

North Augusta Stormwater Management Department (NA SWMD)
Stormwater Management and Sediment and Erosion Control Plan Review Checklist
(This form is REQUIRED with the SWPPP submittal)

Items in RED are NEWLY Required under the 2012 CGP. The entire C-SWPPP must include page numbers on all documents submitted. INDICATE on this form that each requirement is in your plan by including page numbers in spaces beside each task on where in the C-SWPPP the information can be located. If an item is not applicable, put N/A. The NA SWMD reserves the right to modify this checklist at any time. The C-SWPPP for project sites greater than 1 acre must be prepared by a Registered PE, Registered Landscape Architect, or Tier B Land Surveyor. At the discretion of the North Augusta Engineering Department, projects less than 1 acre may have to meet the same requirement. For more information about specific items see both the CGP and see the North Augusta Stormwater Management Manual (consists of two parts: the latest version of the City Sediment & Erosion Control Manual and the City Water Quality Manual).

SWPPP preparer name and phone/email contact info: _____

THIS Checklist Completed by: Name: _____ Company & Title: _____

Printed name: _____ Signature: _____ Date: _____

If submitting more than one Phase for permitting today, fill out information for each Phase being submitted below, otherwise only fill out information on the phase being submitted for review today:				
Provide the following information:	Phase ___?	Phase ___?	Phase ___?	Reserved for NA SWMD
Total Site Acres (All Phases) _____	_____	_____	_____	_____
Total Phase Acres (disturbed + undisturbed)	_____	_____	_____	_____
Total Disturbed Acres (see calc. in Item 4 if needed)	_____	_____	_____	_____
Total Impervious Area (acre) Post Build Out	_____	_____	_____	_____
Total % Impervious Post Build Out	_____ %	_____ %	_____ %	_____
Number of Phases for Entire Project	_____	_____	_____	_____
Total Common Area/Greenspace (acre) Post Build Out	_____	_____	_____	_____
Number of Permanent Stormwater Ponds (each phase)	_____	_____	_____	_____
For each Phase enter A, B, C, or D: Water Quality Calculation is based on which area? (acres) A. Total Phase Acres, B. Total Disturbed Area this Phase, C. Total Area Draining to Devices Proposed D. Other: explain:	_____	_____	_____	_____

(Enter the page number for each group of items and place a check mark or N/A next to each listed item within the group in the blanks provided)

Page # _____ ITEM 1. CURRENT COMPLETED (NOI) APPLICATION FORM

Original Signature of individual with signatory authority for the applicant according to requirements set forth in R.61-9.122.22 (see Appendix C)

_____ All items completed and answered correctly.

_____ Fee Schedule and fee payment.

NOTE: State and local government projects are not exempt from the plan review fee of \$100 per disturbed acre.

Page # _____ ITEM 2. COPIES OF PLANS AND CALCULATIONS

_____ Plans stapled or bound together!

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), or more than 0.5 acre and within 1/2 mile of a receiving waterbody (RWB) in the Coastal Zone, 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 and not within 1/2 mile of RWB in the Coastal Zone), 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]

_____ Site plans must include property lines, adjacent land owner names and land use conditions (i.e. residential high or low density, commercial, forested, open space, other: describe), street names, existing and proposed contour elevations, limits of the disturbed area, adjacent waters of the state (WoS)

Page # _____ ITEM 3. LOCATION MAP (3.2.7 AIV) Location in C-SWPPP

_____ North arrow and scale

_____ Outlined project location

_____ Labeled road names (adjacent property road names if applicable)

_____ Adjacent land owner names and property lines

Page # _____ ITEM 4. PROJECT NARRATIVE (3.2.1) Location in C-SWPPP

_____ Scope of project outlined, including a brief description of pre- and post-development land use conditions

_____ Pre-development Peak discharge rates, maximum surface elevations (24 hour storm)

_____ Summary table of pre- and post-development flows (required: 2-, 10-, and 25-year, 24-hour storm events)

_____ Existing flooding problems in the surrounding area identified and described

_____ Describe creek crossings, utility line installations, and dewatering activities that will take place.

_____ Are any Endangered Species going to be affected by this project? Please state if there are or are not in the narrative. If so, describe how you addressed this issue and provide documentation to and from the appropriate agencies (SCDNR, USFWS, etc.). For more information go to: <http://www.fws.gov/endangered/permits/index.html> and look at item Incidental Take permits.

_____ 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 Page one (1) of the plans stating: "This site is not to be mass-graded. Only 2 times the footprint of the building is to be cleared as the lots are developed. The assumed disturbance on each lot is _____ sq. ft."

Page # _____ ITEM 5. USGS TOPOGRAPHIC MAP (3.2.7.A.I) Location in C-SWPPP

- _____ Use 7.5 Minute Series Topo Map marked with site location identified
- _____ Project boundary outlined
- _____ Route of runoff from site to nearest waterbody shown
- _____ Mark critical areas downstream of the project (streams, creeks, or other waterbodies including wetlands)
- _____ Road names adjacent to site labeled

Page # _____ ITEM 6. SOILS INFORMATION (3.2.7 A.II) Location in C-SWPPP

- _____ Project boundary outlined
- _____ Predominate soil types found at the site identified on the plans or on a separate map
- _____ Forest cover and wetland/stream resources identified

Note: Soils information is available from the Natural Resource Conservation Service through their website: <http://websoilsurvey.nrcs.usda.gov/app/>

Page # _____ ITEM 7. FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP (3.2.7A.III) Location in C-SWPPP

- _____ Project boundary outlined, if in close proximity to floodplain/ floodway
- _____ regarding the placement of fill or structures that will be located within or impact the floodway area.

Page # _____ ITEM 8. NAVIGABLE WATERS (3.2.4) Location in C-SWPPP

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

Note: For NOIs initially submitted to MS4s /delegated entities, if project has SCNW crossing and if separate SCNW permit has not been obtained for this crossing, then this item will be reviewed by S.C. DHEC before NPDES coverage will be granted.

Page # _____ ITEM 9. CONSTRUCTION SEQUENCE (3.2.3)

- _____ 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)

Page # _____ ITEM 10. PHASED SEDIMENT & EROSION CONTROL PLANS (3.2.9) Location in C-SWPPP:

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.

Page # _____ ITEM 11. WATERS OF THE STATE, INCLUDING WETLANDS (3.2.4.C) Location in C-SWPPP

_____ 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.

WATERS OF THE STATE, INCLUDING WETLANDS CONT.

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.

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.

Page # _____ **ITEM 12. BUFFERS - See Guidance Document (3.2.4.C) Location in C-SWPPP**

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 30' natural maintenance buffer provided between last row of silt fence and WoS; then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS

Minimum 45' natural maintenance buffer provided between last row of silt fence and WoS if water is TMDL, 303d or listed as sensitive waters; or, 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)

Page # _____ **ITEM 13. FLOW CONTROL (3.2.10) Location in C-SWPPP:**

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 stream banks

Page # _____ **ITEM 14. SEDIMENTOLOGY & SEDIMENT BASIN/TRAP DESIGN (3.2.8.IV AND 3.2.6.A.II) In C-SWPPP**

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 ft³/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 ft³/ 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 newly-graded areas are:

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 V₁₅ (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 D₁₅ values exist for an area, use the soil type with the smallest D₁₅ for the appropriate depth to determine the settling velocity, V₁₅. Do not use an average D₁₅.

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

Sediment controls shall be provided in the form of settling basins or sediment traps or tanks, and perimeter controls.

Where possible, settling basins shall be designed in a manner that allows adaptation to provide long-term stormwater management.

Adjacent properties shall be protected with perimeter controls.

_____ A 50-foot long by 6-inch deep stone construction exit shall be provided.

_____ *Note: Consult the DHEC 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 memo regarding the input of outlet structures.*

Page # _____ ITEM 15. CONVEYANCE MEASURES AND STABLE CHANNELS (3.2.6.A.III) Location in C-SWPPP:

_____ 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

Page # _____ ITEM 16. INLET PROTECTION (3.2.6.All (a and b) Location in C-SWPPP

_____ Provided at all inlets (existing and proposed)

_____ Hay bales are not acceptable

_____ Steel posts and buried fabric shown for filter fabric inlet protection

_____ Inlet protection details provided for pre-paving and after roadways have been paved

_____ *Note: We recommend that an inlet not have more than one (1) acre draining to it.*

Page # _____ ITEM 17. ENERGY DISSIPATERS/ OUTLET PROTECTION (3.2.10)

_____ 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*

Page # _____ ITEM 18. FILL 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

_____ For all slopes steeper than 1.5:1, clear identification of stabilization practice (e.g., ECB, TRM) including product specs on plans

_____ *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.*

Page # _____ ITEM 19. UTILITY LINES Location in C-SWPPP

_____ Limits of disturbance include areas disturbed for 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 of the permit with \$125.00 fee.

_____ 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

Page # _____ ITEM 20. TMDL/ 303d IMPAIRED WATERBODIES

_____ List the nearest S.C.DHEC Water Quality Monitoring Station (WQMS) or Biological Station 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 most recent 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 most recent 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

_____ 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)

_____ Pollutants of concern include TURBIDITY, BIO (Macroinvertebrate), TP (Total Phosphorus), TN (Total Nitrogen), and Chlorophyll-A.

_____ Link to Water Quality Information Tool Instructions <http://gisweb00.dhec.sc.gov/water/stormwater.html?mode=1>

For TURBIDITY, BIO (Macroinvertebrate) consider inclusion of BMPs to reduce sediment load such as: sediment traps and basin designed to meet the 80% sediment removal efficiency (regardless of size), additional measures to stabilize site, limited clearing and grading.

TMDL/ 303d IMPAIRED WATERBODIES (Continued)

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 to determine nutrient requirements during grassing, etc.

For Fecal Coliform, this could include location of porta-johns, waste receptacles, sewer cleanouts, and sewer line.

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 303d/TMDL assessment for construction stormwater discharges. In addition, fecal coliform must be assessed within the coastal critical area and nutrients and/or chlorophyll must be assessed in lakes/reservoirs.

Note: Contact SCDHEC Department staff for guidance on selection of BMPs based on pollutant of impairment.

Page # _____ ITEM 21. HYDROLOGIC ANALYSIS (3.2.8.A.II) Location in C-SWPPP

_____ Pre and post Peak Discharge Rates maximum surface elevations, 24 hour storm events.

_____ Pre- and post-developed hydrologic analysis calculations for the 2-, 10-, and 25-year, 24-hour storm events at each outfall point

_____ Drainage area maps that clearly correspond to the calculations (pre- and post-development)

_____ Watersheds, other than designated watersheds, that have well documented water quantity problems may have more stringent, or modified, design criteria as determined by the NA SWMD.

_____ Provide the stage-storage-discharge relationship for the outlet structure of ponds (include data and equations used)

_____ 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 South Carolina DHEC Storm Water Management BMP Handbook (BMP Handbook) used in all calculations

Note: The curve number for open water, marshes, etc. should be 98

Page # _____ ITEM 22. DISCHARGE POINTS (3.2.6.A.III) Location in C-SWPPP

_____ Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.

_____ 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

_____ 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

_____ Twenty (20)-foot minimum buffer is provided between the property line and the discharge point

_____ Outlets shall not discharge on fill slopes

Note: This requirement also applies during construction.

Page # _____ ITEM 23. DETENTION ANALYSIS/DESIGN

_____ Pond routing using a volume-based hydrograph for the 2-, 10-, and 25-year, SCS 24-hour storm event (Drain: Edge, ICPR, HEC-1, SedCAD, HYDRAFLOW, 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 (results of analysis will determine the need to modify the detention design or eliminate the detention requirement—see note 2 below)

_____ Inputs and outputs from analysis program

_____ Summary table of the peak inflows, peak outflows, discharge velocities, and maximum water surface elevations (WSE) for the 2-, 10-, and 25-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-1, 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.

Note: We recommend using the 10% rule in performing analysis. 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 at the point downstream where the contributing drainage area, including your 10-acre site, is approximately 100 acres.

Discharge Velocity - Page Number? _____

_____ Provide details to answer the following: Are discharge velocities reduced to provide a non-erosive velocity flow from structures, channels, or other control measures?

_____ Provide details to answer the following: Does the BMP provide the velocity of the 25-year (24 hour) storm runoff in the receiving waterway prior to the land disturbing activity?

_____ Provide details to answer the following: Does the emergency spillway design allow for safe passage of the 50- or 100-year storm event?

_____ Are dry ponds designed to dewater within 72 hours?

_____ Channels and diversion ditches must be able to handle the 10-year storm event with non-erosive velocities of less than 5 ft./sec.

_____ **Water Quality Calculations are located on what page?**

_____ **Clearing & Grading:**

Provide information regarding all applicable local, state, and federal permits that are required (and or acquired) for the project. Provide copies of applications forms only and approval letters or permits granted or denied for all site activities. (i.e., wetland stream crossings, US ACOE Nationwide permits, US ACOE Individual Permits, SCDHEC Wetlands Certifications). In some cases, further information will be required to process your application (i.e., entire application packages with wetland delineations). If so, you will be notified by the NA SWMD.

_____ Identify on your plans where additional permits correspond to site work.

_____ Standard notes must be included on the grading plan that contractors are instructed to use clearing techniques that retain natural vegetation and retain natural drainage patterns for the project if mass grading is not used on the project.

_____ For projects greater than 20 acres, your site plan must be phased. Provide details for phasing grading activities at your project site. Provide water quality narrative for each phase including your assumptions when calculating WQv (see Item 14).

_____ Plan must establish that mass clearing is not allowed prior to installation of sediment control devices except in a limited amount to allow for installation of these devices.

_____ **Erosion Control:**

_____ Plan must describe and include all erosion and sediment control measures necessary to meet the objectives of City regulations throughout all phases of construction and permanently after completion of construction.

_____ Dust control must be described within the plan and provided for when necessary.

_____ Stockpiles are to be stabilized or covered within 21 days of inactivity at the site.

_____ Show within the SWPPP that diversion of upland runoff past disturbed slopes will be employed.

_____ Soil must be temporarily stabilized within 14 days of clearing if no activity is taking place on this part of the site.

_____ **Design**

Detail of outlet structure and cross-section of the dam/ berm or pond bank, including elevations and dimensions that correspond to the calculations. Include all details including distance from inlets or outlets describing height and width of berms, rock checks, or other devices (aprons, forebays, diversions, etc.).

_____ Orifice constructability considered (do not specify orifice diameters with increments of less than 1/4")

_____ 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]

Note: Emergency spillways should not be built on fill slopes.

Note: Recommended: installation of a trash rack or other debris-screening device on all pond risers.

Note: Recommended: a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.

Note: Recommended: installation of sediment forebays at each outfall into the detention/ sediment basin.

Page # _____ ITEM 24. AS-BUILT REQUIRED INFORMATION (please make sure that this information is provided with 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 with certification and signature that the information is accurate.

_____ 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, include 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) may be necessary]

Note: Accurate As-built survey and /or analysis must be submitted to the NA Engineering Department.

Page # _____ ITEM 25. PERMANENT STORMWATER MANAGEMENT STRUCTURE MAINTENANCE

_____ Signed agreement from the responsible party accepting ownership and maintenance of the structure

_____ Description of maintenance plan to be used

_____ Schedule of maintenance procedures (e.g., every 6 months)

_____ 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

_____ We must be notified in writing of any changes in maintenance responsibility for the stormwater devices at the site (include this statement in agreement).

Note: The Department recommends that the county, city, or other governing utility, which has the authority to accept the ownership and maintenance of a storm drainage system also accept the permanent stormwater management structure.

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 Department. If a new, signed maintenance agreement is not provided to the Department, then the entity/ person who signed the most recent maintenance agreement on file with the Department will be considered the responsible entity.

Page # _____ ITEM 26. DETENTION WAIVER

_____ Note: If the 2- and 10-, and 25-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

_____ The NA SWMD may grant a written variance from any requirement of the City of North Augusta Storm Drainage Policy if there are exceptional circumstances to the site such as that strict adherence to the provisions will result in unnecessary hardship and not fulfill the intent of the ordinance. A written variance shall be provided to the SWMD and shall state the specific variances sought and the reasons with supporting data for their granting. 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 return the disturbed area to a pre-development runoff condition and the pre-development land use is unchanged at the conclusion of the project.

_____ The proposed project does not increase the rate of runoff from a site by more than one (1) cfs for each of the 2, 10, and 25-year storm events and the disturbed area is less than one (1) acre.

_____ The proposed project will have no significant adverse impacts 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 request signed by the project's Professional Engineer

_____ Justification and a written request must include the following statement: "the increased flows will not have a significant adverse impact on the downstream/adjacent properties".

_____ Note: See note in checklist item 10 regarding the 10% rule.

Page # _____ ITEM 27. PERMANENT WATER QUALITY REQUIREMENTS (3.2.8.A.IV) Location in C-SWPPP for sites >1 acre or part of an LCP

_____ The following equation may be used to determine the Water Quality Volume (WQv)

$$WQv = (1 \text{ inch})(Rv)(A)/12$$

_____ Where A = Site Area (acres) (Area = total site area acres for this phase of project)

$$Where Rv = 0.05 + 0.009I$$

_____ Where I = Site Impervious Cover % (should be \geq actual planned built-out percentage)

_____ For more detailed information on the calculation consult: [the North Augusta Water Quality Manual](http://www.northaugusta.net) - located on our website document library in the Engineering/Stormwater folder: <http://www.northaugusta.net> (Engineering/Stormwater/Construction)

PERMANENT WATER QUALITY REQUIREMENTS (Continued)

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]

Wet 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

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.

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.

Dry ponds must be designed to dewater within 72 hours.

Per City Ordinance: Dry ponds are not an acceptable stand-alone water quality treatment technology. When used they should be preceded by a forebay and used in conjunction with infiltration, vegetative filters, or inline treatment.

For areas not draining to a pond, show how permanent water quality requirements were addressed

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: Technologies that may be used to meet the water quality treatment requirements include but are not limited to: infiltration, bioretention, in-line treatment, disconnected impervious areas, vegetated filter strips, constructed wetlands, and wet ponds. Vegetative swales combined with bioretention or another infiltration device is the preferred method of water quality treatment. Landscaped areas should be designed, where possible, to incorporate stormwater management. Peak flow control may be achieved by adding inline or overflow storage such as parking lot detention, pipe storage, or a dry pond. Consult the NA Water Quality Manual listed above for approved practices and drawings.

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.).

Page # _____ ITEM 28. CONSTRUCTION SITE POLLUTION PREVENTION

Fuel vessels must be protected with a lined containment berm.

Spills must be cleaned up and contaminated soils removed and disposed of properly.

Construction debris may not be burned or buried.

Page # _____ ITEM 29. SITE PLANS CHECKLIST:

Note: North Augusta requires that all projects greater than 20 acres are Phased (individual tract phasing).

Location map with site outlined-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 are shown on site plan

Limits of disturbed area are shown on site plan

Locations of off-site material, waste, borrow, stockpile, 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)

Delineation of WoS, including wetlands (see checklist item 8)

Location of Concrete Washout and other Pollution Prevention Measures on the construction site.

Easements

Road profiles with existing and proposed ground elevations (if no contours are shown on the plans)

Grassing and stabilization specifications (temporary and permanent)

SEE PHASING SECTION #9 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). The sequence of development should include stripping and clearing, rough grading, construction of utilities, infrastructure, and buildings, and final grading and landscaping. Provide the expected date on which clearing will begin, estimated duration of exposure of cleared areas, and the installation of temporary erosion and sediment control measures along with final stabilization.

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)

Provide maintenance agreements for all stormwater treatment practices. Agreements must be signed by owner of project and maintenance contractor (i.e., homeowners association, private individual, or firm). Agreements must state term of agreement, options for continuance, and provisions if ownership changes, including that a new agreement must be fully executed for continuation of maintenance of devices.

Maintenance requirements for each temporary BMP should be listed on the detail. Permanent proprietary or routine BMPs require maintenance plans to be submitted as a stand alone document (2 COPIES).

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 are all on the plan. (Standard Notes **REQUIRED are below**)

"REQUIRED 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 14th 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.

(NOTE: Plans without this information will not be approved!)

3. All sediment and erosion control devices shall be inspected **once every calendar week and after each 0.5" rainfall event**. 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. Silt fence is to be installed 8 feet from the toe of slopes and be spaced 6-8 feet apart when double row silt fence is indicated or required.

11. 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.

12. 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.

13. 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.

14. Minimize soil compaction and, unless infeasible, preserve topsoil.

15. 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.

16. 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.).

17. 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;
- Soaps or Solvents used in vehicle and equipment washing.

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 the Department has approved otherwise.