

SECTION 221313 - FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Coordination Drawings showing piping profiles and elevations at a horizontal scale of 1 inch equals 50 feet (1:500) and a vertical scale of 1 inch equals 5 feet (1:50). Indicate underground structures and show pipe types, sizes, and materials and elevations of other utilities crossing system piping.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

- A. PVC Sewer Pipe and Fittings: ASTM D 3034, SDR 35, for gasketed joints. Include ASTM F 477 elastomeric seals.
- B. Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, with provision for rubber gasketed joints.
  - 1. Diameter: 48 inches minimum, unless otherwise indicated.
  - 2. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
  - 3. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.
  - 4. Riser Sections: 4-inch minimum thickness, and of length to provide depth indicated.
  - 5. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.
  - 6. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
  - 7. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
  - 8. Steps: Individual FRP steps, FRP ladder, or ASTM A 615/A 615M, deformed, 1/2-inch steel reinforcing rods encased in ASTM D 4101, PP, wide enough to allow worker to place both feet on 1 step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
  - 9. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover.
  - 10. Protective Coating: Plant-applied, SSPC-Paint 16, coal-tar, epoxy-polyamide paint; 10-mil minimum thickness applied to exterior surfaces.
  - 11. Manhole Frames and Covers: Ferrous; 24-inch ID by 7- to 9-inch riser with 4-inch-minimum width flange and 26-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."
    - a. Material: ASTM A 48/A 48M, Class 35 gray iron, unless otherwise indicated.
- C. Gray-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot

connection and countersunk, tapered-thread, brass closure plug. Use units with heavy-duty top-loading classification in vehicle-traffic service areas and medium-duty in paved foot-traffic areas.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install cleanout and extension to grade at connection of building sanitary drain and building sanitary sewer.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Install piping pitched down in direction of flow, at minimum slope of 2 percent, unless otherwise indicated, with 36-inch minimum cover.
- C. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.
- D. Install PVC pipe and gasketed fittings with gaskets according to ASTM D 2321.

#### 3.2 FIELD QUALITY CONTROL

- A. Clean and inspect piping and structures.
- B. Test complete piping according to authorities having jurisdiction.

END OF SECTION 221313