

## SECTION 06602

### FIBERGLASS REINFORCED PLASTIC FABRICATIONS

#### PART 1 - GENERAL

##### 1.1. DESCRIPTION

- A. Scope: Fiberglass reinforced plastic fabrications including
  - 1. Parshall flume liners and inserts
  - 2. Weir plates
  - 3. Scum baffles
- B. Additional Requirements Specified Elsewhere
  - 1. Section 01340: Shop Drawings and Product Data
  - 2. Section 01400: Quality Control
  - 3. Section 01600: Materials and Equipment
- C. Related Requirements Specified Elsewhere
  - 1. Section 03300: Cast-In-Place Concrete
  - 2. Section 03600: Grout
  - 3. Section 05501: Anchor Bolts and Drilled-In Anchors
  - 4. Section 07900: Joint Sealants
  - 5. Section 11280: Slide Gates
  - 6. Section 13300: Utility Control System
  - 7. Division 11: Equipment

##### 1.2. QUALITY ASSURANCE

- A. Supplier's Qualifications
  - 1. Experienced in manufacture of this material
  - 2. Design basis
    - a. Plasti-Fab, Inc
    - b. Warminster Fiberglass
    - c. Tracom, Inc.
    - d. MFG Water Treatment Products Company
    - e. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified item

##### 1.3. SUBMITTALS

- A. Shop Drawings and Product Data
  - 1. Complete descriptive data for all products

2. Materials specifications
3. Fabrication details
4. Dimensional drawings
5. Weight
6. Parshall flume: Certified calibration curves
7. Installation instructions including jointing and connection details
8. Fastener, support, connection, loads, attachments and anchor requirements

B. Certification of Compliance

1. Manufacturer's affidavit of compliance certifying
  - a. All materials comply with these specifications

PART 2 - PRODUCTS

2.1. PRODUCTS

A. General

1. Plastic laminate: Polyester or other suitable plastic reinforced with fiberglass
  - a. Tensile strength at break: 14,000 psi, minimum, ASTM D638
  - b. Flexural strength: 25,000 psi, minimum, ASTM D790
  - c. Flexural modulus of elasticity: 900,000, minimum, ASTM D790
  - d. Finished thickness: Within plus or minus 10% of nominal
  - e. Glass content: Minimum 17 percent by weight of laminate
2. Resin: Seal all surfaces of plastic laminate with resin layer at least five (5) mils thick
  - a. Field cuts only with written approval from Engineer
  - b. Recoat field cut surfaces with resin obtained from fabricator
  - c. Die match molded
  - d. Resin fillers: 40 percent of resin mixture
3. Fasteners: Type 316 stainless steel

B. Parshall flume liner

1. Two (2) units required
  - a. 9-inch flume nested in a 18-inch flume
  - b. One unit in flume channel of Headworks Building
  - c. One unit in disinfection channel of Pumping and Disinfection Building
2. Design requirements
  - a. Nested configuration
  - b. Throat width
    - 1) 9 inch nested in 18 inch
  - c. Design capacity
    - 1) 9 inch: 5.73 MGD
    - 2) 18 inch: 15.81 MGD
  - d. Height of sidewalls above floor of approach section
    - 1) 9 inch: 30 inches
    - 2) 18 inch: 36 inches
  - e. Minimum wall thickness: 3/16"

- f. Options
  - 1) Laminated, high visibility staff gauge indicating flow depth in feet at required flow measurement point
    - a) Graduated in tenths and hundredths of a foot
- 3. Construction
  - a. Accurate in all dimensions
  - b. Influent approach, throat and downstream sections shall be one integral piece
  - c. Interior surfaces smooth and free from irregularities
  - d. Each section to have floor and vertical sidewalls
  - e. Provide flanges and anchors to permanently secure flume in cast-in-place concrete
  - f. Integral stilling floatwell not required
  - g. Brace and stiffen flume to prevent deflection of more than 1/16" when concrete or grout is placed
  - h. Internal braces readily removable without damage to flume
  - i. All permanent reinforcing completely encased in plastic

#### C. Weir Plates

- 1. Molded type
- 2. Color: Aqua or turquoise
  - a. 3-inch deep 90-degree V-notch; 6 inches on center
  - b. 12 inches high by 12-feet long
- 3. ¼ inch thick minimum, fabricated to shapes indicated on drawings
- 4. Top edge horizontal within 1/32 inch
- 5. Provide at least 2 inches of vertical adjustment
- 6. Provide for expansion and contraction
- 7. Bolt holes: Manufacturer's standard, unless otherwise indicated on drawings
- 8. Fiberglass reinforced plastic washer cover
- 9. Splice plate
  - a. Nominal thickness: Same as weir plate
  - b. Color: Same as weir plate

#### D. Scum Baffles

- 1. Molded type
- 2. ¼ inch thick minimum, fabricated to shapes indicated on drawings
- 3. Top edge horizontal within 1/32 inch
- 4. Provide at least 2 inches of horizontal and vertical adjustment
- 5. Provide for expansion and contraction
- 6. Bolt holes: Manufacturer's standard, unless otherwise indicated on drawings
- 7. Splice plate
  - a. Nominal thickness: Same as weir plate
  - b. Color: Same as weir plate

#### E. Scum Baffle Support Brackets:

- 1. Size: ¼ inch thick, 3 inches wide
- 2. Spacing: Approximately 48 inches on center

3. Adjustment: Slotted to allow a minimum of 1-1/2 inches vertical and horizontal adjustment
4. Type: Algae sweep tank design
  - a. Upper baffle support L-bracket: 6 inches by 9 inches not gusseted
  - b. Lower baffle support bracket: 6 inches by 8 inches gusseted both sides
  - c. Algae sweep apparatus by Owner as future equipment and installation

F. Assembly Hardware: Type 316 stainless steel

## PART 3 - EXECUTION

### 3.1. EXAMINATION

- A. Verify that all fabricated dimensions are correct and project conditions are suitable for installation. Do not proceed with installation until condition deficiencies have been corrected

### 3.2. INSTALLATION

#### A. Parshall Flume Liners

1. Install per manufacturer's recommendations
2. Carefully level and rigidly brace and anchor flume liner
3. Set at elevations shown on Drawings
4. Embed flume in concrete or grout
  - a. Pour concrete or grout in maximum 12" lifts
  - b. Internally brace the flume as necessary to ensure bowing does not occur
  - c. Provide watertight seal between lifts of concrete or grout
5. Refer to Drawings

#### B. Weir Plates

1. Install per manufacturer's recommendations
  - a. Set apex of V-notches no less than 1-inch above concrete launderer trough wall surface at downstream side of weir plate
2. Coat surfaces to be in contact with concrete with a heavy coating of sealant before installation
3. Adjust after installation to provide uniform flow rate at all points by setting apex of V-notches at the same elevation within 1/32 inch

#### C. Scum Baffles

1. Install per manufacturer's recommendations
2. Install support brackets and baffles so top of baffle elevation is level plus or minus 1/16 inch
3. Assure upper L-bracket will accommodate algae sweep apparatus
  - a. Attachment fasteners shall not extend past surface of nut and washer assembly

### 3.3. ADJUST AND CLEAN

- A. Clean surfaces in accordance with the manufacturer's instructions
- B. Remove trash and debris, and leave the flume channel, clarifier and site in a clean condition
- C. Provide contemporaneous record of weir and baffle elevations in final location
  - 1. Acquire elevation data by accepted survey methods
  - 2. Provide weir and baffle elevations at intervals no greater than 10-feet and at the ends of each weir and baffle plate segment

END OF SECTION