

**SC-09 CONSTRUCTION DEWATERING**

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**1.0 Construction Dewatering****1.1 Description**

Perform construction site Dewatering operation by using one of the following methods:

1. Dewatering Bags.
2. Pumping directly to a sediment treatment BMP such as a sediment trap or sediment basin
3. Pumping to a vegetated filter strip (using a level spreader or hose discharge dissipation device).

Use Dewatering Bags for dewatering operations that do not discharge to sediment dams or sediment basins. Dewatering Bags are fabricated from non-woven geotextile materials that filter sediment-laden water from dewatering operations. Sediment laden water is pumped into the non-woven geotextile fabric bag that allows filtered water to pass through.

Treat Dewatering by pumping operations with a vegetated filter strip or a sediment control BMP t such as a sediment trap or sediment basin.

**1.2 Materials**

Use Dewatering Bags composed of a UV resistant, non-woven geotextile sewn into a completely enclosed bag. Use Dewatering Bags sewn with high strength double stitched seams. Use Dewatering Bags that have a sewn-in sleeve to receive the pump discharge hose.

**Table 1: Dewatering Bag Required Properties**

Property	Test Method	Type II Value
Weight (oz/yd <sup>2</sup> ) (typical)	ASTM D5261	10 oz
Grab Tensile Strength (MD)	ASTM D4632	250 lbs
Mullen Burst	ASTM D3786	350 psi
UV Resistance	ASTM D4355	70% @ 500 hrs
Flow Rate (Gal/Min/Ft <sup>2</sup> )	ASTM D4491	70
Filtering Efficiency	ASTM D5141	80%

All properties are minimum average roll values (MARV).

**1.2.1 Quality Assurance**

At the time of delivery, provide the Engineer with the Dewatering Bag 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.
- Dewatering Bag name, model, and/or serial number.
- Dewatering Bag dimensions.
- Certification that the Dewatering Bag meets the physical and performance criteria of this specification.

### **1.3 Construction Requirements**

#### **1.3.1 Equipment**

Ensure that the equipment necessary for the proper installation of the work is on site, in acceptable working condition, and approved by the Engineer as to both type and condition before the start of work. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of the work in the specified time.

#### **1.3.2 Site Assessment**

Assess the proposed site by considering potential water quality impacts and methods to minimize potential impacts from the following site characteristics:

- Potential contaminants in the water to be filtered. Note any odor, discoloration, oil sheen, or other notable conditions. Contact Local Fire Department and SCDHEC Land & Waste Emergency Response if a hazardous spill is suspected.
- Location of the discharge from the Dewatering Bag.
- Transport method and distance to nearest receiving waters.

When practical, select dewatering locations that are not in close proximity to receiving surface waters. Select locations with a sufficient permeable buffer to allow natural infiltration instead of discharging to receiving surface waters. Do not place Dewatering Bags directly in jurisdictional waters of the state.

#### **1.3.3 Dewatering Bag Selection**

Use the following steps to select an appropriately sized Dewatering Bag. Consult with the Engineer to select Dewatering Bag size if insufficient information is known about the site conditions.

1. Determine the peak flow rate generated from the dewatering pump in gallons per minute.
2. Determine the peak flow rate through the Dewatering Bag in gallons per minute based on the Dewatering Bag peak flow rate and the total surface area provided by the manufacturer.
3. Select a Dewatering Bag that passes a minimum of two times the peak flow rate generated from the dewatering pump as determined in Step 1 to account for a 50% clogging factor.

#### **1.3.4 Dewatering Bag Installation**

Install the Dewatering Bag on a mild slope to ensure incoming water flows downhill through the Dewatering Bag. Secure the hose to bag connection using a heavy duty pipe clamp, rope, or other suitable means to prevent leakage. When using a rope to attach the pump hose to the Dewatering Bag, make a minimum of 6 wraps around the hose over a 6-inch width of the bag and fasten with a secure rope knot.

The bottom area of Dewatering Bags will not allow flow to pass through when the bag is placed on a low-permeable or impermeable surface. Place the Dewatering Bag on an aggregate, hay bales, or other highly permeable surface to maximize water flow through the entire surface area of the bag. Monitor the Dewatering Bag at all times while the pump is running. While monitoring, ensure the hose to bag connection is secure with only minimal leaking. Check for flow permeating from the bottom surface of the Dewatering Bag. If flow appears restricted, move bag to a surface with higher permeability.

Use the following guidelines and any specific guidelines provided by the manufacturer for Dewatering Bag installations.

- Transport and place Dewatering Bags with care to prevent ripping or tearing the fabric.
- Avoid installing on steep slopes as the bag may roll, causing failure.
- Insert the discharge hose a minimum of 1-foot inside the Dewatering Bag.
- Do not insert more than one discharge hose into the Dewatering Bag.
- Avoid use of excessive flow rates or overfilling the Dewatering Bag. This may cause the bag to rupture or cause failure to the hose to bag connection.

#### **1.3.5 Dewater by Pumping**

Pump runoff to an excavated trench to provide short term detainment in order to trap large sediment particles. Construct a well compacted level berm downstream of the trench. Pumped runoff overtops the compacted berm and sheet flow across a vegetated filtering area before entering a stormwater conveyance system or detainment structure. Use a hose connection as shown in the Dewatering by Pumping detail in place of the compacted trench and level berm as a means to disperse inflows.

#### **1.3.6 Removal**

Dispose of the Dewatering Bag as directed by the Engineer. If allowed, the Dewatering Bag may be cut open and the contents seeded after removing the fabric. Securely tie off the pump hose connection sleeve when transporting full Dewatering Bags for disposal. Do not clean and reuse a Dewatering Bag after the voids are clogged with trapped sediment.

### **1.4 Inspection and Maintenance**

Follow all manufacturer recommendations for inspection and maintenance guidelines. Replace Dewatering Bags when trapped sediment has accumulated to 50% of the bag capacity or in accordance with the manufacturer's recommendations.

Dewatering Bags are full when they no longer efficiently filter sediment or pass water at a reasonable rate. Incoming flow rates will vary depending on the size of the Dewatering Bag, the type and amount of sediment discharged into the Dewatering Bag, the permeability of the underlying aggregate, and the degree of slope on which the bag lies.