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Stormwater Management Filtration System Plan Review Checklist

Sediment Control Permit No. _____

SUPPORTING INFORMATION (One Copy)

- ___ ___ ___ Stormwater Management Easement and Maintenance Covenant
- ___ ___ ___ Itemized Stormwater Management Construction Estimate.
- ___ ___ ___ Storm drain plans for any areas not draining directly to the facility (must show safe structural conveyance).

SOILS INVESTIGATION

- ___ ___ ___ Geotechnical report
- ___ ___ ___ Minimum boring locations: a minimum depth of 4 feet below proposed bottom of facility and for infiltration at least one every 50 linear feet
- ___ ___ ___ USDA textural classification for various layers, with depth
- ___ ___ ___ Depth to the seasonal high groundwater and bedrock (proposed bottom of facility to be a minimum of 4 feet above both)
- ___ ___ ___ Fill areas identified
- ___ ___ ___ In-place percolation test (for infiltration only)

FILTRATION COMPUTATIONS

- ___ ___ ___ Drainage area to the facility
- ___ ___ ___ Volume of storage required and provided
- ___ ___ ___ Submit flow splitter computations (if applicable)
- ___ ___ ___ Correct determination for compliance with MD-378. For facilities subject to MD-378, reference MCDPS Pond Plan checklist

For Infiltration

- ___ ___ ___ Use .40 void ratio for gravel
- ___ ___ ___ For rates that are exceedingly high (>10-inches/hour) investigate use of alternative filtration practice
- ___ ___ ___ Maximum depth determination
- ___ ___ ___ Facility dimensions

For Sand Filtration and Biofiltration

- ___ ___ ___ Minimum surface area of filter

- ___ ___ ___ Facility dimensions
- ___ ___ ___ For structural sand filters, use .40 void ratio for sand
- ___ ___ ___ Structural computations. Comps must be signed/sealed by a registered professional engineer with all assumptions noted in the comps
- ___ ___ ___ Storage computed above the sand for surface sand filter

For Stormfilters

- ___ ___ ___ Copy of the sizing computations sent to Stormfilter

STORMWATER MANAGEMENT PLAN

A. PLAN VIEW OF FILTRATION FACILITY

- ___ ___ ___ Existing and final contours (1-foot or 2-foot interval)
- ___ ___ ___ Existing and proposed improvements with elevations
- ___ ___ ___ Location of test borings
- ___ ___ ___ Existing and proposed utility location/protection
- ___ ___ ___ Delineation of easement area around the filtration facility and filter devices/areas... Include flow splitters and outfalls. Minimum 10-foot clearance around the facility.
- ___ ___ ___ Access to a public right-of-way (minimum 12-feet wide)
- ___ ___ ___ Location and clear access to the observation well(s)
- ___ ___ ___ Safe building locations and basements (minimum 20-feet away)
- ___ ___ ___ Safe conveyance of filtration overflows ...storm drain outlet(s) should be located away from overflow outlet
- ___ ___ ___ Method for preventing construction sediment from entering the facility
- ___ ___ ___ Method for permanent filtering of runoff prior to entry into the facility (ie. Outlet to a grass buffer or swale for pre-treatment)
- ___ ___ ___ Inflow improvements (appropriate details required)
- ___ ___ ___ Non erosive outfalls provided (appropriate details required)

For Stormfilters

- ___ ___ ___ Show correct location and angle of incoming and out going pipes
- ___ ___ ___ Show correct number of canisters
- ___ ___ ___ Ladder must be shown with clear access to the floor
- ___ ___ ___ Type of material in canisters

B. CROSS-SECTION AND PROFILE THROUGH FILTRATION FACILITY

- ___ ___ ___ Existing and proposed grade specific to each facility

___ ___ ___ Observation well/cleanout location(s) (centered)

___ ___ ___ Watertight, removable cap on observation well/cleanout

For Infiltration Trenches

___ ___ ___ Trench depth – give elevations and inverts

___ ___ ___ Gravel size: 1 – ½ to 3 inch; clean, washed material

___ ___ ___ 6-inches of clean, washed sand (ASTM C-33) on bottom of trenches

___ ___ ___ Provide 12-inch pea gravel surface layer. Use Mirafi 140-N or DPS approved equivalent between pea gravel and 1 ½ - 3 inch gravel

___ ___ ___ Filter cloth specifications (ie. Mirafi 140N or DPS approved equivalent) and location (top and sides of facility only)

___ ___ ___ Storm drain system connection (if applicable)

___ ___ ___ Top of trench open to surface

___ ___ ___ Embankment side slopes labeled and top width clearly shown (3:1 side slopes, 4-foot minimum top width)

___ ___ ___ Landscape plan prepared by a landscape architect registered in the state of Maryland.

For Surface Sand Filters

___ ___ ___ Facility depth – give elevations and inverts

___ ___ ___ Filter media specification – ASTM C-33 fine aggregate concrete sand (washed), MSHA #7 gravel

___ ___ ___ Location(s) of 6-inch PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along with length, spacing and slope

___ ___ ___ Underdrain to be Sch. 40 PVC with a minimum of 6-inches of gravel above the pipe, 3-inches of gravel below the pipe

___ ___ ___ Underdrain perforated with 3/8-inch diameter holes at 4-inches on center every 90 degrees. Perforated sections within gravel layer only

___ ___ ___ Embankment side slopes labeled and top width clearly shown (3:1 maximum side slopes, 4-foot minimum top width)

___ ___ ___ Core trench around underdrain and underneath embankment fill clearly labeled (bottom width 2-feet minimum, side slopes 1:1 maximum, depth 2-feet minimum)

___ ___ ___ Anti-seep collar location shown for the underdrain (if required). Anti-seep collar not required for underdrains ≤ 6-inch diameter

___ ___ ___ Outfall protection shown, including dimensions, slope (0.00%), and median rip rap size (d₅₀), thickness, approved filter fabric or geotextile as appropriate

___ ___ ___ Elevations (including required freeboard) for top of dam, 10-year WSEL, water quality storage, riser/weir crest and top of sand filter. Weir crest to be located at existing ground or in cut

___ ___ ___ Freeboard: top of dam minimum 1-foot above 10-year WSEL with overflow weir or 1-foot above 10-year HGL at flow splitter when no weir is provided

___ ___ ___ Storm drain system connection shown (flow splitter and main line connections)

___ ___ ___ For surface sand filters subject to MD-378 – reference MCDPS Pond Plan Checklist

___ ___ ___ Landscape plan prepared by a landscape architect registered in the state of Maryland.

___ ___ ___ Storage depth may not exceed 4-feet. Safety signage is required when storage depth is 2-feet or more.

For Structural Sand Filters

___ ___ ___ Facility depth – give elevations and inverts

___ ___ ___ Filter media specification: clean ASTM C-33 fine aggregate concrete sand, MSHA #7 gravel

___ ___ ___ Location(s) of 6-inch PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along with the length and spacing

___ ___ ___ Underdrain to be Schedule 40 PVC with a minimum of 6-inches gravel cover above the pipe

___ ___ ___ Underdrain perforated with 3/8-inch diameter holes at 4-inches on center every 90 degrees. Perforated sections within gravel layer only

___ ___ ___ Geotextile fabric provided between the top gravel layer and the sand layer. Use Tensar TM-3000, Enkamat 7020 or DPS approved equivalent.

___ ___ ___ Length and width of settling area, filter area, and clearwell area

___ ___ ___ Storm drain system connection shown (flow splitter and main line connections)

___ ___ ___ Safe bypass of overflows

___ ___ ___ Elevations of 10-year WSEL, water quality storage and top of filter

___ ___ ___ Facility must be designed by a licensed structural engineer. Copy of structural computations provided and signed structural certification on plan

___ ___ ___ Facility provides adequate accessibility and headroom for maintenance (personnel access manholes, removable grates or doors, and steps provided)

For Biofiltration

___ ___ ___ Maximum drainage area to a single facility between 0.25 and 1 acre. Multiple facilities required for drainage areas greater than 1 acre

___ ___ ___ Facility depth – give elevations and inverts

___ ___ ___ Filter media: mulch layer, planting media, sand windows, with appropriate dimensions noted

___ ___ ___ Planting soil noted as 1/3 perlite or solite, 1/3 compost, 1/3 onsite soil

___ ___ ___ Location(s) of 6-inch SCH 40 PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along the length with a minimum of 6-inches of gravel above the pipe, 3-inches of gravel below the pipe

___ ___ ___ 12-inch maximum ponding depth

___ ___ ___ Storm drain system connection shown

___ ___ ___ Safe bypass of overflows

___ ___ ___ Embankment side slopes labeled and top width clearly shown (3:1 maximum side slopes, 4-foot minimum top width)

___ ___ ___ Elevations for top of berm (provide minimum 6-inches freeboard between water quality storage elevation

and top of berm), 10-year WSEL, water quality storage elevation, riser/weir crest and top of biofiltration facility

___ ___ ___ Landscape plan prepared by a landscape architect registered in the state of Maryland.

For Stormfilters

___ ___ ___ Provide all elevations and dimensions

C. **MISCELLANEOUS ITEMS**

___ ___ ___ Appropriate construction specifications

___ ___ ___ Inspector checkoff list (specific to each facility)

___ ___ ___ Seepage analysis if required

___ ___ ___ Sealed by P.E. (structural P.E. also where required) with signature and date.

___ ___ ___ MCDPS Turf Reinforcement detail on plan

___ ___ ___ MCDPS Shallow Facilities Specifications on plan