SECTION 11208

METERING MANHOLES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metering manholes.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-In-Place Concrete.

B. Section 08342 - Fiberglass Doors and Frames.

C. Section 11201 - Wash Troughs.

D. Section 11202 - Effluent (Collection) Troughs (Launders).

E. Section 11203 - Finger Weir Pans.

F. Section 11204 - Weir Plates, Scum Baffles, and Brackets.

G. Section 11205 - Density Current Baffle System.

H. Section 11206 - Palmer-Bowlus Flumes.

I. Section 11207 - Parshall Flumes.

J. Section 11286 - Slide Gates and Guides.

K. Section 11305 - Odor Control System.

L. Section 13122 - Pre-Engineered Fiberglass Buildings.

M. Section 13411 - Instrument Consoles.

1.3 REFERENCES

A. ANSI/AWWA F101 - Contact Molded, Fiberglass-Reinforced Plastic Wash Water Troughs and Launders; American Water Works Association.

B. ASTM D 256 - Standard Test Methods for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

C. ASTM D 618 - Standard Practice for Conditioning Plastics and Electrical Insulating Materials for Testing.

D. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

E. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C.

F. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

G. ASTM D 2583 - Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

H. ASTM D 3753 - Standard Specification for Glass-Fiber-Reinforced Polyester Manholes.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Test results of fiberglass reinforced plastic laminate.

C. Shop Drawings: Show:
1. Critical dimensions, jointing and connections, fasteners and anchors.
2. Materials of construction.
3. Sizes, spacing, and locations of structural members, connections, attachments, openings, fasteners, and loads.

D. Samples: 8-inch square sample of fiberglass reinforced plastic laminate.

E. Manufacturer's installation instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products indoors and protect from construction traffic and damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Provide products manufactured by Warminster Fiberglass Company; P.O Box 188, Southampton PA 18966-0188; ASD. Tel. (215) 953-1260, Fax. (215) 357-7893.
B. Requests for substitution will be considered in accordance with provisions of Section 01600.

C. Substitutions: Not permitted.

2.2 METERING MANHOLES

A. Fiberglass Laminate:
   1. Tensile strength (ASTM D 638): 14,000 psi.
   2. Flexural strength (ASTM D 790): 25,000 psi.
   3. Flexural modulus (ASTM D 790): 1,000,000 psi.
   4. Impact, notched, Izod (ASTM D 256): 15 ft-lb/in.
   5. Barcol hardness (resin-rich surface) (ASTM D 2583): 40 minimum, average.
   6. Coefficient of thermal expansion, average (ASTM D 696): 0.000105 in/in/degree F.
   7. Test coupons prepared in accordance with ASTM D 618.
   8. Chemical resistance: Comply with ANSI/AWWA F101, Type II classification.

B. Construction: Fiberglass reinforced plastic, complying with ASTM D 3753; factory-assembled, ready for installation except for field-installed equipment.
   1. Interior surface smooth and resin rich; free of pits, porosity, cracks, crazing, and dry glass.
   2. Exterior laminate: 1/2 inch thick, minimum, consisting of polyester resin with 25 percent minimum glass content.
   3. Cover: 1/4 inch thick fiberglass, hinged one side, with hasp for locking; provide soft neoprene sponge gasket for sealing.
   4. Inlet and outlet pipes: Integrally molded to manhole with laminates on both the interior and exterior surfaces; inlet and outlet boots with stainless steel straps to diameter of inlet and outlet pipe.
   5. Access ladder: Fiberglass; bolted to manhole wall.
   6. Mounting flange: 4 inch, integrally molded around circumference of manhole for anchoring to concrete pad.
   7. Gasket: 1/2 inch thick neoprene sponge pad.
   8. Size: 48 inch diameter, with 51 inch diameter cover.
   9. Size: Reduced manway, 21 inch diameter opening.

10. Size: Reduced manway, 24 inch diameter opening.
11. Size: As indicated on drawings.
12. Height: As indicated on drawings.

C. Flume Assemblies: Laminate flumes into manholes to form a totally watertight assembly.
1. For flumes longer than manhole diameter, cover flume with fiberglass plate of sufficient strength laminated to make watertight seal and to withstand loads when backfilled.
2. Flume sizes: As indicated on drawings.

D. Accessories:
1. Anchor bolts: Type 304 stainless steel.
2. Full open, hinged cover with locking latch.
3. Staff gauge graduated in 50 divisions per foot mounted inside flume.
4. Staff gauge graduated in inches mounted inside flume.
5. Stilling well, 10 inches diameter.
6. Bubbler tube.
7. Tracks for probes, molded in.
8. Bushing for ultrasonic transponder mounting.
9. Bulkhead fittings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that dimensions are correct and project conditions are suitable for installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Ensure that products are installed plumb and true, free of warp or twist, within tolerances specified by the manufacturer and as indicated in the contract documents.

C. Verify that concrete slab is level and smooth trowelled. Level with grout if necessary. Ensure that piping is self supported by bedding.

D. Handle manhole using slings of nylon or similar fabric. Do not drop or impact.

E. Place sponge pad on concrete slab. Drill holes in accordance with template for stainless steel anchor bolts.

F. Lower manhole onto pad and install anchor bolts.

G. Check level of flume in both planes, and adjust as required.

H. Connect piping. Do not lubricate neoprene boots. Secure with stainless steel clamp.

I. Backfill with pea gravel, 1/4 inch to 3/4 inch diameter, specified in Division 2, using uniform lifts not exceeding 12 inches.

J. Where cut holes are required, seal as directed by the Engineer.

3.3 ADJUST AND CLEAN

A. Clean surfaces in accordance with manufacturer's instructions.

B. Remove trash and debris, and leave the site in a clean condition.

END OF SECTION