MUNICIPAL STORMWATER MANAGEMENT PLAN

For the

Borough of Seaside Park

Ocean County, New Jersey

March 2005

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Prepared By



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I. Introduction

The Municipal Stormwater Management Plan (MSWMP) was prepared by Seaside Park's previous municipal engineers, Schoor DePalma, Inc., dated March 2005.

According to NJDEP the Stormwater Management Rules, NJAC 7:8 was amended and adopted on July 17th, 2023. NJDEP indicated that the Storm Water Management Plan and the Stormwater Control Ordinances were to be adopted by July 17th, 2024. RVE has updated the MSWMP and Stormwater Control Ordinance to be in accordance with the requirements set forth in the NJDEP MS4 Permit Conditions, and the amendments to NJAC 7:8 Stormwater Management Rules.

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Seaside Park to address stormwater related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acres of land. These standards intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

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

A "build-out" analysis has not been included in this plan based upon the fact that there is less than one square mile of existing land available for development.

The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought.

II. 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 instream structures;
- Maintain groundwater recharge;

- Prevent, to the greatest extent feasible, an increase in non-point pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- Protect public safety through the proper design and operation of stormwater basins.

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

The General Reexamination of the Master Plan occurred on October 11, 2021. The MSWMP was adopted as a stormwater element to the master plan. The following Goals and Objectives were implemented to the Master Plan that referenced the MSWMP:

- 1. To encourage the establishment of policies, codes and standards that promotes the use of sustaibable development pracises, including but not limited to: infrastructure, public and private buildings, open space and recreation, local waste and recycling among other things. *Still ongoing goal*.
- 2. To continually improve the sustainability profile of the Borough. *Still ongoing goal*.
- 3. To continue to promote the health, safety, and general welfare and to minimize public and private losses due to flood conditions and specific areas by provisions designed to: protect human life and health; minimize of expenditure of public money for costly flood control projects; minimize the need to rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; minimize prolonged business interruption; and minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard. *Still ongoing goal*.
- 4. Ensure that the Borough's code is up to the latest flood hazard prevention standards. *Still ongoing goal.*

III. Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (See Figure C-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 storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitats from which some species cannot adapt.

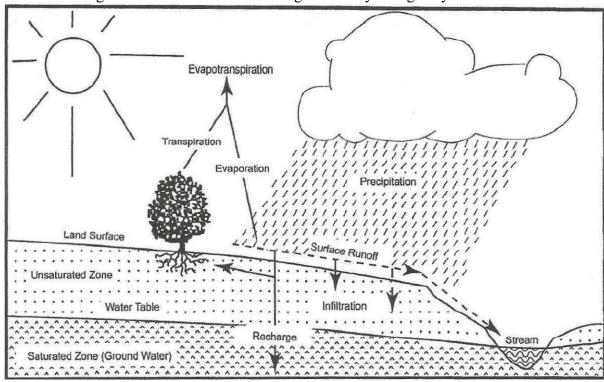


Figure C-1: Groundwater Recharge in the Hydrologic Cycle

Source: New Jersey Geological Survey Report GSR-32.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

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

IV. Background

Population:

The Borough of Seaside Park encompasses a 0.76 square mile area in Ocean County, New Jersey. The population of the Borough decreased from 2,263 in 2000, to 1,579 in 2010, to 1,436 in 2020. This population decrease has resulted in low demand for new development.

Identification of Constraints for Developed and Undeveloped Land Areas:

The Borough has very little area for potential development. However, the low population level has resulted in a low demand for new development.

Undeveloped land in Borough has some land constraints. There are some areas of undeveloped land that consist of wetlands, endangered plants and wildlife and waterways which can be found on Figure C-2 and Figure C-7.

The Waterway Map Figure C-2 and the Aerial Map C-8 indicates one major water body is present in the Borough, the Barnegat Bay, which is west of the Borough.

The Zoning Map is found on Figure C-6. Most zones have been maximized for development.

New Development and Redevelopment areas do increase stormwater runoff volumes and pollutant loads to the waterways of the municipality. The Groundwater Recharge Areas Figure C-4, Wellhead Protection Areas Figure C-5 and USGS Map Figure C-3 identifies areas that may create limitations to new stormwater management facilities.

Any future major development will comply with the new NJDEP Stormwater design standards (NJAC 7:8) and the new updated Borough of Seaside Park Stormwater Control Ordinances, last revised July 1, 2024, for future developments. As such, future development/redevelopment will be controlled to the maximum extent practicable with respect to Total Suspended Solids (TSS) minimization and stormwater recharge.

Inland flooding in the Borough occurs infrequently because of the low runoff generating character of the soil (sandy soils). However, as land is developed, the permeable soils are replaced by impermeable surfaces which increase runoff volumes. All future development in the Borough shall utilize the best

available technology to minimize offsite stormwater runoff, increase on-site infiltration, simulate natural drainage systems and minimize off-site discharge of pollutants to ground or surface water and encourage natural filtration functions.

Identification of TMDL:

In accordance with Section 305(b) and 303(d) of the Federal Clean Water Act, the State of New Jersey is required to assess the overall water quality of the State's waters and identify those waterbodies with a water quality impairment for which Total Maximum Daily Loads (TMDL) may be necessary. NJDEP fulfills its assessment obligation under the Clean Water Act through the Integrated Water Quality Monitoring and Assessment Report (Integrated Report), which includes the Integrated List of Waterbodies, issued biennially. The Integrated Report can be found at:

https://dep.nj.gov/wms/bears/integrated-wq-assessment-report-2022

The New Jersey Integrated Water Quality Assessment Report (Integrated Report) is a compilation of information about the quality of New Jersey's surface waters. The New Jersey Department of Environmental Protection (NJDEP) prepares the Integrated Report as a biennial assessment of statewide water quality that identifies and prioritizes waters for protection, restoration, and additional monitoring or research. The Integrated Report thus serves as an effective tool for enhancing, maintaining, and restoring water quality in all surface waters of the State to support their use for aquatic life, recreation, water supply, fish consumption, and shellfish harvest for consumption.

Under this obligation, NJDEP has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. The AMNET Program is a sampling program that supports the water quality inventory report and list of impaired waters. The AMNET site is found at:

https://www.nj.gov/dep/wms/bfbm/amnet.html

There are over 760 AMNET sites throughout the state of New Jersey. These sites area sampled for benthic macroinvertebrate by the NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. Based on the Integrated Report, the Department identifies waterbodies for which a Total Maximum Daily Load (TMDL) may be necessary.

A Total Maximum Daily Load (TMDL) is the amount of a pollutant that can be accepted by a waterbody without causing an. exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater

treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater, systems, and other BMPs.

The Barnegat Bay is monitored through AMNET testing and data.

The AMNET data lists these impaired waterbodies with the following TMDL levels:

Applicable Shellfish TMDL(s)

 Fourteen Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 13

Total coliform - 2006: Barnegat Bay-M

The Borough has identified the Total Maximum Daily Load (TMDL) levels and has implemented the following strategies:

- 1. Annually ensure that any newly developed TMDL will be identified by looking up the NJDEP Look up Tool annually. The TMDL Look-Up Tool is available at http://www.nj.gov/dep/dwq/msrp-tmdl-rh.htm.
- 2. Implement MS4 Program requirements.
- 3. Maintain and repair stormwater infrastructure to address specific pollutant sources.
- 4. Adding additional education programs.
- 5. Adopt strict enforced Ordinances.
- 6. Adopt strict and more conservative post construction stormwater management standards.

Furthermore, all future development in the Borough shall utilize the best available technology to minimize off-site stormwater runoff, increase onsite infiltration, simulate natural drainage systems, encourage green infrastructure, minimize off-site discharge of pollutants to ground or surface water and encourage natural filtration functions. Aside from the efforts to reduce the daily pollutant loads, the Borough will continue to implement the adopted Stormwater Pollution Prevention Plan, Stormwater Control Ordinances and the Stormwater Management Plan.

V. Design and Performance Standards

The Borough has adopted the new NJDEP Model Ordinances, the design and performance standards for stormwater management measures, as presented in N.J.A.C. 7:8-5 which went into effect on July 17, 2023. These Ordinances 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 Stormwater Control Ordinance, §200-56 has been revised and adopted on July 1, 2024 – Ordinance #2024-19.

Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

During the Review Process at the Planning /Zoning Board, the Applicants Engineer is required to prepare a maintenance plan and/or report for its stormwater management facilities incorporated into the design of the major development. The maintenance plan and/or report shall have specific preventative and corrective maintenance tasks, schedules and cost estimates, as well as the responsible party for corrective and preventative maintenance. Adequate long term operation, as well as preventative and corrective maintenance of the selected stormwater management measures, will be ensured by the Public Works Department through annual inspections. The Maintenance plans and reports will be kept at the Public Works Department.

During construction, the Borough inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

Currently, the Borough requires all basins for Major Subdivisions to be owned and maintained by a private Homeowners Association. Basins for non-residential development are to be owned and maintained by the property owner or other official designated at time of application.

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

Where the Borough assumes maintenance responsibility of a stormwater management facility, preventative maintenance shall be performed on a regular basis by Public Works.

Maintenance measures shall be in accordance with NJAC 7:8-5 and may include periodic inspections, vegetation management sediment and debris removal and mosquito control. Corrective maintenance shall be performed on an as needed basis for structure repairs or replacement, removal of outlet and pipe blockages, erosion restoration snow and ice removal etc. The persons responsible for maintenance shall keep a detailed log of all preventative and corrective maintenance for the structural management measures incorporated into the design of the development including a record of all inspection and works orders. These inspection logs will be kept at the Public Works Department.

VI. Plan Consistency

The Municipal Stormwater Management Plan (MSWMP) is consistent with their Stormwater Control Ordinances (SCO) which has been updated per the NJDEP Model Ordinance required by NJDEP and MS4 requirements. The new Stormwater Control Ordinance, §200-56 has been revised and adopted July 7, 2024, Ordinance #2024-19. The SCO is located online on the Borough of Seaside Park website.

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

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

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

VII. Nonstructural Stormwater Management Strategies

The Borough has revised the stormwater ordinances to incorporate guidelines for Major Development in accordance with the New Jersey Department of Environmental Protection Best Management Practices Manual and Model Stormwater Control Ordinance for Municipalities as required by the NJDEP. Nonstructural stormwater management strategies such as Green Infrastructure (GI) BMPs and Low Impact Development (LID) should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. These strategies are outlined in the updated Stormwater Control Ordinances (SCO).

After review of the Master Plan and the Stormwater Control Ordinances, the following list are Ordinance Sections of recommendations to incorporate nonstructural stormwater management strategies to the Borough. This list are recommendations are not mandatory for the Board to approve:

§200-35 – **Curbs and Gutters** describes that concrete curb shall be installed along all streets unless waived by the approving authority, along all edges of pavement within a site. *This section should 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, as deemed appropriate by the municipal engineer.*

§200-38 – Easements includes provisions for drainage and utility easements. This section should be amended to include the required use of native vegetation in easement areas for any replanting, as deemed appropriate by the municipal engineer.

§200-48F – Off Street Parking and Loading provides requirements for drainage facilities that are to be used for off street parking and loading areas. This section should be amended to allow for curb cuts or flush curbs with curb stops to allow for the discharge of impervious areas into landscaped areas for stormwater management.

Also language should 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, as deemed appropriate by the municipal engineer.

§200-52 – Sidewalks provides general requirements for sidewalk construction. Language should be added to this section to use permeable materials, where appropriate, and to require developers to design sidewalks to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces, as deemed appropriate by the municipal engineer.

§200-37 – **Driveways** describes requirements for driveway construction. This section should be updated to allow the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge, as deemed appropriate by the municipal engineer.

§200-36 – **Drainage** provides general requirements for constructing drainage facilities. This section should also be amended to encourage the use of natural vegetated swales, in lieu of pipe and inlets, where feasible, as deemed appropriate by the municipal engineer.

§200-39 – Environmental Impact Report provide general requirements for the information that should be included in an Environmental Impact Report. This section should be amended to require an assessment of stormwater impacts, both quantity and quality, within the Environmental Impact Report and proposed mitigation strategies, as deemed appropriate by the municipal engineer.

VIII. Land Use/Build-Out Analysis

The Borough of Seaside Park encompasses a total of 0.76 square miles. By observing the aerial photograph of the Borough (see Figure C-10), it is obvious the Borough does not have a total of one square mile of vacant or agricultural lands left for development. Therefore, the Borough of Seaside Park is not required to complete a build-out analysis.

IX. Mitigation Plans

This mitigation plan is provided for a proposed development that is granted a variance or exemption from the stormwater management design and performance standards. It should be noted that the issuance of a waiver by the NJDEP under a Land Use Permit does not automatically waive the requirement for mitigation to be performed under the municipal review. In addition, all required permits must be obtained by the applicant for a mitigation project prior to municipal approval.

Mitigation Project Criteria

1. The mitigation project must be implemented in the same drainage area as the proposed development, The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual.

All Mitigation Projects will be reviewed on a case by case basis. Review and recommendation will be done by the Borough Planner and Borough Engineer. The Recommendation will be brought to the Planning Board for review on its consistency with the Master plan.

