

DIVISION 5

STORM DRAIN, FITTINGS AND APPURTENANCES

5-1 GENERAL

- A. Work in this Section shall consist of, but not be limited to, providing all materials, certifications, labor, equipment and services necessary for furnishing and installing all storm drain piping, fittings, and appurtenant items to the size, dimensions, lines grades, elevations and types as shown on the Contract Drawings or as directed by the Owner or Owner's Representative.
- B. The Contractor shall submit certifications to the Owner or Owner's Representative that all pipes, fittings, joints, etc. are as specified herein.
- C. Materials and structures delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. Store materials on site in enclosures or under protective covering. Store plastic jointing materials, and rubber gaskets out of direct sunlight. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, fittings shall be protected from any environment that would result in damage or deterioration to the material. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise. All piping, fittings, and gaskets shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Locations of storage sites and methods of storage for materials and equipment shall be approved by the Owner or Owner's Representative.
- D. Related work not included in this Section consists of the following:
 - 1) Earthwork provided under Division 3.
 - 2) Earthwork for Utilities provided under Division 4.
 - 3) Precast Concrete Utility Structures provided under Division 7.
- E. Furnish complete shop drawings before delivery of any material to the job site. Shop drawings shall show all pipe and appurtenances to be used.
- F. The Contractor shall provide the following information to the Owner or Owner's Representative upon request:
 - 1) Material list of items proposed to be provided under this Section.
 - 2) Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3) Names and addresses of the nearest service and maintenance organization that readily stocks repair parts.
 - 4) Manufacturer's recommended installation procedures which, when approved by the Owner or Owner's Representative, will become the basis for accepting or rejecting actual installation procedures used on the work.

5-2 PRODUCTS

- A. Bituminous Coated Corrugated Metal Pipe (BCCMP) as shown on the Contract Drawings shall be 14 gauge and conform to AASHTO Designation M-36. The bituminous coating shall conform to the requirements of AASHTO Designation M-190. The Contractor shall use the longest length of pipe that is feasible for him to handle (20' minimum length). Pipe joints shall be watertight.
- B. All storm drain inlets, shown on the Contract Drawings shall be precast structures.

5-3 EXECUTION

- A. The Owner or Owner's Representative shall be notified at least 24 hours prior to placement of work. Review by the Owner or Owner's Representative does not relieve Contractor of full responsibility for compliance with construction documents.
- B. Types of pipe proposed by the Contractor to be used in the work shall be approved by the Owner or Owner's Representative before any work is started. During the progress of the work, the Owner or Owner's Representative may require that a sufficient number of samples be tested to ascertain the quality of the pipe. The cost of such samples and tests shall be included in the lump sum price bid by the Contractor for furnishing and laying pipe.
- C. The Contractor shall submit certifications to the Owner or Owner's Representative that all pipe, fittings and joints are as specified herein.
- D. Pipe and fittings shall be carefully handled and lowered into the trench as specified by the manufacturer. Special care shall be taken to insure that each length shall abut against the next in such manner that there shall be no shoulder or unevenness of any kind along the inside of the pipeline.
- E. Before pipe is placed, the bottom of the trench shall be carefully shaped to fit the lower part of the pipe exterior with reasonable closeness for a width of at least 60% of the pipe width as indicated on the plans. No pipe shall be brought into position until the preceding length has been thoroughly bedded and secured in place. Any defects due to settlement shall be made good by the Contractor without additional compensation therefor.
- F. Proper and suitable tools and appliances for the safe and convenient handling and laying of pipe shall be used.
- G. Whenever a pipe requires cutting to fit or to bring it to the required location, the work shall be done in a satisfactory manner so as to leave a smooth end.
- H. The pipes shall be thoroughly cleaned before they are laid and shall be kept clean until the acceptance of the construction by the Owner or Owner's Representative.
- I. All metal storm drain pipe must have flexible watertight, gasketed joints. Joints shall be as recommended by the gasket manufacturer for use of lubricants and other special installation requirements. The gasket shall be placed over one end of a section of pipe for half the width of the gasket. The other half shall be doubled over the end of the same pipe. When the adjoining section of pipe is in place, the doubled-over half of the gasket shall then be rolled over the adjoining section. Any unevenness in overlap shall be corrected so that the gasket covers the end of pipe sections equally. Connecting bands shall be centered over adjoining sections of pipe, and rods or bolts placed in position and nuts tightened. The band shall be tightened evenly, even tension being kept on the rods or bolts, and the gasket; the gasket shall seat properly in the corrugations. Watertight joints shall remain uncovered for a period of time designated, and before being covered,

tightness of the nuts shall be measured with a torque wrench. If the nut has tended to loosen its grip on the bolts or rods, the nut shall be retightened with a torque wrench and remain uncovered until a tight, permanent joint is assured.

- J. Backfill materials over storm drainage pipe and fittings shall in accordance with *Division 4 – Earthwork for Utilities*. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced.
- K. Precast storm drain inlets shall be installed at the location and to the depth indicated on the Contract Drawings.
- L. Install precast storm drain inlets on a 6 inch minimum layer of crushed stone or gravel, unless otherwise specified, meeting the requirements of AASHTO M43 No. 57 Stone.
- M. All precast components shall be lifted and moved by use of suitable lifting slings and plugs that will not damage the structure.

5-4 MEASUREMENT

No measurement for payment of these items of work will be made since their cost shall be included in the lump sum bid.

END OF SECTION