Schwanewede / Hals Engineering **Professional Engineering and Land Surveying**

9 Post Road
Suite M11
Oakland, New Jersey 07436

Phone (201) 337-0053
Fax (201) 337-0173
E-mail: halseng@optonline.net

TOWNSHIP OF TEANECK
BERGEN COUNTY, NEW JERSEY

DRAFT

Municipal Stormwater Management Plan

January 2005
Revised November 2005
Revised May 2007

Table of Contents

List of Figures

List of Tables

Supplementary Items

Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Township of Teaneck to address stormwater-related impact. 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 acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies.

The Surface Water Quality Standards (SWQS) establish the designated uses to be achieved and specify the water quality (criteria) necessary to protect the State's waters. Designated uses include potable water, propagation of fish and wildlife, recreation, agricultural and industrial supplies, and navigation. These are reflected in use classifications assigned to specific waters.

The criteria applicable to different use classifications are numerical estimates of constituent concentrations, including toxic pollutants, protective of the uses. Narrative criteria describe instream conditions to be attained/maintained or avoided. Waters of the State include, but are not limited to, rivers, lakes, streams, wetlands, estuaries and near shore coastal waters.

The current Surface Water Quality designations, identified under N.J.A.C. 7:9B, that apply to these waterways, designated FW2, are as follows:

1. Maintenance, migration and propagation of the natural and established biota;
2. Primary and secondary contact recreation;
3. Industrial and agricultural water supply;
4. Public potable water supply after conventional filtration treatment (a series of processes including filtration, flocculation, coagulation, and sedimentation, resulting in substantial particulate removal but no consistent removal of chemical constituents) and disinfection; and
5. Any other reasonable uses.

The plan addresses the review and update of existing ordinances the Township's Master Plan, and other planning documents to allow for project designs that include low impact development techniques (Stormwater Control Ordinance attached as Supplement II). 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 development.

Goals

The goals of this MSWMP are to:

- reduce flood damage, including 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.

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.

The Township of Teaneck will use the Public Works Department to monitor all their roads and streets for erosion problems during normal patrols. All identified road erosion problems will be reported to the Public Works Superintendent. During quarterly SPPP Team meetings, identified areas of erosion will be discussed and repairs prioritized. All maintenance personnel will then be assigned to the areas of concern, and the areas identified to have road erosion problems will be repaired in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey. All maintenance personnel will maintain an inspection log, and the Superintendent will maintain a list of all repairs and the dates completed

The Township of Teaneck has evaluated all of its streets to determine which areas will need to be swept monthly. These areas have been grouped together into four separate groups, and each group will be assigned a different week each month. Also, the Township of Teaneck will implement an annual catch basin cleaning program to maintain catch basin function and efficiency. All catch basins will be inspected once a year.

If, at the time of inspection, no sediment, trash, or debris is observed in the catch basin, then that catch basin will not be cleaned. All catch basins will be inspected yearly, even if they were found to be "clean" the previous year. At the time of cleaning, the catch basins will also be inspected for proper function.

We will continue an initial physical inspection of all of our outfall pipes. Outfall pipes that are found to have a dry weather flow or evidence of an intermittent non-stormwater flow will be rechecked again to locate the illicit connection. If we are able to locate the illicit connection (and the connection is within the Township of Teaneck) we will cite the responsible party for being in violation of our Illicit Connection Ordinance, and we will have the collection eliminated immediately. If an illicit connection is found to originate from another public entity, the Township of Teaneck will report the illicit connection to the Department. When we are doing the illicit connection part of this program, we will be checking all of our outfall pipes for signs of scouring. All sites will be placed on a prioritized list and repairs will be made in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey. In addition, repairs that do not need NJDEP permits for those repairs may be done first.

To control stormwater from new development and redevelopment projects throughout the Township of Teaneck (including projects we operate) we will do the following:
We are already ensuring that all new residential development and redevelopment projects that are subject to the Residential Site Improvement Standards for stormwater management (including the NJDEP Stormwater Management rules, N.J.A.C. 7:8, referenced in those standards) are in compliance with those standards. Our planning and zoning boards ensure such compliance before issuing preliminary or final subdivision or site plan approvals under the Municipal Land Use Law.

Since the EDPA, the Township of Teaneck has not constructed any new development or redevelopment projects on Borough property. If we decide to construct such a project before our municipal stormwater control ordinance takes effect, we will ensure adequate long-term operation and maintenance of BMPs for that project by requiring a project maintenance plan similar to the maintenance plan described in our draft of that ordinance, and by requiring and funding the implementation of that plan. We will also require any storm drain inlets that we install to comply with the design standard in Attachment C of our permit. Once that ordinance takes effect, we will ensure such operation and maintenance for any new development or redevelopment projects on our property by complying with the maintenance requirements in that ordinance. In addition, any storm drain inlets we install for such projects will comply with that ordinance's standard for such inlets. All Borough projects since April 1, 2004 involving existing inlets have been designed and constructed to meet the requirements of retrofitting. Inlets were constructed with curb openings with a clear space no bigger than two inches across the smallest dimension, and bicycle safe grates.

Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (See Figure A-1) 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. 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. Impervious areas that are connected to each other through gutters, channels, and storms 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 waste, 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 providing shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

Background

The Township of Teaneck is primarily a single-family community which occupies 6.05 square miles in central eastern Bergen County, New Jersey. The Township lies approximately five (5) miles west of Manhattan, and is situated just east across the Hackensack River from Hackensack, the County seat. Main road access is provided by State Highway Route 4, which runs east-west through the center of the Township, and Interstate Highway Routes 80 and 95 which run along the south border. North-south access is provided by River Road, which runs the full length of the Township along the western end, and Teaneck Road, which runs the full length of the Township on the eastern side. Teaneck is a nearly fully developed municipality, with most of any remaining open space dedicated as parkland. Some of the bigger parks include Overpeck County Park, which has a golf course, and Argonne Park. Fairleigh Dickenson University occupies a large portion of the western end of the Township along the Hackensack River.

Public water is supplied by United Water, a water utility company, to all residents of the Township. There are no public wellheads located within the Township. Sanitary sewers are available to the entire Township . Sewage flows are directed to the Bergen County Utility Authority.

The population of the Township is 39,260 as of the 2000 census. The resultant change from the census of 1990, which was 37,825 persons, was an increase of 1,435, or 3.8%. The highest recorded population was from the 1970 census, which counted 42,355 residents.

It should be noted that during the time period from 1970 to 2000, dwelling units increased steadily even as the population dropped.

Year	Population	Dwelling Units
1970	42,355	13,038
1980	39,007	13,182
1990	37,825	13,334
2000	39,260	13,719

The recent population history of Teaneck is provided by the data in Table 1.

Teaneck is an older established community where land use is fairly stable. There are very few properties left where development can take place. Therefore, there is little expectation of a large increase in stormwater runoff volumes and pollutant loads to the Township's waterways.

The major waterways are as follows:

Hackensack River – Traverses from the north to the south, establishing much of the western border of the Township. The Hackensack River is tidally influenced.

French Brook – Located in the northwest corner of the Township. The brook traverses from the north to the south, coming from Bergenfield Borough, along New Bridge Road, emptying into the Hackensack River.

Hirshfeld Brook – Flows north from Milton Votee Park into Bergenfield Borough, emptying into the Hackensack River.

Overpeck Creek – Located in the southeast corner of the Township. Overpeck Creek is several hundred feet wide in Teaneck, traversing from north to south and forming the boundary with Leonia Borough. Overpeck Creek empties into the Hackensack River and is tidally influenced.

Teaneck Creek – Traverses from its origin near Cedar Lane and flows south through the southern portion of the Township, emptying into the Overpeck Creek.

Metzlers Creek – Traverses from its origin in Bergenfield Borough and flows south, through the northeast tip of the Borough, emptying into the Overpeck Creek.

All the waterways in the Township are part of NJ State Watershed Management Area Number 5. Watershed areas within the state are additionally broken down into smaller sub-watersheds designated as HUC-14s. The Huc-14 watersheds are used to perform build-out analyses for municipalities with greater than one square mile of developable or agricultural land remaining. Teaneck has less than one square mile of remaining developable land, therefore there is no HUC-14 delineation or build-out analysis included in this report.

None of the listed waterways are Category One waterways as defined by the New Jersey Department of Environmental Protection. A Category One designation provides additional protection to water bodies that

help prevent water quality degradation and discourage development where it would impair or destroy natural resources and environmental quality. Flood Hazard Areas for the listed waterways are delineated on Federal Emergency Management Agency FIRM maps.

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 macroinvertebrates by 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. For any waterways determined by AMNET criteria to be impaired, the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for the detected pollutants within each waterway.

A TMDL is the amount of a pollutant that can be accepted by a water body without causing an exceedance of water quality standards or interfering with the ability to use a water body 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. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

Based on the New Jersey 2006 Integrated Water Quality Monitoring and Assessment report, TMDLs have not yet been established for the major waterways within the Borough. Appendix D of the Report, entitled "New Jersey's 2006 Two Year TMDL Schedule", indicates that TMDLs are to be established for the Overpeck Creek during 2006-2008. At this time, the Township is not independently conducting any evaluations of TMDLs on any waterways.

The Hackensack River along the western border of the Township has been listed on the AMNET as being moderately impaired for benthic macroinvertebrates. In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. These data show that the instream concentrations of phosphorus, mercury and fecal coliforms in the Hackensack River, and the level of dioxin and PCB in the fish, exceed the state's criteria. None of the other waterways in the Township appear on AMNET.
All six (6) waterways are subject to some flooding and bank erosion. Figure A-2 illustrates the waterways in the Township. These waterways are not listed on the New Jersey Department of Environmental Protection Ambient Biomonitoring Network (AMNET). The AMNET documents the health of the state's waterways. Streams are classified as non-impaired, moderately impaired, or severely impaired.

Design and Performance Standards

The Township will adopt the design and performance standards for stormwater management measures by Ordinance 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. The ordinances have been submitted to the county for review and approval.

Enforcement of the design and performance standards will be achieved by the current Township practice of bonding and receiving performance guarantees for all site improvements on both residential and commercial developments. During construction, all projects are overseen by Township inspectors to assure compliance to approved plans, and to ensure that the stormwater management measures are constructed and function as designed. No Certificates of Occupancy are issued and no bonding or performance guarantees are released until a satisfactory final inspection has been made by the Township. Additionally, for those projects where property owners are responsible for the future upkeep of any on-site storm drainage facilities, an operation and maintenance plan must be submitted and approved by the Township as part of the final inspection process.

Plan Consistency

The Township is not within a Regional Stormwater Management Planning Area; therefore this plan does not need to be consistent with any regional stormwater management plans (RSWMPs). TMDLs are currently being established for the Hackensack River and Overpeck Creek.. If any RSWMPs or additional TMDLs are developed in the future, this Municipal Stormwater Management Plan will be updated to be consistent.

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 updates 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, attached as Figure A-20, 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.

The Township's Stormwater Management Ordinance, which has been administered by our planning and zoning boards and code enforcement officer, will control stormwater from non-residential development and redevelopment projects. Where it is necessary to implement the municipal stormwater management plan, the approved ordinance also controls aspects of residential development and redevelopment projects that are not subject to the Residential Site Improvement Standards.

For any BMP that is installed in order to comply with the requirements of our post-construction program, the Township of Teaneck will ensure adequate long-term operation as well as preventative and corrective maintenance (including replacement) of BMPs. For BMPs on private property that we do not own or operate, the Township of Teaneck intends to do this by adopting and enforcing a provision in the municipal stormwater control ordinance that requires the private entity to perform the operation and maintenance, with penalties if the private entity does not comply. If, for example, the private entity does not perform the required maintenance, the Borough can perform the maintenance and charge the private entity.

The Township of Teaneck will also enforce, through the municipal stormwater control ordinance, compliance with design standard in Attachment C of our permit to control passage of solid and floatable materials through storm drain inlets. The Township of Teaneck expects that for most projects, such compliance will be achieved either by conveying flows through a trash rack as described in the "Alternate Device Exemptions," or (for flows not conveyed through such a trash rack), by installation of the NJDOT bicycle safe grate and (if needed) a curb opening with a clear space no bigger than two inches across the smallest dimension.

Our code enforcement officers and local police officers will enforce these ordinances. If someone is found to be in violation of an ordinance, they will be issued a written warning for the first time offenses, and penalties will be issued for subsequent offenses.

Nonstructural Stormwater Management Strategies

The Township will be reviewing the master plan (last re-examined in 2003) and ordinances, and will provide a list of the sections in the Township land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for revision. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval within 24 months of the Effective Date of Permit Authorization. A copy will be sent to the Department of Environmental Protection at the time of submission.

Chapter 33 of the Township Code, entitled Development Regulations, was reviewed with regard to incorporating nonstructural stormwater management strategies. Several changes will be made to this Chapter, to incorporate these strategies.

> **Section 33-15(b)**: Streets describes the requirements for streets in the Township. The Township has several street classifications, ranging from Primary Arterial, which has a minimum right-of-way of 100 feet, to Marginal Access, which has a minimum right-of-way of 40 feet. This section will be amended to encourage developers to limit on-street parking to allow for narrower paved widths. Section 33-15(b)(8)a, requires that cul-de-sacs have a minimum radius of 50 feet. Language will be added to this section to reduce the minimum radius of cul-de-sac designs. Cul-de-sacs with landscaped islands will have a minimum paved radius of 40 feet to accommodate larger equipment and emergency vehicles.
>
> **Section 33-15(h)**: Preservation of Natural Features; Supplemental Plantings, requires that natural features, such as trees, views, natural terrain and water bodies shall be preserved whenever possible in any development. This section will be amended to expand trees to forested areas, to ensure that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

Section 33-15 (j): Topsoil Protection, Soil Erosion and Sediment Control addresses soil erosion and sediment control by requiring developers to comply with the N.J. Soil Erosion & Sediment Control Act. This section will be amended to outline some general design principals, including: whenever possible, retain and protect natural vegetation; minimize and retain water runoff to facilitate groundwater recharge; and, install diversions, sediment basins, and similar required structures prior to any on site grading or disturbance.

Section 33-15(q): Drainage requires that all streets shall be provided with a storm drainage system including manholes, catch basins and pipes as may be necessary for proper collection of storm runoff. This section will be amended to encourage the uses of natural vegetated swales in lieu of inlets and pipes.

Section 33-15(s): The landscape requirements for these buffer areas in the existing section do not recommend the use of native vegetation. The language of this section will be amended to require the use of native vegetation, which requires less fertilization and watering than non-native species. Additionally, language will be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.

Section 33-15(t): Requires that curbing and gutters shall be placed along all streets adjacent to or within a development. This section will be amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas.

Section 33-18(b)(3): Driveways, parking areas and circulation requires that all parking areas shall be suitably paved, drained, and lighted. This section will be amended to allow for flush curb with curb stop, or curbing with curb cuts to encourage developers to allow for the discharge of impervious areas into landscaped areas for stormwater management. Also, language will be added to allow for use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers.

Several changes will be made to Section 33, Article V, Zoning Ordinance. The Township has five (5) types of residential districts, three of which are shared business-residential, redevelopment multi-family, and senior citizen housing. Each district has restrictions on total impervious coverage. The Township also has business districts, redevelopment districts, a hospital district, a university district and a light industry district.

The Township Code will be amended to remind developers that satisfying the percent impervious requirements does not relieve them of responsibility for complying with the Design and Performance Standards for Stormwater Management Measures contained in Section 26-901. The Township is evaluating the maximum allowable impervious cover for each zone to determine whether a reduction in impervious cover is appropriate. The Township is also evaluating a maximum percent of disturbance for each zone. Also, if a developer is given a variance to exceed the maximum allowable percent imperviousness, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding and groundwater recharge. A detailed description of how to develop a mitigation plan is included in this Municipal Stormwater Management Plan.

Mitigation Plans

Purpose

The Stormwater Management rules, N.J.A.C. 7:8, establish design and performance standards for management of stormwater that address water quality, water quantity and recharge. These standards are to be met on the site of the proposed development and, to the maximum extent practicable, using nonstructural stormwater management strategies.

A municipal mitigation plan is required for a municipality to grant a variance or exemption to the design and performance standards for stormwater runoff quality, stormwater runoff quantity, and ground water recharge, established under the Stormwater Management rules at N.J.A.C. 7:8-5. A municipal mitigation plan must identify the measures necessary to offset the deficit created with respect to the design and performance standard(s) that would result from the grant of a variance or exemption at a project site. The plan must ensure that the mitigation is completed in the drainage area and for the performance standard(s) for which the variance or exemption was granted for a project.

The existence of a mitigation plan does not supersede the requirements that an applicant meet the design and performance standards for ground water recharge, stormwater quantity, and stormwater quality on site to the maximum extent practicable and that the standards be met using nonstructural techniques to the maximum extent practicable. Instead, it allows the Township to waive strict compliance with one or more of the performance standards, where full compliance cannot reasonably be accommodated on site, provided there is mitigation of the effect of the deficient compliance provided in accordance with an approved mitigation plan. The test of reasonable accommodation includes reducing the size, scale or layout of the proposed project in order to meet the design and performance standards on site and thereby avoid the need to seek a variance or exemption. A waiver cannot be granted if the project requesting a waiver/exemption would result in a localized adverse impact or create a compliance deficit that can not be compensated for by off site mitigation.

It should be noted that the standards for the Special Water Resource Protection Area (SWRPA) established under the Stormwater Management rules at N.J.A.C. 7:8-5.5(h) cannot be waived through the municipal mitigation plan. A municipality is authorized to develop a Stream Corridor Protection Plan, in accordance with N.J.A.C. 7:8-4.2(c)13, which can adjust the spatial extent within which the SWRPA requirements apply. All Stream Corridor Protection Plans must be approved by both the county review agency and the New Jersey Department of Environmental Protection, Division of Watershed Management prior to implementation.

Mitigation Plan Requirements

Teaneck may identify a pool of specific mitigation projects that could be selected by an applicant to offset the effect of a requested waiver/exemption or to address an existing stormwater problem, or choose to provide a process through which an applicant has the flexibility and responsibility to identify an appropriate mitigation project and a location to implement the mitigation project to offset the deficit that would be created by the grant of a waiver/exemption or to address a stormwater based impairment. In order to select an appropriate mitigation project to respond to a requested waiver/exemption requires, an assessment of the impact that

would result from the requested deviation from full compliance with the standard(s) in the drainage area affected by the proposed project is required. For example, a waiver for stormwater quantity requirements must focus on the impacts of increased runoff on flooding, considering both quantity and location. Stormwater quality mitigation must aim to prevent an increase in pollutant load to the waterbodies that would be affected by the waiver/exemption. Ground water recharge mitigation must seek to maintain the baseflow and aquifer recharge in the area that would be affected by the waiver/exemption. For the purpose of this discussion, the term "sensitive receptor" is used to refer to a specific area or feature that would be sensitive to the impact assessed above.

Mitigation projects for a requested waiver/exemption must adhere to the following requirements:

1. The project must be within the same area that would contribute to the receptor impacted by the project. *Note that depending on the specific performance standard waived, the sensitive receptor and/or the contributory area to that receptor may be different.* If there are no specific sensitive receptors that would be impacted as the result of the grant of the waiver/exemption, then the location of the mitigation project can be located anywhere within the municipality, and should be selected to provide the most benefit relative to an existing stormwater problem in the same category (quality, quantity or recharge).

2. Legal authorization must be obtained to construct the project at the location selected. This includes the maintenance and any access needs for the project in the future.

3. The project should be close to the location of the original project, and if possible, be located upstream at a similar distance from the identified sensitive receptor. This distance should not be based on actual location, but on a similar hydraulic distance to the sensitive receptor. For example, if the project for which a waiver is obtained discharges to a tributary, but the closest location discharges to the main branch, it may be more beneficial to identify a location discharging to the same tributary.

4. For ease of administration, if sensitive receptors are addressed, it is preferable to have one location that addresses any and all of the performance standards waived, rather than one location for each performance standard.
5. It must be demonstrated that implementation of the mitigation project will result in no adverse impacts to other properties.

6. Mitigation projects that address stormwater runoff quantity can provide storage for proposed increases in runoff volume, as opposed to a direct peak flow reduction.

Stormwater Quantity Considerations

Increased stormwater runoff volume from new development can cause damages to property and habitat due to increased flood elevations and/or flood velocities. Mitigation project areas can include locations that will

provide for additional storage and slower release of excess stormwater. Mitigation of stormwater quantity can be accomplished by increasing flood storage areas along the waterway, creating new best management practices (BMPs) to control previously uncontrolled runoff or by retrofitting existing stormwater structures to decrease the volume and peak of runoff.

In areas adjacent to the stream, a hydrologic and hydraulic analysis can be performed to determine if increasing storage capacity would offset the additional volume of runoff and associated peak increase from sites upstream of the storage area. Increases in the storage capacity of an existing structure, such as upstream of a bridge or culvert, can also be considered provided that it is demonstrated that such an increase does not exacerbate flooding at other areas.

Note that work in regulated areas, such as floodplains and wetlands must be performed in accordance with applicable regulations such as the Flood Hazard Area Control Act Rules and the Freshwater Wetland Act Rules. Also, many areas of open space in New Jersey have received funding by the Department's Green Acres Program and many of those encumbered lands have restrictions placed on them as a result of that funding. Any and all restrictions placed on these lands must be investigated by the municipality before these areas can be utilized for mitigation to ensure that there are no conflicts.

Some examples of areas or features sensitive to changes with regard to flooding include:

Culverts and bridges—these features may constrict flow and cause flooding or may provide storage that, if lost, would cause downstream flooding problems
Property subject to flooding—areas of concern include those where there is historical evidence of recurrent problems, particularly if exacerbated over time because of increasing impervious surface in the contributing watershed
Eroding/widening stream banks or channels—particularly if due to changes in hydrology due to effects of development
Category One waters—flooding affects could alter habitat that was the basis for the designation
Wetlands—changes in hydrology can affect viability of wetlands, either by increasing or decreasing volumes and velocities of water discharging to the wetlands

Some possible Water Quantity mitigation measures:

- Install stormwater management measures in open spaces in various developments to reduce the peak flow from the upstream development on the receiving stream for the 2, 10 and 100-year storms.

Stormwater Quality Considerations

Stormwater quality is regulated for the purpose of minimizing/preventing nonpoint source pollution from reaching a waterway. Mitigation for stormwater quality can be achieved either by directing the runoff from the water quality design storm into a natural area where it can be filtered and/or infiltrated into the ground, by constructing a new BMP to intercept previously untreated runoff or by retrofitting existing stormwater systems that previously did not provide sufficiently for water quality.

Existing forested and other vegetated non-wetland areas can also be used as a water quality mitigation area if runoff is discharged as sheet flow through the area in a nonerosive manner, and the vegetated area is restricted from future development. A discussion of the appropriate widths for these vegetative filters is provided in Chapter 9 of the New Jersey Stormwater Best Management Practices Manual (BMP Manual).

If a mitigation project cannot be identified that would compensate for a waiver related to water quality, and provided the project requiring a waiver would not result in a measurable change in water quality relative to TSS and nutrients, the mitigation project could be designed to address another parameter of concern in the watershed (as indicated by an impairment listing and/or an adopted TMDL) for which stormwater is a source, such as fecal coliform.

Some examples of areas or features sensitive to water quality changes include:

Trout associated waters—chemical pollutants and temperature effects can diminish viability of populations
Lakes, ponds or other impoundments—these waterways are sensitive to addition of nutrients
Threatened and endangered species or their habitats—sensitive to both quality and quantity changes
Drinking water supplies—adverse affects on quality can increase the cost of treatment or threaten the use
Category One waters—an issue where quality was the basis of the designation
Waterways with a water quality or use impairment—deterioration of quality in an impaired waterway will increase the cost and challenge of restoration.

Some possible Water Quality mitigation measures:

- Re-establish a vegetative buffer (minimum 50 foot wide) along the shoreline of ponds as a goose control measure and to filter stormwater runoff from the high goose traffic areas.

- Provide goose management measures, including public education at the Municipal Building.

- Retrofit existing stormwater management facilities to provide the removal of 80 percent of total suspended solids (TSS) from parking lot.

- Acquire buffer areas along the Hackensack River to limit encroachment of the river and improve runoff filtering.

Ground Water Recharge Considerations

Recharge is regulated to maintain the availability of ground water as a water supply source as well as to provide a stable source of baseflow in streams.

There are two requirements associated with the recharge standard. The first is that 100 percent of the site's average annual pre-developed ground water recharge volume be maintained after development and the second is that 100 percent of the difference between the site's pre- and post-development 2-year runoff volumes be infiltrated. To mitigate for groundwater recharge design requirements, either computational method can be utilized to determine the volume lost that needs to be provided by the mitigation project.

One method to accomplish ground water recharge mitigation is to discharge runoff as sheet flow across a vegetated area to allow for the infiltration of runoff. It should be noted that, if this measure is used, calculating compliance with the recharge standard is limited to the 2-year storm standard, given existing methods.

Some examples of areas or features sensitive to ground water recharge changes include:

Springs, seeps, wetlands, white cedar swamps—sensitive to changes in ground water level/hydrology
Threatened and endangered species or their habitats—some are sensitive to changes in ambient ground water levels
Streams with low base flow or passing flow requirements—would be particularly sensitive to changes in hydrology
Aquifer recharge zones—loss of recharge in these areas can adversely affect ground water supply
Category One waters—loss of base flow can affect many of the bases for designation

Some possible Groundwater Recharge mitigation measures:

- Retrofit existing detention basins to provide additional cubic feet of average annual groundwater recharge.

- Replace existing deteriorated overflow impervious parking lots with permeable paving to provide additional cubic feet of average annual groundwater recharge.

Identification of Specific Mitigation Projects

Mitigation projects will be selected after examining existing problems related to stormwater quality, quantity, and recharge in the affected drainage area.
Where a list of mitigation projects is identified, the plan must also identify the type of design and performance standard the individual projects may mitigate. Wherever possible, quantification of the mitigation provided by each project relative to the applicable standard should also be included.

Initially, Teaneck may wish to allow developers to fund analyses to identify potential mitigation projects that could be used to address deficits in complying with each of the performance standards. However, the funding option shall only be allowed where the project requesting the waiver will have no measurable impact with respect to flooding, erosion, water quality degradation, etc. The funding option may also be

appropriate in situations where the size of an individual project requesting a waiver/exemption is small, or the degree of deficit in complying with the design and performance standard(s) is small. Or, where the project requiring mitigation is for one individual single family home, given authority constraints, a financial contribution may be a preferred option. In these situations, it may not be practical to implement a commensurate mitigation project and may be preferable to accumulate funds to implement a larger mitigation project. In such cases, the receipt of the financial contribution shall satisfy the mitigation obligation for the project. However, the municipality becomes responsible to ensure that the mitigation occurs in a timely fashion and must provide a detailed discussion of the status of the mitigation fund and funded projects in the annual report required under the NJPDES municipal stormwater permit.

The identification of sensitive receptor areas for stormwater quantity, stormwater quality and stormwater recharge will require collecting and organizing, preferably in a Geographic Information System (GIS) format, both existing and new monitoring data, flooding information and unique local knowledge about conditions in the municipality. This identification process may be done by the municipality to establish a menu of specific mitigation projects or project locations, or by an individual developer as part of the mitigation process established in the mitigation plan.

For each of sensitive receptor or groups of receptors, the pertinent drainage area must be identified. The pertinent drainage area is that which encompasses the area that would affect the sensitive receptor(s). Typically, the pertinent drainage area would be the contributory drainage area to the receptor. However, depending on the receptor, only portions of the contributory drainage area may be appropriate to consider locating a mitigation project that would adequately address the impact of a waiver/exemption on a particular sensitive receptor.

Administrative Requirements

Each municipality that received a Tier A or Tier B NJPDES Municipal Stormwater General Permit is required to file an annual report to demonstrate continuing compliance with the permit requirements.. The following information is required from the applicant for each waiver granted from the performance standard(s).

• **Impact from noncompliance.** Provide a table quantifying what would be required for the project to achieve the standards, the extent to which this value will be achieved on site and the extent to which the value must be mitigated off site.

• **Narrative and supporting information regarding the need for the waiver including:**
– The waiver cannot be due to a condition created by the applicant. If the applicant can comply with the Stormwater Management rules through a reduction in the scope of the project, the applicant has created the condition and a waiver **cannot** be issued. Demonstrate that the need for a waiver is not created by the applicant.
– Provide a discussion and supporting documentation of the site conditions peculiar to the subject property that prevent the construction of a stormwater management facility that would achieve full compliance with the design and performance standards. Site conditions may include soil type, the presence of karst geology, acid soils, a high groundwater table, unique conditions that would create an

unsafe design, as well as conditions that may provide a detrimental impact to public health, welfare, and safety.
– Demonstration that the grant of the requested waiver/exemption would not result in an adverse impact that would not be compensated for by off site mitigation.

• **Sensitive Receptor:** Identify the sensitive receptor(s) related to the performance standard from which a waiver is sought. Demonstrate that the mitigation site contributes to the same sensitive receptor.

• **Design of the Mitigation Project:** Provide the design details of the mitigation project. This includes, but is not limited to, drawings, calculations, and other information needed to evaluate the mitigation project.

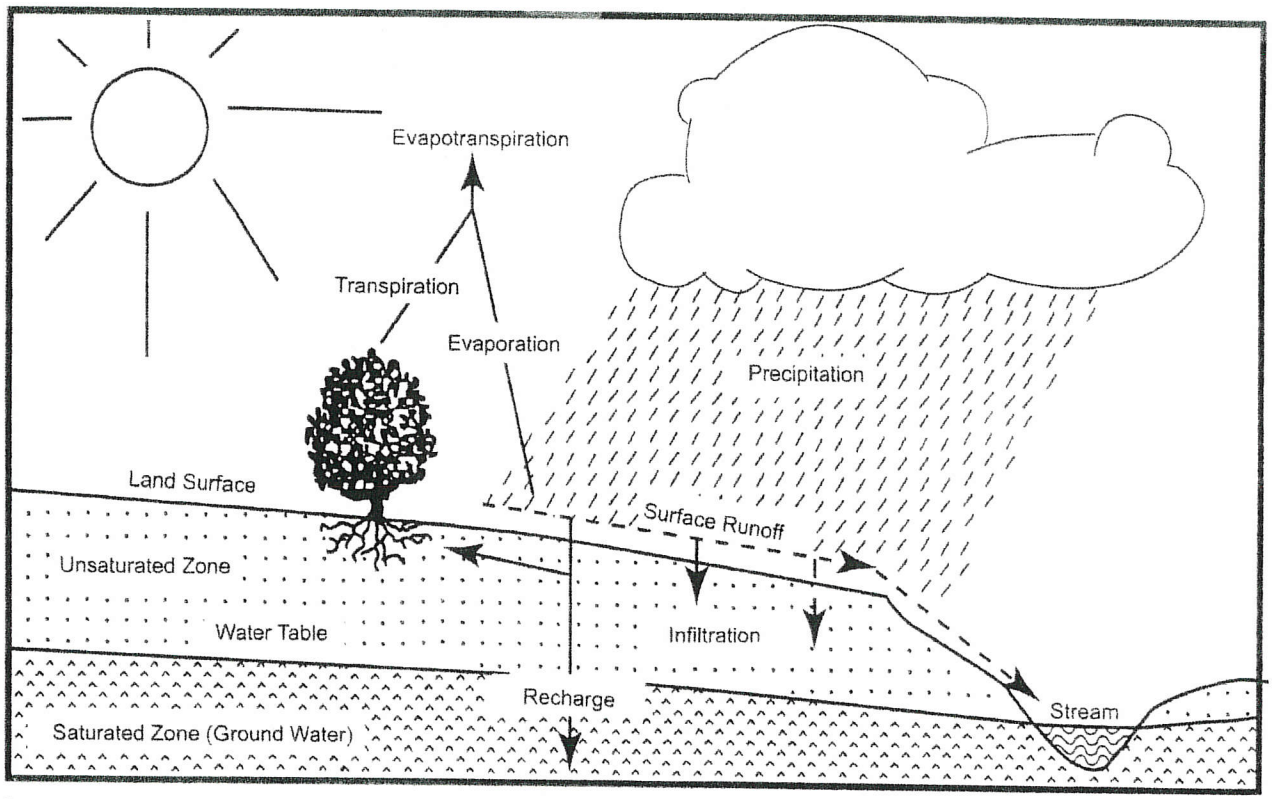
• **Responsible Party**: List the party or parties responsible for the construction and the maintenance of the mitigation project. Documentation must be provided to demonstrate that the responsible party is aware of, has authority to, and accepts the responsibility for construction and maintenance. Under no circumstance shall the responsible party be an individual single-family homeowner. Selection of a project location that is under municipal authority avoids the need to obtain authority from a third party for the construction and future maintenance of the project.

• **Maintenance:** Include a maintenance plan that addresses the maintenance criteria at N.J.A.C. 7:8-5.8. In addition, if the maintenance responsibility is being transferred to the municipality or another entity, the entity responsible for the cost of the maintenance must be identified. The municipality may provide the option for the applicant to convey the mitigation project to the municipality, if the applicant provides for the cost of maintenance in perpetuity.

• **Permits**: Obtain any and all necessary local, State or other applicable permits for the mitigation measure or project must be obtained prior to the municipal approval of the project for which mitigation is being provided.

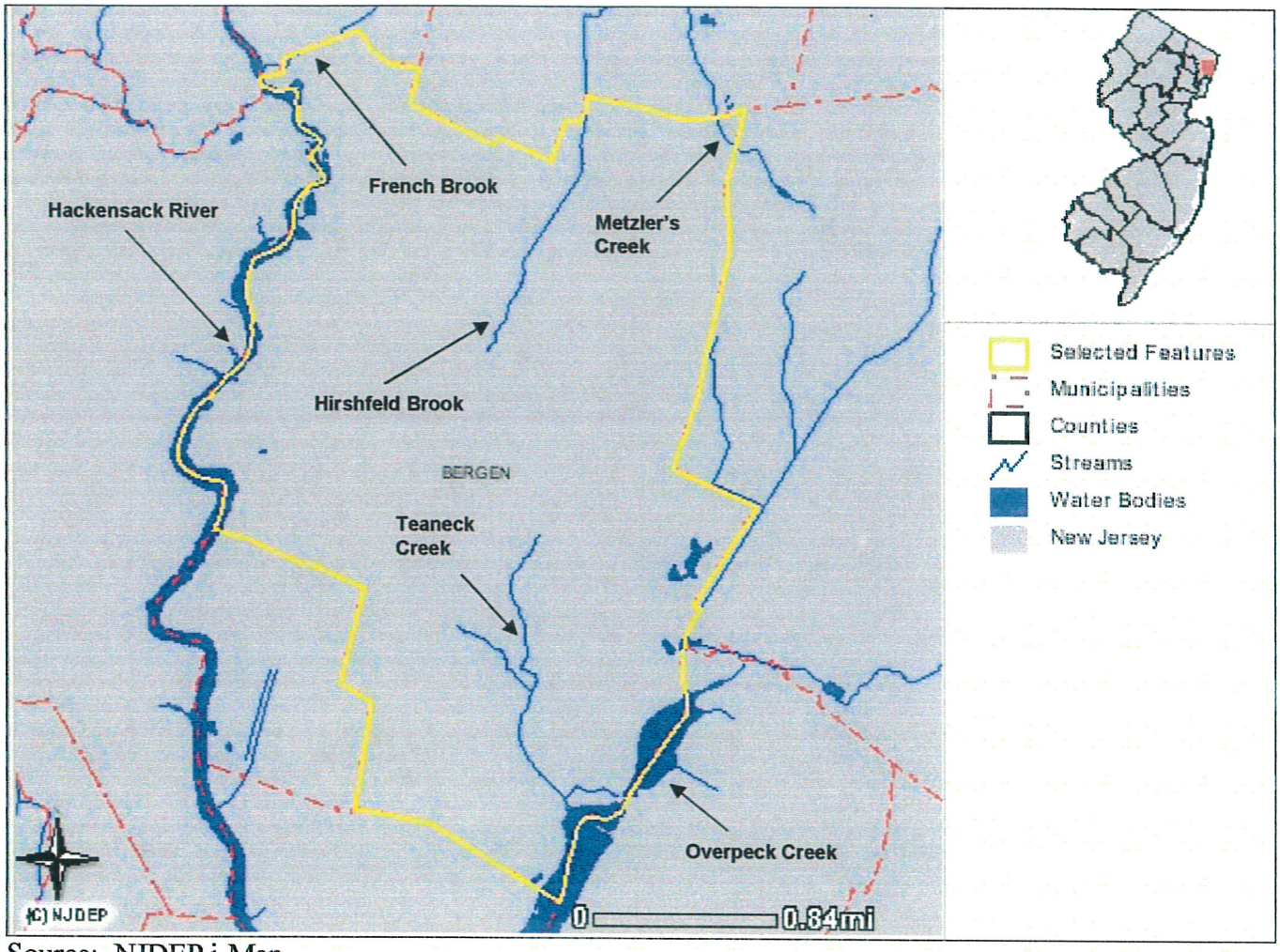
• **Construction**: Demonstrate that the construction of the mitigation project coincides with the construction of the proposed project. A certificate of occupancy or final approval by the municipality for the project requiring mitigation cannot be issued until the mitigation project or measure receives final approval. Any mitigation projects proposed by the municipality to offset the stormwater impacts of that municipality's own projects must be completed within 6 months of the completion of the municipal project, in order to remain in compliance with their NJPDES General Permit.

Figure A-1 Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey Report GSR-32.

Figure A-2 Teaneck Streams



Source: NJDEP i-Map

Figure A-3 Teaneck Aerial Photos 2002

Source: NJDEP i-Map

Borough Boundary

Township of Teaneck
Municipal Stormwater Management Report
January 2005
Prepared By: Schwanewede / Hals Engineering

ZONING MAP

ADOPTED: MAY 15, 1979
ORDINANCE NO. 1811

TOWNSHIP OF TEANECK

BERGEN COUNTY NEW JERSEY

GRAPHIC SCALE
0 400 800 1600

- PUBLIC LAND-DISTRICT
- R-S RESIDENTIAL SINGLE FAMILY
- RM RESIDENTIAL MULTI-FAMILY
- H HOSPITAL
- B-R BUSINESS - RETAIL
- B-O BUSINESS - OFFICE
- L-I LIGHT INDUSTRY
- U UNIVERSITY
- B-R BUSINESS - RESIDENTIAL
- RD-M REDEVELOPMENT RESIDENTIAL MULTI-FAMILY
- RD-1 REDEVELOPMENT COMMERCIAL OFFICE/RETAIL
- RD-2 REDEVELOPMENT COMMERCIAL HOTEL/MOTEL
- RD-3 REDEVELOPMENT COMMERCIAL HOTEL ACCESSORY
- DOWNTOWN BUSINESS IMPROVEMENT
- RSC RESIDENTIAL SENIOR CITIZEN HOUSING

This is to certify that the attached Municipal Development Regulations consisting of 1 page(s), is a true copy of an Ordinance(s) adopted by the Municipality of Township of Teaneck as received and filed with the Bergen County Planning Board. All cited amendments are included.

	Ordinance Name/Number	Date of Adoption	# of pages
1.	1811 Zoning Map	May 15, 1979	1
2.			
3.			
4.	✓		
5.			

Assistant Secretary
Bergen County Planning Board

SEAL

TOWNSHIP of TEANECK - PLANNING BOARD

This map was approved at a regular meeting of the Planning Board of the Township of Teaneck, N.J. held on the 7th day of May, 1979 and said map shall be filed in the Bergen County Clerk's Office on or before 1 July 1980 in accordance with Chapter 368, P.L. 1953 and as amended by Chapter 141, P.L. 1960.

CHAIRMAN

SECRETARY

TOWNSHIP of TEANECK - COUNCIL

Approved by the Mayor and Council of the Township of Teaneck at a meeting held on the 15 day of May, 1979 by Ordinance No. 1811

MAYOR

TOWNSHIP CLERK

REVISIONS						
ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	
3594	5-11-99	3721	9-12-02	3781	9-23-03	
3644	8-22-00	3643	8-22-00			
3694	10-30-01	3747	2-25-03			
3720	5-22-02	3780	9-23-03			

TOWNSHIP ENGINEER

I have carefully examined this Map and find that it conforms with the provisions of the Map Filing Law and the municipal ordinances and requirements applicable thereto.

APPROVED BY

PROFESSIONAL ENGINEER & LAND SURVEYOR
P.E. & L.S. License No. 9683

REVISIONS											
ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	ORD. NO.	ADOPTED	ORD. NO.	ADOPTED
1984	4-19-83	3172	9-27-88	3349	3-9-93	3382	12-21-93	3544	3-24-98		
2042	7-3-84	3267	12-12-89	3350	2-23-93	3384	1-25-94	3559	9-16-98		
2046	8-14-84	3272	6-26-90	3358	5-25-93	3401	9-13-94	3554	9-16-98		
2048	9-2-86	3338	9-30-92	3362	7-6-93	3418	2-28-95	3578	12-15-98		

PREPARED By The ENGINEERING DEPARTMENT TOWNSHIP of TEANECK, N.J.

MILTON ROBBINS TOWNSHIP ENGINEER

DRAWN BY: E. A. LAVOIE J. FAHNENKOPF

Figure A-4 Zoning Districts Within the Township

Figure A-5 Township of Teaneck Existing Land Use

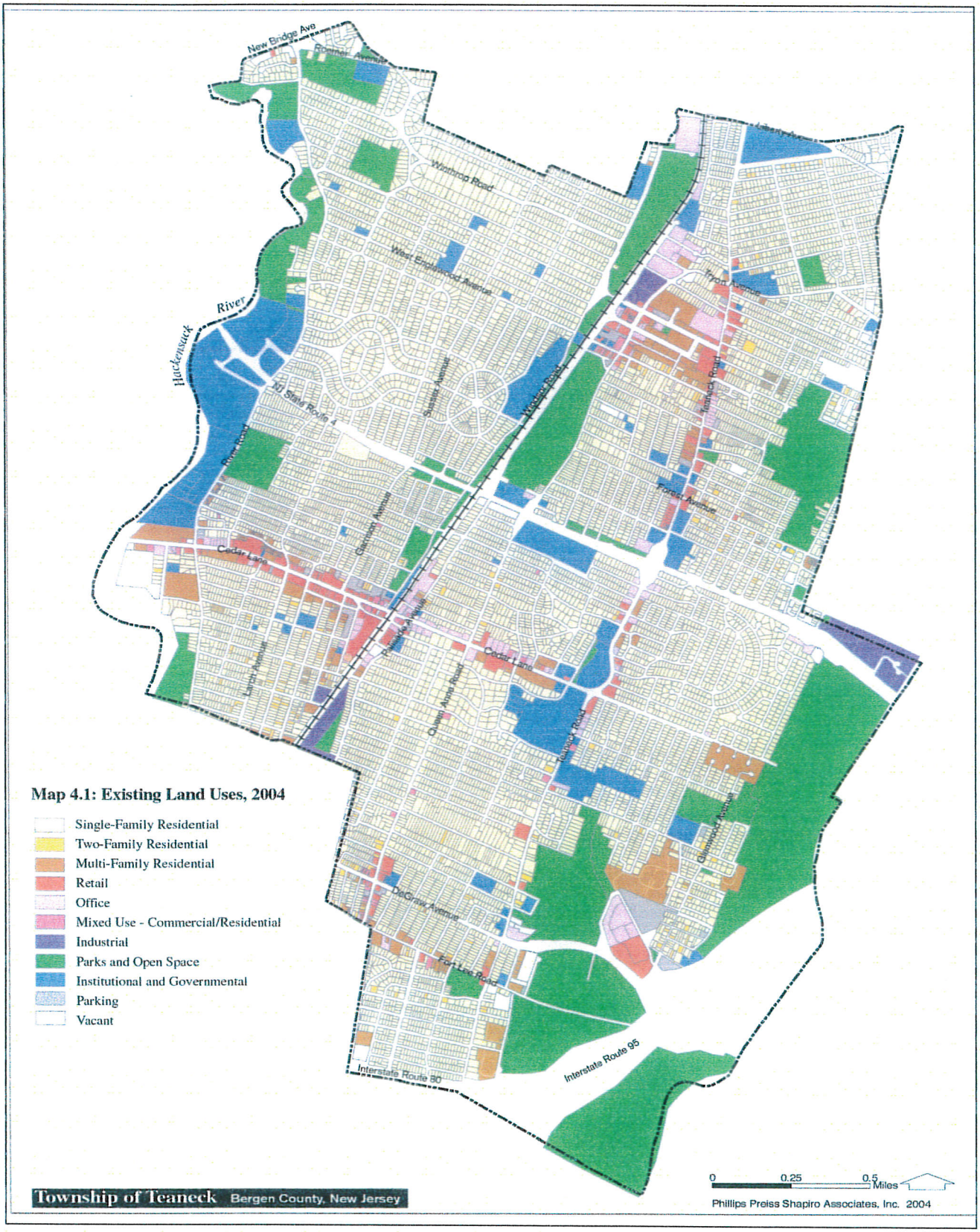
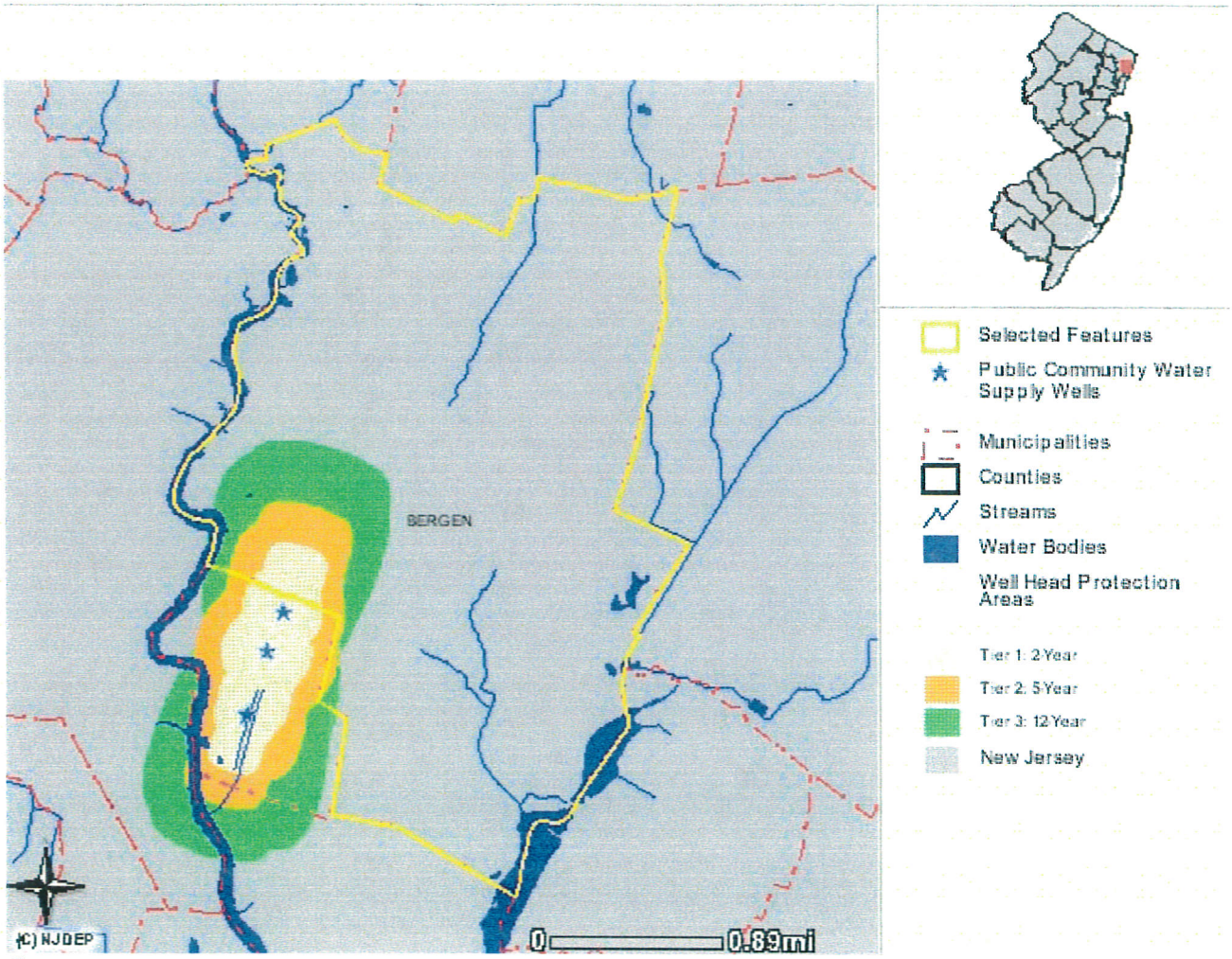
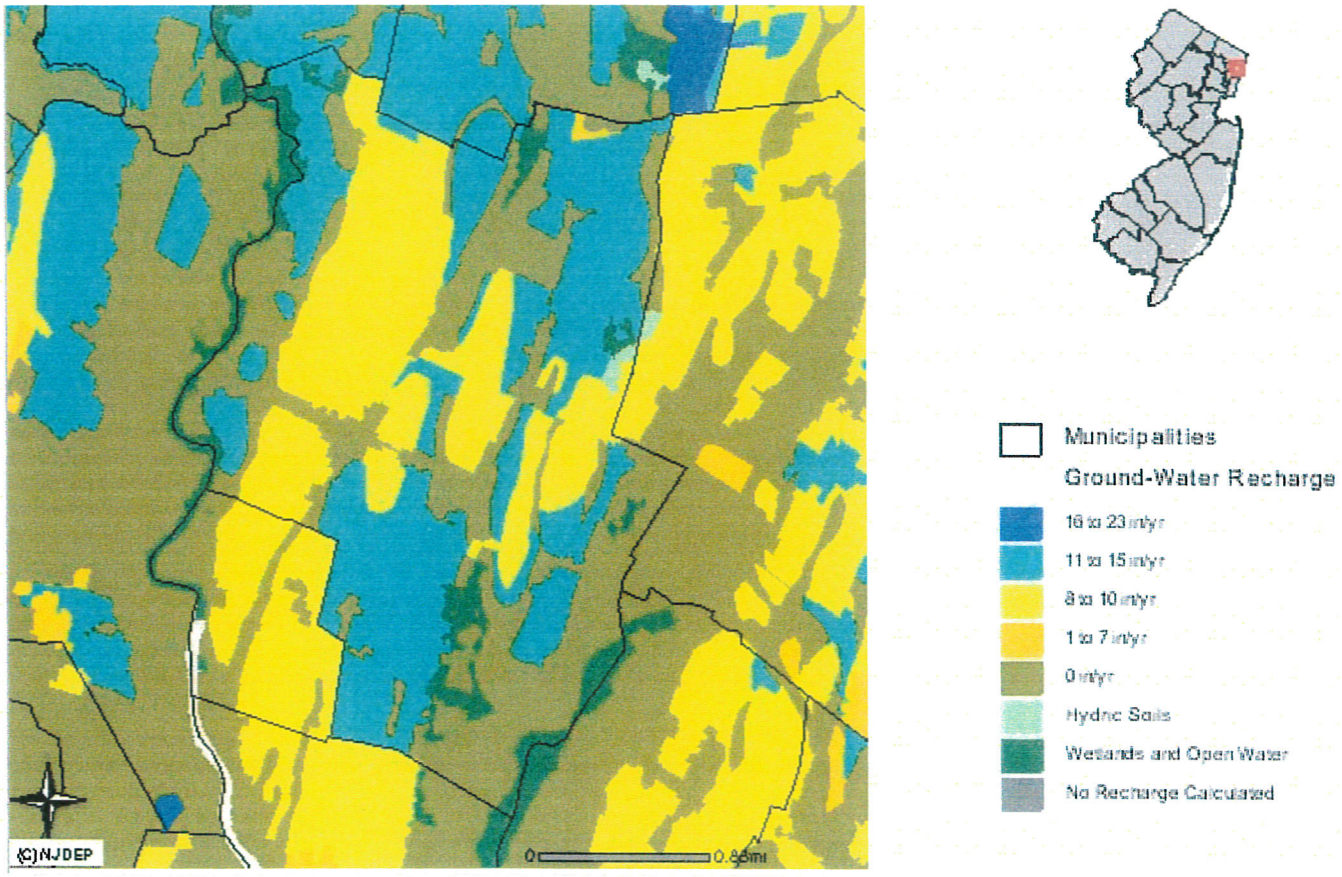


Figure A-6 Township of Teaneck Wellhead Protection Areas



Source: NJDEP I-Map

Figure A-7 Township of Teaneck Groundwater Recharge



Township of Teaneck
Municipal Stormwater Management Report
January 2005
Prepared By: Schwanewede / Hals Engineering

Figure A-8 Township of Teaneck on USGS Quadrangle Maps

Township Boundary

Source: US Geological Survey Quadrangles
Hackensack, NJ(1981) Yonkers, NY(1979)
Weehawken, NJ(1981), Central Park(1979)

TABLE 1.1.

POPULATION: HISTORICAL POPULATION TRENDS IN BERGEN COUNTY (1900 - 2000)

	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Carlstadt	2,920	3,807	4,472	5,425	5,644	5,591	6,042	6,724	6,166	5,510	5,917
East Rutherford	2,640	4,275	5,463	7,080	7,268	7,438	7,769	8,536	7,849	7,902	8,716
Hasbrouck Heights	1,255	2,155	2,895	5,658	6,716	9,181	13,046	13,651	12,166	11,488	11,662
Little Ferry	1,240	2,541	2,715	4,155	4,545	4,955	6,175	9,064	9,399	9,989	10,800
Lyndhurst	1,590	4,076	9,515	17,362	17,454	19,980	21,867	22,729	20,326	18,262	19,383
Moonachie	212	638	1,194	1,465	1,554	1,775	3,052	2,951	2,706	2,817	2,754
North Arlington	290	437	1,767	8,263	9,904	15,970	17,477	18,096	16,587	13,790	15,181
Rutherford	4,411	7,045	9,497	14,915	15,466	17,411	20,473	20,802	19,068	17,790	18,110
South Hackensack	229	673	987	1,294	1,241	1,503	1,841	2,412	2,229	2,106	2,249
Teterboro	7	20	24	26	40	28	22	19	19	22	18
Wallington	1,812	3,448	5,715	9,063	8,981	8,910	9,261	10,284	10,741	10,828	11,583
Wood-Ridge	329	470	587	871	1,037	1,420	2,742	5,506	5,644	5,303	5,745
Southwest Bergen Total	**16,935**	**29,585**	**44,831**	**75,577**	**79,850**	**94,162**	**109,767**	**120,774**	**112,900**	**105,807**	**112,118**
Cliffside Park	968	3,394	5,709	15,267	16,892	17,116	17,642	18,891	21,464	20,393	23,007
Edgewater	1,006	2,655	3,530	4,089	4,028	3,952	4,113	4,987	4,628	5,001	7,677
Fairview	1,003	2,441	4,882	9,067	8,770	8,661	9,399	10,698	10,519	10,733	13,255
Fort Lee	2,612	4,472	5,761	8,759	9,468	11,648	21,815	30,631	32,449	31,997	35,461
Leonia	804	1,486	2,979	5,350	5,763	7,378	8,384	8,847	8,027	8,365	8,914
Palisades Park	644	1,411	2,633	7,065	8,141	9,635	11,943	13,351	13,732	14,536	17,073
Ridgefield	584	966	1,560	4,671	5,271	8,312	10,788	11,308	10,294	9,996	10,830
Ridgefield Park	1,987	4,512	8,575	10,764	11,277	11,993	12,701	13,990	12,738	12,454	12,873
Southeast Bergen Total	**9,608**	**21,337**	**35,629**	**65,032**	**69,610**	**78,695**	**96,785**	**112,703**	**113,851**	**113,475**	**129,090**
Bogota	337	1,125	3,906	7,341	7,346	7,662	7,965	8,960	8,344	7,824	8,249
Elmwood Park	892	1,396	2,441	4,779	4,937	15,386	19,344	20,511	18,377	17,623	18,925
Fair Lawn	756	1,178	2,026	5,990	9,017	23,885	36,421	37,975	32,229	30,548	31,637
Garfield	3,504	10,213	19,381	29,739	28,044	27,550	29,253	30,797	26,803	26,727	29,786
Hackensack	9,443	14,050	17,667	24,568	26,279	29,219	30,521	36,008	36,039	37,049	42,677
Lodi	1,917	4,138	8,175	11,549	11,552	15,392	23,502	25,163	23,956	22,355	23,971
Maywood	536	889	1,618	3,398	4,052	8,667	11,460	11,087	9,895	9,536	9,523
New Milford	860	1,141	3,833	2,556	3,215	6,006	18,810	19,149	16,876	15,990	16,400
Oradell	746	1,005	1,286	2,360	2,802	3,665	7,487	8,903	8,658	8,024	8,047
Paramus	779	889	1,321	2,649	3,688	6,268	23,238	28,381	26,474	25,004	25,737
River Edge	561	736	1,077	2,210	3,287	9,204	13,264	12,850	11,111	10,603	10,946
Rochelle Park	519	591	882	1,768	2,511	4,483	6,119	6,380	5,603	5,587	5,528
Saddle Brook	306	473	819	2,424	3,169	7,955	13,834	15,975	14,084	13,296	13,155
Teaneck	768	2,082	4,192	16,513	25,275	33,772	42,085	42,355	39,007	37,825	39,260
Central Bergen Total	**21,924**	**39,906**	**68,624**	**117,844**	**135,174**	**199,114**	**283,303**	**304,494**	**277,456**	**267,991**	**283,841**

ORIGINAL

TOWNSHIP OF TEANECK
BERGEN COUNTY, NEW JERSEY
ORDINANCE NO. 3985

AN ORDINANCE AMENDING THE TOWNSHIP CODE.

BE IT ORDAINED by the Township Council of the Township of Teaneck, Bergen County, as follows:

SECTION 1. That the Township Code be amended with the addition of Chapter 38, **Stormwater Control Regulations** as follows:

Add:

Article I: Scope and Purpose.

Sec. 38.1. 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. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

Sec. 38.2. Purpose:

It is the purpose of this ordinance to establish minimum stormwater management requirements and controls for "major development," as defined in Article II.

Sec. 38.3. Applicability:

(a). This ordinance shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:

a. Non-residential major developments; and

b. Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards at N.J.A.C. 5:21.

(b). This ordinance shall also be applicable to all major developments undertaken within the Township of Teaneck.

Sec. 38.4. Compatibility with Other Permit and Ordinance Requirements:

Development approvals issued for subdivisions and site plans pursuant to this ordinance 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 ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This ordinance 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 ordinance 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.

Article II: Definitions.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance 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.

CAFRA Planning Map. Means the geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

CAFRA Centers, Cores or Nodes. Means those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.

Compaction. Means the increase in soil bulk density.

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

County review agency. Means 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 county planning agency; or

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. Means the New Jersey Department of Environmental Protection.

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

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

Development. Means the 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.

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

Environmentally critical areas. Means 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 well head 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.

Empowerment Neighborhood. Means 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.

Erosion. Means the detachment and movement of soil or rock fragments by water, wind, ice or gravity.

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

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

Major development. Means any "development" except additions and alterations to detached single family dwellings where the project comprises less than 50% of the gross existing building square footage area or less than 50% of the total existing buildings volume.

Municipality. Means any city, borough, town, township, or village.
Node. Means an area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

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

Person. Means any individual, corporation, company, partnership, firm, association, [*insert name of 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.

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

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

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

Site. Means the lot or lots upon which a major development is to occur or has occurred.

Soil. Means all unconsolidated mineral and organic material of any origin.

State Development and Redevelopment Plan Metropolitan Planning Area (PA1). Means 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. Is defined as the geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

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

Stormwater runoff. Means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

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

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

Tidal Flood Hazard Area. Means a flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

Urban Coordinating Council Empowerment Neighborhood. Means a neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

Urban Enterprise Zones. Means 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. Is defined as previously developed portions of areas:

(1) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;

(2) Designated as CAFRA Centers, Cores or Nodes;

(3) Designated as Urban Enterprise Zones; and

(4) Designated as Urban Coordinating Council Empowerment Neighborhoods.

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

Wetlands or *wetland.* Means an area that is inundated or saturated by surface water or ground water 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.

Article III: General Standards.

Sec. 38.5. Design and Performance Standards for Stormwater Management Measures:

(a). Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in Article IV. To the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.

(b). The standards in this ordinance 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.

Article IV. Stormwater Management Requirements for Major Development

Sec. 38.6. Maintenance Plan:

The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Article X.

Sec. 38.7. Threatened and Endangered Species:

Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department' Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlnebergi* (bog turtle).

Sec. 38.8. Exempted Linear Development Projects:

The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 38.11 and 38.12.

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

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

(c) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

Sec. 38.9. Waiver:

A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 38.11 and 38.12 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:

(a). The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

(b). The applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Sections 38.11 and 38.12 to the maximum extent practicable;

(c). The applicant demonstrates that, in order to meet the requirements of Sections 38.11 and 38.12, existing structures currently in use, such as homes and buildings, would need to be condemned; and

(d). The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under Section 38.9 (b) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Sections 38.11 and 38.12 that were not achievable on-site.

Sec. 38.10. Nonstructural Stormwater Management Strategies:

(a). To the maximum extent practicable, the standards in Sections 4.F and 4.G shall be met by incorporating nonstructural stormwater management strategies set forth at Section 4.E into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in Paragraph 2 below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

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

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

(2). Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;

(3). Maximize the protection of natural drainage features and vegetation;

(4). Minimize the decrease in the "time of concentration" from pre-construction 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;

(5). Minimize land disturbance including clearing and grading;

(6). Minimize soil compaction;

(7). Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;

(8). Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;

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

a. Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Section 38.10 (b) (9) c. below;

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

(10). When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(c). Site design features identified under Section 38.10 (b) (a) b. above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section 38.10 (c) (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 waterbody 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 seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension.

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

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

(7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

(3). This standard does not apply:

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

b. Where flows from the water quality design storm as specified in Section 38.12 (a) 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 four and five-eighths inches long and one and one-half 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 (1") spacing between the bars, to the elevation of the water quality design storm as specified in Section 38.12 (a); or

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

(d). Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 38.11. and 38.12 shall be dedicated to a government agency, subjected to a conservation restriction filed with the appropriate County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

(e). Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Article VII, or found on the Department's website at www.njstormwater.org.

Sec. 38.11. Erosion Control, Groundwater Recharge and Runoff Quantity Standards:

(a). This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

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

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

a. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 5, either:

1. Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or

2. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated.

b. This groundwater recharge requirement does not apply to projects within the "urban redevelopment area," or to projects subject to c. below.

c. The following types of stormwater shall not be recharged:

1. 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

2. 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.

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

(3). In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Article V, 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, 10, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

b. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the two, 10, and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

c. Design stormwater management measures so that the post-construction peak runoff rates for the 2, 10 and 100 year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. The percentages shall not be applied to post-construction stormwater runoff into tidal flood hazard areas if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or

d. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with (1), (2) and (3) above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.

(b). Any application for a new agricultural development that meets the definition of major development at Article II shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For the purposes of this section, "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 manufacturing of agriculturally related products.

Sec. 38.12. Stormwater Runoff Quality Standards:

(a). Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80 percent of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre of impervious surface is being proposed on a development site. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution

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

(b). For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 7, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Section 7. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to

the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, New Jersey, 08625-0418.

(c). If more than one BMP in series is necessary to achieve the required 80 percent TSS reductionfor a site, the applicant shall utilize the following formula to calculate TSS reduction:

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

Where:

R = total TSS percent load removal from application of both BMPs, and

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

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

Table 2: TSS Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See Section 6.C
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

(d). If there is more than one onsite drainage area, the 80 percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

(e). 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 nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 4.F and 4.G.

(f). Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Section 7.

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

(h). Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

(1). The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

a. 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 centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession is provided.

b. Encroachment within the designated special water resource protection area under Section 38.12 (a) 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 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 centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

(2). 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.

(3). 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:

a. Stabilization measures shall not be placed within 150 feet of the Category One waterway;

b. Stormwater associated with discharges allowed by this section shall achieve a 95 percent TSS post-construction removal rate;

c. Temperature shall be addressed to ensure no impact on the receiving waterway;

d. 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;

e. A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and

f. All encroachments proposed under this section shall be subject to review and approval by the Department.

(4). 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 Section 38.12 (h) 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 G.8 shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in Section 38.12 (h) (1) a. 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.

(5). Paragraph G.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.

Article V: Calculation of Stormwater Runoff and Groundwater Recharge.

Sec. 38.13. Calculation of Stormwater Runoff:

(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 the NRCS National Engineering Handbook Section 4 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds; or

b. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.

(2). For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at Section 5.A.1.a and the Rational and Modified Rational Methods at Section 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 have 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 pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce pre-construction stormwater runoff rates and volumes.

(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 and 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.

Sec. 38.14. Calculation of Groundwater Recharge:.

(a). Groundwater recharge may be calculated in accordance with the following:
The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at http://www.state.nj.us/dep/njgs/; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 08625-0427; (609) 984-6587.

Article VI: Standards for Structural Stormwater Management Measures.

Sec. 38.15. Structural Stormwater Management Standards:

(a). Standards for structural stormwater management measures are as follows:

(1). Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).

(2). Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water

quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (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 Section 8.D.

(3). Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement.

(4). At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half inches in diameter.

(5). Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins in Article VIII.

(b). Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by Section 4 of this ordinance.

(c). Manufactured treatment devices may be used to meet the requirements of Section 4 of this ordinance, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

Article VIII: Sources for Technical Guidance.

Sec. 38.16. Technical Guidance For Stormwater Management:

(a). Technical guidance for stormwater management measures can be found in the documents listed at 1 and 2 below, which are available from Maps and Publications, New Jersey Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

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

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

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

(1). The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;

(2). The Rutgers Cooperative Extension Service, 732-932-9306; and

(3). The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey, 08625, (609) 292-5540.

Article VIII: Safety Standards for Stormwater Management Basins

Sec. 38.17. Safety Design and Operation Standards:

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

(b). Requirements for Trash Racks, Overflow Grates and Escape Provisions

(1). A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin 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.

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 lbs/ft sq.

(2). 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:

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 less than two inches across the smallest dimension.

c. The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs./ft sq.

(3). For purposes of this paragraph 3, escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:

a. If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in Section 38.17 (c) a free-standing outlet structure may be exempted from this requirement.

b. Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See Section 32.17 (d) for an illustration of safety ledges in a stormwater management basin.

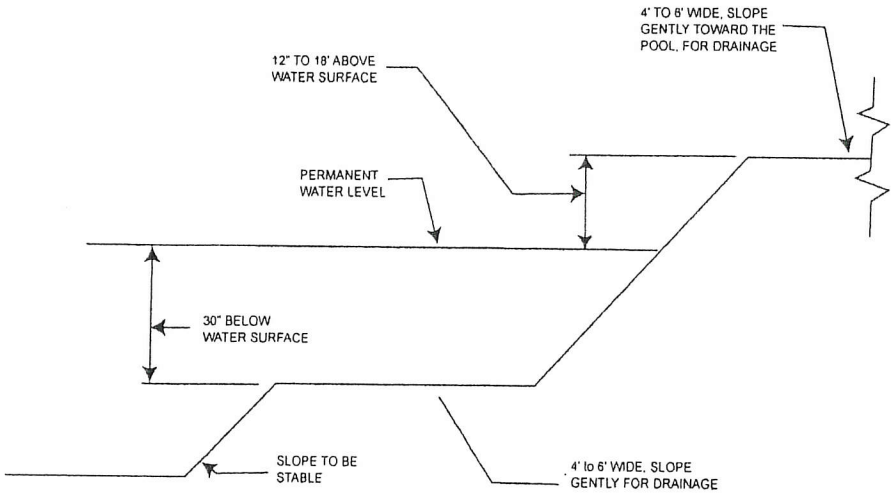
c. In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical.

(c). Variance or Exemption from Safety Standards

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

(d). Illustration of Safety Ledges in a New Stormwater Management Basin

Depicted is an elevational view.



NOTE: NOT DRAWN TO SCALE

NOTE: FOR BASINS WITH PERMANENT POOL OF WATER ONLY

Article IX: 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 ordinance, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at Section 9.C below as part of the submission of the applicant's application for subdivision or site plan approval.

2. The applicant shall demonstrate that the project meets the standards set forth in this ordinance.

3. The applicant shall submit 18 copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 9.C of this ordinance.

B. Site Development Stormwater Plan Approval

The applicant's Site Development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. 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 ordinance.

C. Checklist Requirements

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 1"=50' or greater, showing 2-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 flood plains 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 manmade features not otherwise shown.

2. Environmental Site Analysis

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

3. Project Description and Site Plan(s)

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

4. Land Use Planning and Source Control Plan

This plan shall provide a demonstration of how the goals and standards of Sections 3 through 6 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

5. Stormwater Management Facilities Map

The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

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

b. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

6. Calculations

a. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 4 of this ordinance.

b. When the proposed stormwater management control measures (e.g., infiltration basins) depends on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pit 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 Section 10.

8. Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipal engineer, waive submission of any of the requirements in Sections 9.C.1 through 9.C.6 of this ordinance 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.

Article X: Maintenance and Repair

A. Applicability

1. Projects subject to review as in Section 1.C of this ordinance shall comply with the requirements of Sections 10.B and 10.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). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

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

4. If the person responsible for maintenance identified under Section 10.B.2 above is not a public agency, the maintenance plan and any future revisions based on Section 10.B.7 below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

5. Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, 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 nonvegetated linings.

6. The person responsible for maintenance identified under Section 10.B.2 above 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.

7. The person responsible for maintenance identified under Section 10.B.2 above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

8. The person responsible for maintenance identified under Section 10.B.2 above 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 Sections 10.B.6 and 10.B.7 above.

9. The requirements of Sections 10.B.3 and 10.B.4 do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency.

10. In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

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

Article XI: Penalties.

Any person violating the provisions hereof, or any part hereof, shall be subject to a fine or penalty as provided in Section 1-6 of the Township Code.

SECTION 2. That all ordinances or parts of ordinances contrary to or inconsistent with this ordinance are hereby superseded.

SECTION 3. That if any section of this ordinance be adjudged invalid or unconstitutional, the same shall not affect the validity of the ordinance as a whole or any other section or provision hereby.

SECTION 4. This ordinance shall take the effect immediately upon passage and publication, or otherwise as provided by law.

ELIE Y. KATZ, MAYOR

ATTEST:

Hellgren R 47-07

~~ROBYN J. LAMORTE, RMC, CMC, MUNICIPAL CLERK~~

Introduced: January 23, 2007

Adopted: February 7, 2007

Introduced:		Adopted:	
Motion:	C. Honis	Motion:	DM. Parker
Seconded:	Mayor Katz	Seconded:	C. Rudolph
In Favor:	C. Feit C. Kates DM. Parker C. Rudolph C. Honis C. Gussen Mayor Katz	In Favor:	C. Feit C. Kates DM. Parker C. Rudolph C. Honis C. Gussen Mayor Katz
Opposed:	None	Opposed:	None
Absent:	None	Absent:	None

CERTIFIED TO BE A TRUE COPY
OF Ordinance 3985 ADOPTED
BY THE TEANECK TOWNSHIP COUNCIL
ON February 7, 2007
Acting Township Clerk R #208-07

ORIGINAL

TOWNSHIP OF TEANECK
BERGEN COUNTY, NEW JERSEY
ORDINANCE NO. 4033

AN ORDINANCE AMENDING CHAPTER 38, ENTITLED "STORMWATER CONTROL REGULATION" OF THE TOWNSHIP CODE.

BE IT ORDAINED by the Township Council of the Township of Teaneck, Bergen County, as follows:

SECTION 1. That Article II "Definitions" is hereby amended as follows:

Delete:

"CAFRA Planning Map" means the geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

"CAFRA Centers, Cores or Nodes" means those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.

Add:

"Review Agency" means Township of Teaneck Engineering Department.

"Solid and Floatable Materials" means sediment, debris, trash, and other floating, suspended, or settleable solids.

SECTION 2. That Article IV "Stormwater Management Requirements for Major Development" Section 38.10 "Nonstructural Stormwater Management Strategies" Subparagraph (a) is hereby amended as follows:

Delete:

(a). To the maximum extent practicable, the standards in Sections 4.F and 4.G shall be met by incorporating nonstructural stormwater management strategies set forth at Section 4.E into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in Paragraph 2 below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

Add:

(a). The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management strategies identified under (b) below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

SECTION 3. That Article IV "Stormwater Management Requirements for Major Development" Section 38.10 "Nonstructural Stormwater Management Strategies" Subparagraph (c) is hereby amended as follows:

Delete:

Site design features identified under Section 38.10 (b) (a) b. above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Section 38.10 (c) (3) below.

Add:

Site design features identified under Section 38.10 (b) (a) b. above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For exemptions to this standard see Section 38.10 (c) (3) below.

SECTION 4. That Article IV "Stormwater Management Requirements for Major Development" Section 38.10 "Nonstructural Stormwater Management Strategies" Subparagraph (d) is hereby amended as follows:

Delete:

> Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 38.11. and 38.12 shall be dedicated to a government agency, subjected to a conservation restriction filed with the appropriate County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

Add:

> Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 38.11. and 38.12 shall be dedicated to a government agency, subjected to a conservation restriction filed with the Bergen County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

SECTION 5. That Article IV "Stormwater Management Requirements for Major Development" Section 38.12 "Stormwater Runoff Quality Standards" Subparagraph (b) is hereby amended as follows:

Delete:

> For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 7, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Section 7. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey, 08625-0418.

Add:

> For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Article VII, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Article VII. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey, 08625-0418.

SECTION 6. That Article IV "Stormwater Management Requirements for Major Development" Section 38.12 "Stormwater Runoff Quality Standards" Subparagraph (e) is hereby amended as follows:

Delete:

> 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 nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 4.F and 4.G.

Add:

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 nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 38.11 and 38.12.

SECTION 7. That Article IV "Stormwater Management Requirements for Major Development" Section 38.12 "Stormwater Runoff Quality Standards" Subparagraph (f) is hereby amended as follows:

Delete:

Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Section 7.

Add:

Additional information and examples of stormwater quality BMP's are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Article VII.

SECTION 8. That Article IV "Stormwater Management Requirements for Major Development" Section 38.12 "Stormwater Runoff Quality Standards" Subparagraph (h).(4). is hereby amended as follows:

Delete:

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 Section 38.12 (h) 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 Section G.8 shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in Section 38.12 (h) (1) a. 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.

Add:

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 Section 38.12 (h) 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 Section 38.12 (h) shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in Section 38.12 (h) (1) a. 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.

SECTION 9. That Article IV "Stormwater Management Requirements for Major Development"

Section 38.12 "Stormwater Runoff Quality Standards" Subparagraph (h).(5). is hereby amended as follows:

Delete:

> Paragraph G.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.

Add:

> Section 38.12 (h) 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.

SECTION 10. That Article V "Calculation of Stormwater Runoff and Groundwater Recharge" Section 38.13 "Calculation of Stormwater Runoff" Subparagraph (a).(1).a. is hereby amended as follows:

Delete:

> The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds; or

Add:

> The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds; or superceding document; or

SECTION 11. That Article VI "Standards for Structural Stormwater Management Measures" Section 38.15 "Structural Stormwater Management Standards" Subparagraph (a).(2). is hereby amended as follows:

Delete:

> Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (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 Section 8.D.

Add:

> Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (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 Section 38.17 (d).

SECTION 12. That Article VI "Standards for Structural Stormwater Management Measures" Section

38.15 "Structural Stormwater Management Standards" Subparagraph (b). is hereby amended as follows:

Delete:

> Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by Section 4 of this ordinance.

Add:

> Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by Article IV of this ordinance.

SECTION 13. That Article VI "Standards for Structural Stormwater Management Measures" Section 38.15 "Structural Stormwater Management Standards" Subparagraph (c). is hereby amended as follows:

Delete:

> Manufactured treatment devices may be used to meet the requirements of Section 4 of this ordinance, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

Add:

> Manufactured treatment devices may be used to meet the requirements of Article IV of this ordinance, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

SECTION 14. That Article VIII "Sources for Technical Guidance" be designated as Article VII "Sources for Technical Guidance".

SECTION 15. That Section 38.16 "Technical Guidance for Stormwater Management" Subparagraph (b).(1). is hereby amended as follows:

Delete:

> The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;

Add:

> The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained from the Bergen County Soil Conservation District, 700 Kinderkamack Road, Suite 106, Oradell, New Jersey, 07649, (201) 261-4407;

SECTION 16. That Articles IX, X, and XI be replaced in their entirely with the following:

Article IX: Requirements for a Site Development Stormwater Plan

Sec. 38.18 . Submission of Site Development Stormwater Plan

(a) Whenever an applicant seeks municipal approval of a development subject to this ordinance, the applicant shall submit all of the required components of the Checklist for

the Site Development Stormwater Plan at Section 38.20 below as part of the submission of the applicant's application for subdivision or site plan approval.

(b) The applicant shall demonstrate that the project meets the standards set forth in this ordinance.

(c) The applicant shall submit 18 copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 38.20 of this ordinance.

Sec. 38.19. Site Development Stormwater Plan Approval

The applicant's Site Development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. 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 ordinance.

Sec. 38.20. Checklist Requirements

(a) The following information shall be required:

(1) Topographic Base Map

The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of 1"=50' or greater, showing 2-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 flood plains 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 manmade features not otherwise shown.

(2) Environmental Site Analysis

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

(3) Project Description and Site Plan(s)

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

(4) Land Use Planning and Source Control Plan

This plan shall provide a demonstration of how the goals and standards of Article III through Article VI are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

(5) Stormwater Management Facilities Map

The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

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

b. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

(6) Calculations

a. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Article IV of this ordinance.

b. When the proposed stormwater management control measures (e.g., infiltration basins) depends on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on onsite 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 Article X.

(8) Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipal engineer, waive submission of any of the requirements in Sections 38.20 (a) (1) through Sec. 38.20 (a) (6) of this ordinance 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.

Article X: Maintenance and Repair

Sec. 38.21. Applicability

(a) Projects subject to review as in Section 38.3 of this ordinance shall comply with the requirements of Sections 38.22 and 38.23.

Sec. 38.22. General Maintenance

(a) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.

(b) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

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

(d) If the person responsible for maintenance identified under Section 38.22 (b) above is not a public agency, the maintenance plan and any future revisions based on Section 38.22 (g) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(e) Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, 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 nonvegetated linings.

(f) The person responsible for maintenance identified under Section 38.22 (b) above 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.

(g) The person responsible for maintenance identified under Section 38.22 (b) above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

(h) The person responsible for maintenance identified under Section 38.22 (b) above 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 Sections 38.22 (f) and 38.22 (g) above.

(i) The requirements of Sections 38.22 (c) and 38.22 (d) do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency.

(j) In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The municipality, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

Sec. 38.23 Performance and Maintenance Guarantees

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

Article XI: Penalties

Sec. 38.24 Violations and Penalties

(a) Any person violating the provisions hereof, or any part hereof, shall be subject to a fine or penalty as provided in Article I through Article VI of the Township Code.

SECTION 17. That all ordinances or parts of ordinances contrary to or inconsistent with this ordinance are hereby superseded.

SECTION 18. That if any section of this ordinance be adjudged invalid or unconstitutional, the same shall not affect the validity of the ordinance as a whole or any other section or provision hereby.

SECTION 19. This ordinance shall take the effect immediately upon passage and publication, or otherwise as provided by law.

ELIE Y. KATZ, MAYOR

ATTEST:

LISSETTE APORTELA-HERNANDEZ, ACTING MUNICIPAL CLERK, R#208-07

Introduced: 9/18/07

Adopted: 10/9/07

CERTIFIED TO BE A TRUE COPY
OF Ordinance 4033 ADOPTED
BY THE TEANECK TOWNSHIP COUNCIL
ON October 9, 2007
Acting Township Clerk R#208-07

TOWNSHIP OF TEANECK, NJ
ORDINANCE VOTE RECORDATION

Ordinance No.	4033
Introduction Date:	September 18, 2007
Adoption Date:	October 9, 2007

Motion to Introduce Made By:	C. Kates
Seconded Made By:	C. Rudolph

Councilmember	In Favor	Opposed	Absent	Abstained
C. Feit	✓			
C. Kates	✓			
DM. Parker	✓			
C. Rudolph	✓			
C. Honis	✓			
C. Gussen	✓			
Mayor Katz	✓			

Motion to Adopt Made By:	C. Feit
Seconded Made By:	Mayor Katz

Councilmember	In Favor	Opposed	Absent	Abstained
C. Feit	✓			
C. Kates	✓			
DM. Parker			✓	
C. Rudolph	✓			
C. Honis	✓			
C. Gussen	✓			
Mayor Katz	✓			

This is to certify that the above ordinance was adopted by the

Township Council on October 9, 2007

Acting Municipal Clerk