

SECTION 33 30 00
SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL**1.1 DESCRIPTION:**

Outside, underground sanitary sewer system, including all existing sanitary sewer lines, and existing sanitary structures, and all other incidentals. Existing system shall be removed and/or abandoned in-place as indicated on the drawings.

1.2 RELATED WORK:

- A. Maintenance of Existing Utilities: Section 01 00 00, GENERAL REQUIREMENTS.
- B. Demolition, Section 02 41 00
- C. Excavation, Trench Widths, Pipe Bedding, Backfill, Shoring, Sheeting, Bracing: Section 31 20 00, EARTH MOVING.

1.3 QUALITY ASSURANCE:

- A. Products Criteria:
 - 1. Multiple Units: When two or more units of the same type or class of materials or equipment are required, these units shall be products of one manufacturer.
 - 2. Nameplates: Nameplate bearing manufacturer's name, or identifiable trademark, including model number, securely affixed in a conspicuous place on equipment, or name or trademark, including model number cast integrally with equipment, stamped, or otherwise permanently marked on each item of equipment.
- B. Comply with the rules and regulations of the Public Utility having jurisdiction over the connection to Public Sanitary Sewer lines and the extension, and/or modifications to Public Utility Systems.

1.4 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A48/A48M-03.....Gray Iron Castings
 - A536-84(2004).....Ductile Iron Castings
 - A615/A615M-06.....Deformed and Plain Carbon-Steel Bars for
Concrete Reinforcement
 - A625/A625M-03.....Tin Mill Products, Black Plate, Single Reduced
 - A746-03.....Ductile Iron Gravity Sewer Pipe
 - C12-06.....Installing Vitrified Clay Pipe Lines

C76-05b/C76M-05b.....Reinforced Concrete Culvert, Storm Drain and
 Sewer Pipe
 C139-05.....Concrete Masonry Units for Construction of Catch
 Basins and Manholes
 C150-05.....Portland Cement
 C425-04.....Compression Joints for Vitrified Clay Pipe and
 Fittings
 C478-06a/C478M-06a.....Precast Reinforced Concrete Manhole Sections
 C700-05.....Vitrified Clay Pipe, Extra Strength, Standard
 Strength, and Perforated
 C828-03.....Low-Pressure Air Test of Vitrified Clay Pipe
 Lines
 C857-95 (2001).....Minimum Structural Design Loading for
 Underground Precast Concrete Utility Structures
 D698-00ae1.....Laboratory Compaction Characteristics of Soil
 Using Standard Effort (12,400 ft-lbf/ft³ (600
 kN-m/m³))
 D2321-05.....Underground Installation of Thermoplastic Pipes
 for Sewers and Other Gravity-Flow Applications
 D2412-02.....Determination of External Loading
 Characteristics of Plastic Pipe by Parallel-
 Plate Loading
 D2992-01.....Practice for Obtaining Hydrostatic or Pressure
 Design Basis for Fiberglass (Glass-Fiber-
 Reinforced Thermosetting-Resin) Pipe and
 Fittings
 D3034-04a.....Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe
 and Fittings
 D3212-96a (2003) e1.....Joints for Drain and Sewer Plastic Pipes Using
 Flexible Elastomeric Seals
 D3261-03.....Butt Heat Fusion Polyethylene (PE) Plastic
 Fittings for Polyethylene (PE) Plastic Pipe and
 Tubing
 D3350-05.....Polyethylene Plastics Pipe and Fittings
 Materials
 D4101-05a.....Polypropylene Injection and Extrusion Materials
 F477-02e1.....Elastomeric Seals (Gaskets) for Joining Plastic
 Pipe
 F679-06.....Poly (vinyl chloride) (PVC) Large-Diameter
 Plastic Gravity Sewer Pipe and Fittings

F714-05.....Polyethylene (PE) Plastic Pipe (SDR-PR) Based on
Outside Diameter

F794-03.....Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sewer
Pipe and Fittings Based on Controlled Inside
Diameter

F894-05.....Polyethylene (PE) Large Diameter Profile Wall
Sewer and Drain Pipe

F949-03.....Poly (Vinyl Chloride) (PVC) Corrugated Sewer
Pipe with Smooth Interior and Fittings

C. American Water Works Association (AWWA):

C105/A21.5-05.....Polyethylene Encasement for Ductile Iron Pipe
Systems

C110/A21.10-03.....Ductile-Iron and Gray-Iron Fittings for Water

C111/A21.11-00.....Rubber Gasket Joints for Ductile Iron Pressure
Pipe and Fittings

C115-99.....Flanged Ductile-Iron Pipe with Threaded Flanges

C116-03.....Protective Fusion-Bonded Epoxy Coatings for the
Interior and Exterior Surfaces of Ductile Iron
Pipe and Gray Iron Fittings for Water Supply
Service

C151-/A21.51-02 Ductile-Iron Pipe, Centrifugally Cast for Water

C153-00 Ductile-Iron Compact Fittings for Water Services

C508-01.....Swing Check Valves for Waterworks, 2 inches (50
mm) Through 24 inches (600 mm) NPS

C509-01.....Resilient Seated Gate Valves for Water-Supply
Service

C515-01.....Reduced-Wall, Resilient-Seated Gate Valves For
Water Supply Service

C512-04.....Air Release, Air/Vacuum, and Combination Air
Valves for Waterworks Service

C550-05.....Protective Epoxy Interior Coatings for Valves
and Hydrants

C600-05.....Installation for Ductile-Iron Water Mains and
Their Appurtenances

C605-94.....Underground Installation of Polyvinyl (PVC)
Pressure Pipe and Fittings for Water

C900-97Polyvinyl Chloride (PVC) Pressure Pipe, 100 mm
(4 inches) Through 300 mm (12 inches) for Water
Distribution

C905-97.....Polyvinyl Chloride (PVC) Pressure Pipe and
Fabricated Fittings, 350 mm through 1,200 mm (14

- Inches through 48 Inches), for Water
Transmission and Distribution
C906-99.....Polyethylene (PE) Pressure Pipes and Fittings,
100 mm through 1575 mm (4 Inches through 63
Inches), for Water Distribution
- D. American Association of State Highway and Transportation Officials
(AASHTO):
M198-05.....Joints for Concrete Pipe, Manholes, and Precast
Box Sections using Preformed Flexible Joint
Sealants
- E. Uni-Bell PVC Pipe Association:
Uni-B-6-98.....Recommended Practice Low Pressure Air Testing of
Installed Sewer Pipe

PART 2 - PRODUCTS

2.1 PIPING & FITTINGS: Same as existing being removed or as directed by COTR.

2.2 CONCRETE:

Concrete shall have a minimum compressive strength of 20 MPa (3000 psi)
at 28 days. The cement shall be Type III conforming to ASTM C150.
Concrete shall conform with the provisions of Division 03 of these
specifications.

2.3 REINFORCING STEEL:

Reinforcing steel shall be deformed bars, ASTM A615, Grade 40 unless
otherwise noted.

PART 3 - EXECUTION

3.1 REMOVE MANHOLES STRUCTURES AND PIPING: Remove as indicated on drawings.

3.2 ABANDONED MANHOLES STRUCTURES AND PIPING:

- A. Manholes and Structures: As directed by COTR.
- B. Piping under and within 1500 mm (5 feet) of building areas shall be
completely removed.
- C. Piping outside of building areas shall have all ends of the piping
capped at the limit of the abandonment. Within structures and manholes
pipe shall be plugged with concrete.
- D. The Contractor shall comply with all OSHA confined space requirements
while working within existing manholes and structures.
- E. When the limit of the abandonment terminates in an existing manhole to
remain, the flow line in the bench of the manhole to the abandoned line
shall be filled with concrete and shaped to maintain the flowline of the
lines to remain.

3.3 REGRADING:

- A. Raise or lower existing manholes and structures frames and covers,
cleanout frames and covers and valve boxes in regraded areas to finish

grade. Carefully remove, clean and salvage cast iron frames and covers. Adjust the elevation of the top of the manhole or structure as detailed on the drawings. Adjust the elevation of the cleanout pipe riser, and reinstall the cap or plug. Reset cast iron frame and cover, grouting below and around the frame. Install concrete collar around reset frame and cover as specified for new construction.

- B. During periods when work is progressing on adjusting manholes or structures cover elevations, the Contractor shall install a temporary cover above the bench of the structure or manhole. The temporary cover shall be installed above the high flow elevation within the structure, and shall prevent debris from entering the wastewater stream.
- C. The Contractor shall comply with all OSHA confined space requirements when working within existing structures.

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