

INFORMATION FOR BIDDERS

BIDS will be received by Moore Public Works Authority (hereinafter called the "OWNER"), at the office of Purchasing Agent, Purchasing Division, Moore City Hall, 301 N. Broadway, Suite 142, Moore, Oklahoma 73160 until 1:45 P.M. CST on September 21, 2021, and then at said office publicly opened and read aloud at 2:00 PM same day. Each BID must be submitted in sealed envelope, addressed to: Purchasing Agent, Purchasing Division, Moore City Hall, 301 N. Broadway, Suite 142, Moore, Oklahoma 73160 for the supply of:

Supply approximately 7702 Lineal Feet of 36-inch Closed Profile PVC Pipe as manufactured by VYLON Pipe, FOB job site in Moore, OK, and in compliance with ASTM F-1803 with Pipe Stiffness of 46 psi complete per Plans, Specifications. Sewer pipe installation contractor will be selected by MPWA, and the installation by Contractor shall be in accordance with the Gravity Sewer PVC Pipe Installation Manual. Bedding, backfilling, general installation requirements shall comply with ASTM D-2321.

This project when completed will transport wastewater from the existing Lift Station located west of Sunny Lane on 34th Street to the new Southeast Lift Station under construction on Indian Hills Road east of Indian Hills Road.

This project is to be financed through a grant from the Federal Government funded by The American Rescue Plan Act (ARPA) SLSRF Program AND/OR through a loan from the Oklahoma Water Resources Board OWRB LOAN FAP-19-0003-L

Each sealed envelope containing a BID must be plainly marked on the outside as BID for 36-inch Gravity Sewer Improvements; and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at Purchasing Agent, Purchasing Division, Moore City Hall, 301 N. Broadway, Suite 203, Moore, Oklahoma 73160.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one Copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Bids received more than ninety-six (96) hours before time specified, and Bids received after the time set for opening Bids will not be considered and will be returned unopened. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information that is pertinent to, and delineates and describes, the land owned, and rights-of-way acquired or to be acquired.

Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each bid must be accompanied by a bid bond payable to the OWNER for five percent of the total amount of the bid. A certified check may be used in lieu of the bid bond. No bid security is required if bid is \$7,500.00 or less

The OWNER shall award a contract to the lowest responsive responsible bidder or bidders within thirty (30) calendar days after bid opening. The OWNER may extend the award period not to exceed fifteen (15) calendar days by formal recorded action and for good cause.

The party to whom the contract is awarded will be given a purchase order after contract award by MPWA and concurrence by OWRB.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the AGREEMENT and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest, responsive responsible BIDDER, and Tied Bids are non-restrictive. For a Tied Bid proposal to be accepted, it must be lower than the sum of low separate bids.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout.

The time for completion is 250 calendar days.

Liquidated damages will be \$50.00 per calendar day.

The following items will be submitted with the bid:

Bid proposal, Non-Collusion Affidavit, Business Relationship Affidavit, & Bid bond.

Pipe manufacturer & supplier shall comply with Exhibits D, E, F, & J, & the laws & Regulations provided in the ARPA Coronavirus State & Local Fiscal Recovery Funds (SLSRF) allocation to Moore governed by the laws & regulations in Federal Register Notice at 78 FR 14329 Published March 5, 2013

The Consultant is Eagle Consultants, Inc., 2803 South Bryant Avenue, Edmond, OK 73013

The Consultants phone number is: (405) 844-3900.

The Consultant's contact person is Satish Dasharathy, P.E.

Email Address is satish@eagleconsultants.com

BID PROPOSAL

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____.* To The Moore Public Works Authority (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the supply of 36-inch Gravity Sewer Pipe Material, in strict accordance with The CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

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

BIDDER is familiar with and has satisfied itself as to all Federal, State, and local Laws, and Regulations and Permits that may affect cost, progress, and performance of the WORK.

BIDDER hereby agrees to commence WORK under this contract within ten (10) calendar days of the date to be specified in The NOTICE TO PROCEED and to fully complete The PROJECT within 250 consecutive calendar days. BIDDER further agrees to pay as liquidated damages, the sum of \$50.00 for each consecutive calendar day thereafter.

No BIDDER may withdraw a BID within 60 days after the actual opening thereof. Each BID must be accompanied by a BID BOND payable to OWNER for 5% of the amount bid.

BIDDER agrees to perform all The Work described in The CONTRACT DOCUMENTS for the unit prices given in The Bid Schedule to deliver as required by the contractor selected by MPWA.

By submitting a bid/proposal under this solicitation, the BIDDER understands that the bid/proposal is subject to the MPWA, City of Moore, The American Rescue Plan Act (ARPA) SLSRF, OWRB, ODEQ, Oklahoma State requirements.

*Insert "a corporation", "a partnership", or "an individual" as applicable

BID NUMBER 2022-003

BID SCHEDULE FOR 36-INCH GRAVITY SEWER PIPE MATERIAL

PURCHASE OF PIPE IS SALES TAX EXEMPT

Item #	Description	Qty	Units	Unit Price	Extension Price
1	Supply approximately 7702 Lineal Feet of 36-inch Closed Profile PVC Pipe as manufactured by VYLON Pipe, FOB job site in Moore, OK, and in compliance with ASTM F-1803 with Pipe Stiffness of 46 psi complete per Plans, Specifications. Sewer pipe installation contractor will be selected by MPWA, and the installation by Contractor shall be in accordance with the Gravity Sewer PVC Pipe Installation Manual. Bedding, backfilling, general installation requirements shall comply with ASTM D-2321.	7002	LF		
TOTAL BASE BID – Includes Bid Items 1					

TOTAL BASE BID IN WORDS: _____

Respectfully submitted,

Signature

Firm Name

Title

Address

Employer I.D. No.

Email Address of Firm / Contractor

D-U-N-S Number

(SEAL) - If BID is by a
corporation

Tel/Fax No. of Contractor

ATTEST:

Secretary/Witness

Date

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held firmly bound unto the Moore Public Works Authority as OWNER in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this ____ day of _____, 2021. The Condition of the above obligation is such that whereas the Principal has submitted to the Moore Public Works Authority a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the Sewer Force Main Improvements.

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attachment hereto (properly completed in accordance with said BOND) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor furnishings materials in connection there with and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void. Otherwise, the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(Principal)

ATTEST: (if by Corporation)

(Surety)

(Address of Surety)

(Telephone/Fax Number of Surety)

(Email address of Surety Contact)

By: _____
(Signature)

(Name and Title)

BUSINESS RELATIONSHIPS AFFIDAVIT

STATE OF _____) ss.

COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships herein above mentioned exists, affiant should so state.)

Affiant's Signature: _____

Subscribed and sworn to before me this _____ day of _____, 201__.

Notary Public

My Commission Expires:

NONCOLLUSION AFFIDAVIT

STATE OF _____) ss.
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any government official or employee as to quantity, quality, or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any government official concerning exchange of money or other value for special consideration in the letting of a contract; that the bidder/contractor had not paid, given or donated or agreed to pay, give or donate to any officer or employee of the _____ (or other entity) any money or other thing of value, either directly or indirectly in the procurement of a contract or pursuant to this bid.

Subscribed and sworn to before me this _____ day of _____, 201__.

Notary Public

My Commission Expires:

My Commission Number:

Exhibit D: Byrd Amendment Certification

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature	
Printed Name	
Position	
Date	

Exhibit E: Certification Regarding Debarment, Suspension, and Other Responsibility Matters

In accordance with 2 CFR Part 2424 and 24 CFR Parts 5, 6, et al (US Department of Housing and Urban Development: Implementation of OMB Guidance on Debarment and Suspension; Final Rule) the Respondent certifies, to the best of his or her knowledge and belief, that:

- (1) No employee of the Respondent who will materially participate in the Respondent's delivery of labor or work product under this RFP is currently suspended or debarred under the applicable laws or regulations in effect on the date of certification;
- (2) No sub-contractor, partner or other party who will materially participate in the Respondent's delivery of labor or work product under this RFP is currently suspended or debarred under the applicable laws or regulations in effect on the date of certification.
- (3) The undersigned Respondent shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature	
Printed Name	
Position	
Date	

Exhibit F:

Instructions: If the Respondent is a Minority Owned Business (MOB) or Women Owned Business (WOB) or qualifies as a Section 3 business, the Respondent completes Form F.1. If the Respondent intends to utilize a MOB/WOB or Section 3 business in the performance of the proposed contract, the respondent completes Form F.2

F.1: CERTIFICATION AS A MINORITY OWNED, WOMEN OWNED OR SECTION 3 BUSINESS

I, _____ certify that _____ is a Minority Owned, Women Owned or Section 3 Business.

Business Registered Name	
Business Registered Address 1	
Business Registered Address 2	
State of Registration	
Certificate or Registration Number	
Certifying Agency	

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. The City reserves the right to withdraw or terminate the proposed contract should the representation of fact be false.

Signature	
Printed Name	
Position	
Date	

F.2: STATEMENT OF INTENT OF MOB/WOB/SECTION 3 UTILIZATION

I, _____ certify that _____ will utilize Minority Owned Business (MOB) or Women Owned Business (WOB) as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated **dollar value** of the amount that we plan to pay the MOB or WOB subcontractor(s), vendor(s), supplier(s), or professional service(s) is \$ _____

Description of Work	MOB Amount	WOB Amount	Section 3 Amount	Name of MOB/WOB/Section 3

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. The City reserves the right to withdraw or terminate the proposed contract should the representation of fact be false

Signature	
Printed Name	
Position	
Date	

Exhibit H: Conflict of Interest Certification

In accordance with 24 CFR 85.36(b)(3) the Bidder certifies that no member, officer, or employee of the City or its designees or agents, no member of the governing body of the City of Moore in which the program is situated, and no other public official of the City who exercises any functions or responsibilities with respect to the program during his tenure or for one year thereafter, has any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof for work to be performed in connection with the program assisted under the Agreement. The Bidder shall incorporate, or cause to be incorporated, in all subcontracts, a provision prohibiting such interest pursuant to the purposes of Section 24 CFR part 85.36 (3).

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Bidder Name	
Signature	
Printed Name	
Position	
Date	

Exhibit J:

Instructions: If the Respondent is a certified Historically Underutilized Business (HUB) than the Respondent completes Form J.1. If the Respondent intends to utilize a HUB business in the performance of the proposed contract, the respondent completes Form J.2

J.1: CERTIFICATION AS A HISTORICALLY UNDERUTILIZED BUSINESS

I, _____ certify that _____ is a Historically Underutilized Business.

Business Registered Name	
Business Registered Address 1	
Business Registered Address 2	
State of Registration	
Certificate or Registration Number	
Certifying Agency	

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. The City reserves the right to withdraw or terminate the proposed contract should the representation of fact be false.

Signature	
Printed Name	
Position	
Date	

J.2: STATEMENT OF INTENT OF HUB UTILIZATION

I, _____ certify that _____ will utilize Historically Underutilized Business' (HUB) as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated **dollar value** of the amount that we plan to pay the HUB subcontractor(s), vendor(s), supplier(s), or professional service(s) is \$ _____

Description of Work	HUB Amount	Name of HUB

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. The City reserves the right to withdraw or terminate the proposed contract should the representation of fact be false

Signature	
Printed Name	
Position	
Date	

SECTION 02402
CLOSED PROFILE PVC GRAVITY SEWER PIPE

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Furnishing and installing buried PVC Gravity Sewer Pipe, to be provided where shown on the drawings.

1.02 QUALITY ASSURANCE

- A. Submit manufacturer's affidavit of conformance.

PART 2: PRODUCTS

2.01 PIPE AND FITTINGS:

- A. Closed profile PVC Pipe and fittings shall be manufactured and tested in accordance with all applicable ASTM F-1803 with Pipe Stiffness of 46 psi complete per Plans, Specifications, & in accordance with the Gravity Sewer PVC Pipe Installation Manual, Bedding, backfilling, general installation requirements shall comply with ASTM D-2321-14 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

B. Closed Profile PVC Pipe & Fittings for Gravity Flow Sanitary Sewers

Pipe and fittings shall be made from polyvinyl chloride compounds which comply with the requirements or a minimum cell classification of 12364 as defined by ASTM D-1784.

All pipe joints shall be of the bell and spigot type with elastomeric seals and conform to the requirements of ASTM D-3212. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Gasket material shall conform to the requirements of ASTM F-477. Factory tapered spigot ends shall be made of PVC and shall be formed during the manufacturing process by heating the inner and / or outer wall and remolding. Spigot ends formed by using filler material such as rubber, neoprene or other filler materials that are attached or glued to the inner wall are not acceptable.

Physical Requirements - Pipe stiffness – minimum pipe stiffness shall be 46 psi when tested in accordance with ASTM D-2412.

Impact resistance – no visual cracking or splitting of the waterway wall shall be evidenced when tested in accordance with ASTM D-2444 with a 20 lb. weight, tup B, flat plate holder B to a level of 220 ft. lbs.

Ductility – there shall be no evidence of cracking or splitting when pipe is flattened in a circumferential orientation between two flat plates by sixty percent (60%) of the original inside diameter or as required by ASTM F-1803.

Air tightness – each length of pipe shall pass a factory 3.5 psi air test as described in ASTM F-1803.

Marking - Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation F-1803, the pipe stiffness designation “PS-46” and manufacturer’s date code.

Installation, Bedding, backfill and general installation requirements should comply with ASTM D-2321. Further details can be obtained from the Vylon PVC Gravity Sewer Pipe’s Installation Guide and Vylon Trench Detail. Gaskets, bells, and spigots shall be cleaned and free from soil or stones prior to assembly. Lubricant supplied by the pipe manufacturer shall be applied to the gasket. Spigots should be aligned with the bell and be pushed into place so that the second home mark is just visible adjacent to the bell entry point.

PART 3: EXECUTION

3.01 STORAGE OF PIPING MATERIALS:

- A. Pipe stored outside shall be covered with canvas allowing for air circulation underneath.
B. Pipe shall be stored in bundles on flat surfaces with uniform support.
C. Stored pipe shall be kept free from soil and debris.
D. Gaskets shall be stored inside, away from direct sunlight, excessive heat, oils, greases, and electric motors.

3.02 EXISTING PIPELINES, STRUCTURES & UTILITIES

- A. Contractor shall locate and excavate all existing pipelines, utilities, and structures prior to trenching. Temporary support, adequate protection, and maintenance of all existing and underground pipelines, utilities and structures shall be provided so that service is not affected.

3.03 TRENCH EXCAVATION

- A. General
Procedures for trench excavation that are especially important in flexible thermoplastic pipe installations are given herein.
- B. Excavation
Excavate trenches to ensure that sides will be stable under all working conditions. Slope trench walls or provide supports in conformance with all local and national standards for safety. Open only as much trench as can be safely maintained by available equipment. Backfill all trenches as soon as practicable, but not later than the end of each working day.
- C. Water Control
Do not lay or embed pipe in standing or running water. At all times prevent runoff and surface water from entering the trench.

- D. **Ground Water**
When groundwater is present in the work area, dewater to maintain stability of in-situ and imported materials. Maintain water level below pipe bedding and foundation to provide a stable trench bottom. Use, as appropriate, sump pumps, well points, deep wells, geofabrics, perforated underdrains, or stone blankets of sufficient thickness to remove and control water in the trench. When excavating while depressing ground water, ensure the ground water is below the bottom of always cut to prevent washout from behind sheeting or sloughing of exposed trench walls. Maintain control of water in the trench before, during, and after pipe
- E. Contractor shall provide all precautionary measures required to preserve and protect trench stability and shall be solely responsible for doing so.
- F. **Trench Width & other considerations**
In the pipe embedment zone, maximum trench width shall be as noted on the Drawings & Specs.
Minimum Trench Width: Where trench walls are stable or supported, provide a width sufficient, but no greater than necessary, to ensure working room to properly and safely place and compact haunching and other embedment materials. The space between the pipe and trench wall must be wider than the compaction equipment used in the pipe zone. Minimum width shall be not less than the greater of either the pipe outside diameter plus 16 in. (400 mm) or the pipe outside diameter times 1.25, plus 12 in. (300 mm). In addition to safety considerations, trench width in unsupported, unstable soils will depend on the size and stiffness of the pipe, stiffness of the embedment and in-situ soil, and depth of cover. Specially designed equipment may enable the satisfactory installation and embedment of pipe in trenches narrower than specified above. If it is determined that the use of such equipment provides an installation consistent with the requirements of this standard, minimum trench widths may be reduced, as approved by the engineer.
Support of Trench Walls: When supports such as trench sheeting, trench jacks, trench shields or boxes are used, ensure that support of the pipe and its embedment is maintained throughout installation. Ensure that sheeting is sufficiently tight to prevent washing out of the trench wall from behind the sheeting. Provide tight support of trench walls below viaducts, existing utilities, or other obstructions that restrict driving of sheeting.
Supports Left in Place: Unless otherwise directed by the engineer, sheeting driven into or below the pipe zone should be left in place to preclude loss of support of foundation and embedment materials. When top of sheeting is to be cut off, make cut 1.5 ft (0.5 m) or more above the crown of the pipe. Leave rangers, walers, and braces in place as required to support cutoff sheeting and the trench wall in the vicinity of the pipe zone. Timber sheeting to be left in place is considered a permanent structural member and should be treated against biological degradation (for example, attack by insects or other biological forms) as necessary, and against decay if above ground water.
- G. **Unstable Foundation:** Contractor shall stabilize foundation condition by dewatering where required.
- H. **Trench Bottom:** The trench bottom shall be constructed to provide a firm, stable and uniform support for the full length of the pipe. Bell holes at each joint shall be provided to permit the joint to be made properly.
- I. **Over-excavation:** Any part of the trench excavated below grade shall be backfilled to grade with suitable material.
- J. **Soil Conditions.** Ledge rock, boulders, and large stones shall be removed to provide four inches of soil cushion on each side of and below all pipe and accessories. Blasting for excavation will not be permitted.
- K. For additional requirements see drawings.

3.04 LAYING OF PIPE

- A. All pipe and fittings shall be carefully lowered into the trench using suitable equipment in such manner as to prevent damage to pipe and fittings. Under no circumstances shall the pipe or accessories be dropped or dumped into the trench.
- B. The pipe and accessories shall be inspected for defects prior to lowering into trench. Any defective, damaged, or unsound material shall be not be used and it shall be replaced.
- C. All foreign matter or dirt shall be removed from the interior of the pipe before lowering into position in the trench.
- D. The sealing surface of the pipe, the bell to be joined, and the elastomeric gaskets shall be cleaned immediately before assembly, and assembly shall be made as recommended by the manufacturer. When pipe laying is not in progress, the open ends of installed pipe shall be closed to prevent entrance of trench water into the line. Whenever water is excluded from the interior of the pipe, enough backfill shall be placed on the pipe top prevent floating. Any pipe that has floated shall be removed from the trench and the bedding restored. No pipe shall be laid when the trench conditions or the weather are unsuitable for proper installation.
- E. The pipe shall be cut in a neat and workman like manner without damage to the pipe to have a smooth end at right angles to the axis of the pipe.
- F. Install tracer wire.

3.05 JOINING PVC PIPE TO FITTINGS

- A. Fittings connected to PVC plastic pipe shall be equipped with bells having a profile that permits a seal to be made directly between the pipe end and the bell of the fitting with an elastomeric gasket. The elastomeric gasket shall be supplied by the fitting or accessory manufacturer.
- B. Pipe ends shall be cut square, deburred, and beveled in accordance with pipe manufacturer's recommendation.
- C. The push-on joint is an elastomeric gasketed joint. It is assembled by positioning the elastomeric gasket(s) in the annular groove(s) of the bell or coupler and inserting the spigot end of the pipe into the bell or coupler. The spigot end of the pipe compresses the gasket radially to form positive seal. The gasket and annular groove are designed, sized, and shaped so that the gasket will resist displacement. Care shall be taken so that only the correct elastomeric gasket, compatible with the annular groove(s) of the bell or coupler is used. Insertion of the elastomeric gasket in the annular groove must be in accordance with the manufacturer's recommendation.

3.06 PRESSURE AND LEAKAGE TESTS

- A. Sufficient backfill shall be placed prior to filling with water and field testing to prevent lifting of the pipe. When local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be carried out after backfilling has been completed, but before placement of permanent surface.
- B. For Procedure, Method, and Allowable Leakage see Section 02305.

3.07 BACKFILLING AND EMBEDMENT

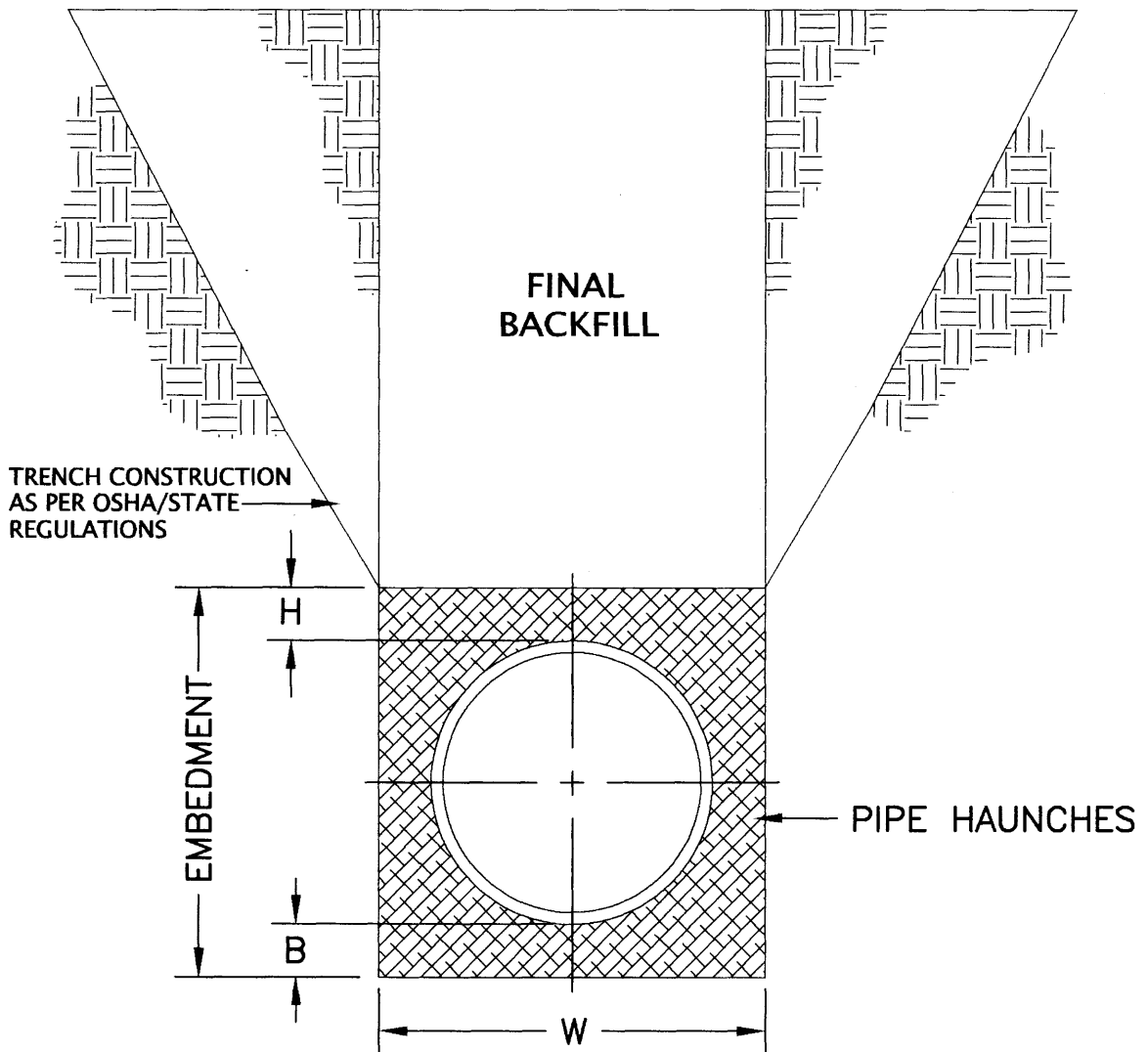
- A. Bedding and haunching shall be as shown on the drawings.
- B. When depth of trench exceeds 14 ft., initial backfill shall be the same material as for bedding and haunching.
- C. Final Backfill: The balance of the backfill may be machine placed and shall contain no large stones over 6" or rocks, frozen material, or debris. Compaction shall be per Section 02250.

3.08 DEFLECTION TEST

- A. Deflection test shall be performed on all pipe at least 30 days after backfilling. A Mandrel with diameter equal to 95 percent of the internal diameter of the pipe shall be pulled by hand through each reach.
- B. Acceptance: No pipe shall be accepted unless the Mandrel passes through verifying that the deflection is less than 5 percent of the internal diameter.

END OF SECTION

BEDDING RECOMMENDATIONS VYLON PIPE



NOTES:

1. PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321
2. CLASS I, II, OR III MATERIALS ARE ACCEPTABLE, ALTHOUGH CLASS I MATERIALS PROVIDE SUFFICIENT SUPPORT FOR MOST INSTALLATIONS IF THE MATERIAL IS SHOVEL SLICED UNDER THE HAUNCHES. CLASS II OR CLASS III MATERIALS REQUIRE COMPACTING IN LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
3. "H" AND "B" SHALL BE 6" MINIMUM, "W" IS A MINIMUM OF THE PIPE OD + 18"
4. IF THE MIGRATION OF FINES FROM ADJACENT MATERIALS IS EXPECTED CONSIDERATION SHOULD BE GIVEN TO USE OF A GEOTEXTILE OR SOME OTHER MEANS TO PREVENT LOSS OF PIPE SUPPORT.
5. WEAK NATIVE SOILS, SUCH AS THOSE WITH BLOW COUNTS OF 5 OR LESS, MAY REQUIRE ADDITIONAL MEASURES TO PROVIDE A SUFFICIENT FOUNDATION UNDER THE PIPE AND/OR PROVIDE SUFFICIENT LATERAL SUPPORT. SEE ASTM D 2321 FOR FURTHER INFORMATION.