COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

Department of Public Works
Environmental Services Division
Stormwater Management Facility Construction Record Drawing
and Final Conformance Acceptance Inspection
Administrative Policy

I. PURPOSE

A. This policy provides guidance outlining the requirements for submission, review, and acceptance of the Construction Record Drawing (CRD) set and the Final Conformance Acceptance Inspection for Best Management Practices (BMP) permanent Stormwater Management (SWM) facilities constructed within Henrico County, Virginia.

B. The policy ensures compliance with the requirements of State Water Control Law, Chapter 3.1, Code of Virginia, § 62.1 *et seq*. (1950 as amended); Environment, Title 9, Virginia Administrative Code, Agency 25, 9VAC25-875 *et seq.,* "Virginia Erosion and Stormwater Management Regulation"; Environment, Chapter 10, Code of the County of Henrico, Virginia, Division 4, "Maintenance and Financial Guarantees",§ 10-46(d), "Financial guarantee" and § 10-47 *et seq*., "Stormwater management facility construction record drawing"; the Virginia Department of Environmental Quality (DEQ) *Stormwater Management Handbook,* v1.1, 7/1/2024; and the *Henrico County Environmental Compliance Manual (HCECM)*.

II. WHEN TO SUBMIT THE CONSTRUCTION RECORD DRAWING SET

A. Prior to conducting the *Final Conformance Acceptance Field Inspection* by the Henrico County BMP New Construction Acceptance Inspector, the CRD set shall be submitted. The *Final Conformance Acceptance Field Inspection* will review the following criteria for compliance with approved plans and revisions thereto: recorded BMP maintenance agreement, if required, adequate underground system fill, and minimum top cover are placed, i.e., sod, stone, substrate, and pavement along with any required inspection ports and control structures, pre-cast concrete proprietary hydrodynamic treatment device components or filtering units are installed, permanent uniform and mature stabilization of slopes and embankments is present, and uniform and mature aquatic bench or bioretention plantings are present, and principal spillway risers are in final configuration. The *Final Conformance Acceptance Field Inspection* will verify the following: the BMP is constructed per the approved plan and applicable standard(s), either *Virginia Stormwater Management Handbook (2024), Virginia Stormwater BMP Clearinghouse* or *HCECM* and is functioning per the approved SWM plan specifications and SWM computations.

B. Submit final, attested CRDs only; **preliminary submissions are not accepted or reviewed**.

III. MAINTENANCE AGREEMENT AND CONSTRUCTION RECORD DRAWING SET REQUIREMENTS

A. The BMP maintenance agreement, if required, must be recorded prior to acceptance.

B. The CRD set ***shall be redlined copies of the most recent approved plan sheets***, sealed, and attested by a Commonwealth of Virginia *Department of Professional and Occupational Regulation Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects* regulant per the requirements of *9VAC25-875-535(A)* and *Sec. 10-47 (c)* of the Henrico County Code, with the following statement on **each** sheet:

> *Pursuant to 9VAC25-875-535, I certify that to the best of my professional knowledge, the construction record drawing shows all adjustments and revisions to the stormwater management plan made during construction and serves as a permanent record of the actual location of all constructed elements per 9VAC25-875-480, __ Part V Technical Criteria, Article 3 (post 7/1/2024), __Article 3 (formerly 2 B), or __ Article 4 (formerly 2 C).*
>
> _____ _____
> *Name* *Signature*
>
> _____ _____
> *Virginia License No.* *Date*
>
> *"Certify" means to state or declare a professional opinion based on sufficient and appropriate onsite inspections, material tests, as-built survey data, and information provided by other professionals and the contractor, conducted during or after construction.*

C. The certified CRD sheet(s) must be architectural "D" size, landscape orientation, in a Portable Document Format (pdf) digital file ***with a digital certificate*** **(Adobe™, Bluebeam™, Docusign™ or equivalent**, not a digital image facsimile signature), submitted to the BMP New Construction Acceptance Inspector or the Environmental Compliance Specialist assigned to the project via electronic submission (email preferred); digital certificates are required to preclude misuse of sealed and attested as-built information by third parties and eliminate the need for paper copies with original signatures and seals. As-built certification forms are no longer accepted by the County of Henrico. Apart from a narrative explaining field changes not reflected in the latest approved plans, as-built certification letters are not accepted; field change explanatory letters will require graphical exhibits with seal and digital certificate affixed.

D. Each facility shall be identified by the *HCECM SW Facility Designation Number* per *Chapter 9* or the *Stormwater Pollution Prevention Plan* (SWPPP) *Tab 14,* for the Virginia Pollution Discharge Elimination System (VPDES) permit Part 2 B Technical Criteria; VPDES Part 2 C Technical Criteria facility numbers are found in *HCECM Chapter 14* or *SWPPP Tab 14* (proprietary device and system facility numbers are assigned prior to the pre-construction meeting due to changing manufacturers and trademark names).

E. The drawings must accurately depict, presented to scale, all as-built details such as, but not limited to the following: inverts, lengths, depths, material types and sizes, grading (as-built contours with indices), and the schematic location of all required components, including weir orifices and tops, utilizing schematic details or manufacturer's shop drawings in approved plans with the latest revision information.

F. Utilize storm profile sheets, BMP grading sheets, and details sheets (schematics) to present the required CRD information:

1. For all facilities, Virginia State Plane Coordinate System South Zone northings (y) and eastings (x) and project vertical datum elevations (z), per the project's stated NAD83 horizontal iteration and NAVD88/geoidal vertical iteration data, shall be shown in red color with the intent to increase GIS mapping accuracy and aid in the recovery of access covers and inspection ports during facility maintenance inspections.

2. The nominal BMP overall center of footprint for all graded earthwork facilities, i.e. basins and ponds, bioretention, level spreaders, permeable pavement, rooftop gardens, swales, etc., shall be horizontally located to the nearest foot *with a box (callout) northing and easting comment with a leader*.

3. All graded earthwork facilities shall present as-built contours in red color, with index contours, superimposed upon the approved plan sheet grading plan which shows the BMP, including all constructed elements, e.g., forebays, channelization features; if the BMP type is a swale or incorporates concrete low flow channels, spot elevations on the swale or channel centerline are required at 25' stations from outflow end to inflow(s) and <u>at all intersecting channel centerlines:</u>

    a) Dry basins **<u>must drain</u>** to the low flow channel and/or orifice; <u>standing water is not permitted in the basin bottom</u>; inspection criterion is 3-5 days after a measurable event.

    b) **<u>Provide a benchmark with corresponding northing (y), and easting (x)</u>**.

4. All basins and ponds shall have stage/storage tables redlined on the approved plan sheet on which the tables are presented to certify compliance with design storm computations.

5. All graded earthwork facilities shall present proof that there are no woody stem landscaping encroachments interfering with maintenance access or in fill

embankments, and that all required setbacks and screening requirements per the *HCECM* design criteria found in *Tables 9.2 and 9.3* were met; proof is affixing and attesting the required statement, section III, B.

6. Permeable pavement curb and gutter spot elevations controlling the pavement sheet flow shall be redlined to show the as-built condition.

7. All control structures, inspection ports, permeable pavement monitoring wells, and all first upstream structures from the proprietary device or system and first downstream structure from the proprietary device or system control structure shall be located horizontally by the access (manhole or handhole) nominal centerline to 0.1' (tenth); the overall nominal center of underground system footprint (chambers, modules, or vaults) shall be stated to 0.1', multiple bay underground systems may require multiple coordinate pairs if the layout is not a straight alignment without deflection. *Show the required information in box comments with leader lines pointing to the respective control structure, manhole, inspection port, or underground system footprint*.

8. All level spreader facilities shall show as-built spot elevations along the weir and for all level spreaders in the County of Henrico BMP Maintenance Program, a 10' width cleared and grassed turf access strip must be maintained around the entire level spreader footprint per the *Chapter 14 Minimum Design Standard, 14.01*:

    a) The *HCECM Chapter 14, Henrico County Minimum Standard 9.01 Energy Dissipator, Design "A" or "B",* shall show elevations at 5 stations along the weir: ends (2), deflection points (2), and midpoint (1).

    b) Other linear designs without deflection points shall show spot elevations at weir ends and at the midpoint with station intervals not to exceed 25'.

9. All level spreaders shall show profile and cross-sectional information presented in the approved plans on the relevant sheets; the Henrico standard design shall show sections A, B, and C.

10. All rim, riser, weir, and orifice elevations shall be stated to 0.01' (hundredth), including all underground system inspection ports (handholes or trapdoors); all structure inverts shall be stated to 0.01'.

11. Cross-sections, details (schematics), and manufacturer's shop drawings from the relevant approved plan sheets shall be redlined to present the as-built elevations and depths for all **growing media** and **underground system cross-sectional fill heights**.

12. Bioretention facilities and rooftop gardens must include a schedule stating the soil amendments and/or engineered filter media installed with certification that the growing medium meets the requirements of the specification (may require the engagement of a separate discipline other than that of the certifying regulant).

13. Bioretention facilities and rooftop gardens or facilities with aquatic plantings shall present a redlined planting schedule certifying that the stated species were planted in the types and quantities required per the spacing interval plan (may require the engagement of a separate discipline other than that of the certifying regulant).

G. NAD83 and NAVD88 data realizations will be utilized until adoption and acceptance of the new US National Geodetic Survey (NGS) National Spatial Reference System (NSRS) and American Vertical Datum (GRAV-D) by the County of Henrico.

H. For all manufactured treatment devices and systems, regardless of type, a letter is required from the manufacturer stating that all required training for proper installation of the proprietary device or system was conducted with the installing contractor's employees and all required device or system components were delivered to the site. Training shall be conducted at the site with the BMP Acceptance Inspector or Environmental Services Division staff attending.

I. A separate manufacturer's activation letter is required for all proprietary filtering systems stating the date the filtering device was placed in service (filtered devices only, sediment chamber systems and hydrodynamic separation devices are excluded).

J. Geotechnical reports are required for all basin and pond embankments with over 3' of fill height and for all chamber, oversized pipe, and module underground system excavations. Proprietary filtration systems, precast control structures and cast in place control structures will follow VDOT and *Henrico County Public Works Design Manual* stone bedding standards for precast concrete structures, all oversize pipe installations for underground detention, *HCECM SW Facility Designation Numbers 6 and 178,* will follow the pipe bedding standards.

K. All resubmissions must bear the revision date in the certification statement with an updated digital certificate.

IV. REVIEW AND ACCEPTANCE

A written review for each *final*, *attested* CRD set submission will be issued within a window of 15 business days after digital receipt (email or file transfer site), inspection workload permitting. Final BMP facility acceptance occurs after confirmation of recorded maintenance agreement(s), if required, receipt of a satisfactory CRD set and resolution of any noted deficiencies with facility construction, facility plantings, or facility stabilization. Environmental bond release is recommended by the Environmental Compliance Inspector assigned to the project. The Environmental Compliance Inspector determines if overall site erosion and sediment control stabilization for the project were achieved per plan. Then, the Inspector requests submission of the completed Notification of Termination (NOT) for the VPDES permit if one was required for the project. The Environmental Compliance Inspector requests confirmation that all BMP facilities were accepted prior to initiating NOT or filing bond release paperwork for submittal to the Erosion and Sediment Control Program Manager. Confirmation of VPDES termination from DEQ is required for environmental bond release if a permit was required for the project.