

|

# **STORMWATER MANAGEMENT ORDINANCE**

**Department of Planning and Growth Management  
Charles County, Maryland**

DRAFT

# STORMWATER MANAGEMENT ORDINANCE

## Table of Contents

1.0	PURPOSE AND SCOPE.....	4
1.1	<i>Incorporation by Reference</i> .....	5
2.0	DEFINITIONS.....	6
3.0	APPLICABILITY: WHEN STORMWATER MANAGEMENT IS REQUIRED.....	20
4.0	EXEMPTIONS .....	20
5.0	WAIVERS .....	21
5.1	General Criteria for Onsite QTC Waivers.....	21
5.2	General Criteria for Onsite QLC Waivers .....	22
5.3	Cumulative Effects of Waiver Policies.....	22
5.4	Specific Requirements for QTC Waiver for Developments with an Adequate Outfall .....	22
5.5	Specific Requirements for QTC Waiver Under A Regional Stormwater Management Facility .....	24
5.6	Specific Requirements for QTC Waiver Under an Offsite Stormwater Management Facility .....	25
5.7	Specific Requirements for QTC Waiver Under A Watershed Plan.....	25
5.8	Specific Requirements for QTC Waiver for Developments With Direct Discharge to A Regulatory Floodplain .....	27
5.9	Specific Requirements for QTC Waiver for Developments With Direct Discharge to Tidal Waterbody .....	27
6.0	REDEVELOPMENT .....	28
7.0	ADMINISTRATIVE VARIANCES .....	29
8.0	DESIGN CRITERIA .....	30
8.1	Basic Design Criteria and Construction Specifications .....	30
8.2	Minimum Stormwater Control Requirements .....	30
8.3	Stormwater Management Measures.....	32
8.4	Additional Stormwater Management Requirements.....	34
8.5	Watershed Management Plans.....	37
9.0	STORMWATER MANAGEMENT PERMIT PROCESS.....	39
9.1	Comprehensive Stormwater Management Plan Review and Approval Process .....	39
9.2	Contents and Submission of Stormwater Management Plans .....	39
9.3	Qualifications .....	42
9.4	Additional Plan Information.....	43
9.5	As-Built Plans .....	46
9.6	Easements and Maintenance Agreements.....	46
9.7	Location of Easements – Residential Developments.....	46
9.8	Easements -- Commercial, Industrial, Institutional Developments .....	47
9.9	Ownership of Stormwater Management Facilities .....	47
9.11	Operation and Maintenance Plan .....	48
9.12	Right to Discharge .....	48
10.0	AGREEMENTS/BONDS/FEES .....	48

10.1	Permits .....	48
10.2	Bonds .....	48
10.3	Conditions of Bond .....	48
10.4	Fees .....	49
11.0	CONSTRUCTION INSPECTION AND ENFORCEMENT .....	50
11.1	Inspections .....	50
11.2	Certifications.....	50
11.3	Notification and Requirements .....	50
11.4	Inspection Reports and Records.....	50
11.4	Enforcement.....	52
11.5	Developers Responsibilities.....	53
11.6	Notification of Non-Compliance: .....	55
11.7	Testing.....	55
11.8	Final Completion Acceptance for Stormwater Management.....	56
11.9	Notice of Construction Completion .....	56
12.0	MAINTENANCE .....	57
13.0	SEVERABILITY .....	58
14.0	WATER QUALITY CONTROL.....	59
14.1	Legislative Intent .....	59
14.2	Prohibited Actions .....	59
14.3	Control of Water Quality .....	60
14.4	Enforcement and Compliance.....	60
14.5	Liability for Expenses Caused by a Violation.....	62
15.0	PENALTIES .....	63
16.0	EFFECTIVE DATE.....	63
17.0	TRANSITION PROVISIONS.....	63

## 1.0 PURPOSE AND SCOPE

- A. The purpose of this Ordinance is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased stormwater runoff.
- B. The primary goals of the Charles County stormwater management programs are to maintain after development, as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding by implementing environmental site design to the maximum extent practicable and using appropriate structural best management practices only when necessary.
- C. The provisions of this Ordinance pursuant to the Environment Article, Title 4, Subtitle 2 Annotated Code of Maryland, 1987 Replacement Volume, are adopted under the authority of the Charles County Code and shall apply to all development or redevelopment of land for residential, commercial, industrial, or institutional use that do not have final approval for erosion and sediment control and stormwater management plans by May 4, 2010; but do not apply to agricultural land management practices occurring within the unincorporated area of Charles County. The application of this Ordinance and the provisions expressed herein shall be the minimum stormwater management requirements and shall not be deemed a limitation or repeal of any other powers granted by State Law. The Department of Planning & Growth Management shall be responsible for the coordination and enforcement of the provisions of this Ordinance.
- D. In addition to the Illicit Discharge control requirements, this Ordinance provides requirements for the following elements of the Stormwater Management Program in Charles County:
  1. A comprehensive stormwater management plan review and approval process that:
    - a. Considers all aspects of project planning, design, and construction from initial conception through final approval;
    - b. Requires the submission, review, and approval of interim plans at an increasing level of detail for specific stages of project development; and
  2. Provides for coordinated input for all plans from all appropriate agencies.
  3. Exemptions and waivers;
  4. Criteria and procedures for stormwater management plan review, permitting, inspection and Final Completion Acceptance.

5. Proper implementation of stormwater management in accordance with the approved plan;
6. Maintenance responsibilities and requirements including periodic inspection; and
7. Penalties for noncompliance with the ordinances including suspension of construction activities when appropriate.

### **1.1 Incorporation by Reference**

In this chapter, the following documents are incorporated by reference:

- A. The 2000 Maryland Stormwater Design Manual, Volumes I & II (Maryland Department of the Environment, April 2000), which includes Supplement 1, is incorporated by reference by the Administration and shall serve as the official guide for stormwater management principles, methods, and practices;
- B. USDA Natural Resources Conservation Service Maryland Conservation Practice Standard Pond Code 378 (January 2000);
- C. 40 CFR §122.26(b)(14)(i)—(xi);
- D. Charles County Plan Preparation Package;
- E. The Charles County ESD Manual.

## **2.0 DEFINITIONS**

For the purpose of this Ordinance, the following words and phrases shall have the meanings respectively ascribed to them in this section.

**ADEQUATE OUTFALL** – Means a point of investigation, as determined by calculations or other means approved by the County Engineer, at which stormwater can be released from the site without causing scouring, erosion, flooding, sedimentation or produce an adverse impact to the receiving point.

**ADEQUATE OUTFALL STUDY** – Means a study prepared to support the existence of an adequate outfall.

**ADMINISTRATION** - Means the State of Maryland Department of Environment (MDE) Water Management Administration (WMA).

**ADVERSE IMPACT** - Means any deleterious effect on land, waters or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses which are or may potentially be harmful to human health, welfare, safety or property, to biological productivity, diversity, or stability or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation.

**ADVERSE IMPACT STUDY** – Means a study performed by the applicant to support a design or a waiver request to show that no downstream adverse impacts will occur due to the proposed development.

**AGRICULTURAL LAND MANAGEMENT PRACTICES** - Means those methods and procedures utilized in the cultivation of land in order to further crop and livestock production and conservation of related soil and water resources.

**APPLICANT** - Means any person, firm, or governmental agency who executes the necessary forms to procure official approval of a project or of a permit to carry out construction of a project.

**APPROVED PLAN** – See FINAL STORWATER MANAGEMENT PLAN.

**APPROVING AGENCY** - Means the Charles County Government.

**AQUATIC LIFE** - Means a diverse macro invertebrate amphibian and fish population consistent with the state-designated water use classification or the support potential of the existing stream flow, water quality, and habitat quality.

**AQUIFER** - Means porous water bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.

BACKWATER – Means water backed up in its course by an obstruction such as a pipe, bridge or other structure.

BEST MANAGEMENT PRACTICES (BMP) – Means:

1. Structural device or nonstructural device designed to temporarily store or treat stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities; and
2. Agricultural runoff control and sediment & erosion control practices approved by the Charles Soil Conservation District used to mitigate adverse effects of land use activities, runoff, sedimentation, and nonpoint source pollution or stream bank erosion, stream hydrology, surface water and groundwater quality, stream habitat, aquatic life, and groundwater replenishment.

CHANNEL PROTECTION STORAGE VOLUME ( $C_{pv}$ ) - Means the volume used to design structural management practices to control stream channel erosion. Methods for calculating the channel protection storage volume ( $C_{pv}$ ) are specified in the latest edition of the 2000 Maryland Stormwater Design Manual, Volumes I & II and any supplements.

CHIEF - Means the Chief of the division of Charles County responsible for the Stormwater Management Program.

CLEARING - Means the removal of trees and brush or anything from the land that does not disturb the soil.

COMMERCIAL LOGGING OR TIMBER REMOVAL - Means the process of cutting and removing trees from a site for commercial purposes. The construction of entrances to the logging site and other land disturbance activities that does not include the cutting or removing of trees from the site for commercial purposes and is not included in this definition.

CONCEPT PLAN - Means the first of three required stormwater management plan approvals that includes the information necessary to allow an initial evaluation of a proposed project.

CONCEPT STORMWATER MANAGEMENT PLAN – Means Concept Plan.

CONSTRUCTION ENGINEER – Means the Engineer in responsible charge for inspections of a Development.

COUNTY - Means Charles County Government.

COUNTY ENGINEER - Means the Engineer employed by the County who is in responsible charge and direct supervision of stormwater management engineering.

CRITICAL AREA OVERLAY ZONE – A map which depicts the location and extent of the critical area zone on a parcel of land for all parcels of land in Charles County.

CUMULATIVE EFFECTS - Effects which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions.

DAM BREACH – The failure of the embankment section of a dam or small impoundment

DAMS AND RESERVOIRS - Means water impoundments made by constructing an embankment or by excavating a pit or dugout. Also see Natural Resources Conservation Service (NRCS) Pond Code 378.

DEPARTMENT - Means the Department of the County responsible for stormwater management approvals.

DESIGN ENGINEER - Means the Engineer responsible for the project design.

DESIGN MANUAL (DEM) - Means the 2000 Maryland Stormwater Design Manual, Volumes I & II (or any manual or supplement which is revised, renamed and or adopted by the Maryland Department of the Environment for use in the State of Maryland) that serves as the official guide for stormwater principles, methods, and practices.

DESIGN STORM - Means a storm whose magnitude, rate, and intensity do not exceed the design load for a natural or manmade stormwater conveyance system. Design Storms are those established in the Storm Drainage Ordinance.

DETENTION BASIN/STRUCTURE - Means a permanent structure, container or depression, for the temporary storage of runoff which is designed so as not to create a permanent pool of water.

DEVELOP LAND - Means to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial, or institutional construction or alteration.

DEVELOPER - Means a person, partnership, corporation, firm or governmental agency undertaking or proposing the construction of a building, a project consisting of interrelated buildings, or other construction, and who is primarily financially responsible for the proposed work.

DEVELOPMENT - See develop land.

DIRECT DISCHARGE - Means the release of concentrated stormwater to tidal waterbodies, vegetated tidal wetlands, nontidal wetlands, adequate outfalls or regulatory floodplains from new development or redevelopment projects inside and/or outside the

critical area and located within the boundary limits of the development proposed under the particular permit application.

**DIRECT RUNOFF** - Means the flow of rainwater, snowmelt, or spring flow over the land surface toward stream channels. Direct runoff may be in the form of sheet, shallow concentrated or concentrated flow.

**DIRECTOR** - Means the Director of the Department of the County responsible for implementation of the Stormwater Management Program.

**DISCHARGE** - Means adding, introducing, releasing, leaking, spilling, casting, throwing or emitting any pollutant, or placing any pollutant in a location where it is likely to pollute waters of the State. Discharge may also mean direct runoff of stormwater.

**DISTRICT** - Mean the Charles Soil Conservation District.

**DOWNSTREAM REACH** - Means the downstream watercourse to a point where the increase in 10 and 100 year flow due to development is no greater than 10 percent of the existing flow.

**DRAINAGE AREA** - Means that area contributing runoff to a single point measured in a horizontal plane, which is enclosed by a ridge line.

**DRAINAGE MANUAL** - Means the Maryland State Highway Administration (MDSHA) Drainage Manual or any Drainage Manual adopted to replace the MDSHA Drainage Manual for use in Charles County.

**EASEMENT** - Means a grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

**ENGINEER** – Means PROFESSIONAL ENGINEER.

**ENVIRONMENTAL SITE DESIGN (ESD)** - Means using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources. Methods for designing **ESD** are specified in the DEM and the **ESD** Manual.

**EROSION** - Means

1. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep; and
2. Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

**ESD MANUAL** - Means the County Environmental Site Design Manual.

EXCAVATING - Means any act by which soil, earth, sand, gravel, rock or any similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated or bulldozed, and includes the conditions resulting from such actions.

EXEMPTION - Means those Land Disturbance Activities that are not subject to the stormwater management requirements contained in this Ordinance.

EXTENDED DETENTION - Means a stormwater design feature that provides gradual release of a volume of water in order to increase settling of pollutants and protect downstream channels from frequent storm events. Methods for designing the extended detention BMPs are specified in the Design Manual.

EXTREME FLOOD VOLUME ( $Q_f$ ) - Means the storage volume required to control those infrequent but large storm events in which overbank flows reach or exceed the boundaries of the 100-year floodplain.

FEE IN LIEU – Means a fee collected by the County when waivers are granted. The fee is used to offset the cost of planning, design, permitting, construction and inspection of **SWM** facilities.

FILL - Means any act by which soil, earth, sand, gravel, rock or any similar material is deposited, placed, pushed, pulled or transported and shall include the conditions resulting from such actions.

FINAL COMPLETION ACCEPTANCE – Means the completion of a stormwater management project.

FINAL STORMWATER MANAGEMENT PLAN - Means the last of three required plan approvals that includes the information necessary to allow all approvals and permits to be issued by the County.

FINISHED GRADE - Means the final grade or elevation of the ground surface which conforms to the approved grading plan.

FLOODPLAIN - Means that land typically adjacent to a body of water with ground surface elevations that are inundated by the base flood, excepting the land adjoining the banks of ponds, lakes or stormwater management detention and retention facilities when the banks of such water bodies provide containment of the base flood.

FLOODPLAIN, ONE-HUNDRED YEAR - Means the area inundated by a flood whose frequency of occurrence is 1% in any given year.

FLOODPLAIN MANAGEMENT - Means a program of identifying areas prone to flooding and providing regulation for the use of those areas by a number of possible alternatives including building codes, land use regulations and/or public acquisition.

FLOW ATTENUATION - Means prolonging the flow time of runoff to reduce the peak discharge.

GRADING - Means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.

GROUNDWATER - Means underground water in a zone of saturation or water contained or moving among soils and sands or held within geologic formations under the ground surface.

ILLICIT DISCHARGE - Means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater runoff except discharges from common residential outdoor uses, firefighting activities or from any legally permitted discharge.

IMPERVIOUS AREA - Means any surface that does not allow stormwater to infiltrate into the ground.

INDUSTRIAL WASTES - Means any liquid, gaseous, solid, slurry, or other waste substance, or any combination of these, resulting from any process or industry, manufacturing, trade or business.

IN-FILL DEVELOPMENT - Means a development of not greater than one fourth ( $\frac{1}{4}$ ) acre on a parcel of property which has had no previous development and which is bounded on all property lines by developed land.

INFILTRATION - Means the passage or movement of water into soil surface.

INSPECTION ENGINEER – Means the Professional Engineer responsible for construction inspection of the stormwater management project.

LAND DISTURBANCE ACTIVITY (LDA) – Means any fill, grading, stripping, excavation or removal of or placement of anything on land which may result in soil exposure and/or erosion or the covering of land surfaces.

LAND SURVEYOR - Means a professional land surveyor duly licensed by the State of Maryland to practice professional land surveying in accordance with the provisions of the Annotated Code of Maryland.

LICENSED PROFESSIONAL – Means an individual licensed in the State of Maryland involved with the consultation; design; evaluation; inspection of construction to ensure compliance with specifications and drawings; investigation; and planning of the stormwater management design or project.

MAXIMUM EXTENT PRACTICABLE (MEP)- Means designing stormwater management systems so that all reasonable opportunities for using ESD planning

techniques and treatment practices are exhausted and, only where absolutely necessary, a structural BMP is implemented

MDSHA – Mean the Maryland State Highway Administration.

MUNICIPAL SEPARATE STORM SEWER – Means:

1. A conveyance or system of conveyances (including, but not necessarily limited to, roads with drainage systems, public streets, catch basins, curbs, gutters, ditches, constructed channels, storm drains, associated underground piping, and any on-site stormwater management facilities) that discharge to waters of the State or of the United States and are:
  - a. Located in the jurisdictional borders of the County and or are owned or operated by the County;
  - b. Designed or used for the collection or conveyance of stormwater; and
  - c. Which is not part of a publicly owned Treatment Works (POTW) as defined in 40CFR122.2.
2. In 1.a. above, Charles County operates a municipal separate storm sewer as a system as designated by the Director of the Environmental Protection Agency. NPDES - National Pollutant discharge Elimination System, (40 Code of Federal Regulations 122.26(d)(2)(i)).

NATURAL GROUND SURFACE - Means the ground surface excluding man-made surfaces, before grading, stripping, excavating or filling.

NEW DEVELOPMENT - Means the first five thousand (5,000) square feet of Land Disturbance on a property excluding individual residential lot Development.

NRCS - Means United States Department of Agriculture, Natural Resources Conservation Service which is represented locally by the Charles Soil Conservation District.

NONPOINT SOURCE - Means a diffuse source of pollution that does not result from a pollutant

discharge at a specific, single location (such as pipes) but generally results from human or human-induced activities which introduce pollutants into waters of the state through land runoff, precipitation, atmospheric deposition, or percolation.

OFF-SITE STORMWATER MANAGEMENT - Means the design and construction of a facility necessary to control stormwater from more than one development designed under separate permit applications which are owned by the same developer. The facility may or may not be located within the same property boundaries.

ON-SITE STORMWATER MANAGEMENT - Means the design and construction of systems necessary to control stormwater within an immediate development subject to a permit application.

OUTFALL – For the Water Quality Section of this Ordinance means the point where a municipal separate storm sewer system discharges in to waters of the State or of the United States. For all other purposes means the discharge of water from development.

OVERBANK FLOOD PROTECTION VOLUME ( $Q_{p10}$ ) - Means the volume controlled by structural practices to prevent an increase in the frequency of out-of-bank flooding generated by development for the 24-hour duration 10-year storm frequency.

OWNER - Means a person or entity with legal right of possession or lawful title to a property.

PARKING LOT DETENTION - Means the temporary controlled shallow surface ponding of water for stormwater management purposes of less than six (6) inches on parking lots. This definition specifically excludes medians and or other pervious non-parking or non-driving areas.

PERSON - Means any person, corporation, partnership, joint venture, agency, unincorporated association or any combination thereof. Includes the Federal Government, the State, the County, Municipal Corporation, or other political subdivision of the State, or any of their units, or an individual, receiver, trustee, guardian, executor, administrator, fiduciary, or representative of any kind, or partnership, firm, association, public or private corporation, or any of their affiliates, or any other entity.

PLANNING TECHNIQUES - Means a combination of strategies employed early in project design to reduce impacts from development and to incorporate natural features into a stormwater management plan.

PLAN OF COMPLIANCE ACTION - Means a plan submitted to the County by a person who causes or permits a violation of the water quality standards, water quality control or water quality goals of the County. The plan shall establish remedial actions to be taken as established by the County. Each action must be completed to abate or mitigate the impacts of the violation.

PLAN PREPARATION PACKAGE (**PPP**) - Means the County document which outlines the policies and procedures for submitting information to the Department relative to permitting a development.

POINT OF INVESTIGATION – Means the point where concentrated discharge leaves a defined site or drainage area boundary.

POINT SOURCE - Means discernable confined or discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, container, rolling stock,

concentrated animal feeding operation, or vessel or other floating craft, from which any pollutant is or may be discharged.

**POLLUTANT** - Means any liquid, gaseous, solid, radioactive, hazardous or other substance which, when discharged directly or indirectly into the waters of the state as a point source or nonpoint source, or when applied to or stored on natural or man-made land surfaces, subsurfaces, or other surfaces connected to these surfaces in a manner other than authorized by applicable permits, regulations, or manufacturer's instructions, has a potential to or does:

1. Interfere with State or County designated water uses;
2. Obstruct or cause damage in any manner to surface or subsurface waters in the State or in the County;
3. Change water color, odor, or usability as a drinking water source through causes not attributable to natural stream processes affecting surface water or subsurface processes affecting groundwater;
4. Add an unnatural surface film on the water;
5. Adversely change other chemical, biological, thermal, or physical conditions in any surface water or stream channel;
6. Degrade the quality of groundwater; or
7. Harm human life, aquatic life, or terrestrial plant and wildlife.

Pollutant includes but is not limited to significant materials, dredged soil, solid waste, incinerator residue, sewage, garbage, wastewater, wastewater sludge, chemical waste, biological materials, radioactive material, rock, sand, dust, industrial waste, medical waste, sediment, nutrient, toxic substance, pesticide, herbicide, trace metal, automotive fluid, petroleum based substance and oxygen-demanding material.

**POLLUTE** - Means to discharge pollutants into any waters of the State, watercourse or drainageway.

**POLLUTION** - Means the direct or indirect distribution of pollutants into any waters of the State.

**POLLUTION TRADING** – Means providing for equivalent reductions in impervious areas or equivalent stormwater quality control volumes at a location other than where the pollutants are generated.

**PRIVATE STORMWATER MANAGEMENT EASEMENT** – Means an easement dedicated to the County which is privately maintained but allows the County to inspect

and maintain any stormwater management system located within the easement if the owner fails to maintain the stormwater management systems.

**PRIVATE MAINTENANCE** - Means the maintenance of stormwater management facilities by private property owners and not by the County.

**PROFESSIONAL ENGINEER** – Means an engineer duly licensed by the State of Maryland to practice Professional Engineering under the requirements of Title 14, Business Occupations and Professions, Annotated Code of Maryland

**PUBLIC STORMWATER MANAGEMENT EASEMENT** – Means an easement dedicated to the County which allows the County to maintain any stormwater management system located within the easement.

**PUBLIC FACILITIES** - Means the Department in the County responsible for the maintenance of public properties and Public Stormwater Management Easements.

**PUBLIC MAINTENANCE** - Means County government maintenance of stormwater management facilities or stormwater conveyance systems.

**QUALIFIED INDIVIDUAL** – Means a person working under the responsible charge and direct supervision of a Licensed Professional.

**QUALITY CONTROL (QLC)** – Means the control of the Water Quality Volume ( $WQ_V$ ), the Recharge Volume ( $Re_V$ ) and the Channel Protection Volume ( $Cp_V$ ) by methods established in the Design Manual.

**QUANTITY CONTROL (QTC)** – Means the control of the Overbank Flood Protection Volume ( $Q_{p10}$ ), the Extreme Flood Volume ( $Q_{f100}$ ) or and other runoff event as established by the County

**RECEIVING BODIES OF WATER** - Means any waterbodies, watercourses or wetlands into which surface waters flow either naturally, in manmade ditches, or in a closed conduit systems.

**RECHARGE VOLUME ( $Re_V$ )** - Means that portion of the water quality volume ( $WQ_V$ ) used to maintain ground water recharge rates at development sites. Methods for calculating the recharge volume are specified in the Design Manual.

**REDEVELOPMENT** - Means any construction, alteration, or improvement performed on sites where existing land use is commercial, industrial, institutional, or multifamily residential, and the existing site impervious area exceeds 40 percent.

**REGIONAL STORMWATER MANAGEMENT FACILITY** - Means any stormwater management facility or structure serving two or more properties which are the subject of separate permit applications and owned by separate entities.

REGULATORY FLOODPLAIN – Means 100-year floodplains as shown on the National Flood Insurance Rate Maps for Charles County.

REPORT – Means a report prepared to address the stormwater management requirements.

RESTORE - Means to recreate, where feasible, stable and well-shaded riffle, run, stream meander, and pool structures and aquatic habitat conditions with the goal of supporting more balanced indigenous communities in surface waters that have been damaged by excessive or inadequately controlled stormwater flows and nonpoint source pollution discharges from upland watershed development.

RETENTION BASIN/STRUCTURE - Means a permanent structure that provides for the storage of runoff by means of a permanent pool of water.

RETROFITTING - Means the construction of a structural BMP in a previously developed area, the modification of an existing structural BMP, or the implementation of a nonstructural practice to improve water quality over current conditions.

REDEVELOPMENT – Means developing any property for which a previous development has occurred. Redevelopment all applies to existing impervious portions of the site.

RIGHT TO DISCHARGE – Means the discharge of surface waters at a point where an adequate surface outfall exists through common law.

SEDIMENT - Means soils or other materials transported or deposited by the action of wind, water, ice, or gravity as a product of erosion.

SEDIMENTATION - Means the action or process of forming or depositing sediment in a manner which adversely impacts, or has the potential to adversely impact the physical and biological diversity of wetlands and waters of the state.

SIGNIFICANT MATERIALS - Means materials that include, but is not limited to: raw materials; petroleum derivative products; any controlled hazardous substances as described in COMAR 26.13; industrial waste (COMAR 26.08.01.01); infectious waste (COMAR 26.04.07.02); materials such as solvents or detergents; finished materials such as metallic products; raw material used in food processing or production; fertilizers; pesticides; waste products such as ashes, slag and sludge or any other material that could result in pollution of waters of the State as a constituent in stormwater discharge.

SITE - Means any tract, lot, parcel of land, or combination of tracts, lots, parcels of land that are in one ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision, or project.

SITE DEVELOPMENT PLAN - Means the second of three required stormwater management plan approvals that includes the information necessary to allow a detailed evaluation of a proposed project.

SITE STORMWATER MANAGEMENT PLAN – See SITE DEVELOPMENT PLAN

SLOPE - Means the inclined surface of placed fill, excavation or natural terrain.

SOIL - Means any earth, sand, gravel, rock or any other similar material.

SOIL CONSERVATION AND WATER QUALITY PLAN- Means a land use plan for a farm approved by the Charles Soil Conservation District in accordance with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Standards and Specifications to make the best possible use of soil and water resources in carrying out agriculture while minimizing the movement of sediment, animal wastes, nutrients, or agricultural chemicals into waters of the State.

STABILIZATION - Means the prevention of soil movement by any of various vegetative and/or structural means.

STANDARD DETAILS - Means the State of Maryland Book of Standards for Highway and Incidental Structures and/or any detail or Detail Manual adopted to replace the book of Standards for Highway and Incidental Structures for use in Charles County.

STATE DESIGNATED WATER USES - Means uses specified in State Water Quality Standards.

STORM - Means an atmospheric disturbance accompanied by rain, snow, or other precipitation and sometimes accompanied by thunder, lightning and winds. For design purposes a storm is defined by its, rainfall, intensity, duration and frequency.

STORM DRAINAGE ORDINANCE - Means the Ordinance in the County which establishes drainage design requirements.

STORMWATER - Means water that originates from a precipitation event.

STORMWATER MANAGEMENT - Means

1. For quantitative control, a system of vegetative and/or structural measures that control the increased volume and rate of surface runoff caused by man-made changes to the land; and
2. For qualitative control, a system of vegetative, structural, and/or other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff.

STORMWATER MANAGEMENT CONSTRUCTION COSTS - Means expenses incurred in constructing Stormwater Management Systems.

STORMWATER MANAGEMENT INVENTORY - Mean the County's inventory of completed stormwater management systems and maintenance inspections.

STORMWATER MANAGEMENT PLAN - Means a set of drawings or other documents submitted by a person as a prerequisite to obtaining a stormwater management approval, which contain all of the information and specifications required by the an approving agency.

STORMWATER MANAGEMENT SUBTITLE - Means Environmental Article, Title 4, Subtitle 2, Annotated Code of Maryland and Cumulative Supplement.

STORMWATER MANAGEMENT SYSTEM - Means natural areas, ESD practices, stormwater management measures, and any other structure through which stormwater flows, infiltrates, or discharges from a site.

STREAM CHANNEL - Means any part of a water course either naturally or artificially created which contains an intermittent or perennial base flow of groundwater origin.

STRIPPING - Means any activity which removes the vegetative surface cover including tree removal, clearing, grubbing and storage or removal of topsoil.

SURFACE WATERS - Means all waters of the state other than groundwater, which include public or private ponds, lakes, rivers, streams, tidal and nontidal wetlands, public ditches, private ditches, and public or private drainage systems except those used to collect, convey, or dispose of sanitary sewage.

TOXIC SUBSTANCE - Means any liquid, gaseous, or solid substance in a concentration which, when applied to, discharged to, or deposited in waters of the state, may, in the judgment of the Department, exert a detrimental effect on humans or on the propagation, cultivation, or conservation of terrestrial or aquatic life.

TIDAL WATERBODY - Means a body of water affected by the tides.

TIDEWATER - Means the area below the mean high tide, affected by the regular rise and fall (flow and ebb) of the tide including State Tidal wetlands.

VARIANCE - Means the modification of the minimum stormwater management requirements for specific circumstances not self-created, where strict adherence to the requirements would result in unnecessary hardship and would not fulfill the intent of the Ordinance.

WAIVER - Means the relinquishment or modification from stormwater management requirements by the Department for a specific development on a case by case review basis.

WATERCOURSE OR DRAINAGEWAY - Means any natural or artificial stream, river, creek, ditch, channel, canal, conduit, culvert, drain, waterway, gully, ravine or wash, in which water flows in a definite direction or course, either continuously or intermittently; and including any area adjacent thereto which is subject to inundation by a reason of overflow or floodwater.

WATERS OF THE STATE - Means both surface waters and groundwater within the boundaries of the State of Maryland and subject to its jurisdiction and for the purpose of this Ordinance within the boundaries of Charles County.

WATERSHED - Means the total drainage area contributing runoff to a single point.

WATERSHED MANAGEMENT PLAN - Means a plan prepared by the County for the purpose of establishing specific development requirements within a watershed boundary which may include stormwater management requirements, provided that the specific stormwater management requirements are not less restrictive than those established in the Design Manual.

WATER QUALITY VOLUME (WQ<sub>v</sub>) - Means the volume needed to capture and treat the runoff from ninety (90) percent of the average annual rainfall at a development site. Methods for calculating the water quality volume (WQ<sub>v</sub>) are specified in the Design Manual.

WETLANDS - Means any land which is:

1. Considered private wetland or State wetland pursuant to Title 5, Nontidal Wetlands and to Title 16, Wetland and Riparian Rights, Environmental Article, Annotated Code of Maryland; or
2. Defined as wetland under the procedures described in the federally accepted "Federal Manual for Identifying and Delineating Jurisdictional Wetlands."

### 3.0 APPLICABILITY: WHEN STORMWATER MANAGEMENT IS REQUIRED

Unless the particular activity is exempted by this regulation, a person may not perform a Land Disturbance Activity (**LDA**), Develop Land or create impervious surfaces without first obtaining a permit from the Department. A permit may not be issued for a **LDA** or a Development unless a Final Stormwater Management Plan has been approved that is consistent with:

- A. The Stormwater Management Subtitle;
- B. This Ordinance;
- C. The DEM; and
- D. Policies, Procedures or any other requirement established by the Department.

### 4.0 EXEMPTIONS

The following categories of Development are exempted from the requirements of providing Stormwater Management.

- A. Agricultural Land Management Practices.
- B. New Developments conducting a **LDA** of no more than five thousand (5,000) square feet which are not located within the Buffer area of the County's Critical Area Overlay Zones established in the Charles County Zoning Ordinance.
- C. Additions or modifications to existing single family detached residential structures that do not disturb more than five thousand (5,000) square feet of land area which are not located within the buffer area of the County's Critical Area Overlay Zones.
- D. Commercial Logging or Tree Removal Operations that do not result in a **LDA**.
- E. **LDAs** which the Administration determines will be regulated under specific State laws that provide for the management of stormwater runoff.

## 5.0 WAIVERS

Waiver requests for either **QLC** or **QTC** requirements shall be subject to the conditions contained sections 5.1-5.9 in this Ordinance as well as any condition established in the **PPP**.

### 5.1 *General Criteria for Onsite QTC Waivers.*

The County Engineer may approve full or partial Quantity Control (**QTC**) Waivers on a case-by-case basis. Requests for **QTC** Waivers must be submitted with the Site Stormwater Management Plan and be included in the Report.

**Waiver Applicability** - The County Engineer may consider a **QTC** Waiver only after it has been determined that if applied equally within a watershed that the Cumulative Effects will not have any Adverse Impacts on downstream properties. The following general criteria applications may be considered for **QTC** Waivers:

- A. Developments with Direct Discharge to Adequate Outfalls provided all specific requirements of section 5.4 of this Ordinance have been met; or
- B. Developments located within the drainage area boundary of a Regional Facility provided all specific requirements of section 5.5 of this Ordinance have been met; or
- C. Developments located within the drainage boundary of a Offsite Stormwater Management Facility provided all specific requirements of section 5.6 of this Ordinance have been met; or
- D. Developments located within the study boundary limits of a Watershed Management Plan provided all specific requirements of section 5.7 of this Ordinance have been met; or
- E. Developments with Direct Discharge to Regulatory Floodplains provided all specific requirements of section 5.8 of this Ordinance have been met, or
- F. Developments with Direct Discharge to a Tidal Waterbody; or
- G. Developments that the Director of Development has approved for a waiver prior to the submission of the Site Stormwater Management Plan, provided that the applicant has demonstrated conclusively that there are exceptional circumstances on the site that prevent the reasonable implementation of Quantity Control practices and there will be no Adverse Impacts on downstream properties. Waiver requests requested under this item shall be submitted under a separate written letter.

## **5.2 General Criteria for Onsite QLC Waivers**

The Director of Development may approve **QLC** Waivers (full or partial) on a case by case basis.

**Waiver Applicability - QLC** Waivers shall be considered only after the Director has determined that if applied equally within the County that the waiver is consistent with the Stormwater Management Subtitle, the Design Manual, this Ordinance, Policies and Procedures established by the County and that there are no Adverse Impacts to downstream properties. The following General Criteria applications may be considered for **QLC** Waivers:

- A. In-fill development projects where the Director has determined that stormwater management requirements of this Ordinance are not feasible. The **QLC** Waiver must be submitted under separate written request and approved prior to the submission of the Site Stormwater Management Plans to the Department;
- B. Sites where the Director determines that circumstances exist that prevent the reasonable implementation of quality control practices.

## **5.3 Cumulative Effects of Waiver Policies**

**QTC** Waivers will only be granted on a case by case basis after the County Engineer has determined that the cumulative effects of the waiver policy if applied equally within a watershed does not result in any Adverse Impacts to downstream properties as demonstrated through an Adverse Impact Study conducted by the developer. The Adverse Impact Study must be submitted at the Site Stormwater Management Plan stage of the process.

## **5.4 Specific Requirements for QTC Waiver for Developments with an Adequate Outfall**

The County Engineer may grant a waiver of quantitative stormwater management requirements for individual developments with Adequate Outfalls. In addition to any requirement established in the PPP the following is the minimum information that is required to establish the existence of an Adequate Outfall:

- A. If the runoff from the development has Direct Discharge to a man-made open channel designed specifically to receive discharge from the development the developer must submit an Adequate Outfall Study to include:

1. Calculations to demonstrate that the man-made channel meets the design requirements of open channels as established in the Storm Drainage Ordinance; or
  2. Plans and calculations of the man-made channel showing that the channel was designed to serve the proposed development; and
  3. Sufficient documentation shall be submitted to assure the existence of offsite easements; and/or a Right-To-Discharge; and
  4. Demonstrate that there are no downstream drainage, erosion problems currently exist for the 2-year, and 10- year storms and no flooding problems exist for the 10-year and the 100-year storms; and
  5. Demonstrate that there are no Adverse Impacts to the downstream property, and
  6. Any other information required by the County Engineer.
- B. If the runoff from the development has Direct Discharge to an adequate natural channel, then the developer must submit an Adequate Outfall Study to demonstrate or include:
1. Calculations that there is an adequate natural channel which will not erode or flood when the contributing drainage area is fully developed; and
  2. Show that the maximum permissible velocity does not exceed those listed in Appendix F for the 2-year storm; and
  3. Show that the maximum permissible tractive force shall not exceed those listed in Appendix F for the 2-year storm; and
  4. Demonstrate that there are no downstream drainage, erosion problems currently exist for the 2-year, and 10- year storms and no flooding problems exist for the 10-year and the 100-year storms; and
  5. Show that the resulting stream flow for a 2-year storm for unlined natural earthen channels shall be contained within the existing natural stream banks; and
  6. Obtain a Right-To-Discharge from the downstream property owner, and
  7. Demonstrate that there are no Adverse Impacts to the downstream property, and
  8. Provide any other information required by the County Engineer.

- C. If the runoff from the development has Direct Discharge to a closed storm drain system or culvert, then the developer must submit an Adequate Outfall Study to include:
1. Calculations to show that the closed storm drain system or culvert has capacity based on the current design standards established in the Storm Drainage Ordinance; and
  2. Sufficient documentation shall be submitted to assure the existence of offsite easements and/or a Right to Discharge.

### **5.5 Specific Requirements for QTC Waiver Under A Regional Stormwater Management Facility**

The County Engineer may grant a waiver (full or partial) of quantitative stormwater management requirements for individual developments in drainage areas where Regional Stormwater Management Facilities have been constructed. A developer requesting a QTC Waiver for a project within a Regional Stormwater Management Facility drainage basin must demonstrate:

- A. That the regional facility was developed to include quantitative stormwater management for the proposed development;
- B. The regional stormwater management has sufficient capacity for the development and:
  1. On-site stormwater management is addressed to include Water Quality Volume ( $WQ_v$ ,  $Re_v$ ) and Channel Protection Storage Volume ( $Cp_v$ ) using current methods as required by the DEM; and
  2. There is Direct Discharge to an Adequate Outfall to the regional facility from the development as determined by an Adequate Outfall Study. Information required to determine if there is an Adequate Outfall is outlined in section 5.7; and
  3. There are no Adverse Impacts to properties between the project and the regional facility; and
  4. That the project has obtained legal rights to utilize the required storage capacity of the facility; and
  5. Sufficient documentation shall be submitted to assure the existence of offsite easements and/or inspection and maintenance agreements; and

6. The regional facility has been constructed per the approved plans and is functioning as designed; and
7. The regional facility is included in the County's Stormwater Management Inventory and has been properly maintained.

#### **5.6 Specific Requirements for QTC Waiver Under an Offsite Stormwater Management Facility**

The County Engineer may grant a waiver of quantitative stormwater management requirements for individual developments in drainage areas where Offsite Stormwater Management Facilities have been constructed. A developer requesting a waiver for quantitative control for a project within an Offsite Stormwater Management Facility drainage basin must demonstrate:

- A. The offsite facility has sufficient capacity for the development and:
  1. On-site stormwater management is addressed to include Water Quality Volume ( $WQ_v$  &  $Re_v$ ) and Channel Protection Storage Volume ( $Cp_v$ ) using methods established by the DEM; and
  2. There is Direct Discharge to an Adequate Outfall to the regional facility from the development as determined by an Adequate Outfall Study. Information required to determine if there is an Adequate Outfall is outlined in section 5.7, and
  3. Sufficient documentation shall be submitted to assure the existence of offsite easements and/or a Right-To-Discharge; and
  4. That the offsite facility is under construction or has been constructed per the approved plans and is functioning as designed; and
  5. The offsite facility is included in the County's stormwater management maintenance and inspection program and has been properly maintained or is under bond or surety.

#### **5.7 Specific Requirements for QTC Waiver Under A Watershed Plan**

The County Engineer may grant a waiver of quantitative stormwater management requirements for individual developments in drainage areas where a County Watershed Management Plan has been developed and specific quantity stormwater management controls have been established. A developer requesting a waiver for quantitative control for a project within a Watershed Management Plan boundary area must provide:

- A. A stormwater management report outlining how and where stormwater management has been addressed for all stormwater management requirements established by this ordinance; and
- B. A copy of the Watershed Management Plan supplied by the County to the developer in the Appendix of the Report; and
- C. Proof of Direct Discharge to an Adequate Outfall which drains to a specific Point of investigation established in the Watershed Management Plan. The specific requirements for establishment of an Adequate Outfall as defined in the Watershed Management Plan and/or per section 5.4; and
- E. There are no existing downstream erosion or flooding problems downstream; and
- E. Sufficient documentation shall be submitted to assure the existence of offsite easements and/or a Right-To-Discharge; and
- F. Any Fee-in-Lieu for SWM Waivers;

Any developer who shall receive a waiver for on-site of stormwater management ( $Re_v$ ,  $WQ_v$ ,  $Cp_v$ ,  $Qp_{10}$ ) if located within the drainage boundaries of a Watershed Management Plan shall make a monetary contribution ("Fee-In-Lieu") as defined in this section, grant an easement and/or dedicate land as hereinafter provided.

1. The "Fee-In-Lieu" is to be applied to the cost of planning, designing, acquiring land for, constructing and maintaining stormwater management devices or other uses related to stormwater conveyance and/or stormwater management as deemed appropriate by the County; and
2. The contribution or "Fee-In-Lieu" of providing on-site stormwater management shall be as established in the Charles County Fee Schedule, as defined by the Department; and
3. "Fee-In-Lieu" shall be paid prior to issuance of a permit. For County constructed facilities, the County may, at its sole discretion, accept the dedication of land; specify other improvements and/or the granting of an easement for the construction, operation and maintenance of stormwater conveyance systems or stormwater management facility in lieu of a portion of all of the monetary contribution. All costs associated with these contributions shall be the sole responsibility of the applicant. The total value of the contribution shall not be less than the amount of the fee in lieu which would be required; and
4. Funds collected as a result of a "Fee-In-Lieu" shall be dedicated to administration of the stormwater management program and/or any other stormwater management and or drainage issues.

- G. Any other information required by the County Engineer.

**5.8 Specific Requirements for QTC Waiver for Developments With Direct Discharge to A Regulatory Floodplain**

The County Engineer may grant a waiver of quantitative stormwater management requirements for individual developments with a Direct Discharge to a Regulatory Floodplain. A developer requesting a waiver for quantitative control for a project with Direct Discharge to a Regulatory Floodplain must demonstrate or provide:

- A. An Adequate Outfall Study to show that there is an Adequate Outfall at the Point of Investigation as outlined in section 5.4; and
- B. Demonstrate that there are currently no downstream drainage erosion problems for the 2-year, and 10-year storms and no flooding problems exist for the 10-year and the 100-year storms; and
- C. Demonstrate that there are no Adverse Impacts to the downstream property; and
- D. Show and/or provide a Right-To-Discharge from any downstream property owners if the discharge enters offsite properties prior to discharge into the stream; and
- E. Provide any other information as required by the County Engineer.

**5.9 Specific Requirements for QTC Waiver for Developments With Direct Discharge to Tidal Waterbody**

The County Engineer may grant a waiver of quantitative stormwater management requirements for individual developments with a Direct Discharge to a Tidal Waterbody. Indirect discharges or discharges which are in close proximity to a Tidal Waterbody must apply for a Quantity Control Waiver under a different section of this ordinance. A developer requesting a waiver for quantitative control for a project with Direct Discharge to a Tidal Waterbody must demonstrate or provide:

- A. That the associated waterbody at the discharge point is influenced by tide; and
- B. That the discharge will not result in any Adverse Impacts to the receiving Tidal Waterbody.

## 6.0 REDEVELOPMENT

The redevelopment requirement applies only to those portions of a site which have existing impervious cover or where impervious cover have existed within the previous five (5) years.  $Re_v$  and  $Cp_v$  requirements specified in the DEM do not apply to any redevelopment or redevelopment portion of a site but do apply to the new development portions of the site.  $Qp_{10}$  and  $Qf_{100}$  is not specifically excluded and may be required if the County Engineer determines there are existing Adverse Impacts on downstream properties associated with the existing Development.

- A. Unless otherwise specified by a Watershed Management Plan developed according to Section 8.5 of this regulation, all redevelopment project designs shall:
  1. Reduce existing impervious area within the limits of disturbance by at least 50 percent according to the ESD Design Manual;
  2. Implement **ESD** to the **MEP** to provide water quality treatment for at least 50 percent of the existing impervious area within the limit of disturbance; or
  3. Use a combination of both sections (a) and (b) above for at least 50 percent of the existing site impervious area.
- B. Alternative stormwater management measures may be used to meet the redevelopment requirements of this ordinance provided that the developer satisfactorily demonstrates to the County Engineer that impervious area reduction and **ESD** have been implemented to the **MEP**. Alternative stormwater management measures include, but are not limited to:
  1. An on-site structural **BMP**
  2. An off-site structural **BMP** to provide water quality treatment for an area equal to or greater than 50 percent of the existing impervious area; or
  3. A combination of impervious area reduction, **ESD** implementation, and an on-site or off-site structural **BMP** for an area equal to or greater than 50 percent of the existing site impervious area within the limits of disturbance.
- C. When the Developer has demonstrated to the County Engineer that it would not be feasible to provide onsite stormwater management to address the redevelopment portion of a project the following options may be considered as reasonable alternatives:

1. Retrofitting existing stormwater management facilities inside or outside the same watershed; or
  2. Stream restoration inside or outside the same watershed; or
  3. Pollution Trading inside the project site limits; or
  4. Pollution Trading inside or outside the same watershed; or
  5. A “fee in lieu” of as established in the Charles County Fee Schedule; or
  6. Other reasonable options approved by the County Engineer.
- D. Stormwater management shall be addressed according to the new development requirements in the **DEM** for any net increase in impervious area.

## **7.0 ADMINISTRATIVE VARIANCES**

The Director may grant a written variance from any requirement of this Ordinance and/or any decision by the County Engineer if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of this Ordinance will result in unnecessary hardship and not fulfill the intent of the Ordinance. A written request for variance will state the specific variances sought and reasons for their granting. All variances granted by the Director must adhere to The Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland, 1996 Replacement Volume on Stormwater Management. Variances shall be addressed and submitted to the Director prior to the submission of the Concept Stormwater Management Plan.

## **8.0 DESIGN CRITERIA**

### ***8.1 Basic Design Criteria and Construction Specifications***

Basic design criteria and construction specifications for stormwater management structures will be those of the Natural Resources Conservation Service (NRCS), State of Maryland Department of Environment - Water Management Administration and MSHA, generally found in the most current edition of the following publications:

- A. The latest edition of the DEM.
- B. Urban Hydrology for Small Watersheds, TR-55 (Technical Release 55).
- C. Computer Program for Project Formulation, TR-20 (Technical Release 20).
- D. Stormwater Management Pond Design Manual (Maryland Association of Soil Conservation Districts).
- E. Soil Conservation Service Engineering Field Manual.
- F. Soil Conservation Service, Maryland Standards and Specifications, Pond, Code 378. All overflow devices and stormwater management facilities will be designed to safely pass a 100-year storm. The 100-year storm discharge will be based on the ultimate development of the contributing watershed.
- G. The Charles County Standards and Specifications for Construction Manual.
- H. County Standard Details.
- I. Other design criteria, specifications, and standard details adopted and approved by the Department.
- J. "A Framework for Evaluation of Compliance with the 10% Rule in the Critical Area," prepared by the Department of Environmental Programs, Metropolitan Washington Council of Governments, prepared for Maryland Critical Area Commission and the Maryland Office of Environmental Programs, April 1987.

### ***8.2 Minimum Stormwater Control Requirements***

- A. Minimum control requirements for the  $WQ_v$ ,  $Re_v$  and  $Cp_v$  will be as follows:

1. Recharge Volume ( $Re_v$ ), Water Quality Volume ( $WQ_v$ ), and Channel Protection Storage Volume ( $Cp_v$ ) shall be controlled utilizing ESD to the MEP according to the DEM.
  2. The planning techniques, nonstructural and structural practices, and design methods specified in the **DEM** shall be used to implement **ESD** to the **MEP**. Stormwater management plans for development projects subject to this Ordinance shall be designed using the **ESD** sizing criteria, recharge volume, water quality volume, and channel protection storage volume criteria according to the **DEM**. The **MEP** standard is met when channel stability and 100 percent of the average annual predevelopment groundwater recharge are maintained, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary.
  3. Control of the 2-year frequency storm event, 10-year frequency storm event, or both is required according to the DEM if the County or any municipality determines that additional stormwater management is necessary because historical flooding problems exist and downstream floodplain development and conveyance systems cannot be controlled.
- B. Minimum Quantity Control requirements for the Overbank Flood Protection Volume ( $Qp_{10}$ ) are as follows:
1. Overbank Flood Protection Volume  $Qp_{10}$  is required for all Land Disturbance Activities or Developments which do not meet Quantity Control Waivers established in this Ordinance. The discharge for the post-development 10-year frequency storm event ( $Qp_{10}$ ) must be managed to the predevelopment 10-year frequency discharge levels at all POIs from a **LDA** or Development. Predevelopment conditions will be based on average site conditions over the preceding five years, and all lands in the site to be developed shall be assumed to be in good hydrological condition.
- C. Minimum Quantity Control requirements for less frequent storm events may be required as follows:
1. The County Engineer may require quantity control of the 25-year ( $Qp_{25}$ ), 50-year ( $Qp_{50}$ ), the Extreme Flood Protection Volume ( $Qf_{100}$ ) or any other less frequent storm discharges based on road classifications, historic flooding of downstream properties or structures, stream erosion or if the discharge will result in Adverse Impacts on downstream properties.
  2. If the Design Engineer demonstrates that the minimum Quantity Control requirements for less frequent discharges from the site cannot be obtained, then the developer may offset these requirements by providing one of the following with approval from the County Engineer:

- (1) Watershed or stream restoration plan; or
- (2) Retrofitting of an existing structure; or
- (3) Drainage improvements; or
- (4) A “fee in lieu” of as established in the Charles County Fee Schedule

D. Alternate minimum control requirements may be adopted for  $WQ_v$ ,  $Re_v$  or  $Cp_v$  subject to Administration approval. The Administration shall require a demonstration that alternative requirements will implement **ESD** to the **MEP** and control flood damages, accelerated stream erosion, water quality, and sedimentation, including, if necessary, address comprehensive watershed studies and have no Adverse Impacts on downstream properties.

### **8.3 Stormwater Management Measures**

A. All development plans must demonstrate that **ESD** has been implemented to the **MEP** and, only where absolutely necessary, is a structural **BMP** used in developing a stormwater management plan.

#### **1. ESD Planning Techniques and Practices.**

a.) The following planning techniques may be considered according to the **DEM**, the PPP and any other County Ordinances to satisfy the minimum control requirements for  $WQ_v$ ,  $Re_v$  and  $Cp_v$ :

- i. Preserving and protecting natural resources;
- ii. Conserving natural drainage patterns;
- iii. Minimizing impervious area;
- iv. Reducing runoff volume;
- v. Using **ESD** practices to maintain 100 percent of the average annual predevelopment groundwater recharge volume for the site;
- vi. Using green roofs, permeable pavements, reinforced turf, and other alternative surfaces;
- vii. Limiting soil disturbance, mass grading, and compaction;
- viii. Clustering development if allowed by the Zoning Ordinance, and
- ix. Any practices approved by the Administration.

b) The following **ESD** treatment practices shall be designed according to the **DEM**, the ESD Manual, the PPP and any other County Ordinance to satisfy the minimum control requirements for  $WQ_v$ ,  $Re_v$  and  $Cp_v$ :

- i. Disconnection of rooftop runoff;
- ii. Disconnection of non-rooftop runoff;
- iii. Sheet flow to conservation areas;
- iv. Rainwater harvesting;
- v. Submerged gravel wetlands;

- vi. Landscape infiltration;
  - vii. Infiltration berms;
  - viii. Dry wells;
  - ix. Micro-bioretenion;
  - x. Rain gardens;
  - xi. Swales;
  - xii. Enhanced filters; and
  - xiii. Any practices approved by the County Engineer with concurrence from the Administration.
- c) The use of the **ESD** planning techniques and treatment practices specified in this section shall not conflict nor be less restrictive than State law, regulations, or policies.
- d) Structural Stormwater Management Measures.
- i. The following structural stormwater management practices shall be designed according to the **DEM**, the ESD Manual, the **PPP**, NRCS Pond Code 378 and any other County Ordinance to satisfy the minimum control requirements for  $WQ_v$ ,  $Re_v$ , and  $Cp_v$ .
    - a. Stormwater management ponds;
    - b. Stormwater management wetlands;
    - c. Stormwater management infiltration;
    - d. Stormwater management filtering systems; and
    - e. Stormwater management open channel systems.
  - ii. The performance criteria specified in the **DEM** with regard to general feasibility, conveyance, pretreatment, treatment and geometry, environment and landscaping, and maintenance shall be considered when selecting structural stormwater management systems.
  - iii. Structural stormwater management practices shall be selected to accommodate the unique hydrologic or geologic regions of the County.
  - iv. Components of structural stormwater management systems shall include those measures established in the **DEM** and shall be designed to:
    - a. Minimize the need for maintenance.
    - b. Provide a designed access for maintenance purposes.
    - c. Incorporate safety features as appropriate. See Appendix D for recommended safety features, the DEM or NRCS Pond Code 378 for the most restrictive and appropriate safety features.

- d. Incorporate buffers and property line setbacks for above ground facilities as follows:
  - (1) Minimum horizontal property line setback of 25' (twenty five feet) to all residentially zoned property lines. For ponds, the property line setback is measured to the top of the embankment or to the outside top of the excavation.
  - (2) Buffers and landscaping shall be provided for stormwater management practices adjacent to all (residential or nonresidential) property lines. Buffers and landscaping requirements shall be those found in the **DEM**.
- e) A Landscaping and Stabilization Plan shall be provided for all nonstructural and structural components of the stormwater management system. The Landscaping Plan shall be prepared by a qualified Licensed Individual.
- f) ESD planning techniques and treatment practices used to satisfy the minimum control requirements of this ordinance shall be documented and remain unaltered by subsequent property owners. Approval from the Department shall be obtained before any stormwater management practice is altered. The County may require easements and/or Inspection & Maintenance Agreements to protect the nonstructural practices.
- g) Alternative ESD planning techniques and treatment practices and structural stormwater management measures may be used for new development runoff control if they meet the performance criteria established in the DEM and are approved by the County and the Administration.

#### **8.4 Additional Stormwater Management Requirements**

- A. Structural stormwater management measures to address  $Q_{p10}$  and  $Q_{f100}$  or/and other stormwater management requirement established by the County must be designed according to 8.3d. above or any other requirement as required by the County Engineer.
- B. Concentrated discharge onto residential lots from a **LDA** or Development shall be avoided. Where a proposed stormwater management facility is designed to outfall concentrated discharge to any offsite residential lot and that discharge is greater than the discharge a fifteen (15) inch corrugated metal pipe can convey at full flow conditions when laid on natural grade, then the principal spillway shall be designed to discharge from the facility through the use of a subsurface structure and be continued thru the off-site residential lot.

- C. All necessary off-site easements shall be obtained by the developer and will be required prior to plan approval. If the developer demonstrates that off-site easements and improvements cannot be obtained, then the developer may offset these requirements by providing one of the following with approval from the Department:
- (1) Watershed or stream restoration plan; or
  - (2) Retrofitting of an existing structure; or
  - (3) Drainage improvements; or
  - (4) A “fee in lieu” of as established in the Charles County Fee Schedule.
- D. A minimum of 1' (one foot) freeboard will be required for all ponds that are not required to meet the design requirements of the SCS Pond Code 378. The freeboard shall be measured from the 100-year elevation to the top of the settled embankment.
- E. The design of wet ponds shall include riprap armament or other erosion control techniques at the normal pool and facility interface to account for bank/shore erosion.
- F. Weir structures shall have a minimum embedded length of five feet (5') into the embankment.
- G. A Landscaping and Stabilization Plan shall be provided for all structural stormwater management facilities. The Landscaping Plan shall be prepared by a qualified Licensed Individual.
- H. A minimum of 6” of topsoil shall be applied to all areas requiring permanent stabilization. Permanent stabilization shall be provided utilizing Charles County Seed Mix as specified in the County’s Standards and Specifications for Construction Manual.
- I. Proposed gravel cover shall be considered as impervious for design purposes. Existing gravel surfaces shall be considered as pervious land cover with runoff values consistent with the underlying soils.
- J. When a stormwater management pond is located within a densely populated area or in the proximity of an elementary school, playground or other areas where small children may congregate without adult supervision, in addition to traditional safety measures specified in the **DEM** the Department will require a protective enclosure. Protective enclosures may also be required at other locations as determined by the County Engineer.
- K. Ponding in parking areas is not allowed in residential developments. In non-residential developments, ponding in parking lots shall be limited to those fringe areas of a parking lot intended for parking during periods of peak customer

volume, but not to exceed 25% of the total area available for customer parking or a 6" ponding depth.

- L. If the proposed development activity is located in the Intense Development Critical Area Overlay Zone established by the Charles County Zoning Ordinance, then the developer must demonstrate that the pollutant loading from the site will be reduced by ten (10) percent of predevelopment levels. However, if it can be demonstrated that topography prevents runoff from either directly or indirectly entering tidal waters, ten (10) percent pollution reduction shall not be required. The process for determination of pollutant loading reduction shall be as outlined by the Critical Areas Commission and the Maryland Office of Environmental Programs in "A Framework for Evaluation of Compliance with the 10% Rule in the Critical Area", April, 1987 or a comparable methodology as approved by the Department. All development must still address  $WQ_v$  and  $Re_v$  per the DEM.
- M. Stormwater management facilities shall be located outside of stream channels, 100-year floodplains, and any Resource Protection Zone adopted as part of the County Code.
- N. The design of stormwater management facilities for the control and treatment of non-public waters shall generally be located outside of County right-of-ways and County owned property unless approved by the County Engineer.
- N. All ponds, including those designed for quantity control only, shall be designed and constructed in accordance with the criteria of the NRCS Pond Code 378 and the DEM except as contained in this Ordinance shall include the following:
  - 1. Small pond approval shall be obtained from the District if applicable.
  - 2. Where deemed necessary by the County Engineer as part of an adequate outfall study the developer shall submit to the Department an analysis of the impacts of stormwater flows downstream in the watershed. The analysis shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed development upon a dam, stormwater conveyance system (natural or manmade), highway, structure, or natural point of restricted stream flow.
- O. Where a stormwater management plan involves direction of some or all runoff off of the site, it shall be the responsibility of the developer to obtain from adjacent property owners any easements or other necessary property interests concerning discharge of water. Approval of a stormwater management plan does not create or affect any such rights. All necessary offsite easements shall be recorded prior to issuance of a Permit.
- P. The developer shall give consideration to incorporating the use of natural topography and land cover such as existing ponds, natural swales and depressions

as they exist prior to development to the degree that they can accommodate the additional flow of water. If existing measures are utilized in the design of a stormwater management plan then such design shall include the following:

1. An analysis of existing measures to determine the feasibility of those measures; and
  2. A hydrologic and a hydraulic study; and
  3. A geotechnical study of existing ponds to determine the conditions of the pond; and
  4. An incorporation of any retrofit as recommended by the geotechnical, hydrologic or hydraulic study; and
  5. An incorporation of any retrofit to meet the objectives of the Charles County municipal National Pollutant Discharge Elimination System (NPDES) permit; and
  6. A life cycle cost analysis of any existing structure (culvert, principal spillway, etc.) will be required prior to acceptance for inclusion into a drainage or stormwater management design. If the structure has exceeded 50% (fifty percent) of its expected life cycle, then the structure will be replaced with a new structure.
- Q. The County Engineer may approve the use of propriety structures provided that these structures are acceptable for use to meet the stormwater management requirements established in this Ordinance and the **DEM**. These structures shall have received written approvals from the Administration prior to use in the County.
- R. Any other practices, not specified above, must be approved by the Administration.
- S. Computer programs may be allowed by the County Engineer. The County Engineer may require copies of licensed software be provided at no cost to the County. If computer programs are allowed, then the County can establish formatting criteria for the input and output data. All input and output data will be provided to the County in electronic format

### **8.5 Watershed Management Plans**

A watershed management plan developed for the purpose of implementing different stormwater management policies shall:

- |
- A. Include a detailed hydrologic and hydraulic analysis to determine hydrograph timing;
  - B. Evaluate both quantity and quality management;
  - C. Include cumulative impact assessment of watershed development;
  - D. Identify existing flooding and receiving channel conditions;
  - E. Be conducted at a reasonable scale;
  - F. Specify where on-site or off-site quantitative and qualitative stormwater management practices are to be implemented;
  - G. Be consistent with the general performance standards for stormwater management in Maryland found in the DEM;
  - H. Be approved by the Administration;
  - I. Provide procedures for implementation; and
  - J. Include any other information as required by the County Engineer.

## 9.0 STORMWATER MANAGEMENT PERMIT PROCESS

### 9.1 *Comprehensive Stormwater Management Plan Review and Approval Process*

Submission and approval of a stormwater management plan will comply with a comprehensive stormwater management plan review and approval process administered by the Department that:

- A. Considers all aspects of project planning, design, and construction from initial conception through final approval;
- B. Requires the submission, review, and approval of interim plans at an increasing level of detail for specific stages of project development; and
- C. Provides for coordinated input for all plans from all appropriate agencies including, but not limited to, soil conservation districts and departments of planning, zoning, public works, and environmental protection.

### 9.2 *Contents and Submission of Stormwater Management Plans*

- A. The owner/developer is responsible for submitting phased stormwater management plans for development projects according to the comprehensive review and approval process specified in Section 9.1 of this ordinance and the **ESD Design Manual**. Plans shall be submitted for the concept, site development, and final stormwater management construction phases of project design. Comments from the County Engineer shall be addressed and approval received at each phase of project design prior to subsequent submissions.
- B. The owner/developer shall submit a Concept Stormwater Management Plan that provides sufficient information for an initial assessment of the proposed project and whether stormwater management can be provided according to this chapter and the **DEM**. Plans submitted for concept approval shall include, but not be limited to:
  - 1. A map at a scale specified by the appropriate approval authority showing site location, existing natural features, water and other sensitive resources, topography, and natural drainage patterns;
  - 2. The anticipated location of all proposed impervious areas, buildings, roadways, parking, sidewalks, utilities, and other site improvements;
  - 3. The location of the proposed limit of disturbance, erodible soils, steep slopes, and areas to be protected during construction;

4. Preliminary estimates of stormwater management requirements, the selection and location of **ESD** practices to be used, and the location of all points of discharge from the site;
  5. A narrative that supports the concept design and describes how **ESD** will be implemented to the **MEP**, and
  6. Any other information required by the approving agency
- C. Following the Concept Stormwater Management Plan approval, the Applicant shall submit the Site Stormwater Management Plan that address comments received during the previous review phase. Plans submitted for site development approval shall be of sufficient detail to allow site development to be reviewed and include but not be limited to:
1. All information provided during the Concept Stormwater Management Plan review phase;
  2. Final site layout, exact impervious area locations and acreages, proposed topography, delineated drainage areas at all points of discharge from the site, and stormwater volume computations for **ESD** practices and quantity control structures;
  3. A proposed erosion and sediment control plan that contains the construction sequence, any phasing necessary to limit earth disturbances and impacts to natural resources, and an overlay plan showing the types and locations of **ESD** and erosion and sediment control practices to be used;
  4. A narrative that supports the site development design, describes how **ESD** will be used to meet the minimum control requirements, and justifies any proposed structural stormwater management measure; and
  5. Any other information required by the approving agency
- D. Following Site Stormwater Management approval, the Applicant shall submit final erosion and sediment control and the Final Stormwater Management Plans that reflect the comments received during the previous review phases. Plans submitted for final approval shall be of sufficient detail to allow all approvals and permits to be issued according to the following:
1. Final erosion and sediment control plans shall be submitted according to COMAR 26.17.01.05; and
  2. Final Stormwater Management Plans shall be submitted for approval in the form of construction drawings and be accompanied by a report that includes

sufficient information to evaluate the effectiveness of the proposed runoff control design.

- E. Reports submitted for Final Stormwater Management Plan approval shall include:
1. Geotechnical investigations including soil maps, borings, site-specific recommendations, and any additional information necessary for the final stormwater management design;
  2. Drainage area maps depicting predevelopment and post-development runoff flow path segmentation and land use;
  3. Hydrologic computations of the applicable ESD and unified sizing criteria according to the DEM for all points of discharge from the site;
  4. Hydraulic and structural computations for all ESD practices and structural stormwater management measures to be used;
  5. A narrative that supports the final stormwater management design; and
  6. Any other information required by the County Engineer.
- F. Construction drawings submitted for Final Stormwater Management Plan approval shall include the following minimum information:
1. A vicinity map;
  2. Existing and proposed topography and proposed drainage areas, including areas necessary to determine downstream analysis for the proposed stormwater management facilities;
  3. Any proposed improvements including the location of buildings or other structures, impervious surfaces, storm drainage facilities, and all grading;
  4. The location of existing and proposed structures;
  5. Any easements and rights-of-way;
  6. The delineation, if applicable, of the 100-year floodplain and any on-site wetlands;
  7. Structural and construction details including representative cross sections for all components of the proposed stormwater management facilities;
  8. All necessary construction specifications;

9. A sequence of construction;
10. Data for total site area, disturbed area, new impervious area, and total impervious area;
11. A table showing the ESD and unified sizing criteria volumes required in the DEM;
12. A table of materials to be used for stormwater management facility planting;
13. All soil boring logs and locations;
14. An inspection and maintenance schedule;
15. Certification by the owner/developer that all stormwater management construction will be done according to this plan;
16. An as-built certification signature block to be executed after project completion;
17. Any other information required by the County Engineer.

### **9.3 Qualifications**

- A. As required under State law only Licensed Professionals may be involved with the consultation; design; evaluation; investigation; and planning and inspection of construction to ensure compliance with specifications and drawings of the stormwater management project.
- B. The stormwater management plan and all supporting documents shall be signed and sealed by a Professional Engineer or other Licensed Professional as allowed under the Maryland State law. If the BMP requires either a dam safety permit or small pond approval then the design shall be prepared by a Professional Engineer.
- C. All stormwater management construction shall be inspected by a Licensed Professional as required by State law. The County Engineer may require certifications for testing laboratories and/or inspection personnel who work under the direct supervision and responsible charge of a Licensed Professional.
- D. The Licensed Professional responsible for the inspection of all stormwater management construction shall certify the inspections through reports, test results, letters or other documents as required by the County Engineer.

## **9.4 Additional Plan Information**

The following additional information may be required at any stage (Concept, Site and/or Final) of the stormwater management plans review:

### **A. Site Characteristics:**

1. Intended use of the structures including design criteria, trade-off conditions and/or areas not managed (NRCS Engineering Field Manual, Chapter II).
2. Structure classification (NRCS Pond Standard CODE 378).
3. Soils investigation, for construction of small ponds and infiltration facilities per the DEM for review by the District and the Department (SCS Engineering Field Manual, Chapter IV).
4. Topographic survey including the area necessary to determine the downstream effect from any proposed stormwater management structure.
5. Topographical information of the contributing watershed based upon USGS topographic quadrangles with a field verified drainage area and acreage noted on the plan or County topographic maps at 1" = 200'.
6. Geotechnical investigations, including soils maps, borings, site specific recommendations, and any additional information necessary for the proposed stormwater management plan design.
7. Descriptions of all water courses, impoundments, and wetlands on or adjacent to the site or into which stormwater directly flows.

### **B. Computations:**

1. Hydrology;
2. Hydraulic;
3. Structural;
4. Unified Sizing Criteria Volume computations according to the DEM;
5. For development proposed in the Intense Development Overlay Zone within the Charles County Critical Area, the pre-development and post-development pollutant loadings; and
6. Any other information as required by the County Engineer in a format as approved by the Department.

C. Stormwater Management Design Plans:

1. Location map;
2. Vicinity map;
3. Topography survey as indicated in this section;
4. Any proposed improvements including the location of buildings or other structures, impervious surfaces, storm drainage facilities, and all grading;
5. The location of existing and proposed structures and utilities;
6. Any easements and rights-of-way;
7. The delineation, if applicable, of the 100-year floodplain and any on-site wetlands;
8. Structural and construction details for all components of the proposed stormwater facilities;
9. A sequence of construction;
10. Data for total site area, disturbed area, new impervious area, and total impervious area;
11. A table showing the Unified Sizing Criteria Volumes required in the DEM;
12. A table of materials to be used for stormwater management facility planting;
13. All soil boring logs and locations;
14. Pre and post-development watershed maps and design drainage area maps for stormwater conveyance shall be part of the plan assembly;
15. Location of utilities in the construction area;
16. Structural details for proposed facilities;
17. Notes on drawings shall specify materials to be used;
18. Construction specifications; and
19. Any other information as determined by the Department.

- D. Grading and Sediment Control Plan ("Charles County Grading and Sediment Control Ordinance" and "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas")
- E. Construction Cost Estimate
- F. Maintenance Schedule
- G. If the plans include precast structures, then the Design Engineer shall be responsible to submit approved shop drawings to the County prior to the placement of the precast structure. The information required on the shop drawing is as outlined in the Plan Preparation Package.
- H. Adequate Outfall Study
- The applicant's study of the downstream conditions shall extend to the point where an adequate outfall exists as determined by calculations or to the point as determined by the County Engineer.
- I. Standards and Specifications
- Stormwater management and/or storm drainage plans must be prepared in sufficient detail, with reference to appropriate standards and specifications, to ensure understanding by those responsible for review, installation, and inspection.
- J. The Developer will certify on the drawings that all clearing, grading, and construction and development will be accomplished strictly in accordance with the Final Stormwater Management Plan. Changes made during the construction process will not be permitted without prior written approval of the Department and, where a small pond is involved, the District. The Licensed Professional will certify on the drawings that the plan meets all applicable, County, State and Federal codes.
- K. The Developer shall retain a Licensed Professional to inspect the construction of all stormwater management construction. The Licensed Professional shall submit routine inspection reports with test results at time intervals established by the County Engineer. The Licensed Professional shall not accept any work not in compliance with State or County requirements and shall notify the County immediately when work is not in compliance.
- L. The design plans will indicate the 100-year floodplains, backwaters, ponding for streams, culverts, storm drain systems, and the maximum impounded water surface elevation of the Stormwater management structure during ultimate emergency spillway operation. The resultant inundated area such at this elevation shall be accurately delineated and recorded on the site plan or plat as a perpetual stormwater management, floodplain, backwater, or drainage easement, as

applicable. Additional buffer easements may be necessary or required for maintenance, access, and/or safety purposes. No existing or proposed building structures will be allowed within these easements without prior approval of the Department. Peripheral construction may be granted, provided that all floor elevations are at least one foot higher than the maximum water surface elevation.

M. Other information as required by the County Engineer.

### **9.5 As-Built Plans**

The “As-Built” plans shall be submitted to the Department prior to requesting final inspections of the project. “As-Built” plans shall be submitted following procedures established in the **PPP**. “As-Built” plans and certifications shall be submitted by a Licensed Professional to ensure that ESD planning techniques, treatment practices, and structural stormwater management measures are in compliance with the specifications contained in approved plans. At a minimum, “as-built” certification shall include a red-lined set of drawings comparing the approved stormwater management plan with what was constructed. Other information shall be submitted if required by the County Engineer as established in the PPP. Final Completion Acceptance will not be given until all final inspections and “As-built” plans have been approved.

In the case of small ponds, the Developer shall also submit “As-Built” plans to the District. The “As-Built” plans shall be certified by a Licensed Professional as meeting or exceeding the requirements of the approved plans and specifications. Procedures for “As-Built” plans submitted to the County are outlined in the **PPP**.

### **9.6 Easements and Maintenance Agreements**

Where stormwater management is provided on-site, stormwater management easements and/or maintenance agreements as approved by the Department shall be recorded by the applicant for the location and use of such facility. Easement documents shall be submitted to the County for review prior to recording of the plat. The plats and easement documents shall include all necessary information as required by the County. Such easements shall be adequate to provide access for maintenance from a public right-of-way and shall include any downstream improvements from the stormwater management structure and/or the downstream danger reach of the structure.

### **9.7 Location of Easements – Residential Developments**

1. In residential developments, the stormwater management and access easements shall be located on properties of persons responsible for maintenance of such easements and facilities. All easements shall be located outside the limits of residential lots.

2. In the case of publically maintained facilities, the easements shall be located in open space or public use lots.

### **9.8 Easements -- Commercial, Industrial, Institutional Developments**

1. If a plat is not associated with a commercial, industrial or institutional development, the owner will submit a completed signed and recorded copy of the Stormwater Management Inspection and Maintenance Agreement prior to the issuance of the permit.
2. Stormwater management easement areas shall be shown, labeled and dimensioned on the stormwater management plans.
3. Access to the stormwater management facilities shall form a public right-of-way.

### **9.9 Ownership of Stormwater Management Facilities**

Unless approved otherwise by the County Engineer, stormwater management for private developments shall be located outside of County-owned right-of-ways and properties.

1. Residential Subdivisions - Structural stormwater management located in residential developments shall be located outside residential lots and shall be maintained by a Homeowner's Association. Nonstructural stormwater management designed to address the stormwater management requirements in residential developments may be located on the lot if the measure is for the lot development and not the infrastructure development.
2. Nonresidential Development - Stormwater management measures located in nonresidential areas such as commercial, industrial and institutional development shall be located on the developer's property and shall be maintained by the owner of the property.
3. Public Development & Maintenance – The County will maintain any stormwater management facility located in public right-of-ways, County properties or within easements dedicated to the County

### **9.10 Consistency With Adopted Watershed and Flood Management Plans**

Stormwater management and development plans shall be consistent with adopted and approved Watershed Management Plans or flood management plans as approved by the Department in accordance with the Flood Hazard Management Act of 1976 (Environment Article, Title 5, Subtitle 8, Annotated Code of Maryland).

### **9.11 Operation and Maintenance Plan**

An operation and maintenance plan shall be required as a condition of stormwater management plan approval.

### **9.12 Right to Discharge**

If a stormwater management plan involves discharge of runoff off of the site, it is the responsibility of the developer to obtain from adjacent property owners a Right-To-Discharge, easement or any other necessary instrument needed to discharge waters upon the adjacent properties. Approval of a stormwater management plan does not create or affect any right to direct runoff onto adjacent property without that property owner's permission.

## **10.0 AGREEMENTS / BONDS / FEES**

### **10.1 Permits**

A permit and/or agreement shall be required for construction projects and shall specify the developer's responsibilities during the project.

### **10.2 Bonds**

The Charles County Commissioners shall require a surety bond, letter of credit, cash guarantee or other means of security acceptable to the County Commissioners from the Developer prior to issuance of the permit as outlined in the Subdivision Regulations. Such bond, letter of credit or cash guarantee shall be in an amount as established in the PPP and not be less than the total estimated construction cost of the stormwater management facilities.

### **10.3 Conditions of Bond**

Bonds required in this Ordinance shall include provisions relative to forfeiture for failure to complete work specified, compliance with all provisions of this Ordinance and other applicable laws and regulations, and any time limitations. The bond shall remain in full force and effect until completion of work to specifications required, submission and approval of "As-Built" plans by the Department, certification of completion by the Designer and the Developer, and recordation of easements, dedications, and maintenance agreement as required.

A provision may be made for partial release of the deposit or the amount of the bond upon completion and acceptance by the Director of the various areas of development as specifically delineated, described, and scheduled on the required plans and specifications. An interim certificate of partial completion shall be duly approved for the type of installation.

#### **10.4 Fees**

Unless otherwise provided herein, a non-refundable fee will accompany plans to provide for the cost of plan review, administration and inspection for all projects subject to this Ordinance. The amount of this fee will be established by the Department in the County Fee Schedule.

DRAFT

## **11.0 CONSTRUCTION INSPECTION AND ENFORCEMENT**

### ***11.1 Inspections***

All inspections shall be performed by Qualified Individuals. The Construction Engineer responsible for the inspection will approve and certify all inspections. Routine inspections shall be performed as required by this Ordinance. A policy and procedure for public and private inspections shall be established and maintained by the County.

### ***11.2 Certifications***

The County Engineer may establish minimum certification requirements for Qualified Individuals or material testing laboratories performing work in the County.

### ***11.3 Notification and Requirements***

It shall be the responsibility of the developer or his representative to notify the Department forty eight (48) hours prior to commencement of any work and forty-eight (48) hours prior to work at the specified stages of construction for stormwater management facilities. The Department has the right to enter any project at any phase to monitor and/or inspect the construction of stormwater management systems.

The developer will make all necessary arrangements for providing to the Department a certification, letter, or report documenting the required stages of construction established in this Ordinance and all test results from a Professional Engineer.

### ***11.4 Inspection Reports and Records***

- A. Detailed written or electronic reports shall be prepared for each inspection and shall be maintained by the County. The minimum information required on each inspection report shall include:
1. The project name and number
  2. The person performing the inspection
  3. The date and time of the inspection
  4. An estimate of weather and temperature
  5. Contractor performing the work
  6. Description of needed maintenance

## B. Inspections for ESD Planning Techniques and Practices

Regular inspections shall be made and documented for each ESD planning technique and practice at the stages of construction specified in the DEM. At a minimum, all ESD and other nonstructural practices shall be inspected upon completion of final grading, the establishment of permanent stabilization, and before issuance of use and occupancy approval.

## C. Structural BMPs

At a minimum, regular inspections shall be made and documented at the following specified stages of construction:

1. Ponds:
  - a. Upon completion of excavation to sub-foundation and, when required, installation of structural supports or reinforcement for structures, including but not limited to:
    - (1) Core trenches for structural embankments;
    - (2) Inlet and outlet structures, anti-seep collars or diaphragms, and watertight connectors on pipes;
    - (3) Trenches for enclosed storm drainage facilities;
    - (4) During placement of structural fill, concrete, and installation of piping and catch basins;
    - (5) During backfill of foundations and trenches;
    - (6) During embankment construction; and
    - (7) Upon completion of final grading and establishment of permanent stabilization.
2. Wetlands—at the stages specified for pond construction in Section 11.3(C) of this ordinance, during and after wetland reservoir area planting, and during the second growing season to verify a vegetation survival rate of at least 50 percent;
3. Infiltration trenches:
  - a. During excavation to subgrade;
  - b. During placement and backfill of under drain systems and observation wells;
  - c. During placement of geotextiles and all filter media;
  - d. During construction of appurtenant conveyance systems such as diversion structures, pre-filters and filters, inlets, outlets, orifices, and flow distribution structures; and
  - e. Upon completion of final grading and establishment of permanent stabilization;

4. For infiltration basins—at the stages specified for pond construction in Section 11.3 (C) of this regulation and during placement and backfill of under drain systems;
5. Filtering systems:
  - a. During excavation to subgrade;
  - b. During placement and backfill of under drain systems;
  - c. During placement of geotextiles and all filter media;
  - d. During construction of appurtenant conveyance systems such as flow diversion structures, pre-filters and filters, inlets, outlets, orifices, and flow distribution structures; and
  - e. Upon completion of final grading and establishment of permanent stabilization.
6. Open channel systems:
  - a. During excavation to subgrade;
  - b. During placement and backfill of under drain systems for dry swales;
  - c. During installation of diaphragms, check dams, or weirs; and
  - d. Upon completion of final grading and establishment of permanent stabilization.

#### **11.4 Enforcement**

The Department may use the following enforcement actions:

- A. A notice of violation shall be issued specifying the need for the violation to be corrected if stormwater management plan noncompliance is identified;
- B. A stop work order shall be issued for the site by the county or municipality if a violation persists;
- C. Bonds or securities may be withheld or the case may be referred for legal action if reasonable efforts to correct the violation have not been undertaken; and
- D. In addition to any other sanctions, a civil action or criminal prosecution may be brought against any person in violation of the provisions of this Ordinance.

Any step in the enforcement process may be taken at any time, depending on the severity of the violation.

### **11.5 Developers Responsibilities**

The developer or his representative shall assure that inspections are made and approvals are given at the following specified stages of construction:

- A. Infiltration facilities, such as, but not limited to, infiltration basins, infiltration trenches and drywells:
  - 1. Upon completion of pre-excavation and construction of temporary sediment and erosion control measures;
  - 2. Upon completion of excavation;
  - 3. During the placement of filter fabric, observation well and base aggregate material;
  - 4. During the construction of concrete structures;
  - 5. During the construction of cut-off trench and embankment;
  - 6. During the placement of surface layer;
  - 7. During the final excavation; and
  - 8. Upon completion of final grading and establishment of permanent vegetative stabilization.
- B. Flow attenuation facilities, such as, but not limited to, open vegetated swales, ditches and open channels:
  - 1. Upon completion of pre-excavation and construction of temporary sediment and erosion control measures;
  - 2. During placement and backfill of underdrain systems for drywells;
  - 3. During the construction of check dams, diaphragms, or weirs; and
  - 4. Upon completion of final grading and establishment of permanent vegetative stabilization.
- C. Ponds:
  - 1. Upon completion of pre-excavation and construction of temporary sediment and erosion control measures;

2. Upon completion of excavation to sub-foundation and when required, installation of structural supports or reinforcement for structures, including but not limited to:
    - a. Core trenches for structural embankments;
    - b. Inlet and outlet structures, anti-seep collars or diaphragms, and watertight connectors on pipes; and
    - c. Trenches for enclosed storm drainage facilities.
  3. During placement of structural fill, concrete, and installation of piping and catch basins;
  4. During backfill of foundations and trenches;
  5. During embankment construction; and
  6. Upon completion of final grading and establishment of permanent stabilization.
- D. Wetlands - at the stages specific for pond construction in 10.2.C. of this section, during and after wetland reservoir area planting, and during the second growing season to verify a vegetation survival of at least 50 % (fifty percent).
- E. Filtering systems:
1. During excavation to subgrade;
  2. During placement and backfill of underdrain systems;
  3. During placement of geotextiles and all filter media;
  4. During construction of appurtenant conveyance systems such as flow diversion structures, prefilters and filters, inlets, outlets, orifices, and flow distribution structures; and
  5. Upon completion of final grading and establishment of permanent stabilization.
- F. Storm Drain System:
1. At beginning of excavation;
  2. During pipe laying and backfill;
  3. During placement of precast or construction of cast in-place structures;

4. During placement of outlet protection; and
5. Upon completion of final grading and establishment of permanent stabilization.

G. Open channel systems:

1. During excavation to subgrade;
2. During placement and backfill of under drain systems for dry swales;
3. During installation of diaphragm, check dams, or weirs; and
4. upon completion of final grading and establishment of permanent stabilization.

The developer or his representative shall provide additional inspection, testings and/or reports as field conditions may warrant as determined by the Department.

**11.6 Notification of Non-Compliance:**

If at any stage during construction the work does not conform to the approved plans and specifications, or to any instructions of the Department, a written notice to comply will be given to the developer. Such notice shall set forth the nature of corrections required and the time within which corrections will be made. Upon failure to comply within the time specified, the developer will be considered in violation of this Ordinance, in which the County shall impose penalties as establish in this Ordinance.

**11.7 Testing**

- A. The developer shall be responsible for making all necessary arrangements for the testing of materials required at specific stages of construction of the stormwater management facilities.
- B. The backfill material for core trench/cut-off trench and fill material for embankments shall be compacted to not less than 95% of the maximum dry density with a moisture content within  $\pm 2\%$  of the optimum.
- C. Each layer of fill shall be compacted as necessary to obtain the density and tested according to NRCS, the County Standards and Specifications for Construction Manual, the approved plans or this Ordinance.
- D. Stormwater management ponds shall be constructed per the most recent Maryland NRCS Standard and Specification Pond Code 378 and per approved plan and specifications.

- E All concrete, soil and other material testing shall be performed by Qualified Individuals. The results of all material testing shall be clearly documented in a report and certified by a Licensed Professional. All testing shall be performed per applicable ASTM, AASHTO, MDSA or County standards.
- F. The developer will notify the Department for final inspection after the project is completed. Prior to the final inspections the following information must be submitted:
  1. Red-lined "as-built" plans and surveys by a Licensed professional at the same scale as the original plan showing all stormwater management facility improvements. The minimum information and formatting required for the "as-built" plans shall be established in the Plan Preparation Package.
  2. Certification by the developer that all grading, drainage, erosion control measures, and permanent facilities and vegetative measures have been completed in conformance with the approved plans and specifications.
  3. Certification from the Construction Engineer that all of the work related to construction of the stormwater management has been inspected and completed per the approved plans.
  4. A Final Inspections Report summarizing all testing and inspections performed during the construction of all stormwater management facilities.

### ***11.8 Final Completion Acceptance for Stormwater Management***

After all stormwater management work has been completed and the required documents have been submitted and approved the Department will issue a certificate of Final Completion Acceptance to the developer.

### ***11.9 Notice of Construction Completion***

Within forty-five days (45) days of the issuance the Department will submit a Notice of Construction Completion to the Charles Soil Conservation District and enter all stormwater management facilities into the inspection and maintenance inventory.

## 12.0 MAINTENANCE

- A. The Owner of any property containing a stormwater conveyance system and/or stormwater management facility, or any other person or agent in control of such property, shall perform or cause to be performed preventive maintenance of all completed ESD treatment practices and structural stormwater management measures and/or stormwater conveyance system to ensure proper functioning.
- B. Maintenance shall be ensured through inspection of the facilities by the Department. The inspection shall occur during the first year of operation and at least once every three (3) years thereafter. After each inspection, reports shall be prepared and shall include:
  1. The condition of items needing maintenance or repairs, such as principal spillway emergency spillway, embankment, reservoir area, outfall channel, fences, vegetation, sediment load, dewatering or any other items which could affect the proper functioning of the stormwater management facility.
  2. When the repairs are to be completed.
    - a. The date of inspection;
    - b. Name of inspector;
    - c. The condition of:
      - i. Vegetation or filter media,
      - ii. Fences or other safety devices,
      - iii. Spillways, valves, or other control structures,
      - iv. Embankments, slopes, and safety benches,
      - v. Reservoir or treatment areas,
      - vi. Inlet and outlet channels or structures,
      - vii. Underground drainage,
      - viii. Sediment and debris accumulation in storage and forebay areas,
      - ix. Any nonstructural practices to the extent practicable, and
      - x. Any other item that could affect the proper function of the stormwater management system.
- C. If any maintenance required by this Article is not done, the person responsible shall be notified of the deficiency and a time frame for repairs will be specified. A subsequent inspection will be made to ensure completion of repairs. The required work shall be performed within a given specified time. In the event of an immediate danger to the public health or welfare of the community, nuisance and/or safety, notice shall be given by the most expeditious means and the hazard shall be eliminated immediately. In the event that the person responsible fails to take corrective action, the Department shall do the required work. The cost of such work by the Department shall be paid to the County by the person who failed to take corrective action and shall be a debt due to the County.

D. The County reserves the right of entry and the right to operate and maintain all private stormwater management for which the Owners have failed to perform under the conditions of their Stormwater Maintenance and Inspection Agreement and/or Stormwater Management Easement Agreement. All costs incurred by the County for operation and maintenance shall be charged to the Owners of the facilities and such costs shall constitute a lien against all property subject to and benefitted by the original agreement. Such costs shall also be personal obligations of the property Owners at the time they are incurred, and shall be assessed, levied, collected and enforced as County real estate taxes are now, or may hereafter be, by law levied and collected, and shall have the same priority rights, bear the same interest and penalties, constitute a lien upon the real property so assessed and in every respect be treated the same as County real estate taxes.

### **13.0 SEVERABILITY**

If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provisions and such holding shall not affect the validity of the remaining portion of this Ordinance; it being the intent of the County Commissioners of Charles County that this Ordinance shall stand, not withstanding the invalidity of any section, subsection, sentence, clause, phrase, or portion hereof.

## **14.0 WATER QUALITY CONTROL**

### ***14.1 Legislative Intent***

In addition to the general purposes of this Ordinance as set forth in section 1.0, this section 14.0 is further intended to:

- A. Implement federal regulations promulgated by the Environmental Protection Agency pursuant to the Clean Water Act of 1977 (P.L. 95-217), as amended.
- B. To comply with the conditions of the County's National Pollutant Discharge Elimination System (NPDES) permit for discharges from the municipal separate storm sewer system.

### ***14.2 Prohibited Actions***

- A. No person shall:
  - 1. Discharge any significant materials or pollutant into any component of any municipal separate storm sewer system that would constitute an illicit discharge; or
  - 2. Create any condition that results in the potential for an illicit discharge that could result in the pollution of stormwater conveyed and discharged from any outfall of those systems; or
  - 3. In any way cause or contribute to any type of illicit discharge into those systems that could result in a potential for adverse impacts.
- B. No person shall alter or in any way create an obstruction to flow, or alter the flow regime within a municipal separate storm sewer system or any natural or man-made stormwater conveyance system so that it reduces its intended design capacity or that results in the system being unable to provide its intended function.
- C. No person shall create any new connection that is intended to introduce new or increased stormwater flow into any municipal separate storm sewer system unless reviewed and approved by the County.
- D. No person shall create any new connection or maintain any that currently exist that can introduce any discharge other than stormwater into any municipal separate storm sewer system.
- E. No person shall obstruct any outfall of any municipal separate storm sewer system that impedes the system design discharge.

### **14.3 Control of Water Quality**

- A. The Director may order:
  - 1. The abatement of any illicit discharge and correction of any pollution of the waters of the State including the abatement and correction of any degradation of aquatic and riparian habitat attributed to such pollution; and
  - 2. The abatement and correction of any degradation of riparian habitat and aquatic life, caused by a failure to design, install, operate, or maintain sediment and erosion control, stormwater management, or agricultural best management practices in accordance with an approved sediment and erosion control plan or permit, a stormwater management plan or permit, a Soil Conservation Water Quality Plan or Plan of Compliance Action.
- B. If illegal pollutant discharges from properties engaged in agriculture impair aquatic life or public health, cause stream habitat degradation, or result in water quality standards or criteria violations, the Department will pursue correction of these violations in conjunction with the Soil Conservation District and if necessary, the Administration. Abatement of any violations will be handled in accordance with a Memorandum of Understanding between the Department and the Soil Conservation District regarding the specific notification and enforcement procedures to be followed in cases of water pollution caused by agriculture.
- C. BMPs used to comply with this Ordinance will be designed, installed, operated and maintained in accordance with the approved sediment and erosion control plans and permits and the approved stormwater management plan. Agricultural BMPs must be designed, installed, operated and maintained in accordance with the soil conservation and water quality plans approved by the Soil Conservation District.

### **14.4 Enforcement and Compliance**

- A. The Department may enter a site at any time during normal business hours, and at other times the Department deems as reasonable, to inspect, investigate, or monitor activities subject to this Ordinance. If the person in charge does not consent to any entry by the Department, the Director must obtain an administrative search warrant from a court with jurisdiction by showing that reasonable administrative standards for inspecting have been met.
- B. Upon finding a violation of this Ordinance, the Director may issue a notice of violation, stop work order, or corrective order to any person causing or permitting a violation.

- C. The Director of the Department may issue a stop work order to any person who violates this Ordinance when performing activities authorized by a building permit, development services permit, erosion and sediment control permit or any other permit issued by any agency for work within the County.
- D. When the Department determines that a violation of section 14.2 has occurred, the Department shall notify the onsite personnel and person or permittee committing the violation in writing of the violation, describe the required corrective action, and specify the time period in which to have the violation corrected.
- E. If the violation persists after the time and date specified for corrective action of violation, the Department shall stop work on the site. The Department shall determine the extent to which work must be stopped, which may include all work on the site except that work necessary to correct the violation.
- F. If a discharge is observed which represents an immediate hazard or potential hazard to public health or safety or welfare, or to aquatic life, the Director or employees of the sheriff's office, emergency services, and any other agent of the County designated by the commissioners, may enter any property or structure, except a dwelling, as necessary to prevent or stop the hazard.
- G. A person must not hinder, prevent, or unreasonably refuse to permit any inspection, investigation, or monitoring under this Ordinance.
- H. Any person who causes or permits a violation of this Ordinance to occur must submit a plan of compliance action when required by the Department. This plan of compliance action must be approved by the Director prior to implementation. Any person submitting the plan of compliance action must obtain any associated federal, state, County or local permits as required by law.
1. The Director may require the owner or operator, in compliance with the plan to:
    - a. Maintain records to demonstrate compliance;
    - b. Prepare and file reports to demonstrate compliance; and
    - c. Sample and provide physical, biological, or chemical analysis of discharges by using:
      - (1) State certified laboratory; and
      - (2) Sampling methods where, when and how the Department requires.
- I. Upon request of the Department, the owner or operator must provide any records, manifests, and invoices for review. If the documents are not available at the time of the request, the owner or operator must produce records within the designated time allowed by the Director.

- J. A person who has submitted a plan of compliance action that has been approved by the Director and any other permitting agency is not in violation of this Ordinance provided all requirements are implemented in time frames required by the Department.
- K. Any violation of this Ordinance is a violation. Each day a violation continues is a separate violation.
- L. In addition to any other remedy allowed by law, the Department may seek injunctive or other appropriate judicial relief to prevent or stop violations of this Ordinance.

#### ***14.5 Liability for Expenses Caused by a Violation***

- A. In an immediate danger to the public health, safety or welfare, the Director will notify the responsible party by the most expeditious means, and the party who was notified must remove the illicit discharge or pollutant by the time stated in the notice. If not so removed, the County may remove, mitigate, and clean up any illicit discharge or pollutant. The cost of that clean-up must be paid to the County by the person causing the illicit discharge. The debt associated for the illicit discharge borne by the County is due to the County. This section does not restrict the County from proceeding directly with alternative enforcement procedures as allowed by law.
- B. If, after an inspection by the County, the Director finds that a pollutant discharge poses an immediate hazard to the public health, safety or welfare or to the waters of the state, the Director must take action necessary to abate the pollutant discharge, protect the public, and mitigate any damage that the pollutant discharge has caused to the affected waters. Any cost incurred in carrying out actions under this subsection must be paid by the owner under subsection A.
- C. The Director may establish fees and charges necessary to administer and enforce this Ordinance.

## **15.0 PENALTIES**

- A. Civil Action - The County may bring a civil action against any person for any violation of the provisions of this Ordinance or adopted or approved stormwater management plan. The action may seek the imposition of a civil penalty of not more than \$10,000 against the person, an injunction to prohibit the person from continuing the violation or both.
- B. Criminal Action - Any person convicted of violating the provisions of this Ordinance shall be guilty of a misdemeanor, and upon conviction thereof, shall be subject to a fine of not more than Five Thousand Dollars (\$5,000.00) or imprisonment not exceeding 1 year or both for each and every violation with costs imposed in the discretion of the court. Each day that the violation continues shall be a separate offense. In addition thereof, the Department may institute injunctive or other appropriate action or proceedings at law or equity for the enforcement of this Ordinance or to correct violations of this Ordinance, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions or other appropriate forms of remedy or relief.

## **16.0 EFFECTIVE DATE**

And be it further enacted, that this Ordinance as revised, shall take effect by May 4, 2010

## **17.0 TRANSITION PROVISIONS**

- A. The requirements established in this Ordinance shall not apply to permit with erosion and sediment control and Final Stormwater Management Plan approval on or before May 4, 2010.
- B. All permit applications with erosion and sediment control and Final Stormwater Management Plan approval on or before May 4, 2010 must have the permit issued by November 4, 2010 and construction must begin by May 4, 2011 and continue without delays for more than one month.