

Stormwater Control (§ 109-251 — § 109-263)

Scope; purpose; effect on other regulations.

A.

Policy statement.

(1)

West Amwell Township identified stormwater management as an important municipal planning concern in its 2003 Master Plan and the Stormwater Plan that the Township Committee adopted in 2005. As the Master Plan notes, West Amwell is a predominantly rural municipality where agriculture is the main land use. The Master Plan also identifies environmentally sensitive areas in West Amwell, in particular the Sourland Region, which is the predominant natural feature in the Township. In addition, West Amwell's five main streams all have excellent water quality which could easily be impaired by poorly managed stormwater runoff from future development.

(2)

In its Master Plan and ordinances, West Amwell Township has taken steps to plan more effectively for future land use changes in these areas of the Township. Additional planning and protections are needed to prevent erosion, increased sediment and pollutants, and other problems caused by poorly managed runoff that have impaired environmental quality in so many other parts of New Jersey.

(3)

Stormwater runoff is part of the largest remaining major source of pollutants in our nation's waters and the quality of surface and groundwater is directly related to the health of the environment. It is estimated that up to 60% of existing water pollution problems are attributable to nonpoint source pollution. Nonpoint source pollution, and particularly, stormwater runoff is difficult to identify, control, and treat. In natural environments, undisturbed by development, native vegetation either directly intercepts precipitation or draws from runoff that has infiltrated into the ground and returns it to the atmosphere through the process of evapotranspiration. Precipitation also runs off the land's surface to become surface water or infiltrates through the soil to naturally recharge groundwater. This process, known as the "hydrologic cycle," functions in equilibrium, but is extremely susceptible to changes in the cycle's processes.

(4)

It has been shown that land development dramatically affects the hydrology of a watershed if the effects of stormwater runoff are not considered carefully. Development typically alters natural vegetation through the placement of lawns and impervious cover, thereby reducing the watershed's evaporation, transpiration and infiltration rates. Construction activities compact the soil and reduce its infiltration capability, resulting in increased volumes and rates of stormwater runoff from a site. Infrastructure and impervious surfaces transport runoff more quickly than natural areas and cause erosion and water quality problems, as well as flooding in areas downstream of development. Effective stormwater management is essential to preventing these serious impacts of development. Public education is an important component of stormwater management because people often do not realize the impact on streams, lakes and private wells from putting motor oil or trash into a storm sewer or from excessive use of fertilizers and pesticides. Individually these acts may seem insignificant, but their cumulative impact contributes to stormwater/nonpoint source pollution and reduces water quality.

B.

Purpose. This Stormwater Article is designed to accomplish the goals of the West Amwell Township Stormwater Plan, which the Township Committee adopted in April 2005. The goals of this article include:

(1)

Meeting state and federal regulatory requirements for stormwater management.

(2)

Protecting all surface and ground water resources from degradation and diminution.

(3)

Preserving the rural character of West Amwell Township and protecting environmentally sensitive areas that could be affected by stormwater.

(4)

Minimizing or reducing stormwater runoff rates and volumes from new and existing development.

(5)

Maintaining the integrity and stability of stream channels and buffers for the overall environmental and ecological benefits and functions they provide,

especially biological functions, as well as for drainage, the conveyance of floodwater and other purposes.

(6)

Reducing current levels of nonpoint source pollution, and preventing an increase in nonpoint source pollution from future development.

(7)

Preserving woodlands and other undisturbed areas, especially along streams, and protecting natural features including forest understory and vegetated riparian buffers.

(8)

Reducing, minimizing or eliminating soil erosion and the transport of sediment from any development or construction project.

(9)

Minimizing or eliminating pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of waters of the state.

(10)

Enhancing domestic, municipal, recreational, industrial, and other uses of water bodies.

(11)

Maintaining and enhancing groundwater recharge.

(12)

Promoting cooperative efforts with the county and neighboring municipalities to achieve common goals cooperatively.

(13)

Preventing flood damage, including damage to public health, life and property.

(14)

Protecting fish and other aquatic life, and scenic and ecological values of rivers and streams.

(15)

Assuring the adequacy of all culverts and bridges, and other in-stream structures.

(16)

Protecting the public by minimizing public safety hazards through the proper design and operation of stormwater basins or other stormwater detention facilities.

(17)

Minimizing the deterioration of existing structures that would result from increased rates and volumes of stormwater runoff.

(18)

Maintaining adequate baseflow and natural flow regimes in all streams and other surface water bodies to protect the aquatic ecosystem.

(19)

Ensuring that any development that creates 1/4 acre or more of impervious cover or creates one acre or more of disturbance must comply with this article, as required by West Amwell Township's Tier B NJPDES permit.

C.

Applicability.

(1)

This article shall be applicable to building permits as covered by this chapter and all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:

(a)

Nonresidential major developments; and

(b)

Aspects of residential major developments that are not preempted by the residential site improvement standards (RSIS) at N.J.A.C. 5:21. The provisions of both this chapter and the RSIS are to be applied and reviewed concurrently for any residential major development.

(c)

In the case of agricultural or horticultural development that meets the definition of "major development" under N.J.A.C. 7:8, a farm conservation plan or a soil erosion and sediment control plan that addresses the protection of soil and water resources shall be developed and implemented. Such a plan shall be approved by the Hunterdon County Soil Conservation District.

(2)

This article shall also be applicable to all major developments undertaken by West Amwell Township.

(3)

This article does not apply to activities of Hunterdon County, the State of New Jersey and the government of the United States of America when those activities are specifically exempted from municipal regulation by relevant state or federal law.

D.

Compatibility with other permit and ordinance requirements. Development approvals issued for subdivisions and site plans pursuant to this article are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this article shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This article shall be construed to assure consistency with the requirements of New Jersey laws and acts amendatory thereof or supplementary thereto, applicable implementing regulations, and any existing or future municipal NJPDES permits and any amendments or revisions thereto or re-issuance thereof. This article is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law. Where any provision of this article imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher standards shall prevail.

Definitions.

As used in this article, the following terms shall have the meanings indicated:

AGRICULTURE OR HORTICULTURE or AGRICULTURAL OR HORTICULTURAL USE

The use of the land for common farmsite activities, including, but not limited to, production, harvesting, storage, grading, packaging, processing and the wholesale and retail marketing of crops, plants, animals and other related commodities and the use and application of techniques and methods of soil preparation and management, fertilization, weed, disease and pest control, disposal of farm waste, irrigation, drainage, and water management, and grazing.

AGRICULTURAL OR HORTICULTURAL DEVELOPMENT

Construction for the purposes of supporting common farmsite activities, including, but not limited to, the production, harvesting, storage, grading, packaging, processing, and the wholesale and retail marketing of crops, plants, animals, and other related commodities and the use and application of techniques and methods of soil preparation and management, fertilization, weed, disease, and pest control, disposal of farm waste, irrigation, drainage and water management, and grazing.

CATEGORY ONE (C1) WATERS

Waters of the state as designated in N.J.A.C. 7:9B-1.15 (c) through (h) for purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d) for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources(s).

COMPACTION

The increase in soil bulk density caused by subjecting soil to greater-than-normal loading. Compaction can also decrease soil infiltration and permeability rates.

COUNTY REVIEW AGENCY

The Hunterdon County Planning Board, as designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s).

DEPARTMENT

The New Jersey Department of Environmental Protection.

DESIGN ENGINEER

A person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

DEVELOPMENT

The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use

or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, "development" means any activity that requires a state permit; any activity reviewed by the County Agricultural Development Board (CADB), County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A 4:1C-1 et seq.

DISTURBANCE

Any activity including the clearing, excavating, storing, grading, filling or transportation of soil or any other activity that causes soil to be exposed to the danger of erosion.

DRAINAGE AREA

A geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving water body.

ENVIRONMENTALLY CRITICAL AREA

An area or feature which is of significant environmental value, including but not limited to, stream corridors, natural heritage priority sites, suitable habitat of endangered or threatened species, large areas of contiguous open space or upland forest, steep slopes, wellhead protection areas, and groundwater recharge areas. Areas considered suitable habitats of endangered or threatened species are those identified by the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

EROSION

The detachment and movement of soil or rock fragments by water, wind, ice or gravity.

GROUNDWATER

A body of water below the surface of the land in a zone of saturation where the spaces between the soil or geological materials are fully saturated with water.

HUC-14

A watershed as defined by the United States Geological Survey with a fourteen-digit identifier; a subwatershed.

IMPERVIOUS SURFACE

A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water relative to natural conditions in the area.

INFILTRATION

The process by which water from precipitation seeps into the soil to a level below the normal root soil of plant species.

LOW-IMPACT DEVELOPMENT (LID)

Methods incorporating design measures to replicate predevelopment hydrology to reduce the impacts of development at a lot-level basis, treating rainwater where it falls by creating conditions that allow the water

to infiltrate back into the ground. LID emphasizes greater infiltration of stormwater on site rather than regarding the stormwater as a nuisance condition and disposable.

MAINTENANCE PLAN

A document required for all major development projects for stormwater management maintenance. The document shall contain specific preventive maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventive and corrective maintenance (including replacement).

MAJOR DEVELOPMENT

Any development that provides for ultimately disturbing one or more acres of land or would create 1/4 acre or more of impervious surface.

MAXIMUM EXTENT PRACTICABLE

Compliance with the specific objective to the greatest extent possible taking into account equitable considerations and competing factors, including, but not limited to, environmental benefits, pollutant removal effectiveness, regulatory compliance, ability to implement given site-specific environmental conditions, cost and technical or engineering feasibility.

MUNICIPALITY

West Amwell Township.

NODE

An area designated by the State Planning Commission concentrating facilities and activities that are not organized in a compact form.

NONSTRUCTURAL STORMWATER MANAGEMENT TECHNIQUES

Techniques that control or reduce stormwater runoff in the absence of stormwater structures (e.g., basins and piped conveyances), such as minimizing site disturbance, preserving important site features, including, but not limited to, natural vegetation, reducing and disconnecting impervious cover, minimizing slopes, utilizing native vegetation, minimizing turf grass lawns, increasing time of concentration and maintaining and enhancing natural drainage features and characteristics.

NUTRIENT

A chemical element or compound, such as nitrate or phosphate, which is essential to and promotes the development of plants, algae and other organisms or vegetation.

NUTRIENT LOAD

The total amount of a nutrient, such as nitrogen or phosphorus, entering the water during a given time, such as tons of nitrogen per year, or pounds of phosphorus per day. Nutrients may enter the water from runoff, groundwater recharge, point source discharges, or the air (in the form of wet deposition such as rain or snow as well as dry deposition).

NUTRIENT CONCENTRATION

The amount of a nutrient in a defined volume of water (such as milligrams of nitrogen per liter). The relationship between nutrient concentration and

nutrient load can vary and depends on the surface water flow, the volume of water in the water body or aquifer, and watershed characteristics.

PERMEABLE

A surface or land cover capable of transmitting or percolating a significant amount of precipitation into the underlying soils.

PERSON

Any individual, corporation, company, partnership, firm, association, West Amwell Township, or other political subdivision of this state subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

POLLUTANT

Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance [except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2011 et seq.)], thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, residential, and construction waste or runoff, or other residue discharged directly or indirectly to the land, groundwaters or surface waters of the state, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

POLLUTION

The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water to the extent that the pollutant concentration or level violates either the Groundwater Quality Standards (N.J.A.C. 7:9-6) or the Surface Water Quality Standards (N.J.A.C. 7:9B) of New Jersey.

RECHARGE

The amount of water from precipitation that infiltrates into the ground and becomes part of a groundwater body.

REVIEW AGENCY (MUNICIPAL)

The municipal body or official that is responsible for the review of a major development project for compliance with the stormwater management requirements.

SEDIMENT

Solid material, mineral or organic, that is in suspension and is being transported or has been moved from its site of origin by air, water or gravity as a product of erosion.

SITE

The lot or lots upon which a major development is to occur or has occurred.

SOIL

All unconsolidated mineral and organic material of any origin.

SOLID AND FLOATABLE MATERIALS

Sediment, debris, trash, and other floating, suspended, or settleable solids.

SOURCE MATERIAL

Any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing, or other industrial activities, that could be a source of pollutants in any industrial stormwater discharge to ground or surface water. Source materials include, but are not limited to, raw materials, intermediate products, final products, waste materials, by-products, industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

SPECIAL WATER RESOURCE PROTECTION AREAS

Water bodies receiving special protections due to their drinking water status or role as high-quality habitat for threatened and endangered species or species of commercial or recreational importance. This includes waterways so designated through the NJ Stormwater Management Rules (N.J.A.C. 7:8) because of exceptional ecological significance, exceptional water supply significance, exceptional recreational significance, exceptional shellfish resource, or exceptional fisheries resource. Waters so designated are protected by a three-hundred-foot buffer extending on either side of the waterway measured perpendicular from top-of-bank or center of channel for waterways lacking a defined top-of-bank. See definition of "Category One (C1)."

STATE PLAN POLICY MAP

Defined as the geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

STORMWATER

Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

STORMWATER MANAGEMENT BASIN

An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (a constructed stormwater wetland).

STORMWATER MANAGEMENT MEASURE

Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

STORMWATER RUNOFF

The flow of stormwater on or across the surface of the ground, in drainage facilities or in storm sewers.

STREAM BUFFER or RIPARIAN BUFFER

A strip of land located immediately adjacent to a stream channel consisting of natural, undisturbed vegetative cover, which serves as a transition area between uplands and riparian lands to trap sediments from upslope erosion and filter fertilizers, pesticides, and other pollutants that run off farmland and other developed areas. A stream buffer may encompass wetlands, may contain a floodplain or floodway or may extend beyond a wetland, floodplain or floodway boundary. This buffer supports trees, shrubs, grasses, and other plant and animal species that depend on changeable conditions.

STRUCTURAL STORMWATER TECHNIQUES

A stormwater management measure that involves control of concentrated stormwater runoff or infiltration, such as stormwater basins, piped conveyance systems and manufactured stormwater devices, and can include various types of basins, filters, surfaces, and devices located on individual lots in a residential development or throughout a commercial, industrial, or institutional development site in areas not typically suited for larger, centralized structural facilities.

TAILWATER

The downstream surface water elevation at a discharge (pipe, weir, spillway, channel, etc.).

THREATENED AND ENDANGERED SPECIES

Species whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to prevent future extinction in New Jersey. Threatened species are those which may become endangered if conditions surrounding them begin to or continue to deteriorate. Suitable habitats of endangered or threatened species are those identified by the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

TIME OF CONCENTRATION

The time it takes for stormwater runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.

TRANSITION AREA

An area of protected upland adjacent to a freshwater wetland that minimizes adverse impacts on the wetland or serves as an integral component of the wetlands ecosystem. Also called "buffer area."

WATERS OF THE STATE

The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or groundwater, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

WETLANDS or WETLAND

An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted

for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

Design and performance standards for stormwater management measures.

A.

Stormwater management measures for major development shall be designed to meet the erosion control, groundwater recharge, and stormwater runoff quantity and quality standards in § [109-254](#), as described in technical guidance documents listed in § [109-257](#). As detailed in § [109-254](#), to the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design along with the practicable nonstructural strategies.

B.

The standards in this article apply to both new major development and redevelopment and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or water quality management plan adopted in accordance with Department rules.

Requirements for major development.

A.

Nonstructural stormwater management strategies.

(1)

To the maximum extent practicable, the standards in Subsections [B](#) and [C](#) shall be met by incorporating nonstructural stormwater management strategies set forth in this subsection into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. Documentation of the use of nonstructural stormwater management measures shall require the preparation by the applicant of the NJDEP Nonstructural Strategies Points System (NSPS) and the NJDEP low-impact development checklist. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any or only specific nonstructural stormwater management measures identified in Subsection [A\(2\)](#), below, into the

design of a particular project, the applicant shall identify the strategy or strategies considered and provide a basis for the contention. The applicant bears the burden of proving any impracticability.

(2)

Nonstructural stormwater management strategies incorporated into site design shall:

(a)

Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.

(b)

Minimize the creation of new impervious surfaces and reduce, break up or otherwise disconnect the flow of runoff over impervious surfaces.

(c)

Maximize the protection of natural drainage features and vegetation, except where native or natural vegetation is considered invasive.

(d)

Minimize the decrease in the time of concentration from pre-development to post-development.

(e)

Minimize land disturbance including clearing and grading.

(f)

Minimize soil compaction.

(g)

Retain native vegetation, and provide low-maintenance landscaping, plant native vegetation, and minimize the creation of lawns and the use of plantings and vegetation that require the excessive use of fertilizers, pesticides and irrigation.

(h)

Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas.

(i)

Provide other source controls to prevent or minimize the use, exposure and/or mobilization of pollutants and prevent or minimize the release and transport of those pollutants into stormwater runoff. Such source controls include, but are not limited to:

[1]

Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Subsection A(3) below;

[2]

Site design features that help to prevent discharge of trash and debris from drainage systems;

[3]

Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and

[4]

When establishing vegetation after land disturbance, application of fertilizer shall be in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules. Prior to applying fertilizer, soil tests must be conducted onsite to determine the type of fertilization necessary.

(3)

Site design features identified under Subsection A(2)(i)[2] above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For exemptions to this standard see Subsection A(3)(c) below.

(a)

Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

[\[1\]](#)

The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or

[\[2\]](#)

A different grate, if each individual clear space in that grate has an area of no more than seven square inches, or is no greater than 0.5 inch across the smallest dimension.

[\(b\)](#)

Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven square inches, or be no greater than two inches across the smallest dimension.

[\(c\)](#)

This standard does not apply:

[\[1\]](#)

Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;

[\[2\]](#)

Where flows from the water quality design storm as specified in Subsection [C\(2\)](#) are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

[\[a\]](#)

A rectangular space $4 \frac{5}{8}$ inches long and $1 \frac{1}{2}$ inches wide (This option does not apply for outfall netting facilities.); or

[\[b\]](#)

A bar screen having a bar spacing of 0.5 inch.

[3]

Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars, to the elevation of the water quality design storm as specified in Subsection C(2); or

[4]

Where the New Jersey Department of Environmental Protection determines, pursuant to the National and/or the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

(4)

Any land area used as a nonstructural stormwater management measure to meet the performance standards in Subsections B and C shall be:

(a)

Dedicated to a government agency;

(b)

Subjected to a conservation restriction filed with the Hunterdon County Clerk's office; or

(c)

Subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

(5)

Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual and the West Amwell Township Stormwater Management Plan. The BMP Manual may be obtained from the address identified in § 109-257, or found on the Department's website.

B.

Erosion control, groundwater recharge and stormwater runoff quantity control standards.

(1)

This subsection contains minimum design and performance standards to control erosion, maintain groundwater recharge, and control stormwater runoff quantity impacts of major development.

(a)

The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.

(b)

The minimum design and performance standards for groundwater recharge are as follows:

[1]

Using the criteria for calculating stormwater runoff and groundwater recharge in § [109-255B](#), the design engineer shall comply with at least one of the following standards:

[a]

Demonstrate through hydrologic and hydraulic analysis that the post-developed project site maintains 100% of the site's pre-developed average annual groundwater recharge volume; or

[b]

Demonstrate through hydrologic and hydraulic analysis that any increase in the project site's projected stormwater runoff volume produced by the two-year, twenty-four-hour storm from pre-developed to post-developed conditions is fully infiltrated.

[2]

The following two types of stormwater runoff shall not be recharged:

[a]

Stormwater runoff from areas of high pollutant loading. High pollutant loading areas are:

[i]

Areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied;

[\[ii\]](#)

Areas where pesticides are loaded/unloaded or stored;

[\[iii\]](#)

Areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; and

[\[iv\]](#)

Areas where recharge would be inconsistent with a Department-approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities.

[\[b\]](#)

Stormwater runoff from industrial areas exposed to source material.

[\[3\]](#)

The design engineer shall assess and certify the hydraulic impact on the groundwater table and design the project site and all site groundwater recharge measures so as to avoid adverse hydraulic impacts. Adverse hydraulic impacts include, but are not limited to, raising the groundwater table so as to cause surface ponding, flooding of basements and other subsurface facilities, and interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity of a groundwater recharge measure.

[\(c\)](#)

The minimum design and performance standards for the control of stormwater runoff quantity are as follows:

[\[1\]](#)

Using the criteria for calculating stormwater runoff and groundwater recharge in § [109-255](#), the design engineer shall comply with at least one of the following standards:

[\[a\]](#)

Demonstrate through hydrologic and hydraulic analysis that the post-developed stormwater runoff hydrographs from the project site for the two-, ten-, and one-hundred-year storms do not exceed, at any point in time, the site's pre-developed runoff hydrographs for the same storms;

[\[b\]](#)

Demonstrate through hydrologic and hydraulic analysis that under post-developed site conditions:

[\[i\]](#)

There is no increase in pre-developed stormwater runoff rates from the project site for the two-, ten-, and one-hundred-year storms; and

[\[ii\]](#)

Any increased stormwater runoff volume or change in stormwater runoff timing for these storms will not increase flood damage at or downstream of the project site. When performing this analysis for pre-developed site conditions, all off-site development levels shall reflect existing conditions. When performing this analysis for post-developed site conditions, all off-site development levels shall reflect full development in accordance with current zoning and land use ordinances. This analysis shall include the impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area.

[\[c\]](#)

Design on-site stormwater management measures so that the peak post-developed stormwater runoff rates from the project site for the two-, ten- and one-hundred-year storms are 50%, 75% and 80%, respectively, of the site's peak pre-developed stormwater runoff rates. Peak stormwater outflow rates for these storms shall be adjusted where necessary to account for the discharge of increased stormwater runoff rates and/or volumes from project site areas not controlled by the on-site measures. The percentages shall not be applied to those portions of the project site that are not proposed for development at the time of application, provided that such areas:

[\[i\]](#)

Are protected from future development by conservation easement, deed restriction, or other acceptable legal measures; or

[\[ii\]](#)

Would be subject to review under these standards if they are proposed for any degree of development in the future.

(2)

Any application for a new agricultural or horticultural development that meets the definition of major development in § [109-252](#) shall be submitted to the Hunterdon County Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control.

C.

Stormwater runoff quality standards.

(1)

Stormwater management measures shall be designed to reduce the post-development load of total suspended solids (TSS) in stormwater runoff by 80% of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall be required for water quality control if 1/4 acre or more of impervious surface is being proposed on a development site or if one acre or more of soil disturbance will result from the development. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Daily limits of TSS (TMDL) may apply to the site development based on conditions of regulatory approvals.

(2)

The water quality design storm shall be 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1, subject to revision due to subsequent rule changes. The calculation of the volume of runoff may take into account the implementation of nonstructural and structural stormwater management measures.

Table 1 Water Quality Design Storm Distribution

Time (minutes)	Cumulative Rainfall (inches)	Time (minutes)	Cumulative Rainfall (inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500

15	0.0250	80	1.0840	(3)
20	0.0500	85	1.1170	
25	0.0750	90	1.1500	For purposes
30	0.1000	95	1.1750	of TSS
35	0.1330	100	1.2000	reduction
40	0.1660	105	1.2250	calculations,
45	0.2000	110	1.2334	Table 2 below
50	0.2583	115	1.2417	presents the
55	0.3583	120	1.2500	presumed
60	0.6250			removal rates
				for certain
				BMPs
				designed,

constructed and maintained in accordance with the New Jersey Stormwater Best Management Practices Manual, subject to revision due to subsequent rule changes. The current edition of the BMP Manual may be obtained from the Department. The BMP Manual and other sources of technical guidance are listed in § [109-257](#). TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative BMPs, removal rates and methods of calculating removal rates may be approved if the design engineer provides documentation demonstrating the capability of these alternative BMPs, removal rates and computational methods to the review agency. Documentation for alternative rates and methods shall consist of published (peer-reviewed) journal articles or scientific papers that reflect a consensus among the research community, subject to approval by the review agency. A copy of any approved alternative rate or method of calculating the removal rate, including documentation, shall be provided to the appropriate regulatory agency of the Department.

[\(4\)](#)

BMPs in series.

[\(a\)](#)

If more than one BMP in series is necessary to achieve the required TSS reduction of 80% for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (AXB)/100$$

Where:

R = Total TSS percent load removal (expressed as a whole number) from application of both BMPs.

A = The TSS percent removal rate (whole number) applicable to the first (upstream) BMP.

B = The TSS percent removal rate (whole number) applicable [\(b\)](#) to the second (downstream) BMP.

In cases where three (or more) BMPs are used in series, the applicant shall calculate the TSS reduction for the two most upstream BMPs in the series using the above formula, then substitute the result (R) of that calculation in the formula for "A" when calculating the combined result with the next BMP in the series.

Table 2 TSS Removal Rates for BMPs
(Source: New Jersey Stormwater Best Management Practices Manual)

Best Management Practice	TSS Percent Removal Rate
Bioretention systems	90%
Constructed stormwater wetland	90%
Extended detention basin	40% to 60%
Infiltration structure	80%
Manufactured treatment device	See § 109-256C
Sand filter	80%
Vegetative filter strip	60% to 80%
Wet pond	50% to 90%

[\(5\)](#)

If there is more than one on-site drainage area, the TSS removal rate of 80% shall apply to the discharge of each drainage area, unless the runoff from the subareas converge

onsite, in which case the removal rate can be demonstrated through a calculation using an area-weighted average.

[\(6\)](#)

Stormwater management measures shall also be designed to reduce, to the maximum extent practicable, the post-development nutrient load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent practicable, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Subsections [B](#) and [C](#). This standard may be superseded by a more stringent numeric effluent limitation imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Daily limits for nutrient loading (TMDL) may apply to the site development based on conditions of regulatory approvals.

[\(7\)](#)

Applicants shall comply with the New Jersey Stormwater Best Management Practices Manual. See § [109-257](#) for additional information.

(8)

In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff and any new stormwater discharge point to waters classified as FW1.

(9)

Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and along all perennial or intermittent streams that drain into or are upstream of the Category One waters as shown on the West Amwell Township Tax Maps, Hunterdon County Soil and Conservation District Maps, current state aerial photography, USGS Topographic Quadrangle Maps within the associated HUC-14 drainage area or other maps consistent with the West Amwell Stream Corridor Ordinance. Special water resource protection areas shall be consistent with West Amwell's Stream Corridor Ordinance

Editor's Note: See Article XXII, Stream Corridor Protection.
and N.J.A.C. 7:8-5.5(h), with the more restrictive regulation prevailing.

(10)

Subsection C(9) does not apply to the construction of one individual single family dwelling that is not part of a larger development and is on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.

D.

Maintenance plan. The development shall incorporate a maintenance plan for the stormwater management measures into the design of a major development in accordance with § 109-260.

E.

Exemptions. The following linear development projects are exempt from the groundwater recharge stormwater runoff quantity, and stormwater runoff quality requirements of Subsections B and C:

(1)

The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;

(2)

The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and

(3)

The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of eight feet, provided that the access is made of permeable material.

F.

Waivers from strict compliance. Waivers from strict compliance cannot be granted unless the West Amwell Township Stormwater Management Plan (SWMP) is amended to incorporate a specific mitigation strategy.

G.

Threatened and endangered species. When habitat suitable for threatened and endangered species (See definition for "environmental critical areas" in § [109-252](#)) is present on a site, stormwater management measures shall be implemented to avoid adverse impacts caused by pollutant discharge, the creation of concentrated flow, or the alteration of recharge.

Calculation of stormwater runoff and groundwater recharge.

A.

Stormwater runoff calculations.

(1)

In complying with the design and performance standards in § [109-254](#), the design engineer shall calculate stormwater runoff using one of the following methods:

(a)

The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation, NRCS Dimensionless Unit Hydrograph, and appropriate NRCS twenty-four-hour design storm, as described in the current NRCS National Engineering Handbook Part 630 — Hydrology, and the current Technical Release 55 — Urban Hydrology for Small Watersheds or superseding document; or

(b)

The Rational Method for peak stormwater runoff rate calculations and the Modified Rational Method for stormwater runoff hydrograph calculations. Use of the Rational Method and Modified Rational Method are limited to drainage areas of five acres or less. Neither the Rational Method nor Modified Rational Method shall be used to calculate runoff volumes for groundwater recharge or stormwater runoff infiltration purposes.

(2)

When selecting or calculating runoff coefficients for pre-developed project site conditions using any of the above methods, the project site's land cover shall be assumed to be meadow unless woods are present on the site. If woods exist or had existed on all or a portion of the site within 10 years immediately prior to the time of application, then the area shall be modeled as woods.

(3)

In calculating pre-developed site stormwater runoff, the design engineer shall include the effects of all land features and structures, such as ponds, wetlands, depressions, hedgerows and culverts, that reduce pre-developed site stormwater runoff rates and/or volumes.

(4)

In calculating stormwater runoff using the NRCS methodology, the design engineer shall use appropriate twenty-four-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration and the New Jersey Department of Agriculture State Soil Conservation Committee.

(5)

In calculating stormwater runoff using the NRCS methodology, the design engineer shall separately calculate and then combine the runoff volumes from pervious and directly connected impervious surfaces within a drainage area.

(6)

Calculation of stormwater runoff from unconnected impervious surfaces shall be based, as applicable, upon the two-step methodology as described in the Department's current Stormwater Best Management Practices Manual or the NRCS methodology described in the current Technical Release 55 — Urban Hydrology for Small Watersheds.

B.

Groundwater recharge calculations.

(1)

In complying with the design and performance standards in § [109-254B](#)(1)(b)[1][a], the design engineer shall calculate groundwater recharge in accordance with the New Jersey Groundwater Recharge Spreadsheet (NJGRS) computer program as described in the Department's current Stormwater Best Management Practices Manual.

(2)

In complying with the design and performance standards in § [109-254B](#)(1)(b)[1][b], the design engineer shall calculate stormwater runoff infiltration volumes in accordance with the USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation, as described in the current NRCS National Engineering Handbook Part 630 — Hydrology and the current Technical Release 55 — Urban Hydrology for Small Watersheds and the New Jersey Geological Survey Report GSR-32- A Method for Evaluating Groundwater Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented, and superseding documents. In addition, the design engineer shall use appropriate two-year, twenty-four-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration and the New Jersey Department of Agriculture State Soil Conservation Committee.

(3)

When selecting or calculating runoff coefficients for pre-developed project site conditions for groundwater recharge or stormwater runoff infiltration calculations, the project site's land cover shall be assumed to be meadow unless woods are present on the site. If woods exist or had existed on all or a portion of the site within 10 years immediately prior to the time of application, then the area shall be modeled as woods.

Standards for structural stormwater management measures.

A.

Structural management measures.

(1)

Structural stormwater management measures shall be designed to take into account the existing site conditions, including environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil types; permeability and texture; drainage area and drainage patterns; and the presence of specific geological constraints.

(2)

Structural stormwater management measures shall be designed to facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than 1/3 the width of the diameter of the orifice or 1/3 the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of § [109-258B](#).

(3)

Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. These measures shall also be consistent with West Amwell's rural community character, especially by providing suitable wildlife habitat. Measures that are consistent with the relevant portions of the residential site improvement standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement. The measures are to be sequenced in the site development process so that erosion control standards are met and so the measure is not compromised or impaired by construction runoff.

(4)

At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of 2 1/2 inches in diameter.

(5)

Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at § [109-258](#).

(6)

Where tailwater will affect the hydraulic performance of a stormwater management measure, the design engineer shall include such effects in the measure's design.

B.

Guidelines for management measures. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual and other documents as described in § [109-257](#). Other

stormwater management measures may be utilized, provided the design engineer demonstrates to the satisfaction of the review agency that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by § [109-254](#) of this chapter.

C.

Manufactured treatment devices.

(1)

Manufactured treatment devices may be used to meet the requirements of § [109-254](#) of this chapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

(2)

Manufactured treatment devices may be used only where the maintenance plan required by § [109-260](#) ensures that the manufactured device will be properly maintained for its functional lifespan and will be replaced as needed with management measures that are at least as effective as the original manufactured treatment device working in accordance with manufacturer's specifications. The Public Works Department will review the manufactured treatment devices as set forth in the maintenance plan and will offer comment before approval.

Sources for technical guidance.

A.

Primary technical guidance. Technical guidance for stormwater management measures can be found in the documents listed at Subsection [A\(1\)](#) and [\(2\)](#) below, which are available from Maps and Publications, New Jersey Department of Environmental Protection and also in West Amwell Township's Municipal Stormwater Management Plan.

(1)

Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures, such as bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds.

(2)

The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended and the NJDEP Nonstructural Strategies Points System (NSPS).

B.

Additional technical guidance. Additional technical guidance for stormwater management measures can be obtained from the following:

(1)

The Standards for Soil Erosion and Sediment Control in New Jersey promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee.

(2)

The Rutgers Cooperative Extension Service.

(3)

The Hunterdon County Soil Conservation District.

(4)

The United States Environmental Protection Agency, including the National Management Measures to Control Nonpoint Source Pollution from Urban Areas.

(5)

Field guides of the United States Department of Agriculture, Natural Resources Conservation Service, where supplemental to and not conflicting with a source of primary guidance in Subsection A.

(6)

Other similarly authoritative governmental or trade association sources acceptable to the reviewing agency.

Safety standards for stormwater management basins.

A.

General scope. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin.

B.

Requirements for trash racks, overflow grates and escape provisions.

(1)

A trash rack is a device intended to intercept trash and debris from runoff that might otherwise block the hydraulic openings in the outlet structure of a structural stormwater management measure. Trash racks shall be installed upstream of such outlet structure openings to ensure proper functioning of the structural stormwater management measure in accordance with the following:

(a)

The trash rack should be constructed primarily of bars aligned in the direction of flow with a maximum bar spacing of approximately 1/2 the diameter or width of the hydraulic opening it is protecting, or six inches, whichever is less. Transverse bars aligned perpendicular to flow should be sized and spaced as necessary for rack stability and strength.

(b)

The trash rack shall not adversely affect the hydraulic performance of either the outlet structure opening it is protecting or the overall outlet structure.

(c)

The trash rack shall have sufficient net open area under clean conditions to limit the peak design storm velocity through it to a maximum of 2.5 feet per second.

(d)

The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(2)

An overflow grate is a device intended to protect the opening in the top of a stormwater management measure outlet structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

(a)

The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.

(b)

The overflow grate spacing shall be no more than two inches across the smallest dimension.

(c)

The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

(3)

Structural stormwater management measures shall include escape provisions as follows:

(a)

If a structural stormwater management measure has an outlet structure, escape provisions shall be incorporated in or on the structure. "Escape provisions" means the permanent installation of ladders, steps, rungs, or other features that provide readily accessible means of ingress and egress from the outlet structure.

(b)

Safety ledges shall be constructed on the slopes of all new structural stormwater management measures having a permanent pool of water deeper than 2 1/2 feet. Such safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall be located one foot to 1 1/2 feet above the permanent water surface. See Subsection D for an illustration of safety ledges in a stormwater management basin.

(c)

In new stormwater management basins, the maximum slope of the interior and exterior of an earthen dam, embankment, or berm shall not be steeper than five horizontal to one vertical in accordance with N.J.A.C. 7:8-6(c)3.

(d)

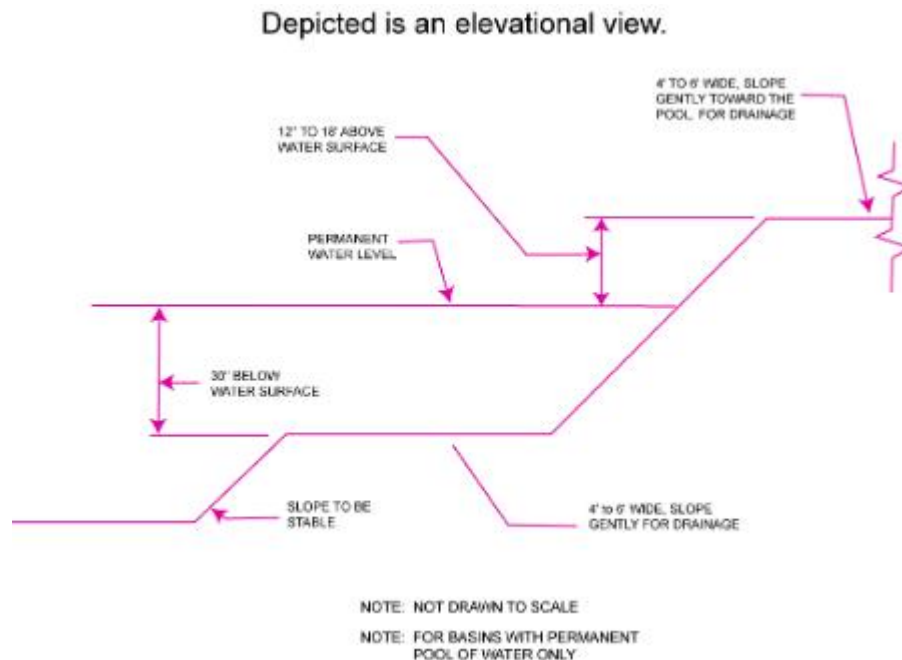
An emergency drawdown method for detention basins is required where the permanent pool will be more than 2 1/2 feet deep. This drawdown method must consider downstream or off-site stability at the outfall in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

C.

Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or department) that the variance or exemption will not constitute a threat to public safety.

D.

Illustration of safety ledges in a new stormwater management basin.



Requirements for site development stormwater plan.

A.

Submission of site development stormwater plan.

(1)

Whenever an applicant seeks municipal approval of a development subject to this chapter, the applicant shall submit all of the required components of the

checklist for the site development stormwater plan at Subsection [C](#) below as part of the submission of the applicant's application for subdivision or site plan approval.

[\(2\)](#)

The applicant shall demonstrate through the checklist requirements that the project meets the standards set forth in this chapter.

[\(3\)](#)

The applicant shall submit to the approving municipal authority the required number of copies of the materials listed in the checklist for site development stormwater plans in accordance with Subsection [C](#) of this section.

[B.](#)

Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought (the review agency). That review agency shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this chapter.

[C.](#)

Checklist requirements. The following information shall be required:

[\(1\)](#)

Existing site conditions base map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the existing site conditions base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale appropriate to show site details, showing two-foot contour intervals. The map as appropriate shall indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of Category One waters, wetlands and floodplains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and man-made features not otherwise shown. The following additional elements should be considered and presented as appropriate and in combinations sufficient to adequately indicate the existing site conditions and that of the surrounding environs.

[\(a\)](#)

Hydrology.

[\[1\]](#)

Perennial or intermittent streams as shown on the USGS 7.5 Minute Quadrangle Maps and as indicated in the Soil Survey of Hunterdon County, New Jersey.

[\[2\]](#)

Special water resource protection areas along all waters designated Category One at N.J.A.C. 7:9B and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys.

[\[3\]](#)

Wetlands, transition areas, NJDEP Linear Non-Tidal Wetlands, marshlands and NJDEP Letter of Interpretation findings.

[\[4\]](#)

FEMA flood data, one-hundred-year floodplains and floodways and New Jersey Flood Hazard Area.

[\[5\]](#)

Geometry of on-site drainage areas.

[\(b\)](#)

Boundaries and buffers.

[\[1\]](#)

Appropriate buffers to streams, rivers, wetlands, marshlands, ponds, lakes and other water bodies as specified in pertinent ordinances, rules, regulations, statutes or other provisions of law imposed by local, county, state or federal agencies.

[\[2\]](#)

Existing and proposed bearing and distances of property lines.

[\[3\]](#)

Existing and proposed conservation, maintenance, construction, reconstruction, sight, utility, drainage and right-of-way easements and dedications.

[\(c\)](#)

Vegetation and landscaping.

[\[1\]](#)

Pervious and vegetated surfaces, i.e., woodlands, grasslands and other significant natural features not listed if being utilized for LID credit.

[\[2\]](#)

Native and invasive stands of vegetation.

[\[3\]](#)

Vegetated suitable habitat for threatened and endangered species.

[\(d\)](#)

Geology and soils (as indicated in the Soil Survey of Hunterdon County).

[\[1\]](#)

Steep slopes, slopes of 10% or greater.

[\[2\]](#)

Soil types.

[\[3\]](#)

Highly erodible soils, with an erodibility factor (K) of .40 or less.

[\[4\]](#)

Drainage class and recharge potential.

[\[5\]](#)

Colloidal soils.

[\[6\]](#)

Depth to bedrock.

[\[7\]](#)

Seasonal high water table.

[\[8\]](#)

Soils subject to dynamic compaction and compacted soils.

[\[9\]](#)

Soil pH.

[\[10\]](#)

Shrink swell potential.

[\[11\]](#)

Deeply fractured bedrock.

[\[12\]](#)

Hardpans and plough pans.

[\(e\)](#)

Existing man-made structures and activities.

[\[1\]](#)

Existing buildings and significant permanent man-made features.

[\[2\]](#)

Roads by classification, parking areas and other impervious surfaces.

[\[3\]](#)

Bridges and culverts.

[\[4\]](#)

Utilities, subsurface and above ground.

[\[5\]](#)

Mining/quarry operations and blasting areas.

[\[6\]](#)

Acid or other hazardous runoff.

[\[7\]](#)

Areas of fill and buried debris.

[\[8\]](#)

Wellheads and associated groundwater withdrawal pipes, discharges and BMPs of existing stormwater utilities.

[\[9\]](#)

Groundwater mounding.

[\[10\]](#)

Septic systems and wells of adjacent lots.

[\[11\]](#)

Sanitary lines.

[\[12\]](#)

Previous land use (agricultural, industrial, commercial).

[\(2\)](#)

Environmental site analysis.

[\(a\)](#)

An environmental impact statement shall be prepared for the Planning Board or Board of Adjustment by the applicant at the applicant's expense and shall accompany all preliminary site plan and subdivision plats. This environmental impact statement shall consist of an inventory of on-site environmental conditions and an assessment of the probable impact of the development upon them. The environmental impact statement shall include a written and graphic description of the following:

[\[1\]](#)

Aquatic ecology including water conditions and aquatic populations.

[\[2\]](#)

Surface and subsurface hydrogeology.

[\[3\]](#)

Potable water supply.

[\[4\]](#)

Wetlands, woodlands, slopes, geology.

[\[5\]](#)

Soils and soil conditions, including capabilities and limitations.

[\[6\]](#)

Topography.

[\[7\]](#)

Vegetation, forested areas, suitable animal habitats.

[\[8\]](#)

Areas identified as suitable habitats for rare, threatened or endangered species.

[\[9\]](#)

Waterways.

[\[10\]](#)

Existing land use.

[\[11\]](#)

Any particular past or present use that involved the disposal of solid waste or toxic or hazardous materials, such as a dump, disposal site, or manufacturing operation, and how this past or present use relates to the site's aesthetics and history.

(b)

Particular attention should be given to unique, unusual, or environmentally critical areas and to those that provide particular opportunities or constraints for development. Water quality shall be described with reference to standards of the Department and soils shall be described with reference to Soil Conservation Service categories and characteristics.

(3)

Project description and site plan(s). A map (or maps) at a scale appropriate for the site indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.

(4)

Stormwater site planning and design summary. This plan shall provide a demonstration of how the goals and standards of Subsection C(3) through (6) are being met, including both nonstructural and structural approaches. The focus of this plan shall be to describe how the site is being managed or developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible. Refer to the West Amwell Township Stormwater Management Plan for additional requirements.

(5)

Stormwater Management Facilities Map(s). The following information, illustrated on a map at a scale appropriate for the site, shall be included:

(a)

Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, land area to remain in natural vegetation, and details of the proposed plan to infiltrate, manage, control and dispose of stormwater.

(b)

Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at

different levels of detention, and emergency spillway provisions with maximum discharge capacity of each spillway.

(6)

Calculations.

(a)

Comprehensive hydrologic and hydraulic design and discharge stability calculations for the pre-development and post-development conditions for the design storms specified in § [109-254](#) of this chapter.

(b)

When the proposed stormwater management control measures (e.g., infiltration basins) depend on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure. The municipality shall be notified of site investigation activities and given the opportunity to have a witness, either prior to approval or as a condition of approval, as appropriate for the specific type of measure. Subsequent to approval of the major development, post-construction bulk soil density and infiltration testing shall be required for all infiltration measures that were used as justification for meeting the recharge standard, to ensure that they were properly constructed.

(c)

The standards in N.J.A.C. 7:9A-6.4 through 7.9A-6.7 for on-site infiltration testing shall be adhered to.

(7)

Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of § [109-260](#).

(8)

Waiver from checklist requirements. The review agency may, in consultation with the municipal engineer, waive submission of any of the requirements in Subsections [C\(1\)](#) through [\(6\)](#) of this section when it can be demonstrated that the information requested would create a significant economic hardship on the applicant to obtain and its absence will not materially affect the review process.

Waivers from checklist requirements shall not be granted for major subdivisions as defined by § [109-4](#) of the West Amwell Township Land Use Code.

Maintenance and repair.

A.

Applicability. Projects subject to review pursuant to § [109-251C](#) of this chapter shall comply with the requirements of Subsections [B](#) and [C](#).

B.

General maintenance.

(1)

The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development. This plan shall be separate from all other documents, in a format suitable for recording in the County Clerk's office, and designed for ongoing use by the site owners or operators in performing and documenting maintenance and repair, and by the municipality in ensuring implementation of the maintenance plan. The maintenance plan shall be updated and provided to the municipality post-development to include an evaluation based on the specifications of the initial maintenance plan and as-built conditions subject to approval by the review agency.

(2)

The maintenance plan shall contain specific preventive maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal and disposal; safety needs; identification of methods and disposal sites for materials removed during maintenance; maintenance requirements for created wetlands and other ecological systems; safety devices and systems; warranty and operational standards from the manufacturers of any manufactured treatment devices (See § [109-256C](#).); and the name, address, and telephone number of the person or persons responsible for preventive and corrective maintenance (including replacement). Maintenance guidelines for stormwater management measures are available from sources listed in § [109-257](#), the West Amwell Township Stormwater Management Plan, the West Amwell Township Stormwater Pollution Prevention Plan and any relevant regional stormwater management plan. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for continuing maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of

the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

(3)

Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.

(4)

If the person responsible for maintenance identified under Subsection [B\(2\)](#) above is not a public agency, the maintenance plan and any future revisions based on Subsection [B\(7\)](#) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(5)

Preventive and corrective maintenance shall be performed to maintain the function of the stormwater management measures, including repairs or replacement to the structures; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.

(6)

The person responsible for maintenance identified under Subsection [B\(2\)](#) above shall maintain a detailed log of all preventive and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

(7)

The person responsible for maintenance identified under Subsection [B\(2\)](#) above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed. Such person shall file a written report with the Municipal Clerk annually, by February 1 of the following year. Such report shall address all the points under Subsection [B\(2\)](#).

(8)

The person responsible for maintenance identified under Subsection [B\(2\)](#) above shall retain, submit annually to the municipality and make available, upon request

by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Subsection [B\(6\)](#) and [\(7\)](#) above.

[\(9\)](#)

The requirements of Subsection [B\(3\)](#) and [\(4\)](#) do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency. In the event that any stormwater control structure is not dedicated to the Township, the developer shall post a five-year maintenance guarantee in accordance with N.J.S.A. 40:55D-53 to ensure continued proper maintenance and functioning of the system. The Zoning Officer shall verify the performance of the maintenance plan for a minimum of five years of time. Failure to satisfactorily implement an approved maintenance plan shall subject the landowner, applicant or developer to penalties up to and including revocation of a certificate of occupancy.

[\(10\)](#)

In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, or if the annual report is not received by February 1 of the following year, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have 14 days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County shall immediately proceed to do so and shall bill the cost thereof to the responsible person. West Amwell Township and/or Hunterdon County may attach a lien against the property for any maintenance and repair costs incurred under this provision.

[C.](#)

Maintenance guarantee. Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

[D.](#)

Right of access. The maintenance plan shall specifically provide a specific municipal right of access for inspection of measures, and for maintenance if required under Subsection [B\(10\)](#).

[Enforcement.](#)

The Zoning Officer is authorized to make site inspections and take such actions that are necessary in order to enforce the provisions of this article. A prompt investigation shall be made by the appropriate personnel of West Amwell of any person or entity believed to be in violation hereof. If, upon inspection, a condition which is in violation of this article is discovered, a civil action may be filed in the special part of the Superior Court, or in the Superior Court, if the primary relief sought is injunctive or if penalties may exceed the jurisdictional limit of the special civil part, by the filing and serving of appropriate process. Nothing in this article shall be construed to preclude the right of West Amwell pursuant to N.J.S.A. 26:3A2-25, to initiate legal proceedings hereunder in municipal court. The violation of any section or subsection of this article shall constitute a separate and distinct offense independent of the violation of any other section or subsection, or of any order issued pursuant to this article. Each day a violation continues shall be considered a separate offense.

Violations and penalties.

Any person, firm or corporation violating any provisions of this article shall, upon conviction, be subject to a fine of not less than \$100 nor more than \$2,000, a term of imprisonment not exceeding 90 days, or by a period of community service not exceeding 90 days, or any combination thereof for each violation, and in addition shall pay all costs and expenses involved in the case. Each day that any such violation continues after the expiration of an abatement notice or after initial construction, shall be deemed a distinct and separate offense. Nothing herein contained shall prevent the Township from taking such other lawful action as is necessary to prevent or remedy any violation.

When effective.

This article shall take effect immediately upon the approval by the county review agency, or 60 days from the receipt of the article by the Hunterdon County Planning Board if the Hunterdon County Planning Board, as county review agency, should fail to act.