JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

EROSION AND SEDIMENT CONTROL PLAN CHECKLIST

I. ***GENERAL:***

Yes No N/A

❒ ❒ ❒ *FAMILIARITY* with current versions of Chapter 8, Erosion and Sedimentation Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia and the Virginia Erosion and Sediment Control Handbook (VESCH).

❒ ❒ ❒ *LAND DISTURBING PERMIT AND SILTATION AGREEMENT* with surety are required for the project.

❒ ❒ ❒ *VARIANCE* if necessary, requested in writing, for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.

II. ***SITE PLAN:***

Yes No N/A

❒ ❒ ❒ *VICINITY MAP* locating the site in relation to the surrounding area. Include any major landmarks which might assist in physically locating the site.

❒ ❒ ❒ *INDICATE NORTH* direction in relation to the site.

❒ ❒ ❒ *LIMITS OF CLEARING AND GRADING* for the site including that required for implementation of erosion and sediment controls, stockpile areas and utilities.

❒ ❒ ❒ *DISTURBED AREA ESTIMATES* in acres or square feet for the project.

❒ ❒ ❒ *EXISTING TOPOGRAPHY* or contours for the site at no more than 5 foot contour interval.

❒ ❒ ❒ *FINAL TOPOGRAPHY*, contours or proposed site grading in accordance with the design plan which indicates changes to existing topography and drainage patterns at no more than 2 foot contour interval (or 1 foot contours where required).

❒ ❒ ❒ *EXISTING AND PROPOSED SPOT ELEVATIONS* to supplement existing and proposed contours, topography or site grading information. Spot elevations may replace final contours in some instances, especially if terrain is in a low lying area or relatively flat.

❒ ❒ ❒ *EXISTING VEGETATION* including existing tree lines, grassed or unique vegetation areas.

Yes	No	N/A	
❒	❒	❒	*EXISTING SITE FEATURES* including roads, buildings, homes, utilities, streams, fences, structures and other important surface features of the site.
❒	❒	❒	*SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia.
❒	❒	❒	*ENVIRONMENTAL INVENTORY* in accordance with Section 23-10(2) of the Chesapeake Bay Preservation Ordinance of James City County. Inventory generally includes: tidal shores and wetlands, non-tidal wetlands, resource protection area, hydric soils and slopes steeper than 25 percent. For wetlands, provide a copy of issued permits or satisfactory evidence that appropriate permits are being pursued for the entire project.
❒	❒	❒	*100-YEAR FLOODPLAIN LIMITS* or any special flood hazard areas or flood zones based on appropriate Federal Management Agency Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) of James City County, Virginia.
❒	❒	❒	*DRAINAGE AREAS* for offsite and onsite areas, existing or proposed as applicable. Include drainage divides and directional labels for all subareas at points of interest and size (in acres), weighted runoff coefficient or curve number and times of concentration for each subarea.
❒	❒	❒	*CRITICAL EROSION AREAS* which require special consideration or unique erosion and sediment control measures. Refer to the VESCH, Chapter 6 for criteria.
❒	❒	❒	*DEVELOPMENT PLAN* for the site showing all improvements such as buildings, structures, parking areas, access roadways, above and below ground utilities, stormwater management and drainage facilities, trails or sidewalks, proposed vegetation and landscaping, amenities, etc.
❒	❒	❒	*LOCATION OF PRACTICES* proposed for erosion and sediment control, tree protection and temporary stormwater management due to land disturbance activities at the site. Use standard abbreviations, labels and symbols consistent for plan views based on minimum standards and specifications in Chapter 3 of the VESCH.
❒	❒	❒	*TEMPORARY STOCKPILE AREAS* or staging and equipment storage areas as required for onsite or offsite construction activities or indicate that none are anticipated for this project.
❒	❒	❒	*OFFSITE LAND DISTURBING AREAS* including borrow sites, waste areas, utility extensions, etc. and required erosion and sediment controls. If none are anticipated for the project, then indicate on the plans by general or erosion and sediment control notes.
❒	❒	❒	*DETAILS* or alternately, appropriate reference to current minimum standards and specifications of the VESCH for each measure proposed for the project. Non-modified, standard duplicated details (silt fence, diversion dikes, etc.) may be referenced to the current version of the VESCH. Specific dimensional or modified standards (basins, traps, outlet protections, check dams, etc.) require presentation on detail sheets. Schedules or tables may be used for multiple site measures such as sediment traps, basins, channels, slope drains, etc. Any modification to standard details should be clearly defined, explained and illustrated.

Yes No N/A

❒ ❒ ❒ *MAINTENANCE PLAN* or alternately, appropriate reference to current minimum standards and specifications of the VESCH, outlining the inspection frequency and maintenance requirements for all erosion and sediment control measures proposed for the project.

❒ ❒ ❒ *TRENCH DEWATERING* methods and erosion and sediment controls, if anticipated for the project.

❒ ❒ ❒ *CONSTRUCTION SEQUENCE* outlining the anticipated sequence for installation of erosion and sediment controls and site, grading and utility work to be performed for the project by the site contractor.

❒ ❒ ❒ *PHASING PLAN* if required for larger project sites that are to be developed in stages or phases.

❒ ❒ ❒ *STANDARD COUNTY NOTES* are required to be placed on the erosion and sediment control plan. Refer to the standard James City County Erosion and Sediment Control Notes, latest version.

❒ ❒ ❒ *PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved plans, drawings, technical reports and specifications.

III. *NARRATIVE:*

Yes No N/A

❒ ❒ ❒ *PROJECT DESCRIPTION* briefly describing the nature and purpose of the land disturbing activity and the acreage to be disturbed.

❒ ❒ ❒ *EXISTING SITE CONDITIONS* description of existing topography, land use, cover and drainage patterns at the site.

❒ ❒ ❒ *ADJACENT AREA* descriptions of neighboring onsite or offsite areas such as streams, lakes, property, roads, etc. and potential impacts due to concentrated flow or runoff from the land disturbing activity.

❒ ❒ ❒ *OFFSITE DISTURBED AREA* descriptions of proposed borrow sites, waste or surplus areas, utility extensions and erosion and sediment controls to be implemented.

❒ ❒ ❒ *SOILS DESCRIPTION* briefly summarizing site, disturbed area and drainage basin soils including name, unit, hydrologic soil group (HSG) classification, surface runoff potential, erodibility, permeability, depth, texture, structure, erosion hazards, shrink-swell potential, limitations for use and anticipated depths to bedrock and the seasonal water table, as applicable.

❒ ❒ ❒ *CRITICAL AREAS* on the site which many have potentially serious erosion and sediment control problems and special considerations required (ie. steep slopes, hydric soils, channels, springs, sinkholes, water supply reservoirs, groundwater recharge areas, etc.)

Yes No N/A

❒ ❒ ❒ *PROPOSED EROSION & SEDIMENT CONTROL MEASURES* inclusive to the specific erosion and sediment control plan as proposed for the land disturbing activity. Measures should be consistent with those proposed on the site drawings. Address general use, installation, limitations, sequencing and maintenance requirements for each control measure.

❒ ❒ ❒ *STABILIZATION MEASURES* required for the site, either temporary or permanent, and during and following construction including temporary and permanent seeding and mulching, paving, stone, soil stabilization blankets and matting, sodding, landscaping or special stabilization techniques to be utilized at the site.

❒ ❒ ❒ *STORMWATER MANAGEMENT CONSIDERATIONS* for the site, either of temporary or permanent nature, and strategies, sequences and measures required for control. May reference the stormwater management plan for the site, if prepared, for permanent stormwater management facilities and control of drainage once the site is stabilized.

IV. ***CALCULATIONS:***

Yes No N/A

❒ ❒ ❒ *CALCULATIONS AND COMPUTATIONS* associated with hydrology, hydraulics and design of proposed temporary and permanent erosion and sediment control measures including: sediment traps and basins, diversions, stormwater conveyance channels, culverts, slope drains, outlet protections, etc. Computations are not required on the construction plan and may be attached in a supplemental erosion and sediment control plan design report, if presented in a clear and organized format.

❒ ❒ ❒ *TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET* submitted for each basin along with schematic or sketch cross-section showing applicable design and construction data, storage volumes (wet-dry), dimensions and elevations. Peak design runoff to be based on the 2- or 25-year design storm event based on maximum disturbed site conditions (existing, interim or proposed conditions) in accordance with Minimum Standard 3.14 of the VESCH.

JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION

STORMWATER MANAGEMENT DESIGN PLAN CHECKLIST

I. *GENERAL:*

Yes	No	N/A	
❒	❒	❒	*FAMILIARITY* with current versions of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual; Chapter 8, Erosion and Sediment Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia; the Virginia Erosion and Sediment Control Handbook (VESCH); and the Virginia Stormwater Management Handbook (VSMH).
❒	❒	❒	*WAIVER OR EXCEPTION* if necessary, requested in writing, for the plan approving authority to waive or except the requirements of Chapter 23, Chesapeake Bay Preservation ordinance in accordance with procedure established in Sections 23-14 through 23-17 of the ordinance. Applies to this review case only.
❒	❒	❒	*VARIANCE REQUEST* if necessary, requested in writing for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.
❒	❒	❒	*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved stormwater management plans, drawings, technical reports and specifications.
❒	❒	❒	*WORKSHEET FOR BMP POINT SYSTEM* to ensure the stormwater management plan for the project attains at least 10 BMP points (New Development) or traditional pollutant load reduction computations per the Chesapeake Bay Local Assistance Manual (Redevelopment Only).
❒	❒	❒	*PROPOSED CONSERVATION EASEMENT AREAS* for any natural open space points claimed in the BMP worksheet.
❒	❒	❒	*INSPECTION/MAINTENANCE AGREEMENT* is required to be prepared and executed with the County for the project.
❒	❒	❒	*FEMA FIRM PANEL* reference with designated special flood hazard areas or zone designations associated with the site, as applicable.
❒	❒	❒	*DRAINAGE AREA MAP* at a maximum scale of 1"=200' scale showing drainage area boundaries for pre- and postdevelopment conditions and associated time of concentration flow paths. Labels to include drainage area size, runoff coefficient or curve number and time of concentration for each subarea shown on the map.

Yes No N/A

❒ ❒ ❒ *SOILS MAP* with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia with approximate locations of the project site, BMPs and applicable drainage basins.

❒ ❒ ❒ *STORMWATER MANAGEMENT NARRATIVE* in a brief and simple format which describes the project; location; site and drainage basin soil characteristics; receiving water or drainage facility; existing site and drainage basin conditions (topography, land use, cover, slopes, etc.); proposed site development; proposed stormwater management and drainage plan including County BMP type selected; summary of hydrology and hydraulics; maintenance program; and any special assumptions utilized for development of the stormwater management and drainage design plan or computations.

❒ ❒ ❒ *TEMPORARY STORMWATER MANAGEMENT* (if applicable) for control of stormwater runoff encountered during construction activities in addition to measures provided in the erosion and sediment control plan or stormwater management/drainage plan for the site. Adequate protection measures or sequencing provided.

❒ ❒ ❒ *MODIFICATION PLAN* clearly defined for temporary sediment control structures which will be converted to permanent SWM/BMP structures. Includes appropriate hydrologic and hydraulic computations, conversions, sequencing and cleanout information or details. Normally related to primary control structures associated with dry detention or wet retention ponds. Normally not permitted for Group C or D categories such as bioretention, infiltration and filtering system facilities.

❒ ❒ ❒ *STORMWATER MANAGEMENT and DRAINAGE DESIGN REPORT* in a bound 8-1/2 x 11 inch size format. Report shall generally include a title sheet, date, project identification, owner and preparer information, table of contents, narrative, summaries and computations as required. Computations may include: backwater, closed conduit, headwater, hydraulic, hydraulic grade line, hydrology, inlet, open channel, storm sewer, water quality, extended detention or stream channel protection and muti-stage storm routing calculations, as applicable, for the project. Computation data may include hand or computer generated computations, maps or schematics. All information should be presented in a clear, easy to follow format and should closely match construction plan information.

❒ ❒ ❒ *PLAN VIEW* at 1 inch = 50 ft. scale or less (1" = 40', 1" = 30', etc.)

- ❒ ❒ ❒ North arrow and plan legend.
- ❒ ❒ ❒ Property lines.
- ❒ ❒ ❒ Adjacent property information.
- ❒ ❒ ❒ Existing site features and existing impervious cover areas.
- ❒ ❒ ❒ Impervious cover tabulations.
- ❒ ❒ ❒ Existing drainage facilities (natural or manmade).
- ❒ ❒ ❒ Existing environmentally sensitive areas (RPA, wetlands, floodplain, steep slopes, critical soils, buffers, etc.).
- ❒ ❒ ❒ Existing and proposed contours (1' or 2' contour interval) and spot elevations as necessary to define high and low topography.
- ❒ ❒ ❒ Existing and proposed easement locations.

Yes No N/A

- ❒ ❒ ❒ Proposed site improvements and proposed impervious cover areas.
- ❒ ❒ ❒ Proposed stormwater conveyance, drainage and management facilities with appropriate labeled construction data and information.
- ❒ ❒ ❒ Proposed landscaping and seeding plans (disturbed areas, pond interior, etc.).
- ❒ ❒ ❒ Proposed slope stabilization areas (riprap, blankets, mattings, walls, etc.).
- ❒ ❒ ❒ Delineation of permanent pools and the 1-, 2-, 10- and 100-year Design Water Surface Elevations.
- ❒ ❒ ❒ Delineation of ponding, headwater, surcharge or backwater areas which may affect adjacent existing or proposed buildings, structures or upstream adjacent properties.
- ❒ ❒ ❒ Test boring locations with reference surface elevations (if known).
- ❒ ❒ ❒ Risers, barrels, underdrains, overflows and outlet protections.
- ❒ ❒ ❒ Emergency spillway level section and outlet channel.
- ❒ ❒ ❒ Existing and proposed site utilities and protection measures.
- ❒ ❒ ❒ Erosion and sediment control measures (for site or BMP).
- ❒ ❒ ❒ Maintenance or access corridors to permanent stormwater management, BMP or drainage facilities.

II. ***STORMWATER CONVEYANCE SYSTEMS:***

Yes No N/A

❒ ❒ ❒ *PLAN VIEWS*

- ❒ ❒ ❒ Storm drain lengths, sizes, types, classes and slopes for all segments. Label directly on plan or use structure/pipe schedule.
- ❒ ❒ ❒ Access structure (inlets, manholes, junctions, etc.) rim elevations, inverts, type and required grate or top unit and lengths labeled.
- ❒ ❒ ❒ All structure numbers labeled.
- ❒ ❒ ❒ Adequate horizontal clearance from other site utilities or structures.

❒ ❒ ❒ *PROFILES* generally are not required but are encouraged to expedite review. If not provided, ensure all pipe segments have adequate minimum cover, do not exceed maximum depths of cover for the type/class of pipe specified and do not conflict with other site utilities or excavation areas.

❒ ❒ ❒ *DETAILS*

- ❒ ❒ ❒ Typical storm drain bedding details or reference note.
- ❒ ❒ ❒ Standard details or reference note for all proposed access structure types (inlets, manholes, junctions, etc.).
- ❒ ❒ ❒ Inlet shaping detail or applicable reference note.
- ❒ ❒ ❒ Step detail or applicable reference note (if depth 4 ft. or more).
- ❒ ❒ ❒ Typical open channel details with designation, location, shape, type, bottom width, top width, lining, slope, length, side slope, and installation depth required for construction. Channel design data as necessary may also be included.
- ❒ ❒ ❒ Outlet protections at all pipe outfalls.

Yes No N/A

❒ ❒ ❒ *STORMWATER CONVEYANCE SYSTEM COMPUTATIONS*

- ❒ ❒ ❒ Storm Sewer Design computations based on 10-year design event.
- ❒ ❒ ❒ Hydraulic Grade Line computations based on 10-year design event.
- ❒ ❒ ❒ Inlet computations based on current VDOT procedure for spread, ponding depth and grate size required.
- ❒ ❒ ❒ Culvert Headwater computations. Design based on 10-year design storm event and check only for 100-year storm event.
- ❒ ❒ ❒ Open Channel computations based on 2-year design event for velocity and 10-year design event for capacity.
- ❒ ❒ ❒ Standard outlet protection or special energy dissipators.
- ❒ ❒ ❒ Pipe thickness design computations, as required, for selected pipe type (live load, minimum cover, maximum height of cover, etc.).
- ❒ ❒ ❒ Adequate channel computations for receiving channels (based on field measured channel section data).

III. ***STORMWATER MANAGEMENT / BMP FACILITIES****:*

Yes No N/A

❒ ❒ ❒ *HYDROLOGY* - An SCS based methodology is required for the design of stormwater management/BMP facilities with watersheds exceeding 20 acres. Under 20 acres, other generally accepted methodologies such as the modified rational, critical storm are allowable. Refer to Chapter 5 of the VESCH or Chapter 5 of the VSMH.

- ❒ ❒ ❒ Runoff Curve Number or Coefficient determinations: predeveloped and ultimate development land use scenarios.
- ❒ ❒ ❒ Time of concentration: predeveloped and ultimate development indicating overland, shallow concentrated, and channel flow components (200 ft. maximum length for overland flow).
- ❒ ❒ ❒ Hydrograph generation (tabular or graphical): pre- and postdevelopment conditions for the 1-, 2-, 10-, and 100-year design storm events.

❒ ❒ ❒ *FACILITY CONFIGURATION and MINIMUM SEPARATIONS*

- ❒ ❒ ❒ Screening and layout consistent with Section 24-98(d) of the Chapter 24 Zoning ordinance (landscaping, screening, visibility, etc.).
- ❒ ❒ ❒ Basic considerations for safety and unauthorized entry.
- ❒ ❒ ❒ Proper length to width ratio (Typically 2H:1V).
- ❒ ❒ ❒ Facilities with deep pools (4 feet or more in depth) provided with two benches. Fifteen (15) ft. safety bench outward from normal pool at maximum 6 percent slope and aquatic bench inward from normal shoreline below normal pool. Narrower widths may be considered on a case-by-case basis.
- ❒ ❒ ❒ Pond buffer minimum 25 feet outward from maximum design WSEL. Additional setbacks may be required to permanent structures.
- ❒ ❒ ❒ No trees, shrubs or woody plants within 15 feet of embankment toe or 25 feet from principal spillway structure.

Yes No N/A

❒ ❒ ❒ Infiltration and filtering system facilities generally located at least 100 feet horizontally from any water supply well; 100 feet from any downslope building; and 25 feet from any upslope buildings, unless site specific investigation allows for reduced separation.

Yes No N/A

❒ ❒ ❒ *HYDRAULIC COMPUTATIONS*

- ❒ ❒ ❒ Elevation- or Stage- Storage curve and/or tabular data.
- ❒ ❒ ❒ Weir / Orifice Control - Extended Detention.
- ❒ ❒ ❒ Weir / Orifice Control - riser 1-year control for channel protection.
- ❒ ❒ ❒ Weir / Orifice Control - riser 2-year control for quantity (if required).
- ❒ ❒ ❒ Weir / Orifice Control - riser 10-year control for quantity (if required).
- ❒ ❒ ❒ Inlet / Outlet (barrel) control - (All Storms).
- ❒ ❒ ❒ Check for barrel control prior to riser orifice flow to prevent slug flow-water hammer conditions.
- ❒ ❒ ❒ Emergency spillway capacity and depth of flow.
- ❒ ❒ ❒ Elevation - Discharge (Outlet Rating) curve and/or table. Provide all supporting calculations and/or design assumptions.
- ❒ ❒ ❒ Adequate channel computations for receiving channel. May be waived if facility is designed based on current Stream Channel Protection criteria.

❒ ❒ ❒ *POND or RESERVOIR ROUTING*

- ❒ ❒ ❒ Storage-Indication Routing of postdeveloped inflow hydrographs for the 1-, 2-, 10-, and 100-year design storms. Preference is for structure to discharge up to the 10-year storm through the principal spillway and pass the 100-year storm with a minimum 1 foot of freeboard through a combination principal and emergency spillways. If no emergency spillway is provided, riser must be large enough to pass the design high water flow and trash without overtopping the facility, have 3 square feet or more of cross-sectional area, contain a hood type inlet and have a minimum freeboard of 2 feet. Token spillways with minimum 8 ft. width are also recommended at or above the design 100-year storm elevation.
- ❒ ❒ ❒ Downstream hydrographs at established study points, if conditions warrant (ie. facility discharge combined with uncontrolled bypass).

❒ ❒ ❒ *MISCELLANEOUS COMPUTATIONS*

- ❒ ❒ ❒ Water quality volume for permanent pool based on selected BMP treatment volume (WQv).
- ❒ ❒ ❒ Water quality volume for extended detention based on selected BMP treatment volume (WQv) with drawdown computations.
- ❒ ❒ ❒ Drawdown computations for the 1-year, 24 hour detention for stream channel protection criteria.
- ❒ ❒ ❒ Pond drain computations (within 24 hours).
- ❒ ❒ ❒ Anti-seep collar design (concrete preferred) or match material type.
- ❒ ❒ ❒ Filter diaphragm design (or alternative method of controlling seepage).

Yes No N/A

❒ ❒ ❒ Riser / base structure flotation analyses. FS = 1.25 minimum.

❒ ❒ ❒ Downstream danger reach study and/or emergency action plan (if conditions warrant).

❒ ❒ ❒ Upstream backwater analyses onto offsite adjacent property (if conditions warrant).

❒ ❒ ❒ 100 year floodplain impacts (if conditions warrant).

Yes No N/A

❒ ❒ ❒ *GEOTECHNICAL REQUIREMENTS*

❒ ❒ ❒ Geotechnical Report with recommendations specific to BMP facility type selected. Report prepared by a registered professional engineer. Requires submission, review and approval prior to issuance of Land Disturbance Permit.

❒ ❒ ❒ Initial Feasibility Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).

❒ ❒ ❒ Concept Design Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).

❒ ❒ ❒ Minimum Boring locations: borrow area, pool area, principal control structure, top of facility near one abutment and emergency spillway if provided.

❒ ❒ ❒ Boring logs with Unified Soil Classification (ASTM D2487), soils descriptions and depths to bedrock and the seasonal water table indicated.

❒ ❒ ❒ Standard County Record Drawing/Construction Certification note provided on plan. *Note: It is understood that preparation of record drawings and construction certifications as required for project facilities may not necessarily be performed by the plan preparer. These components may be performed by others.*

❒ ❒ ❒ *PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS*

❒ ❒ ❒ *EXISTING GROUND AND PROPOSED GRADE*

❒ ❒ ❒ Embankment or excavation side slopes labeled (3H:1V maximum).

❒ ❒ ❒ Minimum top width labeled (per VESCH or VSMH requirements).

❒ ❒ ❒ Removal of unsuitable material under proposed facility (per Geotechnical Report requirements).

Yes No N/A

❒ ❒ ❒ *CORE TRENCH*

- ❒ ❒ ❒ Material (per plan or Geotechnical Report).
- ❒ ❒ ❒ Bottom width (4' minimum or greater as dictated by Geotechnical Report recommendations).
- ❒ ❒ ❒ Side slopes (1:1 maximum steepness)
- ❒ ❒ ❒ Depth (4' minimum or greater as dictated by Geotechnical Report).

❒ ❒ ❒ *PRINCIPAL CONTROL STRUCTURE. RISER OR SIMILAR STRUCTURE (DETAILS REQUIRED FOR ALL ITEMS)*

- ❒ ❒ ❒ Durable, watertight, resistant material (concrete preferred).
- ❒ ❒ ❒ Riser diameter is at least 1.25 times larger than barrel diameter.
- ❒ ❒ ❒ All pertinent dimensions and elevations shown.
- ❒ ❒ ❒ Control orifice or weir dimensions and elevations shown.
- ❒ ❒ ❒ Trash rack - removable - for each release.
- ❒ ❒ ❒ Anti-vortex device, baffle or plate.
- ❒ ❒ ❒ Riser base structure with dimensions and embedment specifications (concrete preferred).
- ❒ ❒ ❒ Interior access (steps, ladders, etc.) for maintenance for structures over 4 feet in height. Excessively high risers may need some form of exterior access on top portion.
- ❒ ❒ ❒ Low flow orifice with trash rack device.

❒ ❒ ❒ *PRINCIPAL CONTROL STRUCTURE OUTLET BARREL*

- ❒ ❒ ❒ Material (ASTM C-361 reinforced concrete pipe) with watertight joints. Prior approval required for all other pipe material (other RCP types, CMP, CPP, PVC, etc.).
- ❒ ❒ ❒ Support and bedding requirements for barrel - concrete cradles, etc. or as recommended by the Geotechnical Report.
- ❒ ❒ ❒ Pipe inverts, length, size, class and slope shown.
- ❒ ❒ ❒ Flared end section or endwall provided on barrel outlet.

❒ ❒ ❒ *SEEPAGE CONTROL*

- ❒ ❒ ❒ Phreatic line shown (4:1 slope measured from the intersection of the embankment and the principal spillway design high water).

- ❒ ❒ ❒ *ANTI-SEEP COLLARS*
  - ❒ ❒ ❒ Anti-seep collar, concrete preferred.
  - ❒ ❒ ❒ Size - 15 percent increase in length of saturation using outside pipe diameter.
  - ❒ ❒ ❒ Spacing and location on barrel (located at least 2 feet from a pipe joint).
  - ❒ ❒ ❒ *FILTER DIAPHRAGMS*
  - ❒ ❒ ❒ Design based on latest NRCS design methods and certified by a professional engineer.

Yes No N/A

❒ ❒ ❒ *ELEVATION AND DIMENSIONAL DESIGN DATA*

- ❒ ❒ ❒ Top of facility - construction height and settled height (10 percent settlement).
- ❒ ❒ ❒ Crest of principal control structure spillway at least one (1) foot below crest of emergency spillway, if provided.
- ❒ ❒ ❒ Minimum freeboard of one (1) foot above the 100-year design high water elevation for facilities <u>with</u> an emergency spillway.
- ❒ ❒ ❒ Minimum freeboard of two (2) feet above the 100-year design high water elevation for facilities <u>without</u> an emergency spillway or in accordance with the SCS National Engineering Handbook (prior approval required).
- ❒ ❒ ❒ Basin Sediment Clean-Out elevation (permanent mode). Typically 10 to 25 percent of water quality volume.

❒ ❒ ❒ *CROSS SECTION THROUGH FACILITY*

- ❒ ❒ ❒ Existing Ground.
- ❒ ❒ ❒ Proposed grade.
- ❒ ❒ ❒ Top of facility - constructed and settled.
- ❒ ❒ ❒ Location of emergency spillway with side slopes labeled (emergency spillway in cut).
- ❒ ❒ ❒ Bottom of core trench (4' minimum).
- ❒ ❒ ❒ Location of each soil boring.
- ❒ ❒ ❒ Barrel location.
- ❒ ❒ ❒ Existing and proposed utility location/protection.

❒ ❒ ❒ *EMERGENCY SPILLWAY PROFILE*

- ❒ ❒ ❒ Existing ground.
- ❒ ❒ ❒ Inlet, level (control) and outlet sections per SCS.
- ❒ ❒ ❒ Spillway and crest elevations.

❒ ❒ ❒ *PRETREATMENT DEVICES* of adequate depth and properly designed using required pretreatment volumes for the selected County BMP facility type. Including, but not limited to: sediment forebays, sediment basins, sumps, grass channels, gravel diaphragms, plunge pools, chamber separators, manufactured systems or other acceptable methods.

Yes No N/A

❒ ❒ ❒ *CONSTRUCTION SPECIFICATIONS and NOTES*

- ❒ ❒ ❒ Anticipated sequence of construction for BMP (consistent with erosion and sediment control plan).
- ❒ ❒ ❒ Provisions to control base stream or storm flow conditions encountered during construction.
- ❒ ❒ ❒ Site and subgrade preparation requirements.
- ❒ ❒ ❒ Embankment, fill and backfill material soil and placement (lift) thickness requirements.
- ❒ ❒ ❒ Compaction and soil moisture content requirements.
- ❒ ❒ ❒ Geosynthetics for drainage, filtration, moisture barrier, separation, and reinforcement purposes.
- ❒ ❒ ❒ Clay or synthetic (PVC or HDPE) pond liners.
- ❒ ❒ ❒ Storm drain, underdrain and pipe conduit requirements.
- ❒ ❒ ❒ Minimum depth of pipe cover for temporary (construction) and final cover conditions.
- ❒ ❒ ❒ Permanent shutoff valve and pond drain.
- ❒ ❒ ❒ Concrete requirements for structural components.
- ❒ ❒ ❒ Riprap and slope protection.
- ❒ ❒ ❒ Access or maintenance road surface, base, subbase.
- ❒ ❒ ❒ Temporary and permanent stabilization measures.
- ❒ ❒ ❒ Temporary or permanent safety fencing.
- ❒ ❒ ❒ BMP Landscaping (deep, shallow, fringe, perimeter,etc.)
- ❒ ❒ ❒ Dust and traffic control (if warranted).
- ❒ ❒ ❒ Construction monitoring and certification by professional.
- ❒ ❒ ❒ Other: _____
- ❒ ❒ ❒ Other: _____.

❒ ❒ ❒ *MAINTENANCE PROVISIONS*

- ❒ ❒ ❒ Entity responsible for maintenance identified..
- ❒ ❒ ❒ Maintenance Plan which outlines the long-term schedule for inspection/maintenance of the facility and forebays
- ❒ ❒ ❒ Maintenance access from public right-of-way or publicly traveled road.
- ❒ ❒ ❒ Maintenance easement provided encompassing high water pool and buffer, principal and emergency spillways, outlet structures, forebays, embankment area and possible sediment-removal stockpile areas.
- ❒ ❒ ❒ Minimum 6 foot wide public safety shelf (landing) or alternative fencing.

IV. *OUTLET PROTECTIONS:*

Yes	No	N/A	
❒	❒	❒	Sized for maximum design release (generally 10-year storm).
❒	❒	❒	Flared end section or endwall.
❒	❒	❒	Dimensions.
❒	❒	❒	Rock or riprap size, quantity and placement thickness.
❒	❒	❒	Slope at 0 percent (Level Grade).
❒	❒	❒	Geotextiles (nonwoven).
❒	❒	❒	Special energy dissipators are required for design discharge velocities that exceed eighteen (18) feet per second; or if use of standard outlet protection would result in velocities exceeding permissible channel velocities; or if space restricts or limits their use.

V. *ADDITIONAL COMMENTS OR INFORMATION SPECIFIC TO THE PLAN:*

Plan Preparer: _____

Date: _____

SWMProg/BMP/Checklist/ChkList