



## Kershaw County Stormwater Management and Erosion Prevention and Sediment Control Plan Review Checklist for Design Professionals

Please indicate the location and page number(s) where each item below can be found in your Stormwater Management and Sediment and Erosion Control Plans. If an item is not applicable, put N/A with an explanation to justify why not applicable. The County reserves the right to modify this checklist at any time.

**Checklist Completed by:**

Printed name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

1.  **CURRENT COMPLETED APPLICATION FORM** – Location in C-SWPPP: \_\_\_\_\_
2.  **COPIES OF PLANS AND CALCULATIONS** – Location in C-SWPPP: \_\_\_\_\_
3.  **LOCATION MAP** – Location in C-SWPPP: \_\_\_\_\_
4.  **PROJECT NARRATIVE** – Location in C-SWPPP: \_\_\_\_\_
5.  **USGS TOPOGRAPHIC MAP** – Location in C-SWPPP: \_\_\_\_\_
6.  **SOILS INFORMATION** – Location in C-SWPPP: \_\_\_\_\_
7.  **FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP** – Location in C-SWPPP: \_\_\_\_\_
8.  **NAVIGABLE WATERS** – Location in C-SWPPP: \_\_\_\_\_
9.  **CONSTRUCTION SEQUENCE** – Location in C-SWPPP: \_\_\_\_\_
10.  **PHASED SEDIMENT AND EROSTION COTROL PLANS** – Location in C-SWPPP: \_\_\_\_\_
11.  **WATERS OF THE STATE, INCLUDING WETLANDS** – Location in C-SWPPP: \_\_\_\_\_
12.  **BUFFERS – SEE GUIDANCE DOCUMENT** – Location in C-SWPPP: \_\_\_\_\_
13.  **FLOW CONTROL** – Location in C-SWPPP: \_\_\_\_\_
14.  **SEDIMENTOLOGY AND SEDIMENT BASIN/TRAP DESIGN** – Location in C-SWPPP: \_\_\_\_\_
15.  **CONVEYANCE MEASURES AND STABLE CHANNELS** – Location in C-SWPPP: \_\_\_\_\_
16.  **INLET PROTECTION** – Location in C-SWPPP: \_\_\_\_\_
17.  **ENERGY DISSIPATORS/ OUTLET PROTECTION** – Location in C-SWPPP: \_\_\_\_\_
18.  **SLOPES AND/OR ENBANKMENTS** – Location in C-SWPPP: \_\_\_\_\_
19.  **UTILITY LINES** – Location in C-SWPPP: \_\_\_\_\_
20.  **TMDL/303d IMPAIRED WATERBODIES** – Location in C-SWPPP: \_\_\_\_\_
21.  **HYDROLOGIC ANALYSIS** – Location in C-SWPPP: \_\_\_\_\_
22.  **DISCHARGE POINTS** – Location in C-SWPPP: \_\_\_\_\_
23.  **DETENTION ANALYSIS/DESIGN** – Location in C-SWPPP: \_\_\_\_\_
24.  **AS-BUILTS** – Location in C-SWPPP: \_\_\_\_\_
25.  **PERMANENT STORMWATER MANAGEMENT STRUCTURE MAINTENANCE PLAN** – Location in C-SWPPP: \_\_\_\_\_
26.  **DETENTION WAIVER** – Location in C-SWPPP: \_\_\_\_\_
27.  **PERMANENT WATER QUALITY REQUIREMENTS** – Location in C-SWPPP: \_\_\_\_\_
28.  **SITE PLAN CHECKLIST** – Location in C-SWPPP: \_\_\_\_\_

1.  **CURRENT COMPLETED APPLICATION FORM**
  - Original Signature of individual with signatory authority for the applicant according to requirements set forth in R.61-9.122.22
  - All items completed and answered
  - Fee Schedule
2.  **COPIES OF PLANS AND CALCULATIONS**
  - Plans, report and supporting calculations to be stapled together or bound (3-ring binder, etc.)
  - For projects that disturb more than 2 acres, less than or equal to 2 acres but are part of a larger common plan of development or sale (LCP), ONE set of plans and supporting documentation (report, calculations, maps, etc.)
  - For projects that disturb less than or equal to 2 acres (not part of LCP), THREE sets of plans and one set of supporting documentation [*Note: You may submit up to 2 additional sets of plans to be stamped for approval.*]
  - Supporting documentation tabbed (e.g., Maps, Pre-Development calculations) and pages numbered [no loose pages]
3.  **LOCATION MAP**
  - North arrow and scale
  - Outlined project location
  - Labeled road names
4.  **PROJECT NARRATIVE**
  - Scope of project outlined, including a brief description of pre- and post-development conditions
  - Summary table of pre- and post-development flows (2-, 5-, 10, 25-, 50- and 100-year, 24-hour storm events)
  - Existing flooding problems in the surrounding area described
  - Disturbed area calculations included for subdivision projects or LCP disturbing 1 or more acres
    - For subdivisions if the site is not to be mass-graded, the following formula should be used to determine the amount of disturbance:  
  
Amount of Disturbance = 2[Max Restricted Building Size][Number of Lots] + Right of Way (ROW) areas {ROW areas include clearing for roads, utilities, easements etc.}
    - If this equation is used, include a note on the **plans** stating: "The site is not to be mass-graded. Only 2 times the footprint is to be cleared as the lots are developed. The assumed disturbance on each lot is \_\_\_\_\_sq. ft."
5.  **USGS TOPOGRAPHIC MAP**
  - Project boundary outlined
  - Route of runoff from site to nearest waterbody shown
  - Road names adjacent to site labeled
6.  **SOILS INFORMATION**
  - Project boundary outlined
  - Predominate soil types found at the site identified on the plans or on a separate map
  - *Note: Soils information is available from the Natural Resource Conservation Service through their website: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>*
7.  **FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP**
  - Project boundary outlined, if in close proximity to floodplain/ floodway
8.  **NAVIGABLE WATERS**
  - Extra plan sheet showing impacts to navigable water and description of activity included if S.C. Navigable Waters (SCNW) crossing and separate SCNW permit has not been obtained for all activities
9.  **CONSTRUCTION SEQUENCE**
  - Construction Sequence should accurately reflect the nature and timing of construction activities for the site
  - Sequence should begin with the installation of perimeter controls and end with the removal of sediment and erosion control measures once the site has been finally stabilized
  - Address conversion of any temporary sediment control structures to permanent measures (i.e., conversion of a sediment basin to a permanent detention basin)
  - Sequence should reflect implementation and transition between each phased plan (see Item 10 below)

**10.  PHASED SEDIMENT & EROSION CONTROL PLANS**

- Phased Sediment and Erosion Control Plans are not required when land-disturbance is 5 acres or less
- For land-disturbance between 5 and 10 acres, a two-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
  - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/ mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
  - Phase 2 – Stabilization - Sediment and erosion control BMPs required during the remainder of grading and construction. Must also include appropriate BMPs for stabilization – grassing, inlet protection, etc.
- For land-disturbance greater than 10 acres, a three-phased stormwater management and sediment and erosion control plan is required for all non-linear projects. Each phase must be shown on a separate plan sheet. Plans should address the transition between phases.
  - Phase 1 – Initial Land Disturbance – Must include perimeter sediment and erosion control BMPs required prior to initial/ mass clearing and other appropriate BMPs needed to maintain compliance with the permit. On some sites, this may include appropriate BMPs for demolition of existing structures
  - Phase 2 – Construction - Sediment and erosion control BMPs required during the majority of grading and construction activities.
  - Phase 3 – Stabilization - Sediment and erosion control BMPs required near the completion of the construction project. Must also include appropriate BMPs for stabilization – grassing, inlet protection, etc.

**11.  WATERS OF THE STATE, INCLUDING WETLANDS**

- Delineation of all waters of the State (WoS), including wetlands, shown and labeled on plans (delineation not required if a 100-ft undisturbed buffer can be maintained between the WoS and all land-disturbing activities)
  - Additional, separate plan sheet that shows all WoS on the site and the impacted areas with a description of the activity(s), whether it is permanent or temporary, and any other relevant information.
  - If impacts to WoS, outlined areas of impacts and labeled that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
  - Double row of silt fence provided in all areas where a 50' undisturbed buffer cannot be maintained between the disturbed area and the WoS
  - Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
  - *Note: If there are proposed impacts to WoS, then it is advised that you contact USACOE (866-329-8187) and/ or S.C. DHEC Water Quality Certification, Standards & Wetlands Programs Section (803-898-4300) to determine additional requirements before submitting the Notice of Intent (NOI).*
  - *Note: If WoS are to be impacted, work cannot be performed in these designated areas until all necessary permits have been acquired*
  - *Note: If a USACOE permit is required for construction of or access to a temporary or permanent stormwater management structure, NPDES permit coverage cannot be granted until the USACOE permits and S.C. DHEC 401 Section certifications are obtained.*
- Note: The County requires a minimum 20-foot buffer between a sediment trap/basin and WoS.*

**12.  BUFFERS - SEE GUIDANCE DOCUMENT (3.2.4.C)**

- Select Compliance Option A, B, or C in Section 3.2.4.C of the CGP and provide appropriate documentation
  - Double row of silt fence provided in all areas where a 50' undisturbed buffer cannot be maintained between the disturbed area and the WoS
  - Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- Ensure discharges into a buffer zone are non-channelized and non-concentrated to prevent erosion, and first treated by the construction site's sediment and erosion controls
- Ensure any velocity dissipation measures implemented within a buffer zone comply with 3.2.4.C.III. (d)
- Refer to Water Quality Buffers under Section 5:3.6, Unified Code of Zoning and Land Development Regulations

13.  **FLOW CONTROL**

- Control stormwater volume and velocity within the site during construction to minimize erosion within the site
- Control stormwater rates and volume at outlets during construction to minimize erosion to downstream channels and streambanks

14.  **SEDIMENTOLOGY & SEDIMENT BASIN/TRAP DESIGN**

- Provide a drainage area map outlining the area contributing to sediment basins, traps, and rock sediment dikes
- Trapping efficiency calculations showing that all sediment basins/ traps are capable of achieving a sediment trapping efficiency of at least 80% for the 10-year, 24-hour storm event, if more than 10 disturbed acres drain to a common point (stream, lake, etc.)
- Sediment basins provide storage for the 10-year, 24-hour storm event for disturbed conditions or 3600 ft<sup>3</sup>/acre draining to the basin, if more than 10 disturbed acres drain to a common point (stream, lake, property line, etc.)
- Sediment traps only used for drainage areas of less than 5 acres
- Sediment trap storage calculations, showing that 1800 ft<sup>3</sup>/ total acre draining to each trap is provided below the spillway
- If trapping efficiency calculations are required for sediment traps, then provide peak outflow,  $q_{po}$ , calculations; the 10-year, 24-hour storm event for construction conditions cannot overtop the trap's spillway
- Sediment basins and traps designed for total area draining to them
- Curve Number for construction analysis needs to reflect construction/ disturbed conditions. Curve Numbers for the newly-graded areas area:
  - Hydrologic Soil Group "A": 77
  - Hydrologic Soil Group "B": 86
  - Hydrologic Soil Group "C": 91
  - Hydrologic Soil Group "D": 94
- Drainage area map outlining the area draining to each basin/ trap. Copies of figures used to determine  $V_{15}$  (SV-1) and trapping efficiency (ST-1, SB-1, SB-2), if Design Aids from BMP manual are used to determine trapping efficiencies. Design Aids from the BMP Manual are not appropriate for BMPs designed in series and modeling is required in those instances. When the soil type is A/D, B/D or C/D, the chart for high water tables must be used to calculate sediment trapping efficiency for sediment ponds in the Coastal Zone.
- When multiple  $D_{15}$  values exist for an area, use the soil type with the smallest  $D_{15}$  for the appropriate depth to determine the settling velocity,  $V_{15}$ . Do not use an average  $D_{15}$ .
- Sediment basins must dewater via an outlet structure that pulls water from the surface. Options for this include skimmers and flashboard risers. Surface dewatering is not required for traps.
- Porous baffles must be provided in sediment basins
- Forebays must be installed, unless infeasible
- Public Safety should be taken into consideration as a factor in design of sediment basins. Alternative BMPs must be utilized where a construction site limitations would preclude a safe design
- Silt fence only used in areas with drainage areas of less than ¼ acre per 100 LF of fence and not used in areas with concentrated flows
- Clean-out stake, marked at ½ the designed sediment storage depth, provided in all sediment basins/sediment traps
- *Note: Consult the [South Carolina DHEC Storm Water Management BMP Handbook](#) (BMP Handbook) for information on the design of these and other devices.*
- *Note: The Design Aids in the [BMP Handbook](#) cannot be used to determine trapping efficiencies for structures in series. If the flow for the 10-year, 24-hour storm for construction conditions overtops the structure or the structure's spillway, then the Design Aids cannot be used.*
- *Note: SedCAD users please refer to the [SCDHEC memo regarding the input of outlet structures](#).*

15.  **CONVEYANCE MEASURES AND STABLE CHANNELS**

- All channels and diversion ditches able to handle the 10-year storm event with non-erosive velocities of less than 5 feet per second during construction (use appropriate CN for disturbed areas) and post-construction (if velocity exceeds 5 ft/s, then permanent measures to reduce the velocity to a non-erosive rate must be provided)
- Stabilization of conveyance channels is to be completed within 7 days of channel construction
- Rock check dams provided in temporary diversions
- Installation detail for erosion control blanket (ECB) or turf reinforcement matting (TRM) if ECBs or TRMs to be used
- Temporary conveyance channels should be utilized to divert concentrated stormwater flows from running onto and within the disturbed area

16.  **INLET PROTECTION**

- Provided at all inlets (existing and proposed)
- Inlet protection details provided for pre-paving and after roadways have been paved
- Hay bales are not acceptable
- Steel posts and buried fabric shown for filter fabric inlet protection
- *Note: The Kershaw County recommends that an inlet not have more than one (1) acre draining to it.*

17.  **ENERGY DISSIPATORS/ OUTLET PROTECTION**

- All outlets stabilized with appropriately sized riprap apron or other structure
- Riprap detail shows apron dimensions and stone sizes for each pad or each pipe diameter
- Filter fabric installed beneath all riprap
- Note that appropriate outlet protection and energy dissipation is also required for post-construction

18.  **SLOPES AND/OR EMBANKMENTS**

- All slopes stabilized
- Minimize Disturbance to Steep Slopes (3H:1V) or greater
- Divert concentrated flows around steep slopes using slope drains or temporary diversions
- Utilize appropriate measures to prevent erosion (erosion control blankets, surface roughening, terracing, etc.)
- Slope drains designed in accordance with the [BMP Handbook](#)
- Slope drains provided where concentrated flows discharge onto a fill slope
- *Note: Measures, in addition to grassing or hydroseeding, include synthetic or vegetative matting, diversion berms, temporary slope drains, etc.*
- *Note: If retaining walls or fill slopes are to be constructed at the downstream property line, the Department recommends a 10' buffer to allow for construction and maintenance. If a 10' buffer is not provided, then provide permission from the adjacent property owner for possible land-disturbing activities on his property.*

19.  **UTILITY LINES**

- Limits of disturbance include areas necessary for installation of all utilities (cable, electrical, natural gas, water and sewer), as appropriate
- For instances where the location of cable, electric, and natural gas has not been determined at the time the SWPPP is developed, SWPPP preparer may include a note that the installation of these is to be within the permitted limits of disturbance and that installation outside of these areas will require a modification to the permit
- Inlet protection provided at all existing inlets that receive flows from the disturbed areas; also add this as a note on the plans
- For all utility lines crossing WoS, narrative and detail showing sediment and erosion control measures provided on plans
- Note for construction entrances to be provided at all locations where construction traffic accesses a paved roadway

20.  **TMDL/ 303d IMPAIRED WATERBODIES**

- List the nearest S.C.DHEC Water Quality Monitoring Station (WQMS) that the site's stormwater discharges drain to and the waterbody on which it is located: \_\_\_\_\_
- Qualitative and quantitative assessment (described in Section 3.4C of SCR100000), if nearest WQMS listed on the current [303\(d\) List of Impaired Waters](#) - **and** if site's stormwater construction discharges contain the pollutant of impairment **and** if site disturbs 25 or more acres
- Evaluation of selected BMPs if nearest WQMS listed on the current [303\(d\) List of Impaired Waters](#) **and** if site's stormwater construction discharges contain the pollutant of impairment **and** if site disturbs less than 25 acres
- Pollutants of concern include TURBIDITY, BIO(Macroinvertebrate), TP(Total Phosphorus), TN(Total Nitrogen), and Chlorophyll-A
- Link to Water Quality Information Tool and Instructions: <http://gisweb00.dhec.sc.gov/water/Stormwater.html?mode=1>
- If Approved TMDL developed for nearest WQMS **and** if site's stormwater construction discharges contain the pollutant of impairment, showed that measures and controls on SWPPP met assumptions and requirements of TMDL (may need to contact [Watershed Manager](#) for assistance)
- For TURBIDITY, BIO(Macroinvertebrate) consider inclusion of BMPs to reduce sediment load such as: sediment traps and basin designed to meet 80% sediment removal efficiency (regardless of size), additional measures to stabilize site, limited clearing and grading

## 20. TMDL/ 303d IMPAIRED WATERBODIES (cont'd)

- ñ For TP(Total Phosphorus), TN(Total Nitrogen), and Chlorophyll-A consider inclusion of BMPs to reduce nutrient load. This could include limited clearing and grading, soil samples for to determine nutrient requirements during grassing
- ñ For Fecal Coliform (FC) in shellfish harvesting waters, this may include location of porta-johns and waste receptacles
- ñ *Note: To ensure sufficient Water Quality Monitoring Stations are selected to assess all of the identified parameters for construction stormwater, include monitoring stations that contain assessments for the first twelve parameters. Some stations only assess one parameter and should not be relied upon for the entire 303(d)/TMDL assessment for construction stormwater discharges. In addition, fecal coliform (for Shellfish Harvesting waters) must be assessed within the coastal critical area and nutrients and/or chlorophyll must be assessed in lakes/reservoirs*

## 21. HYDROLOGIC ANALYSIS

- Pre- and post-developed hydrologic analysis calculations for the 2-, 5-, 10-, 25-, 50- and 100-year, 24-hour storm events at each outfall point
- Drainage area maps that clearly correspond to the calculations (pre- and post-development)
- Analysis points for comparing runoff rates and the total drainage area analyzed do not change from pre- to post-development, although the immediate drainage areas contributing to each analysis point might shift.
- Post-development discharges less than pre-development discharges for each outfall point (if not, then see "Detention Waiver" section below)
- Analysis performed using SCS 24-hour storm (Rational method is not acceptable)
- Rainfall data from [BMP Handbook](#) used in all calculations
- *Note: The curve number for open water, marshes, etc. should be 98.*

## 22. DISCHARGE POINTS

- a. Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.
- b. No new point discharges onto adjacent property where there was not a point discharge previously, unless written permission from the adjacent property owner is provided
- c. Level spreaders, plunge pools, etc. provided when the proposed outlet is near the property line and not directed to an existing outfall, such as a creek or ditch
- d. Twenty (20)-foot minimum buffer is provided between the property line and the discharge point
- e. Outlets shall not discharge on fill slopes
- f. *Note: This requirement also applies during construction.*

## 23. DETENTION ANALYSIS/DESIGN

- **Analysis**
  - Pond routing using a volume-based hydrograph for the 2- and 10-year, SCS 24-hour storm event (Drain:Edge, ICPR, HEC-1, HEC-HMS, SedCAD, HYDRFLOW, etc. perform full pond routings; TR55 does not perform a full pond routing; rational method cannot be used)
  - Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed land-disturbing activity, with and without the detention structure. The results of this analysis (10-Percent Rule) will determine the need to modify the detention design or eliminate the detention requirement:
    - *10-Percent Rule: The hydrologic analysis should be conducted for the larger drainage area, where the site in question encompasses 10% of the total drainage area. For example, if your site is 10 acres, then the hydrologic analysis should be performed to include all points downstream of the site up to the point downstream where the contributing drainage area, including your 10-acre site, which in this example is approximately 100 acres.*
  - Inputs and outputs from analysis program: CN, Time of Concentration, sub-basin areas, and routing parameters; as well as electronic modeling files (on CD).
  - Summary table of the peak inflows, peak outflows, discharge velocities, and maximum water surface elevations (WSE) for the 2-, 5-, 10-, 25-, 50- and 100-year, 24-hour storm events for each detention structure
  - Stage-storage-discharge relationship for the outlet structure of each detention structure
  - If a rating curve for the outlet structure must be generated externally from the analysis program (Drain:Edge, HEC-HMS, etc.), data and equations used to rate the outlet structure
  - As-built of existing detention pond if the site drains to an existing detention pond (see below)
  - *Note: SedCAD users please refer to the [memo regarding the input of outlet structures](#).*
- **Design**
  - Detail of outlet structure and cross-section of the dam/ berm or pond bank, including elevations and dimensions that correspond to the calculations

### 23. DETENTION ANALYSIS/DESIGN (cont'd)

- Orifice constructability considered (do not specify orifice diameters with increments of less than ¼")
- Small orifices (those less than 3") are prone to clogging
- Maximum WSE for the 10-year storm event below the emergency spillway with 0.5-ft of freeboard between maximum WSE for the 10-year storm and the emergency spillway
- Maximum WSE for the 100-year storm event below the embankment with 0.5-ft of freeboard between maximum WSE for the 100-year storm and the embankment
- Dewatering time calculations for the 10-year storm event (dry ponds must drain completely within 72 hours)
- Bottom of all detention and retention ponds graded to have a slope of not less than 0.5%
- If the pond is to be used for sediment control during construction, temporary horseshoe-shaped riprap berm in front of any low level outlets provided during construction and shown on the pond detail
- Permanent maintenance access to all permanent detention structures (easements may be needed for structures surrounded by lots)
- Infiltration systems designed in accordance with S.C. Reg. 72-307.C(11) [specify how items a-j have been addressed]
- Low Impact Development measure, bioretention cells, infiltration, and other post-construction practices should be installed only **after** the drainage area to these practices has been stabilized
- *Note: Emergency spillways should not be built on fill slopes.*
- *Note: The County requires installation of a trash rack or other debris-screening device on all pond risers.*
- *Note: The County requires a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.*
- *Note: The County requires installation of sediment forebays at each outfall into the detention/ sediment basin. This is a requirement during construction.*

### 24. AS-BUILTS

- Provided for all previously approved detention ponds that will receive flows from new drainage areas
- Prepared by a South Carolina Licensed Land Surveyor
- Grades/ contours/ depths for pond
- Elevations and dimensions of all outlet structures, including:
  - Pipe and orifice inverts and diameters
  - Weir elevations and dimensions
  - Riser dimensions and elevations
  - Emergency spillway dimensions and elevations
  - Locations and inverts for all pipes discharging into the pond
- If the elevations or dimensions of the structures listed above do not match those used in the approved plans, certification statement signed by the project's Registered Engineer indicating that the pond, as built, will function within all applicable standards provided [new analysis of the pond (routing) will be necessary]
- *Note: As-built survey and /or analysis must be submitted and accepted by the County before a Notice of Termination (NOT) is submitted to SCDHEC.*

### 25. PERMANENT STORMWATER MANAGEMENT STRUCTURE MAINTENANCE PLAN

- Signed agreement from the responsible party accepting ownership and maintenance of the structure
- If maintenance responsibility is transferred after NPDES coverage is granted, an updated agreement should be submitted with the Notice of Termination
- Description of maintenance plan to be used
- Schedule of maintenance procedures (e.g., every 6 months)
- Detailed or manufacturer-specific maintenance items for proprietary control devices (oil-water separators, etc.), underground detention structures, exfiltration systems and non-traditional stormwater controls (constructed wetlands, bioretention, etc.)
- Typical maintenance items to be addressed:
  - Grass to be mowed
  - Trees to be removed from within the pond and on the embankment
  - Trash and sediment to be removed from inside of and around the pond outlet structure
  - Orifices to be cleaned and unclogged
  - Outlet pipe to be cleaned, inspected, and repaired
  - Sediment accumulation to be removed from pond
  - Pond bottom to be regraded to provide proper drainage towards the outlet discharge point
  - Energy dissipater to be cleaned and repaired
  - Emergency spillway, if applicable, to be inspected and repaired
  - Erosion on side slopes, if present, to be addressed

**25. PERMANENT STORMWATER MANAGEMENT STRUCTURE MAINTENANCE PLAN (cont'd)**

- The County must be notified in writing of any changes in maintenance responsibility for the stormwater devices at the site (include this statement in agreement).
- *Note: If the entity or person with maintenance responsibility changes, then a new maintenance agreement, signed by the new person responsible for maintenance, must be provided to the County for approval. If a new, signed maintenance agreement is not provided to the County, then the entity/ person who signed the most recent maintenance agreement on file with the County will be considered the responsible entity.*

**26.  DETENTION WAIVER**

- *Note: If the 2- and 10-year, 24-hour post-developed flow rates exceed the pre-developed rates, [waivers](#) from detention may be granted in accordance with regulation 72-302(B) on a case-by-case basis*
- Justification and a written request, including the following statement: “*the increased flows will not have a significant adverse impact on the downstream/adjacent properties*”
- A project may be eligible for a waiver or variance of stormwater management for water quantity control if the applicant can demonstrate that:
  - The proposed project will have no significant adverse impact on the receiving natural waterway or downstream properties; or
  - The imposition of peak control requirements for rates of stormwater runoff would aggravate downstream flooding
- Waiver signed by the project’s Professional Engineer
- *Note: See checklist item 10 regarding the 10-Percent Rule.*

**27.  PERMANENT WATER QUALITY REQUIREMENTS**

- Permanent water quality addressed (all projects or LCP that disturb 5 or more acres)
  - Wet ponds designed to catch the first ½” of runoff from the entire area draining to the pond and release it over at least a 24-hour period
  - Dry ponds designed to catch the first 1” of runoff from the entire area draining to the pond and release it over at least a 24-hour period
  - Infiltration Practices designed to accept, at a minimum, the first 1” of runoff from all impervious areas and designed in accordance with S.C. Reg. 72-307.C(11) [specify how items a-j have been addressed]
  - For areas not draining to a pond, show how permanent water quality requirements were addressed
- Water quality orifices should be a size that is conducive to proper operation and maintenance. Orifices less than 3” in diameter are prone to clogging
- Waters of the U.S./State are not used for permanent water quality control (alternative means of treatment must be used if an existing pond is to be used for water quantity control).
- *Note: Other non-traditional stormwater controls such as Bioretention areas, constructed wetlands, etc. may be used. Consult the [BMP Handbook](#) for information on the design of these devices.*
- *Note: Pre-fabricated or proprietary treatment devices are approved on a case-by-case basis if adequate removal efficiency can be demonstrated. Provide pollutant removal efficiency data, preferably from a third-party testing company. Type of system selected should be based on the ability to remove the pollutants of concern in that area/situation (bacteria, hydrocarbons, etc.).*

**28.  SITE PLAN CHECKLIST:**

- Location map with site outlined on first plan sheet (map should have enough detail to identify Surface Waters of the State within 1 mile of the site)
- North arrow and scale
- Property lines and adjacent landowners’ names
- Legend
- Registered engineer’s signed and dated seal
- Engineering Firm’s Certificate of Authorization seal
- If the SWPPP has been developed by a Registered Professional Engineer, Registered Landscape Architect or Tier B Land Surveyor, the following statement must be included within the SWPPP:

“I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of *Title 48, Chapter 14 of the Code of Laws of SC, 1976* as amended, pursuant to *Regulation 72-300 et seq.* (if applicable), and in accordance with the terms and conditions of *SCR100000.*”

- Existing and proposed contours for entire disturbed area
- Limits of disturbed area



## 28. SITE PLAN CHECKLIST: (cont'd)

- Locations of off-site material, waste, borrow, or construction equipment storage areas, excluding roll-off containers (*Note: Some off-site disturbed areas may require a separate application for NPDES coverage*)
- Location and identification of any stormwater discharges associated with industrial activity (not construction)
- Location of Concrete Washout and other Pollution Prevention Measures
- Delineation of WoS, including wetlands (see checklist item 8)
- Easements
- Road profiles with existing and proposed ground elevations (if no contours are shown on the plans)
- Grassing and stabilization specifications (temporary and permanent)
- Construction sequence (implementation of all stormwater and sediment controls in the first phase of construction; ensure that basins, traps, ponds, etc. can be installed before the area draining to them is cleared and grubbed)
- Standard notes (see following page)
- Temporary and permanent control measures (provide details of all sediment and erosion control measures used; make sure the label or legend on the plans matches the name on the detail)  
*Note: Maintenance requirements for each BMP should be listed on the detail.*  
*Note: If details from the [BMP Handbook](#) are used, then the inspection frequency must be changed to be in accordance with the new CGP (see Standard note 3).*

### Standard Notes

1. If necessary, slopes, which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.
2. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below.
  - Where stabilization by the 14<sup>th</sup> day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
  - Where construction activity on a portion of the Site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the Site.
3. All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
4. Provide silt fence and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grassing immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove any sediments before being pumped back into any waters of the State.
5. All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
6. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
7. Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C Reg. 72-300 et seq. and SCR100000.
8. Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.
9. All waters of the State (WoS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.
10. Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.
11. A copy of the SWPPP, inspections records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
12. Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temporarily ceased, and will not resume for a period of 7 calendar days.
13. Minimize soil compaction and, unless infeasible, preserve topsoil.
14. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
15. Minimize the discharge of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMPs (sediment basin, filter bag, etc.)

16. The following discharges from sites are prohibited:

- Wastewater from washout of concrete, unless managed by an appropriate control;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- Soaps or solvents used in vehicle and equipment washing.

17. After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.

18. If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as reasonably possible.

19. A Pre-Construction Conference must be held for each construction site with an approved On-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless Kershaw County has approved otherwise.