



# BOROUGH OF HADDONFIELD

Camden County, New Jersey

March 9, 2021

2021-02

## AN ORDINANCE OF THE BOROUGH OF HADDONFIELD, COUNTY OF CAMDEN AND STATE OF NEW JERSEY AMENDING CHAPTER 135 REGARDING STORMWATER MANAGEMENT OF THE CODE OF THE BOROUGH OF HADDONFIELD

**BE IT ORDAINED** by the Borough Commissioners of the Borough of Haddonfield, County of Camden and State of New Jersey, that the Code of the Borough of Haddonfield ("Code") is hereby amended as follows:

### SECTION I

1. Chapter §135-10 entitled "Definitions", in Article II entitled "Definitions" of the Land Development Chapter is hereby amended as follows:

**COVERAGE, IMPERVIOUS (replaces "coverage, hard surface" here and anywhere else in this chapter where appropriate)**

**The square footage or other area measurement upon a lot as measured in a horizontal plane to include all buildings, parking lots, patios, driveways, sidewalks, walkways, stairs, chimneys, pools, decks, and other inorganic impervious surfaces that are highly resistant to infiltration by water, regardless of void ratios.**

2. Chapter §135-92 entitled "Stormwater Management", in Article IX entitled "Site Design Standards" of the Land Development Chapter is hereby amended as follows:

A. Scope, purpose and applicability.

(1) ~~Policy statement. Stormwater systems shall emphasize a natural as opposed to an engineered approach. Flood control, groundwater recharge, and pollutant reduction through nonstructural or low impact techniques shall be explored before relying on engineered or "structural" best management practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.~~ **Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies.**



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**GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.**

- (2) Purpose. It is the purpose of this section to establish minimum stormwater management requirements and controls for all development, with the exception of additions and renovations to single-family homes that do not increase existing impervious coverage by more than 20%, which conform to the Land Development Ordinance of the Borough of Haddonfield.
- (3) Applicability.
  - (a) This section shall be applicable to all site plans or subdivisions that require site plan review and the following:
    - [1] Nonresidential developments; and
    - [2] Aspects of residential developments that are not preempted by the Residential Site Improvement Standards at N.J.A.C. 5:21.
  - (b) This section shall also be applicable to all projects undertaken by the Borough of Haddonfield.
  - (c) All new homes and commercial buildings requiring a building permit issued by the Borough of Haddonfield.
  - (d) All additions and renovations that increase existing impervious coverage by more than 20%.
- (4) Compatibility with other permit and ordinance requirements.
  - (a) Approvals issued pursuant to this section are to be considered an integral part of the approvals 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 section shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This section is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute,



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or other provision of law, except that where any provision of this section imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

- (b) Aspects of stormwater management system design and placement not preempted by this section shall be in accordance with the Residential Site Improvement Standards at N.J.A.C. 5:21.

- B. ~~Definitions. Unless specifically defined below, words or phrases used in this section shall be interpreted so as to give them the meaning they have in common usage and to give this section its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.~~ **For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.**

#### CAFRA CENTERS, CORES OR NODES

~~Those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.~~ **Means those areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.**

#### CAFRA PLANNING MAP

~~The geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.~~ **Means the map used by the Department to identify the location of Coastal Planning Areas, CAFRA centers, CAFRA cores, and CAFRA nodes. The CAFRA Planning Map is available on the Department's Geographic Information System (GIS).**

#### COMMUNITY BASIN

**Means an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond, established in accordance with N.J.A.C. 7:8-4.2(c)14, that is designed and constructed in accordance with the New Jersey Stormwater Best Management Practices Manual, or an alternate design, approved in accordance with N.J.A.C. 7:8-5.2(g), for an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond and that complies with the requirements of this chapter.**

#### COMPACTION

The increase in soil bulk density.



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## **CONTRIBUTORY DRAINAGE AREA**

**Means the area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.**

## CORE

A pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

## COUNTY REVIEW AGENCY

An agency designated by the County Board of ~~Chosen~~ **Freeholders Commissioners** to review municipal stormwater management plans and implementing ordinances. The County review agency may either be:

- (1) A County planning agency; or
- (2) A County water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

## DEPARTMENT

The New Jersey Department of Environmental Protection.

## DESIGNATED CENTER

A State Development and Redevelopment Plan Center as designated by the State Planning Commission, such as urban, regional, town, village, or hamlet.

## 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 designs 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.

## **DISTURBANCE**

**Means the placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Milling and repaving is not considered disturbance for the purposes of this definition.**



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## DRAINAGE AREA

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

## EMPOWERMENT NEIGHBORHOOD

A neighborhood designated by the Urban Coordinating Council in consultation and conjunction with the New Jersey Redevelopment Authority pursuant to N.J.S.A. 55:19-69.

## ENVIRONMENTALLY CONSTRAINED AREA

**Means the following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.**

## ENVIRONMENTALLY CRITICAL AREA

An area or feature which is of significant environmental value, including, but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using 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.

## GREEN INFRASTRUCTURE

**Means a stormwater management measure that manages stormwater close to its source by:**

- (1) Treating stormwater runoff through infiltration into subsoil;
- (2) Treating stormwater runoff through filtration by vegetation or soil; or
- (3) Storing stormwater runoff for reuse.

## HUC 14 or HYDROLOGIC UNIT CODE 14

**Means an area within which water drains to a particular receiving surface water body, also known as a sub-watershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey**



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## IMPERVIOUS SURFACE

A surface as defined in §135-10 of the Land Development Ordinance

## INFILTRATION

The process by which water seeps into the soil from precipitation.

## LEAD PLANNING AGENCY

**Means one or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.**

## MAJOR DEVELOPMENT

~~Any development that provides for ultimately disturbing one or more acres of land. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.~~ **Means an individual “development,” as well as multiple developments that individually or collectively result in:**

- (1) **The disturbance of one or more acres of land since February 2, 2004;**
- (2) **The creation of one-quarter acre or more of “regulated impervious surface” since February 2, 2004;**
- (3) **The creation of one-quarter acre or more of “regulated motor vehicle surface” since March 2, 2021 {or the effective date of this ordinance, whichever is earlier}; or**
- (4) **A combination of 2 and 3 above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.**

**Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of paragraphs 1, 2, 3, or 4 above. Projects undertaken by any government agency that otherwise meet the definition of “major development” but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered “major development.”**

## MOTOR VEHICLE

**Means land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low speed vehicles. For the purposes of this definition, motor vehicle does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.**



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## **MOTOR VEHICLE SURFACE**

**Means any pervious or impervious surface that is intended to be used by “motor vehicles” and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.**

## **MUNICIPALITY**

Any city, borough, town, township, or village.

## **NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES (BMP) MANUAL or BMP MANUAL**

**Means the manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department’s determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with Section D(6) and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.**

## **NODE**

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

## **NUTRIENT**

A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

## **PERSON**

Any individual, corporation, company, partnership, firm, association, Borough of Haddonfield or 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,



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industrial, municipal, agricultural, 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.

## RECHARGE

The amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

## REGULATED IMPERVIOUS SURFACE

means any of the following, alone or in combination:

- (1) A net increase of impervious surface;
- (2) The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a "new stormwater conveyance system" is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);
- (3) The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or
- (4) The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

## REGULATED MOTOR VEHICLE SURFACE

Means any of the following, alone or in combination:

- (1) The total area of motor vehicle surface that is currently receiving water;
- (2) A net increase in motor vehicle surface; and/or quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

## SEDIMENT

Solid material, mineral or organic, that is in suspension, 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 development is to occur or has occurred.

## SOIL

All unconsolidated mineral and organic material of any origin.



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## STATE DEVELOPMENT AND REDEVELOPMENT PLAN METROPOLITAN PLANNING AREA (PA1)

An area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

## STATE PLAN POLICY MAP

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 BMP

An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management BMP 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 (most constructed stormwater wetlands).

## 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 nonstormwater discharges into stormwater conveyances.~~ **Means any 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

Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

## STORMWATER MANAGEMENT PLANNING AGENCY

**Means a public body authorized by legislation to prepare stormwater management plans.**

## STORMWATER MANAGEMENT PLANNING AREA

**Means the geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.**



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## TIDAL FLOOD HAZARD AREA

A flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean. **Means a flood hazard area in which the flood elevation resulting from the two-, 10-, or 100-year storm, as applicable, is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal flood hazard area may be contributed to, or influenced by, stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources. In some situations, depending upon the extent of the storm surge from a particular storm event, a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events.**

## URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD

A neighborhood given priority access to state resources through the New Jersey Redevelopment Authority.

## URBAN ENTERPRISE ZONES

A zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et seq.

## URBAN REDEVELOPMENT AREA

Previously developed portions of areas:

- (1) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
- (2) Designated as CAFRA Centers, Cores or Nodes;
- (3) Designated as Urban Enterprise Zones; and
- (4) Designated as Urban Coordinating Council Empowerment Neighborhoods.

## WATER CONTROL STRUCTURE

**Means a structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flood elevation resulting from the two-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.**

## WATERS OF THE STATE

The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface water 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."



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C. Design and performance standards for stormwater management measures.

~~(1) Stormwater management measures shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in Subsection D. 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.~~

**(1) Stormwater management measures for development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment as follows:**

**(a) The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90.**

**(b) The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure**

(2) The standards in this section 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 new covered 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.

(3) Any stormwater, rainwater or groundwater directed to the outside of the property by gravity or mechanical means shall drain onto the private property as to not cause a hazard or other type of condition that would affect pedestrians, sidewalks, Borough right-of-way or streets. No sump pump outlet, gutter or roof leader shall drain or be pumped directly or indirectly onto the sidewalk or public street. A sump pump outlet, gutter or roof leader shall be terminated within the area of the lot on which it is located and shall not discharge onto adjoining properties. A sump pump shall not discharge water, either directly or indirectly, into the sanitary sewer system. [Added 6-25-2019 by Ord. No. 2019-13]

(a) Sump pump outlets, gutters or roof leaders must terminate at least 10 feet from front and rear lot lines and five feet from side lot lines.



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- (b) Exemptions: Lots located fronting Kings Highway from Grove Street to the PATCO Line and lots fronting Haddon Avenue shall be exempt from § 135-92C(3). The exemption is only for existing structures. New construction must comply with stormwater management measures in § 135-92C.

## D. Stormwater management requirements.

- (1) All major developments and any development that includes installation of a stormwater maintenance system shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of the proposed development in accordance with Subsection J. Maintenance plans for all other development shall be at the direction of the Director of Community Development. [Amended 6-13-2017 by Ord. No. 2017-08]
- (2) All proposed stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).
- (3) The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsection D(16) and D(17):
  - (a) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;
  - (b) The construction of an above ground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and
  - (c) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.
- (4) A waiver from strict compliance from the **green infrastructure**, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Subsection D(15), D(16) and D(17) may be obtained for the enlargement of an existing public roadway or railroad, or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:



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- (a) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
  - (b) The applicant demonstrates, through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Subsection D(15), D(16) and D(17) to the maximum extent practicable;
  - (c) The applicant demonstrates that, in order to meet the requirements of Subsection D(15), D(16) and D(17), existing structures currently in use, such as homes and buildings, would need to be condemned; and
  - (d) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under Subsection D(4)(c) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Subsection D(15), D(16) and D(17) that were not achievable on-site.
- (5) **Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in Subsection D(15), D(16) and D(17). When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2 (f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at: [https://njstormwater.org/bmp\\_manual2.htm](https://njstormwater.org/bmp_manual2.htm).**
- (6) **Where the BMP tables in the NJ Stormwater Management Rule are different due to updates or amendments with the tables in this ordinance the BMP Tables in the Stormwater Management rule at N.J.A.C. 7:8-5.2(f) shall take precedence.**



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<b>Table 1</b> <b>Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity</b>				
Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High-Water Table (feet)
Cistern	0	Yes	No	--
Dry Well <sup>(a)</sup>	0	No	Yes	2
Grass Swale	50 or less	No	No	2 <sup>(e)</sup> 1 <sup>(f)</sup>
Green Roof	0	Yes	No	--
Manufactured Treatment Device <sup>(a) (g)</sup>	50 or 80	No	No	Dependent upon the device
Pervious Paving System <sup>(a)</sup>	80	Yes	Yes <sup>(b)</sup> No <sup>(c)</sup>	2 <sup>(b)</sup> 1 <sup>(c)</sup>
Small-Scale Bioretention Basin <sup>(a)</sup>	80 or 90	Yes	Yes <sup>(b)</sup> No <sup>(c)</sup>	2 <sup>(b)</sup> 1 <sup>(c)</sup>
Small-Scale Infiltration Basin <sup>(a)</sup>	80	Yes	Yes	2
Small-Scale Sand Filter	80	Yes	Yes	2
Vegetative Filter Strip	60-80	No	No	--

*(Notes corresponding to annotations <sup>(a)</sup> through <sup>(g)</sup> are found after Table 3)*



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<b>Table 2</b> <b>Green Infrastructure BMPs for Stormwater Runoff Quantity</b> <b>(or for Groundwater Recharge and/or Stormwater Runoff Quality</b> <b>with a Waiver or Variance from N.J.A.C. 7:8-5.3)</b>				
<b>Best Management Practice</b>	<b>Stormwater Runoff Quality TSS Removal Rate (percent)</b>	<b>Stormwater Runoff Quantity</b>	<b>Groundwater Recharge</b>	<b>Minimum Separation from Seasonal High Water Table (feet)</b>
<b>Bioretention System</b>	<b>80 or 90</b>	<b>Yes</b>	<b>Yes<sup>(b)</sup> No<sup>(c)</sup></b>	<b>2<sup>(b)</sup> 1<sup>(c)</sup></b>
<b>Infiltration Basin</b>	<b>80</b>	<b>Yes</b>	<b>Yes</b>	<b>2</b>
<b>Sand Filter<sup>(b)</sup></b>	<b>80</b>	<b>Yes</b>	<b>Yes</b>	<b>2</b>
<b>Standard Constructed Wetland</b>	<b>90</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Wet Pond<sup>(d)</sup></b>	<b>50-90</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>

*(Notes corresponding to annotations <sup>(b)</sup> through <sup>(d)</sup> are found after Table 3)*



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<b>Table 3</b> <b>BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or</b> <b>Stormwater Runoff Quantity</b> <b>only with a Waiver or Variance from N.J.A.C. 7:8-5.3</b>				
<b>Best Management Practice</b>	<b>Stormwater Runoff Quality TSS Removal Rate (percent)</b>	<b>Stormwater Runoff Quantity</b>	<b>Groundwater Recharge</b>	<b>Minimum Separation from Seasonal High Water Table (feet)</b>
Blue Roof	0	Yes	No	N/A
Extended Detention Basin	40-60	Yes	No	1
Manufactured Treatment Device <sup>(h)</sup>	50 or 80	No	No	Dependent upon the device
Sand Filter <sup>(c)</sup>	80	Yes	No	1
Subsurface Gravel Wetland	90	No	No	1
Wet Pond	50-90	Yes	No	N/A

Notes to Tables 1, 2, and 3:

- (a) subject to the applicable contributory drainage area limitation specified at Section D915(b);
- (b) designed to infiltrate into the subsoil;
- (c) designed with underdrains;
- (d) designed to maintain at least a 10-foot-wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;
- (e) designed with a slope of less than two percent;
- (f) designed with a slope of equal to or greater than two percent;
- (g) manufactured treatment devices that meet the definition of green infrastructure at Section B;
- (h) manufactured treatment devices that do not meet the definition of green infrastructure at Section B.



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- (7) An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Section F(2). Alternative stormwater management measures may be used to satisfy the requirements at Section D(15) only if the measures meet the definition of green infrastructure at Section B. Alternative stormwater management measures that function in a similar manner to a BMP listed at Section D(15)(b) are subject to the contributory drainage area limitation specified at Section D(15)(b) for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Section D(15)(b) shall have a contributory drainage area less than or equal to 2.5 acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section D(4) is granted from Section D(15).
- (8) Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site, so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high-water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.
- (9) Design standards for stormwater management measures are as follows:

  - (a) Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high-water table; soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone);



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- (b) Stormwater management measures shall be designed to minimize maintenance, 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 one-third the width of the diameter of the orifice or one-third 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 Section H(2);
  - (c) Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. 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;
  - (d) Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at Section H; and
  - (e) The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half inches in diameter.
- (10) Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section II may be used only under the circumstances described at Section D(15)(d).
- (11) Any application for a new agricultural development that meets the definition of major development at Section B shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Sections D(15), D(16) and D(17) and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.



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- (12) If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section D(16) and D(17) shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.
- (13) Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the Office of the Camden County Clerk. A form of deed notice shall be submitted to the A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Sections D(15), D(16) and D(17) and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to Section J(2)(d). Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality. Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within 180 calendar days of the authorization granted by the municipality.
- (14) A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section D of this ordinance and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the Office of the Camden County Clerk and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with (13) above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with (13) above.



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## (15) Green Infrastructure Standards

- (a) This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.
- (b) To satisfy the groundwater recharge and stormwater runoff quality standards at Section D(16) and D(17), the design engineer shall utilize green infrastructure BMPs identified in Table 1 at Section D(6), and/or an alternative stormwater management measure approved in accordance with Section D(7). The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

Best Management Practice	Maximum Contributory Drainage Area
Dry Well	1 acre
Manufactured Treatment Device	2.5 acres
Pervious Pavement Systems	Area of additional inflow cannot exceed three times the area occupied by the BMP
Small-scale Bioretention Systems	2.5 acres
Small-scale Infiltration Basin	2.5 acres
Small-scale Sand Filter	2.5 acres

- (c) To satisfy the stormwater runoff quantity standards at Section D(17)(c), the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Section D(7).
- (d) If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section D(4) is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with Section D(7) may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section D(16) and D(17).



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- (e) For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right-of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Section D(16) and D(17), unless the project is granted a waiver from strict compliance in accordance with Section D(4).

~~(5) Nonstructural stormwater management strategies:~~

~~(a) To the maximum extent practicable, the standards in Subsection D(6) and D(7) shall be met by incorporating nonstructural stormwater management strategies as set forth in this subsection into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in Subsection D(5)(b) below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.~~

~~(b) Nonstructural stormwater management strategies incorporated into site design shall:~~

~~[1] Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;~~

~~[2] Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;~~

~~[3] Maximize the protection of natural drainage features and vegetation;~~

~~[4] Minimize the decrease in the time of concentration from preconstruction to postconstruction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;~~



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~~[5] — Minimize land disturbance including clearing and grading;~~

~~[6] — Minimize soil compaction;~~

~~[7] — Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;~~

~~[8] — Provide vegetated open channel conveyance systems discharging into and through stable vegetated areas;~~

~~[9] — Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:~~

~~[a] — Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Subsection D(5)(c);~~

~~[b] — Site design features that help to prevent discharge of trash and debris from drainage systems;~~

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

~~[d] — When establishing vegetation after land disturbance, applying fertilizer 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.~~

~~(c) — Site design features identified under Subsection D(5)(b)[9][b] shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this subsection, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids.~~

~~[1] — Grates.~~

~~[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~~



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~~into a storm drain or surface water body under that grate:~~

~~[i] 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~~

~~[ii] 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] Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.~~

~~[2] 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.~~

~~[3] This standard does not apply:~~

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

~~[b] Where flows from the water quality design storm 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:~~



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~~[i] — A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or~~

~~[ii] — A bar screen having a bar spacing of 0.5 inch.~~

~~[c] — 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; or~~

~~[d] — Where the New Jersey Department of Environmental Protection determines, pursuant to 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.~~

~~(d) — Any land area used as a nonstructural stormwater management measure to meet the performance standards in Subsection D(6) and D(7) shall be dedicated to a government agency, subjected to a conservation restriction filed with the appropriate County Clerk's office, or subject to an approved equivalent restriction that ensures that the measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.~~

~~(e) — Guidance for nonstructural stormwater management strategies is available in the most recent version of the New Jersey Stormwater Best Management Practices Manual.~~

**(6 16)** Erosion control, groundwater recharge and runoff quantity standards.

(a) Erosion Control. The minimum design and performance standards for soil erosion control are as follows:

[1] 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.

[2] Soil erosion and sediment controls shall be required for all development. For development not covered under this section, soil erosion and sediment control shall be at the direction of the Director of Community Development.



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- (b) Groundwater recharge. The minimum design and performance standards for groundwater recharge for all development are as follows:
- [1] The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Subsection E, either:
    - [a] Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or
    - [b] Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to postconstruction for the two-year storm is infiltrated.
  - [2] This groundwater recharge requirement does not apply to the following projects:
    - [a] Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; 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; 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; and
    - [b] Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial



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machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

**[c] This groundwater recharge requirement does not apply to projects within the “urban redevelopment area”.**

[3] The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high-water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or downgradient of the groundwater recharge area.

[4] The design of all proposed infiltration measures shall be based on on-site boring logs or soil pit profiles as witnessed by the Borough Engineer. The number and location of required soil borings or soil pits shall be reviewed by the Borough Engineer and should be based on the suitability and distribution of soils present at the location of the proposed infiltration measure. The results of all soil borings, including the location of the boring and all elevation data, shall be included in a separate soils report or included on the project plans.

(c) Runoff quantity standards. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Subsection E, complete one of the following:

[1] Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, postconstruction runoff hydrographs for the two-, ten-, and one-hundred-year storm events do not exceed, at any point in time, the preconstruction runoff hydrographs for the same storm events;

[2] Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the preconstruction condition, in the peak runoff rates of stormwater leaving the site for the two-, ten-, and one-hundred-year storm events and that the increased volume or change in timing of



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stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

[3] Design stormwater management measures so that the postconstruction peak runoff rates for the two-, ten-, and one-hundred-year storm events are 50%, 75%, and 80%, respectively, of the preconstruction peak runoff rates. The percentages apply only to the postconstruction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. ~~The percentages shall not be applied to postconstruction stormwater runoff into tidal flood hazard areas if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or~~

[4] In tidal flood hazard areas, or as directed by the Director of Community Development, stormwater runoff quantity analysis ~~shall be~~ in accordance with Subsection D(16)(c)[3] above **is required unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of the stormwater runoff, or any combination of the three will not result in additional flood damage below the point of discharge of the major development. No analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure.**

(d) **The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.**

## **(7 17) Stormwater Runoff Quality Standards**

~~(a) Stormwater management measures shall be designed to reduce the postconstruction 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 only be required for water quality control if an additional 1/4 acre of impervious surface is being proposed on a development site. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric~~



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~~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. The water quality design storm is 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. 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~~

<del>Time (minutes)</del>	<del>Cumulative Rainfall (inches)</del>	<del>Time (minutes)</del>	<del>Cumulative Rainfall (inches)</del>
<del>0</del>	<del>0.0000</del>	<del>65</del>	<del>0.8917</del>
<del>5</del>	<del>0.0083</del>	<del>70</del>	<del>0.9917</del>
<del>10</del>	<del>0.0166</del>	<del>75</del>	<del>1.0500</del>
<del>15</del>	<del>0.0250</del>	<del>80</del>	<del>1.0840</del>
<del>20</del>	<del>0.0500</del>	<del>85</del>	<del>1.1170</del>
<del>25</del>	<del>0.0750</del>	<del>90</del>	<del>1.1500</del>
<del>30</del>	<del>0.1000</del>	<del>95</del>	<del>1.1750</del>
<del>35</del>	<del>0.1330</del>	<del>100</del>	<del>1.2000</del>
<del>40</del>	<del>0.1660</del>	<del>105</del>	<del>1.2250</del>
<del>45</del>	<del>0.2000</del>	<del>110</del>	<del>1.2334</del>
<del>50</del>	<del>0.2583</del>	<del>115</del>	<del>1.2417</del>
<del>55</del>	<del>0.3583</del>	<del>120</del>	<del>1.2500</del>
<del>60</del>	<del>0.6250</del>		

~~(b) For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The most recent version of the BMP Manual may be obtained from New Jersey Department of Environmental Protection. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department of Environmental Protection.~~

**This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development.**



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Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface.

- (a) Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:
  - [1] Eighty percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface.
  - [2] If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.
- (b) 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 Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with 2 above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.
- (c) The water quality design storm is 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 4, below. The calculation of the volume of runoff may take into account the implementation of stormwater management measures.



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Table 4 Water Quality Design Storm Distribution					
Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (inches)
1	0.00166	41	0.1728	81	1.0906
2	0.00332	42	.01796	82	1.0972
3	0.00498	43	0.1864	83	1.1038
4	0.00664	44	0.1932	84	1.1104
5	0.00830	45	0.2000	85	1.1170
6	0.00996	46	0.2117	86	1.1236
7	0.01162	47	0.2233	87	1.1302
8	0.01328	48	0.2350	88	1.1368
9	0.01494	49	0.2466	89	1.1434
10	0.01660	50	0.2583	90	1.1500
11	0.01828	51	0.2783	91	1.1550
12	0.01996	52	0.2983	92	1.1600
13	0.02164	53	0.3183	93	1.1650
14	0.02332	54	0.3383	94	1.1700
15	0.02500	55	0.3583	95	1.1750
16	0.03000	56	0.4116	96	1.1800
17	0.03500	57	0.4650	97	1.1850
18	0.04000	58	0.5183	98	1.1900
19	0.04500	59	0.5717	99	1.1950
20	0.05000	60	0.6250	100	1.2000
21	0.05500	61	0.6783	101	1.2050
22	0.06000	62	0.7317	102	1.2100
23	0.06500	63	0.7850	103	1.2150
24	0.07000	64	0.8384	104	1.2200
25	0.07500	65	0.8917	105	1.2250
26	0.08000	66	0.9117	106	1.2267
27	0.08500	67	0.9317	107	1.2284
28	0.09000	68	0.9517	108	1.2300
29	0.09500	69	0.9717	109	1.2317
30	0.10000	70	0.9917	110	1.2334
31	0.10660	71	1.0034	111	1.2351
32	0.11320	72	1.0150	112	1.2367
33	0.11980	73	1.0267	113	1.2384
34	0.12640	74	1.0383	114	1.2400
35	0.13300	75	1.0500	115	1.2417
36	0.13960	76	1.0568	116	1.2434
37	0.14620	77	1.0636	117	1.2450
38	0.15280	78	1.0704	118	1.2467
39	0.15940	79	1.0772	119	1.2483
40	0.16600	80	1.0840	120	1.2500



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- (e d) If more than one BMP in series is necessary to achieve the required 80 percent TSS reduction 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 from application of both BMPs

A = TSS percent removal rate applicable to the first BMP

B = TSS percent removal rate applicable to the second BMP

Table 2: TSS Removal Rates for BMPs

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 Subsection F(3)
Sand filter	80%
<del>Vegetative filter strip</del>	<del>60% to 80%</del>
<del>Wet pond</del>	<del>50% to 90%</del>

- (d e) If there is more than one on-site drainage area, the eighty-percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.
- (e f) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the postconstruction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include **green infrastructure BMPs** ~~nonstructural strategies and structural measures~~ that optimize nutrient removal while still achieving the performance standards in Subsection D(16) and D(17).
- (g) 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 to waters classified as FW1.



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- (h) **The Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-4.1(c)1 establish 300-foot riparian zones along Category One waters, as designated in the Surface Water Quality Standards at N.J.A.C. 7:9B, and certain upstream tributaries to Category One waters. A person shall not undertake a major development that is located within or discharges into a 300-foot riparian zone without prior authorization from the Department under N.J.A.C. 7:13.**
- (i) **Pursuant to the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-11.2(j)3.i, runoff from the water quality design storm that is discharged within a 300-foot riparian zone shall be treated in accordance with this subsection to reduce the post-construction load of total suspended solids by 95 percent of the anticipated load from the developed site, expressed as an annual average.**
- (j) **This stormwater runoff quality standards do not apply to the construction of one individual single-family dwelling, provided that it is not part of a larger development or subdivision that has received preliminary or final site plan approval prior to December 3, 2018, and that the motor vehicle surfaces are made of permeable material(s) such as gravel, dirt, and/or shells.**

E. Calculation of stormwater runoff and groundwater recharge.

- (1) Stormwater runoff shall be calculated in accordance with the following:
  - (a) The design engineer shall calculate runoff using one of the following methods:

[1] ~~The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 — Hydrology and Technical Release 55 — Urban Hydrology for Small Watersheds; or~~ **The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15 and 16 Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in *Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55)*, dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at:**



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[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1044171.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf)

or at United States Department of Agriculture Natural Resources Conservation Service, 220 Davison Avenue, Somerset, New Jersey 08873; or

- [2] ~~The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.~~ **The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, January 2014. This document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)3. The location, address, and telephone number for each Soil Conservation District is available from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625. The document is also available at:**

<http://www.nj.gov/agriculture/divisions/anr/pdf/2014NJSoilErosionControlStandardsComplete.pdf>.

- [3] ~~As directed by the Borough Engineer, the Rational Method Triangular Hydrography Approximation may be used to calculate the volume of stormwater runoff for sites less than one acre.~~

- (b) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the preconstruction condition of a site is a wooded land use with good hydrologic condition, unless otherwise directed by the Borough Engineer. The term "runoff coefficient" applies to both the NRCS methodology and the Rational and Modified Rational Methods. **A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application.** If more than one land cover has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations, unless otherwise directed by the Borough Engineer. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good



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cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

- (c) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce preconstruction stormwater runoff rates and volumes.
- (d) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55 - Urban Hydrology for Small Watersheds and other methods may be employed.
- (e) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

(2) Groundwater recharge may be calculated in accordance with the following:

- (a) The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the ~~New Jersey Department of Environmental Protection~~. **New Jersey Stormwater Best Management Practices Manual; at the New Jersey Geological Survey website at:**

<https://www.nj.gov/dep/njgs/pricelst/gsreport/gsr32.pdf>

or at New Jersey Geological and Water Survey, 29 Arctic Parkway, PO Box 420 Mail Code 29-01, Trenton, New Jersey 08625-0420.

~~F. Standards for structural stormwater management measures.~~

~~(1) Standards for structural stormwater management measures are as follows:~~



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- ~~(a) Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).~~
- ~~(b) Structural stormwater management measures shall be designed to minimize maintenance, 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 Subsection H.~~
- ~~(c) Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. 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.~~
- ~~(d) At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half inches in diameter.~~
- ~~(e) Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at Subsection H(2).~~
- ~~(2) Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized, provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by Subsection D of this section.~~
- ~~(3) Manufactured treatment devices may be used to meet the requirements of Subsection D of this section, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.~~



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## Ⓔ F. Sources for technical guidance.

~~(1) — Technical guidance for stormwater management measures can be found in the documents listed at Subsection G(1)(a) and (b) below, which are available from the New Jersey Department of Environmental Protection.~~

~~(a) — 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.~~

~~(b) — The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.~~

~~(2) — Additional technical guidance for stormwater management measures can be obtained from the following:~~

~~(a) — 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.~~

~~(b) — The Rutgers Cooperative Extension Service~~

~~(c) — 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.~~

**(1) Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the Department's website at:**

**[http://www.nj.gov/dep/stormwater/bmp\\_manual2.htm](http://www.nj.gov/dep/stormwater/bmp_manual2.htm).**

**(a) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3.**



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- (b) Additional maintenance guidance is available on the Department's website at:

[https://www.njstormwater.org/maintenance\\_guidance.htm](https://www.njstormwater.org/maintenance_guidance.htm).

- (2) Submissions required for review by the Department should be mailed to:

The Division of Water Quality, New Jersey Department of Environmental Protection, Mail Code 401-02B, PO Box 420, Trenton, New Jersey 08625-0420.

## G. Solids and Floatable Materials Control Standards:

- (1) Site design features identified under Section D(6) above, or alternative designs in accordance with Section D(7) above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section G(1)(b) below.

- (a) Design engineers shall use one 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; or

[2] A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension.

Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater system floors used to collect stormwater from the surface into a storm drain or surface water body.



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[3] For curb-opening inlets, including curb-opening inlets in combination inlets, 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 (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

(b) The standard in A.1. above does not apply:

[1] Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;

[2] Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;

[3] Where flows from the water quality design storm as specified in N.J.A.C. 7:8 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 four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or

[b] A bar screen having a bar spacing of 0.5 inches.

Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development (N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1).

[4] Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or

[5] Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet



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**this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.**

H. Safety standards for stormwater management basins.

(1) This subsection sets forth requirements to protect public safety through the proper design and operation of stormwater management basins **BMPs**. This subsection applies to any new stormwater management basin **BMP**.

**(a) The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management BMPs. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of the safety standards in Section H(2)(a), H(2)(b) and H(2)(c) for trash racks, overflow grates, and escape provisions at outlet structures.**

(2) Requirements for trash racks, overflow grates and escape provisions.

(a) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin **BMP** to ensure proper functioning of the basin **BMP** outlets in accordance with the following:

[1] The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars.

[2] The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

[3] The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

[4] 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.

(b) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:



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- [1] The overflow grate shall be secured to the outlet structure but be removable for emergencies and maintenance.
  - [2] The overflow grate spacing shall be no less than two inches across the smallest dimension.
  - [3] 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.
- (c) For purposes of this subsection, "escape provisions" means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management ~~basin~~ **BMP**. Stormwater management ~~basin~~ **BMP** shall include escape provisions as follows:
- [1] If a stormwater management ~~basin~~ **BMP** has an outlet structure, escape provisions shall be incorporated in or on the structure. ~~With the prior approval of the reviewing agency identified in Subsection H(3) a freestanding outlet structure may be exempted from this requirement.~~ **Escape provisions include the installation of permanent ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMPs. With the prior approval of the municipality pursuant to VIII.C, a free-standing outlet structure may be exempted from this requirement;**
  - [2] Safety ledges shall be constructed on the slopes of all new stormwater management ~~basin~~ **BMP** 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 feet 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 H(4) for an illustration of safety ledges in a stormwater management ~~basin~~ **BMP; and**
  - [3] In new stormwater management ~~basin~~ **BMP**, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical.
- (3) Variance or exemption from safety standards. A variance or exemption from the safety standards for stormwater management ~~basin~~ **BMP** may be granted only upon a written finding by the appropriate reviewing agency



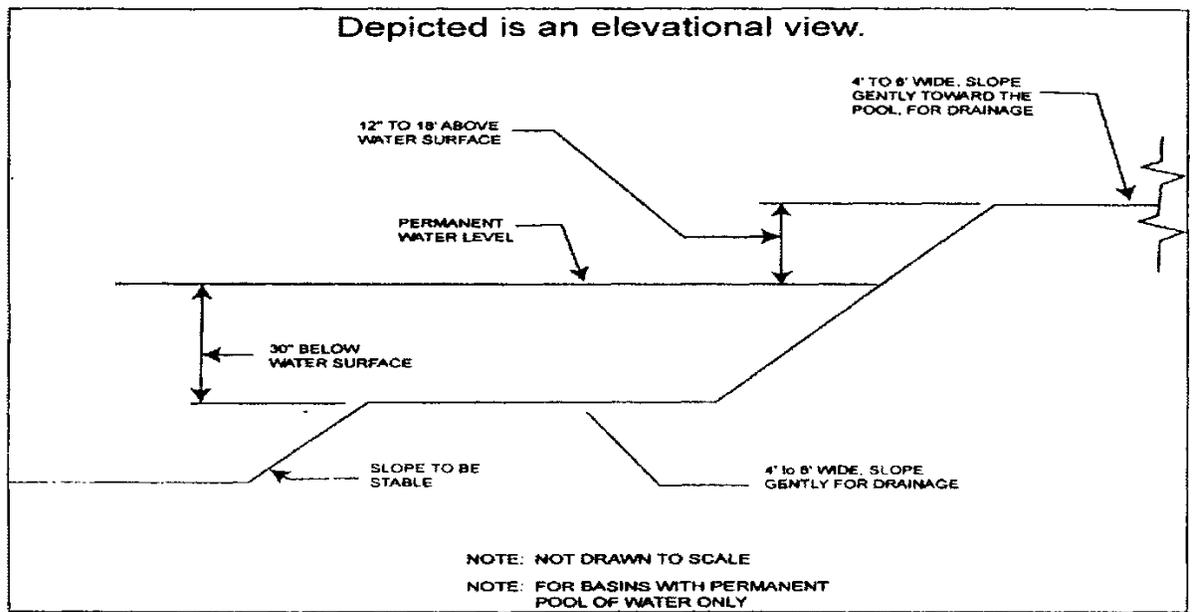
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(municipality, County or Department) that the variance or exemption will not constitute a threat to public safety.

- (4) Illustration of safety ledges in a new stormwater management basin.



- I. Requirements for a site development stormwater plan.

- (1) Submission of site development stormwater plan.

- (a) Whenever an applicant seeks municipal approval of a development under Subsection D(1) or as directed by the Director of Community Development, the applicant shall submit all of the required components of the checklist for the Site Development Stormwater Plan at Subsection I(3). [Amended 6-13-2017 by Ord. No. 2017-08]
- (b) The applicant shall demonstrate that the project meets the standards set forth in this section.
- (c) The applicant shall submit five copies of the materials listed in the checklist for the Site Development Stormwater Plan. [Amended 6-13-2017 by Ord. No. 2017-08]

- (2) Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the subdivision application, site plan review process, or zoning permit application by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the engineer retained by the



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Borough, the Planning Board 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 section.

(2.1) An applicant for approval of a stormwater development plan for a single-family house or duplex house not part of a major residential development (regulated by Residential Site Improvement Standards) is not required to submit a stormwater development plan for approval to the Haddonfield Planning Board (HPB) or the Haddonfield Zoning Board (HZB). [Added 4-30-2019 by Ord. No. 2019-08]

(3) Checklist requirements.

(a) The following information shall be required:

[1] Topographic base map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing two-foot contour intervals. The map, as appropriate, may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the 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.

[2] Environmental site analysis. A written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.

[3] Project description and site plan(s). A map (or maps) at the scale of the topographical base map 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



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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] Land use planning and source control plan. This plan shall provide a demonstration of how the goals and standards of Subsections D, E and F are being met. The focus of this plan shall be to describe how the site is being 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.
- [5] Stormwater management facilities map. The following information, illustrated on a map of the same scale as the topographic base map, 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, and details of the proposed plan to 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 calculations for the predevelopment and post development conditions for the design storms specified in Subsection D of this section.
  - [b] When the proposed stormwater management control measures (e.g., infiltration basins) depend on the hydrologic properties of soils **or require certain separation from the seasonal high-water table**, then a soils report shall be submitted. The soils report shall be based on on-site **boring logs, soil pit profiles**, test pits and in situ infiltration testing using double ring



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infiltrometer, or approved equal, witnessed by the Borough Engineer's office. **The number and location of required soil boring 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.**

[7] Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of Subsection J.

(b) Waiver from submission requirements. The municipal official or board reviewing an application under this section may, in consultation with the Borough Engineer, waive submission of any of the requirements in Subsection I(3) of this section when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

## J. Maintenance and repair

(1) Applicability. This requirement, unless otherwise directed by the Director of Community Development, shall apply to all major development and any development that includes the installation of a stormwater maintenance system, including single-family homes that have been directed to install a stormwater maintenance system by the Director of Community Development.

(2) General maintenance.

(a) The applicant's/developer's design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a development.

(b) The maintenance plan shall contain specific preventative 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 preventative and corrective maintenance (including replacement). **The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics.** A sample maintenance plan is included at the end of this section. Additional maintenance guidelines for stormwater management measures are available in



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the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for 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.

- (c) 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. **The individual property owner may be assigned incidental tasks, such as weeding of a green infrastructure BMP, provided the individual agrees to assume these tasks; however, the individual cannot be legally responsible for all of the maintenance required.** A two-year maintenance guarantee in accordance with N.J.S.A. 40:55D-53 shall be provided at the direction of the Director of Community Development.
- (d) If the person responsible for maintenance is not a public agency, the maintenance plan and any future revisions shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken. A copy of the revised filed deed shall be provided to the Director of Community Development. [Amended 6-13-2017 by Ord. No. 2017-08]
- (e) Preventative and corrective maintenance shall be performed to maintain the **functional parameters (storage volume, infiltration rates, inflow/outflow capacity, etc.)**, of the stormwater management measure, including, **but not limited to**, repairs or replacement to the structure; 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 non-vegetated linings.
- (f) The person responsible for maintenance shall ~~maintain a detailed log of all preventative 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~~ **retain 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 Section J(2) and J(2)(f), (g), (h).**



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- (g) The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.
  - (h) The person responsible for maintenance shall maintain a detailed log of all preventative 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.
    - [1] The person responsible for maintenance shall provide to the Director of Community Development on a biennial basis a certification which states that all maintenance has been conducted per the system maintenance plan and that the system is operating as designed or within acceptable tolerances as described within the design report and/or maintenance plan. This biennial report shall be due by March 1 of the required year. The first report shall be due two years after the system has passed installation inspection.
  - (i) The requirements of Subsection J(2)(b) and J(2)(c) do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency, **subject to all applicable municipal stormwater general permit conditions, as issued by the Department.**
  - (j) 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, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (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 may immediately proceed to do so and shall bill the cost thereof to the responsible person.
- (3) Nothing in this subsection shall preclude the municipality in which the development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

K. Penalties. Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this section shall be subject to the



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penalties specified in Article XV of Chapter 135 of the Code of the Borough of Haddonfield.

- L. Fees. All fees to review applications required by this section shall be in accordance with Article XIII of Chapter 135 of the Code of the Borough of Haddonfield.

### Section II

All ordinances or code provisions or parts thereof inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

### Section III

Each section, subsection, sentence, clause and phrase of this Ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this Ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this Ordinance.

### Section IV

This ordinance shall take effect upon its passage and publication, as required by law.

First Reading – February 9, 2021  
Second Reading – March 9, 2021

ROLL CALL VOTE:	YES	NO
BIANCO BEZICH	X	
KASKO	X	
ROCHFORD	X	

I HEREBY CERTIFY THAT THIS IS A TRUE COPY OF A RESOLUTION ADOPTED BY THE BOARD OF COMMISSIONERS OF THE BOROUGH OF HADDONFIELD AT A MEETING HELD ON MARCH 9, 2021.

  
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 Deanna Bennett, RMC