Original with Original Signature and Two (2) Copies must be returned with Bid

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Bid # 2023-14 Holly Street Drainage Improvements Project
Instructions/Terms of Contract

By order of the Commissioners Court of Harrison County, Texas, sealed bids will be accepted for:

2023-14 Holly Street Drainage Improvements Project

IT IS UNDERSTOOD that the Commissioners Court of Harrison County reserves the right to reject any or all bids for the products covered in this bid request and to waive any formalities or defects in bids or to accept such bids as it shall deem to be in the best interest of Harrison County.

BIDS MUST BE SUBMITTED on the forms included for that purpose in this packet. Each bid should be signed by a person having the authority to bind the vendor in a contract, placed in a sealed envelope and marked clearly on the outside as shown below:

<p><u>Bids should be clearly marked:</u> Bid # 2023-14 Holly Street Drainage Improvements Project</p>

BIDS SHOULD BE DELIVERED TO the following address

Wednesday, July 12, 2022, not later than 9:30 a.m.

**Harrison County Purchasing Department
200 West Houston Street
1st Floor, Room 107
Marshall, Texas 75670**

FACSIMILE TRANSMITTALS WILL NOT BE ACCEPTED

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All Bids must be received in the Harrison County Purchasing Department before the opening date and time.

Bid # 2023-14 Holly Street Drainage Improvements Project

GENERAL REQUIREMENTS FOR SEALED BIDS

READ THIS ENTIRE DOCUMENT CAREFULLY. FOLLOW ALL INSTRUCTIONS. YOU ARE RESPONSIBLE FOR FULFILLING ALL REQUIREMENTS AND SPECIFICATIONS. BE SURE YOU UNDERSTAND THEM.

General Requirements apply to all advertised requests for Sealed Bids; however, these may be superseded, whole or in part, by the INSTRUCTIONS/TERMS OF CONTRACT. Be sure your bid package is complete.

ADDENDA

When specifications are revised, the Harrison County Purchasing Agent will issue an addendum addressing the nature of the change. Bidders must **sign it and include it in the returned bid package.**

ASSIGNMENT

The successful bidder may not assign, sell or otherwise transfer this contract without written permission of Harrison County Commissioners Court.

AWARD

Harrison County reserves the right to award this contract on the basis of LOWEST AND BEST BID in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one bidder, to reject any or all Sealed Bids. In the event the lowest dollar bidder meeting specifications is not awarded a contract, the bidder may appear before the Commissioners Court and present evidence concerning his responsibility after officially notifying the Office of the Harrison County Purchasing Agent of his intent to appear.

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BONDS

If this bid requires submission of bid guarantee and performance bond, there will be a separate page explaining those requirements. Bids submitted without the required bid bond or Cashier's Checks are not acceptable.

CONTRACT OBLIGATION

Harrison County Commissioners Court must award the contract and the County Judge or other person authorized by the Harrison County Commissioners Court must sign the contract before it becomes binding on Harrison County or the bidder. Department heads are NOT authorized to sign agreements for Harrison County. Binding agreements shall remain in effect until all products and/or services covered by this purchase have been satisfactorily delivered and accepted.

CONTRACT RENEWALS

Renewals may be made ONLY by written agreement between Harrison County and the bidder. Any price escalations are limited to those stated by the bidder in the original bid.

DISQUALIFICATION OF BIDDER

Upon signing this bid document, a bidder offering to sell supplies, materials, services, or equipment to Harrison County certifies that the bidder has not violated the antitrust laws of this state codified in §15.01, *et seq.*, Business & Commerce Code, or the federal antitrust laws, and has not communicated directly or indirectly the offer made to any competitor or any other person engaged in such line of business. Any or all Sealed Bids may be rejected if the County believes that collusion exists among the Bidders. Sealed Bids in which the prices are obviously unbalanced may be rejected. If multiple Sealed Bids are submitted by a bidder and after the Sealed Bids are opened, one of the Sealed Bids is withdrawn, the result will be that all of the Sealed Bids submitted by that bidder will be withdrawn; however, nothing herein prohibits a vendor from submitting multiple Bids for different products or services.

FISCAL FUNDING

A multi-year lease or lease/purchase arrangement (if requested by the specifications), or any contract continuing as a result of an extension option, must include fiscal funding out. If, for any reason, funds are not appropriated to continue the lease or contract, said lease or contract shall become null and void on the last day of the current appropriation of funds. After expiration of the lease, leased equipment shall be removed by the contractor from

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the using department without penalty of any kind or form to Harrison County. All charges and physical activity related to delivery, installation, removal and redelivery shall be the responsibility of the bidder.

GOVERNING FORMS

In the event of any conflict between the terms and provisions of these requirements and the specifications, the specifications shall govern. In the event of any conflict of interpretation of any part of this overall document, Harrison County's interpretation shall govern.

GOVERNING LAW

This request for bid is governed by the competitive bidding requirements of the County Purchasing Act, Texas Local Government Code, §262.021 *et seq.*, as amended. Bidders shall comply with all applicable federal, state and local laws and regulations. Bidder is further advised that these requirements shall be fully governed by the laws of the State of Texas and that Harrison County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County Attorney concerning any portion of these requirements.

HOLD HARMLESS AGREEMENT

The successful bidder shall indemnify and hold Harrison County harmless from all claims for personal injury, death and/or property damage resulting directly or indirectly from contractor's performance. Bidder shall procure and maintain, with respect to the subject matter of this bid, appropriate insurance coverage. Certification of such coverage must be provided to the County upon request.

INSPECTIONS & TESTING

Harrison County reserves the right to inspect any item(s) or service location for compliance with specifications and requirements and needs of the using department. If a bidder cannot furnish a sample of a bid item, where applicable, for review, or fails to satisfactorily show an ability to perform, the County can reject the bid as inadequate.

INVOICES AND PAYMENTS

Bidders shall submit an original invoice on each purchase order after each delivery, indicating the purchase order number. Invoices must be itemized. Any invoice, which cannot be verified by the contract price and/or is otherwise incorrect, will be returned to the bidder for correction. Under term contracts, when multiple deliveries and/or services are required, the bidder may invoice following each delivery and the County will pay on invoice. Contracts providing for a monthly charge will be billed and paid on a monthly

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basis only. Prior to any and all payments made for goods and/or services provided under this contract, the bidder should provide his Taxpayer Identification Number or social security number as applicable. This information must be on file with the Harrison County Treasurer's office. Failure to provide this information may result in a delay in payment and/or back up withholding as required by the Internal Revenue Service.

MAINTENANCE

Maintenance required for equipment proposed should be available in Harrison County by a manufacturer-authorized maintenance facility. Costs for this service shall be shown on the Pricing/Delivery Information. If Harrison County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

MATERIAL SAFETY DATA SHEETS

Under the "Hazardous Communication Act", commonly known as the "Texas Right to Know Act", a bidder must provide to the County with each delivery, material safety data sheets, which are applicable to hazardous substances, defined in the Act. Failure of the bidder to furnish this documentation will be cause to reject any bid applying thereto.

PRICING

Prices for all goods and/or services shall be negotiated to a firm amount for the duration of this contract or as agreed to in terms of time frame. All prices must be written in ink or typewritten. Where unit pricing and extended pricing differ, unit pricing prevails.

BID COMPLETION

Fill out and return to Purchasing, ONE (1) complete bid form in an appropriately sized envelope or box. **PACKAGE MUST SHOW THE BID NUMBER, DESCRIPTION AND BE MARKED "SEALED BID."** An authorized company representative should sign the Bid Sheet. Completion of these forms is intended to verify that the bidder has submitted the bid, is familiar with its contents and has submitted the material in accordance with all requirements.

BID RETURNS

Bidders must return all completed Sealed Bids to the office of the Harrison County Purchasing Department, 200 West Houston Street, 1st Floor, Room 107, Marshall, Texas, **before 9:30 A.M. LOCAL TIME IN MARSHALL, TEXAS** on the date specified. **Late Sealed Bids will not be accepted.**

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PURCHASE ORDER AND DELIVERY

The successful bidder shall not deliver products or provide services without a Harrison County Purchase Order, signed by an authorized agent of the Harrison County Purchasing Department. The fastest, most reasonable delivery time shall be indicated by the bidder in the proper place on the bid document. Any special information concerning delivery should also be included, on a separate sheet, if necessary. All items shall be shipped **F.O.B. INSIDE DELIVERY** unless otherwise stated in the specifications. Every tender or delivery of goods

must fully comply with all provisions of these requirements and the specifications including time, delivery and quality. Nonconformance shall constitute a breach, which must be rectified prior to expiration of the time for performance. Failure to rectify within the performance period will be considered cause to reject future deliveries and cancellation of the contract by Harrison County without prejudice to other remedies provided by law. **Where delivery times are critical, Harrison County reserves the right to award accordingly.**

SCANNED OR RE-TYPED RESPONSE

If in its response, bidder either electronically scans, re-types, or in some way reproduces the County's published bid package, then in the event of any conflict between the terms and provisions of the County's published bid package, or any portion thereof, and the terms and provisions of the response made by bidder, the County's bid package **as published** shall control. Furthermore, if an alteration of any kind to the County's published bid package is only discovered after the contract is executed and is or is not being performed; the contract is subject to immediate cancellation.

SEVERABILITY

If any section, subsection, paragraph, sentence, clause, phrase or word of these requirements or the specifications shall be held invalid, such holding shall not affect the remaining portions of these requirements and the specifications and it is hereby declared that such remaining portions would have been included in these requirements and the specifications as though the invalid portion had been omitted.

SILENCE OF SPECIFICATIONS

The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The items furnished under this contract shall be new, unused of the latest

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product in production to commercial trade and shall be of the highest quality as to materials used and workmanship. Manufacturer furnishing these items shall be experienced in design and construction of such items and shall be an established supplier of the item proposed.

SUPPLEMENTAL MATERIALS

Bidders are responsible for including all pertinent product data in the returned bid package. Literature, brochures, data sheets, specification information, completed forms requested as part of the bid package and any other facts which may affect the evaluation and subsequent contract award should be included. Materials such as legal documents and contractual agreements, which the bidder wishes to include as a condition of the bid, must also be in the returned bid package. Failure to include all necessary and proper supplemental materials may be cause to reject the entire bid.

TAXES

Harrison County is exempt from all federal excise, state and local taxes unless otherwise stated in this document. Harrison County claims exemption from all sales and/or use taxes under Texas Tax Code §151.309, as amended. Texas Limited Sales Tax Exemption Certificates will be furnished upon written request to the Harrison County Purchasing Department.

TERM CONTRACTS

If the contract is intended to cover a specific time period, the term will be given in the specifications under SCOPE.

TERMINATION

Harrison County reserves the right to terminate the contract for default if Seller breaches any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies, which Harrison County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or services within the proper amount of time, and/or to properly perform any and all services required to Harrison County's satisfaction and/or to meet all other obligations and requirements. Harrison County may terminate the contract without cause upon thirty (30) days written notice. Harrison County reserves the right to award any canceled contract to the next lowest and best bidder as it deems to be in the best interest of the County.

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TESTING

Harrison County reserves the right to test equipment, supplies, material and goods proposed for quality, compliance with specifications and ability to meet the needs of the user. Demonstration units must be available for review. Should the goods or services fail to meet requirements and/or be unavailable for evaluation, the offer is subject to rejection.

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Instruction/Terms of Contract

WAIVER OF SUBROGATION

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Harrison County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

WARRANTIES

Bidders shall furnish all data pertinent to warranties or guarantees, which may apply to items in the bid. Bidders may not limit or exclude any implied warranties. Bidder warrants that product sold to the County shall conform to the standards established by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event product does not conform to OSHA Standards, where applicable, Harrison County may return the product for correction or replacement at the bidder's expense. If bidder fails to make the appropriate correction within a reasonable time, Harrison County may correct at the bidder's expense.

VENDORS OWING TAXES

Pursuant to TX Local Government Code 262.0276, Harrison County Commissioners Court has adopted a policy, which requires that vendors' taxes be current as of the date bids/Sealed Bids are due. Bidders with delinquent taxes on the due date will not be eligible for award. Whether or not a vendor's taxes are delinquent will be determined by an independent review of the Tax Office records. Vendors who believe a delinquency is reflected in error must contact the Tax Office to correct any errors or discrepancies prior to submitting their bid in order to ensure that their bid will be considered. Prior to submitting a bid, vendors are encouraged to visit the Tax Office, set up a portfolio of their accounts and make their own initial determination of the status of their tax accounts. Furthermore, if, during the performance of this contract, a vendor's taxes become delinquent, Harrison County reserves the right to provide notice to the Auditor or Treasurer pursuant to Texas Local Government Code §154.045. This policy is effective for all bids due on or after February 14, 2006.

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Bid # 2023-14 Holly Street Drainage Improvements Project

Instruction/Terms of Contract

Harrison County is requesting bids on Holly Street Drainage Improvements Project. Bids must be submitted on the attached forms. By returning this bid with a price quote, vendors certify and agree that:

Late Bids: Bids received in the Harrison County Purchasing Department after the submission deadline will be considered void and unacceptable. Harrison County is not responsible for lateness or non-delivery of mail, carrier, etc., and the date/time stamp of the Harrison County Purchasing Department shall be the official time of receipt unless otherwise authorized by the County Purchasing Department.

Altering Bids: Bids cannot be altered or amended after the submission deadline.

Sales Tax: Harrison County is exempt, by law, from payment of Texas Sales Tax and Federal Excise Tax.

Contract: Bids, when properly accepted by Harrison County, shall constitute a contract equally binding between the successful bidder and Harrison County. No different or additional terms will become a part of this contract with the exception of change orders approved by the Commissioner's Court.

Change Orders: No oral statement of any person shall modify or otherwise change, or effect, the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be delivered in writing by the Harrison County Purchasing Agent, upon approval of the same by the Commissioner's Court.

Conflict of Interest: No public official shall have interest in this contract, In accordance with *Vernon's Texas Codes Annotated, Local Government Code, Title 5, Subtitle C, Chapter 171.*

Ethics: The bidder shall not offer or accept any gifts or anything of value nor enter into any business arrangement with any employee, official or agent of Harrison County.

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Exceptions/Substitutions: All bids meeting the intent of this invitation to bid will be considered for award. Bidders taking exception to the specifications, or offering substitutions, shall state these exceptions in the section provided or by attachment as part of the bid. The absence of such a list shall indicate that the bidder has not taken exceptions and Harrison County shall hold the bidder responsible to perform in strict accordance with the specifications of the invitation. The Harrison County Commissioners Court reserves the right within its sole discretion to accept any and all or none of the exception(s)/substitution(s) deemed to be in the best interest of the County.

Addenda: Any interpretations, corrections or changes to this *Invitation to Bid* and *Specifications* will be made by written addenda. Sole issuing authority of addenda shall be vested in the Harrison County Commissioners Court and shall be delivered to prospective bidders solely through the Harrison County Purchasing Agent. Addenda will be mailed to all that are known to have received a copy of this *Invitation to Bid*. Bidders shall acknowledge receipt of all addenda.

Bids must comply with all Federal, State, County and local laws concerning these type purchases.

Minimum Standards for Responsible Prospective Bidders: A prospective bidder must affirmatively demonstrate their responsibility and meet the following requirements:

1. Have adequate financial resources, or the ability to obtain such resources as required;
2. Be able to comply with the required or proposed delivery schedule;
3. Have a satisfactory record of performance;
4. Have a satisfactory record of integrity and ethics, and;
5. Be otherwise qualified and eligible to receive an award.

Harrison County may request representation and other information sufficient to determine the bidder's ability to meet these minimum requirements listed on the previous page.

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Bidder Shall Provide, with its bid response, all documentation required by this *Invitation to Bid*. Failure to provide this information may result in rejection of your bid.

Successful Bidder Shall defend, indemnify and hold harmless Harrison County and all its officers, officials, agents and employees from all suits, damages, costs (including but not limited to all defense costs), actions or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons or property on account of any conduct of the successful bidder, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful bidder indemnifies and will indemnify and hold harmless Harrison County from liability, claim or demand on their part, and its officers, officials, agents, servants, customers and/or employees whether such liability, claim or demand arise from or occur upon or in any of the halls, elevators, entrances, stairways or approaches of or to the facilities within which the occupied premises is located. Successful bidder shall pay any judgment costs that may be obtained against Harrison County growing out of such injury or damages, as well as all costs of courts and reasonable attorney's fees, and all costs of defense.

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Bid # 2023-14 Holly Street Drainage Improvements Project
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NOTICE INSURANCE SECTION

Please Read Carefully

Insurance Requirements: Bidder is required to submit with bid, an original of all insurance certificate(s) showing coverage for all requirements as stated below to be in force throughout the term of the contract. All required insurance carriers must have a B+ rating or better.

- Commercial General Liability Insurance at minimum combined single limits of \$500,000 per occurrence and \$1,000,000 general aggregate for bodily injury and property damage, which coverage shall include products/completed operations, (1,000,000 products/completed operations aggregate). Coverage for products/completed operations must be maintained for at least two (2) years after the products/services work is completed. Coverage must be written on occurrence form. Contractual liability must be maintained with respect to the contractor's obligations contained in the contract. The general aggregate limit must be at least two (2) times the per-occurrence limit.
- Workers Compensation Insurance at statutory limits, including employer's liability coverage at minimum limits of \$500,000 per occurrence each accident/ \$ 500,000 by disease per occurrence/ \$500,000 by disease aggregate.
- Commercial Automobile Liability Insurance at minimum combined single limits of \$1,000,000 per occurrence for bodily injury and property damage, including owned, non-owned and hired vehicle coverage.

Harrison County requires it to be named in the required certificates evidencing insurance coverage, as an additional insured by endorsement. This coverage shall include a Waiver of Subrogation in favor of Harrison County, Texas.

Harrison County also requires that should any of the insurance policies required by this contract be canceled or materially changed before the expiration date thereof, the issuing company shall give Harrison County, Texas through its Purchasing Department, PO Box 2025, Marshall, Texas 75671, thirty (30) days written notice of same.

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Bid Bonds:

Bid bonds will not be required for construction contracts that are less than \$100,000. Bid Bonds will not be required from any bidder whose rates are subject to regulation by a state agency.

If the County Purchasing Agent decides that a bid bond is required for a particular contract, the invitation for bids or request for proposals will state a bid bond in the amount of 5% of the contract price is required and that it must be executed by a surety company authorized to do business in Texas.

Performance Bonds:

For all contracts in excess of \$100,000 for the construction, repair or alteration of a public work or the prosecution or completion of any public work, the contractor, before commencing work, must execute a performance bond that

- ✓ Is payable to Harrison County, Texas
- ✓ Is in the full amount of the contract
- ✓ Is conditioned on faithful performance of the work in accordance with the plans, specifications, and contract documents
- ✓ Is solely for the protection of the County
- ✓ Executed by a corporate surety or sureties in accordance with the Insurance Code in a form and approved by the Commissioners Court

Any performance bond that is furnished by a contractor in attempted compliance with the requirements of TEX. GOV'T CODE ANN., ch. 2253 will be construed as in conformity with that chapter in relation to rights created, limitations on the bond and remedies provided.

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Instruction/Terms of Contract

Payment Bonds:

For all contracts in excess of \$50,000 for the construction, repair or alteration of a public work or the prosecution or completion of any public work, the contractor, before commencing work, must execute a payment bond that is solely for the protection of all claimants supplying labor and material in the prosecution of work provided in the contract

- ✓ Is payable to Harrison County, Texas for the use of these claimants
- ✓ Is in the full amount of the contract
- ✓ Executed by a corporate surety or sureties in accordance with the Insurance Code is in a form approved by the commissioners court

Any payment bond that is furnished by a contractor in attempted compliance with the requirements of TEX. GOV'T CODE ANN., ch. 2253 will be construed as in conformity with that chapter in relation to rights created, limitations on the bond and remedies provided.

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Bid # 2023-14 Holly Street Drainage Improvements Project

Instruction/Terms of Contract

Termination of Contract: The contract entered into upon the award of bids shall remain in effect until contract expires, delivery and acceptance of products and/or performance or services ordered or terminated by either party with thirty (30) days written notice prior to any cancellation. Harrison County reserves the option to award any canceled contract to the next lowest and best bidder as it deems to be in the best interest of the County.

Termination for Default: Harrison County reserves the right to enforce the performance of this contract in any manner prescribed by law or deemed to be in the best interest of the County in the event of breach or default. Harrison County reserves the right to terminate the contract immediately and without prior notice in the event the successful bidder fails to:

1. Meet schedules;
2. Defaults in the payment of any fees; or
3. Otherwise fails to perform in accordance with these specifications.

Notice: Any notice provided by this bid (or required by law) to be given to the successful bidder by Harrison County shall be conclusively deemed to have been given and received on the next day after such written notice has been deposited in the U.S. mail in Marshall, Texas, with sufficient 1st class postage affixed thereto, provided this shall not prevent the giving of actual notice in any other manner.

Purchase Order: Successful bidder shall be required by this agreement to clearly and plainly reference a valid Harrison County Purchase Order number on the face of each and every invoice tendered for payment. Failure to reference a valid Harrison County Purchase Order, as herein required, shall be considered sufficient cause for Harrison County to deny payment of said claim. Harrison County shall not be obligated for products or services delivered without prior authorization via purchase order.

Invoices: Payment will be made from original vendor invoices only. Invoices shall show all information as stated above and mailed directly to the Harrison County Purchasing Department, PO Box 2025, Marshall, Texas 75671.

The County of Harrison
State of Texas

Bid # 2023-14 Holly Street Drainage Improvements Project

Instruction/Terms of Contract

Payment will be made upon receipt and acceptance, by the County, of the items ordered in accordance with the Texas Government Code, Section 2251.021. Each Successful bidder is required to pay all its subcontractors within ten (10) days.

Items supplied under this contract will be subject to the County's approval. Items found defective or not meeting specifications shall be picked up and replaced by the successful bidder at no expense to the County. If an item is not picked up within one (1) week after notification, the item will become a donation to the County for disposition without cost or liability.

Warranty: Successful bidder shall warrant that all items/services shall conform to the proposed specifications and all written warranties as well as all implied warranties as shown in the Uniform Commercial Code, and shall be free from all latent and patent defects in material, workmanship and title.

Venue: This agreement and any dispute related hereto will be governed and construed according to the laws of the State of Texas and venue shall be fixed in Harrison County, Texas.

Assignment: The successful bidder shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Harrison County.

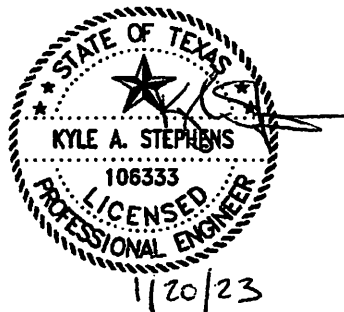
Silence of Specification: The apparent silence of these specifications as to any detail or to the apparent omission of a detailed description concerning any point, shall be regarded as meaning that the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Any questions concerning this *Invitation to Bid* and *Specifications* should be directed to Sadie Harkins, Harrison County Purchasing Agent at 903-935-8412.

HARRISON COUNTY, TEXAS

HOLLY STREET DRAINAGE IMPROVEMENTS PROJECT

JANUARY, 2023



**Stephens Engineering
Texas Registered Firm No. F-20395
P.O. Box 6618
Longview, Texas 75608
(903) 215-8990
Stephenseng.net**

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

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The Texas Department of Transportation 2014 Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges shall govern the following Items and any other Items of work required to complete the work as shown or specified. These Items shall be considered included in these Specifications in their entirety with the exception of the Measurement and Payment sections:

Item 216	Proof Rolling
Item 247	Flexible Base
Item 340	Dense-Graded Hot Mix Asphalt (Method)
Item 360	Concrete Pavement
Item 401	Flowable Backfill
Item 421	Hydraulic Cement Concrete
Item 427	Surface Finishes for Concrete
Item 432	Riprap
Item 440	Reinforcing Steel
Item 464	Reinforced Concrete Pipe
Item 465	Manholes and Inlets
Item 466	Headwalls and Wingwalls
Item 467	Safety End Treatment
Item 529	Concrete Curb, Gutter and Combined Curb & Gutter

SECTION G
GENERAL REQUIREMENTS

TECHNICAL SPECIFICATIONS

SECTION G1 - GENERAL INFORMATION

- G1.1. PERMITS AND RIGHT-OF-WAY:** The Owner will provide rights-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, five (5) days prior to the initiation of construction on easements through private property, to inform the Owner's Representative of his intent to begin construction. The Owner's representative will notify property owners of intent to begin construction. Before beginning construction in areas of public dedication, the Contractor shall inform the agency having jurisdiction in the area forty-eight (48) hours prior to initiation of the work.
- G1.2. CONSTRUCTION IN PUBLIC ROADWAYS AND PRIVATE DRIVEWAYS:** No public road shall be entirely closed overnight. It shall be the responsibility of the Contractor to build and maintain by-passes and detours, if necessary, and to properly light, barricade and mark all by-passes and detours that might be required on and across the road involved in the work included in this contract.

The Contractor shall make every effort to complete construction and allow immediate access to adjacent property at all driveway entrances located along the roads. Owners and tenants of improvements where access and/or entrance drives are located shall be notified at least twenty-four (24) hours prior to the time the construction will be started at their drive-ins or entrances and informed as to the length of time driveways will be closed, which period shall not exceed ten (10) hours.

The Contractor shall be responsible for all road and entrance reconstruction, and repairs and maintenance of same, for a period of one (1) year from the date of acceptance. In the event the repairs and maintenance are not made immediately to the satisfaction of the Engineer, and it becomes necessary for the Owner to make such repairs, the Contractor shall reimburse the Owner for the cost of such repairs.

Where sufficient right-of-way is not available and prior approval is obtained from the Engineer, dirt from the excavation may be temporarily placed on city streets. Where this is necessary, the Contractor shall provide proper barricading and other traffic control measures to provide at least one lane of open traffic. Where prior approval of the Engineer is obtained, the roadway may be completely closed, provided alternate routes for traffic are available and detour routings clearly marked by the Contractor.

Where construction alongside roadways is required, it shall be the Contractor's responsibility to insure that precautions are taken to avoid damage to the roadway surface. Damages to the roadway from the Contractor's construction activities shall be repaired by the Contractor to return the roadway to its original condition prior to construction.

The Contractor is responsible for traffic handling and safety in the construction area during the construction period. Signs, barricades and other necessary devices shall be furnished and maintained by the Contractor in compliance with Part IV of the Texas Manual of Uniform Traffic Control Devices, current edition.

- G1.3. PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED:** In case it is necessary to change or move the property of any owner or of a public utility, such property shall not be moved or interfered with until ordered to do so by the Engineer. The right is reserved to the owner of public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by performance of this Contract.

Any time the Contractor intends to expose, cross, or otherwise work in the area of the existing petroleum pipelines, telephone lines, water lines, etc. the Contractor shall notify the Owner's Representative five (5) days in advance. The Owner's Representative will notify the utility or pipeline owner.

- G1.4. POLES, GUY WIRES, ETC.:** All utility poles, guy wires, private sign posts, signs and similar private obstructions which interfere with the construction of this project will be removed and replaced by the Contractor at his own expense.
- G1.5. PROTECTION OF TREES, PLANTS AND SHRUBS:** The Contractor shall make every effort to protect all trees, plants, and shrubs encountered during construction outside of the construction area. Where Owner-planted shrubbery must be removed for construction, it shall be stored by the Contractor and replaced in good condition. In all cases where questions arise, the Contractor shall request clarification from the Engineer.

Contractor shall not cut down, remove or trim existing trees without prior approval from the Engineer. Trees noted as "DO NOT DISTURB" on the plans shall be protected from construction activity by construction of a barrier fence at a minimum of 5 ft. radius around the trunk of the trees. The barrier fence shall be constructed a minimum of 4 ft. high with polyethylene/polypropylene grid safety barricade fencing supported by steel t-posts or approved equivalent. Payment for tree protection shall be considered subsidiary to various items of work within the contract. The alignment of the storm sewer pipe may need to be slightly adjusted in the field to avoid significant root damage to the trees. Field alignment adjustments shall have prior approval of the Engineer.

- G1.6. ARCHEOLOGICAL DISCOVERIES:** The Contractor may encounter unanticipated cultural or archaeological deposits during construction. If archeological sites or historic structures are discovered after construction operations are begun, the Contractor shall immediately cease operations in that particular area and notify the Owner. The Contractor shall take reasonable steps to protect and preserve the discoveries until they have been inspected by the Owner's Representative. The Owner will promptly coordinate with the Texas Historical Commission and any other appropriate agencies to obtain any necessary approvals or permits to enable the work to continue. The Contractor shall not resume work in the area of the discovery until authorized to do so by the Owner.
- G1.7. CONSTRUCTION STAKING:** The Contractor shall provide for his own horizontal and vertical construction staking as a subsidiary cost to his offer. The plans include locations and elevations of temporary bench markers along the right-of-way.

TECHNICAL SPECIFICATIONS
SECTION G2 - EXISTING UTILITIES

- G2.1. DESCRIPTION:** This section covers the requirements with respect to existing public or private utilities.
- G2.2. PROXIMITY TO WATER MAINS:** All plans are drawn in such manner that all known utilities are shown using the best available information including utility maps, field surveys, or other sources of information. A minimum distance of 9' clear horizontally shall be maintained between water and sanitary sewer lines where possible. Where this separation distance cannot be achieved, clearance shall be provided in accordance with TCEQ rules contained in Chapter 290 and 217, the following procedures of which are summarized below:
- A.** Where a new sanitary sewer parallels the new water main, the sanitary sewer shall be constructed of cast iron, ductile iron, or PVC pipe meeting AWWA Specifications, having a minimum working pressure rating of 150 psi or greater, and equipped with pressure type joints. The water main and sanitary sewer shall be separated by a minimum vertical distance of two feet, and a minimum horizontal distance of four feet, measured between the nearest outside diameters of the pipes, and the water main shall be located above the sewer.
 - B.** Where a new sanitary sewer crosses the new water main, and that portion of the sewer within 10 feet of the water is constructed as described in G2.2.(A) above, an absolute minimum distance of 6 inches between outside diameters shall be maintained. In addition the sewer shall be located below the water line where possible and one length of the sewer pipe must be centered on the water line.
- G2.3. DAMAGE TO EXISTING UTILITIES:**
- Approximate locations and depths of all known utilities are shown using the best available information. The Contractor is responsible for verifying the existence and location of all utilities shown or not shown on the plans. The Contractor shall hold the Owner harmless from damages to existing utilities arising from the Contractor's operations. Repair expense and any damages suffered by the utility owner shall be at the Contractor's expense.
- G2.4. RELATIONSHIP WITH EXISTING FACILITIES:** The Contractor is advised that, unless otherwise indicated, existing utilities must be available at all times for use. The Contractor, therefore, shall at all times take particular care to avoid needless confusion, clutter and debris at the site of the work. At no time shall the Contractor's personnel, equipment, or material prevent the normal conveyance of water and wastewater flows. If it is necessary to request the Contractor to move his equipment, materials, or any material included in the work, he shall do so promptly and place said equipment or material in an area which does not interfere with proper service. The Contractor is further cautioned against adjusting or altering any private property without the written consent of the Owner.
- G2.5. PROTECTION OF EXISTING INSTALLATIONS:** The Contractor shall correct or replace, without delay any and all damage to existing structures, surfaces, equipment, controls or systems resulting from his operations.
- The Contractor's attention is particularly directed to the dust, abrasive particles, debris and dirt generated by the placement, chipping, cutting, finishing and grinding of new or existing concrete, and the dust debris and dirt generated by excavation and backfill operations; and the filters, protective shieldings, and other dust suppression methods at all times to adequately protect private property.
- G2.6. PERMANENT UTILITIES:** The existing site is presently served with utilities. The utilities to be modified by the Contractor are as shown on the plans.

G2.7. CLEANING UP: The Contractor shall not allow the site of the work to become littered with trash and waste material but shall maintain the site of the work in a neat and orderly condition throughout the construction period. On or before the completion of the work, the Contractor shall carefully clean out all pits, drain lines and drains, chambers or conduits and shall remove all temporary structures built by him and rubbish of all kinds from any of the grounds which he has occupied and leave them in first-class condition to the satisfaction of the Engineer.

TECHNICAL SPECIFICATIONS

SECTION G3 - FINISH GRADING, PLACEMENT OF TOPSOIL,
SODDING OR HYDROMULCHING

- G3.1 GENERAL: The work to be performed under this section of the Specifications shall consist of the removal and disposal of excess excavation, finish grading, replacement of previously stripped topsoil or placement of new topsoil, and providing ground cover by whole block sodding or hydromulching.
- G3.2 FINISH GRADING: Excess excavation from all sources shall be placed in accordance with the site grading plans. Materials placed under access roads and parking areas shall be compacted according to the applicable Specifications. Excavated material in excess of the requirements of the grading plan shall be disposed of off-site at the Contractor's expense.
- G3.3 PLACEMENT OF TOPSOIL AND GROUND COVER: The work to be performed under this section of the Specifications shall consist of replacement of topsoil previously stockpiled or placement of new imported topsoil to conform to finish grades indicated on the Plans, and providing ground cover by hydromulching.
 - A. Topsoil: The topsoil shall consist of material previously stockpiled or new imported topsoil. Topsoil shall be placed at a depth of 4" over all disturbed areas prior to placing ground cover.
 - B. Hydromulching: This item shall consist of furnishing and applying fertilizer, seed, mulch cover, and water on all areas disturbed by construction except within residential lots as noted on the Plans.

Application of ground cover shall be by hydromulching. The mulch, fertilizer, and seed may be incorporated into one operation, or if the Contractor so elects, the fertilizer may be applied during preparation of the seedbed. Water used in hydromulching shall be of drinking water quality.

After application of the mulch cover, water shall be applied as necessary at the direction of the Engineer for a period of at least three (3) weeks. The time required for application of water will not be included in the computations of contract time for completion of the project provided all other work under the Contract has been completed. Fertilizer shall be a commercial grade, uniform in composition, free flowing, and suitable for application with mechanical equipment, delivered to the site in labeled containers, to current State Fertilizer Laws and bearing the name, trademark, and warranty of the producer.

All seed shall be labeled in accordance with the current rules and regulations of State law and shall be free of noxious weeds. Seed shall be furnished in sealed, standard containers unless otherwise authorized by the Engineer in writing. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable. The minimum percentage by weight of pure live seed shall not be less than 85 when tested according to current regulations under the Federal Seed Act. All legumes must be inoculated with an approved culture as per the manufacturer's recommendations.

Seed shall be composed of the varieties and amounts by weight as shown below.

<u>VARIETY</u>	<u>WEIGHT, LBS. PER ACRE</u>
Rye Grass (Gulf Coast or Italian)	50
Crimson Clover	2
Bermuda (Common)	10

The Common Bermuda seed shall be applied during the months of March, April and May only. Rye Grass and Crimson Clover shall be applied with hydromulch and fertilizer immediately upon completion of finish grading. The Contractor shall be responsible for all seeding at the specified times, whether accomplished in single or multiple applications.

For maximum soil holding ability the mulch shall be a wood cellulose fiber. This mulch shall be applied at the rate of 1200 lbs. per acre on 4:1 slopes or flatter or at 1500 lbs. per acre on slopes steeper than 4:1.

Fertilizer shall be composed of 16% nitrogen, 8% phosphorous, and 8% potash and applied at a minimum rate of 400 lbs./acre.

- C. Sod: Slab sod shall be provided in all disturbed areas in the lawns and established landscaped areas unless otherwise noted in the plans. Slab sod shall be approved nursery grown grass. Nursery grown grass sod shall be centipede or St. Augustine. Sod shall be free from noxious weeds or other vegetation. Water shall be of drinking water quality.

Slab sod shall be cut with approved mechanical or manual sod cutters. The designated area shall be mowed when necessary, and sod shall be cut to a minimum depth of 1 inch for nursery grown grass, and to a uniform width and in convenient lengths for handling. Care shall be exercised to retain soil on roots of sod during excavating, hauling and planting.

Sod cut more than 48 hours before placing shall not be used unless authorized. Sod taken from bare areas that may produce inferior growth will not be accepted. Watering required in connection with digging, storing or hauling sod will not be paid for.

Areas to receive slab sod shall be thoroughly pulverized to a depth of approximately 3 inches and dressed to a reasonable grade. Slab sod shall receive fertilizer as specified for hydromulching with 90% broadcast over the area to receive slab sodding, and the remaining 10% shall be broadcast over sod after placing and rolling. Upon delivery to the planting site, slab sod shall be transferred onto the surface of the soil. Areas to be sodded shall be watered as directed. Slabs of sod shall be placed with a minimum amount of space between slabs. Slabs which do not fit closely shall be pulled together with suitable tools and pegged when necessary.

Slab sod shall be rolled as soon after planting as practicable with plain rollers or cultipackers. Where rolling is impracticable, sod shall be tamped by approved hand methods.

Slab sodding shall be watered as directed. If nursery grown grass sod is used, particular attention shall be paid to watering per the supplier's recommendations.

- D. Construction Methods: If an area is specifically shown on the plans to be hydromulched then the area to receive hydromulch shall be brought to a smooth and uniform surface to conform to an elevation 4" below the finished grade indicated on the Plans. The surface of the topsoil stockpile shall be thoroughly disced to a depth of 6" prior to loading. The topsoil shall then be dumped upon the prepared area and spread to a uniform depth of 4". Ground cover shall then be applied by hydromulching as described above.
- E. Maintenance of Ground Cover: Areas which have been sodded or hydromulched shall be maintained by the Contractor in a manner to insure that grass cover is established. The Contractor shall further maintain areas to specified grades for a period of one year from the date of receiving the Notice of Substantial Completion on the project. Final payment will not be made until ground cover is established in accordance with these Specifications.

TECHNICAL SPECIFICATIONS

SECTION G4 - BARRICADES AND WARNING DEVICES

- G4.1. DESCRIPTION: This Item shall consist of the construction, maintenance and removal, if required, of detours of the type and length, and to the lines, grades and typical cross sections shown on the plans. The work shall be done in accordance with the provisions of this specification.
- A. Prior to closing any section of the project to traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs and devices, temporary suitable removable lane delineation striping and all other applicable requirements at and in the vicinity of all road and bridge construction projects at all times; both day and night during the construction period of the contract. The Texas Manual on Uniform Traffic Control Devices (TMUTCD) shall serve as a guideline for the installation and maintenance of barricades and warning devices. All of the above does not preclude the requirements of Harrison County.
- B. Responsibility for damage or claims: The Contractor shall hold harmless the Owner, Harrison County, and Stephens Engineering, and all its representatives from all suits, actions or claims of any damages sustained by any person or property in consequence of any neglect in safeguarding the work or through the use of unacceptable materials in the construction of the improvement, or on account of any act of omission by said Contractor. He shall not be released from said responsibility until the roadway shall have been completed and accepted, and so much of the money due the said Contractor under and by virtue of his contract may be retained by the Owner, Harrison County and Stephens Engineering, or his surety may be held until such claims have been settled and suitable evidence to that effect furnished to the Engineer.
- C. In areas where traffic re-alignment is required, all conflicting existing lane lines shall be obliterated and re-alignment made by use of temporary, removable lane delineation striping until construction is completed and then the temporary striping is removed and permanent striping applied in accordance with the TMUTCD specifications for traffic lane striping or buttons.

Whenever temporary pavement marking is required either for re-aligning existing traffic lane striping or for new temporary locations it shall be provided in accordance with TMUTCD requirements.

TECHNICAL SPECIFICATIONS

SECTION G5 – STORM WATER POLLUTION PREVENTION

G5.1. DESCRIPTION: This item shall consist of the work required to provide storm water pollution prevention meeting the requirements of the Texas Commission on Environmental Quality (TCEQ) and Harrison County. The TCEQ requirements are specified in the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) No. TXR150000 (see Attachment 2).

1. REQUIREMENTS – 5 OR MORE ACRES DISTURBED. For construction activities that will disturb 5 or more acres, the Contractor shall perform all activities required by TCEQ. TCEQ requirements include, but are not limited to the following tasks:
 - a. Obtain a copy of the TCEQ CGP (TPDES Permit No. TXR150000).
 - b. Develop a storm water pollution prevention plan (SWP3) meeting the requirements of the TCEQ General Permit and the DC&EC Manual.
 - c. Complete and submit a Notice of Intent (NOI) to the TCEQ using the TCEQ form. Include all necessary fees with the NOI submittal. The NOI and all fees must be submitted at least two (2) days prior to commencement of construction.
 - d. Complete and submit an annual Project fee to the TCEQ.
 - e. Provide the Owner and the Engineer with a copy of the NOI and a copy of the check to the TCEQ and a written notice indicating the date that the NOI was submitted to the TCEQ.
 - f. Implement the SWP3. Perform maintenance and inspection as required by the SWP3.
 - g. Continue to submit the annual project fee as the project continues.
 - h. Modify the SWP3 during construction as necessary.
 - i. Complete and submit a Notice of Termination (NOT) to the TCEQ once the site has reached final stabilization.

2. REQUIREMENTS – 1 OR MORE ACRES BUT LESS THAN 5 ACRES DISTURBED. For construction activities that will disturb 1 or more acres, but less than 5 acres, the Contractor shall perform all activities required by TCEQ. TCEQ requirements include, but are not limited to the following tasks:
 - a. Obtain a copy of the TCEQ CGP (TPDES Permit No. TXR150000).
 - b. Develop a storm water pollution prevention plan (SWP3) meeting the requirements of the TCEQ General Permit and the DC&EC Manual.
 - c. Complete a Construction Site Notice (CSN) using the TCEQ form.
 - d. Post the Construction Site Notice at the Project Site.
 - e. Provide the Owner and the Engineer with a copy of the CSN and a written notice indicating the date that the CSN was posted on site.
 - f. Implement the SWP3. Perform maintenance and inspection as required by the SWP3.
 - g. Modify the SWP3 during construction as necessary.

TECHNICAL SPECIFICATIONS

SECTION G6 – SPECIAL PROVISIONS FOR PROPERTY OWNERS

- G6.1 **DESCRIPTION:** This item provides for furnishing, installing, and / or constructing any and all special provisions of construction as required in accordance with the following itemized list. Each special provision is to be adequately addressed to the satisfaction of the property owner, the City, and the Engineer. The Contractor shall consider these items as subsidiary to the cost of construction of the project and no additional compensation shall be made, unless specifically indicated on the Plans, for the furnishing, installation, and / or construction of these Special Provisions.

SECTION SD
STREETS and DRAINAGE

TECHNICAL SPECIFICATIONS

SECTION SD101 - SITE PREPARATION

SD101.01 DESCRIPTION: Work under this section consists of site preparation and clean-up. The work shall cover but not be limited to the following areas: area to be occupied by the improvement, necessary abutting work areas, any area used for stockpiling of excavated material, and areas within the project used for storage.

SD101.02 SITE PREPARATION: The Contractor shall remove all debris, concrete, or asphalt, culverts, abandoned utilities, and any other obstructions on the site of the project which will interfere with construction of the project. Materials or obstructions removed under this item shall be disposed of by the Contractor.

The Contractor shall adjust to the finished grade all manhole covers, cleanout covers, and valve covers. Manhole frames and covers shall be adjusted using precast concrete grade rings and mortar riser section. Cleanouts shall be adjusted by removing the casting and resetting the casting to grade on a Class C concrete foundation poured around the cleanout stack and placing Class C concrete around the adjusted casting. Valve covers shall be adjusted by adjusting the valve cover housing to the finished grade.

SD101.03 CLEAN UP: From time to time the Contractor shall clean up the site, including all areas as stipulated in Section 101.02 above, in order that the site present a neat appearance and the progress of work not be impeded. One such period of clean up shall immediately precede final inspection.

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary equipment, surplus materials, and debris resulting from his operation, and leave the site in a condition fully acceptable to the Owner.

TECHNICAL SPECIFICATIONS

SECTION SD102 - CLEARING AND GRUBBING

SD102.01 DESCRIPTION: This section will govern the removal and disposal of trees, stumps, roots, logs, brush, vegetation, rubbish and other objectionable matter from the designated portions of the right-of-way and from authorized borrow areas.

On areas required for roadway, channel or structural excavation, all stumps, roots, etc., shall be removed to a minimum depth of one foot below the existing ground surface, except that where excavated material is used as construction material, all organic matter and/or rubbish will be removed to the extent necessary to prevent such objectionable matter becoming mixed with the material to be used in construction.

TECHNICAL SPECIFICATIONS

SECTION SD110 - SITE EXCAVATION

SD110.01 **DESCRIPTION:** This section shall govern the furnishing of all labor, equipment, materials, tools and incidentals necessary to perform the required excavation within the limits of the site, the removal, proper utilization, and/or disposal of all excavated materials; and the construction, shaping, and finishing of all earthwork on the entire length and width of the sitework and approaches to same in conformity with the required lines, grades and cross-sections (including drainage ditches) as shown on the Plans and in accordance with specification requirements herein outlined. Prior to commencing excavation all clearing and grubbing shall be complete in excavation areas.

SD110.02 **CLASSIFICATION:** Unless classification of excavation is indicated on the Plans or so determined by the Engineer, these specifications shall include all materials encountered regardless of their nature or the manner in which they are removed.

SD110.03 **CONSTRUCTION METHODS:** All excavation shall be performed as specified herein and the completed sitework shall conform to the established lines, grades, and cross sections.

In constructing the specified sitework all suitable excavated materials shall be utilized insofar as practicable. Excavated materials shall be removed, utilized or disposed of as follows:

- A. Excavated material, suitable and necessary for site fill shall be utilized in that manner.
- B. Excavated material suitable but not necessary for construction of the required sitework, may, at the option of the Engineer, be disposed of by depositing in or on designated "waste" areas. Or, if so authorized, the Contractor may dispose of such material to his best advantage.
- C. Excavated material unsuitable for incorporation into the required sitework and unsatisfactory for "waste" disposal shall be disposed of off-site in a location determined by the Contractor.

During the construction period the site slopes, grades, and ditches shall be maintained in such condition as to insure proper drainage at all times.

TECHNICAL SPECIFICATIONS

SECTION SD140 - EMBANKMENT

SD140.01 **DESCRIPTION:** This section shall govern the placement and compaction of all materials obtained from the site, borrow locations, channels, and structural excavation for utilization in the construction of embankments.

SD140.02 **CONSTRUCTION METHODS:**

- (1) **General:** Prior to placing any embankment, all "Clearing and Grubbing" operations shall have been completed on the excavation sources and areas over which the embankment is to be placed. Stump holes or other small excavations in the limits of the embankments shall be backfilled with suitable material and thoroughly tamped by approved methods before commencing embankment construction. The surface of the ground, including plowed loosened ground, or surface roughened by small washes or otherwise, shall be restored to approximately its original slope by blading or other methods and, where indicated on the Plans or required by the Engineer, the ground surface thus prepared shall be compacted by sprinkling and rolling.

Unless otherwise indicated on plans the surface of the ground of all unpaved areas other than rock which are to receive embankment shall be loosened by scarifying or plowing to a depth of not less than four inches. The loosened material shall be recompacted with the new embankment as hereinafter specified.

Where indicated on plans or directed by the Engineer, the surface of hillsides to receive embankment shall be loosened by scarifying or plowing to a depth of not less than four inches, or cut into steps before embankment materials are placed. The embankment shall then be placed in layers, as hereinafter specified, beginning at the low side in part width layers and increasing the widths as the embankment is raised. The material which has been loosened shall be recompacted simultaneously with the embankment material placed at the same direction.

Where embankments are to be placed adjacent to or over existing roadbeds, the roadbed slopes shall be plowed or scarified to a depth of not less than six inches and the embankment built up in successive layers, as hereinafter specified, to the level of the old roadbed before its height is increased. Then, if directed, the top of the roadbed shall be scarified and recompacted with the next layer of the new embankment. The total depth of the scarified and added material shall not exceed the permissible depth of layer.

Trees, stumps, roots, vegetation or other unsuitable materials shall not be placed in embankment. Except as otherwise required by the plans, all embankment shall be constructed in layers approximately parallel to the finished grade of the roadbed and unless otherwise specified each layer shall be so constructed as to provide a uniform slope of 1/4 inch per foot from the center line of the roadbed to the outside, except that on superelevated curves each layer shall be constructed to conform to the superelevation required by the governing standard.

Embankments shall be constructed to the grade established by the Engineer and completed embankments shall correspond to the general shape of the typical sections shown on the plans and each section of the embankment shall correspond to the detailed section or slopes established by the Engineer. After completion of the roadway, it shall be continuously maintained to its finished section and grade until the project is accepted.

- (2) **Earth Embankments:** Earth embankments shall be defined as those composed principally of material other than rock, and shall be constructed of accepted material from approved sources.

TECHNICAL SPECIFICATIONS

SECTION SD164 - SEEDING FOR EROSION CONTROL

SD164.01 DESCRIPTION: "Seeding for Erosion Control" shall consist of preparing ground, providing and planting seed, or a mixture of seeds, of the kind specified along and across such areas as are designated on the plans and in accordance with these specifications.

SD164.02 MATERIALS: All seed used must carry a Texas Testing Seed Label showing purity and germination, name and type of seed that the seed meets all requirements of the Texas Seed Law. Seed furnished shall be of the previous season's crop and the date of analysis shown on each tag shall be within 9 months of the time of delivery to the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety of seed shall be furnished for analysis and testing when directed by the Engineer.

The specified seed shall equal or exceed the following percentages for purity and germination:

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>PURITY</u>	
		<u>GERMINATION</u>	
Bermuda Grass	Cynodon dactylon	95%	90%
Rye Grass	Lolium multiflorum	95%	85%
Buffalo Grass	Buchloe dactyloides	40%	40%
Blue Grama Grass	Bouteloua gracilis	30%	75%
Side-Oats Grama Grass	Bouteloua curtipendula	20%	50%
Little Bluestem Grass	Andropogon scoparius	20%	50%
Big Bluestem Grass	Andropogon furcatus	20%	50%
K-R Bluestem Grass	Andropogon species	20%	50%
Buffel Grass	Pennisetum ciliare	90%	75%
Sudan Grass	Sorghum vulgare		
	var. Sudanense	80%	80%
Dropseed Grass	Sporobolus Texanus	90%	60%
Western Wheat Grass	Agropyron Smithii	65%	65%
Yellow Glover	Melilotus officinalis	90%	90%
Oats	Avena sativa	85%	85%

Planting Season: All planting shall be done between the dates specified for each type except as specifically authorized in writing.

The seeds planted per acre shall be of the type specified with the mixture, rate and planting dates as follows:

Type 1.	Bermuda Grass, hulled	8 lb.	April through Sept.
Type 2.	Buffel Grass	10 lb.	March through May
Type 3.	Rye Grass	35 lb.	Sept. through Jan. 15
Type 4.	Bermuda Grass, unhulled	12 lb.	
	Rye Grass	30 lb.	Sept. through Jan. 15
Type 5.	Bermuda Grass, hulled	8 lb.	
	Sudan Grass	10 lb.	Feb. through May
Type 6.	Blue Grama	15 lb.	
	Side-oats Grama	4 lb.	
	Western Wheat	5 lb.	
	Yellow Clover	4 lb.	
	Dropseed Grass	4 lb.	
	Sudan Grass	8 lb.	March through May
Type 7.	Mixture, rate, and planting dates as shown on plans. Fertilizer shall conform to the requirements of the item, "Fertilizer".		

SD164.03 CONSTRUCTION METHODS: After the designated areas have been completed to the lines, grades and cross sections shown on the plans and as provided for in other items of this contract, seeding of the type specified shall be performed in accordance with the requirements hereinafter described.

1. Watering. The seeded areas shall be watered as directed by the Engineer so as to prevent washing of slopes or dislodgement of the seed.
2. Finishing. Where applicable, the shoulders, slopes, ditches shall be smoothed after seed bed preparation has been completed and shaped to conform to the cross sections previously provided and existing at the time planting operations were begun.

SD164.04 BROADCAST SEEDING: The seed or seed mixture in the quantity specified shall be uniformly distributed over the areas shown on plans or where directed. If the sowing of seed is by hand rather than by mechanical methods, the seed shall be sown in two directions at right angles to each other. Seed and fertilizer may be distributed at the same time provided the specified uniform rate of application for both is obtained.

"Finishing: as specified under Article 3 is not applicable since no seed bed preparation is required.

SD164.05 DISKED SEEDING: The soil over the area shown on the plans, or as directed to be seeded, shall be loosened to a minimum depth of 3 inches, and all particles in the seed bed shall be reduced to less than 1 inch in diameter or they shall be removed. The area shall then be finished to line and grade as specified under "finishing" in Article 3.

The seed or seed mixture specified shall then be planted at the rate required and the application shall be made uniformly. If the sowing of seed is by hand, rather than by mechanical methods, the seed shall be sown in two directions at right angles to each other. Seed and fertilizer may be distributed at the same time provided the specified uniform rate of application for both is obtained. After planting, the seed shall be raked or harrowed into the soil to a depth of approximately 1/8 inch. The planted area shall be rolled with a corrugated roller of the "Cultipacker" type. All rolling of slope area shall be on the contour.

TECHNICAL SPECIFICATIONS

SECTION SD166 - FERTILIZER

SD166.01 DESCRIPTION: "Fertilizer" shall consist of providing and distributing fertilizer over such areas as are designated on the plans and in accordance with these specifications.

SD166.02 MATERIALS: All fertilizer used shall be delivered in bags or containers clearly labeled showing the analysis. The fertilizer is subject to testing by the State Chemist in accordance with the Texas Fertilizer Law. A pelleted or granulated fertilizer shall be used with an analysis of 12-12-12 for 16-8-8 or having the analysis shown on the plans. The figures in the analysis represent the percent of nitrogen, phosphoric acid, and potash nutrients respectively as determined by the methods of the Association of Official Agricultural Chemists.

In the event it is necessary to substitute a fertilizer of a different analysis, it shall be a pelleted or granulated fertilizer with a lower concentration. The total amount of nutrients furnished and applied per acre shall equal or exceed that specified for each nutrient.

SD166.03 CONSTRUCTION METHODS: When an item for fertilizer is included in the plans and proposal, pelleted or granulated fertilizer shall be applied uniformly over the area specified to be fertilized and in the manner directed for the particular item or work. The fertilizer shall be dry and in good physical condition. Fertilizer that is powdered or caked will be rejected. Distribution of fertilizer for the particular item of work shall meet the approval of the Engineer.

Unless otherwise indicated on the plans, fertilizer shall be applied uniformly at the average rate of 300 pounds per acre for all types of "Sodding for Erosion Control" and 400 pounds per acre for all types of "Seeding for Erosion Control".

Except as otherwise specified, earth embankments shall be constructed in successive layers for the full width of the individual roadway cross section and in such lengths as are best suited to the sprinkling and compaction methods utilized.

Layers of embankment may be formed by utilizing equipment which will spread the material as it is dumped, or they may be spread by blading or other acceptable methods from piles or windrows dumped from excavating or hauling equipment in such amounts that material is evenly distributed.

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 mixed 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.

Water required to bring the material to the moisture content necessary for maximum compaction shall be evenly applied and it shall be the responsibility of the Contractor to secure a uniform moisture content throughout the layer by such methods as may be necessary.

Compaction of embankments shall be obtained by the method described below.

- (3) **Compaction:** Each layer shall be compacted to the required density by suitable equipment as hereafter described. The depth of layer, prior to compaction, shall not exceed that depth which will produce six inch compacted layer. Prior to and in connection 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 of 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 plans. Embankment soils shall be sprinkled as required and compacted to the extent necessary to provide not less than 95 percent of Modified A.A.S.H.T.O. density (A.S.T.M. Method D1557). Field density determinations will be made in accordance with approved methods.

When the Contractor submits each layer of earth embankment or select material for approval prior to placement of the next layer, tests as considered necessary by the Engineer will be made by an approved testing laboratory at the expense of the Contractor. 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 or subsequent work to obtain specified density. Such procedure shall be determined by, and subject to, the approval of the Engineer.

Should the embankment, due to any reason or cause, lose the required stability, density, or finish before the pavement structure or base is placed, it shall be recompacted and refinished at the sole expense of the Contractor. Excessive loss of moisture in the embankment shall be prevented by sprinkling, sealing or covering with a subsequent layer of granular material. Excessive loss of moisture shall be considered to exist when the soil moisture content is more than four percent below the optimum for the density specified.

- SD140.03 **SELECTION OF MATERIALS:** In addition to the requirements in the roadway excavation section of the specifications which cover 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 plans, 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.

TECHNICAL SPECIFICATIONS

SECTION SD204 - SPRINKLING

SD204.01 DESCRIPTION: This section shall govern the authorized application of water on those portions of roadway shown on the Plans or as directed by the Engineer.

SD204.02 CONSTRUCTION METHODS: The Contractor shall furnish and operate approved sprinklers equipped with positive and rapidly working cutoff valves and approved spray bars which will insure the distribution of water in a uniform and controllable rate of application. The Contractor shall apply the water in the required quantity where shown on the Plans and/or as directed by the Engineer.

TECHNICAL SPECIFICATIONS

SECTION SD210 - ROLLING

SD210.01 DESCRIPTION: This section shall govern the equipment used for compaction of subgrade, sub-base, base or asphaltic concrete pavements by the operation of approved power rollers, tamping rollers or pneumatic tired rollers as herein specified and/or as directed by the Engineer.

210.02 EQUIPMENT:

(1) Subgrade, Sub-base and Base:

- (a) Pneumatic Tired Rollers: Large pneumatic tired rollers shall be of a type having five or more tires, with each tire capable of being inflated to a pressure of 100 pounds per square inch. Total weight of the unit when loaded shall be not less than twenty-five tons. The load shall be equally distributed to all wheels and the tires shall be uniformly inflated.

Small pneumatic tired rollers shall consist of not less than nine pneumatic tired wheels running on axles in such a manner that the rear group of tires will not follow in the track of the forward group and mounted in a rigid frame and provided with a body suitable for ballast loading. The wheelbase of the roller shall be not less than five nor more than ten feet. The front axle shall be attached to the frame in such a manner that the roller may be turned within a minimum circle. The pneumatic tired roller under working conditions shall have an effective rolling width of approximately sixty inches and shall be so designed that by ballast loading the load may be varied uniformly from a minimum of 100 to a maximum of 400 pounds per inch of width of tire tread.

The tire pressure and compression to be provided by the pneumatic roller shall be as directed by the Engineer. Pneumatic tired rollers shall be drawn by either a suitable crawlertype tractor, a pneumatic tired tractor, or a truck of adequate tractive effort, or may be of the self-propelled type, and the roller when drawn or propelled by either type of equipment shall be considered a pneumatic tired roller unit.

Unless otherwise directed, pneumatic tired rollers shall be operated within a speed range from two to four miles per hour.

- (b) Tamping Rollers: Tamping rollers shall consist of two metal rollers, drums or shells of forty inches minimum diameter; each not less than forty-two inches in length and unit-mounted in a rigid frame in such a manner that each roller may oscillate independently of the other; and each roller, drum or shell shall be surmounted by metal studs with tamping feet projecting not less than seven inches from the surface and spaced not less than seven inches from the surface and spaced not less than six nor more than ten inches measured diagonally center to center; and the cross-sectional area of each tamping foot measured perpendicularly to the axis of the stud, shall be not less than five nor more than eight square inches. The roller shall be supplemented with cleaning teeth to provide self cleaning. The roller shall be so designed that by ballast loading, the load on each tamping foot may be varied uniformly from 125 to 175 pounds per square inch of cross-sectional area. The load per tamping foot will be determined by dividing the total weight of the roller by the number of tamping feet in one row parallel to (or approximately so) the axis of the roller. The compression to be provided shall be as directed by the Engineer. The tamping roller shall be drawn by suitable power equipment of adequate tractable effort. Two tamping rollers, consisting of four cylinders, drawn by approved power equipment shall be considered a roller unit. Unless otherwise directed, tamping rollers shall be operated within a speed range of two to three miles per hour.

(2) Hot Mix Asphaltic Concrete Pavement:

- (a) Power Flat Wheel Rollers: Power flat wheel rollers shall be self-propelled and shall be of the three wheel or tandem type, weighing not less than five tons nor more than twelve tons. Power flat wheel rollers shall be operated with a speed range from two to three miles per hour and/or as directed.
- (b) Pneumatic Tired Rollers: Pneumatic tired rollers for hot mix asphaltic concrete pavement shall conform to the specifications as noted above for pneumatic rollers.

SD210.03 CONSTRUCTION METHODS: The compaction shall be accomplished by the methods outlined in the specifications on Subgrade, Sub-base, Base and Flexible Pavement. Tracked or lugged equipment will not be allowed on pavements at any time. In the event the indicated rollers are not sufficiently weighted, nor have sufficient tire inflation capacity, to produce the required degree of compaction, additional larger size rollers will be required at no additional expense to the Owner.

Sufficient rollers shall be provided to compact the material in a satisfactory manner.

TECHNICAL SPECIFICATIONS

SECTION SD400 - EXCAVATION AND BACKFILL FOR STRUCTURES

SD400.01 **DESCRIPTION:** This section shall govern the excavation for construction to the lines, grades and extent indicated on the Plans of any and all structures and subsequent backfill of these structures.

SD400.02 **CONSTRUCTION METHODS:** Excavation shall extend a sufficient distance from walls and footings to allow for form, installation of services, and for inspection, except where concrete for walls and footing is authorized or required to be deposited directly against excavated surfaces. Where the excavation is made below the elevations indicated on the drawings or directed by the Engineer, the excavation shall be restored to the proper elevation with lean concrete or other selected material, at the expense of the Contractor.

In order that the Engineer may judge the adequacy of a proposed foundation, the Contractor, if requested, shall make soundings to determine the character of the subgrade materials. The maximum depth of such soundings will not be required to exceed five feet below the proposed footing grade. It is the intent of this provision that soundings shall be made at the time the excavation in each foundation is approximately complete.

The final elevation to which a foundation is to be constructed shall be as shown on the drawings or as raised or lowered by written order from the Engineer when such alterations are judged proper to satisfactorily comply with design requirements of the structure. Should it be found necessary to increase the depth of footings from that shown on the drawings the necessary alterations in the details or the structure shall be accomplished in a manner as directed by the Engineer, who shall have the right to substitute revised details if necessary.

When a structure is to rest on an excavated surface other than rock, special care shall be taken not to disturb the bottom of the excavation, and removal of the last material required to reach foundation final grade shall not be performed until just before the footing is to be placed.

All rocks or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the Engineer. All seams shall be cleaned out and filled with concrete at the time the footing is placed.

Water encountered in excavations shall be attended to by the Contractor who shall do all bailing, pumping, and dewatering at his expense so that foundations and all other structures may be "constructed in the dry".

Earth from excavations shall be used to backfill around structure as required. Earth from excavation not required for backfill shall be disposed on areas within reasonable proximity to the project site. Excavated material required to be used for backfill may be deposited by the Contractor in storage piles at points convenient for rehandling the material during the backfilling operations. The location of storage pile shall be subject to the approval of the Engineer.

TECHNICAL SPECIFICATIONS

SECTION SD420 – CONCRETE
(Not for Pavement Structure)

SD420.01 GENERAL: The work covered by this section includes furnishing all materials and equipment and performing all necessary labor to do all concrete work shown on the drawings or incidental to the proper execution of the work, as herein after specified as directed by the Engineer.

SD420.02 COMPOSITION: Concrete shall be composed of cement, fine aggregate, coarse aggregate and water so proportioned and mixed as to produce a plastic, workable mixture in accordance with all requirements under this section and suitable to the specific conditions or placement.

SD420.03 CLASSIFICATION: Except where required to meet special conditions, all concrete shall be Class "A" or Class "C", meeting the requirements of 2004 TxDOT Specification Item 421 as designated on the drawings.

SD420.04 STRENGTH: The mixes will be designed to secure concrete having the following compressive strength at the age of 28 days, as determined by breaking standard 6-inch diameter by 12-inch height test specimens in accordance with the procedure set forth in ASTM Designations C31-69 and C39-66:

<u>Class</u>	<u>Minimum Average for any 5 consecutive cylinders</u>	<u>Minimum for any one cylinder</u>
A	3,000 lbs. per sq. in.	3,000 lbs. per sq. in.
C	3,600 lbs. per sq. in.	3,100 lbs. per sq. in.

SD420.05 HIGH-EARLY STRENGTH CONCRETE: High-early strength concrete made with high-early strength Portland cement or other special cements shall be used only when specifically authorized by the Engineer. The 7-day compressive strength of concrete of any class, when made with high-early strength cement shall be at least equal to the specified minimum 28-day compressive strengths for that class. All provisions of these specifications, except for cement, shall be applicable to such concrete. High-early strength cement shall be approved by the Engineer before use.

SD420.06 CEMENT:

- (1) Portland Cement: Portland cement shall conform to ASTM C-150 Type I or Type III, except as specified in subparagraph (2) below.
- (2) High-early Strength Portland Cement: Cement for high-early strength concrete shall conform to Federal Specification SS-C-201, or ASTM C-150, Type III.
- (3) Special Test Requirements: Cement shall be tested by a recognized testing laboratory or agency satisfactory to the Engineer. Samples to be tested shall be taken at the mill. The Contractor shall arrange and pay for the testing and shall furnish the Engineer certified copies of all test reports. No cement shall be used until notice has been given by the Engineer that the test results are satisfactory. Cement which has been stored for more than 4 months after being tested shall be retested by the Contractor at his own expense before use. Ordinarily, no cement shall be used until after it has satisfactorily passed both the 7 and 28-day tests, but in cases of emergency the Engineer may waive the 28-day tests and permit the use of cement which has satisfactorily passed the soundness and 7-day tests, provided it is the product of a quarry and mill having an established reputation for the production of high-grade cement.

SD420.07 FINE AGGREGATE:

- (1) **Composition:** Fine aggregate shall be natural sand.
- (2) **Quality:** Fine aggregate shall consist of hard, strong, durable and uncoated particles.
- (3) **Grading:** The grading shall conform to the following requirements:

<u>Sieve Size</u>	<u>Percent Retained by Weight</u>
3/8" Sieve	0
No. 4 Sieve	0-5
No. 8 Sieve	0-20
No. 16 Sieve	15-50
No. 30 Sieve	35-75
No. 50 Sieve	65-90
No. 100 Sieve	90-100
No. 200 Sieve	97-100

- (4) **Deleterious Substances:** The substances designated below shall not be present in excess of the following amounts:

	<u>Percent by Weight</u>
Clay Lumps	0.5
Material removed by decantation from aggregates, not more than	4.0
Other deleterious substances such as coal, shale, coated grains and soft flaky particles	2.0

- (5) **Mortar Strength:** Mortar specimens made 1 part cement to 3 parts of the fine aggregate shall have a compressive strength at 28 days of at least 90 percent of the strength of similar specimens made with Ottawa sand having a fineness modulus of 2.40 + 0.10.
- (6) **Tests:** When given ASTM C-40 test for organic impurities the color shall not be darker than the standard. Mineral filler may be added to sand if approved by the Engineer.

SD420.08 **COARSE AGGREGATE:**

- (1) **Composition:** Coarse aggregate shall be gravel or crushed stone suitably prepared.
- (2) **Quality:** Coarse aggregate shall consist of hard, tough and durable particles free from adherent coating. It shall contain no vegetable matter, nor soft, friable, thin or elongated particles in quantities considered deleterious by the Engineer. The substance designated shall not be present in excess of the following amount by weight:

Deleterious substances including friable, thin, elongated or laminated pieces	3.0%
Soft fragments	3.0%
Clay lumps	1/4%
Removed by decantation	1%
The sum of all deleterious ingredients exclusive of that removed by decantation, shall not exceed	5%

When the material removed by decantation consists essentially of crusher dirt the maximum amount permitted may be raised to 1 1/2%. Aggregate which has disintegrated or weathered badly under exposure conditions similar to these which will be encountered by the work under consideration, shall not be used. When crushed stone is used the crusher shall be equipped with

a screening system which will entirely separate the dust from the stone and convey it to a separate bin.

- (3) **Size:** Coarse aggregate shall be well graded from fine to coarse to that concrete of the required workability, density and strength can be made without the use of an excess amount of sand, water or cement. When tested by approved methods, the coarse aggregate shall conform to the following grading requirements:

Concrete	Percent passing on each Sieve								
	2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8
Class A			100	95-100		25-60		0-10	0-5
Class A (extruded curbs)						100	95-100	20-65	0-10
Class C				100		90-100	40-70	0-15	0-5

- (4) **Tests:** Where the concrete in the finished work will be exposed to contact with aggressive soils or waters, or other destructive agents as determined by the Engineer, the coarse aggregate shall be subjected to the sodium sulphate accelerated soundness test in accordance with ASTM Designation C 88 and failure to pass such test shall be cause for rejection of the aggregate. However, aggregate failing to pass this test may be used with the approval of the Engineer, provided it has given satisfactory service for a period of not less than five (5) years under exposure conditions similar to those to which it will be subjected in the proposed work.

SD420.09 **WATER:** The water used in mixing concrete shall be fresh, clean and free from injurious amounts of oil, acid, alkali or organic matter.

SD420.10 **STORAGE:**

- (1) **Cement:** Immediately upon receipt, at the site of the work, cement shall be stored in a thoroughly dry, weather tight, and properly ventilated building or barge, with adequate provisions for the prevention of the absorption of moisture. Storage shall be such as to permit easy access for inspection and definite identification of each shipment.
- (2) **Aggregate:** The fine aggregate and each size of the coarse aggregate shall be stored separately and in such manner as to be free to drain and to avoid the inclusion of any foreign material in the concrete. Stock piles of coarse aggregates shall be built in horizontal layers to avoid segregation. Aggregates shall be protected from freezing and the inclusion of frost, and heating of aggregates may be required as directed by the Engineer when concreting is performed in cold weather.

SD420.11 **PROPORTIONING:**

- (1) **Control:** The exact proportions of all material entering into the concrete shall be as directed by the Engineer. The Contractor shall provide all equipment necessary positively to determine and control the actual amounts of all materials entering the concrete. The proportions will be changed whenever in the opinion of the Engineer, such change becomes necessary to obtain the specified strength and the desired durability, density, uniformity, and workability, and the Contractor will not be compensated because of such change except that he will be compensated for an increase in the specified minimum unit cement content as stated in subparagraph (3) below, when such increase is authorized by the Engineer.
- (2) **Measurement:** All materials shall be measured by weight or volume as directed by the Engineer. One (1) bag of cement will be considered as 94 pounds in weight, or one (1) cubic foot loose, in volume, and one (1) gallon of water as 8.33 pounds.
- (3) **Maximum water / cement ratio:** Each cubic yard of concrete shall contain no more than the following maximum water / cement ratios by weight:

Class "A"	-	0.60
Class "C"	-	0.45

(4) Water Content:

- (a) An increase in the maximum water content to improve workability will not be permitted unless comparative tests under job conditions show conclusively that such increase in water content will not result in a decrease in concrete strength and durability and provided further that such increase does not exceed one (1) gallon per cubic yard.

(5) Aggregate Content: The total volume of aggregates to be used in each cubic yard of concrete shall be than necessary to produce a dense mixture of the required workability as determined by the Engineer.

(6) Admixtures: Admixtures may be used only with the approval of the Engineer.

SD420.12 MIXING AND PLACING:

(1) Equipment: The Contractor shall operate one or more approved batch-type mixing plants. The rating capacity of any individual mixer shall be one-half (1/2) cubic yard or more. The mixing plant or plants shall be provided with adequate equipment and facilities for accurate measurement and control of all materials and water for readily changing the proportion to conform to the varying conditions of the work, in order to produce concrete of the required uniform strength and workability. The plant or plants shall include provisions to facilitate the inspection of all operations at all times and shall be subject to the approval of the Engineer.

(2) Ready-Mixed Concrete: At the option of the Contractor, ready-mixed concrete may be used in lieu of concrete mixed at the job. All mixing requirements specified herein for concrete mixed at the site shall be enforced and the Engineer shall have free access to the mixing plant at all times.

(3) Time: The minimum time for mixing each batch, after all materials are in the mixer, shall be one and one-half (1 1/2) minutes. The mixer shall revolve a minimum of twelve (12) revolutions after all materials have been placed herein, and at a uniform speed. Neither the speed nor the volume capacity of the mixer shall exceed those recommended by the manufacturer. Excessive overmixing, requiring additions of water to preserve the required consistency, will not be permitted.

(4) Conveying: Concrete shall be conveyed from mixer to forms as rapidly as practicable and by methods which will prevent segregation or loss in ingredients. It shall be deposited as nearly as practical in its final position. Chutes used shall be such that the concrete slides in them and does not flow. Chutes, if permitted, shall have a slope of less than 1 on 2. Where a vertical drop greater than five (5) feet is necessary, placement shall be through elephant trunks or similar devices to prevent segregation.

(5) Placing: Concrete shall be placed before initial set has occurred, and in no event after it has contained its water content for more than thirty (30) minutes. Unless otherwise specified, all concrete shall be placed upon clean, damp surfaces, free from running water, or upon properly consolidated fills, but never upon soft mud or dry porous earth. The concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner as to prevent segregation of the coarse aggregate. Construction of forms for the lifts of vertical walls shall be such as to make all parts of the walls easily accessible for the placement, spading and consolidation of the concrete as specified herein.

- (6) Vibration: All concrete shall be placed with the aid of mechanical vibrating equipment as approved by the Engineer. Vibration shall be transmitted directly to the concrete, and in no case shall it be transmitted through the forms. The duration of vibration at any location in the forms shall be held to the minimum necessary to produce thorough compaction.
- (7) Finish: All top surfaces, other than slabs, not covered by forms and which are not to be covered by additional concrete of fill shall receive a wood float finish without additional mortar. Care shall be taken that no excess water is present when this finish is made. Other surfaces shall be brought to finish elevations and left true and regular.
- (8) Construction Joints: Construction joints shall be formed as indicated in the drawings or as approved or directed by the Engineer. Where indicated or required, dowel rods shall be used. All concrete at the joint shall have been in place not less than twelve (12) hours, and longer if so directed by the Engineer, before concrete resting thereon is placed. Before placing is resumed, or commenced, all excessive water and laitance shall be removed and the concrete shall be cut away, where necessary, to insure a strong dense concrete at the joint. In order to secure adequate bond the surface of the concrete already in place shall be cleaned and roughened and shall then be spread with a 1/2 inch layer of mortar of the same cement sand ratio as is used in the concrete, immediately before the new concrete is deposited.
- (9) Existing Concrete Structures: In those instances where existing concrete structures are modified or extended, the concrete used in the modification shall contain an approved non-shrinkage additive. Concrete surfaces which will be in contact with new construction shall be roughened and cleaned prior to placing of the new concrete. These surfaces shall be wetted and painted with a thin coat of neat cement mortar, or cement epoxy, at the direction of the Engineer, immediately in advance of placing of concrete.

SD420.13 CURING AND PROTECTING:

- (1) Curing: All concrete shall be kept wet for a period of seven (7) days unless otherwise specifically prescribed by the Engineer, by covering with water, an approved water-saturated covering, or other approved method which will keep all surfaces continuously wet.
- (2) Membrane Curing: When, in the opinion of the Engineer, satisfactory results can be obtained by membrane curing, permission will be given to the Contractor to substitute an approved curing compound for the water curing specified. If a curing compound is used it shall be applied in two (2) coats and it shall be of such composition that it will adhere to fresh, damp concrete and form a thoroughly bonded, dense, continuous, water-tight membrane which will not run or sag and will dry satisfactorily within three hours after application. The coverage shall not exceed 300 square feet per gallon per coat and shall be applied in a uniform coat with approved pressure-spraying equipment. The compound used shall contain at least 30 percent of non-volatile solids. Samples consisting of at least one gallon, of any compound proposed for use shall be sent to a laboratory designated by the Engineer, if required, at least 30 days previous to the date upon which it is proposed to use the material. If concrete has become dry, it shall be thoroughly moistened with water, immediately previous to application of the compound. When curing compound is used on surfaces to which new concrete is to be bonded, any compound film remaining at the expiration of the curing period shall be carefully removed by sand blasting or the adequate use of steel wire brooms or brushes.
- (3) Protection from the Sun: All concrete shall be adequately protected from injurious action of the sun in a manner satisfactory to the Engineer.
- (4) Protection in Cold and Freezing Weather: In cold weather concrete shall be mixed and placed only when the temperature is at least 40 deg. F and rising, unless permission for placement of concrete is obtained from the Engineer, in which event all materials shall be heated in a manner approved by the Engineer. In freezing weather, suitable means shall be provided for maintaining

the concrete at a temperature of at least 50 deg. F for not less than 72 hours after placing, or until the concrete has thoroughly hardened. The methods of heating the materials and protecting the concrete shall be subject to approval of the Engineer. Salt, chemicals or other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing.

SD420.14 FORMS:

- (1) **Materials:** Forms shall be of wood, steel or other approved material. All exposed surfaces shall be constructed with forms lined with plyboard masonite, steel or other smooth material specifically approved. Surfaces or not exposed may be formed with tongue-and-groove lumber or lined forms as mentioned above. The type, size, shape, quality and strength of all materials of which the forms are made shall be subject to the approval of the Engineer.
- (2) **Construction:** Forms shall be built true to line and grade, and shall be mortar-tight and sufficiently rigid to prevent displacement or sagging between supports. Responsibility for their adequacy shall rest with the Contractor. Form surfaces shall be smooth and free from Form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. Bolts and rods used for internal ties shall be so arranged that, when the forms are removed, all metal will be not less than 2 inches from any concrete surface. Wire ties will not be permitted where the concrete surface will be exposed to weathering and discoloration will be objectionable. All forms will be so constructed that they can be removed without hammering or prying against the concrete. Unless otherwise indicated, suitable moulding shall be placed to bevel or round exposed edges, at expansion joints and any other points as may be required by the Engineer.
- (3) **Coating:** Forms, other than those having absorptive form lining for exposed surfaces shall be coated with a non-staining mineral oil which shall be applied shortly before the concrete is placed. Forms for unexposed surfaces may be thoroughly wetted in lieu of oiling, immediately before the placing of concrete except that in freezing weather oil shall be used.
- (4) **Removal:** Forms shall not be removed without the approval of the Engineer and all removal shall be accomplished in such manner as will prevent injury to the concrete. Forms shall not be removed before the expiration of the minimum number of days indicated below, except when specifically authorized by the Engineer. When, in the opinion of the Engineer, conditions on the work are such as to justify it, forms may be required to remain in place for longer or shorter periods.

Beams and slabs	10 days
Columns and piers	7 days
Walls and vertical faces	2 days

- (5) **Form Lining for Buildings:** In addition to the requirements for work specified above, the forms for walls of buildings which will be visible in the finished structure shall be lined with pressed wood sheets, absorptive form lining or approved equal. Such lining shall be applied directly to the sheeting. Forms for window and door jams, and their flat or arched soffits shall be lined also and the corner intersections chamfered. Jointing of the lining shall be neat and close and no patch pieces, cleats, nor blocking will be permitted. Overrun of lining shall be trimmed to secure proper fit to adjoining surfaces. Lining with bruises, imprints, or hammer marks shall not be used.

SD420.15 REINFORCEMENT:

- (1) **General:** The Contractor shall furnish and install all reinforcement, including rods, fabric and structural shapes, as indicated on the plans or otherwise required. All bar reinforcement shall be open hearth new billet steel of structural, intermediate, or hard grade or shall be rail concrete reinforcement. Billet steel shall conform to applicable ASTM Designation A615.

Rail Steel reinforcement shall conform to applicable ASTM Designation A-616 (bars produced by the piling method not acceptable) or the reinforcement may conform to the requirements of Federal Specification QQ-B71, and Amendment 1, dated December 1940. Unless otherwise indicated, all bars shall be Type B (deformed), Grade 2, 3, 4, or 5 wire mesh. All welded wire fabric reinforcement shall conform to ASTM Designation A-185-68. All reinforcement shall be when surrounding concrete is placed, entirely free from rust, scale, grease or other coating which might destroy or reduce its bond with concrete. Shop drawings, lists and placing details shall be furnished by the Contractor when required.

- (2) Minimum Spacing of Rods: The clear distance between parallel rods shall be not less than 1 1/2 times the diameter of round rods, or twice the side dimensions of square rods unless specifically authorized, shall in no case be less than one inch. Splices may be tied together if 45 Diameters lap is provided.
- (3) Protective Covering:
 - (a) All main reinforcement in sewer conduits, culverts, wall and column footings and similar structures, embedded in earth or submerged in water shall be placed not less than 3 inches from any concrete surface, unless otherwise set forth.
 - (b) All main reinforcement in beams, slabs, and wall or culverts and bridges, and similar structures of comparatively thin sections, exposed to the weather shall be placed not less than 2 inches from any concrete surface, unless otherwise set forth.
 - (c) All main reinforcement in walls and slabs of buildings exposed to the weather and in fire-resistant construction, shall be placed not less than one inch from the surface in walls and slabs, 1 1/2" in floor beams, and 2" in girders and columns. In interior flat slab construction, the minimum cover may be reduced to 3/4 inch. For interior work where fire hazard does not exist, the main reinforcement shall be placed not less than 3/4 inch from the surface in walls and slabs, one inch on floor beams and 1 1/2 inches in girders and columns.
 - (d) The covering of stirrups, spacer-rods, and similar secondary reinforcement may be reduced by the diameter of such rods. The above dimensions shall be measured from the face of the reinforcement to the face of the forms.
- (4) Splicing: Where splices in reinforcement, in addition to those indicated, are necessary, there shall be sufficient lap to transfer the stress by bond, as may be directed. Rods shall be lapped not less than 40 diameters and splices shall be staggered. The lapped end of rods shall be separated sufficiently or connected properly to develop the full strength of the rod. Adjacent shoots of mesh reinforcement shall be spliced by lapping not less than six inches, the lapped ends being securely wired together.
- (5) Supports: All reinforcement shall be secured in place true to the lines and grades indicated, by the use of metal or concrete supports, spacers or ties as approved by the Engineer. Such supports shall be of sufficient strength to maintain the reinforcement in place throughout the concreting operation, and shall be used in such a manner that they will not be exposed on the face of, nor in any way discolor or be noticeable in the surface of the finished concrete. The costs of furnishing and placing all supports, spacers, ties and/or other devices required, shall be included in the contract prices for the various types of reinforcement specified.
- (6) Protection for Future Use: Exposed reinforcement intended for bonding with future work shall be protected from corrosion by heavy wrapping of burlap saturated with bituminous material.

SD420.16 **EMBEDDED ITEMS:** Before placing concrete, care shall be taken to determine that any embedded metal or wood parts are firmly and securely fastened in place as indicated. They shall be

thoroughly clean and free from coating, rust, scale, oil, or any foreign matter. The embedding of wood in concrete shall be avoided whenever possible, metal being used instead. If wood is allowed, it shall be thoroughly wetted before the concrete is placed.

SD420.17 **EXPANSION AND CONTRACTION JOINTS:** Expansion and contraction joints shall be constructed at such points and of such dimensions as may be indicated on the drawings or required by the Engineer. The method and materials used shall be subject to the approval of the Engineer. Unless otherwise indicated on the drawings, or required by the Engineer, expansion joints shall be made by the use of an approved premoulded mastic expansion joint fill or 1/2 inch in thickness and of width as shown on the drawings.

- (1) Asphalt Mastic Strips (preformed) shall be composed of approximately 75% asphalt, 15% fibre and 10% mineral matter.
- (2) Mastic for Poured Joints shall be composed of refined asphaltic pyrobitumen and natural asphalt bitumens, with or without suitable plasticisers, and volatile solvent, contain at least 2.0% inert filler and show no tendency to separate or as shown on the drawings.
- (3) Waterstops for construction joints shall consist of a durable, elastic, cured rubber compound or polyvinyl chloride capable of effectively sealing joints in concrete against the infiltration of moisture, such as "Servicised" or equal, all subject to the approval of the Engineer.

SD420.18 **SURFACE FINISH:** All exposed concrete surfaces, except floors and roof decks shall receive a first rubbing to remove all blemishes. Where necessary, a second rubbing with a finer stone will be required.

TECHNICAL SPECIFICATIONS
SECTION SD464 – STORM DRAINAGE
(REINFORCED CONCRETE PIPE)

SD464.1 GENERAL

This section shall govern reinforced concrete culvert, storm drain, pipe and precast reinforced concrete box sections.

SD464.2 REINFORCED CONCRETE CULVERT, STORM DRAIN, AND PIPE

- A. General: Materials and work shall be in accordance with the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets, and Bridges, 2004 edition.

Unless otherwise shown on the plans, all culverts shall be a minimum of 18" diameter Class III tongue and groove joint RCP conforming to the referenced specification.

Joints shall be wrapped with filter fabric for a distance of 12" on each side of the joint. Joint shall be sealed with RamNek or approved joint sealer.

Reinforced concrete pipe shall conform to the current specifications for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, ASTM Designation C76 (C 76M) of the class as designed on the plans subject to the following modifications:

All pipe shall be machine-made by a process which shall provide for uniform placement of zero slump concrete in the form and compaction by mechanical devices which shall assure a dense concrete in the finished product.

Sizes larger than 60" diameter shall be manufactured, using two lines of circular reinforcement.

Where Class III pipe of sizes larger than 60" (1500 mm) diameter are specified, the manufacturer may at its option furnish pipe manufactured with either Wall "B" or Wall "C": minimum thicknesses and the applicable minimum steel area as listed for circular cages in Table II of Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, ASTM Designation C 76 (C 76M), provided test strength requirements for Class III pipe are satisfactorily met.

- B. Joints: Pipe to be placed along curves shall consist of whatever pipe joint lengths or beveled end joints of pipe, or combination thereof that are required to place the pipe on the designated centerline curve with no more than one-half of the tongue length of the pipe exposed from its fully closed joint position. The amount of bevel, "drop" or shortening of the pipe joint length by the bevel shall not exceed the amount shown below for the pipe sizes indicated.

Pipe Diameter	Maximum Amount of Bevel or Drop
From 12" to 27" inclusive	2"
From 30" to 51" inclusive	3"
From 54" to 84" inclusive	4"

Where pipe joints are not fully closed, special care shall be taken to fill completely, on both inside and outside, the entire annular space at the joint with cement mortar firmly caulked or pressed and compacted to form a dense, tight joint. Unless otherwise specified on the plans or in the special provisions, pipe joints shall be made with cold applied preformed plastic gaskets.

The gasket sealing the joint shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler and shall contain no solvents, irritating fumes nor obnoxious odors.

- C. **Tests:** The acceptability of the pipe in all diameters and classes shall be determined by the results of the three-edge bearing test for the load to produce a 0.01 inch crack; but such material tests as are required in Reinforced concrete culvert, Storm Drain, and Sewer Pipe, ASTM Designation C 76 (C 76M), by absorption tests on selected samples from the wall of the pipe; and by inspection of the finished pipe to determine its conformance with the design prescribed in these specifications and its freedom from defects.

Test specimens shall be selected on the basis of not more than 0.5 percent of the number of pipe of each size included in the order, except that in no case fewer than two specimens shall be furnished. Pipes that have been tested only to the formation of a 0.01 inch crack and that meet the 0.01 inch test load requirements shall be accepted for use. Tested pipe accepted for use shall be marked "TEST" or otherwise appropriately identified. Should any of the test specimens fail to meet the test requirements, two consecutive joints in the same mix series shall be tested and results shall be a basis of accepting or rejecting the pipe of the series.

All classes or strengths of reinforced concrete pipe shall be tested in accordance with the current specifications for concrete Pipe, Sections, or Tile, ASTM Designation C 497 (C497M).

- D. **Rejection:** Reinforced concrete pipe may be rejected for failure to meet any of the requirements of this specification.

SD464.3 PRECAST REINFORCED CONCRETE BOX SECTIONS

Precast reinforced concrete box sections shall conform to the current specifications for Precast reinforced concrete box Sections for culverts, Storm Drains, and Sewers, ASTM Designation C 1433, as specified on the Plans. Two-piece box culverts, if approved by the Owner, must meet or exceed the load requirements of ASTM C 1433.

SD464.4 STORM DRAIN CONDUIT INSTALLATION

- A. **Description:** This item shall govern and control the furnishing and placing of culvert pipe and/or conduits or storm drainage lines, including pipe fittings, connecting drain line to curb inlets, all joints, all connections to new or existing pipe or headwalls, manholes, catch basins, etc., to the lines and grades shown on the plans. All pipe and fittings shall be of the types, shapes, classes, sizes and dimensions as shown thereon; and as may be required to complete the work as shown on the plans.

SD464.5 REINFORCED CONCRETE CULVERT PIPE

- A. **General:** This item shall govern and control the furnishing and placing of reinforced concrete culvert pipe.
- B. **Materials:**
1. **General.** Except as modified herein, materials, manufacture and design of pipe shall conform to ASTM Designation C 76 for circular Pipe or ASTM Designation C 506 for Arch Pipe. All pipe shall be machine made or cast by a process which shall provide for uniform placement of the concrete in the form and compaction by mechanical devices which shall 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 shall not be acceptable for use in precast concrete pipe.

2. Design. The pipe shall be Class III unless otherwise indicated on the plans. The shell thickness, the amount of circumferential reinforcement, and the strength of the pipe shall conform to the requirements of ASTM Designation C 76 for Circular Pipe or C 506 for Arch Pipe, except as modified as follows:
- (a) All pipe shall be machine made by a process which shall provide for uniform placement of zero slump concrete in the form and compaction by a mechanical devices which shall assure a dense concrete in the finish.
 - (b) Sizes larger than 60-inch diameter shall be manufactured using two lines of circular reinforcement.
 - (c) When Class III pipe of sizes larger than 60-inch diameter is specified on plans, minimum "Wall B" shell thickness shall apply, and the minimum steel areas as listed for two circular cages under Table II may be submitted at the manufacturer's option, for those listed in Table III, provided test strength requirements for Class III pipe are satisfactorily met.

3. Physical Test Requirements. The acceptability of the pipe shall be determined by the results of the three-edge-bearing test for the load to produce the one-hundredth (0.01) inch crack and the ultimate load; by such material tests as are required in ASTM Designation C 76 or C 506; by absorption tests on selected samples from the wall of the pipe; and by inspection of the finished pipe to determine its conformance with the design prescribed in these specifications and its freedom from defects. Three-edge-bearing tests for the one-hundredth inch crack only shall be performed on eight-tenths percent of the pipe joints. Three-edge-bearing tests for both the one-hundredth inch crack and the ultimate load shall be performed on two-tenths percent of the pipe joints.

Pipe which has been tested only to the formation of a one-hundredth inch crack and meet the requirements for this test shall be accepted for use. Tested pipe accepted for use shall be marked "TEST" or otherwise appropriately identified so that such may be used at the end of the structure or other location not subject to impact loads. The methods of testing shall conform to ASTM Designation C 76 or C 506.

As an alternate to the three-edge-bearing test, concrete pipe 60 inches in diameter and over may be accepted, at the option of the manufacturer, on the basis of material tests and inspection of the completed product. Acceptability of pipe on this basis shall be determined by the results of material tests as required in ASTM Designation C 76 or C 506; by crushing tests on cores taken from the barrel of the completed and cured pipe; by absorption tests on samples from the wall of the pipe; and by inspection of the finished pipe, including amount and placement of reinforcement, to determine its conformance with the design prescribed in these specifications and its freedom from defects.

The manufacturer shall furnish facilities and personnel for taking the cores from the pipe barrel and for determining the compressive strength of the samples. When the cores cut from a section of pipe successfully meet the strength requirement, the core-holes shall be plugged and sealed by the manufacturer in a manner such that the pipe section shall meet all of the test requirement of ASTM Designation C 76 or C 506. Pipe sections, so sealed, shall be accepted for use.

4. Sizes and Permissible Variations.

- (a) Variations. 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) Rubber Gasket Pipe Joints. Where rubber gasket pipe joints are to be used, the design of joints and permissible variations in dimensions shall be in accordance with ASTM Designation C 443, Section 5 and 6.
- 5. 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 as stated previously.
- 6. Curing. Pipe shall be cured in accordance with the applicable ASTM Specification for each type of pipe as referred to above.
- 7. Pipe 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 of trademark of the manufacturer.
 - (d) where elliptical reinforcement is used, one end of each section or joint of pipe shall be clearly marked during the process of manufacture or immediately thereafter on the inside and the outside of opposite walls to show the location of the "top" or "bottom" of the pipe as it should be installed. Markings shall be indented on the pipe section or painted thereon with waterproof paint.

"Top" and "bottom" shall not be required on pipe having such an external shape that the correct position of the top and bottom is obvious.

- 8. Rejection of Pipe. Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements.

All rejected pipe shall be plainly marked by the engineer and shall be replaced by the Contractor with pipe which meet the requirements of these specifications. Such rejected pipe shall be removed immediately from the site of the work.
- 9. Jointing Materials. Unless otherwise specified on the plans or in the special provisions, pipe joints shall be made with cold applied preformed plastic gaskets.

The gasket sealing the joint shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler and shall contain no solvents, irritating fumes nor obnoxious odors. The gasket joint sealer shall not depend on oxidizing, evaporating nor chemical action for its adhesive or cohesive strength; and shall be supplied in extruded rope-form of suitable cross section. The size of the plastic gasket joint sealer shall be in accordance with the manufacturer's recommendations and sufficient to obtain the squeeze out as described under Part III, "Construction Methods". The gasket joint sealer shall be protected by a suitable removable two-pieced wrapper. The two-piece wrapper shall be so designed that one-half may be removed longitudinally without disturbing the other half to facilitate application as noted below.

The chemical composition of the gasket joint sealing compound as shipped shall meet the following requirements when tested in accordance with the test methods shown.

<u>Composition</u>	<u>Test Method</u>	<u>Analysis</u>
Bitumen (petroleum plastic content), % by weight	ASTM Designation D4	50-70
Ash-Inert Mineral Matter, % by weight	AASHO Designation T-111	30-50
Volatile Matter at 325° F, % by weight	ASTM Designation D6	2.0 Max.

The gasket joint sealing compound when immersed for 30 days at ambient room temperature separately in five percent solution of caustic potash, a mixture of five percent hydrochloric acid, a five percent solution of sulfuric acid, and a saturated H₂S solution, shall show no visible deterioration.

The physical properties of the gasket joint sealing compound as shipped shall meet the requirements shown in the following table:

<u>Property</u>	<u>Test Method</u>	<u>Typical Analysis</u>
Specific Gravity at 77° F	ASTM D 71	1.20 - 1.35
Ductility @ 77° F (cm), min.	ASTM D 113	5.0
Softening Point °F	ASTM D 36	320° F, min.
Penetration		
32° F. (300g) 60 sec., min.	ASTM D 217	75
77° F. (150g) 5 sec.	ASTM D 217	50 -120
115° F (150g) 5 sec, max.	ASTM D 217	150
Flashpoint C.O.C., °F.	ASTM D 92	600
Fire Point C.O.C., °F.	ASTM D 92	625.

C. Construction Methods:

1. Excavation and Embedment. All excavation and pipe embedment shall conform to the requirements of Section UC2.
2. Installation of Pipe. The Contractor shall furnish, at his own expense, and place in position as directed by the Engineer all necessary batter boards, string lines, plummets, graduated poles, etc. required in establishing and maintaining the lines and grades. The batter boards and all location stakes must be protected from possible damage or change of location.
 - (a) Trench Location. All pipe and fittings shall be laid and jointed in a dry trench.
 - (b) Pipe Laying. Unless otherwise authorized by the Engineer, the laying of the pipe on the prepared foundation shall be started at the outlet or downstream end with the spigot or tongue end of the pipe joint pointing downstream. Laying shall proceed toward the inlet or upstream end with each abutting section of pipe properly matched, true to the established lines and grades. Approved facilities shall be provided for hoisting and lowering the sections of pipe or the sides of the trench. The ends of the pipe shall be carefully cleaned before the pipe is placed in the trench. As each length of the pipe is laid, the open end 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 prepared bedding, 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 a position that the markings "top" or "bottom" shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe.
3. Jointing. 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, attach the plastic gasket sealer around the tapered tongue or tapered groove near the shoulder or hub of each pipe joint. Remove the paper wrapper from one side only of the two-piece wrapper on the gasket and press it firmly to the clean, dry pipe-joint surface. The outside wrapper is not to be removed until immediately before pushing the pipe into its final position.

Then the tongue is correctly aligned with the flare of the groove, remove the outside wrapper on the gasket and pull or push the pipe 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. Remove any joint material that pushed out into the interior of the pipe that would tend to obstruct the flow. (Pipe shall be pulled home in a straight line with all parts of the pipe on line and grade at all times.)

Pipe damaged by this operation shall be subject to review by the Owner and, if necessary, a change in the jointing procedure may be required. 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 deg F., plastic joint seal gaskets shall either be stored in an area warmed to above 70 deg 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 the pipe in the trench, followed by connection to previously laid pipe.

4. Backfill. All backfill of pipe trenches shall be in accordance with Section UC2.
5. Fittings for Concrete Pipe.
 - (a) Poured Concrete Pipe Collars. At all changes in pipe sizes in the conduit line, except at manholes, a pipe collar, as shown in detail on the plans, shall be provided. The locations at which such collars are to be provided are shown on the plan-profile sheets, and their costs are to be included in the price offered for furnishing and installing reinforced concrete pipe. No extra payment shall be made for the installation of concrete pipe collars as shown on the plan-profile sheets.
 - (b) Shop and Field Fabricated Wyes, Tees, Crosses and Bends. Shop or field fabricated wyes, tees, crosses or bends shall be furnished and installed where indicated on the plans or required by the Engineer. Fittings for pipe, the largest size of which is less than 24 inches in diameter, shall be shop fabricated. Fittings for larger pipe, which is 24 inches in diameter and increasingly larger, may be field fabricated. Care shall be taken in the fabrication that the concrete walls of the pipe are broken back only enough to provide the required finished opening. The reinforcing mech or bars in each pipe shall be joined by bending, twisting or spot welding, which shall provide a rigid connection. Concrete or mortar (as specified in this Section) shall be wiped over the reinforcing wires connecting the two-pipe joints, compacted by light blows, shaped to the contour of the pipe barrels, lightly brushed for finish and cured under wet burlap.

- (c) Poured Concrete Pipe Plugs. When conduit lines terminate at locations which do not include connection to drainage structures, the end of the pipe shall be plugged with a field-cast unit as shown on the plan-profile sheets; and the costs thereof are to be included in the price offered to furnish and install reinforced concrete pipe. No extra payment shall be made for the installation of concrete pipe plugs as shown on the plan-profile sheets.

SD464.6 **STORM SEWER APPURTENANCES**

- A. Description: This section shall govern for the construction of all miscellaneous storm sewer structures such as junctions, transitions, special concrete manholes, creek crossings, river crossings, utility supports; and for the construction of appurtenances such as manholes, cleanouts, deep-cut connections, wyes, stoppers and bulkheads, fittings and such other miscellaneous structure or appurtenances which may be shown on the plans.
- B. Materials: All materials used in the construction of work specified in this section shall conform to the applicable sections of these specifications.

Unless otherwise specified, all concrete shall have an average compressive strength of 28 days equal to or greater than 3000 psi.

- C. Construction Requirements: The construction of reinforced concrete storm sewer structures including junctions, transitions, special concrete manholes, vaults and such other similar structures as may be covered by this specification shall be performed in accordance with the requirements of these specifications.

Excavation shall be made to the required depth and of sufficient width to construct the work to grade, form and dimensions. All soft and yielding materials shall be removed and replaced with acceptable materials. The subgrade shall be moistened to a minimum depth of two inches before placing of the concrete. All formed surfaces of the concrete exposed to public view shall be given a rubbed finish. All other formed surfaces shall be given the "ordinary horizontal finish". Corrosion protection shall be applied as may be called for on the plans or the proposal and shall be measured for payment and paid for at the contract price as set out in the invitation for offers.

SD464.7 **STORM SEWER MANHOLES**

Storm sewer manholes shall be fabricated in different configurations to meet with specific needs required in the storm sewer system.

- A. General Construction: Unless specified otherwise, standard manholes shall be constructed as monolithic concrete structures or as a precast reinforced concrete structure.
 - 1. Standard Manhole. Standard Manholes shall meet the following requirements:
 - (a) Standard manholes shall be water-containment structures. Therefore, when precast reinforced concrete manhole sections are used, the precast sections shall be of the bell-and-spigot design incorporating trapped O-ring gaskets, or tongue-and-groove with premolded plastic gasket joint. Prior to placing each section of manhole riser or cone, the bells and spigots to be joined shall be thoroughly cleaned, the O-ring gasket properly placed, lubricated and the joint pushed home.
 - (b) In precast manhole construction, combinations of joint lengths shall be selected to minimize the number of individual segments required to provide the total depth

specified. Long joints shall be used in the bottom with the shorter segments utilized for top adjustments.

- (c) Poured-in-place manholes may be used in lieu of precast manholes. The base, wall and cone shall be poured and vibrated to assure a monolithic structure free from infiltration.
 - (d) Standard manhole shall be four feet inside diameter and shall be constructed to the proper elevation as required and to a depth of at least six feet above the invert of the sewer main(s) or lateral(s) in the system.
2. Shallow Manhole. Shallow manholes shall be constructed for specific locations in a storm sewer system for depth less than six feet when specifically designated on the project plans, or when so directed by the Owner. Pipe cradling, formed invert, etc., shall be constructed as described under "Standard Manhole" preceding.
 3. Drop Manhole. Drop manholes shall be constructed in accordance with the detail provided in the project documents. The basic construction for drop manholes shall be identical to that described for standard manholes preceding with special provisions incorporated to provide drop piping and appurtenance as detailed.
 4. Type "S" Manhole. Type "S" manholes shall be constructed in accordance with the plans and these specifications for materials and construction.

B. Specified Requirements: Specified requirements include the following:

1. The first full joint of pipe extending from the manhole shall be cradled in concrete to the pipe joint in the same pour as that for the manhole base slab as shown on the plans.
2. For all manhole installations in streets, the manhole covers shall be provided with pick slots in lieu of pick holes. If the rim elevation above the surrounding ground is prohibited by land use or other reasons, a cover with a pick slot as described for used in street locations shall be used.

C. Test Requirements: Each manhole or water-containment vault structure shall be required to contain water from rim elevation with a range exfiltration as specified below:

Allowable Leakage = 0.008 gal/sq.ft. opening/ft. depth/Hr.

TECHNICAL SPECIFICATIONS

SECTION SD471 - FRAMES, GRATES, RINGS, AND COVERS

SD471.01 DESCRIPTION: This item shall govern for furnishing and installing frames, grates, rings and covers for inlets, manholes and other structures in accordance with the plans and this item.

SD471.02 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 A36 or equal.

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 sand or blow holes or other defects. Surfaces of the castings shall be free from burnt-on sand and shall be reasonably 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 area of contact. Pairs of machined castings shall be matchmarked to facilitate subsequent identification at installation.

Steel castings shall conform to the requirements of the specifications for "Mild to Medium Strength Carbon Steel Castings for General Application", ASTM A27. Grade 70-36 shall be furnished unless otherwise specified.

Cast iron castings shall conform to the requirements of "Gray Iron Castings", ASTM A48, Class 30.

Ductile iron castings shall conform to the requirements of "Ductile Iron Castings", ASTM A536. Grade 60-40-18 shall be used unless otherwise specified.

Commercial type frames, rings, risers and/or appurtenances may be used with prior approval of the Engineer.

Manhole lids and covers shall be Bass & Hayes.

Mill test reports or manufacturer's certification shall be furnished to the Engineer for each lot or shipment.

SD471.03 CONSTRUCTION METHODS: Frames, grates, rings and covers shall be constructed in accordance with the details shown on the plans and shall be installed to the lines and grades indicated on the plans or as directed by the Engineer.

All welding shall conform to the requirements of Item 448, "Structural Field Welding". Grates and covers shall be tack welded to the frame or ring when directed by the Engineer.

All bolts and nuts shall be galvanized. Commercial grade galvanizing will be acceptable.

TECHNICAL SPECIFICATIONS

SECTION SD800 – HIGH DENSITY POLYPROPYLENE (HDPP)
CORRUGATED AND SMOOTH LINED THERMOPLASTIC PIPE
(FOR GRAVITY FLOW DRAINAGE PIPE APPLICATIONS)

SD800.1 DESCRIPTION: This item shall govern for the furnishing and installing of all High Density Corrugated Polypropylene (HDPP) Smooth Lined Pipe and / or materials for constructing of culverts, side road pipes, storm sewers, stubs, and all related connections and fittings, all of which shall conform to ASTM F2736, latest editions. The pipes shall be of the sizes, types, and dimensions shown on the plans, and contained in this specification. In addition, it shall include all connections and joints to new or existing pipes, storm sewer manholes, inlets, headwalls, and other appurtenances as may be required to complete the work.

SD800.2 MATERIALS: Unless otherwise specified on the plans or herein, thermoplastic pipe and joint fittings shall conform to the following:

- A. High Density Polypropylene (HDPP) Corrugated and Smooth Lined Pipe & Fittings shall be manufactured in accordance with requirements of ASTM F2736, latest editions.
- B. High Density Polypropylene (HDPP) Corrugated and Smooth Lined Pipe shall be manufactured from virgin PP compounds which conform with the requirements of ASTM F2736, Section 4, ASTM F2881, Section 5.
- C. Minimum Pipe Stiffness (PS) at five percent deflection shall be as described in ASTM F2736 when tested in accordance with Section 7.5 of ASTM D 2412.
- D. Representative samples of the HDPP Smooth Lined Pipe shall be submitted, tested, and recorded by the manufacturer then submitted to the Agency representative or designee stating conformance to the specification herein. The following data will be checked and recorded:

- | | |
|-----------------------------------------|------------------------------------------|
| 1) Weight | 7) Brittleness |
| 2) Material Distribution | 8) Environmental Stress Crack Resistance |
| 3) Pipe Dimensions (See Attached Table) | 9) Workmanship |
| 4) Water Inlet Area | 10) Markings (Per AASHTO) |
| 5) Pipe Stiffness | 11) Manufacturing Plant |
| 6) Pipe Flattening | |

Table 1:
Typical Nominal Dimensions of Corrugated Smooth Lined Polypropylene Pipe:

NOMINAL DIMENSIONS, IN.
12
15
18
24
30
36
42
48
60

The pipe shall have a full circular cross section, with an outer corrugated pipe wall and a smooth inner wall.

SD800.3 **INSTALLATION:** Installation shall be in accordance with ASTM D 2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications" and / or ASTM D2321, "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications".

- A. **General Installation Requirements:** Thermoplastic pipe shall be unloaded and handled with reasonable care. Pipe shall be placed in the bed starting at the downstream end. Trenches must be excavated in such a manner as to insure that the sides will be stable under all working conditions. Trench walls shall be sloped or supported in conformance with all standards of safety. Only as much trench as can be safely maintained shall be opened. All trenches shall be backfilled as soon as practical, but no later than the end of each working day.
- B. **Trench Widths:** Trench width shall be sufficient to ensure working room to properly and safely place and compact haunching and other backfill materials. Minimum trench width shall not be less than 1.25 times the pipe outside diameter plus 12 inches. (1.25 x O.D. + 12") Note: On multiple pipe barrel runs the clear distance between pipes is as follows:

12"-24" Diameters: Clear span = 12"
24" & Greater Diameter: Clear span = ½ x Diameter

- C. **Foundation and Bedding:** Foundation and bedding shall meet the requirements of ASTM D 2321 Class 1 or 2. Stable and uniform bedding shall be provided for the pipe and any protruding features of its joint and / or fittings. The middle of the bedding equal to 1/3rd of the pipe O.D. may be loosely placed, while the remainder shall be compacted to a minimum 90% of Standard Proctor Density. A minimum of 4" of bedding shall be provided prior to placement of the pipe, unless an unyielding material (rock cuts) is present in the trench bottom, then a 6" cushion of bedding is recommended. Bedding material size shall be 1.25" maximum granular material.
- D. **Structural Backfill:** Structural backfill shall also meet the requirements of ASTM D 2321, Class 1 or 2. Class 1 material may be dumped and worked into the haunch area by hand to assure full pipe contact. Class 2 backfill shall be placed and compacted in layers 8" loose lift thickness and brought up evenly and simultaneously on both sides of the pipe to an elevation not less than one (1') foot above the top of the pipe. Structural backfill must be worked into the haunch area and compacted by hand. Structural backfill shall be 1.25" maximum granular size and a minimum compaction level of 90% Standard Proctor Density.
- E. **Minimum Cover:** The minimum cover is one foot (1.0') for HS-25 Live Loads (12"-48" Diameters) and two foot for 60" Diameters; however, care should be taken when heavy construction equipment loads cross the pipe trench during construction. If the passage of construction equipment over an installed pipeline is necessary during project construction, compacted fill in the form of a ramp shall be constructed to a minimum elevation of three (3.0') feet over the top of the pipe. Any damaged pipe shall be replaced at the contractor's expense.
- F. **Joints:** Joints shall be installed so that the connection of pipe sections will form a continuous line free from irregularities in the flow line. All joints shall be of silt-tight design when the design discharge hydraulic grade line is below the pipe overt. Water-tight joints shall be provided when the design discharge hydraulic grade line exceeds the pipe overt.
- G. **Testing.** All HDPP pipe shall be tested after no less than 30 days following final backfill with a mandrel to assure a pipe deflection of 5% or less.

SECTION MP
MEASUREMENT AND PAYMENT

TECHNICAL SPECIFICATIONS

SECTION MP - MEASUREMENT AND PAYMENT

- MP.1. GENERAL:** This section of the specifications covers the components to be a portion of each pay item as may or may not be listed in the Proposal Form and is furnished to aid the Contractor in preparing his offer. Of necessity, the items described as components of the various items are discussed in a general manner only, describing the major pieces of equipment and/or materials. Failure to list all items and/or appurtenances does not relieve the Contractor from furnishing all apparatus, devices, labor, or materials of whatever nature required for a complete and operating installation in accordance with the intent of the Drawings, approved Shop Drawings, and these Specifications.
- MP.2. ITEM DESCRIPTION:** Tabulated in the paragraphs below are descriptions of the various items listed in the Proposal Form.
1. **TRAFFIC CONTROL AND BARRICADES:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to install and maintain traffic control and barricades in accordance with the latest revision of the Texas Manual of Uniform Traffic Control Devices and in accordance with Harrison County requirements. Measurement and payment for this item shall be on a lump sum basis as shown in the Bid Proposal.
 2. **MOBILIZATION, BONDS AND INSURANCE:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to mobilize, store, maintain, and de-mobilize equipment, materials, and related items, and to provide performance bonds, payment bonds, temporary water service deposits and fees, subcontractor permits, development permits, certificates of insurance, maintenance bond, and related work. Measurement and payment shall be lump sum as shown in the Bid Proposal.
 3. **REMOVE AND DISPOSE OF EXISTING CONCRETE AND ASPHALT, STRUCTURES, AND RELATED ITEMS:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to clear, grub, remove material, and prepare the area of work including, but not limited to, excavation, hauling, loading, transporting, disposal costs, dressing, grading, and related work. Measurement and payment shall be lump sum as shown in the Bid Proposal.
 4. **STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PER TCEQ REQUIREMENTS:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to provide, set up, maintain, and remove any and all storm water pollution prevention devices deemed necessary to comply with Harrison County and TCEQ requirements for storm water pollution prevention and to obtain and secure any and all necessary permits, construction site notices, documents, and other items and pay all fees necessary to comply with construction site notice or notice of intent / notice of termination requirements for project. Measurement and payment shall be on a lump sum basis as shown in the Bid Proposal.
 5. **TRENCH SAFETY:** Item shall consist of furnishing all tools, equipment, materials, shoring, sheeting, and labor necessary to provide adequate trench safety in accordance with applicable OSHA rules and regulations. Measurement and payment shall be by lump sum as shown in the Bid Proposal.
 6. **FURNISH AND INSTALL HIGH DENSITY POLYPROPYLENE PIPE (HDPP):** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to provide a complete, operational HDPP pipe including, but not limited to, excavation, subgrade compaction, dewatering, trench safety systems, shoring, sheeting, bedding material, formwork, reinforced concrete pipe of the size indicated in the Proposal Form, radial pipe (if specifically specified) of the size specified in the Proposal Form, select material backfill, compaction, dressing, grading, and related work. Measurement and payment shall be per linear foot as shown in the Bid Proposal.

7. **CONSTRUCT SURFACE INLET, JUNCTION BOX, OR CURB INLET:** Item shall consist of furnishing all materials, tools, equipment, and labor necessary to construct the specified storm drain inlet base, walls, throat, and top, together with all necessary connections to existing or proposed storm drain pipes. Item shall include any and all reinforcement, concrete, ties, mesh, formwork, finishing, and curing to construct the storm drain inlets of the type specified in the Proposal Form, in compliance with the Construction Plans and Technical Specifications. Measurement and payment shall be per each as shown in the Bid Proposal.
8. **FURNISH AND INSTALL SLOPED SAFTEY END TREATMENTS OR HEADWALLS WITH WINGWALLS:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to provide safety end treatments or headwall structures as shown on the plans including but not limited to excavation, embankment, subgrade preparation, water, dewatering, formwork, reinforcement, joint sealants, and related work. Measurement and payment shall be per each as indicated in the Bid Proposal.
9. **CONSTRUCT 5" THICK REINFORCED RESIDENTIAL CONCRETE DRIVEWAY:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to provide a complete, operational reinforced concrete driveway to the grades specified in the construction plans including, but not limited to, excavation, fill, subbase preparation and compaction, dewatering, formwork, reinforced concrete, joints, sealant, select material backfill, compaction, dressing, grading, and related work. Measurement and payment shall be per square yard as shown in the Bid Proposal.
10. **OPEN CUT AND REPAIR ASPHALT PAVEMENT:** Item shall include all work necessary to saw cut, remove material, prepare subgrade, and provide hot mix asphalt of the type specified in the construction plans at the locations specified in the plans. Item shall include but not be limited to, excavation, material removal, subgrade preparation, asphalt, primer, tack, rolling, finishing, compacting, and related work. Measurement and payment shall be per square yard as shown in the Bid Proposal.
11. **FURNISH AND INSTALL STONE RIP RAP WITH FABRIC:** Item shall include all materials, equipment, labor, and related appurtenances necessary to furnish and install common stone rip rap in accordance with the plans and the specifications. The item include all necessary grading, fabric, stone and other items to provide a stabilized surface in the areas shown on the plans. Measurement and payment shall be as shown on the Bid Proposal.
12. **GRADING OF ROADSIDE DITCHES, DRAINAGE SWALES, BERMS AND OTHER RELATED ITEMS:** Item shall consist of furnishing all tools, equipment, materials, and labor necessary to provide proposed grading as indicated on the plans to a grade providing positive drainage of the site. The item shall include but not be limited to excavation, embankment, compaction, watering, dewatering, and related items. Measurement and payment shall be as shown in the Bid Proposal.

CONSTRUCTION PLANS FOR HARRISON COUNTY, TEXAS

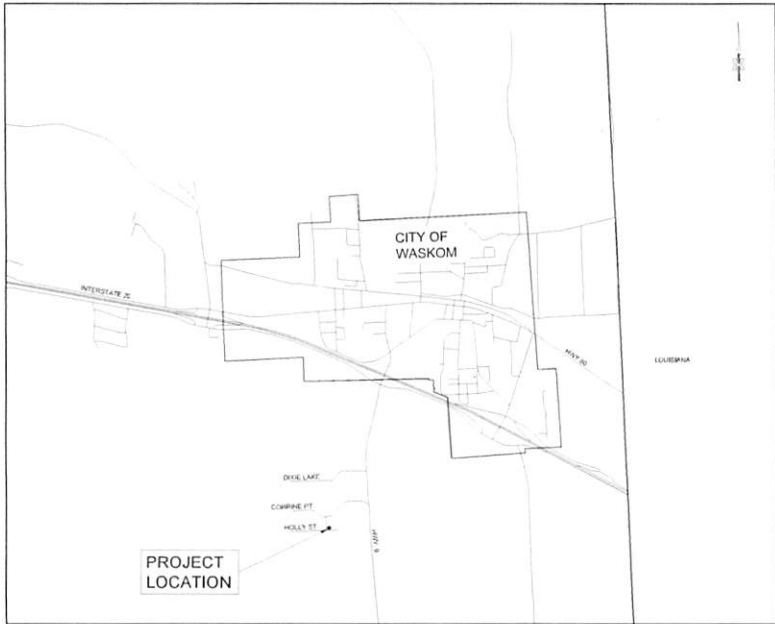
HOLLY STREET DRAINAGE IMPROVEMENTS WASKOM, TEXAS

APPROVED BY:

HARRISON COUNTY

COUNTY COMMISSIONERS

CHAD SIMS, COUNTY JUDGE
WILLIAM D. HATFIELD, PRECINCT 1
ZEPHANIAH TIMMINS, PRECINCT 2
PHILLIP MAULDIN, PRECINCT 3
JAY EBARB, PRECINCT 4



VICINITY MAP
1"=2,000'

SUBMITTED BY:



STEPHENS ENGINEERING
P.O. BOX 6618 LONGVIEW, TX 75608
(903) 215-8990 STEPHENSENG.NET

K.S.

KYLE STEPHENS, P.E., PRINCIPAL




01/20/2023
DATE

HARRISON COUNTY
HOLLY ST. DRAINAGE IMP.

WASKOM, TEXAS

CONSTRUCTION NOTES
& INDEX TO SHEETS



STEPHEN R. JONES
PROFESSIONAL ENGINEER
P.O. BOX 6618 LINDSEY, TX 75604
(972) 215-9990 STEPHEN@STEPHENR.COM

INDEX TO SHEETS

SHEET NO.	SHEET NAME
1	COVER
2	GENERAL NOTES AND INDEX TO SHEETS
3	HOLLY ST. DRAINAGE PLAN & PROFILE
4	MANHOLE DETAILS

GENERAL NOTES

1. ALL UTILITIES SHOWN ON THE PLANS HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND OTHER UTILITIES MAY EXIST IN THE WORK AREA PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND VERIFY EXISTING UTILITIES AT ALL PROPOSED CROSSINGS AND AT ALL OTHER LOCATIONS. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL PROVIDE TRIP AND SAFETY SYSTEMS TO PROTECT ALL EXISTING UTILITIES AND TO PROTECT THE CONTRACTOR AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
4. ALL PUBLIC AREAS SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
5. ALL EXCESS DIRT AND ROCK MATERIAL FROM THE EXCAVATION OF UTILITIES SHALL BE REMOVED FROM THE PROJECT SITE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS DIRT AND ROCK MATERIAL FROM THE PROJECT SITE. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
6. ALL EXCESS DIRT AND ROCK MATERIAL FROM THE EXCAVATION OF UTILITIES SHALL BE REMOVED FROM THE PROJECT SITE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS DIRT AND ROCK MATERIAL FROM THE PROJECT SITE. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
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8. THE CONTRACTOR SHALL ORANGE THE SITE SUCH THAT ALL DISTURBED AREAS BE PROTECTED FROM ALL EXCESS DIRT AND ROCK MATERIAL. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
9. ALL NEW DRIVEWAYS SHALL BE CONSTRUCTED SUCH THAT THE CROWN POINT EXCEEDS THE TOP OF CURB PREVIOUSLY ANY EXISTING DRIVEWAY. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL ORANGE ALL EXISTING DRIVEWAYS, WALKWAYS, REFLECTORS, ETC. TO THE APPROPRIATE LOCATION DURING CONSTRUCTION. THE CONTRACTOR SHALL REINSTALL ALL EXISTING DRIVEWAYS, WALKWAYS, REFLECTORS, ETC. WITHIN TWO WEEKS AFTER THE WORK HAS BEEN COMPLETED IN THE AREA.
11. ALL FENCING DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO EXISTING OR BETTER CONDITION.
12. THE SAW CUTS REQUIRED TO ASPHALT OR CONCRETE DRIVEWAYS SHALL BE REPAIRED TO ORIGINAL CONDITION AND SHALL BE MEASURED FOR PAYMENT AND SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING WRITTEN APPROVAL FROM THE CITY ENGINEER PRIOR TO ANY WORK. THE WRITTEN AUTHORIZATION SHALL BE PROVIDED TO THE CITY ENGINEER AND MATERIALS SHALL BE SUBJECT TO THE PROJECT ENGINEER'S APPROVAL DURING CONSTRUCTION AND UPON COMPLETION.
14. ALL WORK AND MATERIALS SHALL BE SUBJECT TO THE PROJECT ENGINEER'S APPROVAL DURING CONSTRUCTION AND UPON COMPLETION.
15. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRIVEWAYS, WALKWAYS, REFLECTORS, ETC. TO THE APPROPRIATE LOCATION DURING CONSTRUCTION. THE CONTRACTOR SHALL REINSTALL ALL EXISTING DRIVEWAYS, WALKWAYS, REFLECTORS, ETC. WITHIN TWO WEEKS AFTER THE WORK HAS BEEN COMPLETED IN THE AREA.
16. THE PROJECT LIMITS SHALL BE THE BUILT-AREA BROWNSHICH PLANS. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
17. STOCKPILING OF MATERIALS ON PRIVATE PROPERTY WILL NOT BE PERMITTED WITHOUT WRITTEN AUTHORIZATION FROM THE PROPERTY OWNER.
18. ALL UTILITIES WHICH ARE BROKEN OR INTERRUPTED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PROPERTY OWNERS 48 HOURS PRIOR TO ENTRY TO THEIR PROPERTY. TEMPORARY FENCING SHALL IMMEDIATELY BE INSTALLED

STORM SEWER NOTES

1. ALL OPEN EXPOSED CONCRETE STORM SEWER PIPE SHALL BE PROTECTED FROM DAMAGE BY TRAFFIC. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE FOR THE PROPOSED PROJECT AND SURROUNDING AREAS AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ALL DRAINAGE PIPES SHALL BE WRAPPED AT THE JOINTS WITH A MINIMUM OF 12" OF WRAP AND 1" ON TO EACH END OF THE PIPE. JOINT SHALL BE SEALED WITH RAMMEE OR APPROVED JOINT SEALER.
4. A TSP/JMNT MAY BE USED FOR JOINT SEALING. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
5. ALL JOINTS SHALL BE ASH-IN-12 OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ASTM F330M.

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2. CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE FOR THE PROPOSED PROJECT AND SURROUNDING AREAS AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ALL DRAINAGE PIPES SHALL BE WRAPPED AT THE JOINTS WITH A MINIMUM OF 12" OF WRAP AND 1" ON TO EACH END OF THE PIPE. JOINT SHALL BE SEALED WITH RAMMEE OR APPROVED JOINT SEALER.
4. A TSP/JMNT MAY BE USED FOR JOINT SEALING. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE CONTRACTOR SHALL CALL 811 OR VISIT 811 TEXAS.ORG TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
5. ALL JOINTS SHALL BE ASH-IN-12 OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ASTM F330M.



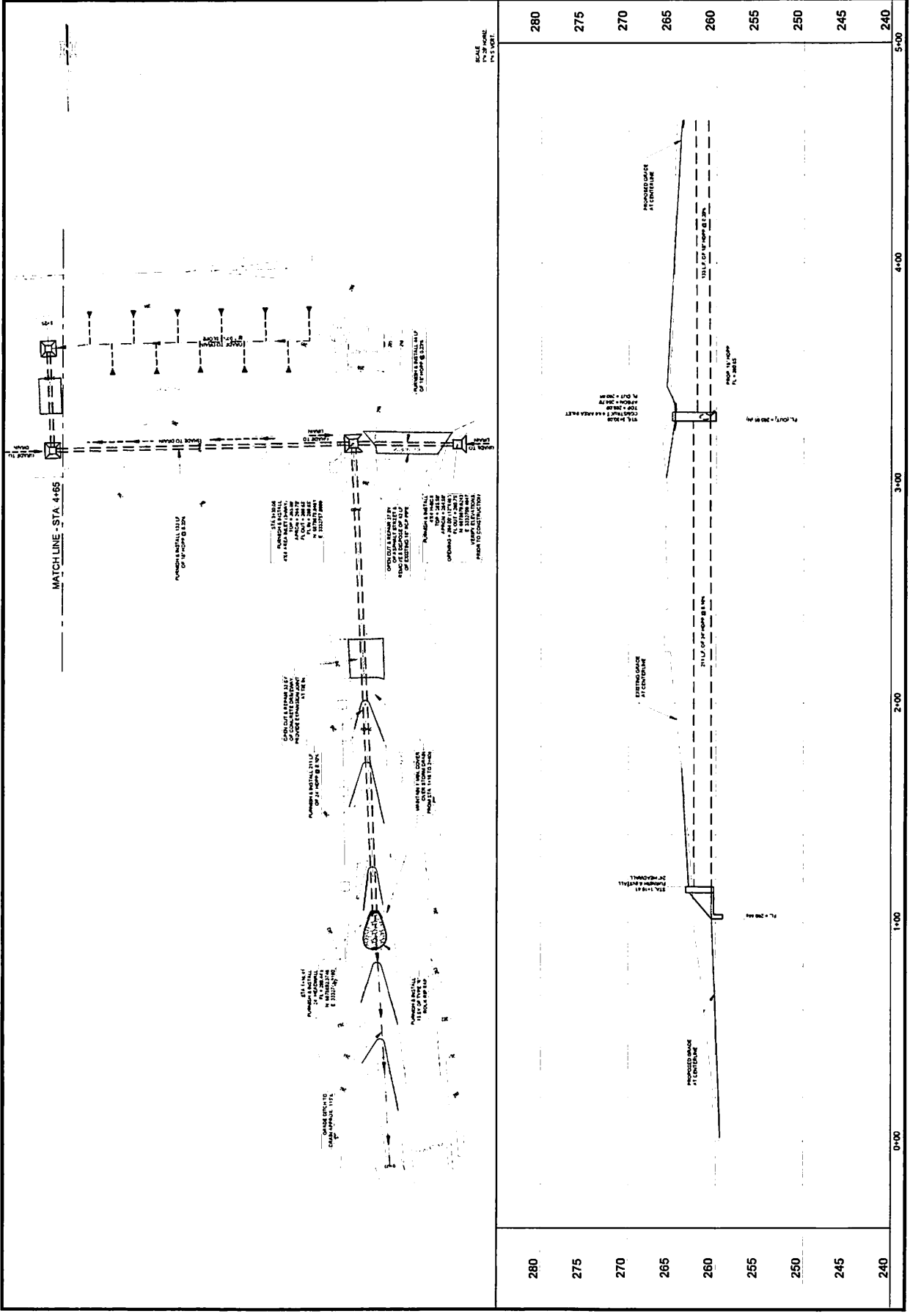
STEPHENS ENGINEERING
 P.O. BOX 6612, HOUSTON, TX 77266
 (713) 215-9900
 STEPHENS, J.S.

DATE: NOV 2021
 SCALE: AS SHOWN
 DESIGNED BY: J.S.
 CHECKED BY: J.S.
 DRAWN BY: J.S.

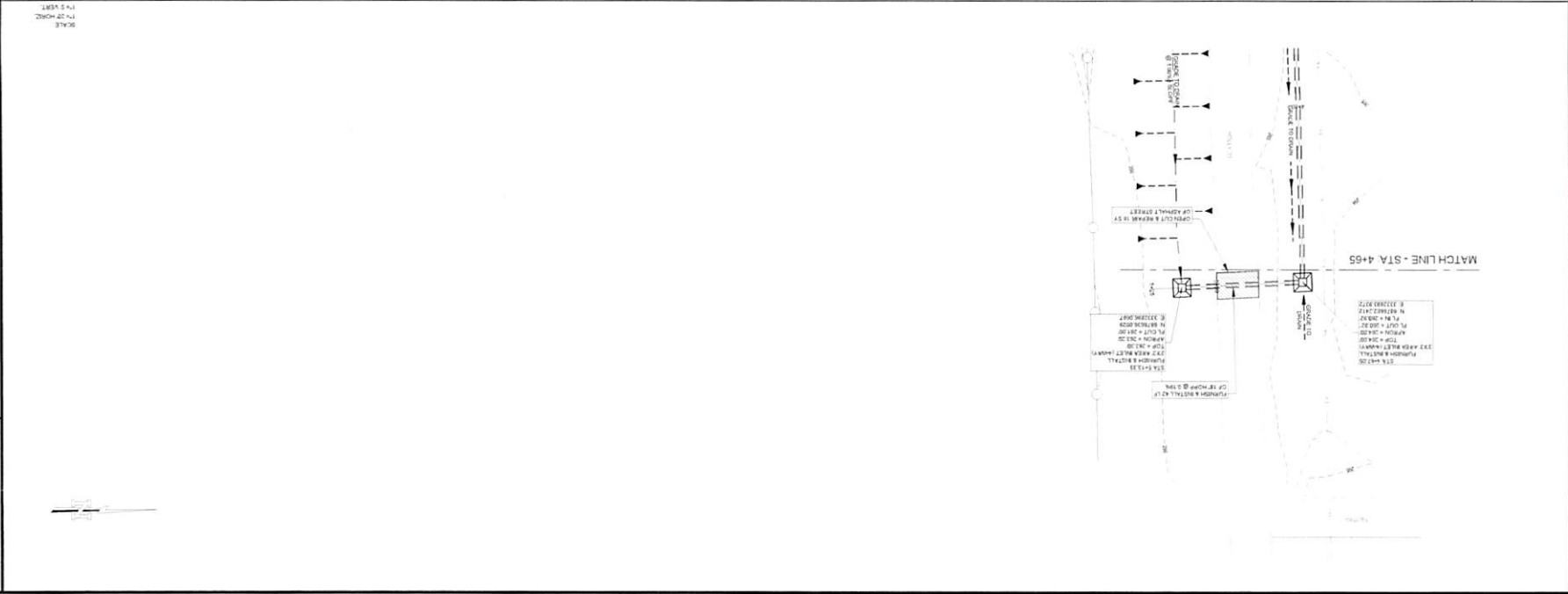
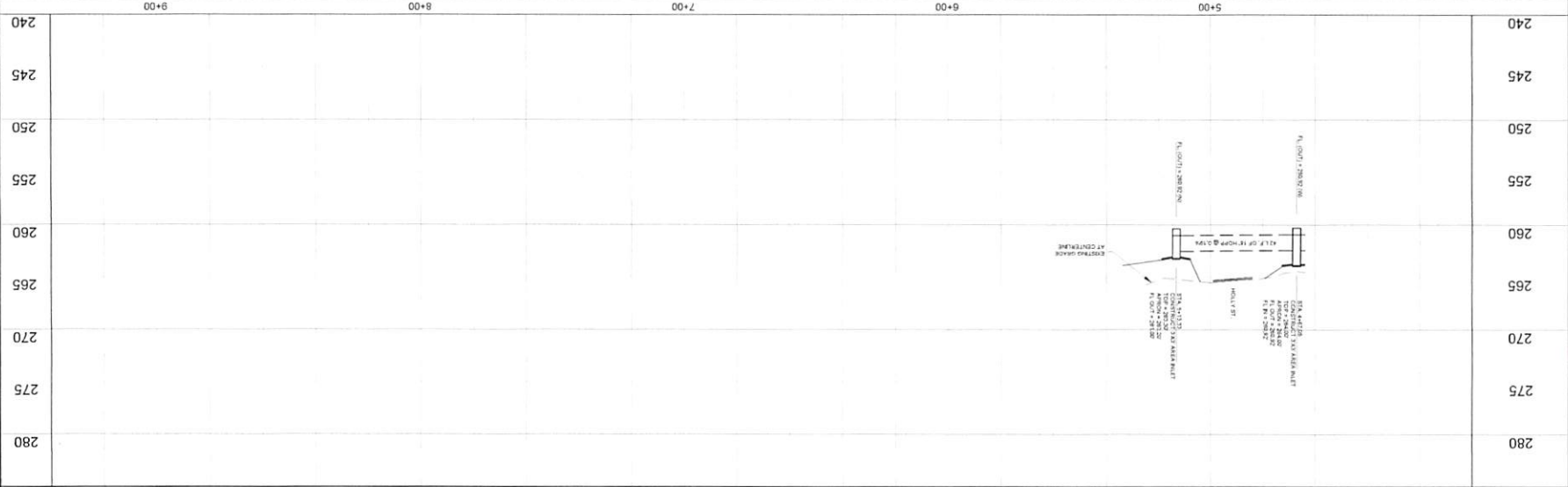
**HARRISON COUNTY
 HOLLY ST. DRAINAGE IMP.
 WASKOM, TEXAS**

**PROPOSED DRAINAGE
 PLAN/PROFILE
 STA: 0+00 TO STA: 4+65**

DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____

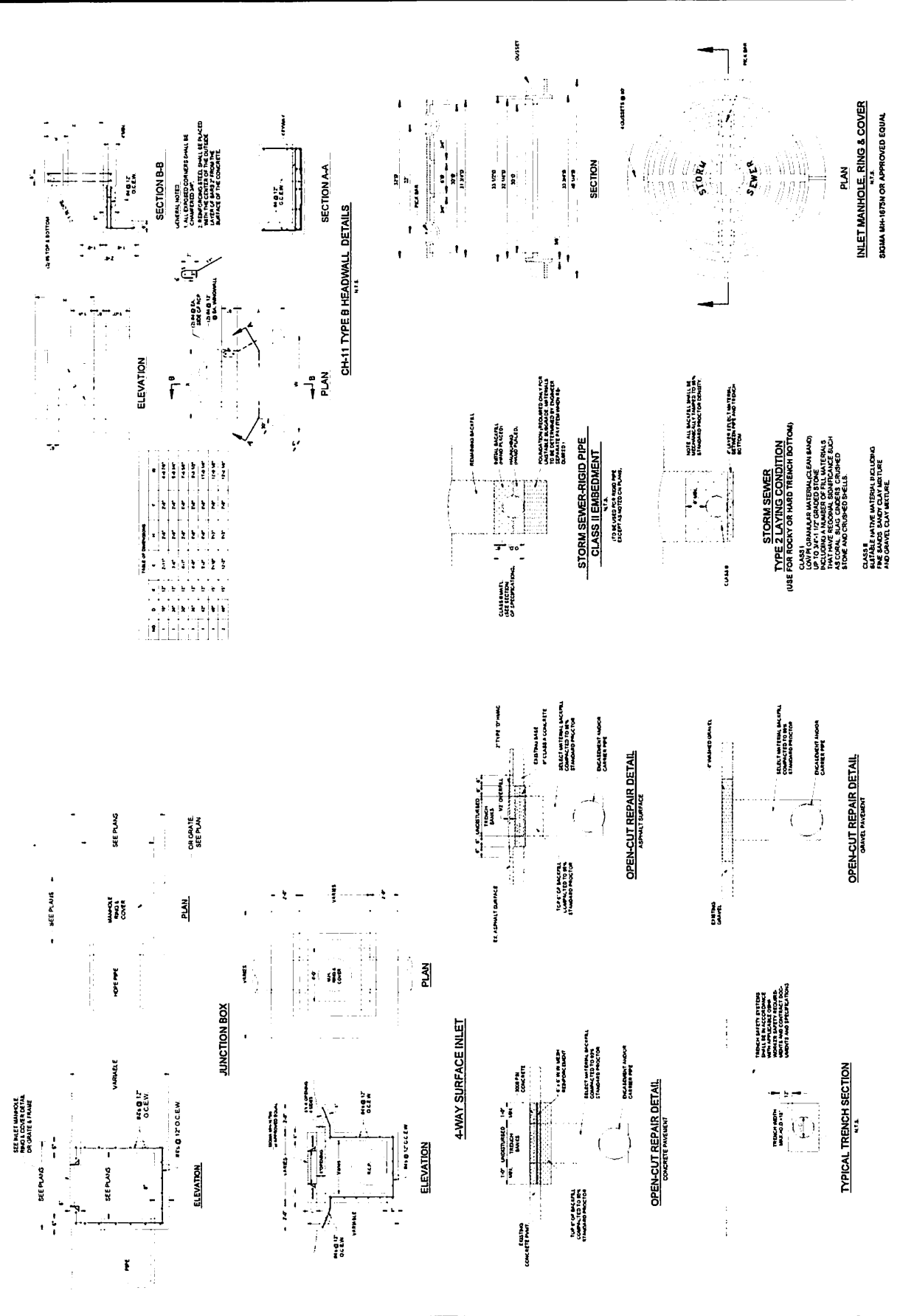


280	275	270	265	260	255	250	245	240
0+00	1+00	2+00	3+00	4+00	5+00			



SCALE
1" = 20'-0"

SHEET NO. 4 SCALE 		DRAWING J.T.S. DATE: NOV/2021 DRAWN BY: MCDONALD	HARRISON COUNTY HOLLY ST. DRAINAGE IMP. WASKOM, TEXAS	PROPOSED DRAINAGE PLAN/PROFILE STA. 4+65 TO STA. 5+25	WORK BY: HARRISON DATE
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**HARRISON COUNTY, TEXAS
HOLLY STREET DRAINAGE IMPROVEMENTS
BID PROPOSAL**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST</u>	<u>TOTAL COST</u>
GENERAL ITEMS					
1	Traffic control and barricades	1	LS	\$XXXXXXXX	\$
2	Mobilization, bonds, and insurance	1	LS	\$XXXXXXXX	\$
3	SWPPP & erosion control per County & TCEQ requirements	1	LS	\$XXXXXXXX	\$
4	Remove and dispose of existing pavement and structures	1	LS	\$XXXXXXXX	
5	Trench safety	1	LS	\$XXXXXXXX	\$
6	Hydromulch disturbed areas	1	LS	\$XXXXXXXX	\$
DRAINAGE FACILITIES					
1	Furnish & install 18" HDPP, complete, in place	219	LF	\$	\$
2	Furnish & install 24" HDPP, complete, in place	211	LF	\$	\$
3	Construct 3'x3' area inlet (4 way)	2	LF	\$	\$
4	Construct 4'x4' area inlet (3 way)	1	LF	\$	\$
5	Construct 4'x4' h-box	1	LF	\$	\$
6	Furnish & install 24" headwall	1	EA	\$	\$
7	Furnish & install type "R" rip rap	15	SY	\$	\$
8	Open cut and repair existing concrete driveway	32	SY	\$	\$
9	Open cut and repair asphalt pavement	55	SY	\$	\$
10	Grade ditch to drain	231	LF	\$	\$
11	Storm sewer mandrel testing	1	LS	\$	\$
TOTAL AMOUNT BID				\$	