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County Executive

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PROJECT: _____
PROJECT ID #: _____
ENGINEER: _____
REVIEW NO.: _____
DATE: _____

FINAL STORMWATER MANAGEMENT PLAN REVIEW CHECKLIST
ESD PRACTICES (NON MD-378 ONLY)
(Please return this checklist with each re-submission)

<u>LEGEND:</u>	<u>✓</u>	ACCEPTABLE	<u>X</u>	NOT ACCEPTABLE
	<u>R</u>	REQUIRED, NOT SUBMITTED	<u>NA</u>	NOT APPLICABLE
	<u>INC</u>	INCOMPLETE	<u>NC</u>	NOT CHECKED

Stormwater management design shall be based on the following:

1. *Baltimore County Code, Article 33, Title 4, Stormwater Management:*
<http://resources.baltimorecountymd.gov/Documents/Environment/swm/swmcountycode.pdf>
2. *2000 Maryland Stormwater Design Manual (Vol. I & II).*
3. *MD 378 specifications: Appendix B.1 of the 2000 Maryland Stormwater Design Manual (Vol. I & II).*
4. *All proposed stormwater management facilities are to be privately owned and maintained.*
5. *All sites within the Gwynns Falls, Jones Falls and Herring Run watersheds require 100-yr stormwater management.*

I. SUBMISSION DOCUMENTS

- ____ 1. Two (2) copies of Final SWM Plans.
- ____ 2. Two (2) copies of Final SWM Report.
- ____ 3. One (1) copy of Geotechnical Report.

Note: All submissions have to go to Permits, Approvals and Inspections (PAI). Please contact PAI and Baltimore County Soil Conservation District concerning separate submittal requirements.

II. PLAN REQUIREMENTS

ALL PLANS SHALL BE ON 24" x 36" OR 30" x 42" SHEETS. 36" x 48" ARCHITECTURAL PLAN SHEETS MAY BE ALLOWED WITH PRIOR APPROVAL ONLY.

A. Standard Title and Signature Blocks (all sheets)

- ____ 1. Owner/Developer name, address and phone number.
- ____ 2. Design Professional name, address, phone number and email.
- ____ 3. Project name, address, election and councilmanic districts.
- ____ 4. Plan scale, date and sheets numbered.

- _____5. Maryland Coordinate System (MCS) should be indicated in the lower right corner of each sheet.

B. Vicinity Map Requirements (first sheet only)

- _____1. Scale: 1" = 1,000' (max.) with north arrow.
_____2. Benchmark(s) described and location(s) shown on map.
_____3. Site delineated.

C. Certifications and Stamps

- _____1. Design Professional's seal, signature and professional certification on each sheet including note regarding Phase I of development process, i.e., "This Plan is Sealed and Certified as being in accordance with the approved Development Plan". (This note is not applicable to Minor subdivisions, or projects that have an "A" exemption from the DRC).
_____2. SWM certifications must be placed on plans as shown at the link below:
(<http://resources.baltimorecountymd.gov/Documents/Environment/SWM/swmcerts.pdf>)
_____a. Engineer's certification.
_____b. Landowner's / Developer's certification.
_____c. As-built certification.
_____d. Contractor's as-built note.
_____3. SWM stamps must be placed on plans as shown at the link below:
(<http://resources.baltimorecountymd.gov/Documents/Environment/SWM/swmstamps.pdf>)

D. General Notes (first sheet only)

- _____1. Unless otherwise noted, all construction and workmanship shall be in accordance with:
_____a. Baltimore County Department of Public Works Standard Specifications for Construction Materials, December 2007, Errata & Addenda.
_____b. Natural Resources Conservation Service of Maryland Standards and Specifications, Pond, Code 378, January 2000.
_____c. Maryland Department of Transportation State Highway Administration, July 2008, Standard Specifications for Construction and Materials.
_____2. Stormwater management approved under Bill No. 25-10.
_____3. Ownership and maintenance responsibility of SWM facilities.
_____4. A state permit is required for this project.

E. Base and Topographic Information

- _____1. Onsite existing contours labeled with legible lettering (at no greater an interval than 2').
Note: Field run topography is required within limit of disturbance.
_____2. Offsite topography (at no greater an interval than 2') extending a min. of 100' beyond the property boundaries or drainage area delineations. Note: Baltimore County GIS may be used.
_____3. Existing features, trees, buildings, pavement, utilities with size, etc. shown and labeled where appropriate.
_____4. Lines/line weight and symbols used are defined in legend and follow the standard plates C-A and C-B as found in the DPW Baltimore County Design Manual.
_____5. North arrow.
_____6. Minimum three (3) grid ticks.

F. Existing Site Conditions / Resource Mapping Plan

- _____ 1. Location of all site resources shown in Table 5.1 of the MDE ESD Manual, Chapter 5.
- _____ 2. Location of existing impervious areas (buildings, roadways, parking and sidewalks, etc.) shown; preferably shaded.
- _____ 3. Field verification from the appropriate professional of the natural resource map.
- _____ 4. Show resources to be retained, if any. Highlight/shade areas that are to be protected.
- _____ 5. If natural drainage patterns within site are not clearly depicted by topographic information, provide flow arrows etc. that show drainage patterns.
- _____ 6. Soil lines and hydrologic soils groups (A, B, C & D) shown on the map and summarized in table format.

G. ESD Drainage Area Map

- _____ 1. Proposed limits of clearing and grading (LOD) shown legibly.
- _____ 2. Location of proposed impervious areas (buildings, roadways, parking and sidewalks, etc.) shown; preferably shaded.
- _____ 3. ESD practice(s) shown and labeled with corresponding outfall(s) indicated.
- _____ 4. Location of proposed utilities with size where applicable.
- _____ 5. Soil lines and hydrologic soils groups shown on the map and summarized in table format.
- _____ 6. Drainage area to each ESD practice delineated and labeled with the following items:
 - _____ a. Total area draining to practice.
 - _____ b. Impervious area.
 - _____ c. Type of ESD practice per MDE nomenclature (i.e. M-1, M-2, N-1, N-2, etc.).
- _____ 7. Design summary table with limit of disturbance, existing and proposed impervious areas, required and provided WQv, ESDv and Pe.
- _____ 8. ESD practice summary table with practice number, type of practice, impervious and total drainage areas.
- _____ 9. Final design of 100-year stormwater management, if required.

H. Plan Views

- _____ 1. Type of ESD practice labeled per MDE nomenclature (i.e. M-1, M-2, N-1, N-2, etc.).
- _____ 2. Scale at 1" = 50' or less; preferably at 1"=20' or 1"=30'.
- _____ 3. Existing and proposed contours are labeled legibly (1' or 2' interval).
- _____ 4. Existing and proposed improvements are shown.
- _____ 5. Interior slope (3:1 max.) within ESD practice labeled with directional arrow.
- _____ 6. Inlet/Overflow structure shown and labeled.
- _____ 7. Outlet pipe shown and labeled with appropriate outlet protection (labeled and dimensioned).
- _____ 8. Underdrains (4" min.) with cleanouts shown and labeled where applicable.
- _____ 9. Pretreatment area dimensioned and surface area noted, if applicable.
- _____ 10. Bottom of practice dimensioned and surface area noted.
- _____ 11. All inflow point(s) into practice have adequate inflow protection (labeled and dimensioned).
- _____ 12. Proposed grading justifies volume, surface area and outfall location.
- _____ 13. Location(s) of soil boring(s).

I. Profiles (consistent scales, e.g. H: 1" = 30' and V: 1"=3')

- _____ 1. Profile located right under plan view.
- _____ 2. Horizontal scale matches plan view.
- _____ 3. Existing ground and proposed grade are shown and labeled.
- _____ 4. Filter media shown and labeled.

- _____5. Inlet/Overflow structure shown and labeled with appropriate Baltimore County standard detail number(s).
- _____6. Size and elevation of openings within outlet structure shown and labeled.
- _____7. Type, size, slope, Q_{10} and V_{10} of outlet pipe shown where applicable.
- _____8. Type, size and slope of underdrains (4" min.) shown where applicable.
- _____9. Cleanouts (4" min.) shown and labeled where applicable.
- _____10. WQv, ESDv and 10-yr WSEL shown and labeled.

J. Cross Sections and Details

- _____1. Typical section through ESD practice with filter media dimensioned and labeled.
- _____2. Underdrains (4" min.) with cleanouts shown and labeled where applicable.
- _____3. Observation well detailed as shown on page D.8.6 within Appendix D.8 of the SWM design manual, if applicable.
- _____4. Filter cloth shown and labeled. **No filter cloth at bottom of ESD practice.**
- _____5. Diversion manhole (Appendix D.8 – SWM design manual) detailed with the following items:
 - _____a. Baltimore County standard detail number; add a note if modified.
 - _____b. General notes addressing any modifications, if applicable.
 - _____c. Plan view and two (2) sections through structure at a legible scale.
 - _____d. Inverts and elevations of all pipes and baffle wall(s) within manhole.
- _____6. Sign detail with typical dimensions for permeable pavement/porous concrete.

K. Soil investigation 33-4-107. (e)(2)(ii) (Minimum of 1 required per ESD practice):

- _____1. Bearing strength (blow count).
- _____2. Unified soil classification for each strata.
- _____3. Groundwater at completion.
- _____4. Groundwater @ 24 hours, minimum.
- _____5. U.S.D.A. soil textural classification for each strata (required for infiltration).
- _____6. Location of soil borings shown on plan with boring logs provided.
- _____7. Field run infiltration tests shall be required for all proposed infiltration practices.

L. SWM Landscape Guidelines

- _____1. Proposed plantings within ESD practice are shown and labeled. **Note: Trees are NOT allowed in the bottom of any SWM facility or within 25' from the release/outlet structure and underdrains.**
- _____2. Plant list provided in typical table format featuring key symbols, quantity, botanical/common name, size, etc.
- _____3. Planting notes and specifications per Landscaping Guidance for Stormwater BMPs per Appendix A of the SWM design manual.
- _____4. SWM landscape costs included in SWM construction cost estimate.

M. Construction Specifications, Operation & Maintenance Schedules and Sequence of Operations

- _____1. Construction specifications per Appendix B.2 through B.4 of the SWM design manual.
- _____2. Operation and maintenance schedules per the link below:
<http://resources.baltimorecountymd.gov/Documents/Environment/SWM/swmomschedulesesdpractices.pdf>
- _____3. Sequence of operations clearly delineates installation/construction of ESD practice and seamlessly integrates into sediment control sequence of operations.

III. STORMWATER MANAGEMENT REPORT

A. Title Page

- _____ 1. Project name.
- _____ 2. Owner/Developer name, address, phone number and email.
- _____ 3. Design professional name, address, phone number and email.
- _____ 4. Date prepared.
- _____ 5. Seal, signature and professional certification.

B. Table of Contents

- _____ 1. Sections listed.
- _____ 2. Appendix listed.
- _____ 3. Figures and tables listed.

C. Narrative

- _____ 1. General site information (location, acreage, existing and proposed use, soils, etc.).
- _____ 2. Site specific information:
 - _____ a. Justification for type of system used based on ESD to the MEP.
 - _____ b. Methodology/analysis used for design (reference all assumptions).
 - _____ c. Provide name of watershed and stream use designations for all discharge points.
 - _____ d. Design summary table with limit of disturbance, existing and proposed impervious areas, required and provided WQv, ESDv and Pe.
 - _____ e. ESD practice summary table with practice number, type of practice, impervious and total drainage areas and ownership of facilities.
- _____ 3. Suitability of stormwater outfall locations.
- _____ 4. Conclusions.
- _____ 5. Appendix (contains all computations, design charts and relevant data references).

D. Hydrologic Computations

Redevelopment v/s New Development

- _____ 1. Site area (LOD).
- _____ 2. Existing impervious area.
- _____ 3. Percent imperviousness (I).
- _____ 4. Redevelopment ($I > 40\%$) or New Development ($I < 40\%$).

Overall Site Analysis

- _____ 1. Limit of disturbance (LOD).
- _____ 2. Impervious and pervious areas by soil type.
- _____ 3. Percent imperviousness (I).
- _____ 4. Target RCN (woods in good condition).
- _____ 5. Compute Rv.
- _____ 6. Rainfall target (Pe) - required.
- _____ 7. Total volume required (ESDv).

Sub Area Analysis

- _____ 1. Drainage Area to ESD practice.
- _____ 2. Impervious area being treated by ESD practice.
- _____ 3. Percent imperviousness (I).

- _____4. Compute Rv.
- _____5. Rainfall target (Pe) - provided.
- _____6. Total volume provided (ESDv); provide elevation/storage chart.
- _____7. Flow splitter / Diversion manhole computations, if applicable.

IV. ADDITIONAL SUBMISSION DOCUMENTS

- _____ 1. SWM construction cost estimate(s). Note: If there are multiple facilities, each facility must have its own cost estimate. Do **NOT** combine the cost estimates. Must be submitted prior to SWM plan approval.
- _____ 2. SWM data sheet (1 for each facility) and a summary SWM data sheet (if there are multiple facilities). Note: Must be submitted prior to SWM plan approval.
- _____ 3. SWM easement agrees with record plat delineated with bearings, distances and acreage. Note: Provide dedication table on plans for SWM easement(s). Please click on the link below for more information about **ESD and SWM Easements for Private Maintenance**:
<http://resources.baltimorecountymd.gov/Documents/Environment/swm/smwdeedsdeclarationsprivatedevelopment.pdf>
- _____ 4. Right-of-way plats. Note: R/W plat and/or record plat may be recorded in advance of final stormwater management plan approval if the recording is approved by the Department based upon sufficient evidence that stormwater management can be achieved in the locations designated on the plat.
- _____ 5. Maintenance covenant preparation. Note: Not required for SWM plan approval.
- _____ 6. One (1) copy of the existing/proposed storm drain profiles if runoff is being conveyed to the proposed ESD practice(s) through an existing/proposed storm drain system.

ADDITIONAL COMMENTS:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Plans reviewed by: _____ Date: _____

Updated 10/01/18