

Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(c) Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual available from the Department through www.dandrcanal.com. The applicant may submit the Department's Nonstructural Stormwater Strategies Point System worksheet (available at www.dandrcanal.com) to show compliance with this section of the chapter.

7:45-8.5 Specific recharge standards

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

1. The design engineer shall either:
 - i. Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual preconstruction groundwater recharge volume for the site; or
 - ii. Demonstrate through hydrologic and hydraulic analyses that any increase of stormwater runoff volume from pre-construction to post-construction for the two-year storm is infiltrated.
2. The groundwater recharge requirement does not apply to redevelopment projects that are subject to the following types of existing stormwater:
 - i. 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 Department approved remedial action work plans or landfill closure plans and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and
 - ii. 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, that 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.

3. The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid all material, measurable adverse hydraulic impacts to the maximum extent possible. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surface 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.

(b) Guidance on the analyses in (a)1 above is provided in the New Jersey Stormwater Best Practices Manual for stormwater runoff and groundwater recharge calculations.

7:45-8.6 Specific stormwater runoff quantity standards

(a) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff, at N.J.A.C. 7:8-5.6, Calculation of stormwater runoff, complete one of the following:

1. Design stormwater management measures so that the post-construction peak runoff rates for the two-, 10- and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates.
 - i. 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;
2. Demonstrate through hydrologic and hydraulic analyses that for stormwater leaving the site, post-construction runoff hydrographs for the two-, 10- and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events; or
3. 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 two-, 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.

7:45-8.7 Specific water quality standards

(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 by 80 percent of the anticipated load from the developed site, expressed as an annual average. 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 below. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

**Table 1
Water Quality Design Storm Distribution**

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

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.

(b) For purposes of TSS reduction calculations, Table 2 below is the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP manual may be obtained from the Commission's website at www.dandrcanal.com. 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 Commission.

(c) 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 = the TSS percent removal rate applicable to the first BMP
 B = the TSS percent removal rate applicable to the second BMP

**Table 2
TSS Removal Rates for BMPs**

<u>Best Management Practice TSS Percent Removal Rate</u>	
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80

Best Management Practice TSS Percent Removal Rate

Manufactured Treatment Devices	50-80
See certification by NJCATS on njstormwater.org	
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

(d) If there is more than one onsite drainage area, the 80 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) Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual.

7:45-8.8 Specific stormwater management maintenance requirements

(a) Responsibility for operation and maintenance of stormwater facilities installed, including periodic removal and disposal of accumulated particulate material and debris, unless assumed by a governmental agency, shall remain with the owner of the property and runs with the land to all heirs, successors, persons and assigns and to any and all mortgagees. Permanent conservation and maintenance easements to ensure continued performance of these obligations shall be completed and executed by the owner of the property on forms provided by the Commission. Stormwater facilities maintained by local, county or State government agencies shall not be required to file a conservation and maintenance easement. The easements shall include, but not be limited to, the following information provided by the applicant:

1. A list of all structural stormwater management facilities; and
 - i. Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual.
2. A maintenance plan for the stormwater management measures incorporated into the design of a major development. The maintenance plan shall contain specific preventive maintenance tasks and schedules, and the name, address, and telephone number of the person or persons responsible for preventive and corrective maintenance (including replacement). 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.

(b) 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