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| SECTION 02360 DIRECTIONAL DRILLING | | precision-machined grooves in the pipe and coupling to provide full 360 degree restraint with evenly distributed loading. | | Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard PVC pressure fittings conforming to AWWA C900 or AWWA C905. | | B. A competent and experienced supervisor representing the CONTRACTOR and Drilling Subcontractor shall be present at all times during the actual drilling operation. A responsible representative who is thoroughly familiar with the equipment and type of work to be performed must be in direct charge and control of the operation at all times. In all cases, the supervisor must be continuously present at the job site during the actual Directional Bore operation. The CONTRACTOR and Subcontractor shall have a sufficient number of competent workers on the job at all times to insure the Directional Bore is made in a timely and satisfactory manner. | | PART 3 EXECUTION | | 3.1 GENERAL REQUIREMENTS | | C. SITE LOCATION PREPARATION | | 3.1.1 TESTING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PART 1 GENERAL | 1.1 WORK INCLUDED | A. Furnish all labor, materials and equipment required to install 6" nominal diameter water main pipe or 12" and 14" nominal diameter casing pipe using directional drilling method of installation where shown on the Drawings. DIRECTIONAL DRILLING MAY ALSO BE USED IN LIEU OF THE OPEN CUT METHOD IF DESIRED BY THE CONTRACTOR. HOWEVER, NO ADDITIONAL PAYMENT WILL BE MADE FOR DIRECTIONAL DRILLING (if the contractor elects to directional drill areas called out as open cut, the CONTRACTOR shall be paid at the contract unit price for open cut for those areas). The pipe size, type and length shall be as specified herein and as shown on the Drawings. Work shall include and not be limited to proper installation, testing, restoration of underground utilities and environmental protection and restoration. | F. Marking: | 2. Couplings shall be designed for use at the rated pressure of the pipe with which they are utilized, and shall incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F477. Joints shall be designed to meet the leakage test requirements of ASTM D1319. | 3. PVC gasketed, push-on fittings and mechanical restraints, if used, must be installed per the manufacturer's guidelines. | B. Bends, tees and other PVC fittings shall be restrained with the use of thrust blocking or other restraint products as indicated in the construction documents. | C. Personnel who are unqualified, incompetent or otherwise not suitable for the performance of this project shall be removed from the job site and replaced with a suitable person. | A. The ENGINEER must be notified 3 days in advance of starting work. The Directional Bore shall not begin until the ENGINEER is present at the job site and agrees that proper preparations for the operation have been made. The ENGINEER's approval for beginning the installation shall in no way relieve the CONTRACTOR of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. | 3.1 GENERAL REQUIREMENTS | A. The ENGINEER must be notified 3 days in advance of starting work. The Directional Bore shall not begin until the ENGINEER is present at the job site and agrees that proper preparations for the operation have been made. The ENGINEER's approval for beginning the installation shall in no way relieve the CONTRACTOR of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. | B. All work under this specification affecting the Indiana Department of Transportation (INDOT) property, right-of-way or facilities shall be carried out to the full satisfaction of the INDOT authorized representative. The CONTRACTOR shall fully inform himself of all requirements of the INDOT as it pertains to specific project and shall conduct all his work accordingly. | C. All equipment used by the CONTRACTOR on Owner's property and right-of-ways may be inspected by the OWNER or the Owner's Representatives and shall not be used if considered unsatisfactory by OWNER or Owner's Representatives. | D. The Contractor shall be fully responsible for all damages arising from his failure to comply with the regulations and the requirements of these Specifications. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1.2 SCOPE | A. This specification covers high density polyethylene pipe (C906, DR 11) and restrained poly polyvinyl chloride pipe (C900, DR-18), with ductile iron inside diameters of 6" - 14" installed by the directional drilling method. | B. The Contractor shall be responsible for all installation procedures and procedures associated with the installation by horizontal directional drilling in accordance with this specification. | G. WORKMANSHIP: | 2. Pipe and fittings shall also bear the mark of the certifying agency(s) which have tested and approved the product for use in fire protection applications. | 1. As defined in AWWA C900, PVC pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious traits. | 2. As defined in AWWA C906, PE pipe and fittings shall be homogeneous throughout and free from voids, cracks, inclusions, and other defects, and shall be as uniform as commercially practicable in color, opacity, density, and other physical characteristics. | E. EXPANSION-AND FLEXIBLE COUPLINGS | 3.1 GENERAL REQUIREMENTS | A. The ENGINEER must be notified 3 days in advance of starting work. The Directional Bore shall not begin until the ENGINEER is present at the job site and agrees that proper preparations for the operation have been made. The ENGINEER's approval for beginning the installation shall in no way relieve the CONTRACTOR of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. | B. All work under this specification affecting the Indiana Department of Transportation (INDOT) property, right-of-way or facilities shall be carried out to the full satisfaction of the INDOT authorized representative. The CONTRACTOR shall fully inform himself of all requirements of the INDOT as it pertains to specific project and shall conduct all his work accordingly. | C. All equipment used by the CONTRACTOR on Owner's property and right-of-ways may be inspected by the OWNER or the Owner's Representatives and shall not be used if considered unsatisfactory by OWNER or Owner's Representatives. | D. The Contractor shall be fully responsible for all damages arising from his failure to comply with the regulations and the requirements of these Specifications. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1.3 REFERENCE DOCUMENTS | A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other documents, the references shall be made to the documents in this section as if referenced directly. In the event of a conflict between the requirements of this section and those of the referenced documents, the requirements of this section shall prevail. | B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. | C. American Society for Testing Materials (ASTM) | 1. ASTM D1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds | 2. ASTM D1585: Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120 | 3. ASTM D1222: Standard Test Method for Determining Dimensions of Thermoplastic Pipes and Fittings | 4. ASTM D2152: Test Method for Degree of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by X-ray Immersion | 5. ASTM D2241: Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR41) | 6. ASTM D2665: Poly (Vinyl Chloride) (PVC) Plastic Pipe, Vitrified, and Vent Pipes and Fittings | 7. ASTM D2774: Standard Practice for Underground Installation of Thermoplastic Pressure Pipes | 8. ASTM D2837: Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials | 9. ASTM D2838: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings | 10. ASTM D3550: Standard Specification for Polyethylene Plastic Pipe and Fitting Materials | 11. ASTM F477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe | 12. ASTM F1055: Standard Specification for Extrusion Type Polyethylene Fittings for Casing Drilling Control Polyethylene Pipes and Fittings | 13. ASTM F1057: Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique | 14. ASTM F1290-98a (2004): Standard Practice for Extrusion Joining Polyethylene Pipe and Fittings | 15. ASTM F1962-04a (2004): Standard Guide for Use of Iso-Horizontal Directional Drilling for Placement of Polyethylene Pipes or Conduit Under Obstacles, Including River Crossings | 16. ASTM F1964-02(2007): Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure | 17. ASTM F2020-01a (2001): Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings | 18. American Water Works Association (AWWA) | 19. AWWA C119: American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids | 20. AWWA C111: American National Standard for Rubber-Gasket Fittings for Ductile-Iron Pressure Pipes and Fittings | 21. AWWA C135: AWWA Standard for Ductile-Iron Compact-Fittings for Water Service | 22. AWWA C265: Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water | 23. AWWA C900: Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100mm Through 300mm), for Water Distribution | 24. AWWA C906: Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4" Through 60" for Water Distribution and Transmission | 25. AWWA M22: AWWA Manual of Supply Practices PVC Pipe - Design and Installation, Second Edition | 26. AWWA M85: AWWA Manual of Water Supply Practices PE Pipe - Design and Installation | 27. 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