

Tecnical Specifications

For The Nutrient Separating Baffle Box Model – Stormwater Treatment System

1. The stormwater treatment system shall be capable of inline installation with minimal head loss. Offline installation is not an acceptable alternative, unless originally designed by the engineer. Treatment of gross solids must occur at flow rates higher than the specified treatment flow. The stormwater treatment system must provide treatment at all flow rates.
2. For flows of 74.67 gpm per square foot of settling chamber area a removal efficiency of at least 90% for TSS will be achieved and flows of up to 124.44 gpm per square foot of settling chamber area will be able to pass through the stormwater treatment system for treatment without causing scouring. This must be proven through full scale testing.
3. The stormwater treatment system will be able to store captured solid debris such as leaves and litter in a dry state within the nutrient separating screen system between rain events. The volume of dry storage will be equal or greater than that specified on the drawing.
4. The stormwater treatment system will have the capacity to store equal to or greater than that specified on the drawing for captured sediment.
5. The stormwater treatment system will have a skimmer located in front of the outflow opening. The bottom of the skimmer will be located 6" below the static water level. Adjacent to the influent side of the skimmer is a cage containing many hydrocarbon absorption booms that will float at the top surface of the water in the stormwater treatment structure. This ensures absorption of hydrocarbons through a wide range of operating flows.
6. The nutrient separating screen system shall be positioned approximately 3.5" above the static water level within the baffle box. Adjacent to the inflow, the screen system will have openings on both sides that have a combined cross sectional area that exceeds the cross sectional area of the pipe. These openings will act as an internal bypass for water flow in the event that the screen system becomes full of debris.
7. The nutrient separating screen system shall have a minimum of 6" of vertical adjustment. The adjustment method shall be a system with brackets that are attached to the sides of the screen system that will slide vertically along 1 1/2" x 1 1/2" aluminum square poles. Two stainless steel bolts on each bracket can be tightened to lock the screen system in place, or loosened to allow for vertical adjustment of the screen system. The square poles are anchored to the baffle wall by 1/2" minimum diameter stainless steel bolts.
8. The nutrient separating screen system shall have a minimum of 3" of horizontal adjustment in the direction of the length of the concrete structure. The brackets that clamp the vertical adjustment poles to the side of the screen system can be repositioned to allow of horizontal adjustment.
9. The nutrient separating screen system shall have a section adjacent to the inflow which is hinged and can be opened for cleaning. This section will function as a screened ramp to direct debris into the main body of the screened system. The sides of this section will be made of stainless steel screen and transition in vertical height from a minimum of 8" tall nearest the inflow to the height of the main body of the screen system. The lower sides along this inflow section will provide bypass for water flow around the main body of the screen system if necessary. The cross sectional area of the bypass around the screen system will be equal to or exceed the cross sectional area of the inflow pipe.
10. The nutrient separating screen system shall give access from above grade to the lower sediment collection chambers by the following method. The bottom of the screen system will contain hinged screened doors that can be opened in such a way as to allow adequate access for a vacuum truck to remove everything in all the lower collection chambers.
11. The nutrient separating screen will be a welded aluminum framework spanned by stainless steel screen, be rectangular in shape, and be formed to make a bottom, 2 long sides, and 1 end ; the top and 1 end will remain open. The screen system will consist of panel sections that are held together with stainless steel bolts. When the panel sections are unbolted and separated from each other they must be able to pass through an access hatch or manhole in the top of the baffle box for removal purposes. The aluminum frame work will be made 1 1/2" x 1 1/2" x 1/4" aluminum angle beam. The screen used to span the aluminum frame is described as follows: For the body of the screen system, flattened expanded stainless steel sheet 1/2" No. 16 F; Open area = 60%; Grade = 304 Stainless Steel. The screen will be attached to the screen system frame by sandwiching the screen to the aluminum frame between a series of 1" x 3/16" aluminum bars and welded in place.
12. A turbulence deflector will be attached near the top of each of the baffles with 1/2" stainless steel through bolts and stainless steel fender washers. The turbulence deflectors will be made from laminated fiberglass and measure a minimum of 1/4" in thickness. The turbulence deflectors will form a horizontal ledge that measures 8" from the downstream side of the first baffle and 6" from the downstream side of the second baffle, and span the full width of the baffle box.
13. The stormwater treatment system will be precast concrete. The concrete will be 28 day compressive strength $f_c = 5,000$ psi. Steel reinforcing will be ASTM A – 615 Grade 60. Structure will support an H2O loading as indicated by AASHTO. The joint between the concrete sections will ship lap and the joint sealed with Ram-Nek or equal butyl rubber joint sealant.
14. For access into the stormwater treatment system, two to three holes will be cast into the top of the vault.
15. The inflow and outflow pipes will not intrude beyond flush with the inside surface of the Nutrient Separating Baffle Box. The space between the pipe holes in the ends of the stormwater treatment system and the outside surface of the pipe will be filled with non-shrink grout to form a water proof seal.
16. The nutrient separating screen system shall extended more than half way of the internal length of the stormwater treatment system. The nutrient separating screen system shall start at the inflow pipe not more than 4" from the wall of the inflow pipe.
17. The stormwater treatment system must have two separate reports verifying no scouring occurs at flows equal to or greater than the specified treatment flow rate for that particle size distribution.
18. The stormwater treatment system shall have a shallow sump, not more than 48" from invert of outflow pipe to bottom floor of the sump area.
19. The stormwater treatment system must have a minimum of two sediment chambers (sump areas) which are separated by a vertical wier that divides the chamber from the bottom of the sump to the invert of the outflow pipe. No openings are allowed at the bottom or coming up vertically along the wier. Or any other method that would connect the two chambers together such as orifices.