BEFORE THE COUNTY COMMISSION OF BERKELEYCOUNTY
WEST VIRGINIA

IN RE: ADOPTION: STORMWATER MANAGEMENT and SEDIMENT AND EROSION CONTROL ORDINANCE
January 28, 2010

ORDER ADOPTING AND FILING ORDINANCE

On this the 28th day of January, 2010, the Commission voted unanimously to adopt the STORMWATER MANAGEMENT AND SEDIMENT AND EROSION CONTROL ORDINANCE FOR BERKELEY COUNTY, a copy of which is attached hereto for filing.

Additionally, the Commission ORDERS that any project which has been through a sketch plan review and through the attendant public hearing process under the current (2009) Subdivision Regulations shall be grandfathered and not have to proceed under the provisions of the Ordinance passed on this date.

Further, it is the ORDER of this Commission that any project which proposes more than one phase on a sketch plan under the current (2009) Subdivision Ordinance, in order to be grandfathered, must submit its preliminary plan for review and recommendation for advancement to final plat on any future phases shown on the sketch plan within one year from the date of adoption of the 2010 Stormwater Management and Sediment and Erosion Control Ordinance.

It is the ORDER of the Commission that the Clerk file the Ordinance with this ORDER and make each a part of the records of this County and of this Commission.

All of the above is ORDERED, ADJUDGED and DECREED.

Entered this the 28th day of January, 2010.

Ronald K. Collins, President
For the Commission

ATTEST:

John W. Small, Jr., Clerk

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STORMWATER MANAGEMENT
AND
SEDIMENT AND EROSION CONTROL ORDINANCE
FOR
BERKELEY COUNTY, WV

1.0 PURPOSE AND AUTHORITY

1.1 INCORPORATION BY REFERENCE

For the purpose of this Ordinance, the following documents are incorporated by reference:

A. The 2000 Maryland Stormwater Design Manual Volumes I & II. The Manual may be modified by written policy by the Berkeley County Engineering Department based upon engineering principles and the application of the Manual to Berkeley County.

B. WV/NPDES General Permit Number WV0116025 Small Municipal Storm Sewer System (July 2009).

C. USDA Natural Resources Conservation Service Maryland Conservation Practice Standard Pond Code 378 (January 2000).

D. Maryland Standards & Specifications for Soil Erosion & Sediment Control (1994).

E. West Virginia Erosion & Sediment Control for Developing Areas Handbook.

F. West Virginia Sediment and Erosion Control Manual (when available).

F. West Virginia Code Chapter 22, Article 12, "Ground Water Protection Act."

G. State Regulation – Title 47, Series 58, "Ground Water Protection Rule, Latest Edition.

H. WVDEP Storm Water Management – Ground Water Protection Plan Guidance Document.

I. Highway Drainage Manual (1981) MD Dept. of Transportation.

J. Rainfall Intensity Table – NOAA ATLAS 14 Martinsburg FAA AP, West Virginia, Vol. 2, Ver. 3. (Appendix A).

K. Low Impact Development Design Strategies (An Integrated Design Approach) prepared by Prince George's County, Maryland Department of Environmental Resources (June 1999).

2.0 DEFINITIONS

A. For the purpose of this Ordinance, the following definitions describe the meaning of the terms used in this Ordinance:

1. "Adverse impact" means any deleterious effect on 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 or injurious 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.
2. "Agricultural land management practices" means those methods and procedures used in the cultivation of land in order to further crop and livestock production and conservation of related soil and water resources.
3. "Applicant" means any person, firm, or governmental agency who executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project.
4. "Aquifer" means porous water bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.
5. "Best Management Practice (BMP)" means a structural device or nonstructural practice designed to temporarily store or treat storm water runoff in order to mitigate flooding, reduce pollution, and provide other amenities.
6. "Channel Protection Storage Volume (Cp_v)" means the volume used to design structural management practices to control stream channel erosion. Methods for calculating the channel protection storage volume are specified in the 2000 Maryland Stormwater Design Manual, Volumes I & II.
7. "Clearing" means the removal of trees and brush from the land but shall not include the ordinary mowing of grass.
8. "Design Manual" means the 2000 Maryland Stormwater Design Manual Volumes I & II that serves as the official guide for storm water management principles, methods, and practices.
9. "Detention structure" means a permanent structure for the temporary storage of runoff, which is designed so as not to create a permanent pool of water.
10. "Develop Land" means to change the runoff characteristics of a parcel of land in the conjunction with residential, commercial, industrial, or institutional construction or alteration.

11. "Drainage area" means that area contributing runoff to a single point measured in a horizontal plane, which is enclosed by a ridge line.
12. "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.
13. "Environmental Site Design" means applying small scale stormwater management practices, solely nonstructural techniques, and better site development planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources.
14. "Exemption" means those land development activities that are not subject to the storm water management requirements of this Ordinance.
15. "Extended detention" means a storm water 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 extended detention BMPs are specified in the Design Manual.
16. "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.
17. "Flow attenuation" means the prolonging the flow time of runoff to reduce the peak discharge.
18. "Grading" means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.
19. "Impervious area" means any surface that does not allow stormwater to infiltrate into the ground.
20. "Hot Spot" means an area where land development or activities generate or have the potential to generate highly contaminated runoff (e.g. Industrial Sites, Water Quality Impairment Sites).
21. "Illicit Discharge" is defined in 40 CFR 122.26(b)(2) as any discharge to an MS4 conveyance system that is composed entirely of stormwater. The definition includes discharges as septic tank, sanitary sewer wastewater, car wash wastewater, vehicle oil disposal, laundry wastewater, household wastewater, radiator fluid disposal,
22. "Infiltration" means the passage or movement of water into the soil surface.
23. "Integrated Management Practices (IMPs)" means Low-impact development technology employs both micro scale and distributes management techniques to achieve desired post-development runoff volume.
24. "Maximum Extent Practicable" means designing stormwater management system so that all reasonable opportunities for using Environment Site Design (ESD) planning techniques and treatment practices are exhausted and only where absolutely necessary, a structural BMP is implemented.
25. "Municipal Separate Storm Sewer System (MS4)" means is a conveyance or system of conveyances that is:

a. Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.; Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); Not a combined sewer; and Not part of a Publicly Owned Treatment Works (sewage treatment plant).

26. "Off-site storm water management" means the design and construction of systems necessary to control storm water for more than one development.
27. "On-site storm water management" means the design and construction of systems necessary to control storm water within an immediate development.
28. "Overbank flood protection volume (Q_p)" means the volume controlled by structural practices to prevent an increase in the frequency of out of bank flooding generated by development. Methods for calculating the overbank flood protection volume are specified in the Design Manual.
29. "Recharge volume (Re_v)" means that portion of the water quality volume used to maintain groundwater recharge rates at development sites. Methods for calculating the recharge volume are specified in the Design Manual.
30. "Redevelopment" means any construction, alteration, or improvement exceeding 5,000 square feet of land disturbance performed on sites where existing land use is commercial, industrial, institutional or multifamily residential.
31. "Retention structure" means a permanent structure that provides for the storage of runoff by means of a permanent pool of water.
32. "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 the water quality over current conditions.
33. "Sediment" means soils or other surficial materials transported or deposited by the action of wind, water, ice, or gravity as a product of erosion.
34. "Site" means any tract, lot or parcel of land or combination of tracts, lots, or parcels of land, which 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.
35. "Stabilization" means the prevention of soil movement by any of various vegetative and/or structural means.
36. "Standards" means Maryland Standards & Specifications for Soil Erosion & Sediment Control (1994)
37. "Storm water management" means:
    a. For quantitative control, a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by man-made changes to the land; and

b. For qualitative control, a system of vegetative, structural, and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff.

38. "Storm water management plan" means a set of drawings or other documents submitted by a person as a prerequisite to obtaining a storm water management approval, which contain all of the information and specifications pertaining to storm water management.

39. "Stripping" means any activity which removes the vegetative surface cover including tree removal, clearing, grubbing and storage or removal of topsoil.

40. "Underground Injection Control (UIC)" means a program that is designed to ensure that fluids injected underground will not endanger drinking water source.

41. "Variance" means the modification of the minimum storm water management requirements for specific circumstances such that strict adherence to the requirements would result in unnecessary hardship and not fulfill the intent of the Ordinance.

42. "Waiver" means the relinquishment from storm water management requirements by the Berkeley county Engineering Department for a specific development on a case by case basis.
    a. "Qualitative storm water management waiver" includes water quality volume and recharge volume design parameters.
    b. "Quantitative storm water management waiver" includes channel protection storage volume, overbank flood protection volume, and extreme flood volume design parameter.

43. "Watercourse" means any natural or artificial stream, river creek, ditch, channel, canal, conduit, culvert, drain, waterway, gully, ravine or wash, in and including any adjacent area that is subject to inundation from overflow or flood water.

44. "Watershed" means the total drainage area contributing runoff to a single point.

45. "Water quality volume (W_{qv}) means the volume needed to capture and treat 90 percent of the average annual runoff at a development site. Methods for calculating the water quality volume are specified in the Design Manual.

3.0 APPLICABILITY

3.1 Scope

The Berkeley County, which is the owner and also operator of a MS4, is required to reduce and minimize the discharge of pollutants to waters of the state and the United States, to the "Maximum Extent Practicable" to protect water quality.

No person shall develop any land for residential, commercial, industrial, or institutional uses without having provided storm water management measures that control or manage runoff from such developments, and sediment and erosion controls, except as provided within this section. The storm water management measures must be designed consistent with the Design Manual and Sediment and Erosion Control practices in accordance with the Standards and constructed according to an approved plan for new development or the policies stated in section 3.4 for redevelopment. Projects must meet all other applicable agency laws, rules and regulations. Compliance with this Ordinance is not to be interpreted as approval by other agencies which may also have jurisdiction over items covered by this Ordinance.

3.2 Exemptions

The following development activities are exempt from the provisions of this Ordinance:

A. Agricultural land management activities.

B. Additions or modifications to existing single family detached structures or accessory structures that do not disturb over 5,000 square feet and are not in a subdivision with a total current disturbed area of over one (1) acre.

C. Developments that do not disturb over 5,000 square feet of land area and are not located within a subdivision;

D. Land development activities in the Berkeley County Engineering Department will be regulated under West Virginia Department of Environmental Protection Small Municipal Separate Storm Sewer System general permit. The WV/NPDES General Permit Number 0116025 was issued on June 22, 2009 and became effective on July 22, 2009.

E. Projects submitted for review prior to the effective date of this ordinance shall be reviewed under existing regulations. Individual lots created in residential subdivisions shall be required to meet the sediment and erosion control portions of this ordinance at the time of the building permit application.

3.3 Waivers/Watershed Management Plans

A. Waivers granted must:
   1. Be granted on a case-by-case basis;
   2. Consider the cumulative effects of the waivers granted;
   3. Reasonably ensure the development will not adversely impact stream quality and,
   4. Be submitted, reviewed, and approved prior to Preliminary Plan submission.

B. A watershed management plan developed for the purpose of implementing different storm water management policies for waivers and redevelopment shall:

1. Include detailed hydrologic and hydraulic analysis to determine hydrograph timing.
2. Evaluate both quantity and quality management.
3. Include cumulative impact assessment of watershed development;
4. Identify existing flooding and receiving stream channel conditions;
5. Be conducted at a reasonable scale;
6. Specify where on-site or off-site qualitative storm water management practices are to be implemented; and
7. Be consistent with the general performance standards of the Design Manual.

C. The performance standard of retaining one inch rainfall on site is supposed to be implemented by MS4's in all redevelopment and new development scenario. These standards apply to at a minimum to all development and redevelopment disturbing one acre or greater, including project less than on acre that are part of a larger common plan of development or sale.

D. The Berkeley County Engineering Department may grant a waiver of qualitative management requirements for individual developments where watershed management plans have been developed provided that a written request is submitted by the applicant containing descriptions, drawings, and any other information that is necessary to evaluate the proposed development. A separate written waiver request shall be required in accordance with the provisions of this section if there are subsequent additions, extension, or modifications to a development receiving a waiver.

3.4 Redevelopment

A. Storm water management plans for redevelopment shall be consistent with the Design Manual except the recharge, channel protection storage volume, and overbank flood protection volume requirements do not apply unless required by the Berkeley County Engineering Department.

B. A reduction of 0.25 inches from one inch runoff reduction standard may be applied to any of the below mentioned types of development. Reductions are additive up to a maximum reduction of 0.75 inches for a project that meets four or more criteria. In no circumstances will the reduction be greater than 0.75 inches.

1) Redevelopment
2) Brownfield redevelopment
3) High density (>7 units per acre)
4) Vertical density, (Floor to area Ration (FAR) of 2 or >18 units per acre)

5) Mixed use and Transit Oriented Development (within ½ mile of transit)

C. In instances where project development cannot contain the first one inch rainfall or meet the 100% of the runoff reduction requirement on site, two alternatives are available: off-site mitigation and payment in lieu.

i) Off-site mitigation: Runoff reduction can be accomplished at another location in the same watershed as the original project, approved by the Berkeley County. Mitigation for retrofit and redevelopment projects, and not for new development. Berkeley County will determine who will be responsible for the long term maintenance and mitigation project.

ii) Payment in lieu: Payment in lieu may be made to Berkeley county, who will apply the funds to a public stormwater project. MS4 shall maintain a publically accessible database of approved in lieu project.

D. When public (local or otherwise) street or parking lot, that are greater than 5000 square feet but less than one acre, are modified or reconstructed runoff reduction practices shall be included in the design work. These requirements only apply to project begun after the effective date of this permit.

E. Where conditions prevent impervious area reduction or on-site storm water management, practical alternatives may be considered, including but not limited to:

1. Fees;
2. Off-site BMP implementation for a drainage area comparable in size and percent imperviousness to that of the project;
3. Watershed or stream restoration;
4. Retrofitting; or
5. Other practices approved by the Berkeley County Engineering Department.

3.5 Variances

A. The Berkeley County Engineering Department may grant a written variance from any requirement of this Ordinance if there are exceptional circumstances applicable to the site such that strict adherence will result in unnecessary hardship and not fulfill the intent of the Ordinance. A written request for variance shall be provided to the Berkeley County Engineering Office and shall state the specific variances sought and reasons for their granting. The Berkeley County Engineering Department shall not grant a variance unless and until sufficient justification is provided by the person developing the land.

B. The requirements of the design manual can be varied or modified in accordance with acceptable engineering practices due to site specific geo-technical information.

4.0 STORMWATER MANAGEMENT CRITERIA

4.1 Minimum Control Requirements

A. The minimum control requirements established in this section and the Design Manual are as follows:

1. Stormwater management measure shall capture and treat the first one inch of rainfall from a 24-hour storm proceeded by 48 hours of no measurement precipitation. Runoff reduction can be achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, infiltration trench, extended filtration and/or evapotranspiration and any combination of the aforementioned practices. This one inch of rainfall must be 100% retained and managed with no discharge to surface water. This can be achieved through on site utilization of practices to include dry swales, bioretention, rain tanks and cisterns, soil amendments, rain gardens, roof top disconnection, permeable pavement, porous concrete, permeable pavers, reforestation, grass channel, green roofs and other practices that alone or combined will capture the first one inch of rainfall runoff volume. Extended filtration practices that are designed to capture and retain up to one inch of rainfall may discharge volume in excess of the first inch through an under drain system.
2. Additional water quality requirements for hot spot areas are the following:
   a. A project that is a potential hot spot with reasonable potential for pollutant loading(s) must provide water quality treatment for associated pollutants (eg., petroleum hydrocarbons at a vehicle fueling facility) before infiltration.
   b. A project that is a potential hot spots with reasonable potential for pollutants loading(s) that cannot implement adequate preventive or water quality standards, must properly convey stormwater to a NPDES-permitted wastewater treatment facility or via a licensed waste hauler to a permitted treatment and disposal facility.
3. A project that discharges or proposes to discharge to any surface water or ground water that is used as a source of drinking water must comply with all applicable requirements relating to source water protection.
4. The recharge volume (Re_v) shall be in accordance with the soil types of the site and the Design Manual. However, due to site specific geology, recharge may not be feasible and no compensation methods would be required.
5. The channel protection storage volume (Cp_v) shall be the 1-year storm event where the 24 hour rainfall depth shall be 2.5 inches.

6. The overbank flood protection volume (Q_p) shall be the 25-year storm event. The overbank flood protection volume (Q_p) shall be the 25-year post-development peak discharge being discharged at the 25-year pre-development peak rate.
7. The extreme flood volume (Q_f) shall be the 100-year storm event. This is the storm event which a structure must be capable of passing safely.
8. The Berkeley County Engineering Department may require more than the minimum control requirements specified in the Ordinance if hydrologic or topographic conditions warrant or if flooding, stream channel erosion, or water quality problems exist downstream from a proposed project due to the unique characteristics of the receiving area modifications to the minimum controls of the site being developed can be made to keep the existing conditions as a status quo or reduce the current flooding, stream erosion or water quality problems.
9. Areas mapped in flood hazard zones (Inwood, Pikeside, et.al.) as determined by the county engineer shall be required to detain the 10 yr event storm with zero discharge. If this is not feasible then the entire 10 yr event volume shall be stored and the 10 yr event peak discharge shall be released at less than the 2 year event pre-development peak discharge rate. In Addition, the 25 yr. storm shall be evaluated to insure that the post development peak discharge is less than the 25 yr. pre-development peak discharge. Alternatively, SWM facility may be design by retaining 100 percent of the first one inch of rainfall from a 24-hr storm proceeded by 48 hours of no measurable precipitation. A more conservative result, produced by either one of these methods governs.
10. The pre-development peak discharge rate shall be computed assuming that all land uses in the site to be developed are in good hydrologic condition and shall be based on the average use of the land in question for the five (5) years preceding the proposed change in the utilization of said land.

11. The following 24-hr precipitation values (in inches) shall be utilized for hydrology computations: (1-yr: 2.46), (2-yr: 2.97), (5-yr: 3.95), (10-yr: 4.80), (25-yr: 5.50), (50-yr: 6.30), and (100-yr: 6.75)

12. Rainfall intensity rates shall follow criteria set forth by the NOAA ATLAS 14 precipitation frequency estimates table (in/hr) for Martinsburg WV. (Appendix A)

B. Storm water management plans shall be consistent with the requirements of the West Virginia Department of Environmental Protection.

4.2 Storm water Management Measures

Small scale stormwater management practices, non structural techniques, and better site planning to mimic natural hydrologic runoff characteristic and minimize the impact of land development on water resources must be implemented. Only when it is absolutely necessary, the use of a structural BMP warranted.

A. Environment Site Design Techniques and Practices.

1. The following runoff volumes shall be applied from the design manual to satisfy the applicable minimum control requirements established in Section 4.1 of this Ordinance.
   a. Preserving and protecting natural resources;
   b. Conserving natural drainage pattern;
   c. Minimizing impervious area;
   d. Reducing runoff volume;
   e. Maintain 100 percent of the annual predevelopment groundwater recharge volume;
   f. Using green roofs, permeable pavement, reinforced turf, and other alternative surfaces;
   g. Limiting soil disturbance, mass grading, and compaction;
   h. Clustering development; and
   i. Any practices approved by the Berkeley County Engineering Department.

B. Structural Storm water Management Measures.

1. The following structural storm water management practices shall be designed according to the Design Manual to satisfy the applicable minimum control requirements established in Section 4.1 of this Ordinance. Structural stormwater management practices are used only if determined to be absolutely necessary.
   a. Storm water management ponds;
   b. Storm water management wetlands;
   c. Storm water management filtering systems; and
   d. Storm water management open channel systems.
2. The performance criteria in the Design Manual with regard to general feasibility, conveyance, pretreatment, treatment and geometry, environment and landscaping, and maintenance shall be considered when selecting structural storm water management practices, unless site specific geo-technical information would indicate the use of a particular type of practice in accordance with acceptable engineering practices.
3. Structural storm water management practices shall be selected to accommodate the unique hydrologic or geologic areas of the County.

C. Runoff Reduction Stormwater Control Measures.

1. The following nonstructural storm water management practices shall be applied according to the Design Manual to minimize increases in new development runoff:
   a. Sheetflow to natural conservation area;
   b. Disconnection of rooftop runoff;
   c. Disconnection of non-rooftop runoff;
   d. Sheet flow to buffers;
   e. Grass channels (a minimum residence time shall apply); and
   f. Environmentally sensitive development.
   g. Rainwater harvesting;
   h. Submerged gravel wetlands;
   i. Landscape infiltration;
   j. Infiltration berm;
   k. Dry wells;
   l. Micro-bioretention;
   m. Rain gardens;
   n. Swales;
   o. Enhanced filters; and
   p. Any practices approved by the Berkeley County engineering Department.
2. The use of these techniques and treatment practices must be exhausted before reliance on structural BMP's.
3. The use of nonstructural storm water management practices may not conflict with existing State or local laws, ordinances, regulations, or policies.
4. Nonstructural storm water management practices used to reduce the minimum control requirements must be recorded and remain unaltered by subsequent property owners. Prior approval from the Berkeley County Engineering Department shall be obtained before nonstructural storm water practices are altered.

D. Alternative structural and nonstructural storm water management practices may be used for new development water quality control if they meet the performance criteria established in the Design Manual and are approved by the Berkeley County Engineering Department and the West Virginia Department of Environmental Protection. Practices used for redevelopment projects shall be approved by the Berkeley County Engineering Department.

E. For the purposes of modifying the minimum control requirements or design criteria, the owner/developer shall submit to the Berkeley County Engineering Department an analysis of the impacts of storm water 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, highway,

structure, or natural point of restricted streamflow. The point of investigation is to be established with the concurrence of the Berkeley County Engineering Department, downstream of the first downstream tributary whose drainage are equals or exceeds the contributing area to the project or storm water management facility.

F. Mosquito Abatement: Stormwater management facilities containing permanent pools of water shall be designed with adequate depth, plantings, habitat for mosquito predators and other means to control mosquito populations.

4.3 Drainage Criteria

A. Storm Sewer Minimum Requirements

1. Grading – Minimum slope of ground surface shall be 0.5% to the nearest drainage facility or conveyance system. No slope shall endanger adjoining properties. Top or bottom of slopes shall be a minimum of 5' from property and right of way lines to allow for a gradual transition to the surrounding terrain.

2. Design Flow – All closed conduit systems, culverts, and open ditch channels shall be designed for the 25-year rainfall frequency.

3. Minimum Side Slope – The side slopes of a channel shall be a function of channel material (ie. Manning's "n"). The side slopes throughout the entire length of a channel shall be adequate and stable.

4. Drainage Easements – A drainage easement is required for ditches conveying flows greater than or equal to 2 cfs for the 25 yr event, and ditches conveying the runoff of three or more subdivided lots. Drainage easements shall be wide enough to contain the 25 yr event or shall be a minimum of 15 ft wide whichever is greater.

5. Gutter Spread – The spread of water on the pavement shall be limited to 5 feet total and shall not extend into the travel ways for the 2-year storm.

6. Inlet capture – Storm sewer inlets positioned on continuous grade shall be designed to capture a minimum of 85% of the 10-year storm, assuming the inlets are 25% clogged. For sump inlets the depth of the 25 yr event and it's extent shall be shown to provide 1 ft of freeboard from any structure, road, path or significant feature.

7. Hydraulic Grade Line (HGL) – HGLs shall be delineated on all storm sewer profiles and complete computations submitted. For unsubmerged outfall pipe, HGL shall start at the crown of the outfall pipe. For submerged outfall pipe, HGL shall start at the 25-year water surface elevation.

8. All culverts and storm sewer shall have a minimum slope of 0.75%. All culverts shall be a minimum of 12 inches in diameter.

9. Driveway culverts shall be 12 inches minimum in size and are required for any point where the 25 yr event peak discharge is greater than 2 cfs. They shall be a minimum length of 20 ft and shall provide a 3:1 slope from the crown back to the edge of the associated driveway. A minimum of one (1) foot of cover is required on all culverts and storm sewer. The cover may be reduced to 6 inches if flowable concrete is utilized.

B. Ultimate Outfall

1. Analysis of the Downstream System
    a. The downstream drainage system shall be analyzed to demonstrate the adequacy of the system, or it shall be shown that there is no adverse impact to the downstream system as well as an improvement of the predevelopment conditions. The design release rate of the structure shall be modified if any increase in flooding or stream channel erosion would result at the down stream point.
    b. The extent of the review of the downstream drainage system shall be:
        a. To a point at which the total drainage area is at least 10 times greater than the contributing drainage area of the development site; or
        b. To a point of an existing downstream drainage constriction, such as a culvert. In this case, the allowable flows and conditions at the constriction (based on the 25-year storm event) shall be used to determine the release rates and outfall conditions of the proposed development.
    c. Adequacy of all natural watercourses, channels and pipes shall be verified as follows:
        a. Natural watercourses and manmade channels shall be analyzed by the use of a 10-year frequency storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks;
        b. Pipes, storm sewer systems and culverts shall be analyzed by the use of a 25-year frequency storm to verify that stormwater will be contained within the pipe, system, or culvert.
    d. If necessary, the developer may be required to extend the storm drainage system beyond the boundaries of the Subdivision and/or Land Development Unit in order to convey runoff to an acceptable point of disposal.
    e. If the downstream owner(s) refuse to give permission to access the property for the collection of data, the developer shall provide evidence of this refusal and make arrangements to provide an alternative method for the collection of data to complete the outfall analysis (e.g., through the use of photos, aerial surveys, "as built" plans, County topographic maps, soils maps, and any other relevant information).
    f. The owner may be required to limit the discharge from the site to meet the capabilities of downstream structures and impediments.

4.4 Specific Design Criteria

The basic design criteria, methodologies, and construction specifications, subject to the approval of the Berkeley County Engineering Department and the West Virginia Department of Environmental Protection, shall be those of the Design Manual.

5.0 STORMWATER MANAGEMENT PLANS

5.1 Review and Approval of Storm water Management Plans

A. For any proposed development, the developer shall submit a storm water management plan or waiver application to the Berkeley County Engineering Department for review and approval. A exemption from MS4 may be qualify for development that is less than one acre. The storm water management plan shall contain supporting computations, drawings, and sufficient information describing the manner, location, and type of measures in which storm water runoff will be managed from the entire development. The Berkeley County Engineering Department shall review the plan to determine compliance with the requirements of this Ordinance prior to approval. The plan shall serve as the basis for all subsequent construction. Two (2) copies of all required information shall be submitted unless otherwise required by the Berkeley County Engineering Department.

B. Notification of approval or reasons for disapproval or modifications shall be given to the applicant within 30 days after submission of the completed storm water plan. The storm water management plan shall not be considered approved without the signature and date of signature of the Berkeley County Engineering Department on the plan.

5.2 Contents of the Storm water Management Plan

A. The developer is responsible for submitting a storm water management plan that meets the design requirements of this Ordinance. The plan shall be accompanied by a report that includes sufficient information to evaluate the environmental characteristics of affected areas, the potential impacts of the proposed development on water resources, and the effectiveness and acceptability of measures proposed for managing storm water runoff. The developer or builder shall certify on the drawings that all clearing, grading, drainage, construction, and development shall be conducted in strict accordance with the approved plan. The minimum information submitted for support of a storm water management plan or application for a waiver shall be as follows:

B. Reports submitted for storm water management plan approval shall include:

1. A brief narrative description of the project, methodologies and results;
2. A statement on the impacts to water resources;

3. Geotechnical information including: geotechnical report, soil maps, borings, site specific recommendations, and any additional information necessary for the proposed storm water management design;
4. Descriptions of all water courses, impoundments, and wetlands on or adjacent to the site or into which storm water directly flows;
5. Hydrologic computations, including drainage maps depicting pre development and post development runoff flow path segmentation and land use. Stormwater flow paths shall be broken down into separate areas for the type of flow (sheet, shall concentrated, channel flow) and clearly labeled with the related information (length, slope, roughness coeff. utilized etc.) Drainage maps are required for each point of interest for SWM and for all drainage structures as well;
6. TR55 pre and post development analysis or equivalent;
7. TR-20 routing computations and hydrographs or equivalent;
8. Hydraulic computations;
9. Structural computations;
10. Pond structure hazard classification and breach analysis (per NRCS 378);
11. Statement regarding investigation of downstream effects including the ability of the channel to carry the 25 yr event peak discharge;
12. Storm drain plans for any site areas not draining into the SWM control features to demonstrate safe conveyance;
13. Stage, storage, discharge relationships;
14. Flotation analysis (factor of safety = 1.25:1 minimum);
15. Outlet protection design computations for all outlets;
16. Hydraulic computations;
17. Structural computations;
18. Unified sizing criteria volume computations according to the Design Manual; and
19. Any other information required by the Berkeley County Engineering Department due to unique conditions surrounding the site.

C. Construction drawings submitted for storm water management plan approval shall include the following:

1. A vicinity map;
2. Topographic survey, at 2 foot contour intervals, showing existing and proposed contours, including the area necessary to determine downstream analysis for proposed storm water management facilities (200 foot minimum), along with the basis for the topographic information, whether field determined or by aerial photogrametry and the benchmark used for the datum. The benchmark(s) shall also be clearly located and labeled on the plans with position coordinates and elevation.
3. A stable maintenance route to the SWM feature.
4. Any proposed improvements including 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 drainage systems, and storm water management facilities;
9. All necessary construction specifications;
10. SWM features to meet all NRCS-378 pond design criteria (Appendix B of the Design manual) including embankment width, core trench, anti-seep collars, emergency spillway, etc.
11. Analysis of the impacts of stormwater flows downstream - the design release rate of the structure shall be modified if there is a risk that any increase in flooding or stream channel erosion will occur at any point;
12. A sequence of construction;
13. Data for total site area, disturbed area, new impervious area, and total impervious area;
14. A table showing the unified sizing criteria volumes required herein and by the Design Manual;
15. A plan and profile view though the centerline of SWM feature including the forebay area, micropool area, embankment and outlet showing existing and proposed grades and all pertinent features at accurate elevations;
16. Elevations – Top of dam (constructed and settled) WqV, CpV, 25 yr and 100 yr storms;
17. A table of materials to be used for storm water management facility planting including plantings for both aquatic and non-aquatic vegetation areas;
18. All soil boring logs as required by the County Engineer and as required by Appendix D2 of the Design Manual;
19. Maintenance requirements and a maintenance schedule;
20. Outlet protection information including: dimensions, depth, geotextile, and stone sizing;
21. Certification by the owner/developer that all storm water management construction will be done according to the approved plan;
22. An as-built certification signature block to be executed after the project completion; and
23. Any other information required by the Berkeley County Engineering Department due to unique conditions surrounding the site.

5.3 Preparation of the Storm water Management Plan

A. The design shall be prepared by a professional engineer and/or landscape architect licensed in the State, as necessary to protect the public or the environment.

B. If a storm water BMP requires either a dam safety permit from the West Virginia Department of Environmental Protection, the Berkeley County Engineering Department shall require approval from that agency prior to granting approval of the storm water management plan.

6.0 Erosion and Sediment Control

6.1 Review and Approval of Erosion and Sediment Control Plans

A. A person may not clear or grade land without having a grading permit which can be applied for after obtaining an approved final plan from the Berkeley County Planning Department.

B. The applicant shall submit an erosion and sediment control plan and any supporting computations to the Berkeley County Engineering Department for review and approval. The erosion and sediment control plan shall contain sufficient information and notes to describe how soil erosion and off-site sedimentation will be minimized. The Berkeley County Engineering Department shall review the plan to determine compliance with the Standards and the West Virginia Erosion & Sediment Control For Developing Areas Handbook and this Ordinance. The plan shall serve as a basis for all subsequent grading and stabilization.

C. All plans must meet the requirements of the current NPDES Phase II regulations.

D. Particular control device design requirements:
   1. Silt fence shall be placed on the contour and shall have a maximum slope above it of 110 feet.
   2. Regular silt fence is not acceptable for concentrated flow.
   3. Sediment traps and sediment basins are to contain 3,600 ft^3/ drainage acre. Half of the required storage shall be in wet storage and the other half in dry storage.

E. If a storm water management basin is used for sediment control during construction, details must be provided showing that it can meet the sediment and erosion control requirements.

F. In approving the plan, the Berkeley County Engineering Department may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this Ordinance, the Standards, or the preservation of public health, safety, and the environment.

G. The Berkeley County Engineering Department shall notify the applicant of approval or reasons for disapproval or modification within 30 days after submission of the completed erosion and sediment control plan. If a decision is not made within 30 days the applicant shall be informed of the status of the review and the anticipated completion time. The erosion and sediment control plan shall not be considered approved without the signature and date of signature of the Berkeley County Engineering Department on the plan.

6.2 Contents of the Erosion and Sediment Control Plan

The applicant is responsible for submitting an erosion and sediment control plan which meets the requirements of the Berkeley County Engineering Department, this Ordinance and the Standards and the West Virginia Erosion & Sediment Control For Developing Areas Handbook. The plans shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed grading on water resources, and the effectiveness and acceptability of measures proposed to minimize soil erosion and off-site sedimentation. The applicant shall certify on the drawings that all clearing, grading, drainage, construction, and development shall be conducted in accordance with the plan.

Applicants shall submit the following information:

A. Letter of transmittal;

B. An application;

C. A vicinity sketch indicating north arrow, scale, and other information necessary to easily locate the property;

D. A plan at an appropriate scale indicating at least:

1. Name, address, and telephone number of:
   a. The owner of the property where the grading is proposed;
   b. The developer;
   c. The applicant;
   d. The person responsible for the preparation of the plan.
2. The existing and proposed topography.
3. The proposed grading and earth disturbance including:
   a. Surface area involved;
   b. Limits of grading including limitation of mass clearing and grading whenever possible.
   c. Limits of areas where bedrock is to be removed by blasting or hydraulic hammer whenever possible.
   d. Total estimated cut and fill volumes
4. Storm drainage provisions, including:
   a. Velocities and quantities of the Q25 flow at outfalls; and
   b. Site conditions around points of all surface water discharge from the site;
5. Erosion and sediment control provisions to minimize erosion and prevent off-site sedimentation including:
   a. Provisions to preserve topsoil and limit disturbance;
   b. Details of grading practices;
   c. Design details for structural controls; and
6. Details of temporary and permanent stabilization measures including placement of the following statement on the plan: "Following initial soil disturbance or

redisturbance, permanent or temporary stabilization shall be completed within:

a. Seven calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1); and
b. Seven days as to all other disturbed or graded areas upon reaching final grade or the site being idle."

7. Computations as may be necessary to show adequate sizing of erosion and sediment control measures.

The provisions of sections 6.2.E.1. and 6.2.E.2 do not apply to those areas which are shown on the plan for material storage or for those areas on which actual construction activities are currently being performed or to interior areas of a surface mine site where the stabilization material would contaminate the recoverable resource. Maintenance shall be performed as necessary to ensure the stabilized areas continuously meet the appropriate requirements of the Standards.

The requirements of sections 6.2.E.1 and 6.2.E.2. may be extended as deemed necessary by the Berkeley County Engineering Department in the event that adverse conditions prevent compliance with the stated time limitations for the completion of permanent or temporary stabilization.

E. Temporary and permanent seeding specifications, including:

1. Type of seed (mixture) and application rate;
2. Type of lime and fertilizer and the associated application rates;
3. Type of mulching, application rate and type of anchoring.

F. Sequence of construction describing the relationship between the implementation and maintenance of controls, including permanent and temporary stabilization and the various stages or phases of earth disturbance and construction. The sequence of construction shall, as minimum, include a schedule and timeframe for the following activities:

1. Clearing and grubbing for those areas necessary for installation of perimeter controls;
2. Construction of perimeter controls (i.e. dikes, silt fence, sediment traps, sediment basins, etc.);
3. Remaining clearing and grubbing;
4. Road grading;
5. Utility installation;
6. Grading for the remainder of the site;
7. Final grading, landscaping or stabilization;
8. Maintenance schedule for all control devices; and
9. Removal of controls.

G. A statement placed on the plan indicating that the developer shall request that the Berkeley County Engineering Department approve the work completed in accordance with the approved erosion and sediment control plan, the grading permit, and this Ordinance.
   1. On all sites with disturbed areas in excess of one (1) acre, approval the Berkeley County Engineering Department shall be requested upon completion of installation of the perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading.
   2. Approval shall be requested upon final stabilization of all sites with disturbed areas in excess of one (1) acre before removal of controls.

H. Certification by the owner or developer that any clearing, grading, construction, or development, or all of these, will be done pursuant to the approved plan and that responsible personnel involved in the construction shall be made aware of such requirements and have a copy of the approved plan at the construction site.

I. The Berkeley County Engineering Department may waive the inclusion of any specific information required by this Section that is considered by the Department to be not required or not applicable for the affected site.

6.3 Modifications to Erosion and Sediment Control Plan

The Berkeley County Engineering Department may require modifications to an approved plan, require additional items or cause new plans to be submitted as a result of field inspection revealing the approved plans do not provide adequate protection. Modifications may also be requested by the permittee due to unforeseen field conditions.

7.0 GROUNDWATER PROTECTION PLAN

Groundwater protection shall meet requirements of WVDEP.

7.1 Contents of the Groundwater Protection Plan

A. Application;

B. Adequate information and plans to indicate the provisions planned to prevent groundwater pollution.

C. For infiltration systems testing shall be as follows to indicate an acceptable infiltration rate of a minimum of 0.52 in/hr and a minimum of 5 feet of acceptable soil below the proposed facility bottom elevation:
   1. Infiltration trench - one infiltration test and one test pit per 50 feet of trench.
   2. Infiltration basin - one infiltration test and one test pit per 200 square feet of basin area.

3. Bioretention and surface sand filter - one infiltration test and one test pit per 200 square feet.
4. Standard penetration test every 2 feet to a depth of 5 feet below the facility bottom.

D. Bioretention areas may require an Underground Injection Control Permit (UICP), if they have perforated pipe that channels stormwater under the ground.

E. Dry wells are not allowed, if they are deeper than they are wide or if they channel water under the ground with perforated pipe. If dry wells are deeper than they are wide or use perforated pipes, they will need a UIC·Permit.

F. Permeable pavement will not be allowed on loading areas. Also, the permeable pavement must have a 5 foot distance requirement between the pavement and the high ground water table and/or bedrock.

G. Certification of all testing information by a design professional.

H. Location of all testing required above.

I. Location of any permanent monitoring observation ports or test wells.

For pond sites located within 50 feet of a mapped or field located sinkhole, a geotechnical study shall be preformed with recommendations as to possible safeguards required to protect the groundwater. Ponds located within 50 feet of a sinkhole shall not direct any discharge toward the sinkhole.

8.0 PERFORMANCE BOND

The Berkeley County Engineering Department shall require from the developer a surety, irrevocable letter of credit, or other means of security acceptable to Berkeley County prior to the issuance of any permits for the construction of a development requiring a storm water management, sediment and erosion control or groundwater protection plan. The amount of the security shall not be less than the total estimated construction cost of the construction of the items covered in this ordinance and shall be based upon the prevailing wage rates for construction. The bond required in this section shall include provisions relative to the forfeiture for failure to complete work specified in the approved plans, permits, compliance with the provisions of this Ordinance, and other applicable laws and regulations, and any time limitations. The bond shall not be fully released without a final inspection of the completed work by the Berkeley County Engineering Department, submission of "As-built" plans, and certification of completion by The Berkeley County Engineering Department that the storm water management, groundwater protection plan, facilities comply with the requirements of the approved plan and the provisions of this Ordinance. A procedure may be used to release parts of the bond held by

the Berkeley County Engineering Department after various stages of construction have been completed and accepted by the Berkeley County Engineering Department. The procedures used for partially releasing performance bonds must be specified in writing by the Berkeley County Engineering Department prior to plan approval.

8.0 INSPECTION

8.1 Inspection Schedule and Reports

A. The developer shall notify the Berkeley County Engineering Department at least 48 hours before commencing any work in conjunction with the storm water management, sediment and erosion control, groundwater pollution plan and upon completion of the project.

B. Inspections shall be conducted by the Berkeley County Engineering Department or its authorized representative. Written inspection reports shall be made of the periodic inspections necessary during construction of the project to insure compliance with the approved plans. Additional inspections may be performed as necessary by other governmental entities.

C. Written inspection reports shall include:
   1. The date and location of the inspection;
   2. Whether construction was in compliance with the approved plans;
   3. Any variations from the approved plans and construction specifications; and
   4. Any violations that exist.

D. The owner/developer and on site personnel shall be notified in writing when violations are observed. Written notification shall describe the nature of the violation and the required corrective action.

E. Any additional work shall not proceed until the Berkeley County Engineering Department inspects and approves the work previously completed and furnishes the developer with the results of inspection reports as soon as possible after completion of each required inspection.

8.2 Inspection Requirements During Construction

A. At a minimum regular inspections shall be made and documented at the following stages of construction:
   1. For sediment and erosion control:
      a. Upon completion and installation of the perimeter erosion and sediment controls, prior to proceeding with any other earth disturbance or grading.
      a. Upon final stabilization and before removal of sediment controls.

2. For 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:
      (i) Core trenches for structural embankments
      (ii) Inlet and outlet structures, anti-seep collars or diaphragms, and watertight connectors on pipes; and
      (iii) Trenches for enclosed storm drainage facilities;
   b. During placement of structural fill, concrete, and installation of piping and catch basins;
   c. During backfill of foundations;
   d. During embankment construction; and
   e. Upon completion of final grading and establishment of permanent stabilization.
3. Wetlands- at the stages specified for pond construction in 8.2A 2 of this section, during and after wetland reservoir planting, and during the second growing season to verify a vegetation survival rate of at least 50 percent.
4. For infiltration trenches:
   a. During excavation to subgrade;
   b. During placement and backfill of under drain system 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, inlets, outlets, and flow distribution structures; and
   e. Upon completion of final grading and establishment of permanent stabilization.
5. For infiltration basins - at the stages specified for pond construction in 8.2.A.2 of this section and during placement of backfill and underdrain systems.
6. For filtering systems:
   a. During excavation to subgrade;
   b. During placement and backfill of underdrain systems;
   c. During placement of geotextiles and all filter media;
   d. During construction of appurtenant conveyance systems such as flow diversion structures, pre-filters, inlets, outlets, orifices and flow distribution structures; and
   e. Upon completion of final grading and establishment of permanent stabilization.
7. For 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, weirs; and
8. For nonstructural practices - upon completion of final grading and the establishment of permanent stabilization.

B. The Berkeley County Engineering Department may, for enforcement purposes, use any

or a combination of the following actions:

1. A notice of violation shall be issued specifying the need for a violation to be corrected if plan noncompliance is identified;
2. A stop work order shall be issued for the site by the Berkeley County Engineering Department if a violation persists;
3. 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;
4. In addition to any other sanctions, a civil action or criminal prosecution may be brought against any person in violation of this Ordinance.

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

D. Once construction is complete, as-built plan certification shall be submitted by either a professional engineer or licensed land surveyor licensed in the State to ensure that constructed storm water management practices and conveyance systems comply with the specifications contained in the approved plans. At a minimum, as-built certification shall include a set of drawings comparing the approved storm water management plan with what was constructed. The Berkeley County Engineering Department may require additional information. Should the as built drawing show a 10% difference in storage volume or area of control orifice the as built plans must be accompanied by a revised storm routing to show that the structure still meets the design intent.

9.0 MAINTENANCE

9.1 Maintenance Inspection

A. The Berkeley County Engineering Department shall ensure that preventative maintenance is performed by inspecting all storm water management and groundwater protection systems. Inspection shall occur during the first year of operation and at least once every 3 years thereafter. In addition, a maintenance agreement between the owner and the Berkeley County Engineering Department shall be executed for privately owned storm water management systems as described in 9.2 of this section.

B. Inspection reports shall be maintained by the Berkeley County Engineering Department for all storm water management systems.

C. Inspection reports for storm water management systems shall include the following:

1. The date of the inspection;
2. The name of the inspector;
3. The condition of:
    a. Vegetation or filter media;
    b. Fences or other safety devices;
    c. Spillways, valves, or other control structures;
    d. Embankments, slopes and safety benches;

e. Reservoir or treatment areas;
f. Inlet and outlet channels and structures;
g. Underground drainage;
h. Sediment and debris accumulation in storage and forebay areas;
i. Any nonstructural practices to the extent practicable; and
j. Any other item that could affect the proper function of the storm water management or groundwater protection system.

4. Description of any needed maintenance.

D. After notification is provided to the owner of any deficiencies discovered from the inspection of a system, the owner shall have 30 days or other time mutually agreed to between the Berkeley County Engineering Department and the owner to correct the deficiencies. The Berkeley County Engineering Department shall then conduct a subsequent inspection to insure completion of the repairs.

E. If repairs are not undertaken or are not found to be done properly, then enforcement procedures shall be followed by the Berkeley County Engineering Department.

F. If, after inspection by the Berkeley County Engineering Department, the condition of a facility or system presents an immediate danger to the public health or safety, because of an unsafe condition or improper maintenance, the Berkeley County Engineering Department shall take such actions as may be necessary to protect the public and make the facility safe. Any cost incurred by the County shall be assessed against the owner(s), as provided in Section 9.2 C.

9.2 Maintenance Agreement

A. Prior to the issuance of any permit required by this ordinance, the Berkeley County Engineering Department shall require the applicant or owner to execute an inspection and maintenance agreement binding on all subsequent owners of land served by a private storm water management or groundwater protection system. Such agreement shall provide for access to the facility at reasonable times for regular inspections by the Berkeley County Engineering Department or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards.

B. The agreement shall be recorded by the applicant and/or owner in the land records of Berkeley County prior to the release of any surety.

C. The agreement shall also provide that, if after notice by the Berkeley County Engineering Dept. to correct a violation requiring maintenance work, satisfactory corrections are not made by the owner(s) within a reasonable period of time (30 days maximum), the Berkeley County Engineering Dept. may perform the necessary work to place the facility in proper working condition. The owner(s) of the facility shall be assessed the cost of the work and any penalties. This may be accomplished by placing a lien on the property, which may be placed on the tax bill and collected as ordinary taxes by the County.

9.3 Maintenance Responsibility

A. The owner of the property on which work has been done pursuant to this Ordinance for private facilities , or any other person or agent in control of such property, shall maintain in good condition and promptly repair and restore all grade surfaces, walls, dams and structures, vegetation, erosion and sediment control measures, and other protective devices. Such repairs or restoration and maintenance shall be in accordance with approved plans.

B. A maintenance schedule shall be developed for the life of any facility and shall state the maintenance to be completed, the time period for completion, and who shall perform the maintenance. This maintenance schedule shall be printed on the approved plans.

9.4 Right of Entry

It shall be a condition of every site plan submittal or grading or building permit application that the Inspection Agency has the right to enter property periodically to inspect for compliance with this ordinance.

10.0 APPEALS

Any person aggrieved by the action of any official charged with enforcement of this Ordinance, as the result of disapproval or a properly filed application of a permit, issuance of a written notice of violation, or an alleged failure to properly enforce the Ordinance in regard to a specific application, shall have the right to appeal the action to the Berkeley County Building Code Appeals Board. The appeal shall be filed within 30 days of the date of official transmittal of a final decision or determination to the applicant, or notice of violation. Person's aggrieved by the action of the Appeals Board may appeal that decision to the Berkeley County Commission within 30 days of the Appeals Board decision. Appeals from the decision of the Berkeley County Commission shall be to the Circuit Court and shall be filed within 30 days of the County Commission decision.

11.0 SEVERABILITY

If any portion of this Ordinance is held invalid or unconstitutional by a court of competent jurisdiction, such portion shall not affect the validity of the remaining portions of this Ordinance. It is the intent of the Berkeley County Commission that this Ordinance shall stand, even if a section, subsection, sentence, clause, phrase, or portion may be found invalid.

12.0 PENALTIES

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 less than One

Hundred Dollars ($100.00) nor more than Five Thousand Dollars ($5,000.00) with costs imposed in the discretion of the Court. Each day that a violation continues shall be a separate offense. In addition, the Berkeley County Engineering Department may institute injunctive, mandamus or other appropriate forms of relief.

13.0 EFFECTIVE DATE

And be it further enacted, that this Ordinance shall become effective when ordinance is approved on January 28, 2010. Projects submitted prior to the effective date or approved prior to the effective date shall be governed by the regulations in effect at the time of the submittal or approval. Projects which had previously been approved prior to the effective date of this Ordinance will not be subject to the provisions of this Ordinance, provided that construction of the approved storm water management facility be constructed within one (1) year of the effective date of this Ordinance. Individual lots within an approved subdivision shall be governed by the sediment and erosion control requirements of this Ordinance. In addition, if a project has been approved, and the storm water management facility constructed within one (1) year of the effective date of this Ordinance, and the future phases of the project were designed to be accommodated by the constructed facility, the future phases of the project shall be governed by

the original conditions of approval, with the exception of the sediment and erosion control and maintenance requirements of this Ordinance.

14.0 ADOPTION

This ordinance adopted this 28th day of Jan, 2010.

BERKELEY COUNTY COMMISSION

Ronald K Collins

Ronald K. Collins, President

ATTEST:

John W. Small, Jr., Clerk

William L. Stubblefield, Commissioner

Tony Petruci, Commissioner

Appendix A.

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

MARTINSBURG FAA AP, WEST VIRGINIA (46-5707) 39.4019 N 77.9844 W 518 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 2, Version 3
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2004

Extracted: Fri Jul 13 2007

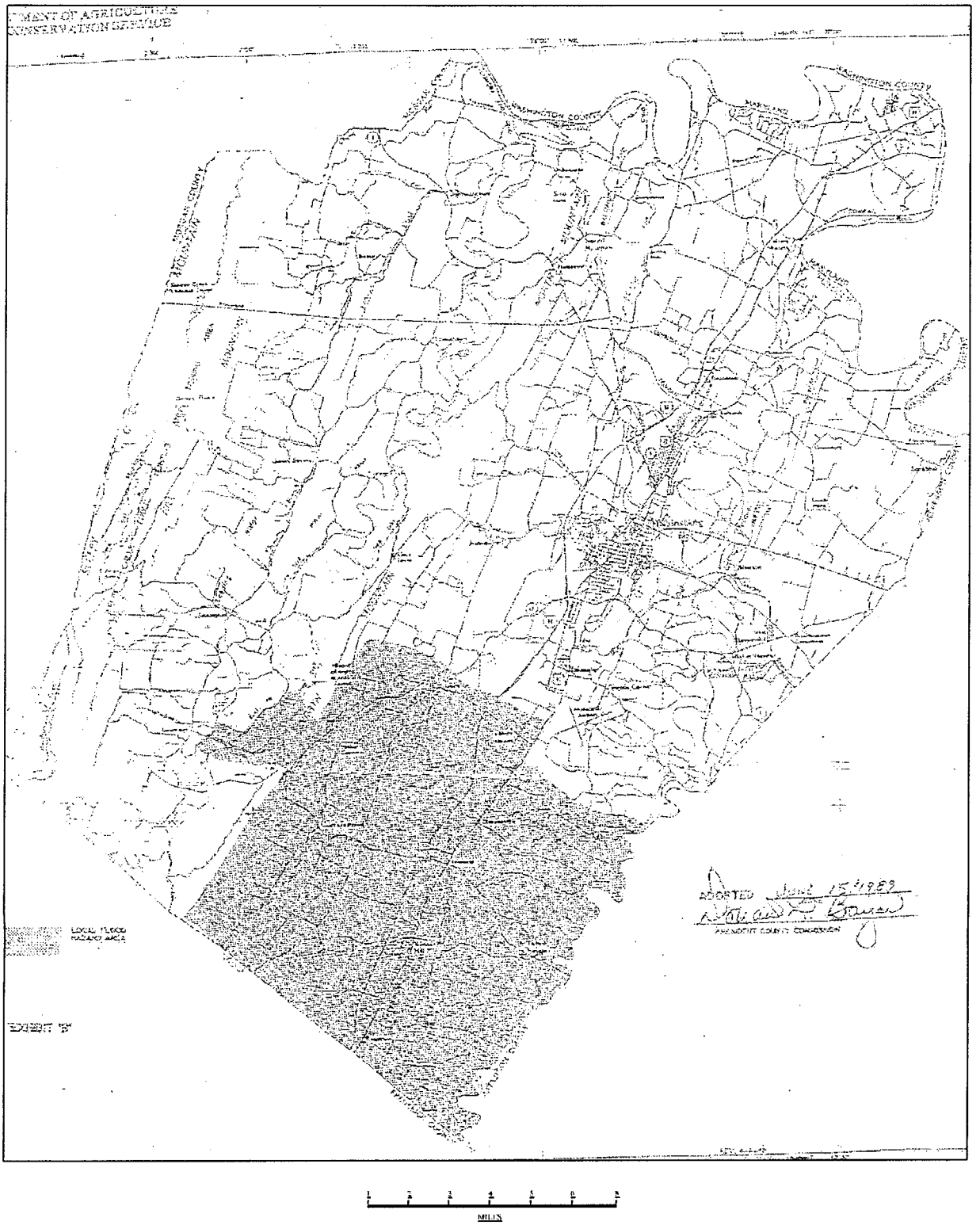
Confidence Limits Seasonality Location Maps Other Info. GIS data Maps Help D

Precipitation Intensity Estimates (in/hr)

ARI[a] (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	3.94	3.06	2.50	1.66	1.01	0.60	0.43	0.27	0.17	0.10	0.06	0.03	0.02	0.02	0.01	0.01	0.01	0.01
2	4.69	3.67	2.99	2.01	1.23	0.73	0.53	0.33	0.20	0.12	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01
5	5.70	4.45	3.64	2.50	1.57	0.93	0.67	0.41	0.25	0.15	0.09	0.05	0.03	0.02	0.02	0.01	0.01	0.01
10	6.50	5.03	4.13	2.87	1.83	1.09	0.78	0.48	0.29	0.17	0.10	0.06	0.04	0.03	0.02	0.01	0.01	0.01
25	7.57	5.81	4.79	3.39	2.20	1.33	0.94	0.58	0.36	0.21	0.12	0.07	0.04	0.03	0.02	0.02	0.01	0.01
50	8.44	6.41	5.29	3.79	2.50	1.52	1.08	0.67	0.41	0.24	0.14	0.08	0.05	0.04	0.02	0.02	0.01	0.01
100	9.31	7.03	5.83	4.22	2.82	1.73	1.24	0.76	0.47	0.27	0.16	0.09	0.05	0.04	0.02	0.02	0.01	0.01
200	10.26	7.67	6.36	4.66	3.17	1.96	1.40	0.86	0.53	0.30	0.18	0.10	0.06	0.04	0.03	0.02	0.02	0.01
500	11.60	8.54	7.10	5.29	3.66	2.30	1.65	1.01	0.63	0.35	0.21	0.11	0.07	0.05	0.03	0.02	0.02	0.01
1000	12.60	9.23	7.68	5.79	4.07	2.59	1.86	1.14	0.71	0.40	0.23	0.12	0.07	0.05	0.03	0.02	0.02	0.01

Text version of table

[a] These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.



LOCAL FLOOD HAZARD AREA