

MUNICIPAL STORMWATER MANAGEMENT PLAN

For the
Township of Lacey
Ocean County, New Jersey

November 2004
Updated September 2007
Updated June 2022

Prepared By



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RVE Project No. Job #1513-T-020

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Signature

A handwritten date "8/1/22" in black ink is written over a horizontal line.

Date

Alan Dittenhofer, PE, PP, CME
License # 37672

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INTRODUCTION

The Municipal Stormwater Management Plan (MSWMP) was prepared by Remington & Vernick Engineers, dated November 2004, and updated in September 2007.

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Township of Lacey ("the Township") to address stormwater related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules.

The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acres of land. These standards intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies. This plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

A "build-out" analysis has been included in this plan based upon existing zoning and land available for development.

The plan also addresses the review and update of existing ordinances, the Township Master Plan, and other planning documents to allow for project designs that include low impact development techniques.

The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing developments.

GOALS

The goals of this MSWMP are to:

- Reduce flood damage, include damage to life and property;
- Minimize, to the extent practical, any increase in stormwater runoff from any new development;
- Reduce soil erosion from any development or construction project;
- Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- Maintain groundwater recharge;
- Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- Protect public safety through the proper design and operation of stormwater basins.

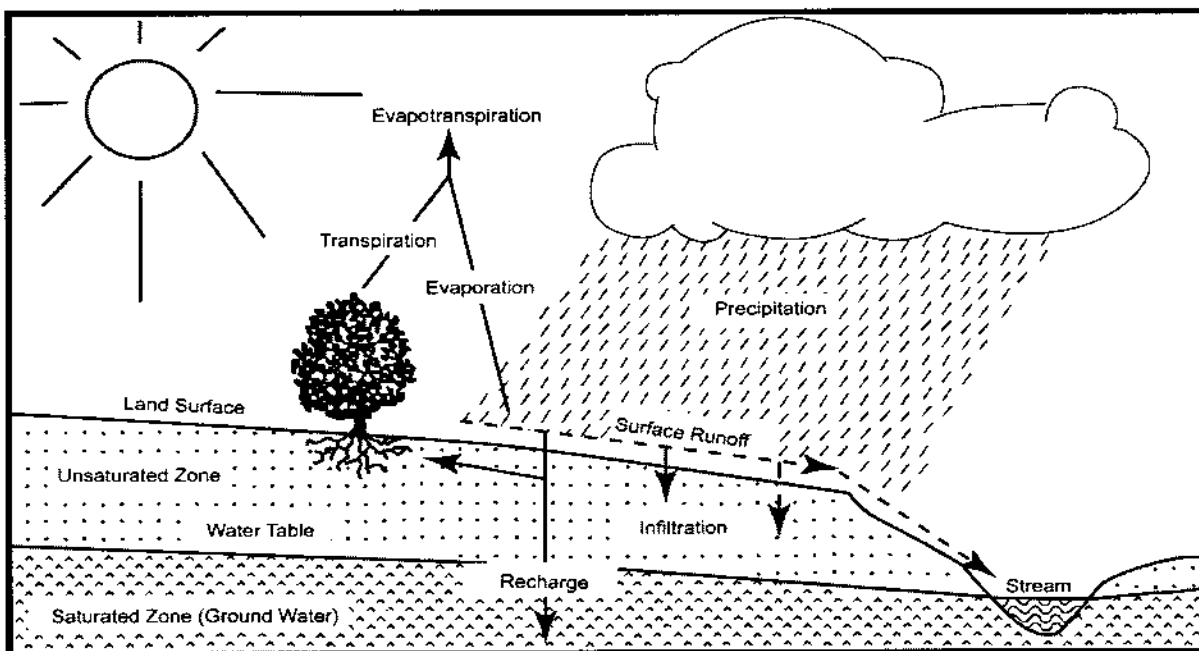
To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety. *All of these goals are ongoing.*

The General Reexamination of the Master Plan occurred in January 2013. The Stormwater Management Plan Element was reexamined at that time. It indicated that there is a need to update the stormwater facilities and include them in the new Master Plan. – *This will occur at the next Reexamination of the Master Plan.*

STORMWATER DISCUSSION

Land development can dramatically alter the hydrologic cycle of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion, that has infiltrated into the ground and return it to the atmosphere through evapotranspiration (refer to Groundwater Recharge in the Hydrologic Cycle illustration below). Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site.

Figure C-1: Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey

Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel.

Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates,

which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows.

Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt. In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can, become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

BACKGROUND

Lacey Township encompasses an 84.6 square mile area in land and 14.5 square miles of water located in Central Ocean County, New Jersey. Lacey Township is bordered on the east by the Barnegat Bay, to the north by Berkeley Township, to the south by Ocean Township while the western border is dominated by the Pinelands. The population of the Township increased from 14,161 in 1980, to 22,141 in 1990, to 25,346 in 2000, to 28,655 in 2020, (<http://www.census.gov>). This population increase has resulted in considerable demand for new development. Changes in the landscape have most likely increased stormwater runoff volumes and pollutant loads to the waterways of the municipality. Figure C-2 illustrates the waterways in the Township. Figure C-3 depicts the Township boundary on the USGS quadrangle maps.

Lacey Township is unique in that it is subject to the jurisdiction of various state land-use and environmental regulatory programs, particularly the Pinelands Protection Act, Waterfront Development Law, Coastal Area Facility Review Act, and the Wetlands Act of 1970. The diverse ecology of the region includes the extensive inland forests of the Pinelands, freshwater and marine wetlands and the coastal barrier islands, estuaries and beaches.

While a portion of Lacey is developed, a large part of the Township falls within both the Pineland Preservation and Pineland Forest Area Districts. This limits the Township's ability to allow new and future development within the region.

There are a number of surface water bodies within Lacey Township, including the following:

- Mount Misery Brook, Webbs Mill Branch, and Chamberlin Branch are all located in the western portion of the Township;
- Oswego River (North of Route 539) located in the southwestern portion of the Township;
- Davenport Branch which is located in the northwestern portion of the Township and flows to Chamberlin Branch;
- Factory Branch, Newbolds Branch and Daniels Branch, all which are located centrally within the Township;
- Cedar Creek located along the northeastern portion of the Township which drains into the Barnegat Bay;
- Oyster Creek; and

- Forked River located along the eastern portion of the Township which drains into the Barnegat Bay. Forked River contains three (3) branches – the North Branch (which includes three (3) lakes), the Middle Branch and the South Branch.

Virtually all of these waterbodies are tributaries of, and flow to, the Barnegat Bay.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrate by the NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics.

Several waterbodies transverse the Township, some of which are monitored by AMNET. These include the following (all based on the AMNET data):

- Davenport Branch (AMNET Site #: AN0540; PMI Rating: 48.78 – Fair; Habitat Analysis: 144 – Suboptimal)
- Webbs Mill Branch (AMNET Site #: AN0545; PMI Rating: 53.03 – Fair; Habitat Analysis: 141 – Suboptimal)
- Cedar Creek (AMNET Site #: AN0546; PMI Rating: 62.92 – Good; Habitat Analysis: 161 – Optimal)
- Factory Branch (AMNET Site #: AN0547; PMI Rating: 65.79 – Excellent; Habitat Analysis: 167 – Optimal)
- Cedar Creek (AMNET Site #: AN0549; PMI Rating: 67.05 – Excellent; Habitat Analysis: 158 – Suboptimal)
- Long Branch of Forked River North Branch (AMNET Site #: AN0550; PMI Rating: 49.53 – Fair; Habitat Analysis: 154 – Suboptimal)
- Forked River North Branch (AMNET Site #: AN0551; PMI Rating: 65.95 – Excellent; Habitat Analysis: 152 – Suboptimal)

In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. This data is located on Sub list 5 of New Jersey's integrated list. The NJDEP data shows that the dissolved oxygen levels of the Atlantic Ocean and Webbs Mill Branch and the total coliform levels of Cedar Creek, the Barnegat Bay, and the Forked River frequently exceed the state's criteria. This means that these are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants for each waterway. The Cedar Creek and Toms River were assigned a high priority by the NJDEP for the development of a TMDL.

As a result, a TMDL for total coliforms was established for the Forked River Estuary and Cedar Creek Estuary as part of the Amendment to the Monmouth and Ocean Counties Water Quality Management Plans titled "Fourteen Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 13 Atlantic Coastal Water Region", proposed February 21, 2006, and approved September 27, 2006. The Amendment targets a 50% reduction in the Forked River Estuary and a 48% reduction in the Cedar Creek Estuary to address the shellfish impaired waters there, as well as other coastal waters within the Regional Watershed (Watershed Management Area #13).

A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and

wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater, systems, and other BMPs.

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the Federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. The combined report represents the extent to which New Jersey Waters are attaining water quality standards and identifies waters that are impaired. Sub list 5 of the Integral List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDL's are needed.

It is important to note that Lacey Township does not have development conditions or uses within the above estuaries that traditionally contribute to total coliform exceedances (e.g., agricultural farms, horse farms, malfunctioning septic systems, etc.). In fact, the only significant area within Lacey Township where septic systems are used are within the Bamber Village development, in the westernmost (Pinelands) portion of the Township. There is no evidence that these systems are malfunctioning, nor are these systems likely to significantly contribute to coliform problems within the Township's estuaries.

Lacey Township will address stormwater point sources through existing Best Management Practices (BMPs) of the MS4 program, as practicable, and in accordance with its MS4 permit obligations.

The Township has passed wildlife feeding and pet waste (pickup) ordinances which are enforced by the Township. If needed, geese control measure could also be implemented.

It should also be noted that Lacey Township will also attempt to manage waterward sources of coliforms as practicable, including the following:

- Enforcement of local No Discharge Zones (including Barnegat Bay).
- Endorsement of Clean Marina Programs.
- Marina Best Management Practices (e.g., providing and managing Marina pumpout facilities, etc.)

It should be noted that as part of the Township's Municipal Separate Storm Sewer Permit, as outlined in the Stormwater Pollution Prevention Plan, existing inlets and stormwater management facilities are inspected annually and repairs/maintenance are made. At that time, existing water quantity and erosion problems (if any) are addressed and abated to the maximum extent practicable.

Future major development will comply with the new NJDEP Stormwater design standards (NJAC 7:8), including the average annual recharge (retain increase in 2-year design storm) requirement. Future development will utilize the best methods to minimize off-site stormwater runoff, increase on-site infiltration, simulate natural drainage systems and minimize off-site discharge of pollutants to ground or surface water and encourage natural filtration functions.

In addition to water quality problems, flooding in the Township of Lacey occurs infrequently because of the low runoff generating character of the soil and the extensive areas of wetlands which absorb the impact of runoff. However, as land is developed, the permeable soils are replaced by impermeable surfaces which increase runoff volumes. All future development in Lacey Township shall utilize the best available technology to minimize offsite stormwater runoff, increase on-site infiltration, simulate natural drainage

systems and minimize off-site discharge of pollutants to ground or surface water and encourage natural filtration functions.

DESIGN STANDARDS

The Township has adopted the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies.

The design and performance standards include the language for maintenance of stormwater management measures, consistent with the stormwater management rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins.

NJDEP recently amended its statewide Stormwater Management Rules NJAC 7:8. Lacey Township has amended its local stormwater control regulations to be consistent with the NJDEP amendments and mandates. The new Stormwater Management Ordinances were adopted on February 25, 2021.

As stated in this report, Township properties under Pinelands Jurisdiction (i.e., the majority of the Township's land area) are subject to the Pinelands design standard as outlined in the Township's stormwater ordinance (Chapter 292 Stormwater Regulations for Pinelands Areas, adopted July 26, 2007) for Pinelands properties (i.e., within the Pinelands Commission's jurisdiction).

Non-structural measures to be considered first shall include site design and preventive source controls. These non-structural measures are required to be included in the stormwater management report. To confirm the effectiveness of such measures, Applicants must verify the control of stormwater quantity impacts as detailed in the Stormwater Management rules.

The general standards for structural measures is specified in the Stormwater Management rules and are incorporated into the Township of Lacey's Ordinance. These measures meet the soil erosion, infiltration and runoff quantity standards included in the Township's Stormwater Ordinance. The design standards for the specific structural stormwater management measures are those included in the New Jersey Stormwater Best Management Practices Manual. Other designs or practices may be used if they are approved by the Ocean County Soil Conservation District. The design and construction of such facilities must comply with the Soil Erosion and Sediment Control Standards as well as any other applicable state regulation, including the Freshwater Wetland Protection Act rules, the Flood Hazard Control rules, the Surface Water Quality Standards, the Coastal Area Facilities Review Act, Waterfront Development and Harbor Facilities Act, and the Dam Safety rules. The requirement to be consistent with all other applicable rules are included in the Township's Stormwater Ordinance. Stormwater runoff quality controls for total suspended solids and nutrient loads meet the design and performance standards as specified in the Stormwater Management rules. The minimum design and performance standards for infiltration and groundwater recharge specified in the Stormwater Management Rules are incorporated into the Township's Stormwater Control Ordinances (areas within Pinelands area and areas outside of Pinelands area) and must be met for all applicable development. Consistent with the Stormwater Management Rules, the Ordinance allows for an exemption from this requirement where the Applicant can demonstrate that it is not practicable to meet the standards but has taken all possible steps to meet all stormwater management measures.

In addition, all regulated stormwater BMP facilities will be subject to operation and maintenance requirements stipulated in the NJ Stormwater Rule, including but not limited to the following:

- The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
- The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement).
- Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure(s), including 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.
- The person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.
- The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.
- The person responsible for maintenance shall 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 the Township's stormwater ordinances.
- 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. If the responsible person fails or refuses to perform such maintenance or repair, the municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

Finally, it should be noted that the NJDEP's Coastal Area Facility Regulation Act (CAFRA) regulations incorporate the NJ Stormwater Rule by reference. An applicant requiring a CAFRA permit for a project that may request a Township waiver of stormwater performance standards may be required to provide a mitigation plan for the proposed project by the NJDEP (even if not required by the Township).

During construction, Township inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed. Adequate long term operation, as well as preventative and corrective maintenance of the selected stormwater management measures, will be ensured by requiring the design engineer to prepare a maintenance plan and/or report for its stormwater management facilities incorporated into the design of the major development. The maintenance plan and/or report shall have specific preventative maintenance tasks, schedules and cost estimates, as well as the responsible party for corrective and preventative maintenance.

Should basins fall in disrepair or have noticeable failure, the Township may first issue written directive to correct the problem. If problem is not corrected, the Township Code Enforcement issues a Notice of Violation to the responsible party. The Township may do the necessary repairs and charge the responsible entity.

Where the Township assumes maintenance responsibility, preventative maintenance shall be performed on a regular basis and will be appropriate for the particular structural management measure being implemented. These maintenance measures shall be in accordance with N.J.A.C. 7:8-5 and may include: periodic inspections, vegetation management, sediment, debris and trash removal and mosquito control. Corrective maintenance shall be performed on an as needed basis for structure repairs or replacements, removal of outlet and pipe blockages, erosion restoration, snow and ice removal, etc. The person or persons responsible for maintenance shall keep a detailed log of all preventative and corrective maintenance for the structural

management measures incorporated into the design of the development, including a record of all inspections and work orders.

PLAN CONSISTENCY

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates to the RSIS.

The Township's Stormwater Management Ordinance will require all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Township inspectors will observe on-site soil erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

Within Lacey Township there are areas within the New Jersey Pinelands Preservation Area. The Municipal Stormwater Management Plan is consistent with Pinelands Regulations. Major development within portions of Lacey Township that lie within the Pinelands area shall meet the Stormwater Control Ordinance for areas in Lacey Township within Pinelands area, Pinelands CMP, and all other applicable regulations.

NJDEP CAFRA Regulations have been incorporated by reference the Stormwater Management Regulations; consequently, an Applicant submitting a CAFRA application that has also requested a waiver from the performance standards may be required by the NJDEP to develop a mitigation plan.

NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

Non-structural stormwater strategies for design of new developments, or redevelopment, as defined per the NJDEP Stormwater Design Regulations (NJAC 7-5.3(b)), include the following objectives:

- A. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.
- B. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.
- C. Maximize the protection of natural drainage features and vegetation.
- D. Minimize the decrease in the preconstruction time of concentration to post-construction. "Time of Concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.
- E. Minimize land disturbance, including clearing and grading.
- F. Minimize soil compaction.
- G. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides.
- H. Provide vegetated open-channel conveyance systems discharging into and through stable vegetative areas.
- I. Provide other source controls to prevent or minimize erosion or discharges.

Enclosed with **Appendix B** of this plan is a review of Lacey's revised ordinances for compliance with non-structural strategies, using the checklist provided in the New Jersey Best Management Practices (NJBMP) manual. Ordinance changes for additional compliance will be made at the discretion of Lacey Township.

Previously the Township has revised their stormwater ordinances, per the NJDEP requirements to comply with the nonstructural stormwater management strategies. Per the stormwater ordinances adopted on

February 25, 2021, Section 291 Stormwater Regulations for Non-Pinelands Areas indicates the nonstructural stormwater management strategies that is to be followed by the Township.

If an applicant (or his/her engineer) contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management strategies into the design of a particular project, the applicant will identify the strategy and provide a basis for contention. It is understood that any project requiring NJDEP Land Use Regulation Program permitting or approvals will also be subject to a similar stormwater review by the appropriate agency.

LAND USE/BUILD-OUT ANALYSIS

A detailed land use analysis for the Township was conducted in 2007. Figure C-6 illustrates the existing land use in the Township based on 1995/97 GIS information from NJDEP. Figure C-7 illustrates the HUC14's within the Township. The Township zoning map is shown in Figure C-8. The build-out calculations for impervious cover are shown in Table C-1.

The pollutant loads at full build-out are presented in Table C-2.

There are four (4) steps to preparing a build-out analysis that satisfies the requirements for the municipal stormwater management plan:

1. Determine the total land area within each of the HUC14s of the municipality.
2. Determine the area of constrained lands within each HUC14 of the municipality.
3. Determine the land available for development by simply subtracting the constrained lands from the total land area for each HUC14. In essence, the land available for development is the agricultural, forest and/or barren lands available in each HUC14. Existing residential, commercial, and industrial areas are also eligible for redevelopment and should be considered as land available for development.
4. For each HUC 14, complete a build-out analysis by using the municipal zoning map and applicable ordinances to determine the acreage of new development. Once the build-out acreage of each land use is determined for each HUC14, non-point source loadings can be determined for the build-out scenario.

Enclosed within **Appendix C** of this plan is a build-out analysis performed for Lacey Township using 2002 NJDEP Geographic System data. As noted, slightly more than one (1) square mile of undeveloped, unconstrained land exists within the Township.

MITIGATION PLANS

Per review of the optional MS4 mitigation plan requirement with Lacey Township and Planning Board representatives, the Planning Board has deferred identifying any specific existing areas in need of mitigation at this time.

If a developer of a future project(s) presents a project deemed in the Township's interest, and is in need of a waiver, the Township may amend its stormwater management plan element to identify specific projects for which a waiver may be sought. Said amendment will be submitted to the County and/or NJDEP for review in accordance with the regulations. In addition, all mitigation projects proposed within the Pinelands Area would also be subject to Pinelands Commission review and approval as well.

STREAM CORRIDOR PROTECTION PLAN (OPTIONAL)

It should be noted that there are no Special Water Resource protection areas designated Category One (NJAC 7:8B) or upstream perennial or intermittent streams of said waters within Lacey Township. It should be noted, however, that since Lacey Township is a Pinelands Community, wetlands associated with surface waters and other features are already subject to a 300 foot development buffer per Pinelands regulations, unless a demonstration can be made to the Commission that a lesser buffer could be allowed without adversely impacting the local environment.

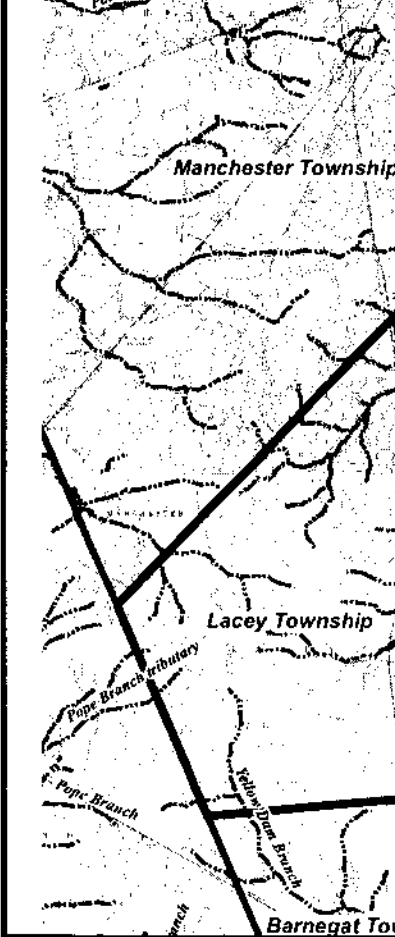
If such water bodies are found or designated at a later date, future major development within 300 feet of said waters will be regulated in accordance with NJAC 7:8-5.5(h) as outlined in the stormwater ordinance.

APPENDIX A – MAPPING

- Figure C-2: Township and Its Waterways
- Figure C-3: Township Boundary on USGS Quadrangles
- Figure C-4: Groundwater Recharge Areas in the Township
- Figure C-5: Wellhead Protection Areas in the Township
- Figure C-6: Township's Existing Land Use
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- Figure C-10: Township Soils

No.	REVISION	DATE	BY	CHK

Scale: 1" = 2 Miles



General Notes and Data Sources:

This Geographic Information System (GIS) map is for demonstration purposes only, any use of this product with respect to accuracy and precision shall be the sole responsibility of the end user.

The areas, boundaries and details, shown on this map, are referenced, in part, from ground surveys, aerial surveys and recorded plans, tax assessment maps and documents, and are to be used for boundary purposes only.

This map was created, in part, using parcel, municipal boundary and location data provided by the N.J.D.E.P., Bureau of GIS.

Additional GIS resource data and imagery data was provided by the New Jersey Geographic Information Network. The (NJGIN) data was obtained and provided by the New Jersey Geographic Information Network (NJGIN): http://njin.state.nj.us/NJ_NUGINE/ptor/index.jsp. This secondary product has not been verified by (NJGIN) and is not state-authorized.

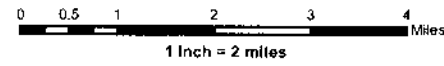
Additional cadastral feature mapping data, such as, waterways, roadways, railroads, aerial orthophotography, etc. was obtained from the New Jersey Department of Environmental Protection (NJDEP). The New Jersey Department of Environmental Protection (NJDEP) data was obtained and provided by the New Jersey Department of Environmental Protection, <http://www.state.nj.us/dep/>. This secondary product has not been verified by (NJDEP) and is not state-authorized.

All positions are based on the following:
 - NAD 83 (horizontal datum)
 - New Jersey State Plane Coordinate System
 - English units (feet)

The geodetic accuracy and precision of the Geographic Information System (GIS) data contained in this mapping has not been developed nor verified by a professional licensed land surveyor and shall not be used in matters requiring delineation and location of true ground horizontal and/or vertical controls.

Legend

- Township of Lacey
- Adjacent Municipal Boundaries
- Creeks, Rivers, Streams

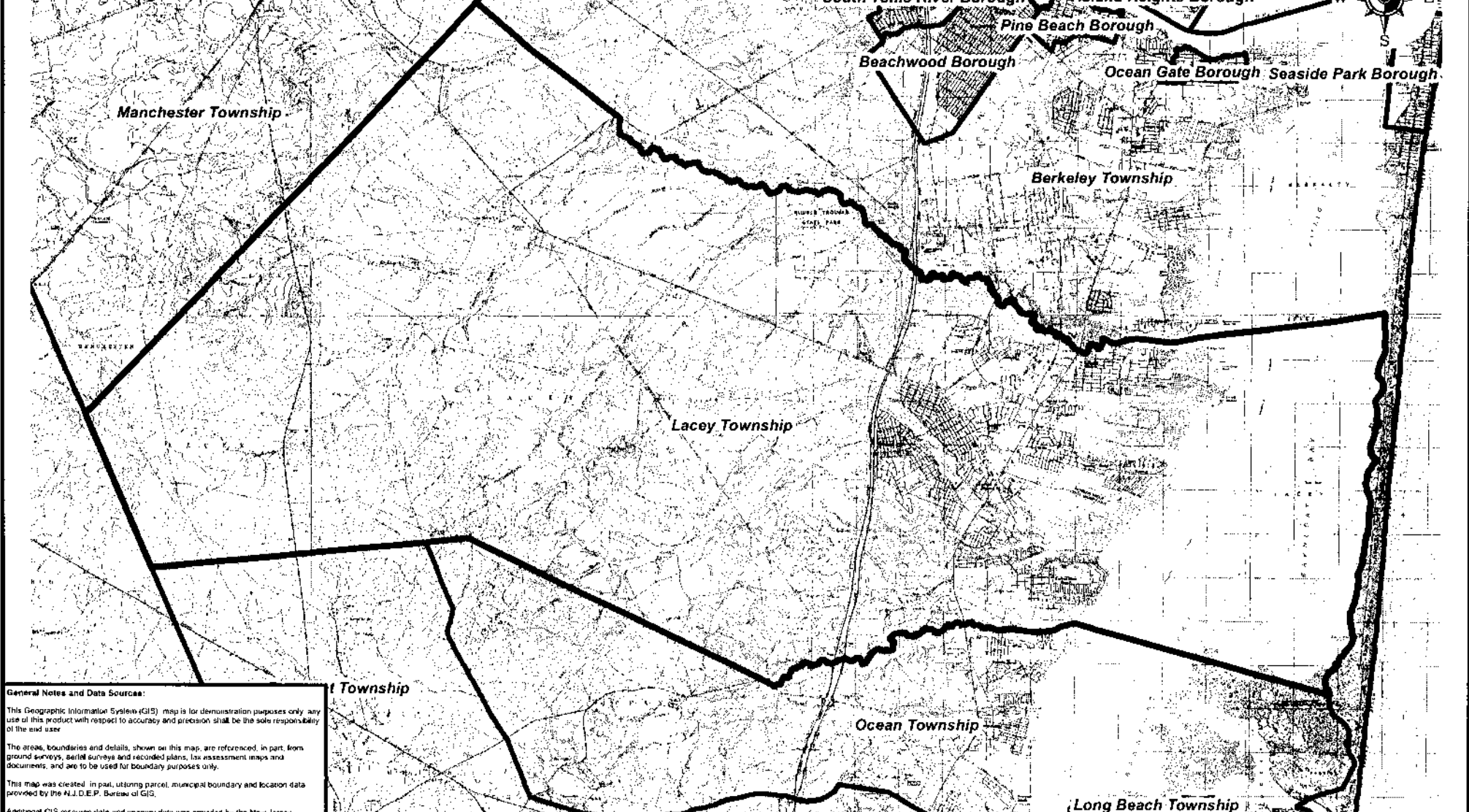


Map of Waterways
 TOWNSHIP OF LACEY
 OCEAN COUNTY NEW JERSEY
 May, 2022 SCALE: 1" = 2 Miles

REMINGTON & VERNICK ENGINEERS
 8 ALLEN STREET, TOMS RIVER, NJ 08753
 (732) 246-2222, FAX (732) 305-8416, WWW.RVE.COM
 Certified of Accreditation, ISO 9001:2008
 ENGINEERING EXCELLENCE

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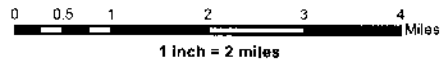
All positions are based on the following:

- NAD 83 (horizontal datum)
- New Jersey State Plane Coordinate System
- English units (feet)

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Legend

- Township of Lacey
- Adjacent Municipal Boundaries



**USGS Quadrangles and
Municipal Boundaries**

TOWNSHIP OF LACEY
OCEAN COUNTY NEW JERSEY
May, 2022 SCALE: 1" = 2 Miles

RVE REMINGTON & VERNICK ENGINEERS
9 ALLEN STREET, TOMS RIVER, NJ 08753
(732) 286-8220, FAX (732) 285-8118, WWW.RVE.COM
Civil & Mechanical Engineers, Inc. Est. 1968
— ENGINEERING EXCELLENCE —

No.	REVISION	DATE	BY	CHK



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


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- English units (feet)

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Legend

-  Township of Lacey
-  Adjacent Municipal Boundaries
-  0 in/yr
-  1 to 7 in/yr
-  8 to 10 in/yr
-  11 to 15 in/yr
-  16 to 23 in/yr

(Long Beach Township)

**Map of
Ground Water Recharge Areas**

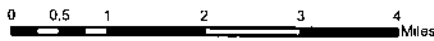
TOWNSHIP OF LACEY

OCEAN COUNTY

NEW JERSEY

May, 2022

SCALE: 1" = 2 Miles



1 Inch = 2 miles



REMINGTON & VERNICK ENGINEERS

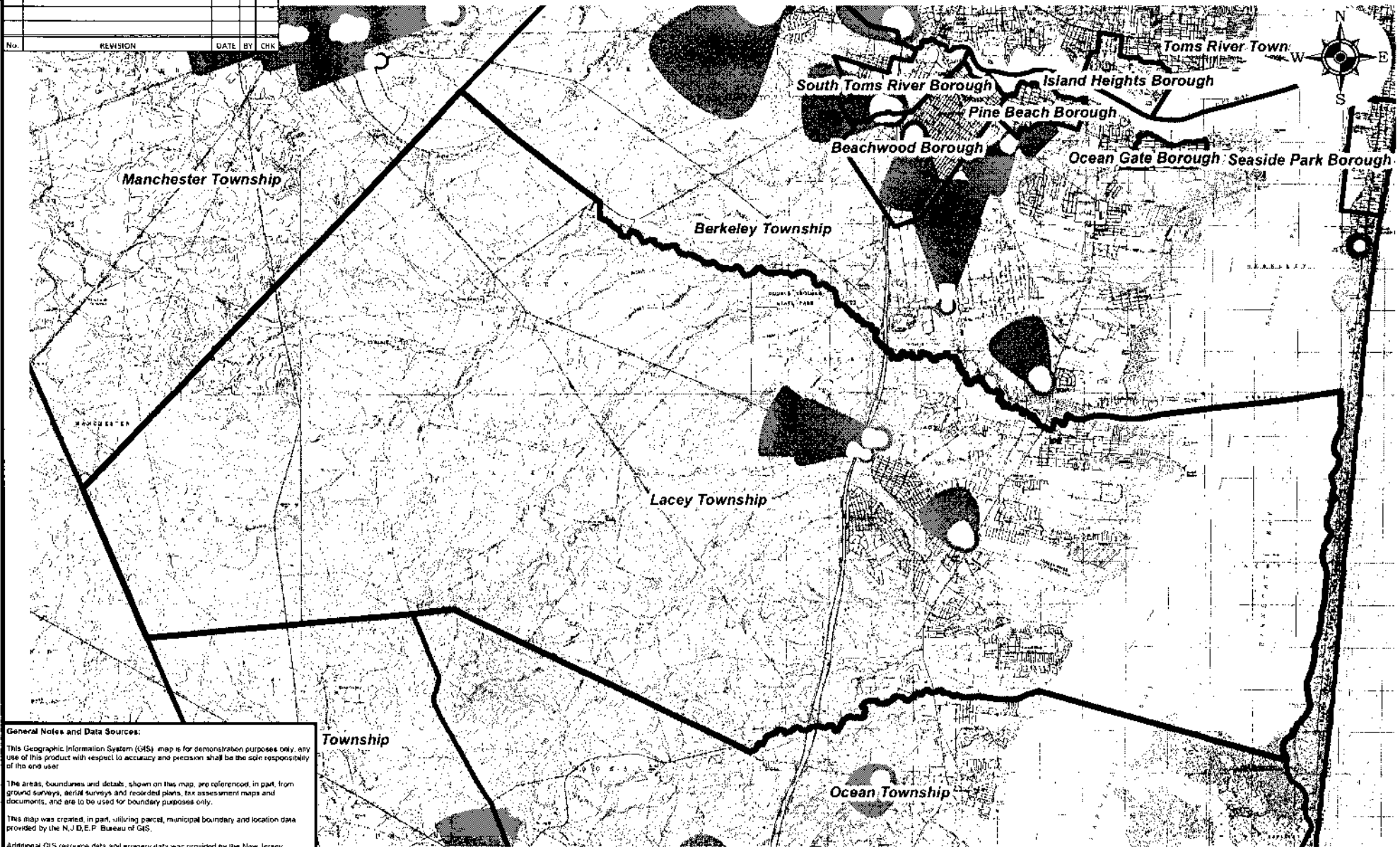
9 ALLEN STREET, TOMS RIVER, NJ 08753

(732) 296-9220, FAX (732) 365-4418, WWW.RVE.COM

CERTIFICATE OF ACHIEVEMENT IN EXCELLENCE

ENGINEERING EXCELLENCE

No.	REVISION	DATE	BY	CHK



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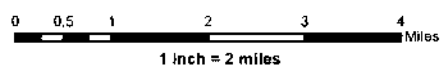
- NAD 83 (horizontal datum)
- New Jersey State Plane Coordinate System
- English units (feet)

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Printed on: May 24, 2022

Legend

- Township of Lacey
- Adjacent Municipal Boundaries
- WHPA: Tier 1
- WHPA: Tier 2
- WHPA: Tier 3

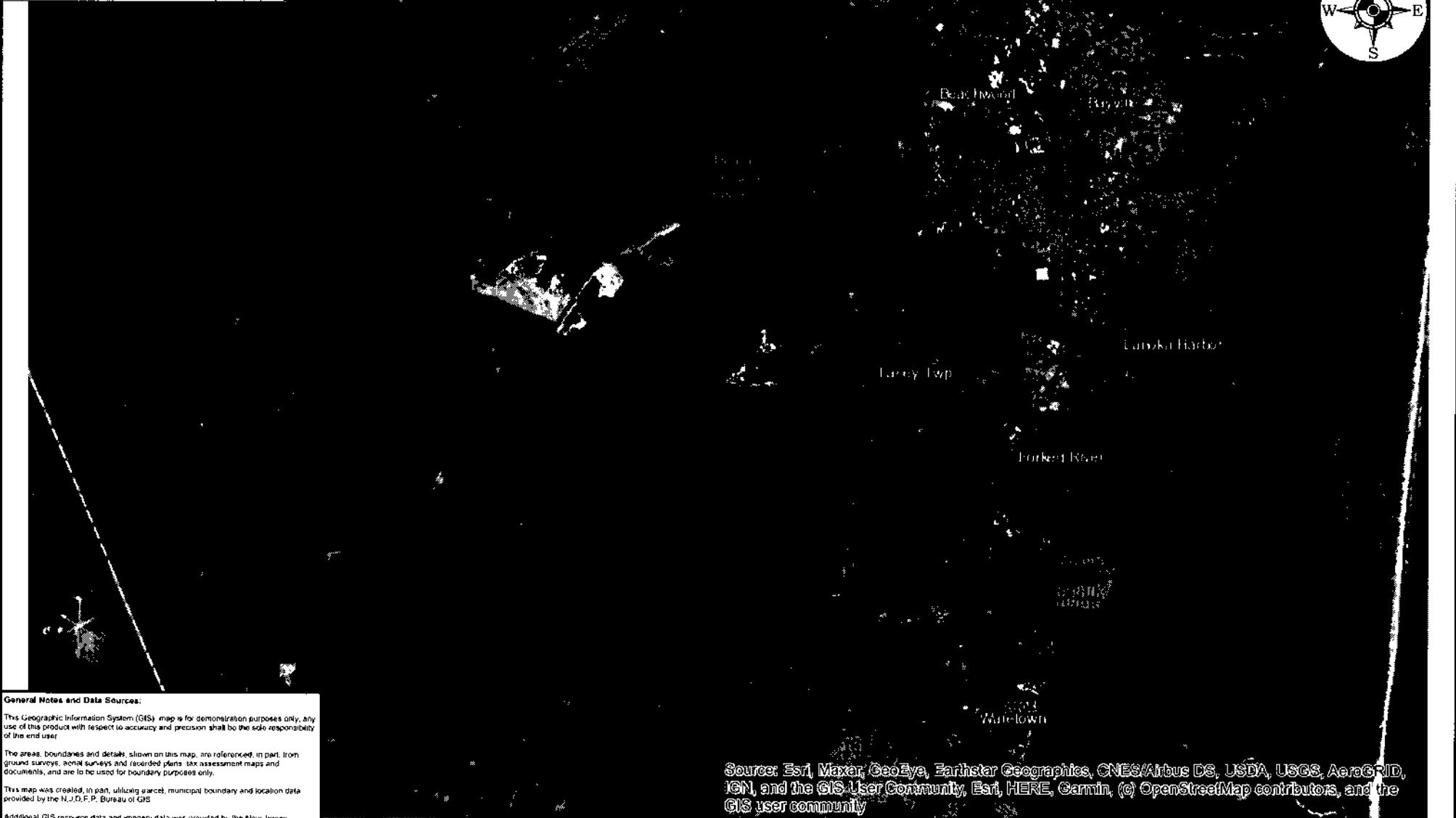


**Map of
Well Head Protection Areas**

TOWNSHIP OF LACEY
OCEAN COUNTY NEW JERSEY
May, 2022 SCALE: 1" = 2 Miles

REMINGTON & VERNICK ENGINEERS
 8 ALLEN STREET, TOMS RIVER, NJ 08053
 (732) 226-9220, FAX (732) 559-6166, WWW.RVE.COM
 Civil Works of Atlantic Region, 24 000 10001800
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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

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Aerial Map

TOWNSHIP OF LACEY

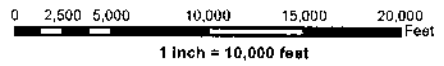
OCEAN COUNTY NEW JERSEY

May, 2022 SCALE: 1" = 10,000'

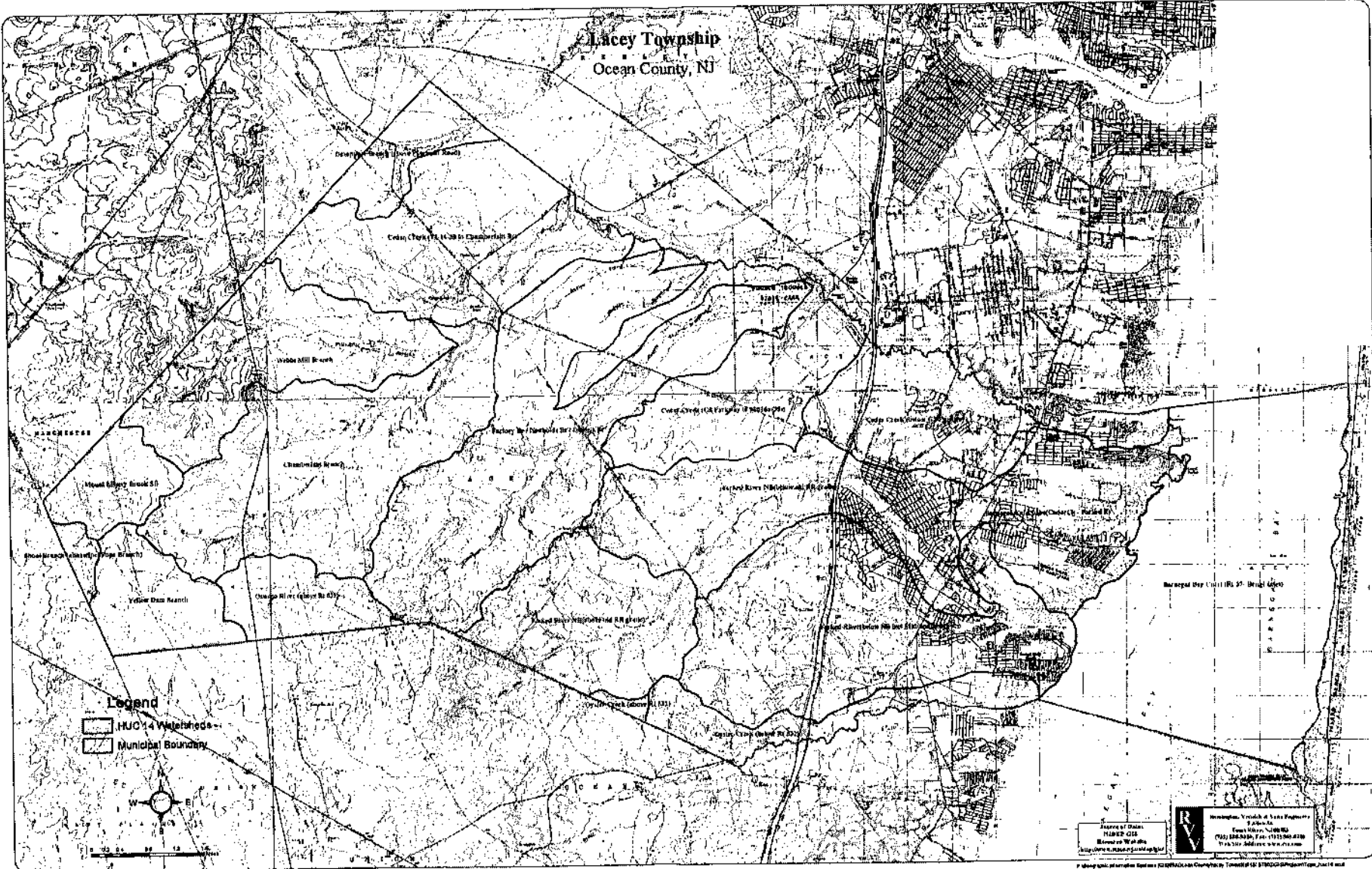


REMINGTON & VERNICK ENGINEERS

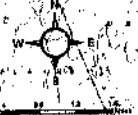
9 ALLEN STREET, TOMS RIVER, NJ 08723
 (732) 288-8220, FAX (732) 285-8438, WWW.RVE.COM
THE FIRM IS AUTHORIZED BY THE STATE OF NEW JERSEY
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Lacey Township
Ocean County, NJ



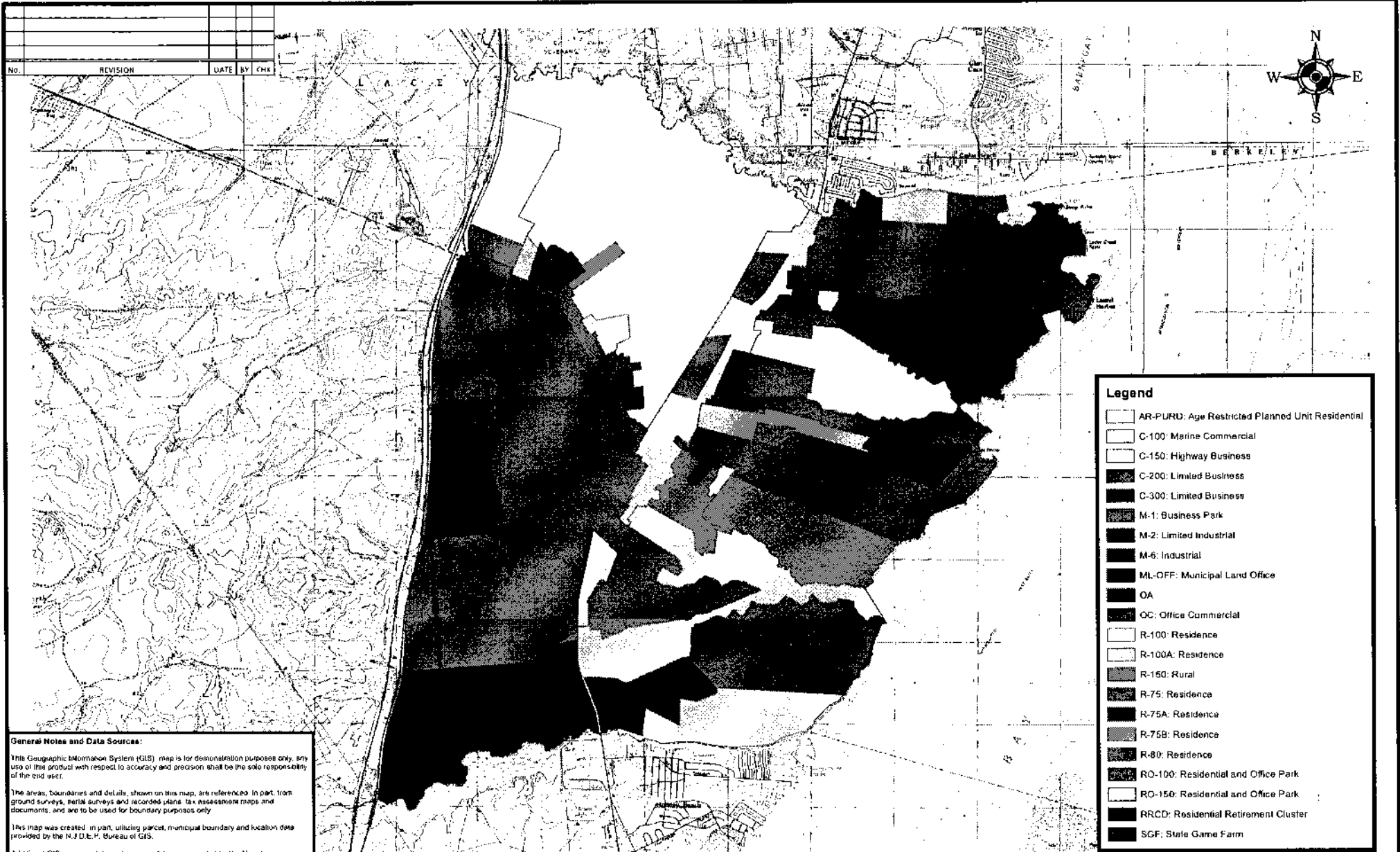
Legend
HUC 14 Watersheds
Municipal Boundaries



Source of Data:
NJDEP GIS
Based on W 84.00
<http://www.nj.gov/dep/gis/>

Information: Division of State Planning
NJDEP GIS
County Office: 1000 NJ
07025-2629, Fax: (973) 966-6780
Work Day Address: 1000 NJ
www.nj.gov

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Legend

- AR-PURD: Age Restricted Planned Unit Residential
- C-100: Marine Commercial
- C-150: Highway Business
- C-200: Limited Business
- C-300: Limited Business
- M-1: Business Park
- M-2: Limited Industrial
- M-6: Industrial
- ML-OFF: Municipal Land Office
- OA
- OC: Office Commercial
- R-100: Residence
- R-100A: Residence
- R-150: Rural
- R-75: Residence
- R-75A: Residence
- R-75B: Residence
- R-80: Residence
- RO-100: Residential and Office Park
- RO-150: Residential and Office Park
- RRCD: Residential Retirement Cluster
- SGF: State Game Farm

**Map of
Zoning Areas**

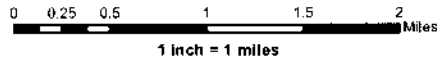
TOWNSHIP OF LACEY

OCEAN COUNTY NEW JERSEY

May, 2022 SCALE: 1" = 1 Mile

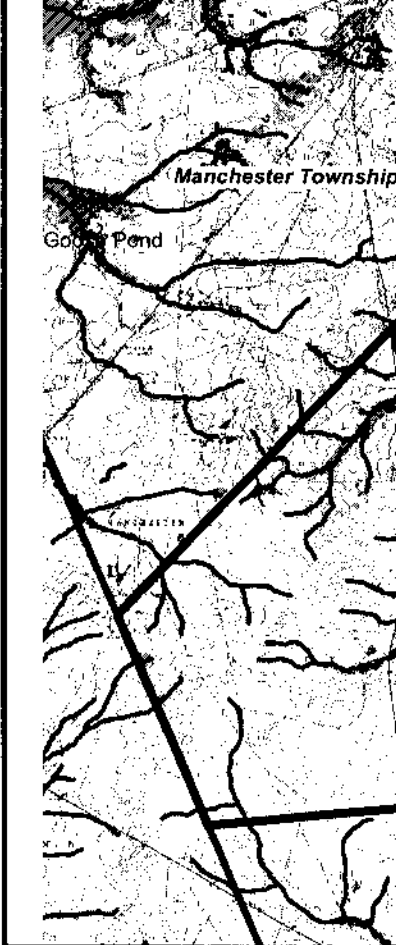
RVE REMINGTON & VERNICK ENGINEERS

9 ALLEN STREET, TOWNSHIP OF LACEY, NJ 08733
(732) 286-9220; FAX (732) 967-9118; WWW.RVE.COM
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Printed on: May 24, 2022



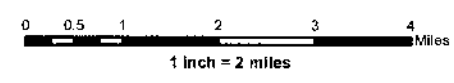
Legend

- Township of Lacey
- Adjacent Municipal Boundaries
- Creeks, Rivers, Streams
- Wetlands
- Water Body

**Map of
Wetlands and Water Land Uses**

TOWNSHIP OF LACEY
OCEAN COUNTY NEW JERSEY
May, 2022 SCALE: 1" = 2 Miles

RVE REMINGTON & VERNICK ENGINEERS
9 ALLEN STREET, TOMS RIVER, NJ 08723
7321-266-4225, FAX 7321-505-8416, WWW.RVE.COM
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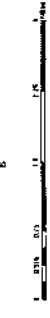


Lacey Township
Ocean County, NJ
Soils

Legend
Soil Type Code

U1	U2	U3	U4	U5	U6	U7	U8	U9	U10
U11	U12	U13	U14	U15	U16	U17	U18	U19	U20
U21	U22	U23	U24	U25	U26	U27	U28	U29	U30
U31	U32	U33	U34	U35	U36	U37	U38	U39	U40
U41	U42	U43	U44	U45	U46	U47	U48	U49	U50
U51	U52	U53	U54	U55	U56	U57	U58	U59	U60
U61	U62	U63	U64	U65	U66	U67	U68	U69	U70
U71	U72	U73	U74	U75	U76	U77	U78	U79	U80
U81	U82	U83	U84	U85	U86	U87	U88	U89	U90
U91	U92	U93	U94	U95	U96	U97	U98	U99	U100

Multiple Boundary



National Engineering Surveying and Mapping Institute, Inc.
3600 S. Highway 101
Tomball, Texas 77375
Tel: (281) 446-2414
Fax: (281) 446-2416
Web: www.nesmi.com

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APPENDIX B – ORDINANCES

Chapter 291: Stormwater Regulations for Non-Pinelands Areas

Chapter 292: Stormwater Regulations for Pinelands Areas

Township of Lacey, NJ
Wednesday, May 4, 2022

Chapter 291. Stormwater Regulations for Non-Pinelands Areas

[HISTORY: Adopted by the Township Committee of the Township of Lacey 5-11-2006 by Ord. No. 2006-23; amended in its entirety 2-25-2021 by Ord. No. 2021-07. Subsequent amendments noted where applicable.]

§ 291-1. Scope and purpose.

- A. Policy statement. Flood control, groundwater recharge, and pollutant reduction through nonstructural or low-impact techniques shall be explored before relying on structural BMPs. Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge. It should be noted that this regulation applies only to projects meeting the criteria for major development or with areas designated as urban redevelopment areas, as identified in this chapter. Projects that are not major development or with areas designated as urban redevelopment areas shall be reviewed under existing Lacey Township ordinances, including but not limited to the following:
- (1) Section 297-41, Storm sewers and other drainage structures.
 - (2) Chapter 285, Site Plan Review.
 - (3) Chapter 297, Subdivision of Land, Article VI, Design Standards and Requirements.
- B. Purpose. It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development, and the redevelopment of sites within areas designated as urban redevelopment areas as defined in § 291-2 and to provide for the incorporation of nonstructural and/or low-impact stormwater management techniques for improvements requiring site plan approval for development.
- C. Applicability.
- (1) This chapter shall be applicable to all site plans and subdivisions for the following major development and all development within urban redevelopment areas, as defined in this section, that require preliminary or final site plan, minor site plan or subdivision review:
 - (a) Nonresidential major developments; and
 - (b) Aspects of residential major developments that are not preempted by the Residential Site Improvement Standards at N.J.A.C. 5:21.

- (c) Site plans for nonresidential development in an urban redevelopment area, as defined in this section. For purposes of this section, the incorporation of the following design elements, subject to the determination by the reviewing board engineer, may meet this requirement.

- [1] Incorporation of roof drainage directly to dry wells, rain barrels or planting beds;
- [2] Intercept runoff from driveways draining into public roads or rights-of-way and direct into landscape strips, bioswales or rain gardens;
- [3] Direct runoff from parking lots into landscape strips, bioswales or rain gardens;
- [4] The use of other innovative stormwater management techniques which reduce site runoff and improve runoff quality.

- (2) This chapter shall also be applicable to all major developments undertaken by Lacey Township.

- D. Compatibility with other permit and ordinance requirements. Development approvals issued for subdivisions and site plans pursuant to this chapter are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this 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 ordinance, 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.

§ 291-2. Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2. unless modified specifically for Lacey Township:

BMP

Best management practices.

CAFRA CENTERS, CORES OR NODES

Those areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.

CAFRA PLANNING MAP

The map used by the Department to identify the location of the Coastal Planning Areas, CAFRA centers, CAFRA cores, and CAFRA nodes. The CAFRA Planning Map is available on the Department's Geographical Information System (GIS)

COMMUNITY BASIN

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

COMPACTION

The increase in soil bulk density.

CONTRIBUTORY DRAINAGE AREA

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

CORE

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

COUNTY REVIEW AGENCY

An agency designated by the Board of County Commissioners to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

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

DEPARTMENT

The New Jersey Department of Environmental Protection.

DESIGN ENGINEER

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

DESIGNATED CENTER

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

DEVELOPMENT

The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, by any person, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, "development" means any activity that requires a state permit; any activity reviewed by the County Agricultural 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

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

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

EMPOWERMENT NEIGHBORHOOD

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

ENVIRONMENTALLY CONSTRAINED AREA

The following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership, such as wetlands, floodplains,

threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

ENVIRONMENTALLY CRITICAL AREAS

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

EROSION

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

GREEN INFRASTRUCTURE

A stormwater management measure that manages stormwater close to its surface by:

- A. Treating stormwater runoff through infiltration into subsoil;
- B. Treating stormwater runoff through filtration by vegetation or soil; or
- C. Storing stormwater runoff for reuse.

HUC 14 OR HYDROLOGIC UNIT CODE 14

An area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a fourteen-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

IMPERVIOUS SURFACE

A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

INFILTRATION

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

LEAD PLANNING AGENCY

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

MAJOR DEVELOPMENT

- A. An individual development as well as multiple developments that individually or collectively result in:
 - (1) The disturbance of one or more acres of land since February 2, 2004.
 - (2) The creation of 1/4 acre or more of regulated impervious surface since February 2, 2004.
 - (3) The creation of 1/4 acre or more of regulated motor vehicle surface since March 2, 2021 (or the effective date of this chapter, whichever is earlier); or
 - (4) A combination of Subsection **A(2)** or **(3)** above that totals an area of 1/4 acre or more. The same surface shall not be counted twice when determining if the combination area equals 1/4 acre or more.
- B. Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of Subsection **A(1)**, **(2)**, **(3)** or **(4)** above. Projects undertaken by any

government agency that otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered major development.

MOTOR VEHICLE

Land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low-speed vehicles. For the purpose 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 only run on rails or tracks.

MUNICIPALITY

Lacey Township.

NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES (BMP) MANUAL OR BMP MANUAL

The manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil-testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already-included practices reflecting the best available current information regarding the particular practice and the Department's determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with § 291-4F 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.

NODE

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

NUTRIENT

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

PERSON

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

POLLUTANT

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

RECHARGE

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

REGULATED IMPERVIOUS SURFACE

Any of the following, alone or in combination:

- A. A net increase of impervious surface.

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

REGULATED MOTOR VEHICLE SURFACE

Any of the following, alone or in combination:

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

SEDIMENT

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

SITE

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

SOIL

All unconsolidated mineral and organic material of any origin.

SOLID AND FLOATABLE MATERIALS

Debris and materials over one-half-inch diameter that are routinely carried through stormwater collection and treatment systems in the absence of proper source controls.

SOURCE CONTROLS

Nonstructural (maintenance) or structural (physical) techniques implemented to reduce the quantity of, and pollutants in, post-development stormwater runoff as well as to improve its water quality.

STATE DEVELOPMENT AND REDEVELOPMENT PLAN METROPOLITAN PLANNING AREA (PA1)

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

STATE PLAN POLICY MAP

The geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the Official Map of these goals and policies.

STORMWATER

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

STORMWATER MANAGEMENT BMP

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

STORMWATER MANAGEMENT MEASURE

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

STORMWATER MANAGEMENT PLANNING AGENCY

A public body authorized by legislation to prepare stormwater management plans.

STORMWATER MANAGEMENT PLANNING AREA

The geographical area for which a stormwater management planning agency is authorized to prepare a stormwater management plan, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

STORMWATER RUNOFF

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

SUBSURFACE INFILTRATION SYSTEMS

Includes underground structural drainage techniques that collect stormwater and allow for recharge of post-development stormwater ground at a controlled rate. Systems include but are not limited to trench recharge systems, dry wells, and underground retention systems.

TIDAL FLOOD HAZARD AREA

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

TIME OF CONCENTRATION

The time required for a drop of water within a drainage area to travel from the most hydrologically remote point in the drainage area to the point of collection.

URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD

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

URBAN ENTERPRISE ZONES

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

URBAN REDEVELOPMENT AREA

Previously developed portions of areas:

- A. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), designated centers, cores or nodes;
- B. Designated as CAFRA centers, cores or nodes;
- C. Designated as Urban Enterprise Zones; and
- D. Designated as Urban Coordinating Council Empowerment Neighborhoods.

WATER-CONTROL STRUCTURE

A structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flooding resulting from the two-, ten-, or 100-year storm, flood hazard area limit,

and/or floodway limit of the water. Examples of a water-control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.

WATERS OF THE STATE

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

WETLANDS or WETLAND

An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

§ 291-3. Design and performance standards for stormwater management measures.

- A. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment in accordance with this chapter and as follows:
- (1) The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90.
 - (2) The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quality shall be met by incorporating green infrastructure.
- B. The standards in this chapter apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or water quality management plan adopted in accordance with Department rules. It should be noted that this regulation applies only to projects meeting the major development criteria as identified in this chapter. Projects that do not meet major development criteria will be reviewed exclusively under existing Lacey Township ordinances, including but not limited to the following:
- (1) Section 297-41, Storm sewers and other drainage structures.
 - (2) Chapter 285, Site Plan Review.
 - (3) Chapter 297, Subdivision of Land, Article VI, Design Standards and Requirements.

§ 291-4. Stormwater management requirements for major development and urban redevelopment areas.

- A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with § 291-10.
- B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 13:1B-15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlnebergi* (bog turtle).
- C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of this chapter.

- (1) The construction of an underground utility line, provided that the disturbed areas are revegetated upon completion;
 - (2) The construction of an aboveground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and
 - (3) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.
- D. A waiver from strict compliance with the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of this chapter may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:
- (1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
 - (2) The applicant demonstrates through an alternatives analysis that through the use of nonstructural and structural stormwater management strategies and measures the option selected complies with the requirements of this chapter to the maximum extent practicable;
 - (3) The applicant demonstrates that, in order to meet the requirements of this chapter, existing structures currently in use, such as homes and buildings, would need to be condemned; and
 - (4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under § 291-4D(3) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of this chapter that were not achievable on-site.
- E. Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in § 291-4O, P, Q and R. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2(f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at: https://njstormwater.org/bmp_manual2.htm.
- F. Where the BMP tables in the New Jersey Stormwater Management Rule are different due to updates or amendments with the tables in this chapter the BMP Tables in the Stormwater Management Rule at N.J.A.C. 7:8-5.2(f) shall take precedence.

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	

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)
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) No ^(e)	2 ^(b) 1 ^(c)
Small-Scale Bioretention Basin ^(a)	80% or 90%	Yes	Yes ^(b) No ^(c)	2 ^(b) 1 ^(c)
Small-Scale Infiltration Basin ^(a)	80%	Yes	Yes	2
Small-Scale Sand Filter	80%	Yes	Yes	2
Vegetative Filter Strip	60% to 80%	No	No	—

Table 2**Green Infrastructure BMPs for Stormwater Runoff Quantity (or for Groundwater Recharge and/or Stormwater Runoff Quality with a Waiver or 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) No ^(c)	2 ^(b) 1 ^(c)
Infiltration Basin	80%	Yes	Yes	2
Sand Filter ^(b)	80%	Yes	Yes	2
Standard Constructed Wetland	90%	Yes	No	N/A
Wet Pond ^(d)	50% to 90%	Yes	No	N/A

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

Table 3

Stormwater Runoff Quality, and/or Stormwater Recharge, Stormwater Runoff Quantity with a Waiver or Variance from N.J.A.C. 7:8-5.3

BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Recharge, Stormwater Runoff Quantity with a Waiver or Variance from N.J.A.C. 7:8-5.3	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High-Water Table (feet)
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% to 60%	Yes	No	1
Manufactured Treatment Device ^(h)	50% or 80%	No	No	Dependent upon the device
Sand Filter ^(c)	80%	Yes	No	1
Subsurface Gravel Wetland	90%	No	No	1
Wet Pond	50% to 90%	Yes	No	N/A

Notes to Tables 1, 2, and 3:

- (a) Subject to the applicable contributory drainage area limitation specified at § 291-4P(2);
- (b) Designed to infiltrate into the subsoil;
- (c) Designed with underdrains;
- (d) Designed to maintain at least a ten-foot-wide area of native vegetation along at least 50% 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 2%;
- (f) Designed with a slope of equal to or greater than 2%;
- (g) Manufactured treatment devices that meet the definition of green infrastructure;
- (h) Manufactured treatment devices that do not meet the definition of green infrastructure.

G. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with § 291-6B. Alternative stormwater management measures may be used to satisfy the requirements at § 291-4P only if the measures meet the definition of green infrastructure. Alternative stormwater management measures that function in a similar manner to a BMP listed at § 291-4P(2) are subject to the contributory drainage area limitation specified at § 291-4P(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 § 291-4P(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 N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Section § **291-4D** is granted from § **291-4P**.

- H. Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high-water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.
- I. 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; 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);
 - (2) Stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure, as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than 1/3 the width of the diameter of the orifice or 1/3 the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of § **291-8C**;
 - (3) Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 5:21-7.4, and 5:21-7.5 shall be deemed to meet this requirement;
 - (4) Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at § **291-8**; and
 - (5) The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of 2 1/2 inches in diameter.
- J. Nonstructural stormwater management strategies.
- (1) To the maximum extent practicable, the standards in § **291-4P**, **Q** and **R** shall be met by incorporating nonstructural stormwater management strategies set forth below into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. Where an applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in Subsection **J(2)** below into the design of a particular project, the applicant shall request a waiver of this requirement from the review board. Any waiver requested shall be supported with adequate detail, as determined by the Land Use Board Engineer, for the Engineer to make a recommendation to the review board as to whether the requirements of the ordinance be waived for engineering, environmental or safety reasons.
 - (2) Nonstructural stormwater management strategies incorporated into site design shall:
 - (a) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.
 - (b) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;

- (c) Maximize the protection of natural drainage features and vegetation;
 - (d) Minimize the decrease in the preconstruction time of concentration to post-construction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;
 - (e) Minimize land disturbance, including clearing and grading;
 - (f) Minimize soil compaction;
 - (g) Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;
 - (h) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;
 - (i) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:
 - [1] Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy below;
 - [2] Site design features that help to prevent discharge of trash and debris from drainage systems;
 - [3] Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - [4] When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.
- K. Manufactured treatment devices may be used to meet the requirements of this section, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at § 291-2 may be used only under the circumstances described at § 291-4P(4).
- L. Any application for a new agricultural development that meets the definition of major development at § 291-2 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at § 291-4P, Q, R and S and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.
- M. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at § 291-4Q, R and S shall be met in each drainage area, unless the runoff from the drainage areas converge on-site 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.
- N. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the office of the County Clerk. 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 § 291-4P, Q, R and S 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 § 291-10B(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.

- O. A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to § 291-4 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 Office of the County Clerk and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with Subsection N 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 Subsection N above.
- P. Green infrastructure standards.

- (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.
- (2) To satisfy the groundwater recharge and stormwater runoff quality standards at § 291-4Q and R, the design engineer shall utilize green infrastructure BMPs identified in Table 1 at § 291-4F and/or an alternative stormwater management measure approved in accordance with § 291-4G. The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

Best Management Practice	Maximum Contributory Drainage Area
Dry Well	1 acre
Manufactured Treatment Device	2.5 acres
Pervious Pavement Systems	Area of additional inflow cannot exceed 3 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 § 291-4S, the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with § 291-4G.
- (4) If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with § 291-4D is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with § 291-4G may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at § 291-4Q, R and S.
- (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 § 291-4Q, R and S, unless the project is granted a waiver from strict compliance in accordance with § 291-4D.

Q. Groundwater recharge standards.

- (1) This subsection contains the minimum design and performance standards for groundwater recharge as follows:
- (2) The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at § 291-5, either:
 - (a) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual preconstruction groundwater recharge volume for the site; or
 - (b) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to post-construction for the two-year storm is infiltrated.
- (3) This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection **Q(4)** below.
- (4) The following types of stormwater shall not be recharged:
 - (a) Stormwater from areas of high-pollutant loading. High-pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department-approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle-maintenance facilities; and
 - (b) Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

R. Stormwater runoff quality standards.

- (1) This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of 1/4 acre or more of regulated motor vehicle surface.
- (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 as follows:
 - (a) 80% 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.

- (b) 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.
- (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 an NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with Subsection R(2) above, unless the major development is itself subject to an 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.

Table 4 - Water Quality Design 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	0.00830	45	0.2000	85	1.1170
6	0.00996	46	0.2117	86	1.1236
7	0.01162	47	0.2233	87	1.1302
8	0.01328	48	0.2350	88	1.1368
9	0.01494	49	0.2466	89	1.1434
10	0.01660	50	0.2583	90	1.1500
11	0.01828	51	0.2783	91	1.1550
12	0.01996	52	0.2983	92	1.1600
13	0.02164	53	0.3183	93	1.1650
14	0.02332	54	0.3383	94	1.1700
15	0.02500	55	0.3583	95	1.1750
16	0.03000	56	0.4116	96	1.1800
17	0.03500	57	0.4650	97	1.1850
18	0.04000	58	0.5183	98	1.1900
19	0.04500	59	0.5717	99	1.1950
20	0.05000	60	0.6250	100	1.2000
21	0.05500	61	0.6783	101	1.2050
22	0.06000	62	0.7317	102	1.2100
23	0.06500	63	0.7850	103	1.2150
24	0.07000	64	0.8384	104	1.2200

Table 4 - Water Quality Design Distribution

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
25	0.07500	65	0.8917	105	1.2250
26	0.08000	66	0.9117	106	1.2267
27	0.08500	67	0.9317	107	1.2284
28	0.09000	68	0.9517	108	1.2300
29	0.09500	69	0.9717	109	1.2317
30	0.10000	70	0.9917	110	1.2334
31	0.10660	71	1.0034	111	1.2351
32	0.11320	72	1.0150	112	1.2367
33	0.11980	73	1.0267	113	1.2384
34	0.12640	74	1.0383	114	1.2400
35	0.13300	75	1.0500	115	1.2417
36	0.13960	76	1.0568	116	1.2434
37	0.14620	77	1.0636	117	1.2450
38	0.15280	78	1.0704	118	1.2467
39	0.15940	79	1.0772	119	1.2483
40	0.16600	80	1.0840	120	1.2500

- (5) If more than one BMP in series is necessary to achieve the required 80% 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.
- 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. 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 § 291-4Q, R and S.
- (7) In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.
- (8) 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.

- (a) The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:
- [1] A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the center line of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession.
 - [2] Encroachment within the designated special water resource protection area under § 291-4R(8)(a)[1] above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or center line of the waterway where the bank is undefined. All encroachments proposed under this subsection shall be subject to review and approval by the municipality.
- (b) All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard for Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.
- (c) If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard for Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:
- [1] Stabilization measures shall not be placed within 150 feet of the Category One waterway;
 - [2] Stormwater associated with discharges allowed by this section shall achieve a 95% TSS post-construction removal rate;
 - [3] Temperature shall be addressed to ensure no impact on the receiving waterway;
 - [4] The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;
 - [5] A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and
 - [6] All encroachments proposed under this section shall be subject to review and approval by the Department.
- (d) A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to § 291-4R(8) has been approved by the Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to § 291-4R(8) shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in § 291-4R(8)(a)[1] above. In no case shall a

stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

- (e) Section **291-4R(8)** does not apply to the construction of one individual single-family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.
- (9) 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% of the anticipated load from the developed site, expressed as an annual average.
- (10) These stormwater runoff quality standards do not apply to the construction of one individual single-family dwelling, provided that it is not part of a larger development or subdivision that has received preliminary or final site plan approval prior to December 3, 2018, and that the motor vehicle surfaces are made of permeable material(s) such as gravel, dirt, and/or shells.

S. Stormwater runoff quantity standards.

- (1) This subsection contains the minimum design and performance standards to control stormwater runoff quantity impacts of major development.
- (2) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at §§ **291-5**, complete one of the following:
 - (a) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two-, ten-, and 100-year storm events do not exceed, at any point in time, the preconstruction runoff hydrographs for the same storm events;
 - (b) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the preconstruction condition, in the peak runoff rates of stormwater leaving the site for the two-, ten- and 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;
 - (c) Design stormwater management measures so that the post-construction peak runoff rates for the two-, ten- and 100-year storm events are 50%, 75% and 80%, respectively, of the preconstruction 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
 - (d) In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with Subsection **S(2)(a)**, **(b)** and **(c)** 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.

§ 291-5. Calculation of stormwater runoff and groundwater recharge.

A. Stormwater runoff shall be calculated in accordance with the following:

- (1) The design engineer shall calculate runoff using one of the following methods:
 - (a) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15 and 16, Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf or at United States Department of Agriculture Natural Resources Conservation Service, 220 Davison Avenue, Somerset, New Jersey 08873; or
 - (b) The rational method for peak flow and the modified rational method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, January 2014. This document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)3. The location, address, and telephone number for each Soil Conservation District is available from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625. The document is also available at: <http://www.nj.gov/agriculture/divisions/anr/pdf/2014NJSoilErosionControlStandardsComplete.pdf>.
- (2) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the preconstruction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology above at §§ 291-5.A(1)(a) and the Rational and Modified Rational Methods at §§ 291-5.A(1)(b). A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. 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).
- (3) In computing preconstruction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce preconstruction stormwater runoff rates and volumes.
- (4) 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.
- (5) 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.

- B. Groundwater recharge may be calculated in accordance with the following: 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.

§ 291-6. 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 Department'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 Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3. Additional maintenance guidance is available on the Department's website at: https://www.njstormwater.org/maintenance_guidance.htm.
- B. Submissions required for review by the Department should be mailed to: The Division of Water Quality, New Jersey Department of Environmental Protection, Mail Code 401-02B, PO Box 420, Trenton, New Jersey 08625-0420.

§ 291-7. Solids and floatable materials control standards.

Site design features identified under § 291-4F above, or alternative designs in accordance with § 291-4G above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this section, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see § 291-7B below.

A. Grates.

- (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:
- (a) 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
- (b) A different grate, if each individual clear space in that grate has an area of no more than 7.0 square inches, or is no greater than 0.5 inches across the smallest dimension.
- (2) 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.
- (3) For curb-opening inlets, including curb-opening inlets in combination inlets, the clear space in that curb opening, or each individual clear space if the curb opening has two or more clear spaces, shall have an area of no more than 7.0 square inches, or be no greater than 2.0 inches across the smallest dimension.

B. The standard in Subsection **A(1)**, above, does not apply:

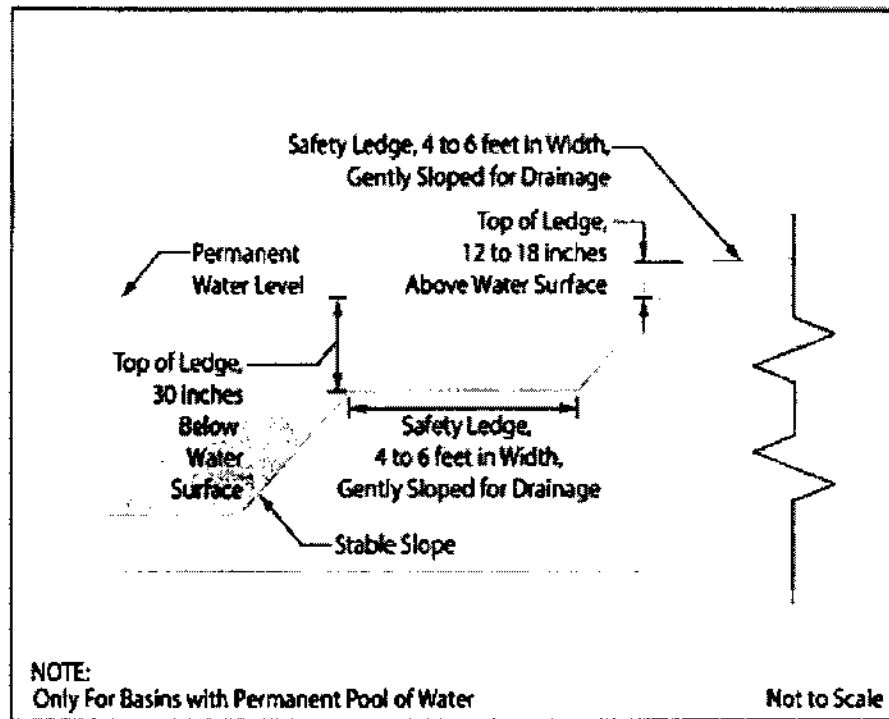
- (1) Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than 9.0 square inches;
- (2) Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;
- (3) Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
 - (a) A rectangular space 4.625 inches long and 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.
- (4) 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].
- (5) Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or
- (6) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register-listed historic property.

§ 291-8. 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 § 291-8C(1), (2) and (3) for trash racks, 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:
 - (a) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;
 - (b) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;
 - (c) 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

- (d) 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. An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
- [1] The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
 - [2] The overflow grate spacing shall be no less than two inches across the smallest dimension.
 - [3] The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.
- (2) Stormwater management BMPs shall include escape provisions as follows:
- (a) 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 § 291-8C, a freestanding outlet structure may be exempted from this requirement;
 - (b) Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than 2 1/2 feet. Safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall be located one to 1 1/2 feet above the permanent water surface. See § 291-8E for an illustration of safety ledges in a stormwater management BMP; and
 - (c) 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.

Elevation View - Basin Safety Ledge Configuration



§ 291-8.1. Private storm drain inlet retrofitting.

- A. Purpose. This section requires the retrofitting of existing storm drain inlets which are in direct contact with repaving, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Township of Lacey so as to protect public health, safety and welfare, and to proscribe penalties for failure to comply.
- B. Definitions. For the purpose of this section, 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.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that is owned or operated by the Township of Lacey or other public body, and is designed and used for collecting and conveying stormwater.

PERSON

Any individual, corporation, company, partnership, firm, association or political subdivision of this state subject to municipal jurisdiction.

STORM DRAIN INLET

An opening in a storm drain used to collect stormwater runoff and includes, but is not limited to, a grate inlet, curb-opening inlet, slotted inlet and combination inlet.

WATERS OF THE STATE

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

- C. Prohibited conduct. No person in control of private property (except a residential lot with one single-family house) shall authorize the repaving, repairing (excluding the repair of individual potholes), resurfacing (including top coating or chip sealing with asphalt emulsion or a thin base of hot bitumen), reconstructing or altering any surface that is in direct contact with an existing storm drain inlet on that property unless that storm drain inlet either:
- (1) Already meets the design standard below to control passage of solid and floatable materials; or
 - (2) Is retrofitted or replaced to meet the standard in Subsection D below prior to the completion of the project.
- D. Design standard. Storm drain inlets identified in Subsection C above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this subsection, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Subsection D(3) below.
- (1) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
 - (a) The New Jersey Department of Transportation (NJDOT) bicycle-safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
 - (b) A different grate, if each individual clear space in that grate has an area of no more than 7.0 square inches, or is no greater than 0.5 inches across the smallest dimension.
 - (c) Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.
 - (2) Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces), shall have an area no more than 7.0 square inches, or be no greater than 2.0 inches across the smallest dimension.
 - (3) This standard does not apply:
 - (a) Where the municipal engineer agrees that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;
 - (b) Where flows 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:
 - [1] A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or
 - [2] A bar screen having a bar spacing of 0.5 inches.
 - (c) Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars; or
 - (d) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), the action to

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

- E. Enforcement. This chapter shall be enforced by the Township Engineer or the Director of Public Works of the Township of Lacey.
- F. Penalties. Any person(s) who is found to be in violation of this section shall be subject to a fine not to exceed \$500 for each storm drain inlet that is not retrofitted to meet the design standard.

§ 291-9. Requirements for a site development stormwater plan.

- A. Submission of site development stormwater plan.
 - (1) Whenever an applicant seeks municipal approval of a development subject to this chapter, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at § 291-9C below as part of the submission of the application for approval.
 - (2) The applicant shall demonstrate that the project meets the standards set forth in this chapter.
 - (3) The applicant shall submit the required number of copies of the materials listed in the checklist for site development stormwater plans in accordance with § 291-9C of this chapter.
- B. Site development stormwater plan approval. The applicant's site development project shall be reviewed as a part of the review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the municipality's review engineer to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this chapter.
- C. Submission of site development stormwater plan. The following information shall be required:
 - (1) Topographic base map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing two-foot contour intervals. The map as appropriate may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and floodplains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and man-made features not otherwise shown.
 - (2) Environmental site analysis. A written and graphic description of the natural and man-made features of the site and its surroundings should be submitted. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.
 - (3) Project description and site plans. A map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high-groundwater elevations. A written description of the site plan and justification for proposed changes in natural conditions shall also be provided.
 - (4) Land use planning and source control plan. This plan shall provide a demonstration of how the goals and standards of §§ 291-3 through 291-5 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling

groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

- (5) Stormwater management facilities map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:
 - (a) Total area to be disturbed, paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
 - (b) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.
- (6) Calculations.
 - (a) Comprehensive hydrologic and hydraulic design calculations for the predevelopment and post-development conditions for the design storms specified in § 291-4 of this chapter.
 - (b) When the proposed stormwater management control measures depend on the hydrologic properties of soils or require certain separation from the seasonal high-water table, then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.
- (7) Maintenance and repair plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of § 291-10.
- (8) Waiver from submission requirements. The municipal official or board reviewing an application under this chapter may, in consultation with the municipality's review engineer, waive submission of any of the requirements in § 291-9C(1) through (6) of this chapter when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

§ 291-10. Maintenance and repair.

- A. Applicability. Projects subject to review as in § 291-1C of this chapter shall comply with the requirements of Section § 291-10B and C.
- B. General maintenance.
 - (1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
 - (2) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the New Jersey BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics.
 - (3) 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.

- (4) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project. The individual property owner may be assigned incidental tasks, such as weeding of a green infrastructure BMP, provided the individual agrees to assume these tasks; however, the individual cannot be legally responsible for all of the maintenance required.
 - (5) If the party responsible for maintenance identified under Section § 291-10B(3) above is not a public agency, the maintenance plan and any future revisions based on § 291-10B(7) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.
 - (6) Preventative and corrective maintenance shall be performed to maintain the functional parameters (storage volume, infiltration rates, inflow/outflow capacity, etc.), of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.
 - (7) The party responsible for maintenance identified under § 291-10B(3) above shall perform all of the following requirements:
 - (a) 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;
 - (b) Evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
 - (c) 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 § 291-10B(6) and (7) above.
 - (8) The requirements of § 291-10B(3) and (4) 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.
 - (9) 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 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.
- C. Nothing in this subsection 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.

§ 291-11. Violations and penalties.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this chapter shall be considered to be in violation of Lacey Code § 297-52, and

subject to potential fines, penalties and/or imprisonment as stipulated in § 285-13 or § 297-52A of the Lacey Township Code as applicable.

Township of Lacey, NJ
Wednesday, May 4, 2022

Chapter 292. Stormwater Regulations for Pinelands Areas

[HISTORY: Adopted by the Township Committee of the Township of Lacey 7-26-2007 by Ord. No. 2007-23. Amendments noted where applicable.]

GENERAL REFERENCES

Excavation and soil mining — See Ch. **175**.

Flood hazard areas — See Ch. **185**.

Land use procedures — See Ch. **215**.

Site plan review

Stormwater regulations for non-Pinelands areas — See Ch. **291**.

Subdivision of land — See Ch. **297**.

Zoning — See Ch. **335**.

§ 292-1. Scope and purpose.

A. Purpose.

(1) It is hereby determined that:

- (a) Land development projects and associated disturbance of vegetation and soil and changes in land cover, including increases in impervious cover, alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes. If inadequately or improperly managed, this stormwater runoff can deplete groundwater resources and increase flooding, stream channel erosion, and sediment transport and deposition.
- (b) This stormwater runoff contributes to increased quantities of waterborne pollutants.
- (c) Increases of stormwater runoff, soil erosion and nonpoint-source pollutants have occurred in the past as a result of land development, and contribute to the degradation of the water resources of Lacey Township and downstream municipalities.
- (d) Certain lands of Lacey Township lie within the Pinelands Area, and therefore, development in this portion of Lacey Township is subject to the requirements of the Pinelands Protection Act, N.J.S.A. 13:18A-1 et seq., and the implementing regulations and minimum standards contained in the Pinelands Comprehensive Management Plan (CMP), N.J.A.C. 7:50-1.1 et seq. The purpose and intent of these regulations and standards is to promote orderly development of the Pinelands so as to preserve and protect the significant and unique natural, ecological, agricultural, archaeological, historical, scenic, cultural and recreational resources of the Pinelands.
- (e) Pinelands Area resources are to be protected in accordance with Pinelands Comprehensive Management Plan at N.J.A.C. 7:50 et seq., New Jersey's Stormwater Management Rules at N.J.A.C. 7:8-1.1 et seq., and New Jersey's surface water quality antidegradation policies contained in the New Jersey Surface Water Quality Standards at N.J.A.C. 7:9B-1.1 et seq. Permitted uses shall maintain the ecological character and quality of the Pinelands, including good water quality and natural rates and volumes of flow.

- (f) Increased stormwater rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the Pinelands Area have the potential to adversely affect Lacey Township's streams and water resources and the streams and water resources of downstream municipalities.
 - (g) Stormwater runoff, soil erosion and nonpoint-source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.
 - (h) It is in the public interest to regulate the discharge of stormwater runoff from major development projects, as defined in § 292-7 of this chapter, conducted within the Pinelands Area, as provided in this chapter, in order to control and minimize increases in stormwater runoff rates and volumes, to maintain groundwater recharge, and to control and minimize soil erosion, stream channel erosion and nonpoint-source pollution associated with stormwater runoff.
- (2) Therefore, it is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8, the regulations and standards contained in the Pinelands CMP, and the provisions of the adopted Master Plan and land use ordinances of Lacey Township.

B. Goals and techniques.

- (1) Through this chapter, Lacey Township has established the following goals for stormwater control:
- (a) To reduce flood damage, including damage to life and property;
 - (b) To minimize any increase in stormwater runoff from new development;
 - (c) To reduce soil erosion from any development or construction project;
 - (d) To assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
 - (e) To maintain groundwater recharge;
 - (f) To minimize any increase in nonpoint pollution;
 - (g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;
 - (h) To restore, protect, maintain and enhance the quality of the streams and water resources of Lacey Township and the ecological character and quality of the Pinelands Area;
 - (i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface waters and groundwaters of Lacey Township, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and
 - (j) To protect public safety through the proper design and operation of stormwater management basins.
- (2) In order to achieve the goals for stormwater control set forth in this chapter, Lacey Township has identified the following management techniques:
- (a) Implementation of multiple stormwater management best management practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this chapter.
 - (b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et

seq., and this chapter, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as low-impact development (LID) techniques.

- (c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.
 - (d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.
 - (e) Structural BMPs, where necessary, shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.
 - (f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this chapter before relying on a single, larger stormwater management measure to achieve these performance standards.
- C. Applicability. This chapter shall apply to:
- (1) All site plans and subdivisions for major developments occurring within the Pinelands Area that require preliminary or final site plan or subdivision review; and
 - (2) All major development projects undertaken by Lacey Township shall comply with this chapter.
- D. Procedures. In addition to other development review procedures set forth in the Code of Lacey Township, major developments located within the Pinelands Area shall comply with the stormwater management requirements and specifications set forth in this chapter. New agricultural development that meets the definition of major development in § 292-7 of this chapter shall be submitted to the appropriate soil conservation district for review and approval in accordance with the requirements of N.J.A.C. 7:8-5.4(b).
- E. Compatibility with other permit and ordinance requirements.
- (1) Development approvals issued for subdivisions and site plans pursuant to this chapter are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable ordinance, code, rule, regulation, statute, act or other provision of law. 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 or stringent provisions or higher standards shall control. The stormwater management requirements within this chapter, as they relate to major development, supersede other design requirements stipulated in the Township Code, including but not limited to the following sections:
 - (a) Storm sewers and other drainage structures, § 297-41.
 - (b) Chapter 285, Site Plan Review.
 - (c) Chapter 335, Article IV, Pinelands Area Development Standards.
 - (d) Chapter 297, Article VI, Design Standards and Requirements.
 - (2) 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 Lacey Township is a part, the stormwater provisions of such a plan(s) shall be adopted

by Lacey Township 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 Commission for certification within six months of the adoption of the RSWMP per N.J.A.C. 7:8 and the Pinelands CMP (N.J.A.C. 7:50.)

§ 292-2. Requirements for a site development stormwater plan.

A. Submission of site development stormwater plan.

- (1) Whenever an applicant seeks municipal approval of a site development that is subject to this chapter, the applicant shall submit all of the required components of the checklist for the site development stormwater plan at § 292-2C below as part of the applicant's application for subdivision or site plan approval. These required components are in addition to any other information required under any provisions of Lacey Township's land use ordinance or by the Pinelands Commission pursuant to N.J.A.C. 7:50-1.1 et seq.
- (2) The applicant shall demonstrate that the site development project meets the standards set forth in this chapter.
- (3) The applicant shall submit 12 copies of the materials listed in the checklist for site development stormwater plans in accordance with § 292-2C of this chapter.

B. Site development stormwater plan approval. The applicant's site development stormwater plan shall be reviewed as a part of the subdivision or site plan 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 of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this chapter.

C. Checklist requirements. Any application for approval of a major development shall include at least the following information. All required engineering plans shall be submitted to the Lacey Township and the Pinelands Commission in CAD Format 15 or higher, registered and rectified to New Jersey State Plane Feet NAD 83 or Shape Format New Jersey State Plane Feet NAD 83, and all other documents shall be submitted in both paper and commonly used electronic file formats such as PDF, word processing, database or spreadsheet files. Twelve copies of each item shall be submitted.

- (1) Topographic base map. The applicant shall submit a topographic base map of the site which extends a minimum of 300 feet beyond the limits of the proposed development, at a scale of one inch equals 200 feet or greater, showing one-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 and floodplains along with their appropriate buffer strips, 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 man-made features not otherwise shown. Lacey Township or the Pinelands Commission may require upstream tributary drainage system information as necessary.
- (2) Environmental site analysis. The applicant shall submit a written description along with the drawings of the natural and human-made features of the site and its environs. This description should include:
 - (a) A discussion of environmentally critical areas, soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual or environmentally sensitive features and to those that provide particular opportunities for or constraints on development; and

- (b) Detailed soil and other environmental conditions on the portion of the site proposed for installation of any stormwater BMPs, including, at a minimum: soils report based on on-site soil tests; locations and spot elevations in plain view of test pits and permeability tests; permeability test data and calculations; and any other required soil data (e.g., mounding analyses results) correlated with location and elevation of each test site; cross section of proposed stormwater BMP with side-by-side depiction of soil profile drawn to scale and seasonal high water table elevation identified; and any other information necessary to demonstrate the suitability of the specific proposed structural and nonstructural 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 applicant shall submit a map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification for proposed changes in natural conditions shall also be provided.
- (4) Land use planning and source control plan.
- (a) The applicant shall submit a detailed land use planning and source control plan which provides a description of how the site will be developed to meet the erosion control, groundwater recharge and stormwater runoff quantity and quality standards at § 292-4 through use of nonstructural or low-impact development techniques and source controls to the maximum extent practicable before relying on structural BMPs. The land use planning and source control plan shall include a detailed narrative and associated illustrative maps and/or plans that specifically address how each of the following nine nonstructural strategies identified in Subchapter 5 of the NJDEP Stormwater Management Rules (N.J.A.C. 7:8-5) and set forth below, Subsections C(4)(a)[1] through [9], will be implemented to the maximum extent practicable to meet the standards at § 292-4 of this chapter on the site. If one or more of the nine nonstructural strategies will not be implemented on the site, the applicant shall provide a detailed rationale establishing a basis for the contention that use of the strategy is not practicable on the site.
- [1] Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
 - [2] Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
 - [3] Maximize the protection of natural drainage features and vegetation;
 - [4] Minimize the decrease in the predevelopment time of concentration;
 - [5] Minimize land disturbance including clearing and grading;
 - [6] Minimize soil compaction and all other soil disturbance;
 - [7] Provide low-maintenance landscaping that provides for the retention and planting of native plants and minimizes the use of lawns, fertilizers and pesticides, in accordance with N.J.A.C. 7:50-6.24;
 - [8] Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and
 - [9] Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls shall include, but are not limited to:

- [a] Site design features that help to prevent accumulation of trash and debris in drainage systems;
 - [b] Site design features that help to prevent discharge of trash and debris from drainage systems;
 - [c] Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - [d] Applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules, when establishing vegetation after land disturbance.
- (b) For sites where stormwater will be generated from high pollutant loading areas or where stormwater will be exposed to source material, as defined in § 292-7 of this chapter, the applicant shall also demonstrate in the land use planning and source control plan that the requirements of § 292-4 have been met.
- (c) The use of nonstructural strategies to meet the performance standards in § 292-4 of this chapter is not required for development sites creating less than one acre of disturbance. However, each application for major development and any other application where Lacey Township otherwise requires a landscaping plan shall contain a landscaping or revegetation plan in accordance with the CMP standards at N.J.A.C. 7:50-6.24(c). In addition, the applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved and protected according to the minimum standards established by provisions of the Lacey Township land use ordinance, Zoning Ordinance or by conditions of zoning or variance approval.
- (5) Stormwater management facilities map. The applicant shall submit a map, at the same scale as the topographic base map, depicting the following information:
- (a) 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 dispose of stormwater; and
 - (b) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention (if applicable) and emergency spillway provisions with maximum discharge capacity of each spillway.
- (6) Calculations (groundwater recharge and stormwater runoff rate, volume and quality). The applicant shall submit comprehensive hydrologic and hydraulic design calculations for the predevelopment and postdevelopment conditions for the design storms specified in § 292-3. The standards for groundwater recharge and stormwater runoff rate, volume and quality required by § 292-4 shall be met using the methods, calculations and assumptions provided in § 292-3.
- (7) Inspection, maintenance and repair plan. The applicant shall submit a detailed plan describing how the proposed stormwater management measure(s) shall meet the maintenance and repair requirements of § 292-6 of this chapter. Said plan shall include, at a minimum, the following elements:
- (a) The frequency with which inspections will be made;
 - (b) The specific maintenance tasks and requirements for each proposed structural and nonstructural BMP;
 - (c) The name, address and telephone number for the entity responsible for implementation of the maintenance plan;
 - (d) The reporting requirements; and

(e) Copies of the inspection and maintenance reporting sheets.

- (8) Exception from submission requirements. An exception may be granted from submission of any of these required components [except § 292-2C(7) above, Inspection, maintenance, and repair plan] if its absence will not materially affect the review process. However, items required pursuant to the application requirements in § 335-23 of the Lacey Township Code shall be submitted to the New Jersey Pinelands Commission unless the Executive Director waives or modifies the application requirements.

§ 292-3. Methodologies for the calculation of stormwater runoff rate and volume, stormwater runoff quality, and groundwater recharge.

A. Method of calculating stormwater runoff rate and volume.

- (1) In complying with the stormwater runoff quantity and rate standards in § 292-4B, the design engineer shall calculate the stormwater runoff rate and volume using the USDA Natural Resources Conservation Service (NRCS) Runoff Equation, Runoff Curve Numbers, and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Part 630 - Hydrology and Technical Release 55 - Urban Hydrology for Small Watersheds, incorporated herein by reference as amended and supplemented. Alternative methods of calculation may be utilized, provided such alternative methods are at least as protective as the NRCS methodology when considered on a regional stormwater management basis.
- (2) In calculating stormwater runoff using the NRCS methodology, the design engineer shall separately calculate and then combine the runoff volumes from pervious and directly connected impervious surfaces within each drainage area within the parcel.
- (3) Calculation of stormwater runoff from unconnected impervious surfaces shall be based, as applicable, upon the two-step method described in the current New Jersey Stormwater Best Management Practices Manual or the NRCS methodology.
- (4) In calculating stormwater runoff using the NRCS methodology, the design engineer shall use appropriate twenty-four-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration, available online at <http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>.
- (5) When calculating stormwater runoff for predeveloped site conditions, the design engineer shall use the following criteria:
 - (a) When selecting or calculating runoff curve numbers (CNs) for predeveloped project site conditions, the project site's land cover shall be assumed to be woods in good condition. However, another land cover may be used to calculate runoff coefficients if:
 - [1] Such land cover has existed at the site or portion thereof without interruption for at least five years immediately prior to the time of application; and
 - [2] The design engineer can document the character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records.
 - (b) 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.
 - (c) All predeveloped land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have conservation treatment.

- (d) In calculating predeveloped site stormwater runoff, the design engineer shall include the effects of all land features and structures, such as ponds, wetlands, depressions, hedgerows, and culverts, that affect predeveloped site stormwater runoff rates and/or volumes.
- (e) Where tailwater will affect the hydraulic performance of a stormwater management measure, the design engineer shall include such effects in the measure's design.

B. Method of calculating stormwater runoff quality.

- (1) In complying with the stormwater runoff quality standards in § 292-4F(1), the design engineer shall calculate the stormwater runoff rate and volume using the USDA Natural Resources Conservation Service (NRCS) Runoff Equation, Runoff Curve Numbers, and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Part 630 — Hydrology and Technical Release 55 — Urban Hydrology for Small Watersheds, as amended and supplemented.
- (2) The design engineer shall also use the NJDEP Water Quality Design Storm, which is one and 1.25 inches of rainfall falling in a nonlinear pattern in two hours. Details of the water quality design storm are shown in Table 1.
- (3) Calculation of runoff volumes, peak rates, and hydrographs for the water quality design storm may take into account the implementation of nonstructural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution

Time (minutes)	Cumulative Rainfall (inches)	Time (minutes)	Cumulative Rainfall (inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
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		

Source: N.J.A.C. 7:8-5.5(a).

- (4) Total suspended solids (TSS) reduction calculations.
 - (a) If more than one stormwater BMP in series is necessary to achieve the required eighty-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

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

- (b) If there is more than one on-site drainage area, the eighty-percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.
- (5) TSS removal rates for stormwater BMPs.
- (a) For purposes of TSS reduction calculations, Table 2 presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey BMP Manual. The BMP Manual may be obtained from the address identified in § 292-12A or found on the NJDEP's Web site at www.njstormwater.org. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2.
 - (b) Alternative stormwater management measures, 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 Lacey Township. Any alternative stormwater management measure, removal rate or method of calculating the removal rate shall be subject to approval by Lacey Township and a copy shall be provided to the following:
 - [1] The Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey, 08625-0418; and
 - [2] The New Jersey Pinelands Commission, PO Box 7, New Lisbon, New Jersey, 08064.

Table 2: Pollutant Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate	Total Phosphorus Percent Removal Rate	Total Nitrogen Percent Removal Rate
Bioretention systems	90	60	30
Constructed stormwater wetland	90	50	30
Extended detention basin	40-60 (final rate based upon detention time; see New Jersey BMP Manual, Chap. 9)	20	20
Infiltration basin	80	60	50
Manufactured treatment device	Pollutant removal rates as certified by NJDEP; see § 292-3	Pollutant removal rates as certified by NJDEP; see § 292-3	Pollutant removal rates as certified by NJDEP; see § 292-3
Pervious paving systems	80 (porous paving)		
	80 (permeable pavers with storage bed)	60	50
	0 — volume reduction only (permeable pavers without storage bed)	0 — volume reduction only (permeable pavers without storage bed)	0 — volume reduction only (permeable pavers without storage bed)
Sand filter	80	50	35

Table 2: Pollutant Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate	Total Phosphorus Percent Removal Rate	Total Nitrogen Percent Removal Rate
Vegetative filter strip (For filter strips with multiple vegetated covers, the final TSS removal rate should be based upon a weighted average of the adopted rates shown in Table 2, based upon the relative flow lengths through each cover type.)	60 (turf grass)		
	70 (native grasses, meadow and planted woods)	30	30
	80 (indigenous woods)		
Wet pond/retention basin	50-90 (final rate based upon pool volume and detention time; see NJ BMP Manual)	50	30

Source: 7:8-5.5(c) and New Jersey BMP Manual Chapter 4.

- (6) Nutrient removal rates for stormwater BMPs. For purposes of postdevelopment nutrient load reduction calculations, Table 2 presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey BMP Manual. If alternative stormwater BMPs are proposed, the applicant shall demonstrate that the selected BMPs will achieve the nutrient removal standard required in § 292-4F.

C. Methods of calculating groundwater recharge.

- (1) In complying with the groundwater recharge requirements in § 292-4C(1)(a), the design engineer may calculate groundwater recharge in accordance with the New Jersey Groundwater Recharge Spreadsheet (NJGRS) computer program incorporated herein by reference, as amended and supplemented. Information regarding the methodology is available in § 292-11A or from the New Jersey BMP Manual.
- (2) Alternative groundwater recharge calculation methods to meet these requirements may be used upon approval by the Municipal Engineer.
- (3) In complying with the groundwater recharge requirements in § 292-4C(1)(b), the design engineer shall:
 - (a) Calculate stormwater runoff volumes in accordance with the USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Runoff Curve Numbers, as described in the NRCS National Engineering Handbook Part 630 - Hydrology and Technical Release 55 - Urban Hydrology for Small Watersheds, as amended and supplemented; and

- (b) Use appropriate two-year, twenty-four-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration, available online at <http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>.
- (4) When calculating groundwater recharge or stormwater runoff for predeveloped site conditions, the design engineer shall use the following criteria:
 - (a) When selecting land covers or calculating runoff curve numbers (CNs) for predeveloped project site conditions, the project site's land cover shall be assumed to be woods. However, another land cover may be used to calculate runoff coefficients if:
 - [1] Such land cover has existed at the site or portion thereof without interruption for at least five years immediately prior to the time of application; and
 - [2] The design engineer can document the character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records.
 - (b) If more than one land cover, other than woods, has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential (including woods) shall be used for the computations.
 - (c) All predeveloped land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have conservation treatment.

§ 292-4. Stormwater management performance standards for major development.

A. Nonstructural stormwater management strategies.

- (1) To the maximum extent practicable, the performance standards in § 292-4 for major development shall be met by incorporating the nine nonstructural strategies identified in Subchapter 5 of the New Jersey Stormwater Management Rules (N.J.A.C. 7:8-5), and set forth in § 292-2C(4)(a), into the design. The applicant shall identify within the land use planning and source control plan required by § 292-2C(4) of this chapter how each of the nine nonstructural measures will be incorporated into the design of the project to the maximum extent practicable.
- (2) If the applicant contends that it is not practical for engineering, environmental or safety reasons to incorporate any of the nine nonstructural strategies into the design of a particular project, the applicant shall provide a detailed rationale establishing a basis for the contention that use of the strategy is not practical on the site. This rationale shall be submitted in accordance with the checklist requirements established by § 292-2 to Lacey Township. A determination by Lacey Township that this rationale is inadequate or without merit shall result in a denial of the application unless one of the following conditions are met:
 - (a) The land use planning and source control plan is amended to include a description of how all nine nonstructural measures will be implemented on the development site, and the amended plan is approved by Lacey Township;
 - (b) The land use planning and source control plan is amended to provide an alternative nonstructural strategy or measure that is not included in the list of nine nonstructural measures, but still meets the performance standards in § 292-4, and the amended plan is approved by Lacey Township; or
 - (c) The land use planning and source control plan is amended to provide an adequate rationale for the contention that use of the particular strategy is not practical on the site, and the amended plan is approved by Lacey Township.

- (3) In addition to all other requirements of this section, each applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved, protected and maintained according to the minimum standards established by provisions of the Lacey Township Land Use Ordinance, Zoning Ordinance or by conditions of zoning or variance approval. Existing trees and vegetation shall be protected during construction activities in accordance with the "Standard for Tree Protection During Construction" provided in the New Jersey State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.
 - (4) In addition to all other requirements of this section, each application for major development, and any other application where Lacey Township otherwise requires a landscaping plan, shall contain a landscaping or revegetation plan in accordance with the Pinelands CMP standards at N.J.A.C. 7:50-6.24(c).
 - (5) Any land area used as a nonstructural stormwater management measure to meet the performance standards in § 292-4 shall be dedicated to a government entity; shall be subjected to a conservation easement filed with the appropriate county clerk's office; or shall be subjected to an equivalent form of restriction approved by Lacey Township that ensures that that measure or equivalent stormwater management measure is maintained in perpetuity, as detailed in § 292-6 of this chapter.
 - (6) Guidance for nonstructural stormwater management strategies is available in the New Jersey BMP Manual, which may be obtained from the address identified in § 292-12A or found on the NJDEP's Web site at www.njstormwater.org.
 - (7) Exception for major development sites creating less than one acre of disturbance. The use of nonstructural strategies to meet the performance standards in § 292-4 of this chapter is not required for major development creating less than one acre of disturbance. However, the following requirements shall be met:
 - (a) Each application for major development and any other application where Lacey Township otherwise requires a landscaping plan shall contain a landscaping or revegetation plan prepared in accordance with the Pinelands CMP standards [N.J.A.C. 7:50-6.24(c)];
 - (b) Each applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved and protected according to the minimum standards established by provisions of the Lacey Township Land Use Ordinance, Zoning Ordinance or by conditions of zoning or variance approval; and
 - (c) Existing trees and vegetation shall be protected during construction activities in accordance with the "Standard for Tree Protection During Construction" provided in the New Jersey State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.
- B. Stormwater runoff quantity and rate standards.
- (1) There shall be no direct discharge of stormwater runoff from any point or nonpoint source to any wetland, wetlands transition area or surface water body. In addition, stormwater runoff shall not be directed in such a way as to increase the volume and/or rate of discharge into any surface water body from that which existed prior to development of the site.
 - (2) To the maximum extent practical, there shall be no direct discharge of stormwater runoff onto farm fields so as to protect farm crops from damage due to flooding, erosion and long-term saturation of cultivated crops and cropland.
 - (3) For all major developments, the total runoff volume generated from the net increase in impervious surfaces by a ten-year, twenty-four-hour storm shall be retained and infiltrated on site.

- (4) In addition, the design engineer, using the assumptions and factors for stormwater runoff and groundwater recharge calculations contained in § 292-3, shall either:
- (a) Demonstrate through hydrologic and hydraulic analysis that the postdeveloped stormwater runoff hydrographs from the project site for the two-, ten-, and one-hundred-year storms do not exceed, at any point in time, the site's predeveloped runoff hydrographs for the same storms.
 - (b) Demonstrate through hydrologic and hydraulic analysis that under postdeveloped site conditions:
 - [1] There is no increase in predeveloped stormwater runoff rates from the project site for the two-, ten-, and one-hundred-year storms; and
 - [2] Any increased stormwater runoff volume or change in stormwater runoff timing for the two-, ten-, and one-hundred-year storms will not increase flood damage at or downstream of the project site. When performing this analysis for predeveloped site conditions, all off-site development levels shall reflect existing conditions. When performing this analysis for postdeveloped site conditions, all off-site development levels shall reflect full development in accordance with current zoning and land use ordinances.
 - (c) Demonstrate that the peak postdeveloped stormwater runoff rates from the project site for the two-, ten-, and one-hundred-year storms are 50%, 75% and 80%, respectively, of the site's peak predeveloped stormwater runoff rates for the same storms. Peak outflow rates from on-site stormwater measures for these storms shall be adjusted where necessary to account for the discharge of increased stormwater runoff rates and/or volumes from project site areas not controlled by the on-site measures. These percentages do not have to be applied to those portions of the project site that are not proposed for development at the time of application, provided that such areas are:
 - [1] Protected from future development by imposition of a conservation easement, deed restriction, or other acceptable legal measures; or
 - [2] Would be subject to review under these standards if they are proposed for any degree of development in the future.
- (5) In tidal flood hazard areas, a stormwater runoff quantity analysis in accordance with Subsection **B(4)(a), (b) and (c)** above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.
- (6) The standards for stormwater runoff quantity and rate required by this section shall be met using the methods, calculations and assumptions provided in § 292-3.

C. Groundwater recharge standards.

- (1) For all major developments, with the exception of those described in § 292-4C(4), below, the design engineer, using the assumptions and factors for stormwater runoff and groundwater recharge calculations contained in § 292-3, shall either:
- (a) Demonstrate through hydrologic and hydraulic analysis that the postdeveloped project site maintains 100% of the site's predeveloped average annual groundwater recharge volume; or
 - (b) Demonstrate through hydrologic and hydraulic analysis that any increase in the project site's stormwater runoff volume for the two-year, twenty-four-hour storm from predeveloped to postdeveloped conditions is infiltrated on site.
- (2) The design engineer shall assess the hydraulic impact on the groundwater table and design the project site and all site groundwater recharge measures so as to avoid adverse hydraulic impacts. Adverse hydraulic impacts include, but are not limited to: raising the groundwater

table so as to cause surface ponding; flooding of basements and other subsurface structures and areas; preventing a stormwater infiltration basin from completely draining via infiltration within 72 hours of a design storm event; and interference with the proper operation of subsurface sewage disposal systems and other surface and subsurface facilities in the vicinity of the groundwater recharge measure.

- (3) The standards for groundwater recharge required by this section shall be met using the methods, calculations and assumptions provided in § 292-3.
 - (4) Exceptions. The preceding groundwater recharge standards shall not apply to sites that create less than one acre of disturbance.
- D. Erosion control standards. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and its implementing regulations, N.J.A.C. 2:90-1.1 through 1.4.
- E. Stormwater runoff quality standards.
- (1) There shall be no direct discharge of stormwater runoff from any point or nonpoint source to any wetland, wetland transition area or surface water body.
 - (2) Stormwater management measures shall be designed to reduce the total suspended solids (TSS) load in the stormwater runoff from the postdeveloped site by 80% expressed as an annual average.
 - (3) Stormwater management measures shall also be designed to reduce the nutrient load in the stormwater runoff from the postdeveloped site by the maximum extent practicable. In achieving this reduction, the design of the development site shall include nonstructural and structural stormwater management measures that optimize nutrient removal while still achieving the groundwater recharge, runoff quantity and rate, and TSS removal standards in this section.
 - (4) The standards for stormwater runoff quality required by this section shall be met using the methods, calculations, assumptions and pollutant removal rates provided in § 292-3.
 - (5) Exceptions.
 - (a) The preceding stormwater runoff quality standards shall not apply to the following major development sites:
 - [1] Major development sites where less than 1/4 acre of additional impervious surface is proposed; or
 - [2] Major residential development sites that create less than one acre of disturbance.
 - (b) The TSS reduction requirement in § 292-4F(2) shall not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the NJPDES rules (N.J.A.C. 7:14A) or in a discharge specifically exempt under a NJPDES permit from this requirement.
 - (c) The stormwater runoff quantity and rate standards in § 292-4B shall still be met for all major development sites.
- F. Additional stormwater quality standards for high pollutant loading areas and areas where stormwater runoff is exposed to source material.
- (1) This subsection applies to the following areas of a major development as defined in § 292-7 of this chapter:
 - (a) High pollutant loading areas (HPLAs); and
 - (b) Areas where stormwater is exposed to source material.

- (2) For a major development in areas described in Subsections **F(1)(a)** or **F(1)(b)** above, in addition to the infiltration requirements specified in § **292-4B(2)** and the groundwater recharge requirements specified in § **292-4C**, the applicant shall demonstrate in the land use planning and source control plan required in § **292-2C(4)** that the following requirements have been met:
- (a) The extent of the areas described in Subsections **F(1)(a)** and **F(1)(b)** above have been minimized on the development site to the maximum extent practicable;
 - (b) The stormwater runoff from the areas described in Subsections **F(1)(a)** and **F(1)(b)** above is segregated to the maximum extent practicable from the stormwater runoff generated from the remainder of the site such that commingling of the stormwater runoff from the areas described in Subsections **F(1)(a)** and **F(1)(b)** above and the remainder of the site will be minimized;
 - (c) The amount of precipitation falling directly on the areas described in Subsections **F(1)(a)** and **F(1)(b)** above is minimized to the maximum extent practicable by means of a canopy, roof or other similar structure that reduces the generation of stormwater runoff; and
 - (d) The stormwater runoff from or commingled with the areas described in Subsections **F(1)(a)** and **F(1)(b)** above for the water quality design storm, defined in § **292-3B**, Table 1, shall be subject to pretreatment by one or more of the following stormwater BMPs, designed in accordance with the New Jersey BMP Manual to provide ninety-percent TSS removal:
 - [1] Bioretention system;
 - [2] Sand filter;
 - [3] Wet ponds which shall be hydraulically disconnected by a minimum of two feet of vertical separation from the seasonal high water table and shall be designed to achieve a minimum eighty-percent TSS removal rate;
 - [4] Constructed stormwater wetlands; and/or
 - [5] Media filtration system manufactured treatment device with a minimum eighty-percent TSS removal as verified by the New Jersey Corporation for Advanced Technology and as certified by NJDEP.
 - (e) If the potential for contamination of stormwater runoff by petroleum products exists on site, prior to being conveyed to the pretreatment BMP required in § 292-4D(2)(d) above, the stormwater runoff from the areas described in Subsections **F(1)(a)** and **F(1)(b)** above shall be conveyed through an oil/grease separator or other equivalent manufactured filtering device to remove the petroleum hydrocarbons. The applicant shall provide the reviewing agency with sufficient data to demonstrate acceptable performance of the device.
- G. Threatened and endangered species and associated habitat standards. Stormwater management measures shall address the impacts of the development on habitat for threatened and endangered species, in accordance with N.J.A.C. 7:8-5.2(c), N.J.A.C. 7:50-6.27 and 7:50-6.33 and 34.
- H. Exceptions and mitigation requirements.
- (1) Exceptions from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements established by this chapter may be granted, at the discretion of Lacey Township and subject to approval by the Pinelands Commission, provided that all of the following conditions are met:
 - (a) The exception is consistent with that allowed by Lacey Township;

- (b) Lacey Township has an adopted and effective municipal stormwater management plan in accordance with N.J.A.C. 7:8-4.4, which includes a mitigation plan in accordance with N.J.A.C. 7:8-4.2(c)11, and is also certified by the Pinelands Commission. The mitigation plan shall identify what measures are necessary to offset the deficit created by granting the exception and the municipality shall submit a written report to the county review agency and the NJDEP describing the exception and the required mitigation. Guidance for developing municipal stormwater management plans, including mitigation plans, is available from the NJDEP, Division of Watershed Management and the New Jersey BMP Manual.
- (c) The applicant demonstrates that mitigation, in addition to the requirements of mitigation plan discussed in Subsection H(1)(b) above, will be provided consistent with one of the following options:
- [1] Mitigation may be provided off site, but within the Pinelands Area and within the same drainage area as the development site, and shall meet or exceed the equivalent recharge, quality or quantity performance standard which is lacking on the development site due to the exception; or
 - [2] In lieu of the required mitigation, a monetary in-lieu contribution may be provided by the applicant to Lacey Township in accordance with the following:
 - [a] The amount of the in-lieu contribution shall be determined by Lacey Township, but the maximum in-lieu contribution required shall be equivalent to the cost of implementing and maintaining the stormwater management measure(s) for which the exception is granted;
 - [b] The in-lieu contribution shall be used to fund an off-site stormwater control mitigation project(s) located within the Pinelands Area, within the same drainage area as the development site, and shall meet or exceed the equivalent recharge, quality or quantity performance standards which is lacking on the development site. Such mitigation project shall be identified by Lacey Township in Lacey Township's adopted municipal stormwater management plan. The stormwater control project to which the monetary contribution will be applied shall be identified by Lacey Township at the time the exception is granted. The applicant shall amend the project description and site plan required in § 292-2C(3) to incorporate a description of both the standards for which an on-site exception is being granted and of the selected off-site mitigation project.
 - [c] Lacey Township shall expend the in-lieu contribution to implement the selected off-site mitigation project within five years from the date that payment is received. Should Lacey Township fail to expend the in-lieu contribution within the required time frame, the mitigation option provided in § 292-4H(1)(c) of this chapter shall be void and Lacey Township shall be prohibited from collecting in-lieu contributions.
- (2) An exception from strict compliance granted in accordance with § 292-4H(1) above shall not constitute a waiver of strict compliance from the requirements of the Pinelands Comprehensive Management Plan at N.J.A.C. 7:50. An applicant should contact the Pinelands Commission to determine whether a waiver of strict compliance is also required in accordance with N.J.A.C. 7:50, Subchapter 4, Part V.

§ 292-5. Design, construction, and safety standards for structural stormwater management measures.

A. General design and construction standards.

- (1) Structural stormwater management measures shall be designed to meet the standards established in this section. These standards have been developed to protect public safety, conserve natural features, create an aesthetically pleasing site and promote proper on-site stormwater management.
- (2) The following structural stormwater management measures may be utilized as part of a stormwater management system at a major land development in the Pinelands, provided that the applicant demonstrates that they are designed, constructed and maintained so as to meet the standards and requirements established by this chapter. If alternative stormwater management measures are proposed, the applicant shall demonstrate that the selected measures will achieve the standards established by this chapter.
 - (a) Bioretention systems;
 - (b) Constructed stormwater wetlands;
 - (c) Extended detention basins;
 - (d) Infiltration basins;
 - (e) Vegetated filter strips;
 - (f) Infiltration basins and trenches;
 - (g) Wet ponds with suitable liners;
 - (h) Pervious paving systems; and
 - (i) Manufactured treatment devices, provided their pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the NJDEP.
- (3) Structural stormwater management measures shall be designed to take into account the existing site conditions, including environmentally critical areas, wetlands, flood-prone areas, slopes, depth to seasonal high water table, soil type, permeability and texture, and drainage area and drainage patterns.
- (4) Structural stormwater management measures shall be designed and constructed to be strong, durable, and corrosion resistant (measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.8 shall be deemed to meet this requirement); to minimize and facilitate maintenance and repairs; and to ensure proper functioning.
- (5) For all stormwater management measures at a development site, each applicant shall submit a detailed inspection, maintenance and repair plan consistent with the requirements of § 292-5 of this chapter.
- (6) To the maximum extent practicable, the design engineer shall design structural stormwater management measures on the development site in a manner that:
 - (a) Limits site disturbance, maximizes stormwater management efficiencies, and maintains or improves aesthetic conditions;
 - (b) Utilizes multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, instead of a single, larger structural stormwater management measure;
 - (c) Incorporates pretreatment measures. Pretreatment can extend the functional life and increase the pollutant removal capability of a structural stormwater management measure. Pretreatment measures may be designed in accordance with the New Jersey BMP Manual or other sources approved by the Municipal Engineer.

- (7) Stormwater management basins shall be designed in a manner that complements and mimics the existing natural landscape, including but not limited to the following design strategies:
 - (a) Use of natural, nonwetland wooded depressions for stormwater runoff storage; and
 - (b) Establishment of attractive landscaping in and around the basin that mimics the existing vegetation and incorporates native Pinelands plants, including, but not limited to, the species listed in N.J.A.C. 7:50-6.25 and 6.26.
- (8) Stormwater management basins shall be designed with gently sloping sides. The maximum allowable basin side slope shall be three horizontal to one vertical.
- (9) Guidance on the design and construction of structural stormwater management measures may be found in the New Jersey BMP Manual. Other guidance sources may also be used upon approval by the Municipal Engineer.
- (10) After all construction activities and required field testing have been completed on the development site, as-built plans depicting design and as-built elevations of all stormwater management measures shall be prepared by a licensed land surveyor and submitted to the Municipal Engineer. Based upon the Municipal Engineer's review of the as-built plans, all corrections or remedial actions deemed by the Municipal Engineer to be necessary due to the failure to comply with the standards established by this chapter and/or any reasons of public health or safety, shall be completed by the applicant. In lieu of review by the Municipal Engineer, Lacey Township reserves the right to engage a professional engineer to review the as-built plans. The applicant shall pay all costs associated with such review.

B. Design and construction standards for stormwater infiltration BMPs.

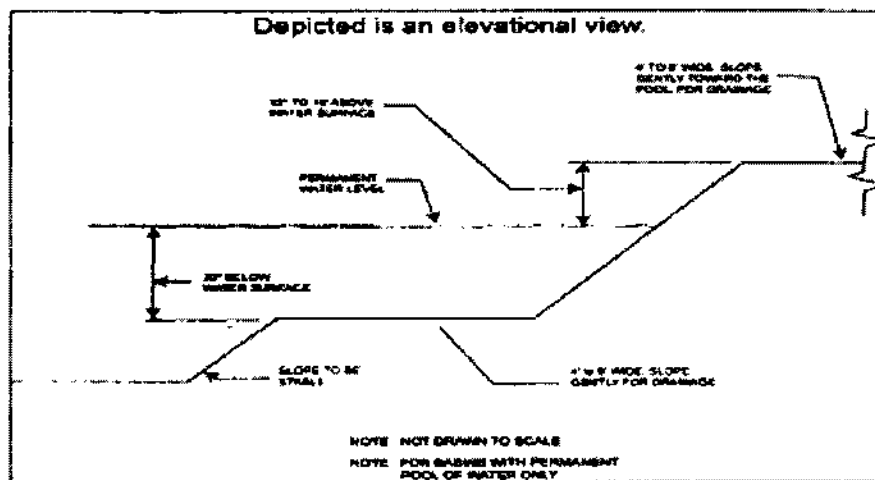
- (1) Stormwater infiltration BMPs, such as bioretention systems with infiltration, dry wells, infiltration basins, pervious paving systems with storage beds and sand filters with infiltration, shall be designed, constructed and maintained to completely drain the total runoff volume generated by the basin's maximum design storm within 72 hours after a storm event. Runoff storage for greater times can render the BMP ineffective and may result in anaerobic conditions, odor and both water quality and mosquito breeding problems.
- (2) Stormwater infiltration BMPs shall be designed, constructed and maintained to provide a minimum separation of at least two feet between the elevation of the lowest point of the bottom of the infiltration BMP and the seasonal high water table.
- (3) A stormwater infiltration BMP shall be sited in suitable soils verified by field testing to have permeability rates between one and 20 inches per hour. If such site soils do not exist or if the design engineer demonstrates that it is not practical for engineering, environmental or safety reasons to site the stormwater infiltration BMP(s) in such soils, then the stormwater infiltration BMP(s) may be sited in soils verified by field testing to have permeability rates in excess of 20 inches per hour, provided that a bioretention system, designed, installed and maintained in accordance with the New Jersey BMP Manual, is installed to meet one of the following conditions:
 - (a) The bioretention system is constructed as a separate measure designed to provide pretreatment of stormwater and to convey the pretreated stormwater into the infiltration BMP; or
 - (b) The bioretention system is integrated into and made part of the infiltration BMP and, as such, does not require an underdrain system. If this option is selected, the infiltration BMP shall be designed and constructed so that the maximum water depth in the bioretention system portion of the BMP during treatment of the stormwater quality design storm is 12 inches in accordance with the New Jersey BMP Manual.
- (4) The minimum design permeability rate for the soil within a BMP that relies on infiltration shall be 1/2 inch per hour. A factor of safety of two shall be applied to the soil's field-tested permeability rate to determine the soil's design permeability rate. For example, if the field-

tested permeability rate of the soil is four inches per hour, its design permeability rate would be two inches per hour). The minimum design permeability rate for the soil within a stormwater infiltration basin shall also be sufficient to achieve the minimum seventy-two-hour drain time described in § **292-5B(1)** above. The maximum design permeability shall be 10 inches per hour.

- (5) A soil's field-tested permeability rate shall be determined in accordance with the following:
 - (a) The predevelopment field test permeability rate shall be determined according to the methodologies provided in § **292-11C(3)** of this chapter;
 - (b) The results of the required field permeability tests shall demonstrate a minimum tested infiltration rate of one inch per hour;
 - (c) After all construction activities have been completed on the site and the finished grade has been established in the infiltration BMP, post-development field permeability tests shall also be conducted according to the methodologies provided in § **292-11C(3)** of this chapter;
 - (d) If the results of the postdevelopment field permeability tests fail to achieve the minimum required design permeability rates in Subsection **B(5)** above utilizing a factor of safety of two, the stormwater infiltration BMP shall be renovated and re-tested until such minimum required design permeability rates are achieved; and
 - (e) The results of all field permeability tests shall be certified by a professional engineer and transmitted to the Municipal Engineer.
- (6) To help ensure maintenance of the design permeability rate over time, a six-inch layer of K5 soil shall be placed on the bottom of a stormwater infiltration BMP. This soil layer shall meet the textural and permeability specifications of a K5 soil as provided at N.J.A.C. 7:9A, Appendix A, Figure 6, and be certified to meet these specifications by a professional engineer licensed in the State of New Jersey. The depth to the seasonal high water table shall be measured from the bottom of the K5 sand layer.
- (7) The design engineer shall assess the hydraulic impact on the groundwater table and design the project site and all stormwater infiltration basins so as to avoid adverse hydraulic impacts. Adverse hydraulic impacts include, but are not limited to: raising the groundwater table so as to cause surface ponding; flooding of basements and other subsurface structures and areas; preventing a stormwater infiltration basin from completely draining via infiltration within 72 hours of a design storm event; and interference with the proper operation of subsurface sewage disposal systems and other surface and subsurface structures in the vicinity of the stormwater infiltration basin.
- (8) The design engineer shall conduct a mounding analysis, as defined in § **292-7**, of all stormwater infiltration BMPs. The mounding analysis shall be conducted in accordance with the requirements in § **292-11C(1)**. Where the mounding analysis identifies adverse impacts, the stormwater infiltration BMP shall be redesigned or relocated, as appropriate.
- (9) Stormwater infiltration BMPs shall be constructed in accordance with the following:
 - (a) To avoid sedimentation that may result in clogging and reduce the basin's permeability rate, stormwater infiltration basins shall be constructed according to the following:
 - [1] Unless the conditions in Subsection **B(9)(a)[2]** below are met, a stormwater infiltration basin shall not be placed into operation until its drainage area is completely stabilized. Instead, upstream runoff shall be diverted around the basin 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 the Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.

- [2] If the design engineer determines that, for engineering, environmental or safety reasons, temporary stormwater management facilities and sediment basins cannot be constructed on the site, the stormwater infiltration basin may be placed into operation prior to the complete stabilization of its drainage area, provided that the basin's bottom during this period is constructed at a depth at least two feet higher than its final design elevation. All other infiltration BMP construction requirements in this section shall be followed. When the drainage area is completely stabilized, all accumulated sediment shall be removed from the infiltration BMP, which shall then be excavated to its final design elevation in accordance with the construction requirements of this section and the performance standards in § 292-4.
- (b) To avoid compaction of subgrade soils of BMPs that rely on infiltration, no heavy equipment such as backhoes, dump trucks or bulldozers shall be permitted to operate within the footprint of the BMP. All excavation required to construct a stormwater infiltration BMP shall be performed by equipment placed outside the BMP. If this is not possible, the soils within the excavated area shall be renovated and tilled after construction is completed to reverse the effects of compaction. In addition, postdevelopment soil permeability testing shall be performed in accordance with Subsection B(5) of this section.
- (c) Earthwork associated with stormwater infiltration BMP construction, including excavation, grading, cutting or filling, shall not be performed when soil moisture content is above the lower plastic limit.
- C. Safety standards for structural stormwater management measures.
- (1) If a structural stormwater management measure has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide readily accessible means of ingress and egress from the outlet structure.
- (2) A trash rack is a device intended to intercept runoff-borne trash and debris that might otherwise block the hydraulic openings in an outlet structure of a structural stormwater management measure. Trash racks shall be installed upstream of such outlet structure openings as necessary to ensure proper functioning of the structural stormwater management measure in accordance with the following:
- (a) The trash rack should be constructed primarily of bars aligned in the direction of flow with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the bars shall be spaced no greater than 1/3 the width of the hydraulic opening it is protecting or six inches, whichever is less. Transverse bars aligned perpendicular to flow should be sized and spaced as necessary for rack stability and strength.
- (b) The trash rack shall not adversely affect the hydraulic performance of either the outlet structure opening it is protecting or the overall outlet structure.
- (c) The trash rack shall have sufficient net open area under clean conditions to limit the peak design storm velocity through it to a maximum of 2.5 feet per second.
- (d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.
- (3) An overflow grate is a device intended to protect the opening in the top of a stormwater management measure outlet structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
- (a) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance;

- (b) The overflow grate spacing shall be no more than two inches across the smallest dimension; and
 - (c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.
- (4) The maximum side slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.
- (5) Safety ledges shall be constructed on the slopes of all new structural stormwater management measures having a permanent pool of water deeper than 2 1/2 feet. Such safety ledges shall be comprised of two steps. Each step shall be four feet to six feet in width. One step shall be located approximately 2 1/2 feet below the permanent water surface, and the second step shall be located one to 1 1/2 feet above the permanent water surface. See Subsection **C(5)(a)** below, for an illustration of safety ledges in a stormwater management basin.
- (a) Illustration of safety ledges.



Source: N.J.A.C. 7:8-6 Appendix A.

§ 292-6. Inspection, maintenance and repair of stormwater management measures.

- A. Applicability. Projects subject to review pursuant to § 292-1C of this chapter shall comply with the requirements of § 292-6B and § 292-6C below.
- B. General inspection, maintenance and repair plan.
 - (1) The design engineer shall prepare an inspection, maintenance and repair plan for the stormwater management measures, including both structural and nonstructural measures incorporated into the design of a major development. This plan shall be submitted as part of the checklist requirements established in § 292-2C. Inspection and maintenance guidelines for stormwater management measures are available in the New Jersey BMP Manual.
 - (2) The inspection, maintenance and repair plan shall contain the following:
 - (a) Accurate and comprehensive drawings of the site's stormwater management measures;
 - (b) Specific locations of each stormwater management measure identified by means of longitude and latitude as well as block and lot number;

- (c) Specific preventative and corrective maintenance tasks and schedules for such tasks for each stormwater BMP;
 - (d) Cost estimates, including estimated cost of sediment, debris or trash removal; and
 - (e) The name, address and telephone number of the person or persons responsible for regular inspections and preventative and corrective maintenance (including repair and replacement). If the responsible person or persons is a corporation, company, partnership, firm, association, municipality or political subdivision of this state, the name and telephone number of an appropriate contact person shall also be included.
- (3) The person responsible for inspection, maintenance and repair identified under § **292-6B(2)** above shall maintain a detailed log of all preventative and corrective maintenance performed for the site's stormwater management measures, including a record of all inspections and copies of all maintenance-related work orders in the inspection, maintenance and repair plan. Said records and inspection reports shall be retained for a minimum of five years.
 - (4) If the inspection, maintenance and repair plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for inspection and 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 measure to such person under an applicable ordinance or regulation.
 - (5) If the person responsible for inspection, maintenance and repair identified under § **292-6B(3)** above is not a public agency, the maintenance plan and any future revisions based on § **292-6B(6)** below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan shall be undertaken.
 - (6) The person responsible for inspection, maintenance and repair identified under § **292-6B(2)** above shall evaluate the effectiveness of the inspection, maintenance and repair plan at least once per year and update the plan and the deed as needed.
 - (7) The person responsible for inspection, maintenance and repair identified under § **292-6B(2)** above shall submit the updated inspection, maintenance and repair plan and the documentation required by § **292-6B(2)** and **(3)** above to Lacey Township once per year.
 - (8) The person responsible for inspection, maintenance and repair identified under § **292-6B(2)** above shall retain and make available, upon request by any public entity with administrative, health, environmental or safety authority over the site the inspection, maintenance and repair plan and the documentation required by § **292-6B(2)** and **(3)** above.
- C. Responsibility for inspection, repair and maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.
- D. 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 any associated appurtenance of the measure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; repair or replacement of linings; and restoration of infiltration function.
- E. 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.
- F. In the event that the stormwater management measure becomes a public health nuisance or danger to public safety or public health, or if it is in need of maintenance or repair, Lacey Township shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have 14 days to effect maintenance and repair of the facility in a manner that is

approved by the Municipal Engineer or the Municipal Engineer's designee. Lacey Township, at 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 within the allowable time, Lacey Township may immediately proceed to do so with its own forces and equipment and/or through contractors. The costs and expenses of such maintenance and repair by Lacey Township shall be entered on the tax roll as a special charge against the property and collected with any other taxes levied thereon for the year in which the maintenance and repair was performed.

- G. Requirements for inspection, maintenance and repair of stormwater BMPs that rely on infiltration. If a stormwater infiltration BMP is incorporated into the design of a major development, the applicant shall include the following requirements in its inspection, maintenance and repair plan:
- (1) Once per month (if needed): Mow side slopes, remove litter and debris, stabilize eroded banks, repair erosion at inflow structure(s);
 - (2) After every storm exceeding one inch of rainfall: Ensure that infiltration BMPs drain completely within 72 hours after the storm event. If stored water fails to infiltrate 72 hours after the end of the storm, corrective measures shall be taken. Raking or tilling by light equipment can assist in maintaining infiltration capacity and break up clogged surfaces;
 - (3) Four times per year (quarterly): Inspect stormwater infiltration BMPs for clogging and excessive debris and sediment accumulation within the BMP, remove sediment (if needed) when completely dry;
 - (4) Two times per year: Inspect for signs of damage to structures, repair eroded areas, check for signs of petroleum contamination and remediate;
 - (5) Once per year: Inspect BMPs for unwanted tree growth and remove if necessary, disc or otherwise aerate bottom of infiltration basin to a minimum depth of six inches; and
 - (6) After every storm exceeding one inch of rainfall, inspect and, if necessary, remove and replace K5 sand layer and accumulated sediment, to restore original infiltration rate.
 - (7) Additional guidance for the inspection, maintenance and repair of stormwater infiltration BMPs can be found in the New Jersey BMP Manual.
- H. Financing of inspection, maintenance and repair of stormwater BMPs. An adequate means of ensuring permanent financing of the inspection, maintenance and repair of stormwater BMPs shall be implemented and detailed in the inspection, maintenance and repair plan. Permanent financing of the inspection, maintenance and repair of stormwater BMPs shall be accomplished by the assumption of the inspection and maintenance program by the Township of Lacey.

§ 292-7. Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application. When used in this chapter, the following terms shall have the meanings herein ascribed to them.

AQUACULTURE

The propagation, rearing and subsequent harvesting of aquatic organisms in controlled or selected environments, and their subsequent processing, packaging and marketing, including but not limited to, activities to intervene in the rearing process to increase production such as stocking, feeding, transplanting and providing for protection from predators.

CERTIFICATION

Either a written statement signed and sealed by a licensed New Jersey professional engineer attesting that a BMP design or stormwater management system conforms to or meets a particular set of standards or to action taken by the Commission pursuant to N.J.A.C. 7:50-3, Part II or Part

IV. Depending upon the context in which the term is used, the terms "certify" and "certified" shall be construed accordingly.

COMPACTION

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

CONSTRUCTION

The construction, erection, reconstruction, alteration, conversion, demolition, removal or equipping of buildings, structures or components of a stormwater management system, including but not limited to collection inlets, stormwater piping, swales and all other conveyance systems, and stormwater BMPs.

COUNTY REVIEW AGENCY

An agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

- A. A county planning agency; or
- B. 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

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.

DESIGN PERMEABILITY

The tested permeability rate with a factor of safety of two applied to it (e.g., if the tested permeability rate of the soils is four inches per hour, the design rate would be two inches per hour).

DEVELOPMENT

- A. 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;
 - (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 floodplain, seacoast, river, stream, lake, pond, wetlands or artificial body of water.

- B. In the case of development on agricultural land, i.e. lands used 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 Boards (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.

DEVELOPMENT, MAJOR

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 development, grading, clearing or disturbance of an area in excess of 5,000 square feet. Disturbance for the purpose of this chapter is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting or removing of vegetation.

DEVELOPMENT, MINOR

All development other than major development.

DRAINAGE AREA

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

ENVIRONMENTALLY CRITICAL AREA

An area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened animal species; threatened or endangered plants of the Pinelands pursuant to N.J.A.C. 7:5-6.27(a); large areas of contiguous open space or upland forest; steep slopes; and wellhead protection and groundwater recharge areas. T & E habitat constitutes habitat that is critical for the survival of a local population of threatened and endangered species or habitat that is identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program, whichever is more inclusive. Threatened and endangered wildlife shall be protected in conformance with N.J.A.C. 7:50-6.33.

EXCEPTION

The approval by the approving authority of a variance or other material departure from strict compliance with any section, part, phrase or provision of this chapter. An exception may be granted only under certain specific, narrowly defined conditions described herein and does not constitute a waiver of strict compliance with any section, part, phrase or provision of the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.).

EXTENDED DETENTION BASIN

A facility constructed through filling and/or excavation that provides temporary storage of stormwater runoff. It has an outlet structure that detains and attenuates runoff inflows and promotes the settlement of pollutants. An extended detention basin is normally designed as a multistage facility that provides runoff storage and attenuation for both stormwater quality and quantity management. The term "stormwater detention basin" shall have the same meaning as "extended detention basin."

FINISHED GRADE

The elevation of the surface of the ground after completion of final grading, either via cutting, filling or a combination thereof.

GRADING

Modification of a land slope by cutting and filling with the native soil or redistribution of the native soil which is present at the site.

GROUNDWATER

Water below the land surface in a zone of saturation.

GROUNDWATER MOUNDING ANALYSIS

A test performed to demonstrate that the groundwater below a stormwater infiltration basin will not "mound up," encroach on the unsaturated zone, break the surface of the ground at the infiltration area or downslope, and create an overland flow situation.

HEAVY EQUIPMENT

Equipment, machinery, or vehicles that exert ground pressure in excess of eight pounds per square inch.

HIGH POLLUTANT LOADING AREA

An area in an industrial or commercial development site; where solvents and/or petroleum products are loaded/unloaded, stored, or applied; where pesticides are loaded/unloaded or stored; 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; where recharge would be inconsistent with NJDEP-approved remedial action work plan or landfill closure plan; and/or where a high risk exists for spills of toxic materials, such as gas stations and vehicle maintenance facilities. The term "HPLA" shall have the same meaning as "high pollutant loading area."

IMPERVIOUS SURFACE

A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

INFILTRATION

The process by which precipitation enters the soil through its surface.

IN LIEU CONTRIBUTION

A monetary fee collected by Lacey Township in lieu of requiring strict on-site compliance with the groundwater recharge, stormwater runoff quantity and/or stormwater runoff quality standards established in this chapter.

INSTALL

To assemble, construct, put in place or connect components of a stormwater management system.

LACEY TOWNSHIP

The Planning Board, Zoning Board of Adjustment or other board, agency or official of Lacey Township with authority to approve or disapprove subdivisions, site plans, construction permits, building permits or other applications for development approval. For the purposes of reviewing development applications and ensuring compliance with the requirements of this chapter, Lacey Township may designate the Municipal Engineer or other qualified designee to act on behalf of Lacey Township.

MITIGATION

Acts necessary to prevent, limit, remedy or compensate for conditions that may result from those cases where an applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in N.J.A.C. 7:8, in an adopted regional stormwater management plan, or in a local ordinance which is as protective as N.J.A.C. 7:8, and an exception from strict compliance is granted by Lacey Township and the Pinelands Commission.

NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES MANUAL

Guidance developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations to address the standards in the New Jersey

Stormwater Management Rules, N.J.A.C. 7:8. The BMP Manual provides examples of ways to meet the standards contained in the rule. An applicant may demonstrate that other proposed management practices will also achieve the standards established in the rules. The Manual, and notices regarding future versions of the Manual, are available from the Division of Watershed Management, NJDEP, PO Box 418, Trenton, New Jersey 08625; and on the NJDEP's Web site, www.njstormwater.org. The term "New Jersey BMP Manual" shall have the same meaning as New Jersey Stormwater Best Management Practices Manual.

NJDEP

The New Jersey Department of Environmental Protection.

NJPDES

The New Jersey Pollutant Discharge Elimination System as set forth in N.J.S.A. 58:10A-1 et seq., and in N.J.A.C. 7:14A.

NJPDES PERMIT

A permit issued by the NJDEP pursuant to the authority of the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and N.J.A.C. 7:14A for a discharge of pollutants.

NONPOINT SOURCE

- A. Any human-made or human-induced activity, factor, or condition, other than a point source, from which pollutants are or may be discharged;
- B. Any human-made or human-induced activity, factor, or condition, other than a point source, that may temporarily or permanently change any chemical, physical, biological, or radiological characteristic of waters of the state from what was or is the natural, pristine condition of such waters, or that may increase the degree of such change; or
- C. Any activity, factor, or condition, other than a point source, that contributes or may contribute to water pollution. The term "NPS" shall have the same meaning as nonpoint source.

NONSTRUCTURAL BMP

A stormwater management measure, strategy or combination of strategies that reduces adverse stormwater runoff impacts through sound site planning and design. Nonstructural BMPs include such practices as minimizing site disturbance, preserving important site features, reducing and disconnecting impervious cover, flattening slopes, utilizing native vegetation, minimizing turf grass lawns, maintaining natural drainage features and characteristics and controlling stormwater runoff and pollutants closer to the source. The term "low-impact development technique" shall have the same meaning as nonstructural BMP.

NUTRIENT

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

PERMEABILITY

The rate at which water moves through a saturated unit area of soil or rock material at hydraulic gradient of one, determined as prescribed in N.J.A.C. 7:9A-6.2 (Tube Permeameter Test), N.J.A.C. 6.5 (Pit Bailing Test) or N.J.A.C. 6.6 (Piezometer Test). Alternative permeability test procedures may be accepted by the approving authority, provided the test procedure attains saturation of surrounding soils, accounts for hydraulic head effects on infiltration rates, provides a permeability rate with units expressed in inches per hour and is accompanied by a published source reference. Examples of suitable sources include hydrogeology, geotechnical, or engineering text and design manuals, proceedings of American Society for Testing and Materials (ASTM) symposia, or peer-review journals. Neither a soil permeability class rating test, as described in N.J.A.C. 7:9A-6.3, nor a percolation test, as described in N.J.A.C. 7:9A-6.4, are acceptable tests for establishing permeability values for the purpose of complying with this chapter.

PERMEABLE

Having a permeability of one inch per hour or faster. The terms "permeable soil," "permeable rock" and "permeable fill" shall be construed accordingly.

PERSON

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

PINELANDS CMP

The New Jersey Pinelands Comprehensive Management Plan (N.J.A.C. 7:50 1.1 et seq).

PINELANDS COMMISSION or COMMISSION

The Commission created pursuant to Section 5 of the Pinelands Protection Act, N.J.S.A. 13:18A-5.

POINT SOURCE

Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

POLLUTANT

Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substances [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, suspended solids, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, groundwaters or surface waters of the state, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

PROFESSIONAL ENGINEER

A person licensed to practice professional engineering in the State of New Jersey pursuant to N.J.S.A. 48:8-27 et seq.

RECHARGE

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

REPLICATE

One of two or more soil samples or tests taken at the same location (within five feet of each other) and depth, within the same soil horizon or substratum. In the case of fill material, replicate tests are tests performed on subsamples of the same bulk sample packed to the same bulk density.

SAND

A particle size category consisting of mineral particles which are between 0.05 and 2.0 millimeters in equivalent spherical diameter. Also, a soil textural class having 85% or more of sand and a content of silt and clay such that the percentage of silt plus 1.5 times the percentage of clay does not exceed 15, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SEASONALLY HIGH WATER TABLE

The upper limit of the shallowest zone of saturation which occurs in the soil, identified as prescribed in N.J.A.C. 7:9A-5.8.

SEDIMENT

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

SITE

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

SOIL

All unconsolidated mineral and organic material of any origin which is not a rock substratum, including sediments below the biologically active and/or weathered zones.

SOURCE MATERIAL

Any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, 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

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 INFILTRATION BMP

A basin or other facility constructed within permeable soils that provides temporary storage of stormwater runoff. An infiltration BMP does not normally have a structural outlet to discharge runoff from the stormwater quality design storm. Instead, outflow from an infiltration BMP is through the surrounding soil. The terms "infiltration measure" and "infiltration practice" shall have the same meaning as "stormwater infiltration basin."

STORMWATER MANAGEMENT MEASURE

Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal nonstormwater discharges into stormwater conveyances. This includes, but is not limited to, structural and nonstructural stormwater best management practices described in the New Jersey BMP Manual and designed to meet the standards for stormwater control contained within this chapter. The terms "stormwater best management practice" and "stormwater BMP" shall have the same meaning as stormwater management measure.

STORMWATER RUNOFF

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

SUITABLE SOIL

Unsaturated soil, above the seasonally high water table, which contains less than 50% by volume of coarse fragments and which has a tested permeability rate of between one and 20 inches per hour.

SURFACE WATER

Any waters of the state which are not groundwater.

TIME OF CONCENTRATION

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

TOTAL SUSPENDED SOLIDS

The insoluble solid matter suspended in water and stormwater that is separable by laboratory filtration in accordance with the procedure contained in the Standard Methods for the Examination of Water and Wastewater prepared and published jointly by the American Public Health Association, American Water Works Association and the Water Pollution Control Federation. The term "TSS" shall have the same meaning as total suspended solids.

TIDAL FLOOD HAZARD AREA

A flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

WATERS OF THE STATE

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

WATER TABLE

The upper surface of a zone of saturation.

WELL

A bored, drilled or driven shaft, or a dug hole, which extends below the seasonally high water table and which has a depth which is greater than its largest surface dimension.

WETLANDS

Those lands which are inundated or saturated by water at a magnitude, duration and frequency sufficient to support the growth of hydrophytes. Wetlands include lands 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 this section, N.J.A.C. 7:50 2.11, 6.4 and 6.5. The term "wetland" shall have the same meaning as wetlands.

WET POND

A stormwater facility constructed through filling and/or excavation that provides both permanent and temporary storage of stormwater runoff. It has an outlet structure that creates a permanent pool and detains and attenuates runoff inflows and promotes the settling of pollutants. A stormwater retention basin can also be designed as a multistage facility that also provides extended detention for enhanced stormwater quality design storm treatment and runoff storage and attenuation for stormwater quantity management. The term "stormwater retention basin" shall have the same meaning as wet pond.

§ 292-8. Violations and penalties.

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this chapter shall be considered to be in violation of Lacey Code § 297-52, and subject to potential fines, penalties and/or imprisonment as stipulated in §§ 285-13 or 297-52A of the Lacey Township Code as applicable.

§ 292-9. Repealer; severability.

- A. All ordinances or parts of ordinances inconsistent herewith are hereby repealed.
- B. If any section, subsection, sentence, clause, phrase or portion of this chapter is for any reason held to be invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions hereof.

§ 292-10. When effective.

This chapter shall take effect after second reading and publication as required by law. This chapter shall take effect immediately upon the following:

- A. Certification by the Pinelands Commission in accordance with N.J.A.C. 7:50 Subchapter 3; and
- B. Approval by the county review agency, or 60 days from the receipt of the ordinance by the county review agency if the county review agency should fail to act.

§ 292-11. Appendixes.

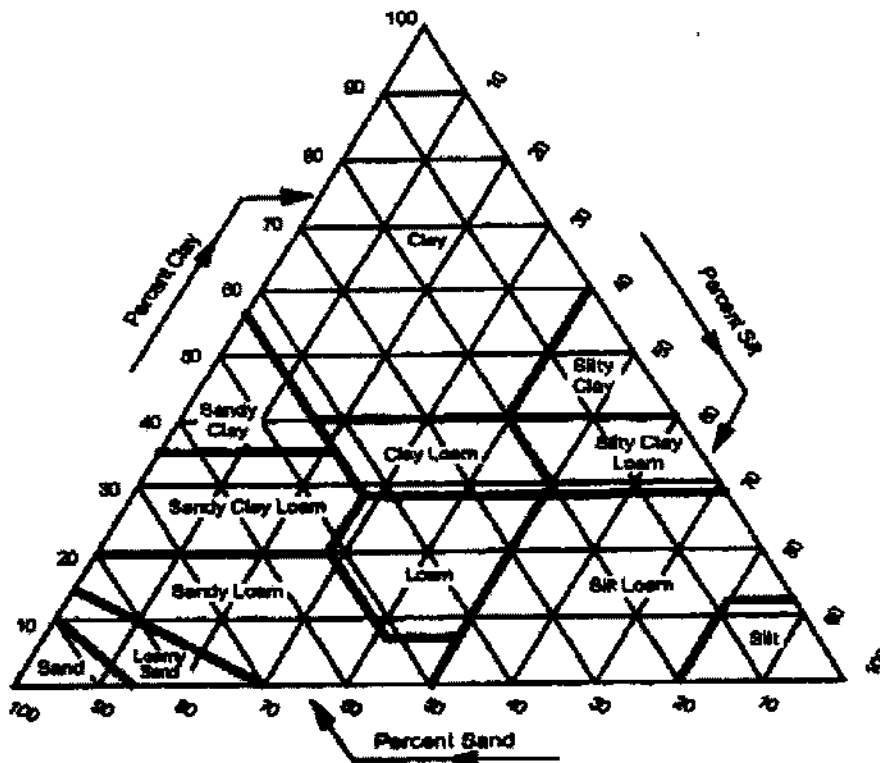
A. Methods for calculating groundwater recharge.

- (1) The New Jersey Geological Survey Report GSR-32: A Method for Evaluating Ground-Water Recharge Areas in New Jersey, available at <http://www.njgeology.org/geodata/dgs99-2.htm>.
- (2) The New Jersey Groundwater Recharge Spreadsheet (NJGRS), available in the New Jersey BMP Manual, Chapter 6, at http://www.njstormwater.org/bmp_manual2.htm.

B. NJDEP Nonstructural Strategies Point System. The New Jersey Stormwater Management Rules at N.J.A.C. 7:8-5.2(a), and § 292-4A of this chapter, require nonstructural stormwater management strategies to be incorporated into the site design of a major development. A total of nine strategies are to be used to the maximum extent practical to meet the groundwater recharge, stormwater quality and stormwater quantity requirements of the rules prior to utilizing structural stormwater management measures. The New Jersey Nonstructural Stormwater Management Strategies Point System (NSPS) provides a tool to assist planners, designers and regulators in determining that the strategies have been used to the "maximum extent practical" at a major development as required by the rules. Refer online to <http://www.njstormwater.org> for information on the NSPS.

C. Soils.

- (1) USDA Soil Textural Triangle.



Source: US Department of Agriculture.

- (2) Definitions. For the purposes of this appendix section, the following terms shall have the meanings herein ascribed to them.

A-HORIZON

The uppermost mineral horizon in a normal soil profile. The upper part of the A-horizon is characterized by maximum accumulation of finely divided, dark-colored organic residues known as humus, which are intimately mixed with the mineral particles of the soil.

ARTESIAN ZONE OF SATURATION

A zone of saturation which exists immediately below a hydraulically restrictive horizon, and which has an upper surface which is at a pressure greater than atmospheric, either seasonally or throughout the year.

CHROMA

The relative purity or strength of a color, a quantity which decreases with increasing grayness. Chroma is one of the three variables of soil color as defined in the Munsell system of classification.

CLAY

A particle size category consisting of mineral particles which are smaller than 0.002 millimeters in equivalent spherical diameter. Also, a soil textural class having more than 40% clay, less than 45% sand, and less than 40% silt, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

CLAY LOAM

A soil textural class having 27% to 40% clay and 20% to 45% sand, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

COARSE FRAGMENT

A rock fragment contained within the soil which is greater than two millimeters in equivalent spherical diameter or which is retained on a two-millimeter sieve.

COUNTY SOIL SURVEY REPORT

A report prepared by the United States Department of Agriculture, Natural Resources Conservation Service, which includes maps showing the distribution of soil mapping units throughout a particular county together with narrative descriptions of the soil series shown and other information relating to the uses and properties of the various soil series.

DIRECT SUPERVISION

Control over and direction of work carried out by others with full knowledge of and responsibility for such work.

EQUIVALENT SPHERICAL DIAMETER

Of a particle, means the diameter of a sphere which has a volume equal to the volume of the particle.

EXCESSIVELY COARSE HORIZON

A horizon of limited thickness within the soil profile which provides inadequate removal of pollutants from stormwater due to a high coarse fragment content, excessively coarse texture and/or excessively rapid permeability.

EXCESSIVELY COARSE SUBSTRATUM

A substratum below the soil profile which extends beyond the depth of soil profile pits and borings and which provides inadequate removal of pollutants from stormwater due to a high coarse fragment content, excessively coarse texture and/or excessively rapid permeability.

EXTREMELY FIRM CONSISTENCE

A type of soil material whose moist aggregated mass crushes only under very strong pressure, cannot be crushed between the thumb and forefinger and shall be broken apart bit by bit.

FIRM CONSISTENCE

A type of soil material whose moist aggregated mass crushes under moderate pressure between the thumb and forefinger but resistance is distinctly noticeable.

HARD CONSISTENCE

A type of soil material whose dry aggregated mass is moderately resistant to pressure, can be broken in the hands without difficulty but is barely breakable between the thumb and forefinger.

HUE

The dominant spectral color, one of the three variables of soil color defined within the Munsell system of classification.

HYDRAULICALLY RESTRICTIVE HORIZON

A horizon within the soil profile which slows or prevents the downward or lateral movement of water and which is underlain by permeable soil horizons or substrata. Any soil horizon which has a saturated permeability less than one inch per hour is hydraulically restrictive.

HYDRAULICALLY RESTRICTIVE SUBSTRATUM

A substratum below the soil profile which slows or prevents the downward or lateral movement of water and which extends beyond the depth of profile pits or borings or to a massive substratum. A substratum which has a saturated permeability less than one inch per hour is hydraulically restrictive.

LOAMY SAND

A soil textural class, as shown in § 292-11C(1) (USDA Soil Textural Triangle), that has a maximum of 85% to 90% sand with a percentage of silt plus 1.5 times the percentage of clay not in excess of 15; or a minimum of 70% to 85% sand with a percentage of silt plus 1.5 times the percentage of clay not in excess of 30.

LOWER PLASTIC LIMIT

The moisture content corresponding to the transition between the plastic and semisolid states of soil consistency. This corresponds to the lowest soil moisture content at which the soil can be molded in the fingers to form a rod or wire, 1/8 inch in thickness, without crumbling.

MOTTLING

A color pattern observed in soil consisting of blotches or spots of contrasting color. The term "mottle" refers to an individual blotch or spot. The terms "color variegation," "iron depletion" and "iron concentration" are equivalent to the term "mottling." Mottling due to redoximorphic reactions is an indication of seasonal or periodic and recurrent saturation.

MUNSELL SYSTEM

A system of classifying soil color consisting of an alphanumeric designation for hue, value and chroma, such as "7.5 YR 6/2," together with a descriptive color name, such as "strong brown."

O-HORIZON

A surface horizon, occurring above the A-horizon in some soils, which is composed primarily of undecomposed or partially decomposed plant remains which have not been incorporated into the mineral soil.

PERCHED ZONE OF SATURATION

A zone of saturation which occurs immediately above a hydraulically restrictive horizon and which is underlain by permeable horizons or substrata which are not permanently or seasonally saturated.

PIEZOMETER

A device consisting of a length of metal or plastic pipe, open at the bottom or perforated within a specified interval, and used for the determination of depth to water, permeability or hydraulic head within a specific soil horizon or substratum.

PLATY STRUCTURE

Characterized by a soil aggregate which has one axis distinctly shorter than the other two and oriented with the short axis vertical.

REGIONAL ZONE OF SATURATION

A zone of saturation which extends vertically without interruption below the depth of soil borings and profile pits.

SANDY CLAY

A soil textural class having 35% or more of clay and 45% or more of sand, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SANDY LOAM

A soil textural class, as shown in § 292-11C(1) (USDA Soil Textural Triangle), that has a maximum of 20% clay, and the percentage of silt plus twice the percentage of clay exceeds 30, and contains 52% or more sand; or less than 7% clay, less than 50% silt, and between 43% and 52% sand.

SILT

A particle size category consisting of mineral particles which are between 0.002 and 0.05 millimeters in equivalent spherical diameter. It also means a soil textural class having 80% or more of silt and 12% or less of clay, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SILT LOAM

A soil textural class having 50% or more of silt and 12% to 27% of clay; or 50% to 80% of silt and less than 12% of clay, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SILTY CLAY

A soil textural class having 40% or more of clay and 40% or more of silt, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SILTY CLAY LOAM

A soil textural class having 27% to 40% of clay and less than 20% of sand, as shown in § 292-11C(1) (USDA Soil Textural Triangle).

SOIL AGGREGATE

A naturally occurring unit of soil structure consisting of particles of sand, silt, clay, organic matter, and coarse fragments held together by the natural cohesion of the soil.

SOIL COLOR

The soil color name and Munsell color designation determined by comparison of the moist soil with color chips contained in a Munsell soil color book.

SOIL CONSISTENCE

The resistance of a soil aggregate or clod to being crushed between the fingers or broken by the hands. Terms for describing soil consistence described are in N.J.A.C. 7:9A-5.3(h).

SOIL HORIZON

A layer within a soil profile differing from layers of soil above and below it in one or more of the soil morphological characteristics, including color, texture, coarse fragment content, structure, consistence and mottling.

SOIL LOG

A description of the soil profile which includes the depth, thickness, color, texture, coarse fragment content, mottling, structure and consistence of each soil horizon or substratum.

SOIL MAPPING UNIT

An area outlined on a map in a county soil survey report and marked with a letter symbol designating a soil phase, a complex of two or more soil phases, or some other descriptive term where no soil type has been identified.

SOIL PHASE

A specific type of soil which is mapped by the Natural Resources Conservation Service and which belongs to a soil series described within the county soil survey report.

SOIL PROFILE

A vertical cross section of undisturbed soil showing the characteristic horizontal layers or horizons of the soil which have formed as a result of the combined effects of parent material, topography, climate, biological activity and time.

SOIL SERIES

A grouping of soil types possessing a specific range of soil profile characteristics which are described within the county soil survey report. Each soil series may consist of several soil phases which may differ in slope, texture of the surface horizon or stoniness.

SOIL STRUCTURAL CLASS

One of the shape classes of soil structure described in N.J.A.C. 7:9A-5.3(g).

SOIL STRUCTURE

The naturally occurring arrangement, within a soil horizon, of sand, silt and clay particles, coarse fragments and organic matter, which are held together in clusters or aggregates of similar shape and size.

SOIL TEST PIT

An excavation made for the purpose of exposing a soil profile which is to be described.

SOIL TEXTURAL CLASS

One of the classes of soil texture defined within the USDA system of classification. (Soil Survey Manual, Agricultural Handbook No. 18, USDA Soil Conservation Service 1962.)

SOIL TEXTURE

The relative proportions of sand, silt and clay in that portion of the soil which passes through a sieve with two-millimeter openings.

STATIC WATER LEVEL

The depth below the ground surface or the elevation with respect to some reference level, of the water level observed within a soil profile pit or boring, or within a piezometer, after this level has stabilized or become relatively constant with the passage of time.

SUBSTRATUM

A layer of soil or rock material present below the soil profile and extending beyond the depth of soil borings or profile pits.

UNSUITABLE SOIL

All soil other than suitable soil.

USDA SYSTEM OF CLASSIFICATION

The system of classifying soil texture used by the United States Department of Agriculture which defines 12 soil textural classes based upon the weight percentages of sand, silt and clay in that portion of the soil which passes through a sieve with two-millimeter openings. The soil textural classes are shown graphically on the USDA Soil Textural Triangle, as shown in § 292-11C(1).

VALUE

The relative lightness or intensity of a color, one of the three variables of soil color defined within the Munsell system of classification.

VERY FIRM CONSISTENCE

Characterized by a moist soil which crushes under strong pressure; barely crushable between thumb and forefinger.

VERY HARD CONSISTENCE

Characterized by a dry soil which is resistant to pressure, can be broken in the hands only with difficulty; not breakable between the thumb and forefinger.

ZONE OF SATURATION

A layer within or below the soil profile which is saturated with groundwater either seasonally or throughout the year. This includes both regional and perched zones.

- (3) Methods for assessing soil suitability for infiltration stormwater management BMPs. The results of a subsurface investigation shall serve as the basis for the site selection and design of stormwater infiltration BMPs. The subsurface investigation shall include, but not be limited to, a series of soil test pits and soil permeability tests conducted in accordance with the following:
- (a) All soil test pits and soil permeability results shall be performed under the direct supervision of a professional engineer. All soil logs and permeability test data shall be accompanied by a certification by a professional engineer. The results and location (horizontal and vertical) of all soil test pits and soil permeability tests, both passing and failing, shall be reported to Lacey Township.
 - (b) During all subsurface investigations and soil test procedures, adequate safety measures shall be taken to prohibit unauthorized access to the excavations at all times. It is the responsibility of persons performing or witnessing subsurface investigations and soil permeability tests to comply with all applicable federal, state and local laws and regulations governing occupational safety.
 - (c) A minimum of two soil test pits shall be excavated within the footprint of any proposed infiltration BMP to determine the suitability and distribution of soil types present at the site. Placement of the test pits shall be within 20 feet of the basin perimeter, located along the longest axis bisecting the BMP. For BMPs larger than 10,000 square feet in area, a minimum of one additional soil test pit shall be conducted within each additional area of 10,000 square feet. The additional test pit(s) shall be placed approximately equidistant to other test pits, so as to provide adequate characterization of the subsurface material. In all cases, where soil and or groundwater properties vary significantly, additional test pits shall be excavated in order to accurately characterize the subsurface conditions below the proposed infiltration BMP. Soil test pits shall extend to a minimum depth of eight feet below the lowest elevation of the basin bottom or to a depth that is at least two times the maximum potential water depth in the proposed infiltration BMP, whichever is greater.
 - (d) A soil test pit log shall be prepared for each soil test pit. The test pit log shall, at a minimum, provide the elevation of the existing ground surface, the depth and thickness (in inches) of each soil horizon or substratum, the dominant matrix or background and mottle colors using the Munsell system of classification for hue, value and chroma, the

appropriate textural class as shown on the USDA textural triangle, the volume percentage of coarse fragments (larger than two millimeters in diameter), the abundance, size, and contrast of mottles, the soil structure, soil consistence, and soil moisture condition, using standard USDA classification terminology for each of these soil properties. Soil test pit logs shall identify the presence of any soil horizon, substratum or other feature that exhibits an in-place permeability rate less than one inch per hour.

- (e) Each soil test pit log shall report the depth to seasonally high water level, either perched or regional, and the static water level based upon the presence of soil mottles or other redoximorphic features, and observed seepage or saturation. Where redoximorphic features including soil mottles resulting from soil saturation are present, they shall be interpreted to represent the depth to the seasonal high water table unless soil saturation or seepage is observed at a higher level. When the determination of the seasonally high water table shall be made in ground previously disturbed by excavation, direct observation of the static water table during the months of January through April shall be the only method permitted.
- (f) Any soil horizon or substratum which exists immediately below a perched zone of saturation shall be deemed by rule to exhibit unacceptable permeability (less than one inch per hour). The perched zone of saturation may be observed directly, inferred based upon soil morphology, or confirmed by performance of a hydraulic head test as defined at N.J.A.C. 7:9A-5.9.
- (g) Stormwater infiltration BMPs shall not be installed in soils that exhibit artesian groundwater conditions. A permeability test shall be conducted in all soils that immediately underlie a perched zone of saturation. Any zone of saturation which is present below a soil horizon which exhibits an in-place permeability of less than 0.2 inches per hour shall be considered an artesian zone of saturation unless a minimum one-foot-thick zone of unsaturated soil, free of mottling or other redoximorphic features and possessing a chroma of four or higher, exists immediately below the unsuitable soil.
- (h) A minimum of one permeability test shall be performed at each soil test pit location. The soil permeability rate shall be determined using test methodology as prescribed in N.J.A.C. 7:9A-6.2 (Tube Permeameter Test), 6.5 (Pit Bailing Test) or 6.6 (Piezometer Test). When the tube permeameter test is used, a minimum of two replicate samples shall be taken and tested. Alternative permeability test procedures may be accepted by the approving authority, provided the test procedure attains saturation of surrounding soils, accounts for hydraulic head effects on infiltration rates, provides a permeability rate with units expressed in inches per hour and is accompanied by a published source reference. Examples of suitable sources include hydrogeology, geotechnical or engineering text and design manuals, proceedings of American Society for Testing and Materials (ASTM) symposia, or peer-review journals. Neither a Soil Permeability Class Rating Test, as described in N.J.A.C. 7:9A-6.3, nor a Percolation Test, as described in N.J.A.C. 7:9A-6.4, are acceptable tests for establishing permeability values for the purpose of complying with this chapter.
- (i) Soil permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum to be left in place below the basin as follows. Where no soil replacement is proposed, the permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum within four feet of the lowest elevation of the basin bottom or to a depth equal to two times the maximum potential water depth within the basin, whichever is greater. Where soil replacement is proposed, the permeability tests shall be conducted within the soil immediately below the depth of proposed soil replacement or within the most hydraulically restrictive horizon or substratum to a depth equal to two times the maximum potential water depth within the basin, whichever is greater. Permeability tests may be performed on the most hydraulically restrictive soil horizons or substrata at depths greater than those identified above based upon the discretion of the design or testing engineer. The tested infiltration rate should then be divided by two to establish the

soil's design permeability rate. Such division will provide a one-hundred-percent safety factor to the tested rate.

- (j) The minimum acceptable tested permeability rate of any soil horizon or substratum shall be one inch per hour. Soil materials that exhibit tested permeability rates slower than one inch per hour shall be considered unsuitable for stormwater infiltration. The maximum reportable tested permeability rate of any soil horizon or substratum shall be no greater than 20 inches per hour regardless of the rate attained in the test procedure.
 - (k) After all construction activities have been completed on the development site and the finished grade has been established in the infiltration BMP, a minimum of one permeability test shall be conducted within the most hydraulically restrictive soil horizon or substratum below the as-built BMP to ensure the performance of the infiltration BMP is as designed. Hand tools and manual permeability test procedures shall be used for the purpose of confirming BMP performance. In addition, the infiltration BMP shall be flooded with water sufficient to demonstrate the performance of the BMP. Test results shall be certified to the Municipal Engineer.
 - (l) A groundwater mounding analysis shall be provided for each stormwater infiltration BMP. The groundwater mounding analysis shall calculate the maximum height of the groundwater mound based upon the volume of the maximum design storm. The professional engineer conducting the analysis shall provide the Municipal Engineer with the methodology and supporting documentation for the mounding analysis used and shall certify to Lacey Township, based upon the analysis, that the groundwater mound will not cause stormwater or groundwater to break out to the land surface or cause adverse impact to adjacent surface water bodies, wetlands or subsurface structures, including but not limited to basements and septic systems. If there is more than one infiltration BMP proposed, the model shall indicate if and how the mounds will interact. The mounding analysis shall be calculated using the most restrictive soil horizon that will remain in place within the explored aquifer thickness unless alternative analyses are authorized by the Municipal Engineer. The mounding analysis shall be accompanied by a cross section of the infiltration BMP and surrounding topography and the mound analysis shall extend out to the point(s) at which the mound intersects with the preexisting maximum water table elevation.
 - (m) The applicant shall demonstrate that stormwater infiltration BMPs meet the seventy-two-hour drain time requirement established in § 292-5B(1) of this chapter.
- D. Pretreatment measures for infiltration BMPs. By reducing incoming velocities and capturing coarser sediments, pretreatment can extend the functional life and increase the pollutant removal capability of infiltration measures. Therefore, the installation of pretreatment measures is recommended for all development sites. Pretreatment measures may include, but are not limited to, the following:
- (1) Vegetative filter strips;
 - (2) Bioretention systems. Used in conjunction with a bioretention system, the infiltration basin takes the place of the standard underdrain;
 - (3) Sand filters;
 - (4) Grassed swales; and
 - (5) Detention basins.
- E. Collection and conveyance.
- (1) Bicycle-safe inlet grates. Site development plans that incorporate site design features that help 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.

- (a) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
- [1] The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
 - [2] A different grate, if each individual clear space in that grate has an area of no more than seven square inches, or is no greater than 1/2 inch 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 basin floors.
- (b) Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven square inches, or be no greater than two inches across the smallest dimension.
- (c) This standard does not apply:
- [1] Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;
 - [2] Where flows from the water quality design storm as specified in § 292-3 are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
 - [a] A rectangular space 4 5/8 inches long and 1 1/2 inches wide (this option does not apply for outfall netting facilities); or
 - [b] A bar screen having a bar spacing of 1/2 inch.
 - [3] Where flows are conveyed through a trash rack that has parallel bars with one-inch spacing between the bars, to the elevation of the water quality design storm as specified in § 292-3 of this chapter; or
 - [4] 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.
- (2) Catch basins. Catch basins are storm drain inlets with or without sumps. Catch basins may provide pretreatment for other stormwater BMPs by capturing large sediments. The sediment and pollutant removal efficiency of catch basins depends on the size of the sump and the performance of routine maintenance to retain the available sediment storage space in the sump. Where catch basins with sumps are proposed, the minimum two feet separation between the bottom of the sump and seasonally high water table shall be provided.
- (3) Open or perforated conveyance piping. Where adequate separation to the seasonal high water table exists, stormwater from the development site may be conveyed to a stormwater basin via a system of perforated pipes. These pipes may be made of PVC or corrugated

metal and are available with perforations of varying size and spacing. Perforated pipe specifications shall be certified by a professional engineer. A professional engineer shall certify that perforated conveyance piping will not act to intercept the seasonal high water table and convey groundwater to the stormwater basin. All open or perforated stormwater conveyance systems shall be installed with a minimum separation of two feet from the seasonal high water table.

§ 292-12. Additional sources for technical guidance.

A. NJDEP technical guidance sources.

- (1) New Jersey BMP Manual. Available from the Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey 08625; or online at <http://www.njstormwater.org>.
- (2) NJDEP Stormwater Management Facilities Maintenance Manual. Available from the Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey 08625; or online at <http://njedl.rutgers.edu/ftp/PDFs/1188.pdf>.

B. Additional guidance sources.

- (1) New Jersey Pinelands Commission, PO Box 7, 15 Springfield Road, New Lisbon, New Jersey 08064; Phone: 609-894-7300; Web site: <http://www.state.nj.us/pinelands>.
- (2) State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey. Available from all state soil conservation districts, [including Burlington County Soil Conservation District, Tiffany Square, Suite 100, 1289 Route 38, Hainesport, New Jersey 08036; Phone: 609-267-7410; Fax: 609-267-3347; Web site: <http://bscd.org>].
- (3) Ocean County Soil Conservation District, 714 Lacey Road, Forked River, New Jersey 08731; Phone: 609-971-7002; Web site: <http://www.ocscd.org>.
- (4) New Jersey Department of Transportation, PO Box 600, Trenton, New Jersey 08625-0600; Phone: 609-530-3536; Web site: <http://www.state.nj.us/transportation>.

APPENDIX C – BUILD-OUT ANALYSIS

HUC 14 and Zoning	Developable Area (acres)	TP (lbs/acre/year)	TP (lbs/year)	TN (lbs/acre/year)	TN (lbs/year)	TSS (lbs/acre/year)	TSS (lbs/year)
0204030110020							
R-100 (residential)	20	1.4	28	15	300	140	2800
C-150 (highway business)	40.8	2.1	85.68	22	897.6	200	8160
C-200 (limited business)	22	2.1	46.2	22	484	200	4400
SFG (state game farm- ag)	56.1	1.3	72.93	10	561	120	6732
R-75 (residential)	4.5	1.4	6.3	15	67.5	140	630
R-80 (residential)	0.7	1.4	0.98	15	10.5	140	98
Totals	144.1		240.09		2320.6		22820
0204030109050							
PA (plnds preservation area)	57	0.1	5.7	3	171	40	2280
C-150 (highway business)	1.7	2.1	3.57	22	37.4	200	340
C-200 (limited business)	1.9	2.1	3.99	22	41.8	200	380
R-100 (residential)	36.6	1.4	51.24	15	549	140	5124
AR-PURD (residential age restricted)	4.1	1.5	6.15	16	65.6	200	820
OC (office commercial)	1.9	2.1	3.99	22	41.8	200	380
R-75 (residential)	1.2	1.4	1.68	15	18	140	168
Totals	104.4		76.32		824.6		9492
02040301110030							
C-150 (highway business)	18	2.1	37.8	22	396	200	3600
R-80 (residential)	2.2	1.4	3.08	15	33	140	308
SFG (state game farm- ag)	31.5	1.3	40.95	10	315	120	3780
R-75 (residential)	24.5	1.4	34.3	15	367.5	140	3430
C-100 (marine commercial)	4.4	0.5	2.2	5	22	60	264
M-2 (limited industrial)	3.2	0.5	1.6	5	16	60	192
R-100 (residential)	0.3	1.4	0.42	15	4.5	140	42
FA (plnds forest area)	2.4	0.1	0.24	3	7.2	40	96
Totals	86.5		120.69		1161.2		11712
02040301110020							
C-100 (marine commercial)	1.6	0.5	0.8	5	8	60	96
R-80 (residential)	2.8	1.4	3.92	15	42	140	392
C-150 (highway business)	6.9	2.1	14.49	22	151.8	200	1380
R-75 (residential)	8	1.4	11.2	15	120	140	1120
OC (office commercial)	6.9	2.1	14.49	22	151.8	200	1380
R-100 (residential)	6.4	1.4	8.96	15	96	140	896
C-200 (limited business)	9.5	2.1	19.95	22	209	200	1900

FA (plnds forest area)	107.6	0.1	10.76	3	322.8	40	4304
Totals	149.7		84.67		1101.4		11498
0204030110050							
M-2 (limited industrial)	2.9	0.5	1.45	5	14.5	60	174
RD (plnds rural dev. area)	0.7	0.5	0.35	5	3.5	60	42
Totals	3.6		1.8		18		216
02040301090050							
PA (plnds preservation area)	584.8	0.1	58.48	3	1754.4	40	23392
Totals	584.8		58.48		1754.4		23392
02040301090040							
PA (plnds preservation area)	410	0.1	41	3	1230	40	16400
PV (plnds village)	29.7	0.6	17.82	5	148.5	60	1782
Totals	439.7		58.82		1378.5		18182
02040301090030							
PV (plnds village)	31.6	0.6	18.96	5	158	60	1896
PA (plnds preservation area)	30.3	0.1	3.03	3	90.9	40	1212
Totals	61.9		21.99		248.9		3108
02040301090020							
PA (plnds preservation area)	156.1	0.1	15.61	3	468.3	40	6244
Totals	156.1		15.61		468.3		6244
02040301110010							
FA (plnds forest area)	2.6	0.1	0.26	3	7.8	40	104
Totals	2.6		0.26		7.8		104
02040202030040							
PA (plnds preservation area)	2.8	0.1	0.28	3	8.4	40	112
Totals	2.8		0.28		8.4		112
02040303090010							
PA (plnds preservation area)	28.5	0.1	2.85	3	85.5	40	1140
Totals	28.5		2.85		85.5		1140