

## **Cecil County Department of Public Works**

### **Stormwater Management Ordinance Guidance Manual**

**April 16, 2002**

#### **Revisions:**

**2/10/05 Removed Soils Downgrading, Section 5.4**

**8/20/05 Updated Engineer's Certification – Stormwater**

**8/20/05 Text reference amendments for NRCS and CSCD – Entire Document**

**8/20/05 Text addition, Section 3.4.4**

**8/20/05 Basin Management Summary Table – Change 2-Year to CPv (1-year)**

This guidance manual is intended for use by applicants for stormwater management approvals under the jurisdiction of the Cecil County Department of Public Works (Department). The manual will be updated periodically to reflect new policy and guidance regarding applications for and compliance with stormwater management approvals. It is unreasonable to expect that the manual can address all circumstances and answer all design or compliance issues; however, updates over time will reflect the experience of the Department as new challenges are faced.

#### **1. Introduction**

The Maryland Department of the Environment (MDE) requires compliance with Maryland's stormwater management statute through the Cecil County Department of Public Works for the unincorporated areas of Cecil County. Currently, the incorporated towns, except for the Town of Elkton, have executed agreements with the Department to administer and enforce the County's ordinance on their behalf. Therefore, with the exception of the incorporated limits of the Town of Elkton, all land disturbance activities must comply with the Cecil County Stormwater Management Ordinance (last revision February 19, 2002).

#### **2. Prior Departmental Guidance, Policy, and Memoranda**

Prior to the development of this manual, memoranda were issued with policy, guidance, and directives for design and compliance with the ordinance. All previously issued memoranda no longer apply except as incorporated in this manual.

#### **3. Ordinance Interpretation and Guidance**

- 3.1. Section 251-2 (References). The Maryland Stormwater Design Manual, Volumes I & II, (MDE, April 2000) can be downloaded for free from MDE's Internet site ([www.mde.state.md.us](http://www.mde.state.md.us)). The USDA NRCS Maryland Conservation Practice Standard Pond Code 378 (January 2000) is incorporated in the appendices of MDE's Design Manual.

- 3.2. Section 251-4 (Scope). Existing conditions for a parcel are those that existed in August 1984. The Department generally relies upon aerial photographs available in the Office of Planning and Zoning, but designers and applicants are encouraged to assemble any available evidence to establish cover types and imperviousness existing in August 1984.
- 3.3. Section 251-4 (Scope). The second paragraph (“...the addition of impervious surfaces or other changes in site conditions...shall be considered cumulative from August 28, 1984...”) was added locally to the Cecil County Ordinance by the Codes 2000 Environmental Subcommittee out of concern for substantial, incremental development. The Department does not believe it was the intent of the Subcommittee to apply this to normal additions to single-family houses (decks, attached garages, house expansions) or to normal detached additions on single-family houses (sheds, detached garages, etc.) addressed under Section 251-5. However, incremental additions that may, in the judgment of the Department, present a cumulative impact to the environment or adjoining properties may be denied exemption status under the authority of this language.
- 3.4. Section 251-5 (Exemptions). No application need generally be made for approval of an exemption, as has been the practice in the past. Instead, a note must be placed on the plat or site plan, saying, "this project is exempt from the Stormwater Management Ordinance by virtue of Section 251-5 [A, B, C, or D] of the Cecil County Code."
  - 3.4.1. Agricultural land management practices (251-5 A.) are narrowly defined in the ordinance. MDE has clarified that this exemption does not apply to structures, manure pits, feed lots, etc. The Cecil County Department of Public Works must concur with the applicability of this exemption to any regulated project and the Department may do so independently from any local agency. However, the Cecil ~~County~~ Soil Conservation District may also request in writing to the Director of the Department of Public Works that a project be exempted under this definition. In doing so, the District must establish how the activity complies with the definition of Agricultural Land Management Practices, and affirm that the project will be coordinated/overseen by the District. The District must also discuss how stormwater management will be designed and constructed using Best Management Practices. The Director of the Department of Public Works will then confirm, if appropriate, the applicability of the exemption.
  - 3.4.2. Disturbance (251-5 C. & D.) calculation must include the structure, the driveway (minimum of 10 feet wide), any clearance of woods, and any areas to be regraded by more than six inches deep. Applicants qualifying for this exemption must take great care during construction not to exceed 5,000 square feet of total disturbance, as a notice of non-compliance and stop work order may otherwise result during construction.
  - 3.4.3. Disturbance (251-5 C. & D.), shall not include decks less than 1,000 square feet (MDE website guidance).
  - 3.4.4. Single Family Lot Exemptions (251-5 B. & C.). In consideration of the Department’s interpretation of Section 251-4, proposed new construction on single-family lots representing less than 5,000 square feet of impervious area

will generally be considered exempt **where the disturbance calculation under the criteria set forth in 3.4.2 and 3.4.3, above, does not cumulatively exceed 5,000 square feet.** This interpretation is not intended to permit incremental development of a single-family lot in order to avoid stormwater management. If the Department determines that extensive, cumulative impervious area is proposed relative to the size of the lot or its proximity to property lines, the use of this exemption will be curtailed by the Department with the language in Section 251-4.

- 3.4.5. MDE exemptions (251-5 D.) require a letter from MDE indicating that stormwater runoff will be managed under their jurisdiction.
- 3.5. Section 251-6 (Waivers). All applications for quantitative or qualitative waivers must be accompanied by a completed Waiver Request Summary Form (Attachment A).
- 3.6. Section 251-6 A. (Quantitative Waivers). When a quantitative stormwater control waiver ( $CP_v$ ,  $Q_p$ ,  $Q_f$ ) is granted by the Department, qualitative stormwater controls ( $WQ_v$  and  $Re_v$ ) must still be addressed by the applicant. When the Department develops a standard stormwater management quality control plan (pursuant to Section 251-14 B), the standard plan may be used by the applicant to satisfy the qualitative controls.
  - 3.6.1. Watershed management plans (251-6 A. (1)) have not currently been developed for any areas for which the Department has jurisdiction.
  - 3.6.2. Direct discharge to tidally influenced waters (251-6 A. (2)) must be established by a fee simple ownership contiguous with the tidally influenced water body or via a recorded drainage easement acceptable to the Department.
  - 3.6.3. A quantitative stormwater control waiver under Section 251-6 A. (3) requires review by the Director of the Department.

Terms such as “reasonable” and “hardship” have well-established meaning in the law. The test that is normally applied is a weighing of the effort or cost of a required measure against the potential damage (environmental, property, or other) that may otherwise occur. For example, it would not normally be considered reasonable by an objective party to require \$100,000 worth of protection to avoid a small statistical likelihood of \$2,000 in damage. To require this in the absence of other factors would normally be considered unreasonable and/or a hardship. However, less dramatic examples require a closer look on a case-by-case basis.

Examples (non-inclusive) of projects where the Department may grant a quantitative waiver under Section 251-6 A. (3) include:

- 3.6.3.1. Single family construction on existing parcels in excess of two acres where the proposed structure(s) are to be constructed no less than 75 feet from property lines, slopes are gentle, and stormwater flow will not be directed towards existing neighboring improvements.
- 3.6.3.2. Single-family construction on individual parcels in existence prior to August 28, 1984 where slopes are gentle and stormwater flow will not be directed towards existing neighboring improvements.

3.6.3.3. Single family construction on parcels that received approval for a SWM exemption, waiver, variance, or management plan approval prior to July 31, 2001 and for which strict adherence to the current ordinance will not substantially improve stormwater quantity controls in the judgment of the Department.

3.6.3.4. Public infrastructure projects wherein adequate downstream conveyance can be demonstrated without adverse impacts on properties and for which qualitative controls can be otherwise achieved.

For any instance in which an applicant wishes consideration of this quantitative waiver, a substantial case must be made in writing to illustrate the circumstances that prevent reasonable implementation of quantity control practices. Because the language of this waiver requires case-by-case interpretation, the judgment of its applicability must be made by the Plans Reviewer in consultation with the Director. Adherence to the intent of the Ordinance shall be held paramount in the decision and the Department will understandably change its approach to this waiver over time as circumstances and experience merit.

When a Standard Stormwater Management Quality Control Plan (see Section 251-14 B.) is developed/issued by the Department of Public Works, application for this waiver and use of the quality control plan will not require the involvement of a licensed professional, due to the provision of Section 251-14 B. As such, for such minor projects, an applicant may apply for this waiver on his own behalf, once the quality control plan is developed and issued.

3.6.4. Section 251-6 B. (Qualitative Redevelopment Waiver). Any applicant seeking a redevelopment waiver should meet with the Department to establish validity of the waiver and the likely Department requirements.

3.6.5. Section 251-6 C. (Watershed Management Plans). No plans have currently been developed for any areas for which the Department has jurisdiction.

3.7. Section 251-8 (Variances). By design, the standard for issuance of a variance is a high one. An applicant must demonstrate that there are exceptional circumstances applicable to the site such that strict adherence will result in unnecessary hardship and not fulfill the intent of the Ordinance. While an applicant may be self-represented in a variance request, any hydrologic or other calculations necessary to substantiate the variance request must be sealed by a licensed professional consistent with Section 251-14 A.

3.8. Section 251-13 (SWM Plan Contents).

3.8.1. Existing and proposed contours (251-13 A. (8) and 251-13 B.(2)) must be shown for all areas of the project where surface grades will be changed by more than 12 inches.

3.8.2. The standard sequence of construction language (Section 251-13 B. (9)) is as shown in Attachment B.

3.8.3. The as-built certification block is shown (Section 251-13 B. (16)) is as shown in Attachment B. If the facility is not constructed in accordance with the approved design, sufficient calculations and/or other demonstrations

- must be submitted to the Department to establish conformance with the design intent.
- 3.8.4. The “other information” referenced in Section 251-13 A.(9) will generally include (non-inclusive):
- 3.8.4.1. Color coded drainage area maps to depict pre- and post-development conditions; and
  - 3.8.4.2. ~~Soil~~ **Natural Resources** Conservation Service’s Pond Summary Sheet (Form MD-ENG-14, revised 10-87).
- 3.9. Section 251-15 A. (Recorded Easements). All elements necessary for compliance with the stormwater management approval must be secured within easements recorded in the Cecil County Land Records. In the case of natural area conservation credits, a separate recorded easement is not necessary if the credit area lies within an otherwise recorded perpetually protective easement such as a forest retention area or within a wetland or other area that would require a permit for disturbance. Inspection and maintenance easements must be a minimum of 20' wide, must connect with a publicly maintained road, and must be made wider if they include conveyance systems (swales or conduits); for example, an inspection, maintenance, and drainage easement containing a 24" pipe less than 8' deep should generally be 30' wide and the pipe should be located 8'-10' from one side of the easement; alternatively, an inspection, maintenance, and drainage easement containing a 12' wide vegetated or riprap swale should be 32' wide and the swale should be located to one side of the easement.
- 3.10. Section 251-15 B. (Inspection and Maintenance Agreement). Standard agreement language is available from the Department and can be generated once technical approval is granted by the Plans Reviewer.
- 3.11. Section 251-15 C. (Performance guaranty). [Insert acceptable vehicles]
- 3.12. Section 251-15 D. (Redirection of runoff). It is the Department's understanding that Maryland civil law allows for drainage to continue to flow through its natural or historic course, even in the absence of prescribed easements. All projects should avoid the redirection of runoff, particularly if adverse impacts to neighboring projects can occur. However, any dispute between property owners regarding redirection of runoff is a civil liability issue between the two parties and must be resolved between the parties or by the courts. This notwithstanding, Department staff may require modifications to the stormwater management plan or place conditions upon waiver approvals if the potential for adverse impacts from redirection (including concentration of runoff) is detected during plans review. Designers are cautioned that concentration of runoff from a linear distribution along a property line to a point discharge, even if the total flow rate is reduced, may result in adverse conditions if an adequate conveyance system is not available to accept the concentrated flow.
- 3.13. Section 251-19. (Financial assurance). All facilities must be completed and as-built certifications (except for individual lot grading as-built certifications) must be approved by the Department before performance bonds can be released. Partial releases of letters of credit may be permitted at the Department's discretion; such releases must ensure that sufficient funds remain to complete the work and all certifications necessary.

- 3.14. Section 251-20. (Inspection schedule and reports). Inspections by the Department cannot be relied upon for as-built or geotechnical certifications and developers must ensure that their engineer and geotechnical consultants are on-site during all construction of embankments and other elements that cannot be readily verified after the fact. Failure to notify the Department 48 hours prior to commencing work may result in a requirement to uncover work the Department needs to inspect.
  - 3.15. Section 251-21 D. (As-built certifications, SWM facilities). As-built certifications must verify all elements of the facilities necessary to show compliance with the design, including structure types, sizes, locations, and elevations, pipe types, sizes, inverts, slopes and lengths, riprap lengths, widths, and depths, riprap rock size, grading contours, and site grading to establish drainage subareas. If the as-built survey shows significant deviations from the proposed size, extent, elevations, etc. of various features, the applicant must provide revised calculations to demonstrate that the required management has been provided.
  - 3.16. Section 251-21 D. (As-built certifications, individual residential lots). Lot grading plans must be submitted prior to request for a Certificate of Occupancy. Generally, the Department will require certification that the grades are within 6"±. However, if the grading is substantially in disagreement with the approved lot grading plan, the applicant's surveyor may argue that the actual grading, as surveyed, is consistent with the intent of the approved grading plan, particularly with regard to site elevations, slope, direction of runoff, and potential impacts to neighboring properties. The Department will review such arguments on a case-by-case basis. The Department does not intend a slavish adherence to the approved grading plan; rather, consistency with the intent of the project's stormwater submittal is essential.
  - 3.17. Section 251-25 (Appeals). An applicant may informally appeal a decision of the Plans Reviewer to the Director prior to the formal appeal afforded in the Stormwater Management Ordinance. Any such appeal must be made in writing and establish where the Plans Reviewer has erred, legally or technically, or failed to consider unusual elements of the project that warrant special consideration. The Director may then elect to review the case further, in his/her sole discretion. Any such informal appeal will in no way prejudice the applicant's right to a formal appeal before the Circuit Court.
4. Design Manual Interpretation and Guidance
    - 4.1. Stewart Comstock (MDE) has advised that, despite the restrictions in the Design Manual (because they are not known to remove 80% TSS and 40% TP, see Section 2.7.2 of the Design Manual), drywells can be used to manage rooftop runoff. The Disconnection of Rooftop Runoff credit (Section 5.2 of the Design Manual) makes provisions for drywell use where less than 75 feet of disconnection is not possible and structural and non-structural methods can be combined. Drywells cannot be used for large roof areas, such as warehouses or even unusually large houses.

- 4.2. Closed End Level Spreaders may be used for Sheet Flow to Buffer Credits application. Down spouts on to slopes greater than 5% are difficult to return to sheet flow. Down spouts may be piped to Closed End Level Spreaders to accomplish sheet flow. These spreaders should be placed close to or within a buffer that will prevent the water from returning directly to shallow concentrated.

The applicant must provide a typical detail showing the proposed spreader. The bottom shall be a minimum of 10d (d = pipe diameter) long and a minimum of 4d wide. The inlet pipe must enter in or near the center of the upslope width. The bottom of the pool may be shaped to fit the space available. The minimum depth will be 5d or to a depth that will cause the uphill edge of the spreader to be 6" higher than the adjoining slope. The side slopes will be 2:1 on both the inside and outside. The spreader surface shall be level around the entire perimeter. The top of the spreader will be a minimum of 18" wide. The maximum roof area contributing to any one closed end level spreader will be 1500 sq. ft.

The surface area, as large as the total structure, where the spreader will be installed will be scoured clean of roots and rocks to a depth of 6". The berm will be constructed of compacted impermeable clay. The clay will extend from the virgin soil to the leveler top. The complete structure will be covered with type "E" geotextile (keyed in). The fabric placement will start at the lowest elevation and be placed shingle lap with a 1/3 over lap. The fabric will be staked around the edge of the pool bottom, the center of the leveler berm and at the perimeter of the outside slope. The stakes will be "u" shaped and 4" long and made of 9 gauge galvanized wire. They will be placed on centers no more than one foot. The fabric will be placed under the inlet pipe to an uphill elevation 6" greater than the leveler berm. Excess fabric will be cut and removed beyond the outside edge of the structure. The entire structure will be covered with a 4" layer of 2" stone. The level of the stone on the bottom, and the invert of the inlet pipe will be the same. The result will be a bottom-up stirring of the pool. In areas where it is desirable to make the spreader wider to accommodate contour a, "T" may be installed on the end of the inlet pipe to distribute flow perpendicular to the inlet pipe.

## 5. Other Design Guidance

- 5.1. Limits of study area. Stormwater management must be designed and provided for the entire site (as defined in the Ordinance) in accordance with the Ordinance and the Design Manual. Off site areas (upgradient or downgradient) may not be considered in determining management requirements, because the result would be to dilute the impact of project site disturbance in the context of the larger, undisturbed drainage area. However, the total area reaching stormwater management facilities, onsite or offsite, must be considered in the design to ensure that the facilities can safely convey the off site flow contribution. Put another way, management requirements cannot consider off site areas and design need not manage off site flows, although adequate conveyance of offsite, upgradient flows must be demonstrated.
- 5.2. Impervious areas, single family lot designs.

- 5.2.1. The minimum impervious area to be assumed for a single family lot shall be 2,500 square feet (assuming a 10' by 50' driveway, a small house, and allowance for normal future decks, porches, sheds, etc.).
- 5.2.2. Driveways (regardless of surface treatment) shall be considered at least 10' wide.
- 5.2.3. Paved, gravel, and shoulder areas of roadways shall be considered impervious. Remaining areas of rights of way shall be considered disturbed.
- 5.3. Disturbance areas, single family lot designs.
  - 5.3.1. The minimum assumed house size shall be 1,500 square feet.
  - 5.3.2. The minimum assumed driveway width shall be 10'.
  - 5.3.3. Trench design septic systems (as opposed to excavated bed systems) may be considered linear disturbance for this calculation if depth to the distribution laterals is less than three feet and the disturbance area should be assumed as ten feet wide along the trench to allow for the construction equipment.
- 5.4. ~~Soil downgrading. (Section 5.4 Removed 2/10/05 by memorandum)~~
  - 5.4.1. ~~Soils of hydrologic groups A and B within the disturbed areas of the project shall be downgraded one soil group for hydrologic modeling purposes. A perimeter grading area around the proposed house extending out at least 50' and an area of 5 feet on either side of the driveway shall also be downgraded. (Section 5.4.1 Removed 2/10/05 by memorandum)~~

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*In recognition of the cover type requirements set forth in Section 2.4 of the 2000 Maryland Stormwater Design Manual, the Stormwater Management Ordinance Guidance Manual (April 16, 2002) Section 5.4 requirements for downgrading of 'A' and 'B' hydrologic soil groups is hereby removed. The Design Manual requires that all existing onsite non-forested pervious cover types be modeled as 'meadow', good condition, for determination of Overbank Flood Protection Volume requirements. As such, the post-development modeling of grass or 'open space' cover type, in good condition, based upon acceptable SCS modeling techniques such as those contained in Technical Release No. 55 (TR-55), will present a characteristic difference when compared to the pre-development 'meadow' cover type.*

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- 5.5. Materials
  - 5.5.1. In stormwater management basins, concrete outlet control structures are strongly encouraged by the Department, except where the structure is expected to be in place less than 15 years.
  - 5.5.2. In stormwater management basins, the outlet control structure, discharge barrel, low flow control, and appurtenances (anti-seep collars, etc.) should generally be constructed of the same material.
- 5.6. Geotechnical Certification. All embankment basins must be constructed under the supervision of a license geotechnical engineer. During construction of the core trench and embankment areas, in-place density and materials suitability must be inspected by the engineer.
- 5.7. Dual purpose basins.
  - 5.7.1. When stormwater management basins are proposed to act as sediment control basin during construction phase, calculations must be provided to demonstrate that the 2- and 10-year storms can be controlled below pre-development runoff rates if the low flow orifice became plugged and the basin was filled to the cleanout level.

- 5.7.2. When stormwater management basins are proposed to act as sediment control basin during construction phase, the approved drawings must include details for the conversion from sediment control phase to stormwater management phase. The Department **and the Maryland Department of the Environment Sediment Control Inspector** must approve the timing of conversion; conversion will not generally be permitted between November 15<sup>th</sup> and April 1<sup>st</sup>.
- 5.8. Perimeter fencing. Stormwater management basins with slopes steeper than three (horizontal) to one (vertical) must be constructed with perimeter fencing for safety. The fence shall be chain link or other design that will keep children and small animals out of the basin. Minimum height shall be three feet.

Attachment A:
STORMWATER MANAGEMENT
WAIVER-EXEMPTION REQUEST FORM

Subdivision Name: \_\_\_\_\_

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

Subdivision Location: \_\_\_\_\_

Tax Map & Parcel No.: \_\_\_\_\_ ADC Map & Block: \_\_\_\_\_

Total Acreage: \_\_\_\_\_

NOTE: Applicant need only provide information required to support type of waiver/exemption being requested.

Number of Lots: \_\_\_\_\_

Smallest Lot Size: \_\_\_\_\_ Ac.

Impervious Acreage: \_\_\_\_\_ Ac. Total: \_\_\_\_\_ Ac.

In Critical Area: Yes \_\_\_\_\_ No \_\_\_\_\_

Total Wood Acreage: \_\_\_\_\_ Wood Acreage to be Cleared: \_\_\_\_\_

Total Disturbed Area: \_\_\_\_\_

Impact on Adjacent Property Owners?: \_\_\_\_\_

Indicate Basis on which Waiver is being requested:

251-6.A(1) \_\_\_\_\_ 251-6.A(2) \_\_\_\_\_ 251-6.A(3) \_\_\_\_\_ 251-6.A(4) \_\_\_\_\_ 251-6.B \_\_\_\_\_

Indicated Basis on which Exemption is being requested:

251-5.A \_\_\_\_\_ 251-5.B \_\_\_\_\_ 251-5.C \_\_\_\_\_ 251-5.D \_\_\_\_\_

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Surveying or Engineering Firm Completing Form:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

\_\_\_\_\_  
Contact Person's Signature Date

## Attachment B: Standard Notes and Signature Blocks for SWM Construction Plans.

Stormwater Management Facilities - Required Sequence of Construction:

- 1) Contact the Maryland Department of the Environment **Sediment Control Inspector at (410) 901-4020** and the Cecil County Department of Public Works' Stormwater Management Inspector ((410) 996-5265) at least 48 hours prior to the initiation of construction activities. A pre-construction meeting will be arranged at the project site. Failure to notify the Department may expose the Owner/Developer to additional work.
- 2) Install sediment and erosion controls.
- 3) Clear and grub areas for stormwater management (SWM) facilities.
- 4) Remove topsoil from areas for SWM facilities and stockpile in an area approved on the Soil Erosion and Sediment Control plan.
- 5) Excavate for the cutoff trench.
- 6) Backfill and compact cutoff trench in 8" maximum lifts with approved material to pipe grade level (see geotechnical certification).
- 7) Install riser and concrete base.
- 8) Construct and stabilize outlet channel.
- 9) Install barrel, anti-seep collars, flared end sections, and appurtenances and attach low flow dewatering device.
- 10) Backfill and compact around barrel and anti-seep collars, making sure that there are no voids under the haunches of the barrel and that backfill lifts and compaction are done in 4" maximum lifts.
- 11) Divert flow into pipe system.
- 12) Construct core and embankment to final grade, building up with the proper compaction using basin area material if acceptable (see geotechnical certification).
- 13) Excavate remainder of the pond area.
- 14) Construct emergency spillway.
- 15) Install inflow channels.
- 16) Vegetatively stabilize all disturbed areas.
- 17) (Post Construction) Convert basin from sediment control phase (approval by both Maryland Department of the Environment and the Cecil County Department of Public Works)
- 18) (Post Construction) Install low flow channels after basin is converted from sediment control phase.
- 19) Provide an as-built survey, geotechnical engineer's report, and professional engineer's or surveyor's certification within 30 days following construction of the facilities.

This sequence obviously includes construction of a basin of some sort and should be modified or expanded to reflect the specifics of the unique project. The sequence of construction, tailored to the project, shall be included prominently on the approved drawings.

Stormwater Management Facilities - General Notes for Construction Plans

- 1) All stormwater management facilities are to be constructed in accordance with the 2000 Maryland Stormwater Design Manual, Volumes I & II, (Maryland Department of the Environment) and the USDA Natural Resources Conservation Service Maryland

Conservation Practice Standard Pond Code 378 (January 2000). These construction drawings are intended to reflect the relevant requirements; however, any lack of specific details on these drawings shall not relieve any of the requirements of these and other relevant codes.

Stormwater Management Facilities - As-Built Certification

"I hereby certify that the facilities shown on these Stormwater Management Plans have been constructed as shown in red hereon. I also certify that this facility, as constructed, is in compliance with the approved allowable discharges and meets the requirements of the USDA Natural Resources Conservation Service Maryland Conservation Practice Standard Pond Code 378 (where applicable). I cannot certify to the materials used or the construction methods and specifications utilized during construction which were inspected by the Geotechnical Engineer."

Signature	Date
Name (Printed)	Professional License Number
Address: _____	License Type: _____
_____	Professional Seal:

Stormwater Management Facilities - Developer/Landowner's Certification

"I/we hereby certify that all clearing, grading, construction and/or development will be done pursuant to this plan. I/we also understand that it is my/our responsibility to have the construction supervised and certified, including the submittal of as-built plans, by a registered professional engineer within 30 days of completion, if required."

Signature	Printed Name	Title
Owner	Address	

Stormwater Management Facilities - Engineer's Certification**(Revised 4/01/05)**

"I hereby certify that all sediment and erosion control measures shown on this plan have been designed in accordance with the ~~'Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas. 1994 MD Standards and Specifications for Soil Erosion and Sediment Control'~~ I also certify that any stormwater management measures shown on these plans have been designed in accordance with the Cecil County

Department of Public Works and the ~~Soil~~ **Natural Resources** Conservation Service Standards and Regulations."

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Signature \_\_\_\_\_ Registration Number \_\_\_\_\_ Date \_\_\_\_\_

Stormwater Management Facilities - Geotechnical Certification

In place testing shall be done by a registered soils engineer or equivalent to determine suitability of fill material and to certify compaction to 95% of AASHTO T-99 density.

"I \_\_\_\_\_, of \_\_\_\_\_  
 (print name) (company name)  
 certify that the soil(s) used to construct the core at this site is of the type(s) \_\_\_\_\_  
 \_\_\_\_\_ as listed in the Unified Soil Classification System and the  
 Maryland Conservation Practice Standard Pond Code 378 and is/are appropriate for use  
 as core material.

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Signature \_\_\_\_\_ Registration Number \_\_\_\_\_ Seal \_\_\_\_\_

Stormwater Management Basins - Basin Management Summary

Structure Classification: \_\_\_\_\_  
 Watershed area draining to facility (acres): \_\_\_\_\_  
 Level of management provided: \_\_\_\_\_  
 Freeboard: \_\_\_\_\_  
 Maintenance responsibility: \_\_\_\_\_ Private \_\_\_\_\_  
 Design summary:

Design Storm	Allowable Release Rate	Facility Inflow	Facility Discharge	Water Surface Elevation	Storage Volume (acre-feet)
<b>1-year (C<sub>p</sub>)</b>					
10-year					
100-year					

Cecil County ADC Map No. \_\_\_\_\_ Grid \_\_\_\_\_  
 Maryland Grid: North \_\_\_\_\_ East \_\_\_\_\_  
 Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Maryland State Watershed Designation \_\_\_\_\_  
 Total Project Area \_\_\_\_\_ acres Project Site "RCN" \_\_\_\_\_  
 Maryland Land Use Code \_\_\_\_\_ Facility Location \_\_\_\_\_ Onsite \_\_\_\_\_ Offsite