

SECTION (____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the Stormceptor® 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 Stormceptor® device manufactured by:

Contech Engineered Solutions LLC
9100 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

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.
 - 1.7 The SWTD manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certification" certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications.

- 1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

- 2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:
 - 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
 - 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
 - 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
 - 2.1.4 Aggregates shall conform to ASTM C 33;
 - 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
 - 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
 - 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.
- 2.2 Internal Components and appurtenances shall conform to the following:
 - 2.2.1 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
 - 2.2.2 Fiberglass components shall conform to applicable sections of ASTM D-4097
 - 2.2.3 Access system(s) conform to the following:
 - 2.2.4 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.
 - 2.2.5 Ladder rungs to be provided upon request
 - 2.2.6 An aluminum safety grate shall be installed within the chamber of the unit

3.0 PERFORMANCE

- 3.1 The HDS device shall remove oil and sediment from stormwater during frequent wet weather events and retain these pollutants within the device for later removal.
- 3.2 The HDS device shall be engineered, designed and sized to treat a minimum of 90 percent of the annual runoff volume using a widely accepted continuous simulation runoff model which uses rainfall data records which includes antecedent conditions as well as rainfall periods. Rainfall records should be comprised of 15-years of rainfall data or a longer continuous period if available for a given location, but in all cases at least a minimum of 5-years continuous rainfall.

- 3.3 The HDS device shall be capable of removing the Engineer-specified total suspended solids (TSS) load, without scouring previously captured pollutants.
- 3.4 The HDS device shall be sized to remove the Engineer-specified total suspended sediment (TSS) load using the particle size distribution (PSD) in Table 3.5, in addition to adhering to sections 3.2 & 3.4 of this specification. No alternative PSDs or deviations from Table 3.5 shall be accepted.

Table 3.5 – Particle Size Distribution		
Particle Size Distribution to be used to size HDS		
Particle Diameter (Micron)	% by Mass of All Particles	Specific Gravity
1000	5%	2.65
500	5%	2.65
250	15%	2.65
150	15%	2.65
100	10%	2.65
75	5%	2.65
50	10%	2.65
20	15%	2.65
8	10%	2.65
5	5%	2.65
2	5%	2.65

4.0 EXECUTION

- 4.1 The contractor shall exercise care in the storage and handling of the SWTD 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.
- 4.2 The SWTD shall be installed in accordance with the manufacturer’s recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours’ notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.
- 4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

TABLE 1: Storm Water Treatment Device Storage Capacities

STC Model	Hydrocarbon Storage Capacity (gal)	Sediment Capacity (ft3)	EOS Model	Hydrocarbon Storage Capacity (gal)
450	86	46	4-175	175
900	251	89	9-365	365
1200	251	127	12-590	591
1800	251	207	18-1000	1198
2400	840	205	24-1400	1457
3600	840	373	36-1700	1773
4800	909	543	48-2000	2005
6000	909	687	60-2500	2514
7200	1059	839	72-3400	3418
11000*	2797	1089	110-5000*	5023
13000*	2797	1374	130-6000*	6041
16000*	3055	1677	160-7800*	7850

*Consist of two chamber structures in series

END OF SECTION