

SECTION ( )  
STORM WATER TREATMENT DEVICE

**1.0 GENERAL**

- 1.1** This item shall govern the furnishing and installation of the Debris Separating Baffle Box (DSBB) by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2** The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3** The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Debris Separating Baffle Box (DSBB) device manufactured by:

Contech Engineered Solutions LLC  
9100 Centre Pointe Drive  
West Chester, OH, 45069  
Tel: 1 800 338 1122  
<https://www.conteches.com>

**1.4 Related Sections**

- 1.4.1 Section 02240: Dewatering
- 1.4.2 Section 02260: Excavation Support and Protection
- 1.4.3 Section 02315: Excavation and Fill
- 1.4.4 Section 02340: Soil Stabilization

- 1.5** All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
- 1.6** The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.

**2.0 MATERIALS**

- 2.1** Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Concrete for precast stormwater treatment systems shall conform to ASTM C 857 and C 858 and meet the following additional requirements

- 2.1.1** The wall thickness shall not be less than 6 inches (152 mm) or as shown on the dimensional drawings. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 (MS18) loading requirements as determined by a Licensed Professional Engineer.
- 2.1.2** Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.
- 2.1.3** Cement shall be Type II Portland cement conforming to ASTM C 150.
- 2.1.4** All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.
- 2.1.5** Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C 595M
- 2.1.6** Brick or masonry used to build the manhole frame to grade shall conform to ASTM C 32 or ASTM C 139 and shall be installed in conformance with all local requirements.
- 2.1.7** Casting for manhole frames and covers shall be in accordance with ASTM A48, CL.35B and AASHTO M105.

2.2. Screen Frame shall be constructed of 100% stainless steel. All joints and seams are to be welded or fastened together with stainless steel hardware. All sides of screen frame shall be fixed. The top section of the screen frame shall have one of the following, open top, hinged top section, or a track guided sliding top section per drawings. The bottom section of the basket frame shall be a minimum of 3" above static.

2.3. Screens shall be manufactured of 100% louver expanded stainless steel grade 304. The screen shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 4.7 mm regardless of specific gravity for flows up to the device's rated treatment capacity. Screens shall have openings that face opposite the flow of passing stormwater to provide continuous shielding and prevent clogging.

2.7. Turbulence Deflectors shall be manufactured of 100% marine grade polyester resin and fiberglass strands or stainless steel and be mounted to the concrete baffles with stainless steel hardware. The turbulence deflectors should be sized to effectively eliminate scouring and re-suspension of previously captured sediments in the sediment removal chambers and creates a flow pattern that encourages suspended solids in influent flows to settle out and accumulate at the bottom of the SWTD.

- The all-fiberglass deflectors must be coated with a polyester gel coating with ultra violet inhibitors incorporated into the coating for maximum ultra violet protection.
- Fiberglass must have a minimum thickness of 3/16".

### 3.0. PERFORMANCE

- 3.1. Function - The SWTD is a pre-engineered inline hydrodynamic separation system composed of multiple sediment removal chambers, a screening system designed to capture and store solid debris such as foliage and litter in a dry state above the static water line.
- 3.2. Removal Efficiencies - The SWTD must be capable of capturing and retaining 100% of all trash or debris equal to or greater than 4.7 mm. The SWTD shall not release material during flow events greater than the design flow rate. All removal efficiencies shall be tested in accordance with section 03.02.00.
- 3.3. Hydraulic Capacity - The SWTD shall provide a rated hydraulic capacity, which is consistent with governing water treatment regulations. The hydraulic capacity must be supported by independent third-party lab testing of the screen material. The lab testing must be done over a range of 5 flows and the water height and head loss recorded to create a curve. Sizing of the screens treatment flow capacity must be based upon the orifice coefficient related to the independent lab testing.
- 3.4. Storage Capacity - The SWTD must have multiple sediment removal chambers for storage of sediments and other non-floatable pollutants. The volume of each sediment removal chamber shall be called out on the submittal drawings.
- 3.6. Pollution Separation - The SWTD must be equipped with a screening system capable of capturing and storing solid debris such as foliage and litter in a dry state above the static water line. The debris captured by the screening system Storm Water Treatment Device Page 4 of 5 must be stored a minimum of 3.5" above the static water line. The screening system must be located directly under the systems access hatch(s) or frame & covers to allow easy maintenance and removal of captured debris.

### 4.0. EXECUTION

- 4.1. The installation of the SWTD shall conform to all applicable national, state, state highway, municipal and local specifications.
- 4.2. Installation

The Contractor shall furnish all labor, equipment, materials and incidentals required to install the (SWTD) device(s) and appurtenances in accordance with the drawings and these specifications.

  - 4.2.1. Grading and Excavation site shall be properly surveyed by a registered professional surveyor, and clearly marked with excavation limits and elevations. After site is marked it is the responsibility of the contractor to contact local utility companies and/or DigAlert to check for underground utilities. All grading permits shall be approved by governing agencies before commencement of grading and excavation. Soil conditions shall be tested in accordance with the governing agencies requirements. All earth removed shall be transported, disposed, stored, and handled per governing agencies standards. It is the responsibility of the contractor to install and maintain proper erosion control measures during grading and excavation operations.

- 4.2.2. Compaction – All soil shall be compacted per registered professional soils engineer’s recommendations and per governing agencies standards, prior to installation of SWTD.
- 4.2.3. Backfill shall be placed according to a registered professional soils engineer’s recommendations and per governing agencies standards, and with a minimum of 6” of gravel under all concrete structures.
- 4.2.4. Concrete Structures – After backfilling has been inspected by the governing agency and approved the concrete structures shall be lifted and placed in proper position per plans.

#### 4.4. Shipping, Storage and Handling

- 4.4.1. Shipping – SWTD shall be shipped to the contractor’s address or job site and is the responsibility of the contractor to offload the unit(s) and place in the exact site of installation.
- 4.4.2. Storage and Handling – The contractor shall exercise care in the storage and handling of the SWTD and all components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor. The SWTD(s) and all components shall always be stored indoors and transported inside the original shipping container until the unit(s) are ready to be installed. The SWTD shall always be handled with care and lifted according to OSHA and NIOSA lifting recommendations and/or contractor’s workplace safety professional recommendations.

#### 4.5. Maintenance and Inspection

- 4.5.1. Inspection – After installation, the contractor shall demonstrate that the SWTD has been properly installed at the correct location(s), elevations, and with appropriate components. All components associated with the SWTD and its installation shall be subject to inspection by the engineer at the place of installation. In addition, the contractor shall demonstrate that the SWTD has been installed per the manufacturer’s specifications and recommendations. All components shall be inspected by a qualified person once a year and results of inspection shall be kept in an inspection log.
- 4.5.2. The manufacturer recommends cleaning and debris as needed. The maintenance shall be performed by someone qualified. A Maintenance Manual is available upon request from the manufacturer. The manual has detailed information regarding the maintenance of the SWTD. A Maintenance/Inspection record shall be kept by the maintenance operator. The record shall include any maintenance activities performed, amount and description of debris collected.

4.5.3. Material Disposal - All debris, trash, organics, and sediments captured by the SWTD shall be transported and disposed of at an approved facility for disposal in accordance with local and state requirements. Please refer to state and local regulations for the proper disposal of toxic and non-toxic material.

5.0. QUALITY ASSURANCE

5.1. The Manufacturer shall guarantee the SWTD against all manufacturing defects in materials and workmanship for a period of (1) year from the date of delivery to the customer. The manufacturer shall be notified of repair or replacement issues in writing within the warranty period. The SWTD is limited to the recommended application for which it was designed.

**END OF SECTION**