

This document contains the Pinelands Area Model Stormwater Control Ordinance implementing the 2022 amendments to the Pinelands CMP. Please note that there may be slight differences between this model ordinance and the ordinance ultimately adopted by any given Pinelands Area municipality.

Chapter 100. Stormwater Control in the Pinelands Area

§100-1. Scope and Purpose

A. Policy Statement

Flood control, groundwater recharge, erosion control and pollutant reduction shall be achieved using stormwater management measures, including green infrastructure best management practices (BMPs) and nonstructural stormwater management strategies. Green infrastructure BMPs and low impact development 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. Green infrastructure BMPs and low impact development 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 contained in this Chapter.

B. Purpose

The purpose of this Chapter is to establish, within the Pinelands Area portion of [insert name of municipality], minimum stormwater management requirements and controls as authorized by the Pinelands Protection Act (N.J.S.A. 13:18A-1 et seq.) and consistent with the Pinelands Comprehensive Management Plan (CMP) (N.J.A.C. 7:50-1.1 et seq.) and the New Jersey Department of Environmental Protection (NJDEP) Stormwater Management Regulations (N.J.A.C. 7:8-1.1 et seq.). The standards in this Chapter are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity, to facilitate groundwater recharge, and to control and minimize soil erosion, stream channel erosion, sedimentation and pollution associated with stormwater runoff. Moreover, Pinelands Area resources are to be protected in accordance with the antidegradation policies contained in the New Jersey Surface Water Quality Standards (N.J.A.C. 7:9B-1.1 et seq.). Additionally, this chapter is intended to ensure the adequacy of existing and proposed culverts and bridges and to protect public safety through the proper design and operation of stormwater BMPs. If there are any conflicts between a provision required by the Pinelands CMP and a provision required by the NJDEP, the Pinelands CMP provision shall apply.

C. Applicability

(1) The terms “development,” “major development” and “minor development” are defined in §100-2 in accordance with the Pinelands CMP (N.J.A.C. 7:50-2.11) and differ from the definitions of “development” and “major development” contained in the NJDEP Stormwater Management Regulations (N.J.A.C. 7:8-1.2).

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- (2) This Chapter shall apply within the Pinelands Area to all major development, and to minor development meeting the following criteria:
- i. Development involving the construction of four or fewer dwelling units;
 - ii. Development involving any non-residential use and resulting in an increase of greater than 1,000 square feet of regulated motor vehicle surfaces; and
 - iii. Development involving the grading, clearing, or disturbance of an area in excess of 5,000 square feet within any five-year period. For development meeting this criterion, the stormwater management standards for major development set forth in this Chapter shall apply.
- (3) This Chapter shall apply to all development meeting the criteria of C(2) above that is undertaken by [insert name of municipality].
- (4) Except as provided in §100-10, the exemptions, exceptions, applicability standards, and waivers of strict compliance contained in the NJDEP Stormwater Management Regulations at N.J.A.C. 7:8-1.1 et seq. shall not apply within the Pinelands Area.

D. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued pursuant to this Chapter are to be considered an integral part of development approvals 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 Chapter shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare.

This Chapter is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this Chapter 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.

In the event that a regional stormwater management plan(s) is prepared and formally adopted pursuant to N.J.A.C. 7:8-1.1 et seq. for any drainage area(s) or watershed(s) of which [insert name of municipality] is a part, the stormwater provisions of such a plan(s) shall be adopted by [insert name of municipality] within one year of the adoption of a Regional Stormwater Management Plan (RSWMP) as an amendment to an Areawide Water Quality Management Plan. Local ordinances proposed to implement the RSWMP shall be submitted to the Pinelands Commission for certification within six months of the adoption of the RSWMP per N.J.A.C. 7:8 and the Pinelands CMP.

§100-2. Definitions

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For the purpose of this Chapter, 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 NJDEP Stormwater Management Rules at N.J.A.C. 7:8-1.2 unless otherwise defined in the Pinelands CMP at N.J.A.C. 7:50-2.11 in which case the definition corresponds to the CMP definition.

“Compaction” means the increase in soil bulk density.

“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.

“County review agency” means an agency designated by the County Commissioners to review municipal stormwater management plans and implementing ordinance(s). 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.

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

"Development" means the change of or enlargement of any use or disturbance of any land, the performance of any building or mining operation, the division of land into two or more parcels, and the creation or termination of rights of access or riparian rights including, but not limited to:

- (1) A change in type of use of a structure or land;
- (2) A reconstruction, alteration of the size, or material change in the external appearance of a structure or land;
- (3) A material increase in the intensity of use of land, such as an increase in the number of businesses, manufacturing establishments, offices or dwelling units in a structure or on land;
- (4) Commencement of resource extraction or drilling or excavation on a parcel of land;

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- (5) Demolition of a structure or removal of trees;
- (6) Commencement of forestry activities;
- (7) Deposit of refuse, solid or liquid waste or fill on a parcel of land;
- (8) In connection with the use of land, the making of any material change in noise levels, thermal conditions, or emissions of waste material; and
- (9) Alteration, either physically or chemically, of a shore, bank, or flood plain, seacoast, river, stream, lake, pond, wetlands or artificial body of water.

In the case of development on agricultural land, i.e. lands use for an agricultural use or purpose as defined at N.J.A.C. 7:50-2.11, development means: any activity that requires a State permit, any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

“Disturbance” 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.

“Drainage area” means a geographic area within which stormwater runoff, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

“Environmentally critical area” means an area or feature which is of significant environmental value, including but not limited to: stream corridors, natural heritage priority sites, habitats of endangered or threatened species, large areas of contiguous open space or upland forest, steep slopes, and well head protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the NJDEP Landscape Project as approved by the NJDEP Endangered and Nongame Species Program.

“Erosion” means 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.

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"High Pollutant Loading Areas" means 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 NJDEP 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.

"HUC-11" or "hydrologic unit code 11" means an area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by an 11-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

"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 subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

"Impervious surface" means any surface that has been compacted or covered with a layer of material so that it prevents, impedes or slows infiltration or absorption of fluid, including stormwater directly into the ground, and results in either reduced groundwater recharge or increased stormwater runoff sufficient to be classified as impervious in Urban Areas by the United States Department of Agriculture, Natural Resources Conservation Service Title 210 - Engineering, 210-3-1 - Small Watershed Hydrology (WINTR-55) Version 1.0, incorporated herein by reference, as amended and supplemented, available with user guide and tutorials at http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/WinTr55.html or at Natural Resources Conservation Service, 220 Davidson Avenue, Somerset, NJ 08873. Such surfaces may have varying degrees of permeability.

"Infiltration" is the process by which water seeps into the soil from precipitation.

"Major development" means any division of land into five or more lots; any construction or expansion of any housing development of five or more dwelling units; any construction or expansion of any commercial or industrial use or structure on a site of more than three acres; or any grading, clearing or disturbance of an area in excess of 5,000 square feet.

"Minor development" means all development other than 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” means the [insert name of municipality].

“New Jersey Stormwater Best Management Practices (BMP) Manual” or “BMP Manual” means the manual maintained by the NJDEP providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the NJDEP 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 NJDEP 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 NJDEP’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 §100-3F of this Chapter 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.

“Nutrient” means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

"Permeability" means the rate at which water moves through a unit area of soil, rock, or other material at hydraulic gradient of one.

“Person” means an individual, corporation, public agency, business trust, partnership, association, two or more persons having a joint or common interest, or any other legal entity.

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

“Recharge” means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

“Regulated motor vehicle surface” means any of the following, alone or in combination:

- (1) A net increase in motor vehicle surface; and/or

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- (2) The total 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, where the water quality treatment will be modified or removed.

"Seasonal high water table" means the level below the natural surface of the ground to which water seasonally rises in the soil in most years.

"Sediment" means 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" means the lot or lots upon which development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin.

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

"Stormwater" means 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" means 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 system), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

"Stormwater management measure" 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" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

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

"Wetlands" or "wetland" means lands which are inundated or saturated by water at a magnitude, duration and frequency sufficient to support the growth of hydrophytes. Wetlands include lands

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with poorly drained or very poorly drained soils as designated by the National Cooperative Soils Survey of the Soil Conservation Service of the United States Department of Agriculture. Wetlands include coastal wetlands and inland wetlands, including submerged lands. The "New Jersey Pinelands Commission Manual for Identifying and Delineating Pinelands Area Wetlands-- a Pinelands Supplement to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands," dated January, 1991, as amended, may be utilized in delineating the extent of wetlands based on the definitions of wetlands and wetlands soils contained in N.J.A.C. 7:50-2.11, 6.3, 6.4 and 6.5.

“Wetland transition area” means an area within 300 feet of any wetland.

§100-3. Stormwater Management Requirements

- A.** Stormwater management measures for development regulated under this Chapter shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control and stormwater runoff quality treatment in accordance with this Chapter.
- (1) Major development shall meet the minimum design and performance standards for erosion control established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90 and 16:25A.
- (2) All development regulated under this Chapter shall meet the minimum design and performance standards for groundwater recharge, stormwater runoff quality, and stormwater runoff quantity at **§100-3O, P, and Q** by incorporating green infrastructure as provided at **§100-3N**.
- B.** All development regulated under this Chapter shall incorporate a maintenance plan for the stormwater management measures in accordance with **§100-9**.
- C.** Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species in accordance with N.J.A.C. 7:8-5.2(c) and N.J.A.C. 7:50-6.27 and 6.33.
- D.** **Tables 1, 2, and 3** below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater BMP Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in **§100-3N, O, P, and Q**. When designed in accordance with the most current version of the New Jersey Stormwater BMP Manual and this Chapter, the stormwater management measures found 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 BMP Manual 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 NJDEP 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 NJDEP website at:

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https://njstormwater.org/bmp_manual2.htm.

- E.** Where the BMP tables at N.J.A.C. 7:8-5.2(f) differ with **Tables 1, 2 and 3 below** due to amendment, the BMP Tables at N.J.A.C. 7:8-5.2(f) shall take precedence, except that in all cases the lowest point of infiltration must maintain a minimum separation of two (2) feet to seasonal high water table as required by **§100-3H(2)**, unless otherwise noted.

Table 1: Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity

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 ^(a)	0	No	Yes	2
Grass Swale	50 or less	No	No	2 ^(e)
				1 ^(f)
Green Roof	0	Yes	No	--
Manufactured Treatment Device ^{(a), (g)}	50 or 80	No	No	Dependent upon the device
Pervious Paving System ^(a)	80	Yes	Yes ^(b)	2 ^(b)
			No ^(c)	2 ^(c)
Small-Scale Bioretention Basin ^(a)	80 or 90	Yes	Yes ^(b)	2 ^(b)
			No ^(c)	1 ^(c)
Small-Scale Infiltration Basin ^(a)	80	Yes	Yes	2
Small Scale Sand Filter ^(a)	80	Yes	Yes	2
Vegetative Filter Strip	60-80	No	No	--

Table 2: Green Infrastructure BMPs for Stormwater Runoff Quantity (or for Groundwater Recharge and/or Stormwater Runoff Quality with a Variance from N.J.A.C. 7:8-5.3)

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (Feet)
Bioretention System	80 or 90	Yes	Yes ^(b)	2 ^(b)

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			No ^(c)	1 ^(c)
Infiltration Basin	80	Yes	Yes	2
Sand Filter ^(b)	80	Yes	Yes	2
Standard Constructed Wetland	90	Yes	No	2 ⁽ⁱ⁾
Wet Pond ^(d)	50-90	Yes	No	2 ⁽ⁱ⁾

Table 3: BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity only with a Variance from N.J.A.C. 7:8-5.3

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (Feet)
Blue Roof	0	Yes	No	N/A
Extended Detention Basin	40-60	Yes	No	2
Manufactured Treatment Device ^(h)	50 or 80	No	No	Dependent upon the device
Sand Filter ^(c)	80	Yes	No	2
Subsurface Gravel Wetland	90	No	No	2
Wet Pond	50-90	Yes	No	2 ⁽ⁱ⁾

Footnotes to Tables 1, 2, and 3:

- (a) subject to the applicable contributory drainage area limitation specified at **§100-3N(2)**.
- (b) designed to infiltrate into the subsoil.
- (c) designed with underdrains, where stormwater percolates into the underdrain through the soils and is not directed to the underdrain by an outlet control structure.
- (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 **§100-2**.
- (h) manufactured treatment devices that do not meet the definition of green infrastructure at **§100-2**.
- (i) the top elevation of the impermeable layer or liner must maintain this 2-foot minimum separation to the seasonal high water table.

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F. 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 NJDEP and the Pinelands Commission in accordance with **§100-5B**. Alternative stormwater management measures may be used to satisfy the requirements at **§100-3N** only if the measures meet the definition of green infrastructure at **§100-2**. Alternative stormwater management measures that function in a similar manner to a BMP listed at **§100-3N(2)** are subject to the contributory drainage area limitation specified at **§100-3N(2)** 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 **§100-3N(2)** 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 **§100-10** is granted from **§100-3N**.

G. Hydraulic Impacts

- (1)** For all major development, groundwater mounding analysis shall be required for purposes of assessing the hydraulic impacts of mounding of the water table resulting from infiltration of stormwater runoff from the maximum storm designed for infiltration. The mounding analysis shall provide details and supporting documentation on the methodology used. Groundwater mounds shall not cause stormwater or groundwater to breakout to the land surface or cause adverse impacts to adjacent water bodies, wetlands, or subsurface structures, including, but not limited to, basements and septic systems. Where the mounding analysis identifies adverse impacts, the stormwater management measure shall be redesigned or relocated, as appropriate.
- (2)** For all applicable minor development, a design engineer's certification that each green infrastructure stormwater management measure will not adversely impact basements or septic systems of the proposed development shall be required.

H. Design standards for stormwater management measures are as follows:

- (1)** Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; wetland transition areas; 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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- (2) Stormwater management measures designed to infiltrate stormwater shall be designed, constructed, and maintained to provide a minimum separation of at least two feet between the elevation of the lowest point of infiltration and the seasonal high water table;
- (3) Stormwater management measures designed to infiltrate stormwater shall be sited in suitable soils verified by testing to have permeability rates between one and 20 inches per hour. A factor of safety of two shall be applied to the soil's permeability rate in determining the infiltration measure's design permeability rate. If such soils do not exist on the parcel proposed for development or if it is demonstrated that it is not practical for engineering, environmental, or safety reasons to site the stormwater infiltration measure(s) in such soils, the stormwater infiltration measure(s) may be sited in soils verified by testing to have permeability rates in excess of 20 inches per hour, provided that stormwater is routed through a bioretention system prior to infiltration. Said bioretention system shall be designed, installed, and maintained in accordance with the New Jersey Stormwater BMP Manual;
- (4) The use of stormwater management measures that are smaller in size and distributed spatially throughout a parcel, rather than the use of a single, larger stormwater management measure shall be required;
- (5) Methods of treating stormwater prior to entering any stormwater management measure shall be incorporated into the design of the stormwater management measure to the maximum extent practical;
- (6) To avoid sedimentation that may result in clogging and reduction of infiltration capability and to maintain maximum soil infiltration capacity, the construction of stormwater management measures that rely upon infiltration shall be managed in accordance with the following standards:
 - i. No stormwater management measure shall be placed into operation until its drainage area has been completely stabilized. Instead, upstream runoff shall be diverted around the measure and into separate, temporary stormwater management facilities and sediment basins. Such temporary facilities and basins shall be installed and utilized for stormwater management and sediment control until stabilization is achieved in accordance with N.J.A.C. 2:90;
 - ii. If, for engineering, environmental, or safety reasons, temporary stormwater management facilities and sediment basins cannot be constructed on the parcel in accordance with i. above, the stormwater management measure may be placed into operation prior to the complete stabilization of its drainage area provided that the measure's bottom during this period is constructed at a depth at least two feet higher than its final design elevation. When the drainage area has been completely stabilized, all accumulated sediment shall be removed from the stormwater management measure, which shall then be excavated to its final design elevation; and

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not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.

- K.** If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at **§100-3O, P, and Q** 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.
- L.** Any stormwater management measure authorized under the municipal stormwater management plan or this Chapter shall be reflected in a deed notice recorded in the [insert Office of the County Clerk or the registrar of deeds and mortgages of the county in which the development, project, project site, or mitigation area containing the stormwater management measure is located, as appropriate, to the municipality]. 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 **§100-3N, O, P, and Q** 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 **§100-9B(5)**. 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.
- M.** A stormwater management measure approved under the municipal stormwater management plan or this Chapter 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 contained in **§100-3N, O, P and Q** of this Chapter 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 [insert appropriate Office of the County Clerk or the registrar of deeds and mortgages, as applies] and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with **L** 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 **L** above.
- N.** Green Infrastructure Standards

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- (1) 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 of this Chapter.
- (2) To satisfy the groundwater recharge and stormwater runoff quality standards at **§100-3O and P**, the design engineer shall utilize BMPs identified in **Table 1** at **§100-3E** and/or an alternative stormwater management measure approved in accordance with **§100-3F**. 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 System	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

- (3) To satisfy the stormwater runoff quantity standards at **§100-3Q**, the design engineer shall utilize BMPs identified in **Table 1** or **2** at **§100-3E** and/or an alternative stormwater management measure approved in accordance with **§100-3F**.
- (4) If a variance in accordance with **§100-10** is granted from the requirements of this subsection, then BMPs from **Table 1, 2, or 3** at **§100-3E** and/or an alternative stormwater management measure approved in accordance with **§100-3F** may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at **§100-3O, P and Q**.
- (5) 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 **§100-3O, P, and Q**.

O. Groundwater Recharge Standards

- (1) This subsection contains the minimum design and performance standards for groundwater recharge as follows:

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- (2) For all major development, the total runoff volume generated from the net increase in impervious surfaces by a 10-year, 24-hour storm shall be retained and infiltrated onsite.
- (3) For minor development that involves the construction of four or fewer dwelling units, the runoff generated from the total roof area of the dwelling(s) by a 10-year, 24-hour storm shall be retained and infiltrated through installation of one or more green infrastructure stormwater management measures designed in accordance with the New Jersey Stormwater BMP Manual. Appropriate green infrastructure stormwater management measures include, but are not limited to dry wells, pervious pavement systems, and small scale bioretention systems, including rain gardens.
- (4) For minor development that involves any nonresidential use and will result in an increase of greater than 1,000 square feet of regulated motor vehicle surfaces, the water quality design storm volume generated from these surfaces shall be recharged onsite.
- (5) Stormwater from areas of high pollutant loading and/or industrial stormwater exposed to source material shall only be recharged in accordance with **§100-3P(8)**.

P. Stormwater Runoff Quality Standards

- (1) This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of:
 - i. Major development;
 - ii. Minor development that involves any nonresidential use and will result in an increase of greater than 1,000 square feet of regulated motor vehicle surfaces; and
 - iii. Any development involving the grading, clearing, or disturbance of an area in excess of 5,000 square feet within any five-year period.
- (2) 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 established at **§100-3P(4)** as follows:
 - i. 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.
 - ii. 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.

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- (3) 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.
- (4) 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	0.1796	82	1.0972
3	0.00498	43	0.1864	83	1.1038
4	0.00664	44	0.1932	84	1.1104
5	0.0083	45	0.2	85	1.117
6	0.00996	46	0.2117	86	1.1236
7	0.01162	47	0.2233	87	1.1302
8	0.01328	48	0.235	88	1.1368
9	0.01494	49	0.2466	89	1.1434
10	0.0166	50	0.2583	90	1.15
11	0.01828	51	0.2783	91	1.155
12	0.01996	52	0.2983	92	1.16
13	0.02164	53	0.3183	93	1.165
14	0.02332	54	0.3383	94	1.17
15	0.025	55	0.3583	95	1.175
16	0.03	56	0.4116	96	1.18
17	0.035	57	0.465	97	1.185
18	0.04	58	0.5183	98	1.19
19	0.045	59	0.5717	99	1.195
20	0.05	60	0.625	100	1.2
21	0.055	61	0.6783	101	1.205
22	0.06	62	0.7317	102	1.21
23	0.065	63	0.785	103	1.215
24	0.07	64	0.8384	104	1.22
25	0.075	65	0.8917	105	1.225
26	0.08	66	0.9117	106	1.2267
27	0.085	67	0.9317	107	1.2284
28	0.09	68	0.9517	108	1.23
29	0.095	69	0.9717	109	1.2317
30	0.1	70	0.9917	110	1.2334
31	0.1066	71	1.0034	111	1.2351
32	0.1132	72	1.015	112	1.2367
33	0.1198	73	1.0267	113	1.2384
34	0.1264	74	1.0383	114	1.24
35	0.133	75	1.05	115	1.2417
36	0.1396	76	1.0568	116	1.2434
37	0.1462	77	1.0636	117	1.245
38	0.1528	78	1.0704	118	1.2467
39	0.1594	79	1.0772	119	1.2483
40	0.166	80	1.084	120	1.25

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- (5) 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:

$$R = A + B - (A \times B) / 100$$

Where,

R = total TSS Percent Load Removal from application of both BMPs, and
A = the TSS Percent Removal Rate applicable to the first BMP
B = the TSS Percent Removal Rate applicable to the second BMP.

- (6) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm established at **§100-3P(4)**. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include green infrastructure BMPs that optimize nutrient removal while still achieving the performance standards in **§100-3O, P, and Q**.
- (7) For all major development, stormwater management measures shall be designed to achieve a minimum of 65 percent reduction of the post-construction total nitrogen load from the developed site, including those permanent lawn or turf areas that are specifically intended for active human use as described at N.J.A.C. 7:50-6.24(c)3, in stormwater runoff generated from the water quality design storm established at **§100-3P(4)**. In achieving a minimum 65 percent reduction of total nitrogen, the design of the site shall include green infrastructure in accordance with the New Jersey Stormwater BMP Manual and shall optimize nutrient removal. The minimum 65 percent total nitrogen reduction may be achieved by using a singular stormwater management measure or multiple stormwater management measures in series.
- (8) In high pollutant loading areas (HPLAs) and/or areas where stormwater runoff is exposed to source material, as defined in **§100-2**, the following additional water quality standards shall apply:
- i. The areal extent and amount of precipitation falling directly on or flowing over HPLAs and/or areas where stormwater is exposed to source material shall be minimized through the use of roof covers, canopies, curbing or other physical means to the maximum extent practical in order to minimize the quantity of stormwater generated from HPLA areas and areas where stormwater runoff is exposed to source material;
 - ii. The stormwater runoff originating from HPLAs and/or areas where stormwater runoff is exposed to source material shall be segregated and prohibited from co-mingling with stormwater runoff originating from the remainder of the parcel unless it is first routed through one or more stormwater management measures required at **iii.** below;

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- iii.** The stormwater runoff from HPLAs and/or areas where stormwater runoff is exposed to source material shall incorporate stormwater management measures designed to reduce the post-construction load of TSS by at least 90 percent in stormwater runoff generated from the water quality design storm established at **§100-3P(4)** using one or more of the measures identified at **a.** or **b.** below. In meeting this requirement, the minimum 90 percent removal of total suspended solids may be achieved by utilizing multiple stormwater management measures in series:

 - a.** Any measure designed in accordance with the New Jersey Stormwater BMP Manual to remove total suspended solids. Any such measure must be constructed to ensure that the lowest point of infiltration within the measure maintains a minimum of two feet of vertical separation from the seasonal high-water table; and
 - b.** Other measures certified by the NJDEP, including a Media Filtration System manufactured treatment device with a minimum 80 percent removal of total suspended solids as verified by the New Jersey Corporation for Advanced Technology; and
 - iv.** If the potential for contamination of stormwater runoff by petroleum products exists onsite, prior to being conveyed to the stormwater management measure required at **iii.** above, the stormwater runoff from the HPLAs and areas where stormwater runoff is exposed to source material shall be conveyed through an oil/grease separator or other equivalent manufactured filtering device providing for the removal of petroleum hydrocarbons. The applicant shall provide the review agency with sufficient data to demonstrate acceptable performance of the device.
- (9)** 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.
- (10)** 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.

Q. Stormwater Runoff Quantity Standards

- (1)** This subsection contains the minimum design and performance standards to control stormwater runoff quantity impacts related to applicable major and minor development.

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- (2) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at §100-4, complete one of the following:
- i. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
 - ii. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2-, 10- and 100-year storm events and that the increased volume or change in timing of 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;
 - iii. Design stormwater management measures so that the post-construction peak runoff rates for the 2-, 10- and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed; or
 - iv. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with **i., ii. and iii.** 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.
- (3) The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.
- (4) There shall be no direct discharge of stormwater runoff from any point or nonpoint source to any wetland, wetlands transition area, or surface waterbody. In addition, stormwater runoff shall not be directed in such a way as to increase the volume and rate of discharge into any wetlands, wetlands transition area, or surface water body from that which existed prior to development of the parcel.
- (5) To the maximum extent practical, there shall be no direct discharge of stormwater runoff onto farm fields to protect farm crops from damage due to flooding, erosion, and long-term saturation of cultivated crops and cropland.

R. As-built requirements for major development are as follows:

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- (1) After all construction activities have been completed on the parcel and finished grade has been established in each stormwater management measure designed to infiltrate stormwater, replicate post-development permeability tests shall be conducted to determine if as-built soil permeability rates are consistent with design permeability rates. The results of such tests shall be submitted to the municipal engineer or other appropriate reviewing engineer. If the results of the post-development permeability tests fail to achieve the minimum required design permeability rate, utilizing a factor of safety of two, the stormwater management measure shall be renovated and re-tested until the required permeability rates are achieved; and
- (2) After all construction activities and required testing have been completed on the parcel, as-built plans, including as-built elevations of all stormwater management measures shall be submitted to the municipal engineer or other appropriate reviewing engineer to serve as a document of record. Based upon that engineer's review of the as-built plans, all corrections or remedial actions deemed necessary due to the failure to comply with design standards and/or for any reason concerning public health or safety, shall be completed by the applicant. In lieu of review by the municipal engineer, the municipality may engage a licensed professional engineer to review the as-built plans and charge the applicant for all costs associated with such review.

§100-4. Calculation of Stormwater Runoff and Groundwater Recharge

- A. Stormwater runoff shall be calculated by the design engineer using 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, except that the Rational Method for peak flow and the Modified Rational Method for hydrograph computations shall not be used. 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:
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.
- B. In calculating stormwater runoff using the NRCS methodology, the appropriate 24-hour rainfall depths as developed for the parcel by the National Oceanic and Atmospheric Administration, https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nj, shall be utilized.
- C. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. 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

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

- D. In computing pre-construction 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 pre-construction stormwater runoff rates and volumes.
- E. 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 or other methods may be employed.
- F. 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.
- G. Groundwater recharge may be calculated in accordance with the New Jersey Geological Survey Report GSR-32, A Method for Evaluating Groundwater-Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at the New Jersey Geological Survey website at: <https://www.nj.gov/dep/njgs/pricelst/greport/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.

§100-5. Sources for Technical Guidance

- A. Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the NJDEP's website at:

http://www.nj.gov/dep/stormwater/bmp_manual2.htm.

- (1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater BMP 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 of §100-3E above**. The New Jersey Stormwater BMP Manual may be utilized as a guide in determining the extent to which stormwater management activities and measures meet the standards of this Chapter.

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- (2) Additional maintenance guidance is available on the NJDEP’s website at:
https://www.njstormwater.org/maintenance_guidance.htm.

B.

- (1) Submissions required for review by the NJDEP 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.

- (2) Submissions required for review by the Pinelands Commission should be emailed to
appinfo@pinelands.nj.gov.

§100-6. Solids and Floatable Materials Control Standards

- A.** Site design features identified under **§100-3E** above, or alternative designs in accordance with **§100-3F**, 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 (2) below.

- (1) 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:

- 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; or
- ii. 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.

- iii. 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.

(2) The standard in (1) above does not apply:

- i. 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;
- ii. 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;
- iii. Where flows from the water quality design storm established at §100-3P(4) 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).

- iv. 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 established at §100-3P(4); or
- v. Where the NJDEP 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.

§100-7. Safety Standards for Stormwater Management Basins

- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management BMPs. This section applies to any new stormwater management BMP.
- B. 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 C(1), (2) or (3) below for trash racks, overflow grates, and escape provisions at outlet structures.

C. Requirements for Trash Racks, Overflow Grates and Escape Provisions

- (1)** 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 BMP to ensure proper functioning of the BMP outlets in accordance with the following:
 - i.** The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;
 - ii.** The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;
 - iii.** 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; and
 - iv.** The trash rack shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of 300 pounds per square foot.

- (2)** An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, the grate shall comply with the following requirements:
 - i.** The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
 - ii.** The overflow grate spacing shall be no greater than two inches across the smallest dimension
 - iii.** The overflow grate shall be constructed of rigid, durable, and corrosion resistant material, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

- (3)** Stormwater management BMPs shall include escape provisions as follows:
 - i.** If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. 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 **D.** below, a free-standing outlet structure may be exempted from this requirement;
 - ii.** Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than two and one-half feet. Safety

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ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See **E.** below for an illustration of safety ledges in a stormwater management BMP; and

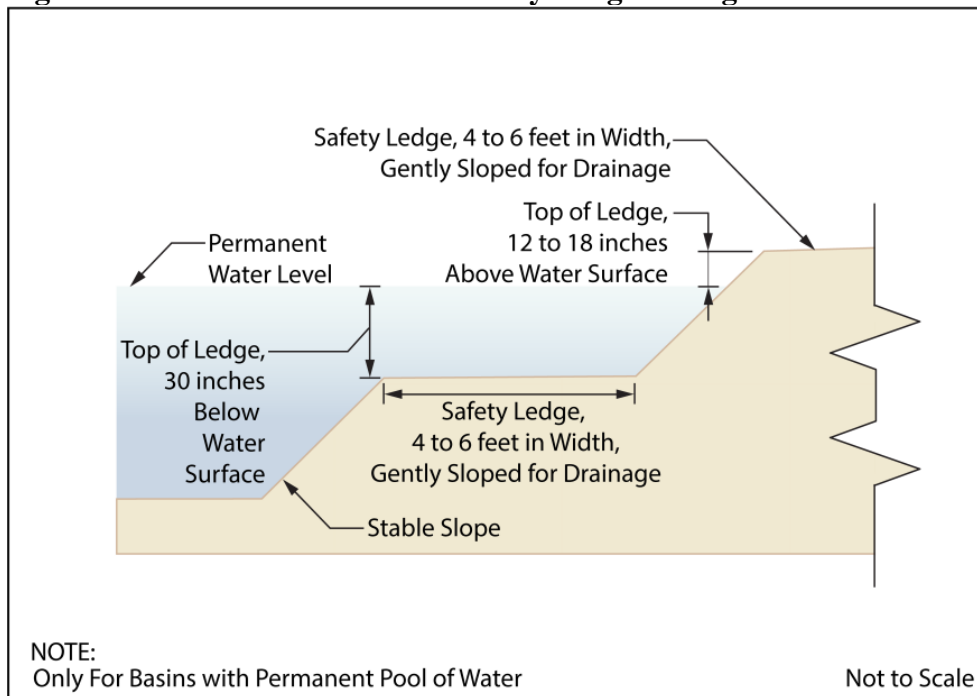
- iii. In new stormwater management BMPs, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

D. Variance or Exemption from Safety Standard

A variance or exemption from the safety standards for stormwater management BMPs may be granted only upon a written finding by the municipality that the variance or exemption will not constitute a threat to public safety.

E. Safety Ledge Illustration

Figure 1. Elevation View – Basin Safety Ledge Configuration



§100-8. Requirements for a Site Development Stormwater Plan

A. Submission of Site Development Stormwater Plan.

- (1) Any application for major development approval shall include a Site Development Stormwater Plan containing all information required in **§100-8C.**

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- (2) Any application for minor development approval that is subject to this Chapter shall include a Site Development Stormwater Plan containing all information required in **§100-8D**
- (3) The Site Development Stormwater Plan shall demonstrate that the proposed development meets the standards of this Chapter.
- (4) The Site Development Stormwater Plan shall contain comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in **§100-3P(4)**. The standards for groundwater recharge and stormwater runoff rate, volume and quality required by **§100-3O, P and Q** and shall be met using the methods, calculations and assumptions provided in **§100-4**.
- (5) The application submission requirements of A(1) and A(2) above shall be in addition to all other applicable application submission requirements of the municipality's land development regulations.
- (6) The applicant shall submit **[# of copies]** copies of the Site Development Stormwater Plan. All required engineering plans shall be in CAD Format 15 or higher, registered and rectified to NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Shape Format NAD 1983 State Plane New Jersey FIPS 2900 US Feet. All other required documents shall be submitted in both paper and commonly used electronic file formats such as .pdf, word processing, database or spreadsheet files. *The municipality may choose to revise these criteria for consistency with their own software requirements.*

B. Site Development Stormwater Plan Approval.

The Site Development Stormwater Plan shall be reviewed as a part of the development review process by the municipal board or official from whom municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this Chapter.

C. Checklist Requirements for major development.

Any application for major development approval shall include a Site Development Stormwater Plan containing, at minimum, the following information.

(1) Topographic Base Map.

The Site Development Stormwater Plan shall contain a topographic base map of the site that extends a minimum of three hundred (300) feet beyond the limits of the proposed development, at a scale of one (1) inch = two hundred (200) feet or greater, showing one (1) foot contour intervals. The map shall indicate the following: existing surface water drainage, shorelines, steep slopes, soils, highly erodible soils, perennial or intermittent streams that drain into or upstream of any Category One or Pinelands Waters, wetlands

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and floodplains along with any required wetlands transition areas, marshlands and other wetlands, pervious or vegetative surfaces, existing surface and subsurface human-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown. [insert name of municipality] or the Pinelands Commission may require upstream tributary drainage system information as necessary.

(2) Environmental Site Analysis.

The Site Development Stormwater Plan shall contain a written description along with the drawings of the natural and human-made features of the site and its environs. This description shall include:

- i.** A discussion of environmentally critical areas, soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention shall be given to unique, unusual or environmentally sensitive features and to those features that provide particular opportunities for or constraints on development; and
- ii.** Detailed soil and other environmental conditions on the portion of the site proposed for installation of any stormwater management measures, including, at a minimum:
 - a.** A soils report based on onsite soil tests;
 - b.** Location and spot elevations in plan view of all test pits and permeability tests;
 - c.** Permeability test data and calculations;
 - d.** Any other required soil or hydrogeologic data (e.g., mounding analyses results) correlated with location and elevation of each test site;
 - e.** A cross-section of all proposed stormwater management measures with side-by-side depiction of soil profile drawn to scale and seasonal high water table elevation identified; and
 - f.** Any other information necessary to demonstrate the suitability of the specific proposed stormwater management measures relative to the environmental conditions on the portion(s) of the site proposed for implementation of those measures.

(3) Project description and site plan(s).

The Site Development Stormwater Plan shall contain a map (or maps), at the same scale as 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 will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the

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site plan and justification for proposed changes in natural conditions shall also be provided.

(4) Land Use Planning and Source Control Plan.

The Site Development Stormwater Plan shall contain a Land Use Planning and Source Control Plan demonstrating compliance with the erosion control, groundwater recharge, stormwater runoff quantity control and stormwater quality treatment required by this Chapter. This shall include, but is not limited to:

- i.** Information demonstrating that the proposed stormwater management measures are able to achieve a minimum 65 percent reduction of the post-construction total nitrogen load, in accordance with **§100-3P(7)**.
- ii.** Where any stormwater generated from high pollutant loading areas or where stormwater will be exposed to source material, information demonstrating that the proposed stormwater management measures are consistent with **§100-3P(8)**.

(5) Stormwater Management Facilities Map.

The Site Development Stormwater Plan shall contain a Stormwater Management Facilities Map, at the same scale as the topographic base map, depicting the following information:

- i.** The total area to be disturbed, paved and/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 manage and recharge stormwater; and
- ii.** Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention (if applicable) and emergency spillway provisions with maximum discharge capacity of each spillway.

(6) Groundwater Mounding Analysis.

The Site Development Stormwater Plan shall contain a groundwater mounding analysis in accordance with **§100-3G(1)**.

(7) Inspection, Maintenance and Repair Plan.

The Site Development Stormwater Plan shall contain an Inspection, Maintenance and Repair Plan containing information meeting the requirements of **§100-9B** of this Chapter.

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D. Checklist Requirements for minor development.

Any application for minor development approval that is subject to this Chapter shall include a Site Development Stormwater Plan, certified by a design engineer, containing, at minimum, the following information:

- (1) All existing and proposed development, including limits of clearing and land disturbance.
- (2) All existing and proposed lot lines.
- (3) All wetlands and required wetland transition areas.
- (4) The type and location of each green infrastructure stormwater management measure.
- (5) A cross sectional drawing of each stormwater management measure showing the associated:
 - i. soil profile;
 - ii. soil permeability test elevation;
 - iii. soil permeability rate; and
 - iv. the elevation of, and vertical separation to, the seasonal high water table.
- (6) A design engineer's certification that each green infrastructure stormwater management measure will not adversely impact basements or septic systems of the proposed development, in accordance with **§100-3G(2)**.
- (7) A Maintenance Plan containing information meeting the requirements of **§100-9B** of this Chapter.

E. Exception from submission requirements.

With the exception of **C(7)** and **D(7)** above, the municipality may modify or waive any required element of the Site Development Stormwater Plan, provided that sufficient information can be provided to demonstrate compliance with the standards of the Chapter. However, application information required in accordance with the Pinelands CMP (N.J.A.C. 7:50-4.2(b)) shall be submitted to the Pinelands Commission, unless the Executive Director of the Pinelands Commission waives or modifies the application requirements.

§100-9. Maintenance and Repair

- A.** All development regulated under this Chapter shall incorporate a maintenance plan, prepared by the design engineer, consistent with **B.** below. Maintenance and repair shall be implemented in accordance with maintenance plan and **C.** below.

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B. The maintenance plan shall include the following:

- (1)** 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.
- (2)** Responsibility for maintenance of stormwater management measures approved as part of an application for major development shall not be assigned or transferred to the owner or tenant of an individual property, unless such owner or tenant owns or leases the entire site subject to the major development approval. 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 the maintenance required.
- (3)** Responsibility for maintenance of stormwater management measures approved as part of an application for minor development may be assigned or transferred to the owner or tenant of the parcel.
- (4)** If the maintenance plan identifies a person other than the property owner (for example, a developer, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's or entity's agreement to assume this responsibility, or of the owner's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.
- (5)** If the person responsible for maintenance identified under **(1)** above is not a public agency, the maintenance plan and any future revisions based on **§100-9C(2)ii** shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.
- (6)** For all major development, the following additional standards apply:
 - i.** The maintenance plan shall include accurate and comprehensive drawings of all stormwater management measures on a parcel, including the specific latitude and longitude and block/lot number of each stormwater management measure. Maintenance plans shall specify that an inspection, maintenance, and repair report will be updated and submitted annually to the municipality;
 - ii.** Stormwater management measure easements shall be provided by the property owner as necessary for facility inspections and maintenance and preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities. The purpose of the easement shall be specified in the maintenance agreement; and

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- iii.** An adequate means of ensuring permanent financing of the inspection, maintenance, repair, and replacement plan shall be implemented and shall be detailed in the maintenance plan. Financing methods shall include, but not be limited to:
 - a.** The assumption of the inspection and maintenance program by a municipality, county, public utility, or homeowners association;
 - b.** The required payment of fees to a municipal stormwater fund in an amount equivalent to the cost of both ongoing maintenance activities and necessary structural replacements.
- (7)** For all minor development, maintenance plans shall be required for all stormwater management measures installed in accordance with this Chapter and shall include, at a minimum, the following information:
- i.** A copy of the certified plan required pursuant to **§100-8(A)2** above;
 - ii.** A description of the required maintenance activities for each stormwater management measure; and
 - iii.** The frequency of each required maintenance activity.

C. General Maintenance and Repair

- (1)** Preventative and corrective maintenance shall be performed to maintain the function 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.
- (2)** The person responsible for maintenance identified under **§100-9B(2)** above shall perform all of the following requirements:
- i.** 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;
 - ii.** evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
 - iii.** 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 **i. and ii.** above.

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(3) The requirements of **B(2), (3), and (4)** above 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.

(4) 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. Nonpayment of such bill may result in a lien on the property.

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

§100-10. Variances

A. The exemptions, exceptions, applicability standards, and waivers of strict compliance contained in the NJDEP Stormwater Management Regulations at N.J.A.C. 7:8-1.1 et seq. shall not apply within the Pinelands Area except in accordance with this Section.

B. The municipal review agency may grant a variance from the design and performance standards for stormwater management measures set forth in its municipal stormwater management plan and this Chapter, provided that:

(1) No variances shall be granted from **§100-3Q(4)**, which prohibits the direct discharge of stormwater runoff to any wetlands, wetlands transition area, or surface waterbody and the direction of stormwater runoff in such a way as to increase in volume and rate of discharge into any wetlands, wetlands transition area, or surface water body from that which existed prior to development of the parcel;

(2) The municipal stormwater plan includes a mitigation plan in accordance with N.J.A.C. 7:8-4.2(c)11 and N.J.A.C. 7:50-3.39(a)2viii;

(3) The applicant demonstrates that it is technically impracticable to meet any one or more of the design and performance standards on-site. For the purposes of this analysis, technical impracticability exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons. A municipality's approval of a variance shall apply to an individual drainage area and design and performance standard and shall not apply to an entire site or project, unless an applicant provides the required analysis for each drainage area within the site and each design and performance standard;

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- (4) The applicant demonstrates that the proposed design achieves the maximum possible compliance with the design and performance standards of this Chapter on-site; and
- (5) A mitigation project is implemented, in accordance with the following:
- i. All mitigation projects shall be located in the Pinelands Area and in the same HUC-14 as the parcel proposed for development. If the applicant demonstrates that no such mitigation project is available, the municipality may approve a variance that provides for mitigation within the same HUC-11 as the parcel proposed for development, provided the mitigation project is located in the Pinelands Area.
 - ii. The proposed mitigation project shall be consistent with the municipal stormwater management plan certified by the Pinelands Commission. If said stormwater management plan does not identify appropriate parcels or projects where mitigation may occur, the applicant may propose a mitigation project that meets the criteria in i. above.
 - iii. The mitigation project shall be approved no later than preliminary or final site plan approval of the major development.
 - iv. The mitigation project shall be constructed prior to, or concurrently with, the development receiving the variance.
 - v. The mitigation project shall comply with the green infrastructure standards at **§100-3N**.
 - vi. If the variance that resulted in the mitigation project being required is from the green infrastructure standards at **§100-3N**, then the mitigation project must use green infrastructure BMPs in **Table 1** contained at **§100-3E**, and/or an alternative stormwater management measure approved in accordance with **§100-3F** that meets the definition of green infrastructure to manage an equivalent or greater area of impervious surface and an equivalent or greater area of motor vehicle surface as the area of the major development subject to the variance. Grass swales and vegetative filter strips may only be used in the mitigation project if the proposed project additionally includes a green infrastructure BMP other than a grass swale or vegetative filter strip. The green infrastructure used in the mitigation project must be sized to manage the water quality design storm established at **§100-3P(4)**, at a minimum, and is subject to the applicable contributory drainage area limitation specified at **§100-3N(2)**, as applicable.
 - vii. A variance from the groundwater recharge standards at **§100-3O** may be granted provided that the total volume of stormwater infiltrated by the mitigation project equals or exceeds the volume required at **§100-3O**.

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- viii.** A variance from the stormwater runoff quality standards at **§100-3P** may be granted if the following are met:
- a.** The total drainage area of motor vehicle surface managed by the mitigation project(s) must equal or exceed the drainage area of the area of the major development subject to the variance and must provide sufficient TSS removal to equal or exceed the deficit resulting from granting the variance for the major development; and
 - b.** The mitigation project must remove nutrients to the maximum extent feasible in accordance with **§100-3P(7)**.
- ix.** A variance from the stormwater runoff quantity standards at **§100-3Q** may be granted if the following are met:
- a.** The applicant demonstrates, through hydrologic and hydraulic analysis, including the effects of the mitigation project, that the variance will not result in increased flooding damage below each point of discharge of the major development;
 - b.** The mitigation project indirectly discharges to the same watercourse and is located upstream of the major development subject to the variance; and
 - c.** The mitigation project provides peak flow rate attenuation in accordance with **§100-3Q(2)iii** for an equivalent or greater area than the area of the major development subject to the variance. For the purposes of this demonstration, equivalent includes both size of the area and percentage of impervious surface and/or motor vehicle surface.
- x.** The applicant or the entity assuming maintenance responsibility for the associated major development shall be responsible for preventive and corrective maintenance (including replacement) of the mitigation project and shall be identified as such in the maintenance plan established in accordance with **§100-9**. This responsibility is not transferable to any entity other than a public agency, in which case a written agreement with that public agency must be submitted to the review agency.
- C.** Any approved variance shall be submitted by the municipal review agency to the county review agency and the NJDEP, by way of a written report describing the variance, as well as the required mitigation, within 30 days of the approval.

§100-11. Penalties

Any person(s) who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this Chapter shall be subject to the following penalties:

[Municipality to specify]

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§100-12. Severability

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.

§100-13. Effective Date

This Ordinance shall be in full force and effect from and after its adoption and any publication as required by law.

ALL OF WHICH IS ADOPTED THIS _____ day of _____, 20____, by the

_____.