

SC-10 FLOATING SKIMMER

1.0 Floating Skimmer

This Specification is for Floating Skimmers used as surface dewatering devices for sediment basins and sediment traps.

1.1 Description

Use Floating Skimmers as a surface dewatering device that floats at the water surface of a sediment basin or sediment traps. Use Floating Skimmers that dewater from the water surface where sediment concentrations are at a minimum in the water column. Floating Skimmers release a low rate of flow draining the basin slowly at a constant rate. The inlet of the skimmer device is sized according to the basin volume and designed to drain the basin in a fixed amount of time.

Traditional sediment basin outlet designs use a perforated riser for dewatering, which allows water to leave the basin from all depths. Under the requirements of the new CGP, this perforated design is no longer acceptable.

1.2 Materials

Use Floating Skimmers purchased from a manufacturer listed on *SCDOT Qualified Product List 82*. Materials and sizes of Floating Skimmers vary depending on device type and design. Regardless of device type or design, all PVC materials used are Schedule 40 or greater.

1.2.1 Quality Assurance

Provide Floating Skimmers listed on the most recent edition of *SCDOT Qualified Product List 82*. At the time of delivery, provide the ENGINEER with the Floating Skimmer packing list containing complete identification, including but not limited to the following:

- Manufacturer's name and location.
- Manufacturer's telephone number and fax number.
- Manufacturer's e-mail address and web address.
- Floating Skimmer name, model, and/or serial number.
- Floating Skimmer dimensions.
- Certification that the Floating Skimmer meets the physical and performance criteria of this specification.

1.3 Design & Construction Requirements

1.3.1 Dewatering Rates

Skimmers are designed to completely dewater sediment basins from the top of riser elevation in 24 to 72 hours. See Graph 1 in this Specification to estimate the required drawdown rates for Floating Skimmers based on the sediment basin volume to dewater. Submit flow rates for the Floating Skimmer prepared by a qualified individual in accordance with standard practices for construction projects. Provide Floating Skimmer dewatering flow rate tables signed and sealed by a qualified individual who is licensed as follows:

1. South Carolina registered professional engineer as described in *Title 40, Chapter 22*;
2. South Carolina registered landscape architect as described in *Title 40, Chapter 28, Section 10, item (b)*;

3. South Carolina registered Tier B land surveyor as described in *Title 40, Chapter 22*.

1.3.2 Floatation Requirements

Floating Skimmers which sink or completely suspend under the water surface are not be accepted. A portion of the Floating Skimmer must be visible above the water surface at all times. Vent holes are required on all Floating Skimmers to ensure the device drains by gravity flow. Inlets or orifices to the skimmer may be submerged no greater than 6 inches below the water surface.

1.3.3 Trash Guard & Maintenance Rope

All Floating Skimmers designs include a trash guard and maintenance rope in order to prevent and remove blockage from floating debris. Trash guards prevent larger debris from entering the skimmer which may cause internal blockage. The maintenance rope is used to remove trash and debris which accumulates on the outside of the trash guard. Ensure the maintenance rope is floatable.

1.3.4 Skimmer Pit

Excavate a shallow pit filled with riprap under the Floating Skimmer to account for sediment that accumulates on the sediment basin bottom around the Floating Skimmer. The pit allows the Floating Skimmer to completely drain the basin. At a minimum, the pit has dimensions of 4ft x 4ft with a minimum depth of 2 ft. Ensure the bottom of the pit is lower than the invert of the outlet barrel from the riser.

Floating Skimmers that have a footed design which prevents the device from lodging in accumulated sediment do not require a skimmer pit.

1.3.5 Installation

Assembly of the Floating Skimmer components varies by device type and design. Install manufactured Floating Skimmers in accordance with the manufacturer's written installation instructions. Position the Floating Skimmer over the excavated skimmer pit (when applicable). Ensure the Floating Skimmer is assembled level over the skimmer pit in order to prevent debris from floating under the skimmer which can create a blockage of flow and damage the device. Install a flexible joint with a section of Schedule 40 flexible PVC pipe at the connection with the riser. The flexible joint and flexible PVC pipe allows the Floating Skimmer to be retrieved from the bank using the maintenance rope.

A stable, water tight connection between the skimmer barrel and basin riser is extremely vital to ensure sustained functioning. To ensure a proper connection, use a manufactured bracket, construct an extended PVC connection apparatus to the basin riser, or grout the open space between the skimmer barrel and riser.

Tie one end of the maintenance rope around a secure portion of the Floating Skimmer. Tie the other end of the maintenance rope to a metal stake driven into the basin embankment near the riser. Ensure the rope attachment to the metal stake is higher than the design water surface level. Ensure a good knot is established that will not become loose. Put tension on the rope but ensure there is enough slack in the rope to allow the Floating Skimmer to float up and down through its full range of motion so the Floating Skimmer settles into the skimmer pit after the basin drains.

Remove Floating Skimmers at the end of the construction phase of the project. If the Basin is to be converted to a permanent water quantity or quality basin, ensure the orifice where the Floating Skimmer was attached to the Basin riser is covered, adjusted, or modified according to the Project Plans and Specifications.

1.3.6 Inspection and Maintenance

Inspect Floating Skimmers together with the Sediment Basin inspections. Inspect the Floating Skimmer for any structural damage, clogging, or excessive sediment accumulation.

While draining the basin, the trash guard of the Floating Skimmer may clog with debris. Typically, a few jerks on the maintenance rope will clear the Floating Skimmer of debris and restore flow. If jerking the maintenance rope does not work, pull the Floating Skimmer to the embankment with the maintenance rope and manually remove all debris from the trash guard. An internal clog or blockage may require the device to be disassembled and repaired.

If the skimmer becomes stuck in the mud at the bottom of the basin it must be freed to allow for normal operation. This can typically be done by use of the maintenance rope.

Remove sediment deposits when the Floating Skimmer cannot settle low enough to completely drain the entire basin. Remove or pull the skimmer to a side embankment using the maintenance rope and remove sediment from the skimmer pit.

The Floating Skimmer remains the property of the contractor and may be used in other locations provided the materials meet the appropriate requirements contained in this Specification and/or on the Plans.

1.3.7 Acceptance

Obtain ENGINEER acceptance and approval of Floating Skimmer installations. When requested by the ENGINEER, ensure that a manufacturer's representative is on-site to oversee and approve the initial installation of Floating Skimmer operations. Obtain a letter from the manufacturer approving the installation when requested by the ENGINEER.

Graph 1 – Floating Skimmer Dewatering Rates

