



FAYETTEVILLE PUBLIC WORKS COMMISSION

PROCUREMENT DEPARTMENT

<https://www.faypwc.com/bids/>

Bid Addendum

PWC Number: PWC2526073

Bid Title: Replace Clarifier #3 Mechanism at the Rockfish Creek WRF

Bid Opening Date and Time: April 2, 2026

Addendum Number: 1

Addendum Date: March 26, 2026

Procurement Advisor: *Shelby Lesane*
procurement@faypwc.com

1. Addenda acknowledgement is required within the IFB Bid Pricing Form.
2. The solicitation is hereby modified as follows:
 - M1. TABLE OF CONTENTS:** SECTION A – PROJECT SPECIFICS Contractor Qualification Forms Item Removed from Bid
 - M2. 00100 – INSTRUCTIONS TO BIDDER: F. QUALIFICATION OF CONTRACTORS: 1. Bidder Qualification Form -** Item Removed from Bid
 - M3. BID SCHEDULE – PERFORMANCE AND DELIVERY:** The Contract Time is changed from 90-days to 365-days.
3. Following are questions received about the solicitation and the SME's answers to the questions.
 - Q1.** Can you please advise if the Owner is furnishing the new clarifier mechanism?
 - A1.** The Contractor will procure the new clarifier mechanism. Bidders' attention is directed to Specification 46 43 21. 13, paragraph 1.01. A. below:
 - 1.01 THE REQUIREMENT**
 - A. The Contractor shall furnish, install, test, and place in acceptable operation, all secondary clarifier equipment, complete with all accessories, special tools, spare parts, mountings, anchor bolts and other appurtenances as specified herein, as shown on the Contract Drawings, and as required for a complete and operating installation.
 - Q2.** The current Contract Time of 90 days is not sufficient for the intended scope of work. Typically, lead times for clarifier submittals/shop drawings would be approximately 8-12 weeks, followed by approximately 4 weeks for Engineer review and approval. Once the clarifier mechanism is approved and released for fabrication, delivery lead times can be approximately 18-22 weeks.

Please consider extending the Contract Time for the project from 90 days to a minimum of 365 calendar days.
 - A2.** PWC concurs the shop drawing and delivery lead times should be accounted for in the project Contract Time. Therefore, the Contract Time is extended to 365-days (see item M.3 above).
 - Q3.** Can you please provide this Specification Section 06 51 00 - Glass Fiber and Resin Fabrications or let us know where it is located?
 - A3.** Specification Section 06 51 00 - Glass Fiber and Resin Fabrications will be added to the addendum as an attachment.

Attachments:

Pre-Bid Meeting Agenda

Attendance Sheet

Specification Section 06 51 00 - Glass Fiber and Resin Fabrications

Replace Clarifier #3 Mechanism at the Rockfish Creek WRF
Pre-Bid Conference
Thursday, March 12, 2026 @ 10:00 am

Introduction

1. **Contract Items**
 - A. Project Overview
 - B. Contract duration – 90 days from NTP
 - C. Bonds required
2. **Small & Disadvantaged Business Enterprise (SDBE) Program Requirements**
 - A. **PWC has adopted a new SDBE Program** that promotes utilizing Small & Disadvantaged Business Enterprises for PWC procurements, effective December 1, 2025. The entire program and related documents are included within the contract documents.
 - B. The **SDBE Program requires bidders to solicit certified SDBE businesses** and report any efforts to do so. A link to the SDBE online directory can be found in the bid packet.
 - C. **PWC's geographical statistical area for the SDBE Program** includes NC DOT Regions 3–8 and 10.
 - D. **This project has an aspirational goal of at least 5% SDBE participation** for construction contracts. These goals are evaluated annually and may be adjusted based on market availability.
 - E. All **SDBE documents required to be submitted with the bid are clearly marked**. Good faith outreach and subcontractor utilization efforts can be documented in the SDBE forms provided in the contract documents. It is encouraged for bidders to provide these efforts at the time of bid submittal, but it is not required. Program staff will reach out to the lowest responsive, responsible bidder to obtain good faith effort evidence if not included in the bid package. At that time, the bidder is required to provide documentation within 24 hours or the following business day.
 - F. The awarded bidder is required to comply with the **SDBE Program requirements** and submit subcontractor payment details on the SLS/SDBE disclosure forms with each pay application, including the final pay application. Non-compliance with subcontractor utilization or payment reporting may result in delays in pay application review and payments.
 - G. **PWC also values the participation of local vendors** in our procurements. Contractors are encouraged to consider the use of local vendors whenever possible and identify such vendors in their bid. PWC's Metropolitan Statistical Area (MSA) for local vendors includes Cumberland, Hoke, and Harnett Counties.

Local vendor payments should also be included with subcontractor payment reporting.

- H. **Bidders with program questions or needing assistance locating certified SDBE businesses** may contact Aaron Harris via email at Aaron.Harris@faypwc.com or Elprogram@faypwc.com. Please include the type of subcontracted work and/or NAICS code(s) in the request.

3. **Schedule**

- A. Questions due Friday, March 20, 2026, @ 5:00 pm – must be submitted in writing via email to Shelby Lesane at procurement@faypwc.com. No phone calls.
- B. Addenda (as necessary), issued Thursday, March,26 2026, 5:00 pm
- C. Bids due 2:00 pm, Thursday, April 2, 2026

4. **Procurement Items**

A. Submission Requirements

- Bids must be submitted using PWC-provided forms only (or exact copies)
- Late bids will not be accepted
- All bids must be signed by an authorized representative

B. Common Mistakes to Avoid (Critical Section): Vendors are strongly encouraged to review these frequent causes of bid rejection:

- Incomplete Bid Pricing Form
 - Correct Bid Pricing Forms issued via Addendum not used
- Missing unit prices, extended prices, totals, or signatures
- Missing Notary seal of requested documents
- Failure to acknowledge all addenda on the pricing form
- Submitting alternate pricing or modified terms not requested in the IFB
- Including unsolicited marketing materials or samples
- Omitting required affidavits and certifications
- Failure to comply with FEMA and Federal Uniform Guidance requirements
- Not submitting BABA compliance documentation (or waivers if applicable)
- Using piggybacked or sole-source contract language (strictly prohibited)

C. Using the Bid Submittal Checklist

- Checklist ensures inclusion of all required documents for submittal
- Reminder: Checklist completion does not replace the actual forms—all documents must be fully completed and executed

5. **Questions**



Fayetteville Public Works Commission
 Non - Mandatory Pre-Bid Meeting
 PWC2526073 - Replace Clarifier #3 Mechanism at the Rockfish Creek WRF
 Thursday, March 12, 2026

NAME	COMPANY	PHONE NO.	E-MAIL ADDRESS
Shelley Lessore	PWC	910-223-4829	Shelley.Lessore@faypwc.com
Pedro Sosa	SU	704-840-8216	Psosa@SUContractors.com
Chris Porte	Crom/CMT	352-762-3216	CPorter@CromCMT.com
Rick Cateh	Crom/CMT	352-762-3638	rcateh@CromCMT.com
John Brooks	Neikens Electric	919-621-8565	John@NeikensEC.com
Sid Williams	Griffin Fluid Management	980-699-9809	Sid.Williams@GriffinFluidManagement.com
Justin Hill	T.A. Loving	919-922-0348	jehill@taloving.com
Vance McSourin	PWC, WPE	(910) 223-4736	vance.mcsourin@faypwc.com
Camille Little	PWC	910 -	Camille.little@faypwc.com

SECTION 06 51 00
GLASS FIBER AND RESIN FABRICATIONS

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish and install all fiberglass items as specified herein and as shown on the Drawings. The Contractor shall be responsible for the coordination with related work specified elsewhere and to provide all hardware, accessories and appurtenances required for a complete installation, including all fabrication and mounting hardware.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 05 05 23 – Metal Fastening
- B. Section 07 90 00 – Joint Fillers, Sealants, and Caulking
- C. Section 09 90 00 – Painting

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.
 - 1. ASTM D2996 – Specification for Filament Wound Reinforced Thermosetting Resin Pipe
 - 2. ASTM D3647 – Standard Practice for Classifying Reinforced Plastic Pultruded Shapes According to Composition
 - 3. ASTM D3917 – Standard Specification for Dimensional Tolerances of Thermosetting Glass - Reinforced Plastic Pultruded Shapes
 - 4. ASTM D4385 – Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products

1.04 SUBMITTALS

- A. The Contractor shall submit shop drawings showing fabrication details and a Performance Affidavit for all items specified herein in accordance with Section 01 33 00 – Submittal Procedures and Section 46 00 00 – Equipment General Provisions.
- B. Certification of compliance with ASTM Standards.
- C. Where specifically requested, design calculations sealed by a currently Registered Professional Engineer in the State or Commonwealth in which the project is located.

1.05 QUALITY ASSURANCE

- A. All fiberglass items of the same type provided shall be the products of a single manufacturer for compatibility.
- B. The Contractor is responsible for ensuring that the fiberglass items and appurtenances furnished shall be compatible and have the necessary operating clearances with the structural elements and equipment shown on the Drawings.
- C. Manufacturer shall provide a 3-year warranty on all FRP products against defect in material and workmanship.

PART 2 – MATERIALS

2.01 GENERAL

- A. The manufacturer shall maintain a continuous quality control program and shall, upon request, furnish the Engineer with certified test reports consisting of physical tests of samples.
- B. Ultraviolet light resistive resins shall be used for all exterior locations and where specified.
- C. All FRP resins shall be flame resistant and shall meet the requirements of ASTM D 635 and ASTM E 84, Class 1 with a maximum flame spread rating of 25.
- D. All edges shall be sealed in the mold where possible. Machined or cut edges shall be sealed with a compatible resin system.

2.02 GRATING AND TREADS

- A. Fiberglass grating and treads shall be furnished and installed in areas shown on the Drawings including all FRP angle supports, fasteners and accessories. Gratings and treads shall consist of extruded bearing bars positioned and locked by crossbars. Grating and treads shall be installed in accordance with the manufacturer's recommendations.

- B. Grating shall be fabricated into easily removable sections as large as possible up to 150 lbs. per section.
- C. Fasteners shall not project above the walking surface.
- D. Fiberglass grating and treads shall be manufactured of isophthalic polyester fire retardant (ISOFR) resin except for applications where vinyl ester fire retardant (VEFR) resin is specifically required on the Contract Drawings. Grating and treads shall be produced by IKG Industries, Fibergrate, Inc., IMCO Reinforced Plastics, Inc., or equal.
- E. Grating shall be designed for a uniform loading of 100 PSF over the gross projected area with deflection limited to 0.375" or grating span/240 whichever is less. Fiberglass or PVC support beams shall be provided as required to meet deflection criteria.
- F. The grating and tread supplier shall supply all shelf support angles, embedded angles with anchors, concrete anchors and necessary 316 stainless steel grating clips.
- G. Treads shall be designed for a 300 lb. concentrated load at midspan. Treads shall be furnished with integral nosing.

2.03 GRATING FLOOR SYSTEM

- A. Fiberglass grating floor system shall be furnished and installed in areas shown on the Drawings and shall include all FRP angle supports, FRP adjustable pedestal supports, FRP cross bracing, fasteners, and accessories as required for a complete system. Grating shall consist of bidirectional molded FRP gratings. Grating and supports shall be provided by a single manufacturer and installed in accordance with the manufacturer's recommendations to provide a level walking surface.
- B. Grating shall be fabricated into easily removable sections as large as possible up to 150 lbs. per section.
- C. Fasteners shall not project above the walking surface.
- D. Fiberglass grating and supports shall be manufactured of ISOFR except for applications where VEFR is specifically required on the Contract Drawings. Grating and supports shall be produced by Fibergrate, Inc., IMCO Reinforced Plastics, Inc., American Grating, LLC, or equal.
- E. Grating and supports shall be designed for a uniform loading of 100 psf. Grating deflection shall be limited to 0.25".
- F. Grating clips and metal fasteners shall be Type 316 stainless steel.

2.04 FIBERGLASS WEIRS AND BAFFLES

- A. Fiberglass reinforced polyester (FRP) weirs and baffles shall be installed where shown on the Drawings. All weir plates, scum baffle plates, buff plates, and cover plates shall be FRP. A "low profile" resin system shall be used to ensure that all surfaces are smooth, resin rich, free of voids and porosity, without dry spots, crazes, or unreinforced areas to provide increased corrosion and weather resistance. All edges shall be sealed in the mold. Resin shall be ISOFR. Plate thickness shall be 3/8 inch minimum, or as shown on the Drawings. FRP weirs and baffles shall be blue green in color. Each section shall be of the depth and overall length as indicated on the Drawings. Each section shall be provided with mounting holes at 12 inches on center, unless shown otherwise on the Drawings, to provide a minimum 2 inch vertical or horizontal adjustment. Sections shall be secured to walls or trough with Type 316 stainless steel anchor rods and 5 inch minimum diameter washers to prevent short-circuiting. Ends of weir plates shall be secured with 6-inch-wide butt plates arranged to allow for horizontal expansion. Type 316 stainless steel anchor rods shall be furnished by the FRP supplier.
- B. Laminate shall contain a glass content of 30+2% using Type "E" glass with chrome or silane finish. Powdered reinforcements shall consist of 47.5+1% of resin mixture. Final laminate thickness shall be within +10 percent of the nominal specified thickness. Ultraviolet absorbers shall be added to the resin to prevent deterioration from sunlight. Where weir plates are of nonstandard length or nonstandard mounting hole configuration, such machined or cut edges shall be resin sealed with seal mix.
- C. All items shall be manufactured in accordance with ASTM D2996 and ASTM D3917. The manufacturer shall maintain a continuous quality control program and shall, upon request, furnish the Engineer with certified test reports consisting of physical tests of samples to verify that the laminate has the following minimum physical properties:

Requirement	Minimum Results	Test Method
Tensile Strength (psi)	14,000	ASTM D638
Flexural Strength (psi)	25,000	ASTM D790
Flexural Modulus (psi)	1.0 x 10 ⁶	ASTM D790
Impact, Notched, Izod, (foot pound per inch)	15.0	ASTM D256
Barcol Hardness	Minimum 35, Average 40	ASTM D2583
Water Absorption, (% 24 hours)	0.1 Max	ASTM D570
Average coefficient of thermal expansion (inch per inch per °F)	10.5 x 10 ⁻⁶	ASTM D696

- D. The procedure used in determining the above properties shall be in accordance with the ASTM Standards, Part 35, using the method designated above. Hardness tests shall be

made on the resin rich surfaces of the test samples. Test coupons shall be prepared in accordance with the appropriate ASTM test method.

- E. Baffle plate lengths shall be made to fit the installation, but lengths shall not exceed 10 feet. Lap plates shall be provided to secure the ends of the plates. Type 316 stainless steel hardware shall be furnished by the FRP supplier for securing baffle plates to 316 SS support brackets and lap plates. Type 316 SS anchor bolts shall be used for anchoring scum baffle supports to the wall.
- F. All items furnished under this Section shall be as manufactured by Plasti-Fab A Division of Ershigs, Warminster Fiberglass, or equal.

2.05 EFFLUENT TROUGHS

- A. Effluent troughs shall be furnished and installed as shown on the Drawings. Troughs shall be manufactured by Fiberglass Fabricators, Inc., or Leopold Company, Division of Sybron Corporation, or PlastiFab A Division of Ershigs, or equal.
- B. Effluent troughs shall be constructed of FRP (ISOFR) and shall be the length indicated with approximately 18 inches inside width and 21 inches depth as shown on the Drawings. Each trough shall have a minimum wall thickness of $\frac{1}{4}$ inch and shall be reinforced with triangular shaped longitudinal stiffener sections molded as an integral part of the trough. Maximum vertical deflection under maximum loading conditions (150 lbs./lf upward and downward) shall not exceed $\frac{3}{16}$ inches at midspan between supports. Sidewall horizontal alignment shall be + $\frac{1}{8}$ inch over the entire trough length. Trough joints shall be designed for + $\frac{1}{8}$ -inch thermal expansion or contraction without stressing the structure. Each trough shall consist of a maximum of four (4) sections all connected with a watertight seal. Trough color shall be blue green translucent and include an ultraviolet light blocking agent added to the resin. An integrally molded water stop shall be provided on the discharge end of each trough. The closed end of the trough shall be integrally molded during trough construction to a minimum of $\frac{3}{8}$ inch thickness and arranged for bolting to the basin. Trough intermediate supports shall be 316 stainless steel and connected to the overhead concrete support beams. Each intermediate and rear support shall provide means of vertical adjustment. All support hardware and angles shall be 316 stainless steel and shall be provided by trough manufacturer. The manufacturer shall submit details of supports with calculations showing vertical and horizontal deflection, support calculations and physical properties of the FRP.
- C. Effluent troughs shall be provided with adjustable weir plates, minimum 2-inch adjustment, which are completely independent of any trough stiffening members. Weir plates are described above.
- D. The inner surface of the trough shall be reinforced with glass surfacing mat. This surface shall be followed with 3 ounces or more of chopped strand glass laminate in a minimum of two (2) layers. Final laminate thickness shall be within a tolerance of plus $\frac{1}{16}$ inch or

minus "0" of minimum laminate thickness. Void content of the complete laminate shall not exceed 2-1/2 percent of laminate volume.

- E. The manufacturer shall certify that troughs and the testing of the trough materials is in complete compliance with the latest ASTM Standards. Copies of the certified test reports on the troughs shall be submitted in addition to the required calculations and physical properties stated in these Specifications.

2.06 PARSHALL FLUME

- A. Parshall flume liners shall be a full length, molded fiberglass with throat width as shown on the Drawings. The interior dimensions of the flume shall conform to that shown in the latest revision of the U.S. Department of Interior Bureau of Reclamation, Water Measurement Manual. The flume liner shall be fabricated in one piece from ISOFR resin, reinforced by glass mat not less than 30 percent by weight. The thickness of the walls shall be 1/4-inch minimum. Locking clips shall be so designed to be an integral part of the liner and of sufficient number to ensure permanent alignment. Temporary bracing shall be provided to ensure maintenance of dimensions during shipment and installation. Flume liner shall have a staff gauge graduated in feet with 50 divisions per foot attached to the inside wall of the flume.

2.07 FRP STOP PLATES

- A. The Contractor shall furnish FRP stop plates as specified herein and as shown on the Drawings.
- B. Stop plates shall be constructed of FRP containing ultraviolet absorbers and having a resin rich surface on both sides, thoroughly embedding all glass fibers, and shall be blue green in color. Plates shall have sandwich core structural reinforcing throughout the high stress areas with the thickness as recommended by the manufacturer. The reinforcing shall be encapsulated with laminate of fiberglass and polyester not less than 1/8 inches thick on each side to insure against permeation by water to the sandwich core material. The stop plates shall be molded individually to the exact size required. Plates cut from flat stock are not acceptable.
- C. Each stop plate shall contain reinforced handholes for installation and removal. Stop plates greater than two (2) feet in width shall have a minimum of two (2) handholes. Stop plates less than two (2) feet in width shall have a minimum of one (1) handhole.
- D. Guide frames shall be surface mounted with 316 stainless steel anchor rods or shall be embedded in concrete as shown on the Drawings. All stop plates shall be sealed with neoprene rubber to form a watertight seal.
- E. The mechanical properties of the laminate used in the manufacture of the stop plates shall be as follows:

Laminate Physical Properties 73°F

	ASTM Test Method	Minimum Properties
Ultimate Tensile Strength - PSI x 103 (Min.)	D638	12
Flexural Strength - PSI x 103 (Min.)	D790	19
Flexural Modulus of Elasticity - PSI x 106 (Min.)	D790	0.8
Barcol Hardness (Min.)	D2583	35
Water Absorption (24 Hours)	D570	2% Max.

2.08 MANHOLE LADDERS

- A. The ladders shall be of fiberglass construction with pultruded structural channel shapes, non-skid grit surfaces used on top surface of each rung and a synthetic surfacing veil for chemical and ultraviolet resistance and high strength. Ladders shall possess Class one fire retardant, with an ASTM E-84 flame-spread rating of 25 maximum and shall conform to OSHA 1910.27. Color shall be safety yellow (beige for immersed ladders).
- B. Ladders shall utilize channel side rails and 1-3/8-inch minimum diameter round rungs. Rung to side connections shall utilize a keyed, pinned, and bonded joint for prevention of rung rotation and pullout. The ladders shall be attached to the bracket angles with two stainless steel bolts, washers, and nuts per angle bracket.
- C. Concrete anchors shall be minimum 5/8-inch diameter with 3-inch embedment and shall comply with Section 05 05 23 – Metal Fastening. Fiberglass pultruded parts shall be ISOFR except where VEFR is specifically required on the Contract Drawings. Shades shall be manufactured by Strongwell, Inc., or equal. Ladders shall conform to OSHA requirements and to the details shown on the Drawings.

2.09 FIXED LADDERS

- A. The Contractor shall provide fixed ladder systems with all safety cages, landings, mounting clips, fasteners, and necessary appurtenances for a complete and rigid installation.
- B. The ladder systems shall be designed to meet or exceed all OSHA requirements.
- C. Ladders shall be fabricated from pultruded shapes conforming to ISOFR except where VEFR is specifically required on the Contract Drawings. Shapes shall be manufactured by Strongwell, Inc., or equal.
- D. Ladder side rails shall be fabricated from channel members or 1-3/4 inch minimum square tube.

- E. Side rails shall be anchored with FRP standoff clips manufactured of ISOFR except where VEFR is specifically required on the Contract Drawings. Clips shall be placed at the top and bottom of the ladder and at 6-foot maximum vertical centers.
- F. Rungs
 - 1. Rungs shall be 18 inches long, serrated and covered with a silica grit to produce an anti-skid surface.
 - 2. Rungs shall be uniformly spaced at 12 inches on center.
 - 3. Rungs shall be designed to support a 1,200-pound vertical load applied at midspan.
 - 4. Rungs shall be both mechanically attached, and epoxy bonded to the side rails.
- G. Ladder safety system shall be as specified in Section 05 51 33 – Ladders.

2.10 CONNECTIONS

- A. All connections shall be non-corrosive, non-staining, and concealed where practical, as detailed on the Drawings or specified herein.
- B. Fiberglass fasteners shall be "Fibrebolt", as manufactured by Strongwell, Inc., or equal.
- C. All metal fasteners shall be Type 316 stainless steel, except where Hastelloy C-276 or fiberglass fasteners are specifically required on the Contract Drawings.
- D. Holes for bolts and screws shall be drilled.
- E. Joints exposed to weather shall be formed to exclude water.
- F. Design and installation of fiberglass items shall provide for expansion and contraction, prevent shearing of bolts, screws, and other fastenings, and provide close fitting of sections.

2.11 STRUCTURAL SHAPES AND FLAT SHEETS

- A. Shapes shall conform to sizes indicated on Drawings and shall be ISOFR except where VEFR is specifically required on the Contract Drawings. Shapes shall be manufactured by Strongwell, Inc., or equal.
- B. Metal bolted connections shall be made with stainless steel bolts except where Hastelloy C bolts or fiberglass fasteners are specifically required on the Contract Drawings. Bolts shall conform to Section 05 05 23 – Metal Fastening.

- C. Adhesive bonded connections shall be made with a compatible epoxy adhesive following manufacturer's instructions. Adhesive bonded connections shall only be used where bolted connections are not feasible.

2.12 FRP GUARDS

- A. Fiberglass reinforced plastic (FRP) guard system shall be designed by the Contractor to meet or exceed OSHA requirements with a minimum safety factor equal to 2 and shall be furnished and installed as shown on the Contract Drawings. All rails, posts, kick plates, base plates, fasteners, and necessary appurtenances for a complete and rigid installation shall be provided and installed per manufacturer's recommendations. Guard systems shall be manufactured by Strongwell, Inc., Bristol, VA, R.W. Fowler Company, Atlantic Beach, FL, IMCO Reinforced Plastics, Inc., Moorestown, NJ, or equal.
- B. The guard system shall consist of pultruded fiberglass shapes manufactured with the following minimum properties:

Properties	Test Method	Value
Tensile Stress	ASTM D638	30,000 psi
Tensile Modulus	ASTM D638	2.5 x 10 ⁶ psi
Compressive Strength	ASTM D695	30,000 psi
Compressive Modulus	ASTM D695	2.5 x 10 ⁶ psi
Flexural Stress	ASTM D790	30,000 psi
Flexural Modulus	ASTM D790	2.0 x 10 ⁶ psi
Shear Stress	ASTM D2344	4,500 psi
Density	ASTM D792	0.070 lbs/in ³
24 hr. Water Absorption	ASTM D570	0.6% max
Coeff. of Thermal Expansion	ASTM D696	6 x 10 ⁶ in/in/EF
Barcol Hardness	ASTM D2583	50

- C. The guard system shall have two (2) rails, unless otherwise noted on the Contract Drawings, with the top of the upper rail located 42 inches above the walking surface. The intermediate rail shall be located as required to prevent passage of a 21-inch diameter sphere at any point. Rails shall be 1-3/4" minimum square tubing and posts shall be 2" minimum square tubing with internal fittings for all connections. Kick plates shall be provided where required by OSHA. All rail and kick plate corner joints shall be mitered at a 45° angle and securely fastened to posts. Maximum horizontal spacing between posts shall be 4 feet.

- D. For stair guards, the top of the upper rail shall be not less than 42 inches above the leading edge of the stair tread. The top of the stair handrail shall be 34 inches above the leading edge of the tread nosing.
- E. Guards shall be erected with true horizontal and vertical alignment and shall be smooth and free of surface defects. All cut edges and holes shall be sealed with a compatible resin system.

PART 3 – EXECUTION

3.01 FABRICATION

- A. All cut edges and holes shall be sealed with a compatible resin.
- B. All FRP items shall conform to the dimensions indicated on the Drawings.
- C. All fiberglass items described in this Section shall be supplied by a manufacturer that normally fabricates such items so that appearance and quality control are acceptable.

3.02 HANDLING, TRANSPORTING, AND STORING

- A. All FRP items shall be properly packed, labeled and stored in accordance with Specifications and as directed by the Engineer.

3.03 INSTALLATION

- A. Installation of all items shall be according to manufacturer's instructions, unless otherwise noted.
- B. Exposed threads of FRP bolts shall be sealed with a compatible resin after installation of the bolts. Where bolts are attaching removable items, the exposed threads shall be sealed with a light coat of polyurethane sprayed onto the threads.
- C. Weirs and baffles shall be installed in full accordance with the manufacturer's recommendations. Joints between weir plates and concrete and butting weir plates shall be watertight. The Contractor shall seal all weirs with caulk approved by the Engineer after weirs are set, checked for level, and are within specified tolerances.

END OF SECTION