Stormwater Management Plan

For

Borough of Sea Bright
Monmouth County, New Jersey

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February 2005
Revised April 4, 2007

TABLE OF CONTENTS

List of Figures

Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Sea Bright ("the Borough") 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 acre of land. It should be noted that there are very few properties within the Borough that have over one acre of developable 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 base flow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

This 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. In addition, the plan includes 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.

MSWMP 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 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. Preventive 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 Mayor and Borough Council have ensured that the long term goals of this plan will be continued in that the appropriate ordinances have been put in place and that certain offices and not just individuals have been assigned certain permanent tasks. These offices include the Borough Public Works Director, the Borough Clerk and the Borough Engineer.

The goals of the Stormwater Management Plan which are included above can be adequately addressed with the implementation of Stormwater Management Ordinances previously approved at the Council level as well as public education to allow the citizens of Sea Bright a greater participation in this effort. The stormwater management Regulations which are now part of the Borough's Ordinance, under the Land Use Section, helps minimize runoff, reduce soil erosion and groundwater recharge as well as maximize water quality to the adjacent Atlantic Ocean and the

Shrewsbury River. The Borough of Sea Bright is a willing partner in this effort in that mitigation of flooding as well as the maximum water quality will keep Sea Bright dry and provide the seashore draw the town has enjoyed as a tourist destination.

Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (see Figure 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 habitat from which some species cannot recover.

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. Development can remove trees along banks that normally provide shading, stabilization, and leaf litter that becomes food for the aquatic community.

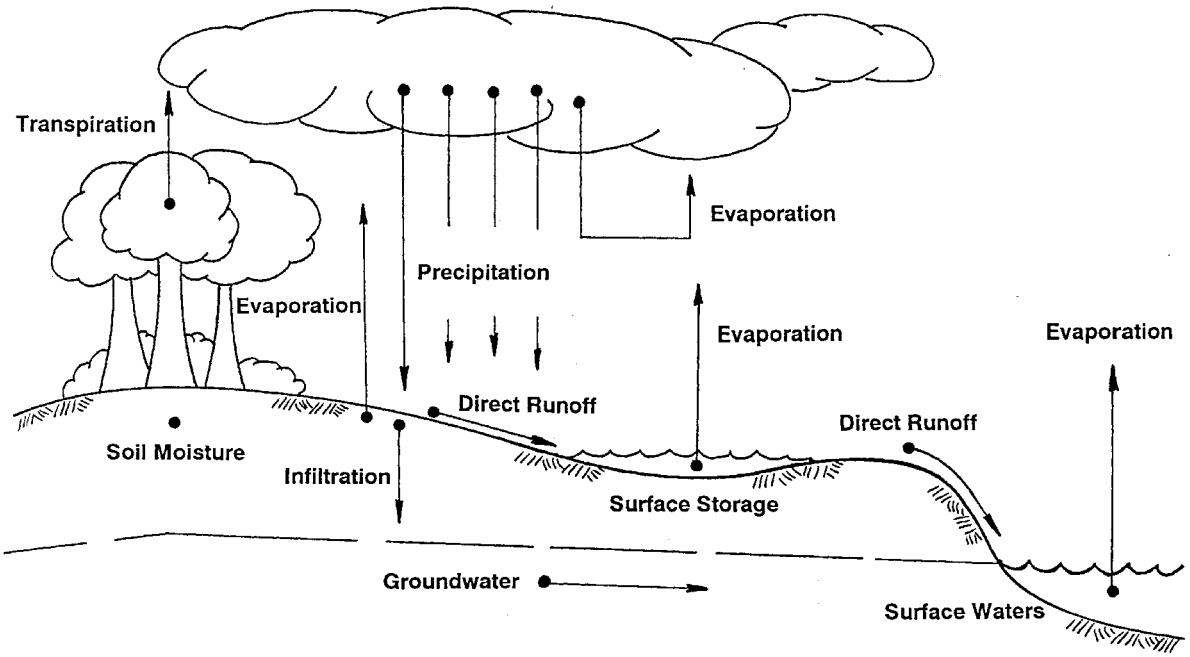


Figure 1 – Hydrologic Cycle

Source: NJDEP Stormwater Management Guide

Sea Bright Borough contains about a dozen marinas or other entities such as condominium associations which have boat slips and act as marinas. All marinas have now been informed of the Clean Marina's regulations and as such can voluntarily become part of said program.

It is our understanding that shellfish are harvested from both the Shrewsbury and the Navesink Rivers. Any and all measures that both the Borough of Sea Bright and the other municipalities in the watershed conduct will have a direct positive and or negative effect on the health of the shellfish fisheries.

The Borough is entirely within the State Plan Designation PA5B Environmentally Sensitive Barrier Island Planning Area. The State Plan states that we are to protect environmental resources through the protection of large contiguous areas of land; accommodate growth in Centers; protect the character of existing stable communities; confine programmed sewers and public utilities. Sea Bright cannot expand growth beyond its traditional borders and should not extend the local utilities beyond the contiguous barrier land spit that is the Sea Bright barrier island. The few river islands (which includes a treed area that may be a deciduous forest) that exist in the Shrewsbury River at the south end of town should be left protected as the last large contiguous areas of land as per the State Plan.

The Borough of Sea Bright falls in Watershed Management Area 12 which extends from Perth Amboy to Point Pleasant Beach. WMA 12 is comprised of an assemblage of coastal subwatersheds, all or a portion of which fall into 56 municipalities in the Raritan Bay and Atlantic Coastal drainage basins. Sea Bright is one of a number of costal barrier island communities in this watershed and as such has a unique responsibility to provide leadership in water quality issues, Centers, and to revitalize cities and towns.

Background

The Borough encompasses 0.6 square miles in eastern portion of Monmouth County, New Jersey. The Borough is located between the Atlantic Ocean and the Shrewsbury River. The Borough is generally seashore residential

community, but does have a mix of commercial and professional land uses. The municipality is a popular destination in the summer months due to the number of beaches and access to a variety of water related activities. The Borough has only one large parcel of partially developable land remaining that is presently vacant. There is also the possibility of either adaptive reuse or redevelopment of other large tracts such as the beach club's marinas or the older commercial buildings. The new water quality standards in Sea Bright adopted in the Stormwater management ordinances will play a major role in any of these developments if they occur.

The water bodies within and around the Borough are shown in Figure 2 and the topography of the Borough is shown in Figure 3. The two water bodies are the Shrewsbury River and the Atlantic Ocean. There are no pipe discharges to the Atlantic Ocean and about 65 outfalls to the Shrewsbury River. Any contribution to the Atlantic Ocean would be non point source pollution while any pollution contribution to the Shrewsbury River would be from both point and non point sources. In general the chemical, biological and physical health of both the Atlantic Ocean and the Shrewsbury River is good except that the Shrewsbury River is influenced by both upstream point and non point discharges while the Atlantic Ocean is generally influenced by non point pollution sources.

According to the 2000 census, the Borough has 1,818 residents. The population rose approximately 7.4 percent since the 1990 census. This population increase is on par with the overall state and county increases of approximately 9 percent respectively over the same period. In the summer the Borough's population can swell to over 10,000 people. It is during this time that municipal officials and citizens should be especially diligent in keeping non point pollution from reaching the Atlantic Ocean and the Shrewsbury River.

The Borough is situated in the Atlantic Coastal Region and in the Monmouth Watershed Management Area. It is located in Watershed Management Area (WMA) 12. The Borough contains portions of four Hydrologic Unit Code (HUC) areas. These HUC14 areas are shown in Figure 4 and listed below:

02030204920010	North portion of Sea Bright along Atlantic Ocean
02030104290020	South portion of Sea Bright along Atlantic Ocean
02030104070110	North portion of Sea Bright along Shrewsbury River
02030104080040	South portion of Sea Bright along Shrewsbury River

The Monmouth County Health Department (MCHD) has a summer weekly monitoring program with a site on the Shrewsbury River and on the Atlantic Ocean both in Sea Bright.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the State's waterways. The Network is for fresh water and there are no sites located in Sea Bright.

The NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. This data shows that the in stream total fecal coliform and dissolved oxygen concentrations of several tributaries of the Shrewsbury and Navesink Rivers frequently exceed the state's criteria.

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 NJDEP permit to discharge, and nonpoint source, which includes stormwater runoff from residential and commercial areas, along with a margin of safety. Typical sources are from street runoff, litter, fertilizer, pesticides, household hazardous products, motor oil, animal waste, boat discharges and any discharge with a wide area of source. 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, retrofitting stormwater systems, and other BMP's.

The Shrewsbury and Navesink Rivers are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants. Several Tributaries leading into both the Shrewsbury and Navesink Rivers upstream have been identified by the NJDEP as being impaired by PCB's, dioxin, total coliform and dissolved oxygen. 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 TMDL's are needed.

The Shrewsbury River is often, based on water testing, the site of hard shell clam fishing. This shell fishery is related to the water quality of the area and directly related to the non point contribution from storm sewers in the Shrewsbury Watershed of which Sea Bright is a part. Stormwater from the Borough of Sea Bright is most probably the first water to reach this fishery in that the outfalls are physically located within hundreds of feet to the beds, not allowing much settlement and disposition of biological and chemical solids from outfalls.

In addition to water quality problems, the Borough has flooding problems. Flooding from the Atlantic Ocean and the Shrewsbury River can occur throughout the entire Borough. The 100-year floodplain, shown in Figure 5, depicts the floodplain. Now that the Army Corps of Engineers has pumped sand on the beaches, the threat of ocean flooding has temporarily diminished. On the other hand, the flooding from the Shrewsbury River occurs daily during new and full moons as well as in storm events. The flooding will cause any floatable pollutant to discharge to the river. This can include paper, animal waste, oils, garbage and in extreme flooding, human waste from the sanitary sewer system, which can connect to the river in extreme high tides.

The stormwater system of Sea Bright is a mix of local piping from 50 to 2 years old and the New Jersey State Department of Transportation (DOT) system in and around State Highway Route 36. The local system is either older small diameter pipe or is relatively new concrete pipe in good shape. The condition of the state DOT system is generally unknown but is functional.

There are no known cross connections to the Sanitary Sewer System. Most of the system has not been fitted with the new type N heads required by the rules, but every new project will contain this change.

The Sea Bright Sea Wall is the second line of defense to ocean storms, with the first being the beach and dune system itself. The wall itself has no negative impacts on the water quality of Sea Bright's waters but must be kept clean and free of animals that would detract from water quality.

The Borough is almost fully developed. The land use, based on 1995/1997 aerial photography, is shown in Figure 6. The existing zoning is shown in Figure 7. A current aerial photo with parcel lot lines overlain on it is shown in Figure 8. The vast majority of land is high-density residential urban land with little chance for groundwater recharge. The north and south beach areas generally have larger lots with higher density housing located in the center of town. The highest concentration of commercial uses is also in the center of town, although there are restaurants, marinas and beach clubs throughout all areas in town. As density increases, as in the downtown residential and commercial zones, the chance of non point pollution can increase. The north and south beach areas are mostly prone to development and redevelopment on the larger parcels and the new stormwater rules on land development will be in greater use in these areas.

The Borough is entirely within the State Plan Designation PA5B Environmentally Sensitive Barrier Island Planning Area. However, groundwater recharge rates for native soils in this area are generally between 1 and 6 inches annually. The average annual groundwater recharge rates are shown graphically in Figure 9.

As shown in Figure 10, the Borough is not in a Tier 3 well-head protection area. There are no public wells in Sea Bright. A discussion of "Well Head Protection Area (WHPA) in accordance with Safe Drinking Water Regulations (see NJAC 7:10-11.7(b)1)." is not needed.

WHPA delineations are conducted in response to the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed and appropriate monitoring will be undertaken as subsequent phases of the NJDEP SWAP.

The Borough has a number of wetland areas. These wetland areas, shown in Figure 11, provide flood storage, nonpoint pollutant removal, breeding grounds and habitat for flora and fauna.

The wetlands that do exist are located along the Shrewsbury River in either South beach or in North beach. Upwards to 75% of the river is bulkheaded and deep causing little wetlands existence. The wetlands that exist are either off shore in the river or in scattered disconnected pockets between bulkheads. The disconnected pockets of wetlands have only a minor benefit in regard to water quality, but the off shore river islands in the South beach section are of good benefit, not to Sea Bright in particular but to the surrounding upstream and downstream communities.

Design and Performance Standards

The Borough will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5-8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins. The ordinances will be submitted to the County for review and approval in accordance with the Stormwater Management Rules.

The municipality, through its public works group, will be inspecting outfalls, performing street erosion edge inspections, and catch basin inspections. These inspections cover all of the town with no exceptions. If a violation is found or an area of need is located, the responsible party will be notified and the situation will be rectified. If the party does not respond, the Borough building inspector has full powers to issue a summons and have the situation corrected.

Plan Consistency

The Borough is not within a Regional Stormwater Management Planning Area and no TMDL's have been developed for waters within the Borough; therefore this plan does not need to be consistent with any regional stormwater management plans (RSWMPs) nor any TMDLs. If any RSWMPs or 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 Borough will utilize the most current update of the RSIS in the stormwater review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates of the RSIS.

This Municipal Stormwater Management Plan is consistent with the 1989 Master Plan, but is especially consistent with the 2003 Master Plan Update, in that it is the intent of the update to follow NJDEP Stormwater regulations and to further work with County, State and federal agencies to control flooding and develop strategies to control erosion, all of which are main goals of the State Municipal Stormwater Management Program

Sea Bright is composed of barrier islands which are coastal land forms caused by the periodic deposition and movement of sediment by ocean currents and wind. During storms they function as the mainland's barriers, a first line of natural defense, protecting offshore communities and sensitive bay habitats from the destructive forces of coastal storms.

The natural island geography which underlies these communities and endows them with much of their unique character also presents extraordinary conditions that affect planning for:

- disaster preparedness and long-term coastal changes, such as sea level rise and beach erosion;
- extended tourist seasons to maintain year-round economic vitality;
- protection of sensitive areas exposed to high public use; and
- expansion of public access along beaches and bayfronts.

Intent

In the Environmentally Sensitive/Barrier Islands Planning Area, the State Plan's intention is to:

- accommodate growth in Centers;
- protect and enhance the existing character of barrier island communities;
- minimize the risks from natural hazards;
- provide access to coastal resources for public use and enjoyment; and
- maintain and improve coastal resource quality.

The State Plans Statewide Policies in the Environmentally Sensitive Planning/Barrier Islands Area (PA5B) are consistent with this Stormwater Management Plan in regard to land use in that development and redevelopment should be provided in more compact forms which is exactly what the stormwater management regulations will do in Sea Bright. The small amount of land available in Sea Bright will cause developers to provide compact developments with unique ways of dealing with water quality and stormwater management issues.

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

Nonstructural Stormwater Management Strategies

The Borough has reviewed the master plan and ordinances, and has provided a list of the sections in the Borough land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for revision. The ordinance texts are completed and were adopted by the Borough Council on September 7, 2004, revised August 21, 2007, and have been submitted to the county for review. A copy was also sent to the Department of Environmental Protection at this time.

Chapter 130 of the Borough Code, entitled **"Land Use"**, was reviewed in regard to incorporating non-structural stormwater management strategies. Several changes are recommended to **Articles VII, VIII and IX** of this chapter, to incorporate these strategies.

ARTICLE VII Area, Bulk and Use Requirements

Section 130-41 (Preservation of Natural Features) Existing natural features, such as trees, brooks and drainage channels shall be preserved in a manner consistent with the use of the property. *This section should be amended to include language that encourages such features to be left in its natural state wherever possible.*

Section 130-42 (Buffer Strips and Screening) Required buffers and screening shall be established on all developed, nonresidential lots, which abut a residential lot or zone. Buffer strips shall be established along the common lot line between the nonresidential and residential lots, on the nonresidential lot and shall be at least 15 feet wide. A mixture of salt tolerant trees and/or shrubs are required. *This section should be amended to require the use of both salt tolerant and*

native vegetation species, which require less fertilization and watering than non-native species. Additionally, language should be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.

Section 130-47 (Flood Damage Prevention) It is the purpose of this section to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas. Various methods of reducing flood losses are discussed. *Item "D" of this section should include reference to the Nonstructural Stormwater Management Strategies per the Stormwater Management Ordinance.*

ARTICLE VIII Required Improvements

Section 130-51 Requirements

Item "E" (Sidewalks) describes sidewalk requirements for the Borough. *Language should be added to this section requiring developers to design sidewalks to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces, or use permeable paving materials where appropriate.*

Item "H" (Drainage) addresses stormwater volume and time of concentration for various storm events. *This section should be amended to reference the Borough's Stormwater Management Ordinance, which should be updated to include all requirements outlined in N.J.A.C. 7:8. These changes were presented earlier in this document.*

Item "K" (Trees) indicates trees shall be planted in every development at intervals of ten (10) feet and along both sides of all streets. All trees shall be located at a point four (4) feet inward of the property line. The trunk and diameter of all trees shall be at least two (2) inches with a height of six (6) feet above the finished ground level. All trees must be salt tolerant. *This section should be amended to require the use of both salt tolerant and native vegetation species, which requires less fertilization and watering than non-native species.*

Section 130-52 (Off-tract Improvements) describes the procedures associated with necessary off-site and off-tract improvements for Site Plans and Subdivision. *Language should be added to this section to require that any off-site and off-tract stormwater management and drainage improvements must conform to the Municipal Stormwater Management Ordinance.*

ARTICLE IX Design Standards

Section 130-55 (General Design Standards) lists the requirements and standards for all site plan and subdivision plats in order to encourage desirable development patterns within the Borough. This section gives generalized design guidelines and suggests that applicants consult with the Borough Engineer prior to beginning design, for review and approval of proposed design standards. Standards utilized should generally be nationally recognized and in common use in this area. Design standards may not be utilized if they do not have the approval of the Borough Engineer. *This section should be amended to include language referencing the Municipal Stormwater Management Ordinance*.

Item "E" recognizes that, in certain instances, preexisting conditions or the uniqueness of a particular proposal may require a waiver of some of the general design standards. The Planning Board may consider and, for cause shown, may waive strict conformance with each of these detailed design standards as it sees fit. *This section should be amended to require the applicant to mitigate the impact of such deviations. This mitigation effort must address water quality, flooding, and groundwater recharge as described in the Mitigation section of this Stormwater Management Plan.*

Section 130-56 (Environmental Standards) outlines the preservation of natural features. No structure shall be built within any drainage or conservation easement or, in their absence, within 100 feet of the top of the bank of a river or other water body. No person, firm or corporation shall strip, excavate or otherwise remove soil for sale or other use other than on the premises from which taken, except in connection with the construction or alteration of a building on such premises and excavating or grading incidental thereto or, except as hereinafter specified or pursuant to the terms of

any soil removal ordinance. Existing natural features, such as trees, brooks and drainage channels shall be retained. Whenever such features interfere with the proposed use of such property, a retention of the maximum amount of such features consistent with the use of the property shall be required wherever possible at the discretion of the Planning Board.

Section 130-57 (Specific Subdivision Standards) outlines the requirements and principles in the design of each subdivision.

Item F-3 indicates that natural features, such as trees, rivers, hilltops and views shall be preserved whenever possible in designing any subdivision containing such features. *This section should be revised to encourage such features to be left in a natural state wherever possible.*

The **Sea Bright Master Plan Adopted 1989** with revisions to March 11, 2003 (second update) includes references to Stormwater Management and those references are included in this section either in original form or an explanation on how they should be updated is provided.

Land Use/Build-Out Analysis

Since the Borough of Sea Bright has a combined total of less than one square mile of vacant lands (there are no agricultural lands), the Borough is not required to do a build-out analysis.

Mitigation Plan

The Borough of Sea Bright will not identify available mitigation sites in the Borough. Rather the following discussion will be helpful in assisting a developer if he or she is exploring the idea of providing mitigation.

The Stormwater Management Rules provide standards which are to be met on the site of the proposed development to the maximum extent practicable, using nonstructural stormwater management strategies. A municipality may waive one or more of the design and performance standards for projects reviewed under the Municipal Land Use Law, or for projects undertaken by the municipality that are not subject to MLUL. Further, the municipality may choose to require mitigation for projects receiving a waiver from the Department of Environmental Protection, State of New Jersey. A situation may arise in which the design and performance standards may be impossible to meet on the site of a proposed project because of site constraints such as soils or slope or lack of land. The discussion below provides a method for mitigation if such a situation develops.

Selection of an appropriate mitigation project for a requested waiver/exemption must adhere to the following requirements:

The project must be within the same area that would contribute to the receptor impacted by the project. 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. Legal authorization, current and future, must be obtained and the location should be close to the location of the original project.

In areas adjacent to the Shrewsbury River, 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 in other areas. All 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 Wetlands Act Rules.

Stormwater quality is regulated for the purpose of minimizing/preventing nonpoint source pollution from reaching the 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 system that previously did not provide sufficiently for water quality.

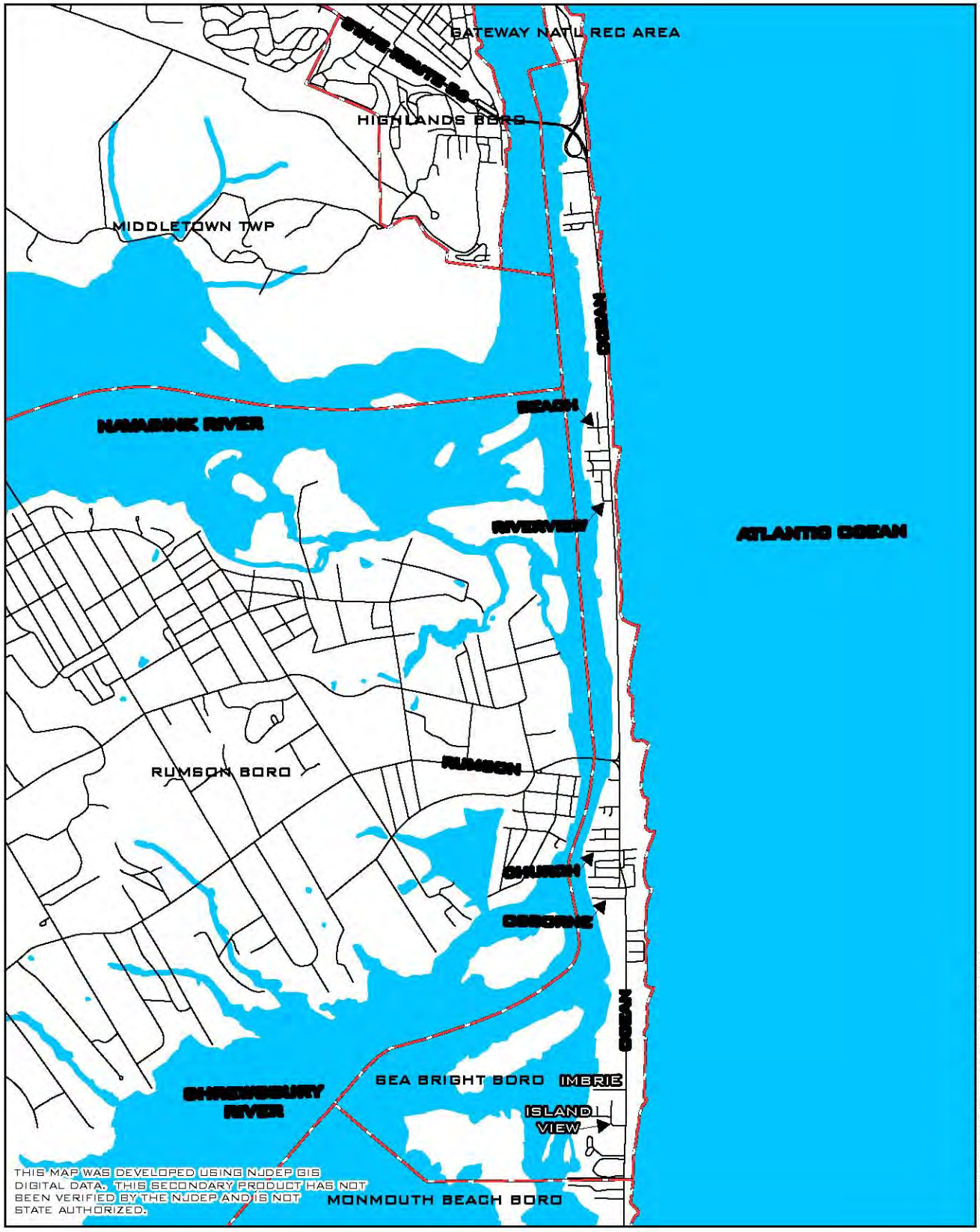
Groundwater recharge will normally be discouraged in Sea Bright. Although the soils are very pervious and are usually sandy, the water table is usually within three feet of the surface and sometimes at the surface in high tides. The applicant will need to prove adequate depth to water table to provide groundwater recharge.

Recommended Implementing Stormwater Control Ordinances

The Borough has recently implemented the following ordinances:

- Illicit Connection Ordinance (No. 22-2004)
- Improper Waste Disposal Ordinance (No. 23-2004)
- Litter Ordinance (No. 24-2004)
- Pet Waste Ordinance (No. 25-2004)
- Wildlife Feeding Ordinance (No. 26-2004)
- Yard Waste Ordinance (No. 27-2004)
- Yard Waste Collection & Disposal Program (N0. 28-3004)

The Stormwater Control Ordinance will have to be implemented in accordance with NJAC 7:8-4.



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GIS/SEABRIGHT/0500011 2/FIGURE 2.MXD

1 INCH EQUALS 2500 FEET

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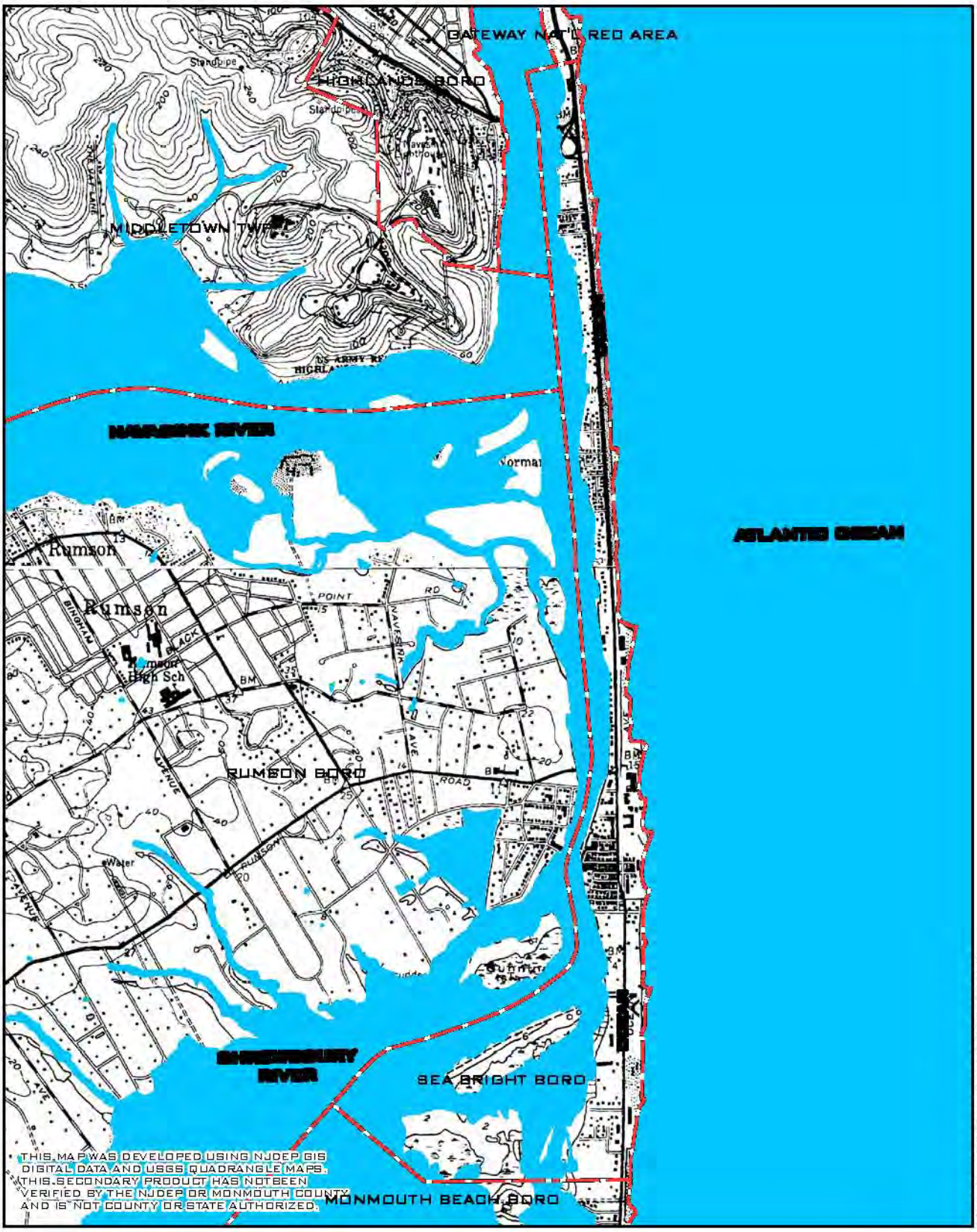
FEET

SEA BRIGHT BORO
WATERWAYS

MASER CONSULTING P.A.

FIGURE 2



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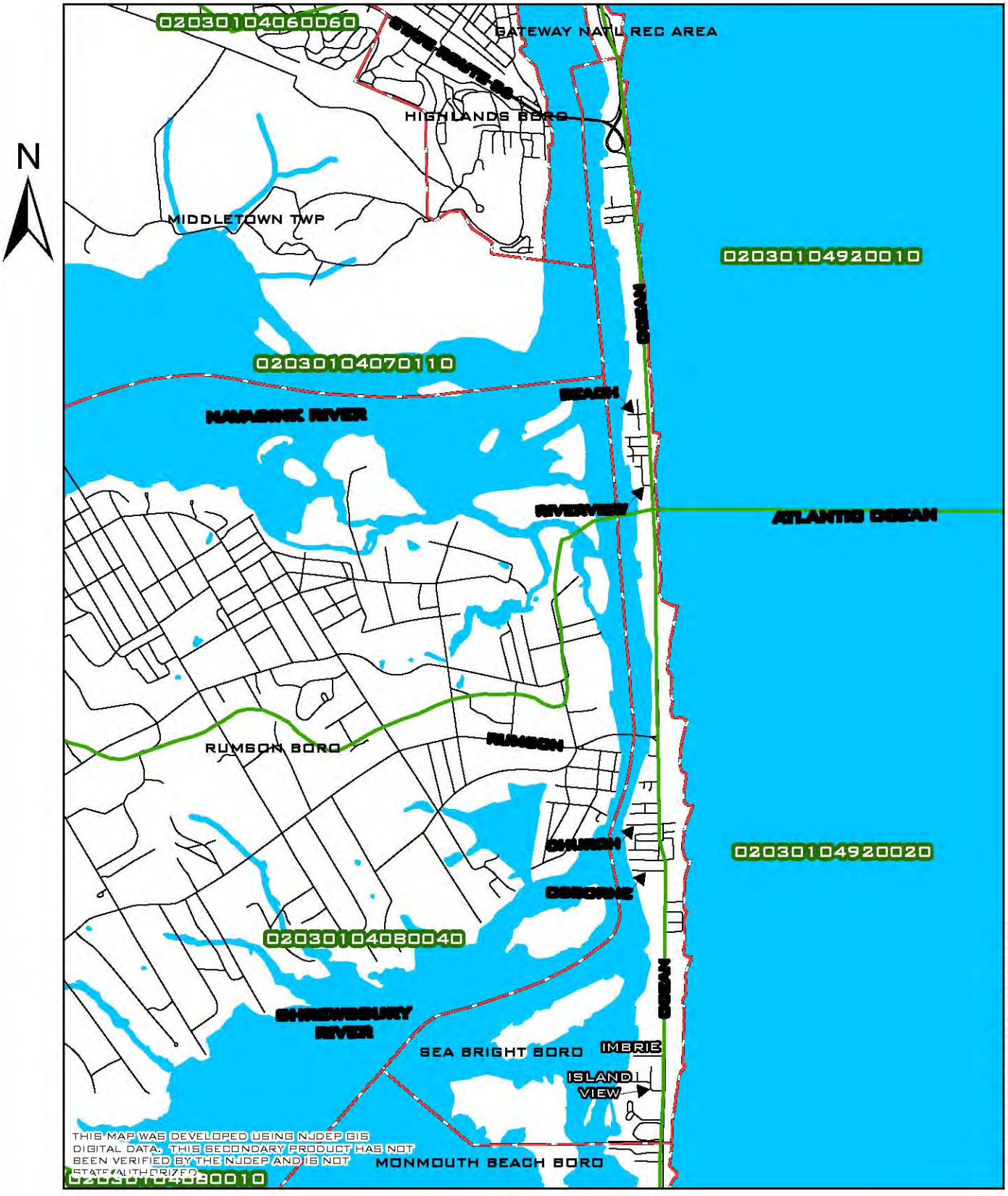
SEA BRIGHT BORO
USGS QUADRANGLE MAP

MASER CONSULTING P.A.

FIGURE 3



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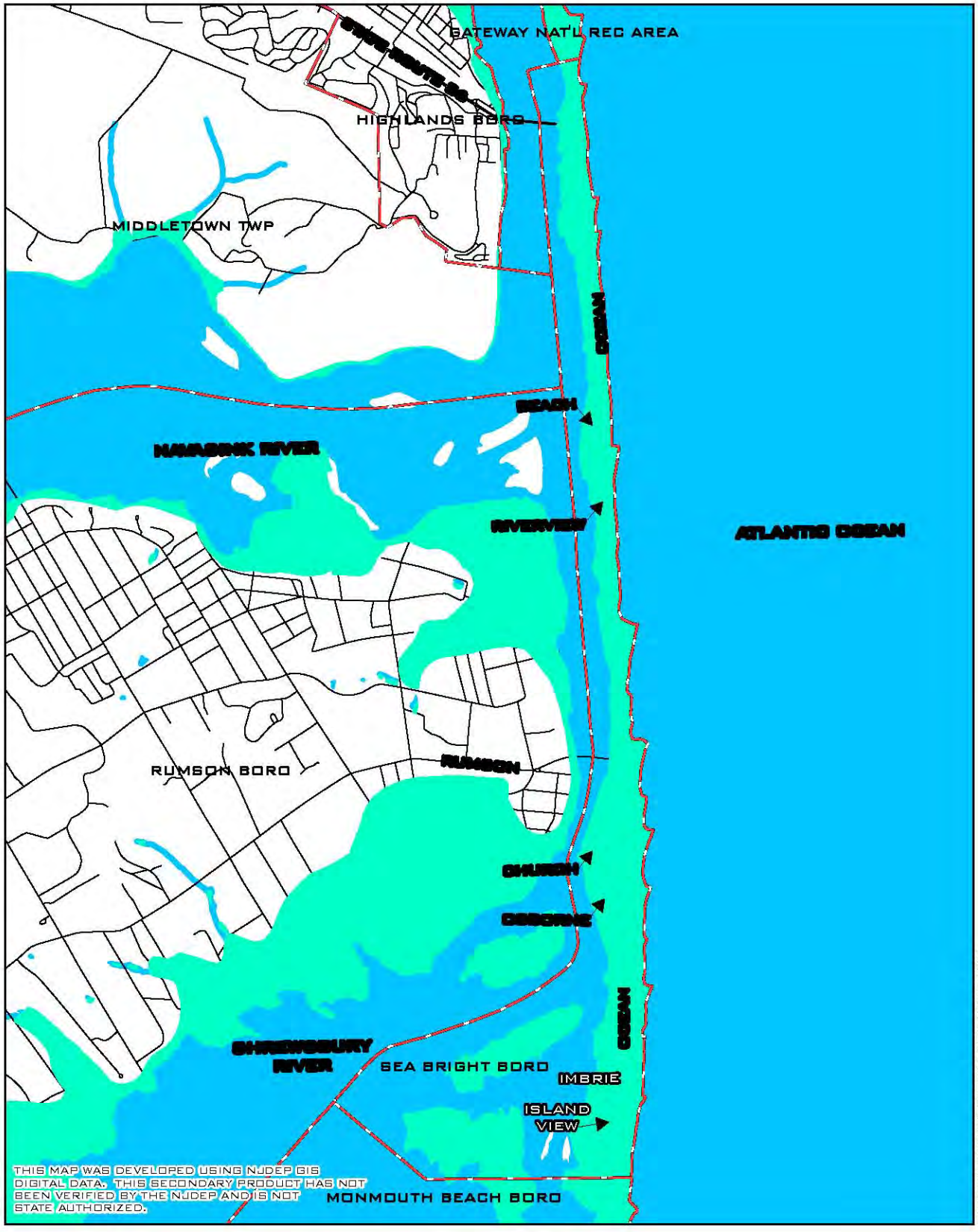
SEA BRIGHT BORO

HYDROLOGIC UNIT CODE 14 (HUC14) AREAS

MASER CONSULTING P.A.

FIGURE 4



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1 INCH EQUALS 2500 FEET

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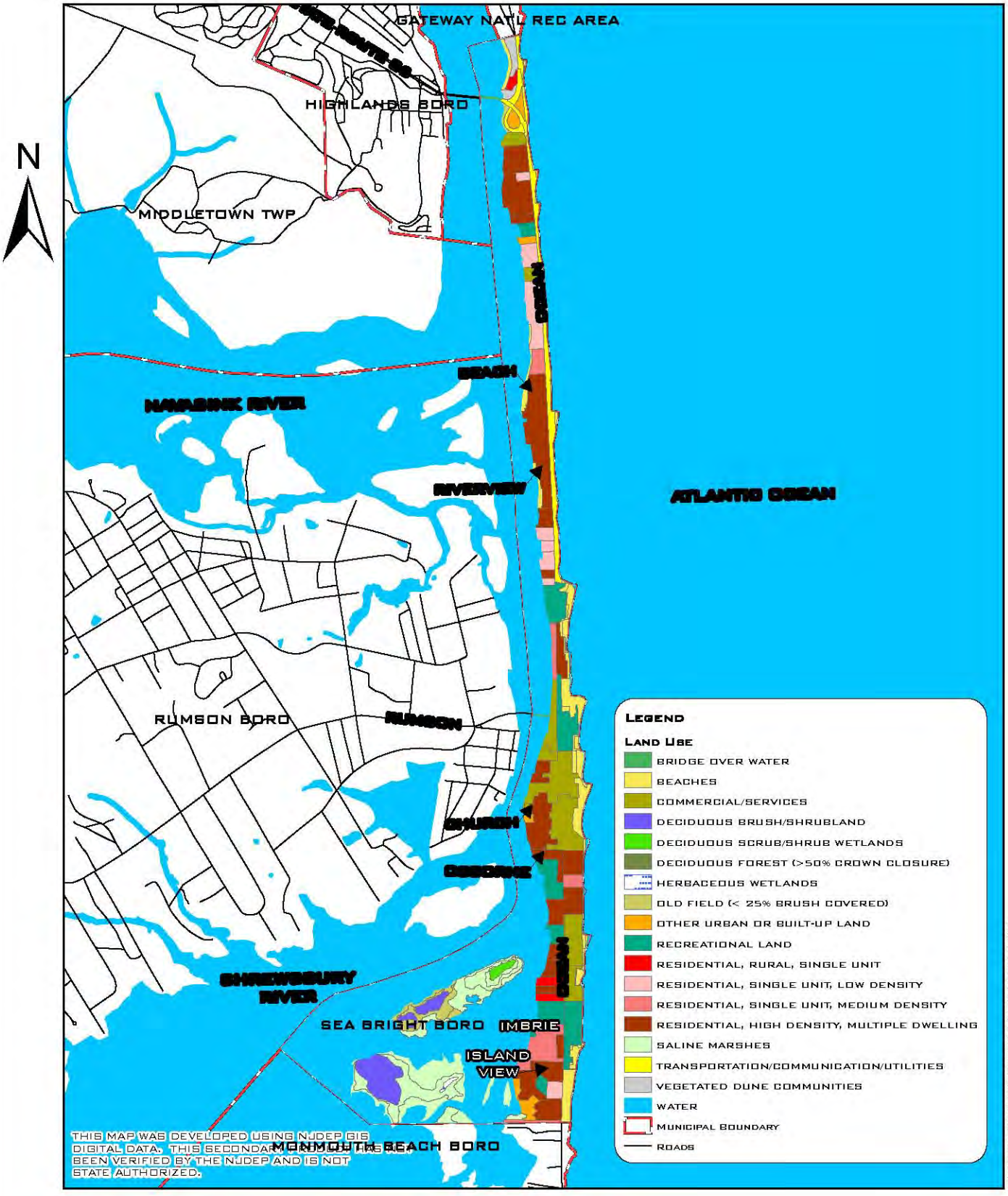
FEET

SEA BRIGHT BORO

100 YEAR FREQUENCY FLOOD PLAIN

MASER CONSULTING P.A.

FIGURE 5



1 INCH EQUALS 2500 FEET

0 2500 5000 1000

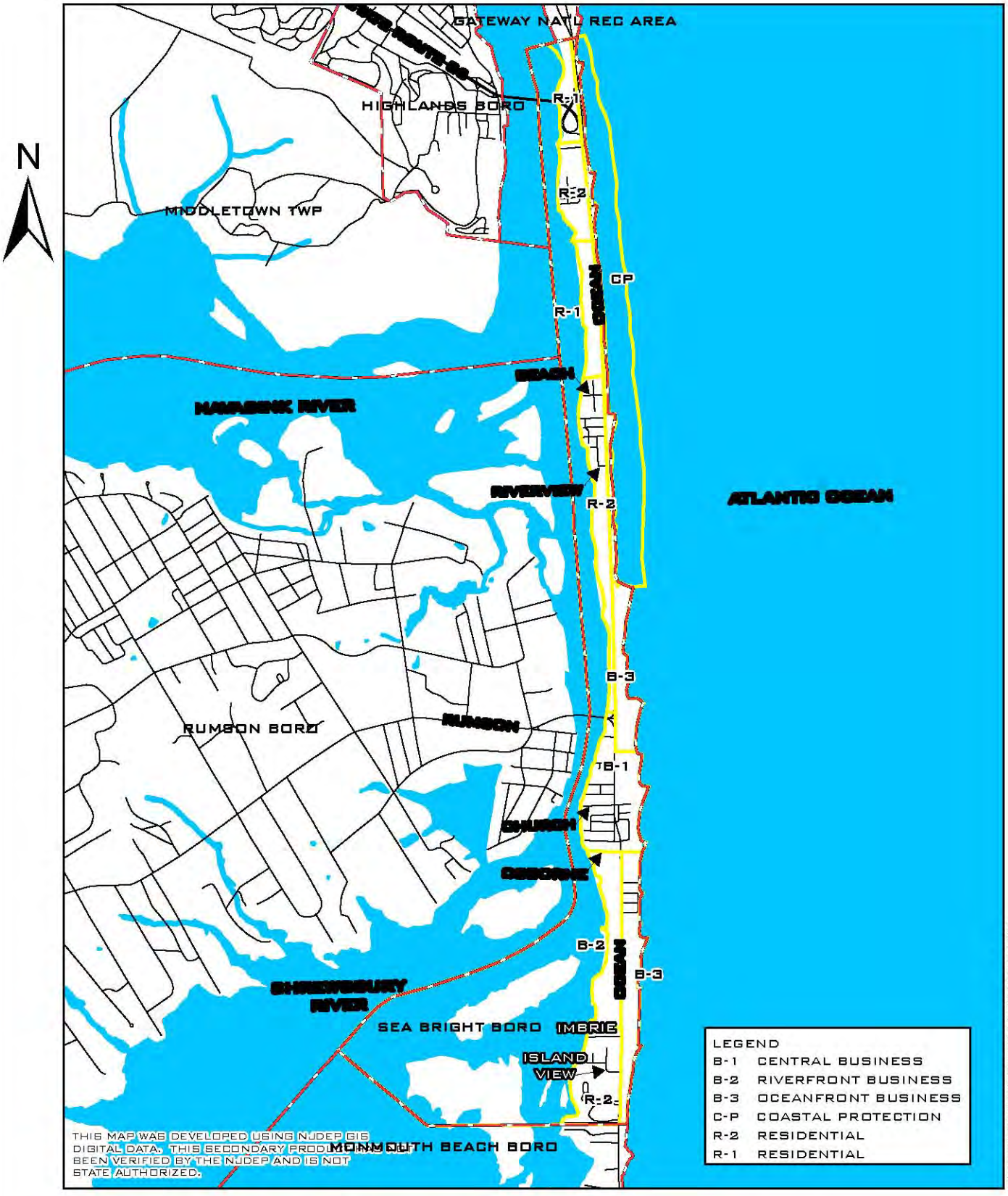
FEET

SEA BRIGHT BORO

2002 LAND USE

MASER CONSULTING P.A.

FIGURE 6



1 INCH EQUALS 2500 FEET

0 2500 5000 1000

FEET

SEA BRIGHT BORO

ZONING

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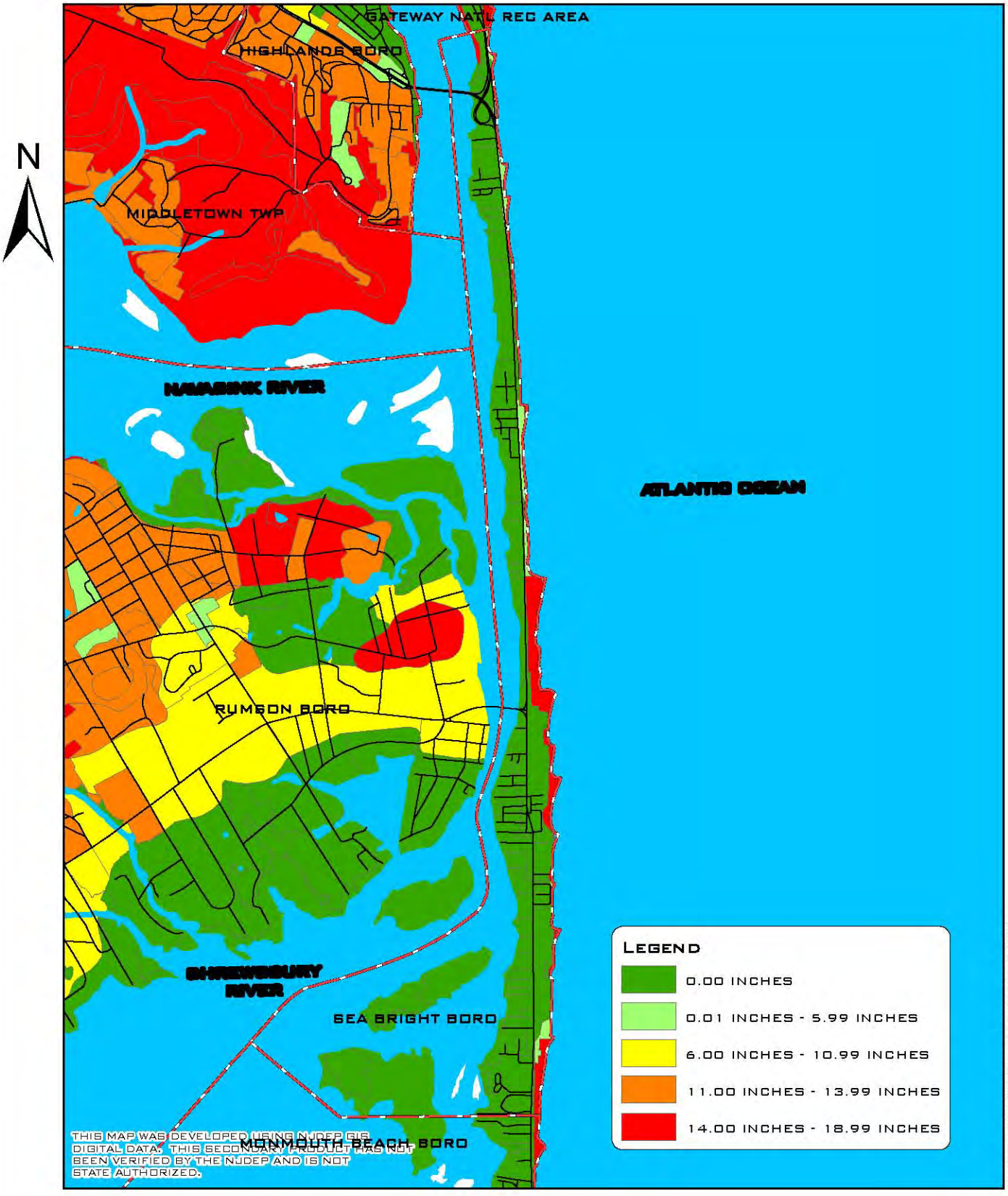
FIGURE 7

±

1 INCH EQUALS 2500 FEET
SEA BRIGHT BORO AERIAL PHOTO
2500 5000 1000

Feet



1 INCH EQUALS 2500 FEET

0 2500 5000 1000

FEET

SEA BRIGHT BORO AVERAGE ANNUAL GROUNDWATER RECHARGE

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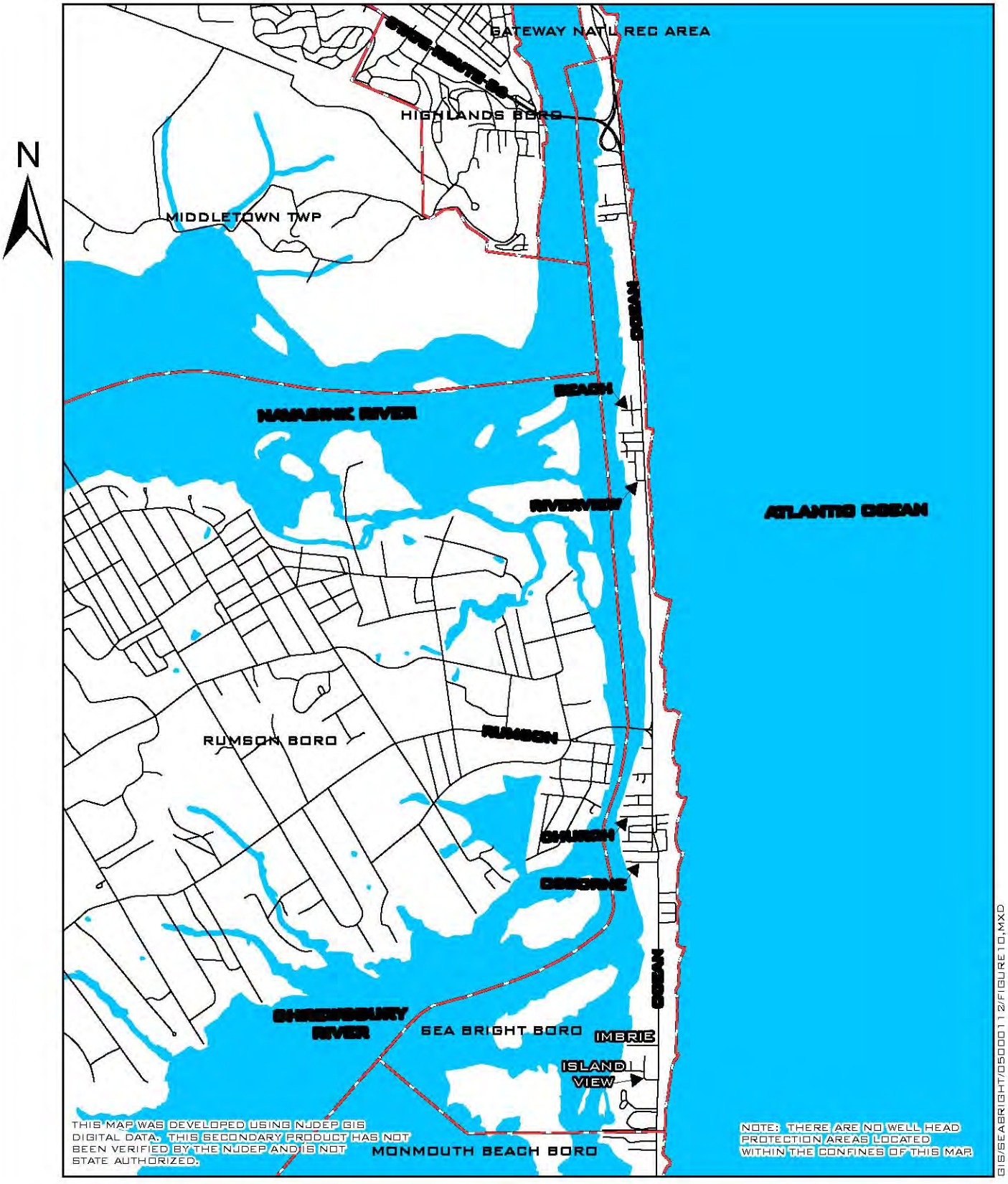
FIGURE 9



1 INCH EQUALS 2500 FEET

0 2500 5000 1000 FEET

SEA BRIGHT BORO WELL HEAD PROTECTION AREAS

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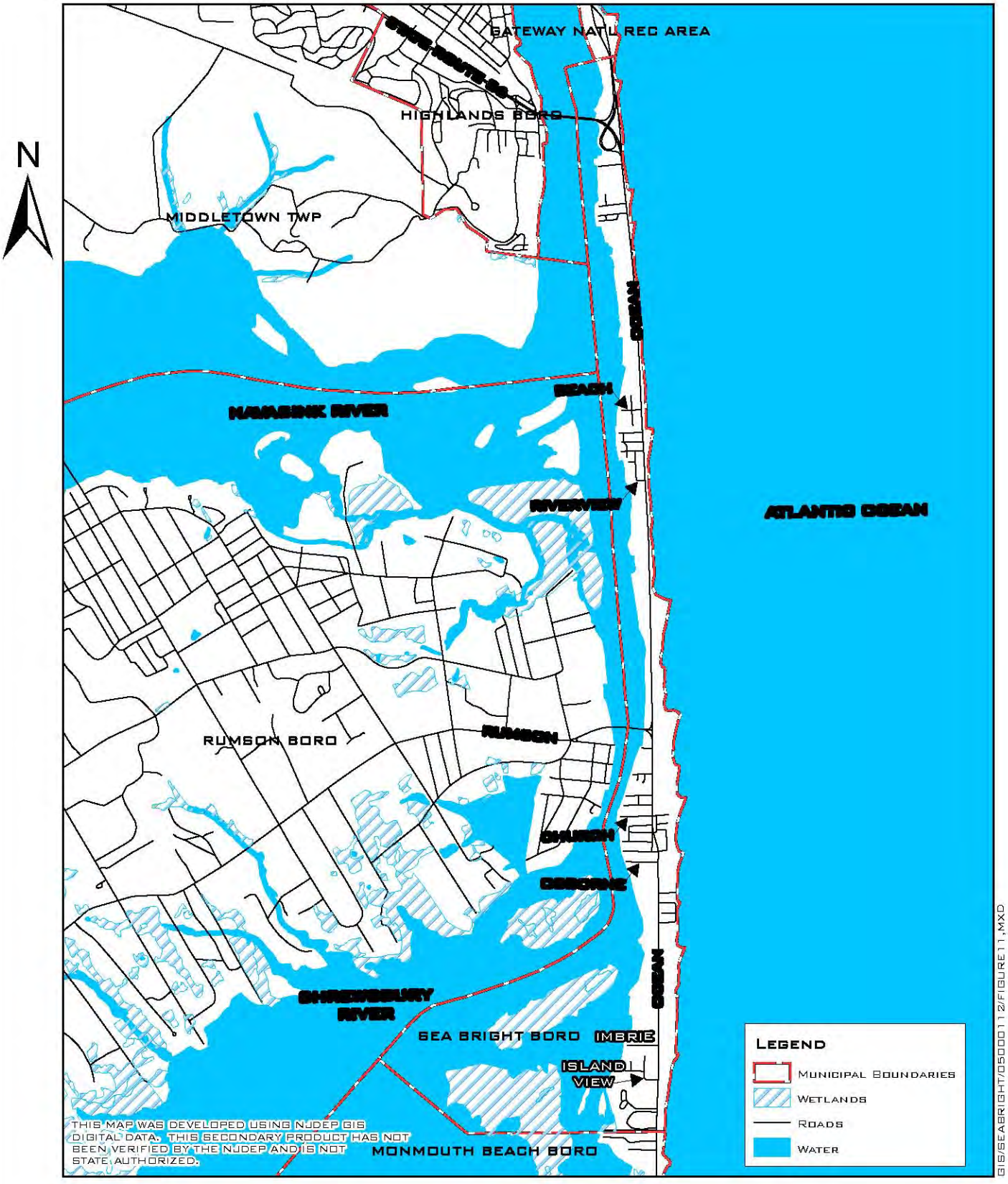
FIGURE 10



1 INCH EQUALS 2500 FEET

0 2500 5000 1000

FEET

SEA BRIGHT BORO
WETLANDS AND WATER

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FIGURE 11