

8.0 PROBLEM SOLVING

Problem solving is the action that should occur upon the identification of a failure or a potential failure of stormwater pollution prevention measures on a construction site. Chapter 7 includes common corrective actions and maintenance items for individual measures. Troubleshooting goes beyond the individual measure to address overall site conditions that may cause environmental damage if left unaddressed. Troubleshooting, while primarily the responsibility of the EPSC inspector, should be performed by all individuals performing stormwater related work on the construction project.

8.1 Interim Steps

When failure of a measure is imminent or has already occurred yet cannot be fixed immediately, action should still be taken. Interim steps should be taken to prevent any environmental damage from a failure that cannot be prevented or fully addressed at the time. Reasons why a failure may not be addressed immediately or prevented could include the condition of the area (it may be too wet to get into) or the availability of equipment to repair the area. Interim steps may include any (or all) of the following items:

- Install additional sediment barriers downgradient and/or upgradient from the area of concern.
- Apply straw mulch to any disturbed areas upgradient from the area of concern. When the area is too wet for equipment, straw can be applied by hand.
- Cover the area with geotextile or plastic sheeting, if it is not too large.
- Apply a soil binder to prevent further erosion.
- Divert run-on stormwater around the area of concern.

The area of concern should be monitored closely until fixed, and the interim steps taken continually maintained to prevent sediment and other pollutants from migrating off the site until the area can be fully addressed.

8.2 Design Related Problems

Design plans are prepared based upon known and anticipated site conditions and construction schedules. However, it is not uncommon for unanticipated site conditions or construction schedule changes to occur. When these new conditions or constructions schedule changes affect implementation of the SWPPP in the field, the SWPPP and/or the construction drawings must be modified. As soon as design issues are identified in the field, steps should be taken to remedy the issue.

Some potential design related problems may include:

- No access provided to clean out measures.
- No room to construct a sediment basin, outlet protection or other measure.
- Design did not account for run-on from adjoining properties.

A SWPPP may need to be revised where a repeated or catastrophic failure of a BMP occurred. There may be unforeseen circumstances, such as increased drainage area or increased impervious surfaces, which may have caused the failure. Each failure should be evaluated to determine if site conditions have changed significantly and if redesign of that portion of the SWPPP is necessary.

8.3 Construction Related Problems

During inspections, all measures should be checked to verify that they have been installed correctly. Measures can fail if they are improperly installed. For measures that have underground or underwater components, verify that these components are installed correctly during the construction process during inspections.

Other potential construction related issues include:

- Using unsuitable materials as fill.
- Slope failure due to saturated soils, non-cohesive soils, or excessive steepness.
- Failure to install stormwater system components.
- Installing stormwater system components and/or EPSC measures incorrectly.
- Interim construction phase resulting in a larger watershed to a measure than that for which it was intended (e.g. >0.25 acre to 100 feet of silt fence).

When construction related problems occur, they must be documented to aid in understanding why a failure occurred.

8.4 Sediment Releases

Anomalous weather events are those that produce runoff events that are greater than the design storm required for the project by the CGP. The design requirement for EPSC measures is either the 2-yr or 5-yr storm event. EPSC measures are not required to treat storms beyond these design storms. Large storm events cannot be predicted with great confidence and often cause failure of a BMP. Track rainfall depth and duration on the project to verify if the design storm has been exceeded. Failure of measures due to design storm exceedance does not automatically constitute a violation of the TNCGP. However, the site operator is still responsible for repairing any damage caused by the release.

When sediment is released from the construction site into a receiving stream or wetland, immediate action is necessary. The inspector should document the release through an inspection report and with photographs. TDEC and the local regulator, if appropriate, should be contacted to determine the best course of action for repair. Interim steps, as outlined in Section 8.1, should be taken to prevent additional damage. All work in streams and wetlands must be approved by TDEC's Water Pollution Control office. Depending on the severity of the release, an ARAP may be necessary to clean up and restore the area.

8.5 Spills

When spills of chemicals used or stored on the project occur, immediate response is necessary. Spill cleanup and response materials should be onsite at all times. Absorbent materials should be used to absorb the spills. The absorbent materials must then be properly disposed. Where the spill gets into the soil, the soil should be excavated, properly treated and contained. Contact the TDEC field office for guidance on the proper handling and treatment of contaminated soils.

For fuel or solvent spills into a stream, river, or lake, contact the National Response Center at 1-800-424-8802. The NRC is the federal government's centralized reporting center, which is staffed 24 hours per day by U.S. Coast Guard personnel. If reporting directly to NRC is not practicable, reports also can be made to the EPA regional office.

8.6 Buffer Disturbances

Unless specifically addressed in the SWPPP, stream buffers are to remain undisturbed. These areas should not be used to store equipment or construction materials either. In the event that a buffer is disturbed, a buffer restoration or mitigation plan should be developed that addresses stabilizing and replanting the areas impacted. The plan should address the following items:

- **Soil stabilization.** Groundcovers sufficient to restrain erosion in the buffer are required. These groundcovers can be grasses, as specified in Chapter 7.
- **Canopy restoration.** Where trees have been removed or damaged, tree and shrub replanting is necessary. Visually survey and inventory the surrounding buffer area trees to determine the type of trees to replant in the buffer. Trees should be replanted at a rate consistent with the rates and types of trees recommended by the TN Department of Agriculture Division of Forestry.
- **Stormwater management.** Prevent stormwater from concentrating in the buffer area. Restore sheetflow where it previously existed. Level spreaders, energy dissipaters and other management techniques should be employed to manage runoff to prevent concentrated flows from discharging into the buffer.

The buffer restoration or mitigation plan should be maintained with the field SWPPP and available for review by TDEC and the local municipality. Check with the local municipality to see if the plan must be submitted to them for approval prior to beginning restoration in the buffer.