SECTION 5.0
CONSTRUCTION SITE BMP PROGRAM

5.1 Overview

Construction sites have been identified as a leading source of sedimentation and require specific temporary BMPs to mitigate the impacts of storm water pollution. The NDOT Storm Water Quality Manuals, the PDG and the BMP Manual provide details and support for the Permit Construction Site BMP Program requirement. This section describes the general program elements, control methods, and practices NDOT employs at construction sites. This section is organized as follows:

- Section 5.2 provides an overview of Construction Project Process.
- Section 5.3 identifies the Construction Site BMPs.
- Section 5.4 describes the Construction Site Inspection Program.
- Section 5.5 describes the Contractor Education and Training Program.

5.2 NDOT Construction Project Process

[4.9.1 A description of a program to implement and maintain structural and nonstructural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system, which shall include:]
[4.9.1.1 A program to control all construction in the rights-of-way. This includes both construction by NDOT, construction done under contract for NDOT, and construction done by local government agencies or other third parties on NDOT or nonNDOT projects. The program must include:]
[4.9.1.2 The program must be implemented year round on all construction projects in all parts of the State. The SWMP must be revised to address these requirements and have a program and a schedule for inspections.]
[4.9.1.3 The Construction Management Program shall be in compliance with requirements of the NPDES General Permit for Construction Activities (Stormwater General Permit for Construction Activities).]
[4.9.1.1.2 Implementation and Maintenance of structural and nonstructural BMPs;]

The Construction Site BMP Program is intended to provide NDOT construction projects with the necessary tools to protect the receiving waters from sediment-laden discharge leaving construction sites. This SWMP outlines the Construction Site BMP Program and the Storm Water Quality Manuals provide the necessary details for successful implementation of storm water management at NDOT's construction sites. NDOT construction projects may be subject to the requirements in NDOT's Standard Specifications, the General Permit requirements, and/or

TRPA construction permits. NDOT maintains authority over NDOT construction projects and works on a project-by-project basis when construction projects include encroachment and right-of-way issues.

NDOT Standard Specifications direct the contractor to obtain all necessary water pollution control permits from NDEP. NDOT's Standard Specifications, Section 637 requires projects to employ temporary pollution control and erosion control measures to protect the downstream waters. Prior to work in or near Waters of the United States, a BMP Plan must be developed as part of the Temporary Working in Waterways/ Discharge Permit and submitted to NDEP for their review and approval.

When NDOT projects require coverage under the General Permit, NDOT's contractor will be the permittee and will comply with the General Permit requirements. NDOT recognizes that as the owner, NDOT is ultimately responsible and liable for storm water discharges from construction sites and therefore has developed the Construction Site BMP Program in this SWMP. The General Permit requires contractors to develop and implement a SWPPP that must remain on site at all times and be updated weekly. The contractor is also responsible for the submission of the Notice of Intent (NOI) and Notice of Termination (NOT) per the General Permit requirements.

For projects in the Lake Tahoe area, the TRPA issues construction permits to NDOT for individual projects and generally applies more rigorous requirements to minimize the environmental impacts of new projects. For NDOT projects in the Lake Tahoe area, the Lake Tahoe EIP coordinator handles the permitting process.

The Construction Division handles the policies, procedures, personnel, and equipment for NDOT construction projects. The Resident Engineer (RE) is responsible for managing the construction contracts and will work closely with the contractor to insure the regulatory obligations and contractual elements are met.

The development of the SWPPP or Temporary Working in Waterway/Discharge Permit BMP Plan requires analysis of potential project impacts. NDOT has developed a categorization system to classify projects according to the potential for water quality impacts. The Project Categorization Score Sheet is included in the PDG. The categories are no, low, medium, or high water quality impacts, as described below:

- **No impacts** are projects with less than one acre of soil or ground disturbance and no discharge to Waters of the United States. The estimate will include a lump sum bid item, 637 0003 Temporary Pollution Control, in the amount of $5,000.

- **Low impacts** are projects with low potential for sediment discharge into Waters of the United States and minimal soil/ground disturbance. The estimate will include a lump sum bid item, 637 0003 Temporary Pollution Control, in the amount of $5,000.

- **Medium impacts** are construction projects with potential for discharge of sediment into Waters of the United States and construction lasting less than 2 years with simple phasing and moderate amount of soil/ground disturbance. The estimate will include a lump sum bid item, 637 0003 Temporary Pollution Control. The Hydraulics Section establishes minimum standards and a range for the appropriate lump sum amount for these projects.

- **High impacts** are projects with major soil/ground disturbance with high potential for discharge of sediment into Waters of the United States. Typically, these projects have complex staging and last more than two years. Additionally, all projects in the Lake Tahoe basin are considered High Impact projects. NDOT's Hydraulic Section may develop temporary erosion control plans for one possible construction phase and include temporary structural control BMPs bid items in the final PS&E document. Additionally, include 637 0000 Temporary Pollution Control (Force Account) in the amount of $10,000.

The contractor develops, implements, and maintains the SWPPP for projects that fall into the no, low, or medium impacts. For the high impact projects, temporary BMPs which require sizing must be designed and/or reviewed and approved by a Professional Civil Engineer, registered in the State of Nevada. Additionally, for the high impact projects, NDOT may design the temporary erosion control plans for one possible construction phase scenario. NDOT may also specify temporary BMPs when specific temporary BMPs are required by NDEP, TRPA, other environmental requirements, National Environmental Policy Act (NEPA) mitigation, identified sensitive waters, and site-specific concerns not adequately addressed in the SWPPP or Temporary Working in Waterway/Discharge Permit BMP Plan.

The contractor is responsible for fulfilling every aspect of the construction contract per plans, specifications, and applicable permits. The contractor is responsible for regulatory compliance, including the timely submission of the NOI, NOT, and preparation of the SWPPP or Temporary Working in Waterway/Discharge Permit BMP Plan. The SWPPP must be complete before the NOI is submitted. The NOI must be submitted and approved two days prior to the start of construction. The contractor is responsible for installing, inspecting, and maintaining the BMPs defined in the SWPPP. The working details in the BMP Manual describe individual temporary BMPs including application, inspection, and maintenance. The contractor is also responsible for final stabilization of the site. Final stabilization is defined in the General Permit as reestablishment of 70% of the original vegetation or other appropriate measures. The NOT must be completed to release the contractor from General Permit coverage of the project. If final stabilization is not achieved per NDEP's standards, the General Permit coverage will be transferred to NDOT until final stabilization is achieved, as discussed in Section 1.3, Storm Water Management Responsibilities and Resources. NDOT has included templates of the NOI, SWPPP, and NOT in the Storm Water Quality Manuals.

5.2.1 Construction Site BMP Considerations

The BMP Manual addresses Soil Stabilization, Sediment Control, Tracking Controls, Non-Storm Water Management and Waste Management and Pollution Controls. The selection and implementation of individual BMPs is project specific and dependent upon water quality objectives, site conditions, and applicability of use.

NDOT has defined the *Minimum Requirements* of BMPs for construction projects. All NDOT construction projects are required to implement the minimum required BMPs as described in Table 5-1. The BMPs are grouped to show selection opportunities or possible combinations of BMPs for enhanced protection. Additional BMPs may be implemented at particular projects depending on the project assessment by NDOT and the contractor.

Table 5-1. Construction Site BMPs Minimum Requirements (1)

Best Management Practice	Required	Option
SEDIMENT CONTROL (In addition to all required BMPs employ at least one BMP option)		
Scheduling (SS-1)	X	
Preservation of Existing Vegetation (SS-2)	X	
Street Sweeping and Vacuuming (SC-7)	X	
Storm Drain Inlet Protection (SC-8)	X	
Temporary Stream Crossing (NS-4) (2)	X	
Silt Fence (SC-1)		X
Sediment Basin (SC-2)		X
Sediment Trap (SC-3)		X
Fiber Rolls (SC-5)		X
Gravel Bag Berm (SC-6)		X
NON-STORM WATER MANAGEMENT		
Water Conservation Practices (NS-1)	X	
Vehicle and Equipment Cleaning (NS-8)	X	
Vehicle and Equipment Fueling (NS-9)	X	
WASTE MANAGEMENT AND MATERIAL POLLUTION CONTROL		
Stabilized Construction Entrance/Exit (TC-1)	X	
Stockpile Management (WM-3)	X	
Spill Prevention and Control (WM-4)	X	
Construction Debris and Litter Management (WM-5)	X	
SLOPE PROTECTION (Employ at least one BMP)		
Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats (SS-7)		X
Earth Dikes/Drainage Swales & Lined Ditches (SS-9)		X
Slope Drains (SS-11)		X
Fiber Rolls (SC-5)		X
Gravel Bag Berm (SC-6)		X
STABILIZE DISTURBED AREAS (Employ at least one BMP)		
Wind Erosion Control (SS-13)	X	
Soil Stabilizer (SS-5)		X
Hydraulic/Straw/Wood Mulch (SS-3) (SS-6) (SS-8)		X
Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats (SS-7)		X
Hydroseeding (SS-4)	X	X

(1) Reference the BMP Manual for application specifics and selection and implementation guidance.
(2) When specified

NDOT has established criteria to evaluate the appropriateness for soil stabilization controls. Soil stabilization methods are numerous and variable. The criteria matrix in the BMP Manual assists

in selecting the appropriate soil stabilization methods. The following list is the criteria used to develop the matrix:

- Antecedent moisture
- Availability
- Ease of clean-up
- Installed cost
- Effectiveness
- Degradability
- Length of drying time (when applicable)
- Time of effectiveness
- Longevity
- Application mode
- Residual impact
- Native materials
- Effect of runoff

The implementation guidance for soil stabilization and sediment control BMPs is grouped by preventative measures and management measures for disturbed areas. Preventative measures seek to prevent erosion at the site or source while the management measures are selected to mitigate the erosive activity at the site. The following table lists the preventative and management measures which are further defined in the BMP Manual.

Table 5-2. Soil Stabilization and Sediment Control Implementation Guidance

Preventative Measures	Management Measures
Scheduling	Disturbed Soil Area Management • Rainfall patterns • Seasons • Soil types • Slope inclinations and lengths
Preservation of Existing Vegetation	
Storm Water Run-on and Concentrated Flows	Basins

To address implementation guidance for the Tracking Controls BMPs, Non-Storm Water Management BMPs, and Waste Management and Material Pollution Control BMPs, NDOT has

provided implementation direction in the working details for these year-round activities located in the BMP Manual.

5.3 Construction Site BMPs

[4.9.1.4 A description of nonstructural and structural best management practices for construction sites; and]

NDOT and/or the contractor selects BMPs at construction sites to reduce pollutants in storm water to the MEP. The NDOT BMP Manual introduces the regulatory requirements, describes the selection and implementation of temporary BMPs, and details the structural and nonstructural temporary BMPs approved by NDOT. The construction BMPs are categorized as Temporary Soil Stabilization, Temporary Sediment Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control BMPs.

Temporary Soil Stabilization BMPs are used to stabilize the disturbed soil areas at construction sites. The criteria for applying the soil stabilization BMPs at construction sites are presented in Section 2, Selecting and Implementing Construction Site BMPs of the BMP Manual. Table 5-3 provides a descriptive list of the NDOT-approved Temporary Soil Stabilization BMPs.

Table 5-3. Temporary Soil Stabilization BMPs

Temporary Soil Stabilization BMP	BMP Description
Scheduling (SS-1)	Scheduling construction activities in conjunction with construction site BMPs to reduce the impact on the site and surrounding area.
Preservation of Existing Vegetation (SS-2)	Identifying and protecting the vegetation at the site to provide erosion and sediment control.
Hydraulic Mulch (SS-3)	Applying fiber mixture and tackifier with hydromulching equipment to protect soil from erosion.
Hydroseeding (SS-4)	Applying a mixture of wood fiber, seed, fertilizer, and stabilizing emulsion with hydromulch equipment to minimize erosion.

Table 5-3. Temporary Soil Stabilization BMPs - Continued

Temporary Soil Stabilization BMP	BMP Description

Soil Stabilizer (SS-5)	Applying soil stabilizer to exposed soils to temporarily protect soils from erosion.
Straw Mulch (SS-6)	Incorporating a uniform layer of straw by roller or stabilizing emulsion to protect disturbed soils.
Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats (SS-7)	Temporarily stabilizing disturbed soils by placing mats, covers, or erosion control blankets on soil.
Wood Mulching (SS-8)	Applying wood mulch to minimize erosion, increase infiltration, and reduce surface runoff.
Earth Dikes/Drainage Swales & Lined Ditches (SS-9)	Structures designed to divert and convey runoff away from sensitive areas.
Outlet Protection/Velocity Dissipation Devices (SS-10)	Techniques to reduce erosion and scour at outlet by reducing velocity of runoff.
Slope Drains (SS-11)	Conveying surface runoff away from slopes and into stabilized areas to prevent erosion.
Streambank Stabilization (SS-12)	Employing any number of BMPs in the stream zone to protect the stream.
Wind Erosion Control (SS-13)	Applying water or soil stabilizers to minimize dust or wind erosion.

Temporary sediment controls are employed at construction sites to manage disturbed areas. Sediment controls mitigate storm water runoff by intercepting the flow, detaining the water temporarily, and capturing the sediment. The BMP Manual contains the basic criteria for selecting and implementing the sediment controls. The Temporary Sediment Control BMPs are identified in Table 5-4.

Table 5-4. Temporary Sediment Control BMPs	
Temporary Sediment Control BMP	**BMP Description**
Silt Fence (SC-1)	Sediment barrier made of permeable fabric designed to slow runoff and intercept sediment before leaving the construction site.
Sediment Basin (SC-2)	Temporary basin to capture and detain runoff, allowing sediments to settle out before water is discharged.
Sediment Trap (SC-3)	Temporary containment to settle out sediment before infiltration or discharge.
Check Dam (SC-4)	Rock, gravel bags, or fiber rolls placed across a channel to reduce flow velocity and scour in the channel or drainage ditch.
Fiber Rolls (SC-5)	Rolls or wood excelsior, rice, straw or coconut fibers bound and placed at toes and along the face of slopes to intercept runoff, reduce slope length, and remove sediment.
Gravel Bag Berm (SC-6)	Single row of gravel bags placed across a slope to intercept runoff and provide sediment removal.
Street Sweeping and Vacuuming (SC-7)	Removal of tracked sediment to prevent sediment from entering conveyance systems or receiving waters.
Storm Drain Inlet Protection (SC-8)	Protection of storm drain inlets from construction site sediment-laden runoff.

Tracking controls for construction sites are applied to vehicles and roadways to prevent sediment from leaving the site and entering the storm drain system. The Tracking Control BMPs are described in the following table.

Table 5-5. Tracking Control BMPs	
Tracking Control BMP	**BMP Description**
Stabilized Construction Entrance/Exit (TC-1)	Stabilizing the entrance and exit of construction sites to reduce tracking sediment onto public roads.
Stabilized Construction Roadway (TC-2)	Stabilizing construction roads to limit erosion or dust from vehicle traffic.
Entrance/Outlet Tire Wash (TC-3)	Tire wash stations to clean tires and undercarriage to prevent sediment from being transported onto public roads.

Non-Storm Water Management BMPs are source control practices. These controls are daily operations commonly known as good housekeeping practices and are generally part of the

contractor's responsibilities. The BMP Manual's working details include a description of the practical applications of these BMPs. Table 5-6 identifies the Non-Storm Water Management BMPs.

Table 5-6. Non-Storm Water Management BMPs

Non-Storm Water Management BMP	BMP Description
Water Conservation Practices (NS-1)	Activities using water conservatively to avoid causing erosion or transporting sediments off the site.
Dewatering Operations (NS-2)	Managing non-storm water and accumulated storm water and removing the water from the site.
Paving and Grinding Operation (NS-3)	Practices to minimize the release of pollutants associated with these activities into the storm drain system.
Temporary Stream Crossing (NS-4)	Temporary stream crossing during construction projects to minimize the impact to the waterway.
Clear Water Diversion (NS-5)	Practices to isolate the construction site from live water by diverting waters around the site and limiting the impact the construction activity has on the waterway.
Illicit Connection/Illegal Discharge Detection and Reporting (NS-6)	Activities which identify and report illicit discharges or illegally dumped materials at construction sites.
Potable Water/Irrigation (NS-7)	Practices to manage discharges from irrigation activities, discharges from potable water, water line flushing, and hydrant flushing.
Vehicle and Equipment Cleaning (NS-8)	Procedures to protect the downstream environment from discharges associated with vehicle cleaning.
Vehicle and Equipment Fueling (NS-9)	Procedures to prevent fuel spills and leaks into the storm drain system and receiving waters.
Vehicle and Equipment Maintenance (NS-10)	Vehicle and equipment maintenance procedures to prevent the discharge of pollutants into the storm drain system.
Pile Driving and Drilling Operation (NS-11)	Controls to reduce the discharge of pollutants during pile driving operations.
Concrete and Pavement Curing (NS-12)	Practices to control the potential pollutants from the chemical and water methods used in concrete curing.
Material and Equipment Use Over Water (NS-13)	Procedures on barges or boats to properly store, use, and dispose of materials to prevent discharge of pollutants into the waterways.
Concrete Finishing (NS-14)	Activities to minimize the runoff from concrete finishing methods and employ site protection methods to prevent runoff from impacting receiving waters.
Structure Demolition/Removal Over or Adjacent to Water (NS-15)	Demolition and removal control practices to reduce the potential for wastes and debris entering the waterways.
Temporary Batch Plants (NS-16)	BMPs presented to assist compliance as temporary batch plants must comply with the General Permit requirements.

The Waste Management and Materials Pollution Control BMPs are also source control BMPs implemented to prevent potential pollutants from entering storm water. These BMPs include the good housekeeping practices of daily operations and are the contractor's responsibility. The following table lists the Waste Management and Materials Pollution Control BMPs.

Table 5-7. Waste Management and Materials Pollution Control BMPs

Waste Management and Materials Pollution Control BMP	BMP Description
Material Delivery and Storage (WM-1)	Descriptions of the proper handling and storage of materials to minimize discharges into the receiving waters.
Material Use (WM-2)	Practices for using materials to protect the downstream environment from potential discharges.
Stockpile Management (WM-3)	Management procedures to reduce the potential for discharges from stockpiles of soil and paving materials.
Spill Prevention and Control (WM-4)	Methods to prevent spills and procedures for managing and reporting spills.
Construction Debris and Litter Management (WM-5)	Managing stockpiles and construction site wastes to prevent impacting the downstream environment.
Concrete Waste Management (WM-6)	Concrete waste practices to prevent the waste materials from entering the storm drain system.
Sanitary/Septic Waste Management (WM-7)	Proper placement and maintenance of sanitary/septic waste materials to prevent discharge into the storm drain system.
Liquid Waste Management (WM-8)	Management practices to control non-hazardous liquid materials at construction sites.

5.4 Construction Site Inspection Program

[4.9.1.1.1 Review of construction site plans;]
[4.9.1.1.3 Site inspections and enforcement; and]
[4.9.1.5 A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and]
[4.9.1.3 The Construction Management Program shall be in compliance with requirements of the NPDES General Permit for Construction Activities (Stormwater General Permit for Construction Activities).]
[4.9.1.1.2 Implementation and Maintenance of structural and nonstructural BMPs;]

NDOT's project design process includes construction activities associated with the project. All projects from the 30% to 100% design phase are reviewed by all NDOT Divisions as outlined in the PDG. NDOT construction sites are managed by the RE and inspections follow the protocol outlined in the General Permit. The contractor is responsible for the construction site including site inspections and inspection reports as defined in the General Permit. NDOT construction projects are inspected by the contractors according to the following:

- Within 24 hours of the end of a storm event greater than 0.5 inches of rainfall,
- At the minimum of once every seven calendar days,
- As specified in the SWPPP and/or Special Provision, and/or
- As directed by the RE.

NDOT personnel also perform inspections of construction sites. NDOT has created the Weekly Construction Site Discharge Inspection Checklist for NDOT inspectors. The checklist provides assistance with inspection criteria and the proper course of action once the inspection is completed. The RE works with the contractor to correct any problems immediately or schedules an approved alternative time. The BMP Manual may be employed during inspections because it provides details for installation, application, and maintenance for each temporary BMP. The Construction Site Discharge Inspection Checklist is located in Appendix B of this SWMP.

Repairs and/or replacement of temporary pollution control BMPs shall begin within 24 hours of notification and shall be completed within 7 days. Should this restriction be exceeded, work may be immediately suspended and no other items of work shall be performed until the repairs are completed. Working days will continue to be assessed during the suspension period and partial payments as set forth under Subsection 109.06 of the Standard Specifications may not be forthcoming until said repairs are completed.

5.4.1 NDOT Construction Site BMP Field Manual

NDOT has created the Construction Site BMP Field Manual (BMP Field Manual) for NDOT inspectors. The BMP Field Manual presents guidance for installing, maintaining, and troubleshooting BMPs. The BMP Field Manual details the appropriate applications and the key points for BMP selection, installation, and maintenance. The BMP Field Manual is intended to

assist NDOT inspectors in construction site inspections. The BMP Field Manual will allow NDOT inspectors to evaluate the implementation and maintenance of individual BMPs and communicate to the contractor the required corrective measure(s).

5.5 Contractor Education and Training Program

[4.9.1.1.4 Education of construction site operators.]
[4.9.1.6 A description of appropriate educational and training measures for construction site operators.]

NDOT provides outreach to contractors through information exchange forums. Informational exchanges within the project process between NDOT and the contractor include pre-bid meetings and pre-construction meetings where the contractor is informed of the regulatory requirements. These requirements include:

- Permit acquisition
- SWPPP or Temporary Working in Waterway/Discharge Permit BMP Plan development
- BMP selection and implementation
- Site inspections

NDOT works regularly with contractors through the Associated General Contractors (AGC) organization that offers a variety of contractor training opportunities. NDOT also supports information sharing with contractors through announcements in the Weekly Construction Bulletins and information posted on NDOT's website at www.nevadadot.com. NDOT has developed the PDG and BMP Manual to support NDOT staff and contractors in the project design process, SWPPP development, and implementation of the SWMP elements. NDOT will, in the life of this Permit, develop a more detailed outreach program to train NDOT contractors.