

DIVISION 33 - UTILITIES

330100	PROTECTION OF EXISTING UTILITIES
334125	BEDDING MATERIAL
334205	HDPE/PVC DRAINAGE PIPE AND PVC DRAIN BASINS

SECTION 33 01 00

PROTECTION OF EXISTING UTILITIES

PART 1 - GENERAL

1.1 Scope: This section describes the work required to allow for the location of existing underground utilities for the entire project site.

1.2 General: The locations of existing underground utilities shown on the Drawings, if any, are approximate. The location of the existing utilities shown on the Drawings, if any, has in part, been determined by information compiled and furnished by others.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 General:

A. It shall be the responsibility of the CONTRACTOR to locate all underground utilities that may conflict with the proposed work. The CONTRACTOR shall be responsible for repairing all damage to underground utilities as a result of construction activities, at no cost to the OWNER. The CONTRACTOR shall contact Louisiana One Call by phone at 811 in order for their personnel to mark the field location of underground utilities that participate in the Louisiana One Call system.

B. The OWNER will assist the CONTRACTOR in locating OWNER'S utilities; however, it shall be the CONTRACTOR'S responsibility for protecting the utilities once located.

C. The CONTRACTOR shall be responsible for repairing all damage done to any underground utilities as a result of construction activities, at no cost to the OWNER.

3.2 Test Pits: Test pits for the purpose of locating existing underground utilities shall be excavated and backfilled in accordance with Section 31 23 17 - Test Pits.

- END OF SECTION -

SECTION 33 41 25

BEDDING MATERIAL

PART 1 - GENERAL

1.1 Scope: This Section covers all operations necessary to provide bedding material for all drainage conduits and drainage structures to provide a stable working table.

1.2 Reference Standard: Work shall conform to the following Section of the State of Louisiana, Department of Transportation and Development, "Louisiana Standard Specifications for Roads and Bridges", 2006 Edition, except as may be modified herein:

Section 726 - Bedding Material

All references made therein to Measurement and Payment are deleted.

Except for the Retaining Wall Drainage, the placement of bedding material in a geotextile envelope will not be used on this project.

PART 2 - PRODUCTS

2.1 Bedding Material: Bedding material shall conform to subsection 1003.08 of the Reference Standard and/or as approved by the ENGINEER.

PART 3 - EXECUTION

3.1 General: Bedding material shall be installed as described in the Reference Standard where authorized by the ENGINEER, except any requirements on the use of geotextile fabric underlayment or envelopes will be deleted.

3.2 Bedding Material: Bedding material shall be compacted to 95% Standard Proctor at plus or minus 3 percent optimum moisture content (ASTM D698). The material shall be shaped to conform to the bottom of the pipe.

- END OF SECTION -

SECTION 33 42 05HDPE/PVC DRAINAGE PIPE AND
PVC DRAIN BASINSPART 1 - GENERAL

1.1 Scope: This Section covers the requirements for High Density Polyethylene (HDPE) and Polyvinyl Chloride (PVC) drainage conduits and PVC drain basins including all related appurtenances in conformance with the lines and grades as shown on the Drawings, as outlined within this Specification, and to the satisfaction of the OWNER.

1.2 Quality Assurance: To ensure unity of responsibility, all drainage conduit, pipe fittings, connectors, catch basins risers, joints, etc. shall be the standard product of a single manufacturer having a minimum of five (5) years experience in the manufacturing of plastic drainage systems conforming to this Specification.

1.3 Submittals: Submit product data in accordance with provisions of Section 01 33 00 – Submittal Procedures.

1.4 Reference Standard: Work shall conform to the following Section of the State of Louisiana, Department of Transportation and Development, "Louisiana Standard Specifications for Roads and Bridges", 2006 Edition, except as may be modified herein:

Section 701 - Culverts and Storm Drains

1.5 Applicable Publications: The publications listed below form a part of this Specification to the extent referenced. The publications may be referred to in the text by basic designation only.

A. American Association State Highway Transportation Officials (A.A.S.H.T.O.)

M252	Corrugated Polyethylene Drainage Tubing
M294	Corrugated Polyethylene Pipe, 300 mm to 1,200 mm
MP7-97	Corrugated Polyethylene Pipe 1,350 mm to 1,500 mm

B. American Society for Testing and Materials (A.S.T.M.)

F477	Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
F810	Specification for Smooth Wall Polyethylene (PE) Pipe
F405	Specification for Corrugated Polyethylene (PE) Tubing and Fittings

F667	Specification for Large Diameter Corrugated Polyethylene (PE) Tubing and Fittings
D1149	Test Method of Rubber Deterioration - Surface Ozone Cracking in a Chamber
D2321	Practice for Underground Installation of Flexible Thermoplastic Pipe for Sewers and Other Gravity Flow Applications
D3350	Specifications for Polyethylene Plastic Pipe and Fittings Materials

PART 2 - PRODUCTS

2.1 HDPE Drain Pipe and Fittings:

A. Pipe (Solid): HDPE drain pipe of all sizes and lengths shown on the Drawings shall have smooth interior ("Smooth Lined") and annular exterior corrugations. HDPE pipe shall meet the requirements of AASHTO M252 or M294. Material must be high density polyethylene meeting ASTM D 3350 minimum call classification 335420 C. HDPE drain pipe shall be N-12 (dual wall) as manufactured by ADS (Advanced Drainage System) of Lafayette, Louisiana (337) 981-0898, Hancor, or approved equal.

B. Fittings: HDPE fittings shall meet the requirements of paragraph 2.1.A and conform to AASHTO M252 or M294. Fabricated fittings shall be factory welded at all accessible interior and exterior junctions. Drain pipe fittings shall be by the same manufacturer as specified herein for drain pipe as manufactured by ADS, Hancor, or approved equal.

C. Joints: Pipe shall be joined with integral bell and spigot joints meeting AASHTO M252, M294 or MP7-97. The joint shall be rated watertight (WT). Rubber gaskets shall meet the requirements of ASTM 477 and be omni directional. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant shall be supplied by the pipe manufacturer to be used on the gaskets at the time of installation. The sealing area of the pipe bell shall be reinforced with a 2" polymer composite collar. The joint design be N-12 ST WT Watertight Joint as manufactured by ADS, Hancor, or approved equal.

2.2 PVC Drain Pipe and Fittings:

A. Pipe (Solid): PVC pipe shall be in accordance with ASTM D3034, SDR 26.

B. Joints: PVC pipe joints shall be in accordance with ASTM D3212 using restrained gasket conforming to ASTM F477.

C. Fittings: PVC pipe fittings shall match pipe material, classification and thickness as specified in Paragraph 2.2.A herein.

2.3 Plastic Filter Cloth: Plastic filter cloth for HDPE pipe joints shall be in conformance with Section 1019 of the Reference Standard.

2.4 PVC Drain Basins: Plastic catch basins shall be factory fabricated AASHTO H-20 heavy duty PVC one piece units of the size and geometrics as shown on the Drawings. The catch basins shall be custom fitted for this project and shall be provided by the HDPE drain pipe manufacturer to ensure a single source of responsibility for the plastic drainage system. Catch basins shall be constructed to specifically adapt to frame and grate sizes shown on the Drawings. Catch basins that require separate transitions to fit the frame and grate will not be acceptable. Catch basins shall be the "Drain Basin" type as manufactured by ADS, Hancor, or approved equal.

2.5 Drain Basin Grates: Drain basin grates shall be a one (1) piece unit factory fabricated and specifically designed to instantly install on the exposed end of the vertical pipe drain basin. Type and size are as indicated on Drawings.

2.6 Drainage Service Connection: Drainage service connection shall be a three (3) piece connection consisting of a PVC hub, rubber sleeve and stainless steel band. Connection shall be a compression fit into the cored end of a mainline pipe. Hub shall be manufactured from heavy-duty PVC material. Stainless steel clamping assembly shall be made from 301 grade steel (min.). Rubber sleeve and gasket shall meet the requirements of ASTM F477 Drainage Service Connection shall be Inserta Tee as manufactured by ADS or approved equal.

2.7 Backfill: Backfill material required for the drainage system shall be in conformance with Section 31 23 33 - Excavation, Backfill and Compaction for Trenches.

2.8 Bedding Material: Refer to Section 33 41 25 - Bedding Material.

PART 3 - EXECUTION

3.1 General: Install drainage facilities as recommended by the manufacturer and in conformance with the grades designated on the Drawings.

3.2 Deflections: The maximum deflection of any drain pipe either solid or perforated shall be one and one half ($1\frac{1}{2}^\circ$) degrees at each joint. The maximum radius of the deflections combined is seven hundred sixty five (765') feet. Any turns, bends, angles, etc., in the drainage system that exceed this criteria shall be constructed using fittings. The plastic drainage system (HDPE pipe and fittings) shall be installed in conformance with the manufacturer's recommendations.

3.3 HDPE/PVC Pipe Installation: HDPE/PVC pipe and PVC drain basin installation shall be in accordance with Section 31 23 33 - Excavation, Backfill and Compaction for Trenches and as detailed on the Drawings.

3.4 Drainage Service Connection Installation: Drainage service connection installation shall be in accordance with the manufacturer's recommended installation guidelines.

- END OF SECTION -