

## Presto Geosystems

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# PRODUCT SPECIFICATION (CSI FORMAT)

## SECTION \_\_\_\_\_

### FLOW PROTECTION SYSTEM

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Work Included: This Section includes providing all material, labor, tools and equipment for installation of the GeoRunner® Flow Protection System as shown on the Contract Drawings and as specified in this Section.
- B. The GeoRunner System shall be used for flow and scour protection.

##### 1.2 RELATED SECTIONS AND DIVISIONS

- A. The applicable provisions of the General Conditions shall govern the work in this Section.
- B. Section 0130000 – Administrative Requirements
- C. Section 0220000 – Site Preparation
- D. Section 312000 – Earth Moving
- E. Section 312500 - Erosion and Sedimentation Control

##### 1.3 REFERENCES

- A. American Society of Testing and Materials (ASTM)

##### 1.4 SUBMITTALS

- A. Submit manufacturer's shop drawings in accordance with Section 0130000, Submittals including Manufacturer's product data, section layout, connection details, anchorage requirements and product samples.
- B. Submit qualifications certifying the installer is experienced in the installation of the specified products.
- C. Submit qualifications of Manufacturer's field representative certifying the field representative is experienced in the installation of the specified products.
- D. No material will be considered as an equivalent to the GeoRunner material specified herein unless it meets all requirements of this specification, without exception. Manufacturers seeking to supply what they represent as equivalent material must submit records, data, independent test results, samples, certifications, and documentation deemed necessary by the Engineer to prove equivalency. The Engineer shall approve or disapprove other Manufacturers materials in accordance with the General Conditions

after all information is submitted and reviewed.

## **1.5 QUALITY ASSURANCE AND CONTROL**

- A. The flow protection material including anchors shall be provided from a single Manufacturer for the entire project.
- B. If required, provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging and location of packaging
- C. Pre-Installation Meeting: Prior to installation of any materials, conduct a pre-installation meeting to discuss the scope of work and review installation requirements. The pre-installation meeting shall be attended by all parties involved in the installation of the system.
- D. Manufacturer's Field Representative Qualifications:
  - 1. Manufacturer shall provide a qualified field representative on site at the start of construction to ensure the flow protection system is installed in accordance with the Contract Documents.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to site in Manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and Manufacturer.
- B. The materials shall be stored in accordance with Manufacturer's instructions. The materials shall be protected from damage and out of direct sunlight.
- C. The materials shall be delivered, unloaded and installed in a manner to prevent damage.

## **1.7 WARRANTY**

- A. The Manufacturer shall warrant each GeoRunner section that it ships to be free from defects in materials and workmanship at the time of manufacture. The Manufacturer's exclusive liability under this warranty or otherwise will be to furnish without charge to the original f.o.b. point a replacement for any section which proves to be defective under normal use and service during the 10 year period which begins on the date of shipment. The Manufacturer reserves the right to inspect any allegedly defective section in order to verify the defect and ascertain its cause.
- B. This warranty shall not cover defects attributable to causes or occurrences beyond the Manufacturer's control and unrelated to the manufacturing process, including, but not limited to, abuse, misuse, mishandling, neglect, improper storage, improper installation, improper alteration or improper application.
- C. In no event shall the Manufacturer be liable for any special, indirect, incidental or consequential damages for the breach of any express or implied warranty or for any other reason, including negligence, in connection with the system.

## **PART 2 PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURER**

- A. Presto Geosystems, PO Box 2399, Appleton, Wisconsin 54912-2399. Toll Free (800) 548-3424. Phone (920) 738-1328. Fax (920) 738-1222.  
E-Mail [info@prestogeo.com](mailto:info@prestogeo.com). Website [www.prestogeo.com](http://www.prestogeo.com).

### **2.2 FLOW PROTECTION SYSTEM**

- A. Properties
  - 1. Material shall be constructed of polymer.
  - 2. Color shall be green.
  - 3. Color shall be uniform throughout all units in a pallet.
  - 4. Mats shall provide corrosion and chemical resistance.

5. Minimum tensile strength shall be 3,000 pounds.

**B. Unit Dimensions**

1. Nominal Width shall be 24 inches (0.6 m).
2. Nominal Length shall be 48.75 inches (1.2 m).
3. Nominal Depth shall be 0.5 inches (1.3 cm).
4. Nominal Area shall be 8 ft<sup>2</sup> (0.74 m<sup>2</sup>).
5. Nominal mesh openings shall be 0.84 inches (21 mm) square.
6. Mesh open area shall be 55% of total area.
7. Nominal weight shall be 8 pounds (3.6 kg).

**C. Connection Accessories**

1. Nylon, X-mas tree rivets shall be used to secure the panels together on the short end (2 feet). Three rivets are required for each panel. The rivets shall be 0.312 inches thick by 1.163 inches long.
2. Heat treated metal side clips are used to secure the panels together on the long end (4 feet). Two side clips are required for each panel to panel connection. The side clips shall be 22 gauge heat treated steel with zinc clear chromate plate.

## **2.3 EARTH ANCHOR SYSTEM**

**A. Earth Anchor**

1. The earth anchor consists of Duckbill® anchor, 3/32 galvanized cable, ferrule, Gripple® and anchor brace. Duckbill anchor break strength shall be 300 lb.
2. Four anchors shall be provided for each flow protection mat. Six anchors are required on the row of panels on the upstream/upslope end of the project.
3. The anchors shall be located per Manufacturer's instructions.

**B. Accessories**

1. The drive rod is used to engage and drive the Duckbill anchor head to the depth of the cable or until the desired resistance is achieved.

## **2.4 ADDITIONAL COMPONENTS**

**A. Seeding**

1. If required, the seed shall be as specified in the Specifications with the following minimum requirements:
  - a) The seed shall conform to the requirements of the governing authority and for restrictions on noxious weeds.
  - b) The seed shall be delivered in sealed containers showing percentage of seed mix, year of production and location of packaging.
2. The seed shall be installed immediately after the topsoil is placed.
3. If required, fertilize and water in accordance with the Contract Documents.

**B. Sod**

1. If required, the sod shall be as specified in the Specifications with the following minimum requirements:
  - a) The sod shall consist of a dense, well rooted growth of permanent and desirable grasses indigenous to the area it is being installed.
  - b) The sod shall be free from weed and undesirable grasses.
  - c) Protect roots from dehydration and do not deliver more sod than can be installed in a 24 hour period.
  - d) The sod shall support its own weight without tearing, when suspended vertically by holding the upper two corners.
2. Sod shall be installed immediately after the infill is placed.
3. If required, fertilize in accordance with the Contract Documents.

**C. Erosion Control Blanket (ECB)**

1. If required, the ECB shall be as specified in the Specifications and used to protect the seed or sod.
2. The ECB shall be installed per the Manufacturer's instructions.
3. The ECB shall be secured by the Georunner anchor per Manufacturer's instructions.

- D. Turf Reinforcement Mat (TRM)
  - 1. If required, the TRM shall be as specified in the Contract Documents and used to protect the seed or sod.
  - 2. The TRM shall be installed per the Manufacturer's instructions.
  - 3. The TRM shall be secured by the Georunner anchor per Manufacturer's instructions.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify site conditions are as indicated on the drawings. Notify the Engineer if site conditions are not acceptable. Do not begin preparation or installation until unacceptable conditions have been corrected.

#### **3.2 INSTALLATION**

- A. Sub Grade Preparation
  - 1. Prepare sub grade as specified and install protection system in accordance with Manufacturer's instructions. No depressions should exist that can retain water.
  - 2. On-site time for installation assistance by the Manufacturer's field representative shall be \_\_\_\_\_ day(s) with one trip. All travel and expense costs for Manufacturer's field representative installation assistance shall be included in the base bid price.
  - 3. Excavate or fill foundation soils as required to elevations and dimensions as indicated on the drawings or as directed by the Engineer.
  - 4. Ensure foundation soil meets specification requirements and is examined by the Engineer. If unacceptable foundation soils are encountered, excavate affected areas and replace these areas with suitable quality material as directed by the Engineer.
- B. Surface Treatment
  - 1. The specified surface treatment shall be installed immediately after the sub grade is prepared. The surface treatment shall be fertilized and watered in accordance with the Contract Documents.
  - 2. The TRM or ECB shall be placed after the surface treatment is installed and in accordance with Manufacturer's instructions. TRMs or ECBs will be secured by the anchors.
- C. Placement and Connection
  - 1. Verify all flow protection panels are installed correctly and in accordance with Manufacturer's instructions.
  - 2. Adjacent units should not protrude above the desired surface elevation.
  - 3. The panels shall be placed with the long direction (4 foot length) in the direction of flow.
  - 4. Interconnect the 2 foot ends of adjoining sections by nesting the overlapping tabs and connect with 3 rivets in the pre-drilled holes.
  - 5. Interlock the 4 foot side connections and secure together with 2 side clips equally spaced.
  - 6. The mat protection system can be assembled in-place or pre-assembled at an off-site area and moved into place. Individual units may be used to join pre-assembled mats.
  - 7. The mats can be cut with a hand or power saw to custom fit contours and around obstructions.
- D. Anchoring
  - 1. If required, secure the mats to the surface with earth anchors.
  - 2. Provide 4 anchors per mat per Manufacturer's instructions, with additional anchors to be placed at the high end of the slope.
  - 3. Engage the drive rod with the Duckbill anchor head and drive into the soil to the length of the tendon or until the desired resistance is achieved.
  - 4. Twist and remove the drive rod and slide the anchor brace/Griptide into panel opening.
  - 5. Using a wire gripper or other method, pull the trailing end of the cable tight engaging the cable and Griptide. The Griptide will be recessed into the panel opening and below the top of the panel when tensioned.
  - 6. Cut the cable approximately 2 inches above the panel and loop the end back into the Griptide head (Recommended). This also allows for re-tensioning in the future, if required. Alternatively, the cable may be cut flush with the Griptide.