

1. DESCRIPTION:

- 1.01 The work shall consist of furnishing and installing High Density Polyethylene (H.D.P.E.) Pipe and Fittings in accordance with this specification and in conformance with the lines, grades and sections shown on the plans or as established by the Engineer.

2. MATERIALS:

- 2.01 This specification covers the requirements of Spirolite High Density Polyethylene pipe and fittings in nominal sizes as shown below with integral bell joints, per ASTM F-894 except as modified below.
- 2.02 **Pipe and Fittings:** The pipe shall be made of high density, high molecular weight polyethylene pipe material meeting the requirements of Type III, Class C, Category 5, Grade P34, as defined in ASTM D-1248 Standard Specification for Polyethylene Plastic Molding and Extrusion Materials. Clean rework material generated by the manufacturer's own production may be used so long as the pipe or fittings produced meet all the requirements of this specification.
- 2.03 **Gaskets:** Rubber gaskets shall comply in all respects with the physical requirements specified in the non-pressure requirements of ASTM Specification F-477. They shall be molded or produced from an extruded shape approved by the manufacturer and spliced into circular form.
- 2.04 **Lubricant:** The lubricant used for assembly shall have no detrimental effect on the gasket or on the pipe.
- 2.05 The pipe and fittings shall be homogenous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.
- 2.06 **Pipe Dimensions:** Inside and outside diameters shall meet tolerance requirements of ASTM Specifications D2447 or F894, depending on nominal size. Unless noted otherwise on the plans, the pipe wall thickness shall be such that the minimum Values of Ring Stiffness Constant, Average Profile Area, and Wall Inertia given by the manufacturer's literature for Class 100 pipe are met. Pipe shall be ribbed type and standard laying lengths shall be 20 feet plus or minus 2 inches unless shown otherwise on the plans. Pipe bell joining as required by ASTM F894.
- 2.07 **Fitting Dimensions:** Fittings such as couplings, wyes, tees, adaptors, etc. for use in laying Spirolite HDPE gravity sewer pipe shall have laying length dimensions as recommended by the manufacturer.
- 2.08 Ring Stiffness Constant (RSC) values for the pipe can be directly related to the pipe's class designation. (Nominal RSC of Class 40 pipe = 40, etc.) The minimum RSC is 90% of the nominal when tested in accordance with ASTM F-894. There will be no evidence of splitting, cracking or breaking when the pipe is tested in accordance with ASTM D-2412.
- 2.09 **Certification:** As the basis of the acceptance of the material, the manufacturer will furnish a certificate of conformance to these specifications.

3. CONSTRUCTION DETAILS:

- 3.01 The Contractor shall prepare the existing pipe for sliplining in accordance with the details on the plans, these specifications, and as required to adequately complete the work. This shall include control of seepage and stream flow water, repair of displaced joints and leaking joints, and removal of loose invert debris and mineral deposits.
- 3.02 The Contractor shall provide control of water. Control of water shall include temporary cofferdams, pumping and joint sealing. The Contractor shall furnish and install a back-up pumping system and shall provide manpower to continuously maintain pumping during the time requiring control of water. The Contractor shall submit his plan for control of water and demonstrate that the equipment to be utilized will be capable of maintaining the anticipated flows.
- 3.03 The Contractor shall excavate jacking pits of adequate length on one or both ends of the existing pipe. The jacking or pushing equipment shall align the pushing forces evenly over the circumferential cross section of the pipe. The equipment shall be capable of providing the pushing force needed to overcome the frictional sliding resistance of the pipe.
- 3.04 The Contractor shall pull a single section of the liner pipe through the existing pipe as a test before sliplining the pipe.
- 3.05 The pipe shall be inserted into the existing culvert pipe spigot end first. If necessary, the Contractor shall employ a polyethylene cone in front of the first pipe to assist the pipe in riding over irregularities in the existing pipe.
- 3.06 The Contractor shall coordinate his sliplining work with the subsequent annulus grouting work so that grouting is completed no more than 7 days after sliplining.

4. METHOD OF MEASUREMENT:

- 4.01 The quantity to be paid under this Item will be the number of linear feet measured along the centerline of installed pipe incorporated into the complete work.

5. BASIS OF PAYMENT:

- 5.01 The unit price bid per foot shall include the cost of furnishing all labor, equipment and materials required to complete the work as specified. Payment for the work performed in accordance with these specifications shall be made at the unit price bid under the following respective bid Items.

Payment will be made under:

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PAYUNIT</u>
603.87201225	Sliplining with H.D.P.E. Pipe – 12 inch Dia.	Feet
603.87202125	Sliplining with H.D.P.E. Pipe – 21 inch Dia.	Feet
603.87202425	Sliplining with H.D.P.E. Pipe – 24 inch Dia.	Feet
603.87202725	Sliplining with H.D.P.E. Pipe – 27 inch Dia.	Feet
603.87203025	Sliplining with H.D.P.E. Pipe – 30 inch Dia.	Feet
603.87203325	Sliplining with H.D.P.E. Pipe – 33 inch Dia.	Feet

ITEM 603.872XXX25 -**SLIPLINING WITH H.D.P.E. PIPE****5. BASIS OF PAYMENT:** (cont'd)

5.01 (cont'd)

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PAYUNIT</u>
603.87203625	Sliplining with H.D.P.E. Pipe – 36 inch Dia.	Feet
603.87204025	Sliplining with H.D.P.E. Pipe – 40 inch Dia.	Feet
603.87204225	Sliplining with H.D.P.E. Pipe – 42 inch Dia.	Feet
603.87204425	Sliplining with H.D.P.E. Pipe – 44 inch Dia.	Feet
603.87204825	Sliplining with H.D.P.E. Pipe – 48 inch Dia.	Feet
603.87205425	Sliplining with H.D.P.E. Pipe – 54 inch Dia.	Feet
603.87206025	Sliplining with H.D.P.E. Pipe – 60 inch Dia.	Feet
603.87206625	Sliplining with H.D.P.E. Pipe – 66 inch Dia.	Feet
603.87207225	Sliplining with H.D.P.E. Pipe – 72 inch Dia.	Feet
603.87207625	Sliplining with H.D.P.E. Pipe – 76 inch Dia.	Feet
603.87207825	Sliplining with H.D.P.E. Pipe – 78 inch Dia.	Feet
603.87208425	Sliplining with H.D.P.E. Pipe – 84 inch Dia.	Feet
603.87209025	Sliplining with H.D.P.E. Pipe – 90 inch Dia.	Feet
603.87209625	Sliplining with H.D.P.E. Pipe – 96 inch Dia.	Feet
603.87212025	Sliplining with H.D.P.E. Pipe – 120 inch Dia.	Feet