

Cumberland County Wastewater Management Plan

Downe Township

Amending the Following Areawide Water Quality Management Plan:
Lower Delaware Water Quality Management Plan

Submitted by the Board of Chosen Freeholders of the County of Cumberland

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Approved by the New Jersey Department of Environmental Protection:

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DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

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I. Wastewater Management Planning Area

Background

In 2008, the New Jersey Department of Environmental Protection adopted major amendments to the Water Quality Management Planning rules, N.J.A.C. 7:15-1 et seq. The amended rules gave each County Board of Chosen Freeholders the responsibility to prepare wastewater management plans for all of its municipalities.

P.L.2011, CHAPTER 203, an Act concerning the wastewater management planning process, was approved January 17, 2012. The FWSA map was adopted on January 15, 2016, and under the current rules the allowance of individual components of a WMP are able to be submitted, therefore the submittal of Downe Twp. Wastewater Management Chapter.

The purpose of this document is to provide a Wastewater Management Plan (WMP) for Downe Township, Cumberland County, pursuant to the Water Quality Management Planning rules, adopted November 7, 2016. The WMP has been submitted to the NJDEP for approval so that it may be incorporated into the Lower Delaware Water Quality Management Plan via the plan amendment procedure at N.J.A.C. 7:15-3.

Wastewater Management Planning Area

Residential wastewater management in the Rural District relies on individual subsurface sewage disposal systems under the jurisdiction of the Cumberland County Health Department. Commercial and industrial wastewater discharges in the Rural District are primarily from agricultural and seafood processing plants and sand mining operations. Downe Township is in the Rural District, one of the four districts that Cumberland County is divided into for planning purposes.

The lack of wastewater infrastructure within the Rural District, of which Downe Township is part of, can be attributed to issues involving fiscal constraints and limited regional demand. However, because of the concentration of population and development in Fortescue and Gandy's Beach, Downe Township, the two villages and the mobile home development, Fortescue Park/Heritage Hill Estates, and the Raybins Beach area, are proposed as Sewer Service Areas assigned to the proposed Fortescue Package Plant.

The Cumberland County Board of Chosen Freeholders has wastewater management planning responsibility for the full County.

The County Board of Chosen Freeholders has identified the Cumberland County Department of Planning as the County agency charged with WMP preparation and maintenance. Any proposed revisions or amendments to this wastewater management plan chapter shall be submitted to the Cumberland County Department of Planning at 164 West Broad Street, Bridgeton, NJ 08302.

II. Summary of Actions

Sewer Service Area Delineation Criteria

This section describes the criteria used for the delineation of areas eligible for sewer service area and includes a description of the number of acres added and/or subtracted from the area eligible for sewer service. Strategies to address any potential capacity deficiencies identified in the wastewater treatment capacity and nitrate dilution analyses are discussed in Chapter VI.

Eligible Sewer Service Areas

The term “Eligible for sewer service area” means areas determined to meet the criteria for designation as sewer service in accordance with N.J.A.C. 7:15-4.4, and are identified as “Assigned sewer service area”, differentiating between area that currently conveys sewage to each existing facility and that which is proposed to convey sewage to each existing or proposed facility; or “Unassigned sewer service area”, which are areas mapped for future sewer service with no designated treatment facility. The Fortescue/Gandy’s Beach Sewer Service Area in Downe Township is assigned to the future Fortescue Package Plant and Downe Township. Fortescue and Gandy’s Beach, located along the Delaware Bay in southwestern Downe Township, contain approximately 105 acres containing approximately 558 total lots and a total MGD of 0.146.

Environmentally Sensitive Areas

Under the WQMP rules, large contiguous environmentally sensitive areas, or “ESAs”, defined as 25 acres or larger consisting of habitat for threatened and endangered species as identified on the Landscape Project Maps of Habitat for Endangered, Threatened or Other Priority Species, Natural Heritage Priority Sites, Category One waters designated in the Department’s Surface Water Quality Standards and their corresponding 300 foot riparian zone, and wetlands, alone or in combination, should be excluded from areas eligible for sewer service. Additionally, Coastal Fringe Planning Areas, Coastal Rural Planning Areas, or Coastal Environmentally Sensitive Planning Areas identified on the CAFRA Planning Map, shall not be identified as eligible for sewer service area.

However, the WQMP rule provides, at N.J.A.C. 7:15 – 4.4(f) and 4.4.(i)-(l), several exceptions which allow ESAs and CAFRA areas to be included in areas proposed for sewer service.

Downe Township falls into a CAFRA area. As shown by the MOA between Downe Township, Cumberland County, and NJDEP, February 2018, the FDA’s National Shellfish Sanitation Program has identified Fortescue and Gandy’s Beach as areas of failing and leaking septic systems that should be sewered. This will lead to a decrease in the number of septic system in Downe Township and alleviate the failing septic systems.

Threatened and endangered parcels have been removed from the SSA.

Septic Areas

Remaining areas of the Township, not otherwise identified as sewer service areas for treatment facilities requiring a NJPDES permit, or that are eligible for sewer service, and other small treatment works that treat 2,000 gallons per day or less of wastewater and discharge to ground water, are included within the septic area. These areas will be subject to a septic management program that will ensure these facilities are functioning properly. Details of the septic management plan are included in Appendix E.

Planning Coordination

Additionally, the WQMP rules at N.J.A.C. 7:15-3.5(f) require coordination with and solicitation of comments or consent from certain agencies, entities and plans, and consistency with other plans. This section also addresses those requirements.

Designated Planning Agency

NJDEP for the Lower Delaware Water Quality Management Plan

Coordination with the Delaware River Basin Commission

The Delaware River Basin Commission regulates the discharge of pollutants into, and the withdrawal of water from, the Delaware River Basin; therefore, wastewater and water supply decisions affecting the Delaware River Basin must be coordinated with the Commission. The DRB has been notified of these changes.

The Downe Township Municipal chapter of the Cumberland County Wastewater Management Plan is proposing to increase discharge and withdrawal within the Delaware River Basin Commission Area to total of 558 lots in the Fortescue area and Gandy's beach. Approximate daily flow generated from this project would be 0.146 MGD discharged through the proposed Fortescue Package Plant.

III. Existing and Future Wastewater Treatment Facilities

This section addresses wastewater treatment facilities currently or anticipated to be utilized by development within the Municipality, whether the treatment works itself is located within or outside of the Municipality. Facility tables are provided for each existing and proposed wastewater treatment facility at the end of this chapter.

Overview of Wastewater Services and Wastewater Responsibilities

The County includes three public regional wastewater systems that serve 14 percent of the total County area and 80 percent of the total County population. Zero percent of that is in Downe Township.

Wastewater Facility Tables

The wastewater facility tables for all sanitary and/or process wastewater discharge to surface water facilities and those sanitary and/or process wastewater discharge to groundwater facilities discharging greater than 2,000 gallons per day (i.e., requiring NJPDES permits) are included in this chapter. They include domestic wastewater treatment facilities which may serve one or multiple municipalities, onsite domestic treatment facilities, ground water sanitary subsurface disposal system general permit (T-1 Permit) treatment facilities, and/or industrial treatment facilities which treat only industrial process wastewater, and/or facilities serving industrial land uses that have independent wastewater treatment facilities that treat and discharge manufacturing process waste and/or sanitary sewage that may be discharged to ground water or to surface water.

Table 1. NJPDES PERMITS

Facility	Municipality	NJPDES Permit #
FORTESCUE PARK (HERITAGE HILL ESTATES)	Downe Twp.	NJG0246603
GARRISON HOUSE TRAILER PARK/CAMPGROUND	Downe Twp.	NJG0241075
SUNDOG MARINA	Downe Twp.	NJG0241831
Proposed Fortescue Package Plant	Downe Twp.	TBD

See Appendix C for detailed tables.

IV. Wastewater Treatment Capacity Analysis - Sewer Service Area

The existing and future wastewater management needs of each sewer service area of a DTW, or industrial wastewater facility that receives wastewater from outside the facility boundaries shall be identified and evaluated in a wastewater treatment capacity analysis. This chapter describes the build out methodology used to calculate existing wastewater flows for assigned sewer service areas (SSAs with a permitted treatment facility), as well as project future wastewater treatment demand for assigned and unassigned sewer service areas within the Municipality.

Calculating Existing Wastewater Flows

Existing Development

For each assigned sewer service area, the existing wastewater flow using the highest consecutive 12 months rolling average over the most recent five-year period preceding development of the WMP, has been identified, as reported in the Discharge Monitoring Reports required pursuant to N.J.A.C. 7:14A-6.8 for each facility

Projecting Future Wastewater Flows

Wastewater Demand Projections in Non-Urban Municipalities' Sewer Service Areas

There are currently no Sewer Service Areas in Downe Township. Fortescue and Gandy's Beach have been proposed as Sewer Service Areas assigned to the proposed Fortescue Package Plant which will generate approximately 0.146 MGD.

Assigned Sewer Service Area Capacity Analyses

There are currently no Sewer Service Areas in Downe Township. Fortescue and Gandy's Beach have been proposed as Sewer Service Areas assigned to the proposed Fortescue Package Plant.

The Fortescue/Gandy's Beach SSA would generate approximately 0.146 MGD.

A summary of the build-out analysis for the Wastewater Treatment Facility is presented in the following table. Detailed parcel-based build-out analysis data was electronically submitted to the Department as part of the amendment application.

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Table 2. Assigned Sewer Service Area Wastewater Treatment Capacity Analysis								
	Facility	NJD PES Permit #	Municipality	Current Flow^{1,2} (MGD)	Projected Flow³ (MGD)	Total Build-out Flow⁴ (MGD)	NJD PES Permitted Flow (MGD)	Surplus
Assigned	Proposed Fortescue Package Plant	TBD	Downe	0	0.146	0.146	TBD	0

¹ Highest consecutive rolling 12-month average in most recent 5 years of DMR Data.

² Unassigned SSA will have zero current flow

³ Combined flows from both existing developments not connected to the STP and acreage that can support development within the SSA – See Appendix A – “Municipal Buildout Results”

⁴ Combined flows of Current and Projected Flows

V. Nitrate Dilution Analysis - Septic Area

Wastewater Demand Projections in Septic Areas

In areas outside of sewer service areas, the wastewater management alternative is on-site discharge to groundwater of 2,000 gallons per day or less, commonly referred to as septic systems. The WQMP rules require an evaluation of the future capacity of groundwater to sustain a nitrate standard of 2.0 parts per million (PPM) over the area of a Hydrologic Unit Code 11 (HUC11) watershed where development will be served by individual subsurface disposal systems (ISSDS).

The following methodology was used to estimate available developable acreage in the septic area. First, HUC11 boundaries and areas provided by NJDEP as a Geographic Information Systems (GIS) file were intersected with municipal boundaries to generate HUC11 acreage within each municipality. Then the "Urban" and "Water" classified polygons of the NJDEP Land Use/Land Cover data (2012) were removed. Other undevelopable lands such as preserved land and open space were removed from the acreage as well. Finally, the proposed sewer service areas were removed from the available acreage. The resulting final acreage in each HUC11 was considered developable acreage. To determine number of total potential residential units, the residential density or floor area ratio designated by the municipal zoning ordinance was applied to that tabulated acreage. All results were rounded down so that there were no partial dwelling units or equivalent dwelling units projected.

In some areas to be served by ISSDS, municipal zoning may permit non-residential development. The analysis converts developable non-residential acreage to "equivalent dwelling units." The total developable acreage of non-residential area is converted to square footage and multiplied by a wastewater flow factor of 0.125 gallons per day as per N.J.A.C. 7:14A. The total flow of the non-residential development is then divided by 500 gallons per day (500 gpd is the flow value for a 3-bedroom home utilizing a septic system as per N.J.A.C. 7-9A-7.4) to generate a resulting number of equivalent dwelling units. These equivalent dwelling units are added to the total number of residential units, resulting in total projected "dwelling units" in the septic area for each municipality, the results of which are provided in Appendix B.

Adequacy of Septic Carrying Capacity (Nitrate Dilution) in Septic Areas

To complete this analysis, the total developable acreage determined in the septic area build-out analyses as described above was utilized, however, non-hydric environmentally sensitive and preserved lands are included in the available acreage for carrying capacity as each provide additional nitrate dilution capacity. Each municipality was broken into HUC11 watershed areas so that the total watershed acreage in that municipality could be tabulated. To determine the number of total allowable units this analysis utilized the nitrate dilution model prepared by the New Jersey Geological Survey. The model assigns a density in acres of undeveloped land per future dwelling unit. Application of this density to the available, undeveloped acreage in the HUC11 watershed results in a total number of possible dwelling units that could be developed in that watershed without impairing groundwater quality and causing the nitrate concentration to exceed 2 PPM. In other words, the total developable area in each municipality for each HUC11 area was divided by the density in acres of undeveloped land per future dwelling unit, or # of acres per septic system, providing the total number of systems allowable in each HUC11.

Table 3 shows the total number of units projected based on zoning compared to the total number of systems allowable in each HUC11 watershed.

Table 3. Septic Area Nitrate Dilution Analysis by HUC 11 Watershed						
HUC 11 - Code	Municipality	Septic Density⁵ (acres/du)	Developable Land (acres)	Allowed Units⁶	Total New Units⁷	Carrying Capacity Exceeded X
02040204910	Downe	0	0	0	0	0
02040206170	Downe	6.6	0	0	0	0
02040206110*	Downe	6.9	1,189	188	268	80
02040206100	Downe	6.4	61	9	15	6
Total			1,250	197	283	86

*Fortescue/Gandy's Beach SSA was removed before nitrate dilution calculations were run.

⁵ From Nitrate Dilution Model

⁶ Number of equivalent dwelling units calculated as per methods described above

⁷ Number of equivalent dwelling units projected based on build-out analysis results provided in Appendix B

VI. Strategies to Mitigate Potential Capacity Deficiencies

Strategies to Mitigate Capacity Deficiency in Sewer Service Areas

There are no identified deficiencies in Downe Township. The proposed Fortescue/Gandy's Beach STP is being sized to accommodate the proposed SSA. The total Buildout Flow to accommodate existing development is 0.146 MGD. No additional flows are anticipated for the existing onsite T1 facilities.

Strategies to Mitigate Capacity Deficiency in Septic Areas

As noted previously and tabulated in Table 3, there are two HUC11 watersheds where the potential number of equivalent dwelling units under zoned build-out will exceed the nitrate dilution or septic carrying capacity. This zoning build-out deficiency is 518 units for Downe Township, whereas the nitrate dilution model has a carrying capacity of 86 units. The Water Quality Management Planning rules require that municipalities, in concert with the County and the Department, develop strategies to prevent the build-out from exceeding the available dilution capacity of the remaining undeveloped lands in those watersheds. Strategies to mitigate deficiency in specific watersheds and zoning districts are outlined below.

Potential strategies to reduce the number of equivalent dwelling units might include:

Identify areas appropriate for SSA;

Open space acquisition (or preserving undeveloped land to restrict areas that are eligible for development);

Zoning Changes - Re-zoning to reduce the potential amount of future development; reduce floor area ratio and/or density; increase minimum lot size for development served by onsite septic systems.

VII. Septic Management Plan

See Appendix E: Cumberland County Septic Management Plan (Revised 08/31/18)

VIII. Mapping

Map 1 – Downe Township WMP Area Map

The following political and jurisdictional, boundaries, and features shall be identified on this map:

- The WMP area boundary
- Areawide WQM planning area boundaries
- Municipal boundaries
- The coastal area boundary, as described in N.J.S.A. 13:19-4, and the Department's Coastal Zone Management rules at N.J.A.C. 7:7-1.2(b)

Map 2 - Selected Environmentally Sensitive Features Map

- Suitable habitat for endangered and threatened species as identified on the Department's Landscape Project Maps of Habitat for Endangered, Threatened and Other Priority Wildlife as Rank 3, 4 and 5, version # 3.3
- Natural Heritage Priority Sites

Map 2a

- Coastal Fringe Planning Areas, Coastal Rural Planning Areas, and Coastal Environmentally Sensitive Planning Area

Map 2b

- Surface waters, as mapped on the Department's graphic information systems (GIS) hydrography coverage
- Category One waters designated in the Department's Surface Water Quality Standards, N.J.A.C. 7:9B, based on the Department's maps of such waters, and their corresponding 300-foot riparian zone based on the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13

Map 2c

- Coastal wetlands that have been mapped by the Department under the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq.
- Other freshwater and estuarine wetlands, based on maps prepared by the Department under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-25.c

Map 3 - Wastewater Service Area Map

The following regional planning area boundaries, wastewater-related jurisdictions, facilities, and wastewater service areas are identified on this map

- District boundaries of sewerage authority districts, as defined in N.J.S.A. 40:14A-3(6), districts of a municipal authority, as defined in N.J.S.A. 40:14B-3(5) and municipal utility authority districts, as defined in N.J.S.A. 40:62-1 et seq.
- The location of each domestic and industrial wastewater treatment facility that is anticipated to exist in the future, including existing facilities that will remain in service, and the discharge outfall for each. The name and NJPDES permit number(s), if assigned, of each wastewater treatment facility shall be identified
- A delineation of sewer service areas, as determined in accordance with N.J.A.C. 7:15-4.4, differentiating that area that is:

DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

- Assigned sewer service area, differentiating between area that currently conveys sewage to each existing or proposed wastewater treatment facility and that which is proposed to convey sewage to each existing or proposed wastewater treatment facility; or
- Unassigned sewer service area; and
- A delineation of septic area

Map 4 - Zoning map

Where applicable, a map depicting municipal parcel mapping, and municipal zoning as used as the basis for the build-out analysis required pursuant to N.J.A.C. 7:15-4.5.

Map 5 - Other map(s)

Where applicable, map or maps depicting other factors considered in delineating sewer, such as the following examples:

Public Open Space and Recreation Areas – Map 5 shows the land areas currently protected from development as public open space, and also show other recreational areas that are owned and operated by land trusts, non-profit associations, and for-profit recreational businesses. Such properties are limited to those of 10 acres or more in size for mapping clarity. These areas are not expected to support additional development. While smaller dedicated open spaces exist, they do not have a significant effect on the delineation of wastewater service areas or the future generation of wastewater flow.

Preserved Agricultural Areas and Other Conservation Easements on Private Lands –Map 5 shows the land areas currently protected from development as agricultural lands from which the development rights have been retired by purchase, donation, lot size averaging, open space or conservation development, non-contiguous transfer of development credits, or Transfer of Development Rights, to the extent that data are available. These areas are not anticipated to support significant additional wastewater generating development.

Assigned Sewer Service Area

Septic Areas, are areas not otherwise identified as sewer service areas for treatment facilities requiring a NJPDES permit, or that are eligible for sewer service, and other small treatment works that treat 2,000 gallons per day or less of wastewater and discharge to ground water, are included within the septic area.

Developable land in the Assigned and Unassigned SSA is the undeveloped land within the areas eligible for sewer service, which could be developed in the future, and of which the wastewater capacity analysis in the sewer service area is based.

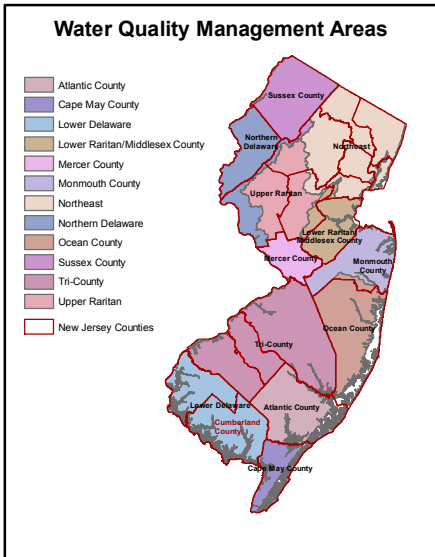
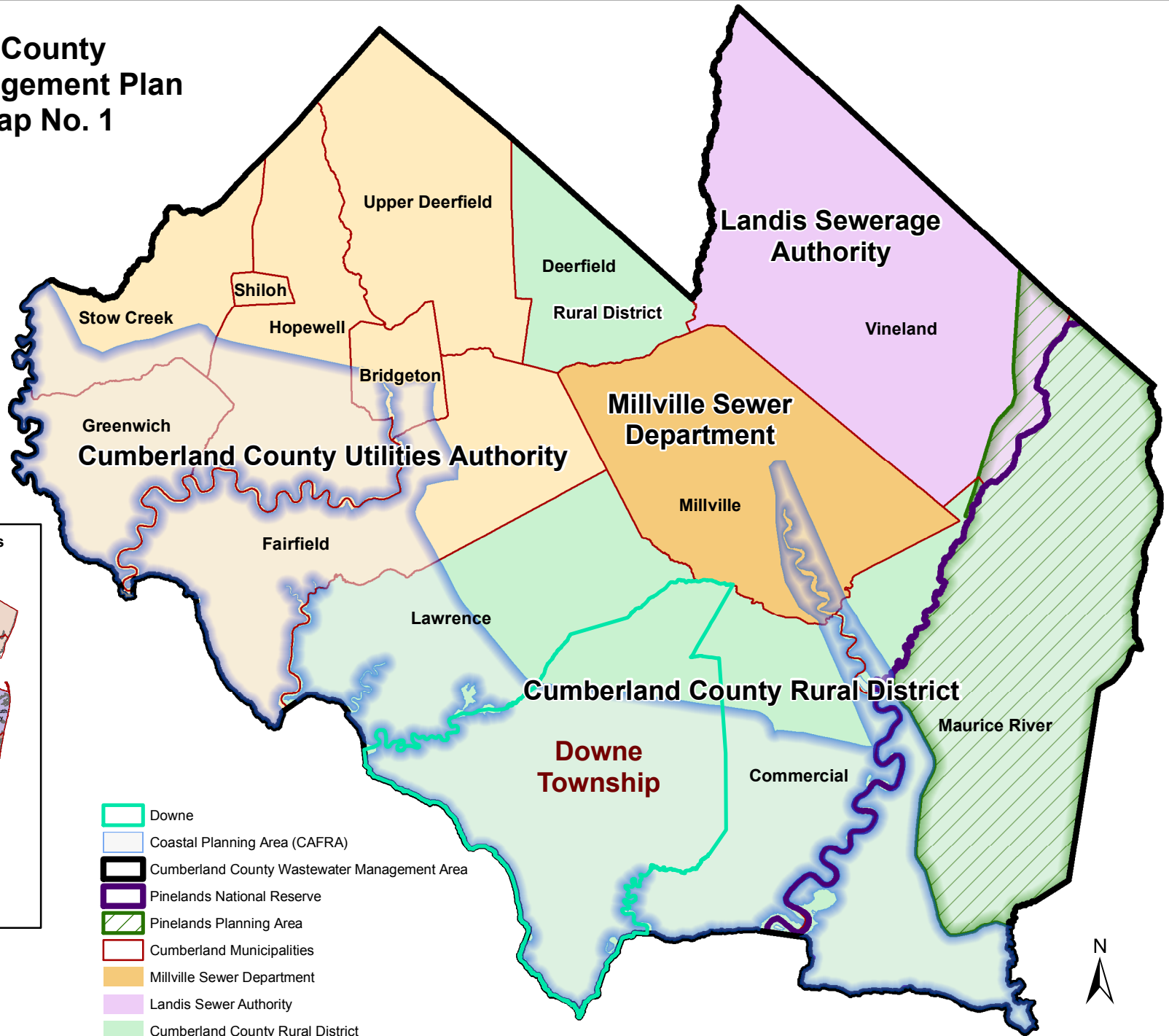
Developable land in the Septic Area is the undeveloped land within the Septic area of which the nitrate dilution analysis is based.

Map 5a

Hydrologic Unit Code (HUC) 11 boundaries of watersheds are depicted on Map 5a.

Non-degradation Areas – Areas located within the watershed of a Freshwater One (FW1) stream, as classified in the Surface Water Quality Standards, and/or that have Class 1-A ground water (Ground Water of Special Ecological Significance), as classified in the Ground Water Quality Standards, are identified as "Non-degradation water area based on the Surface Water Quality Standards at N.J.A.C. 7:(B, and/or the Ground Water Quality Standards at N.J.A.C. 7:9-6". Where this requirement has been studied and reviewed as part of the WMP process this classification appears on Map 3. Non-degradation water areas shall be maintained in their natural state (set aside for posterity) and are subject to restrictions including, but not limited to, the following: 1) DEP will not approve any pollutant discharge to ground water nor approve any human activity which results in a degradation of natural quality except for the upgrade or continued operation of existing facilities serving existing development.

Cumberland County Wastewater Management Plan WMP Area Map No. 1



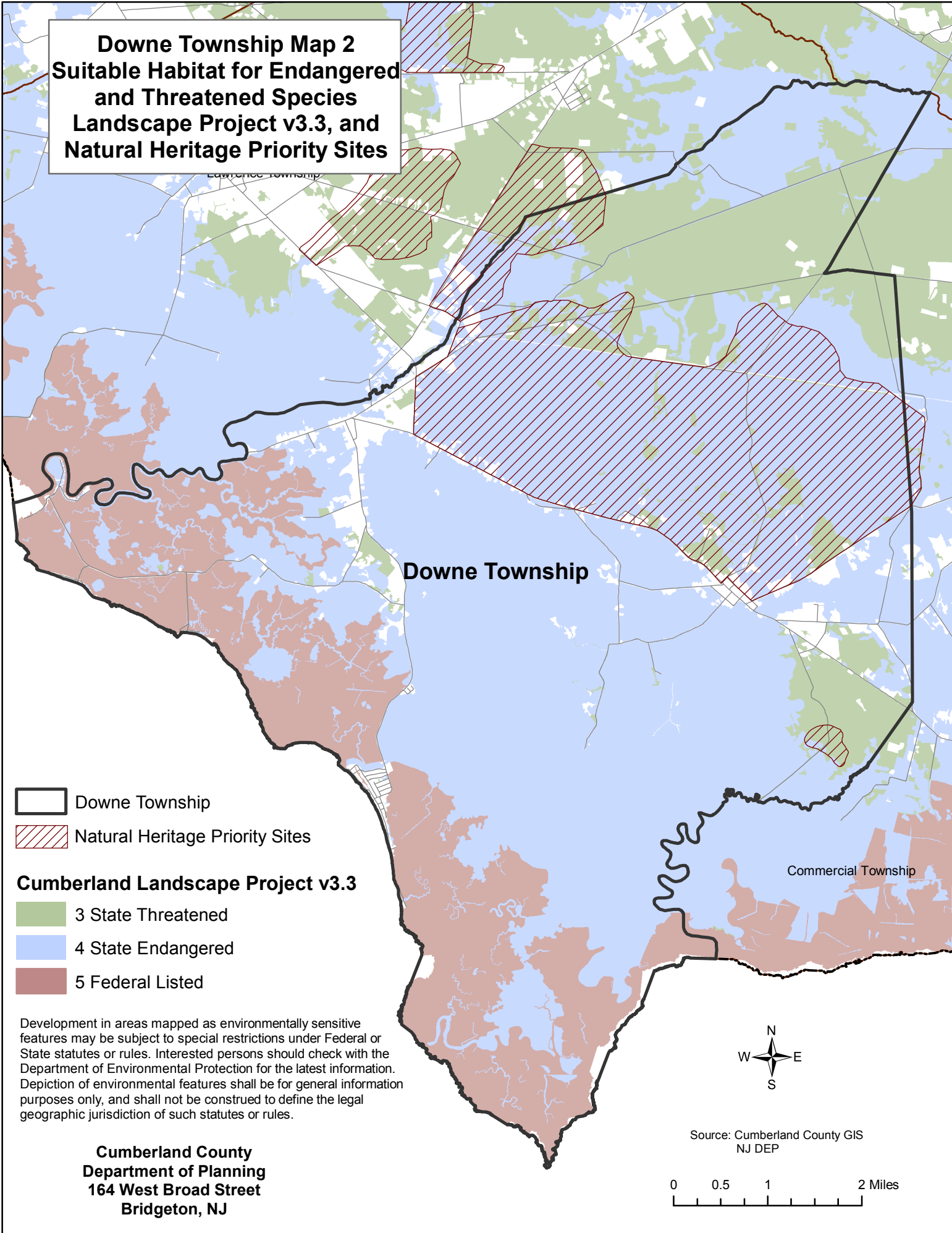
- Downe
- Coastal Planning Area (CAFRA)
- Cumberland County Wastewater Management Area
- Pinelands National Reserve
- Pinelands Planning Area
- Cumberland Municipalities
- Millville Sewer Department
- Landis Sewer Authority
- Cumberland County Rural District
- Cumberland County Utilities Authority



Prepared by:
**Cumberland County
Department of Planning, GIS**

Source: Cumberland County GIS, NJDEP






**Downe Township Map 2
Suitable Habitat for Endangered
and Threatened Species
Landscape Project v3.3, and
Natural Heritage Priority Sites**



-  Downe Township
-  Natural Heritage Priority Sites

Cumberland Landscape Project v3.3

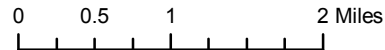
-  3 State Threatened
-  4 State Endangered
-  5 Federal Listed

Development in areas mapped as environmentally sensitive features may be subject to special restrictions under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

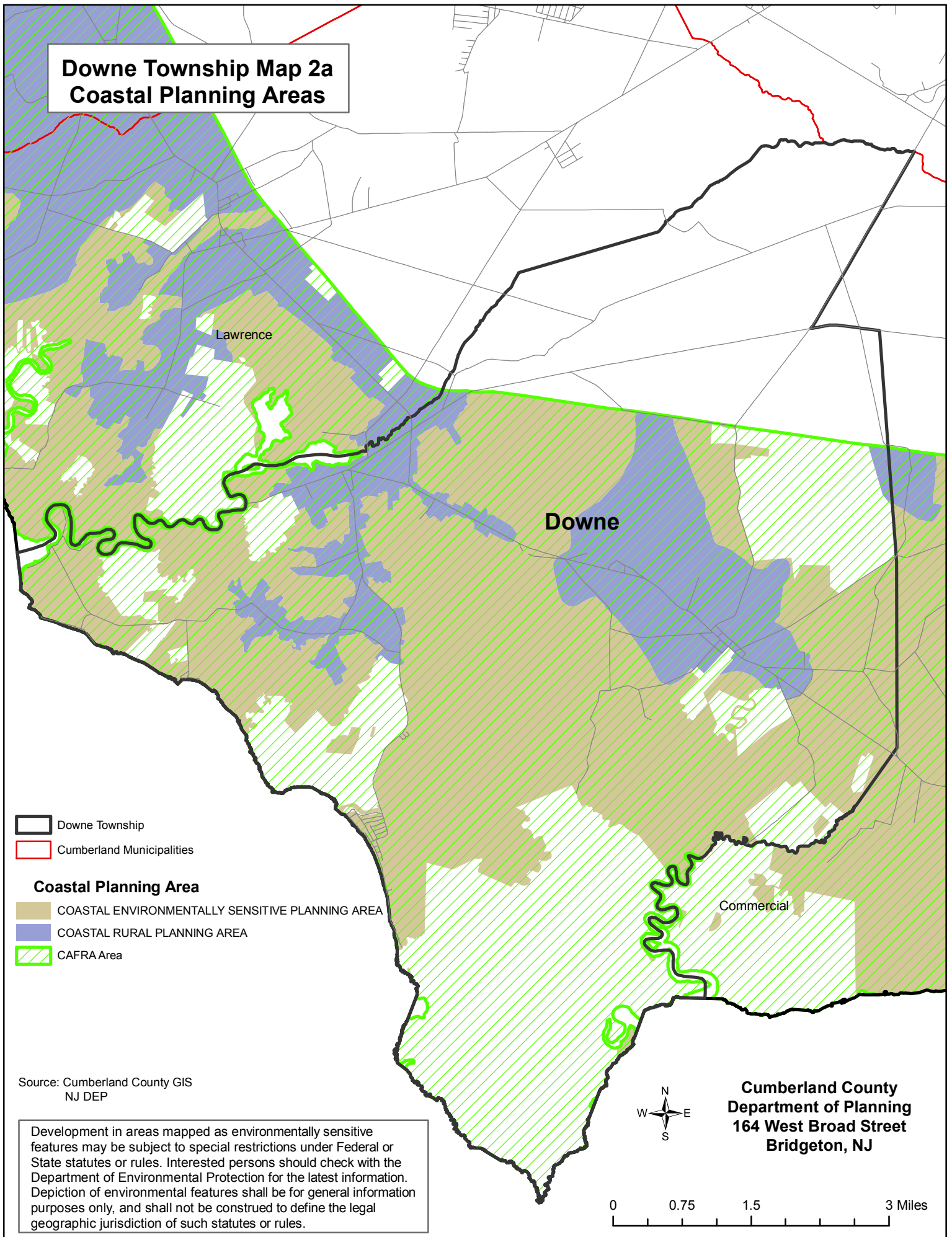
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Bridgeton, NJ**



Source: Cumberland County GIS
NJ DEP



Downe Township Map 2a Coastal Planning Areas



- Downe Township
- Cumberland Municipalities

Coastal Planning Area

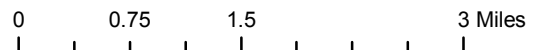
- COASTAL ENVIRONMENTALLY SENSITIVE PLANNING AREA
- COASTAL RURAL PLANNING AREA
- CAFRA Area

Source: Cumberland County GIS
NJ DEP

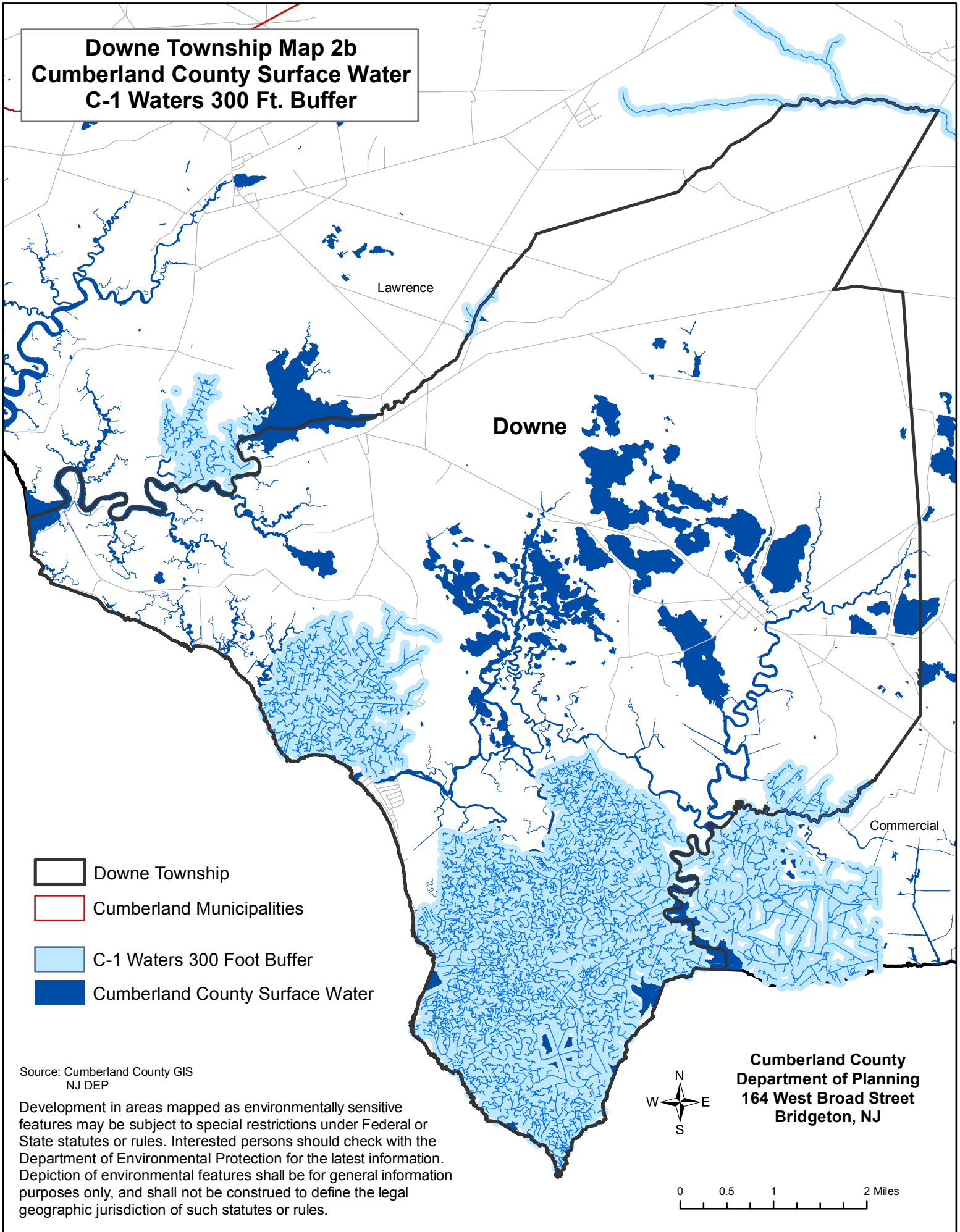
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**Downe Township Map 2b
Cumberland County Surface Water
C-1 Waters 300 Ft. Buffer**



Source: Cumberland County GIS
NJ DEP

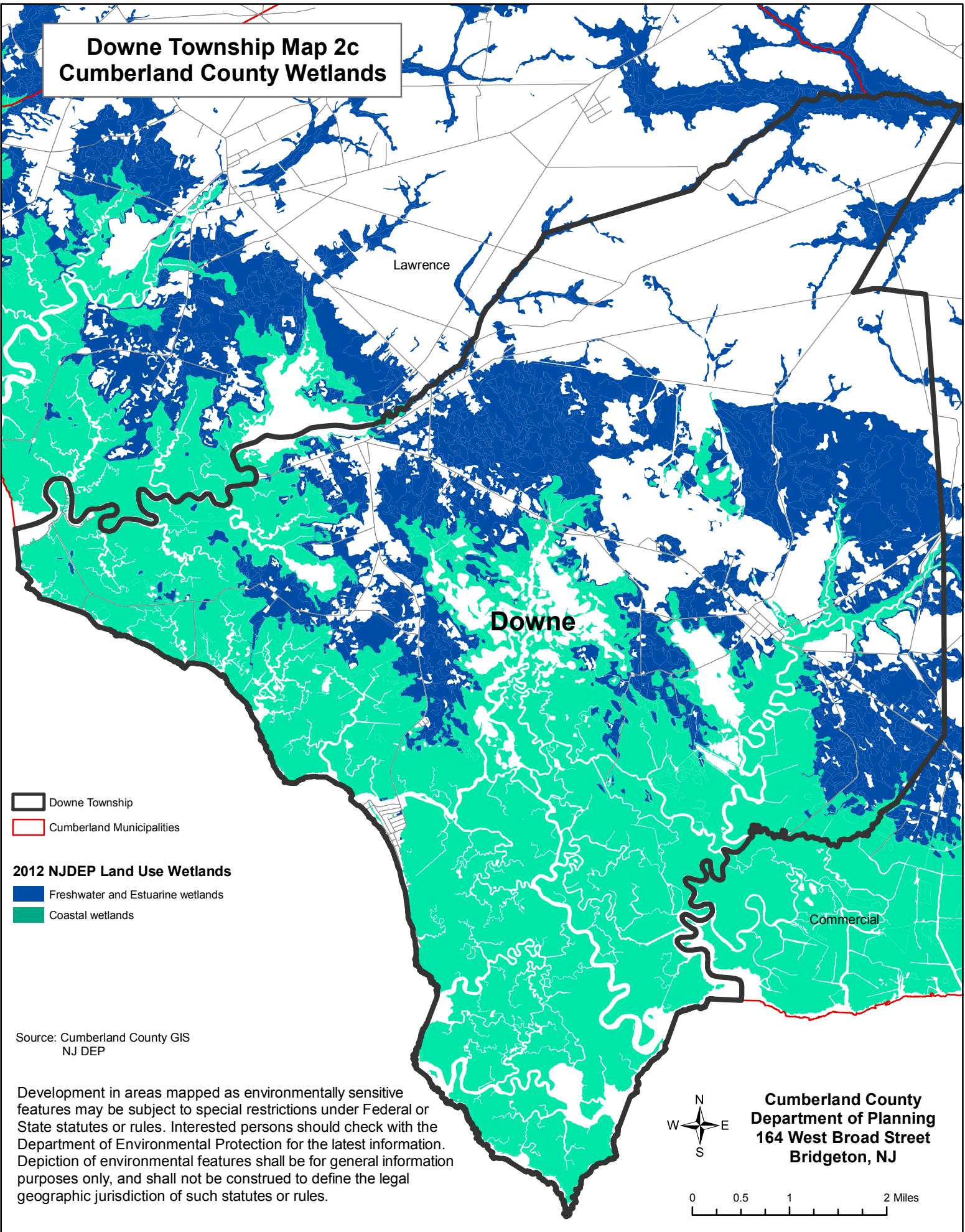
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0 0.5 1 2 Miles

Downe Township Map 2c Cumberland County Wetlands



-  Downe Township
-  Cumberland Municipalities

2012 NJDEP Land Use Wetlands

-  Freshwater and Estuarine wetlands
-  Coastal wetlands

Source: Cumberland County GIS
NJ DEP

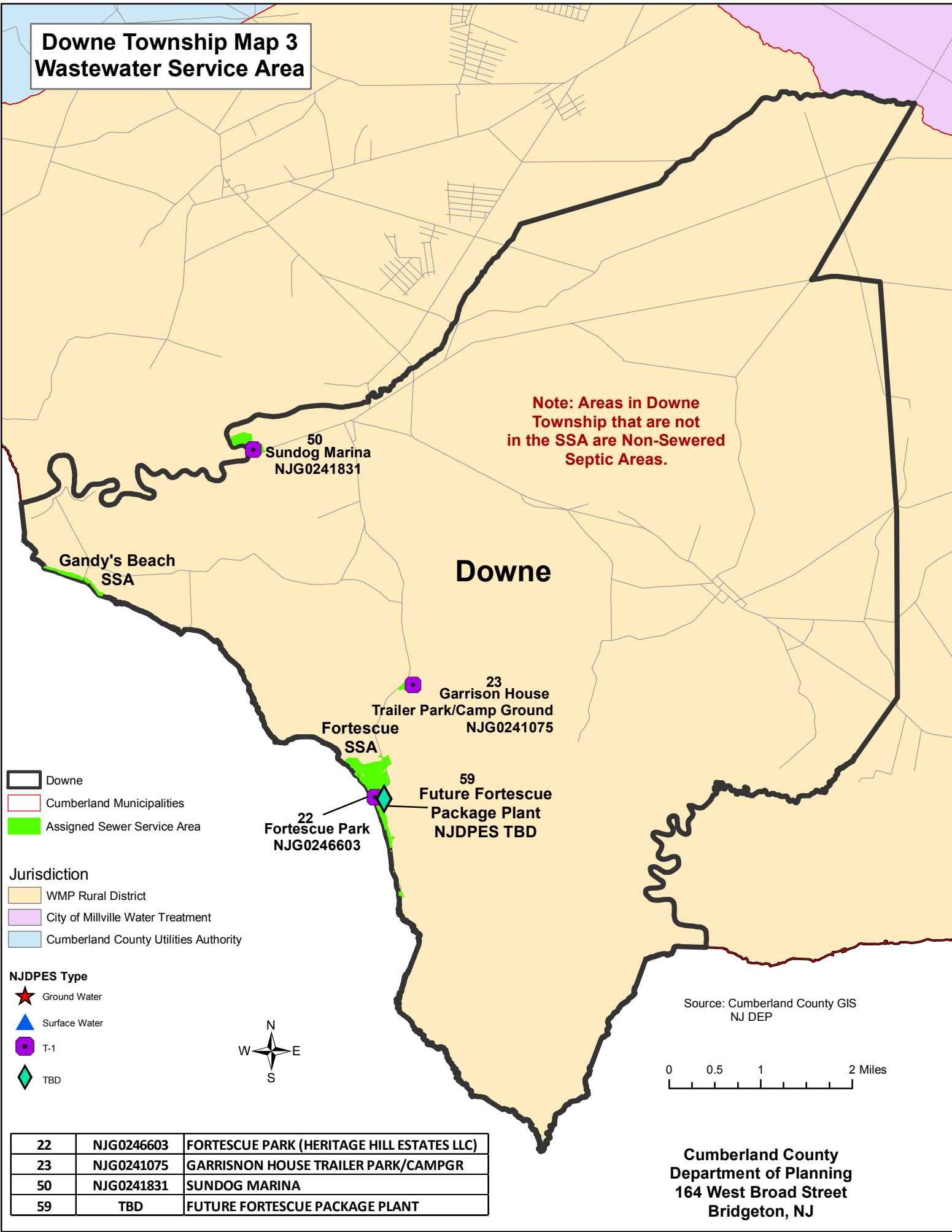
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**Downe Township Map 3
Wastewater Service Area**



Note: Areas in Downe Township that are not in the SSA are Non-Sewered Septic Areas.

Downe

- Downe
 - Cumberland Municipalities
 - Assigned Sewer Service Area
- Jurisdiction**
- WMP Rural District
 - City of Millville Water Treatment
 - Cumberland County Utilities Authority

- NJDPES Type**
- Ground Water
 - Surface Water
 - T-1
 - TBD



Source: Cumberland County GIS
NJ DEP

0 0.5 1 2 Miles

22	NJG0246603	FORTESCUE PARK (HERITAGE HILL ESTATES LLC)
23	NJG0241075	GARRISON HOUSE TRAILER PARK/CAMPGR
50	NJG0241831	SUNDOG MARINA
59	TBD	FUTURE FORTESCUE PACKAGE PLANT

**Cumberland County
Department of Planning
164 West Broad Street
Bridgeton, NJ**

Map 4 Zoning Map for The Wastewater Management Plan Downe Township Cumberland County, New Jersey

Fairfield Township

Lawrence Township

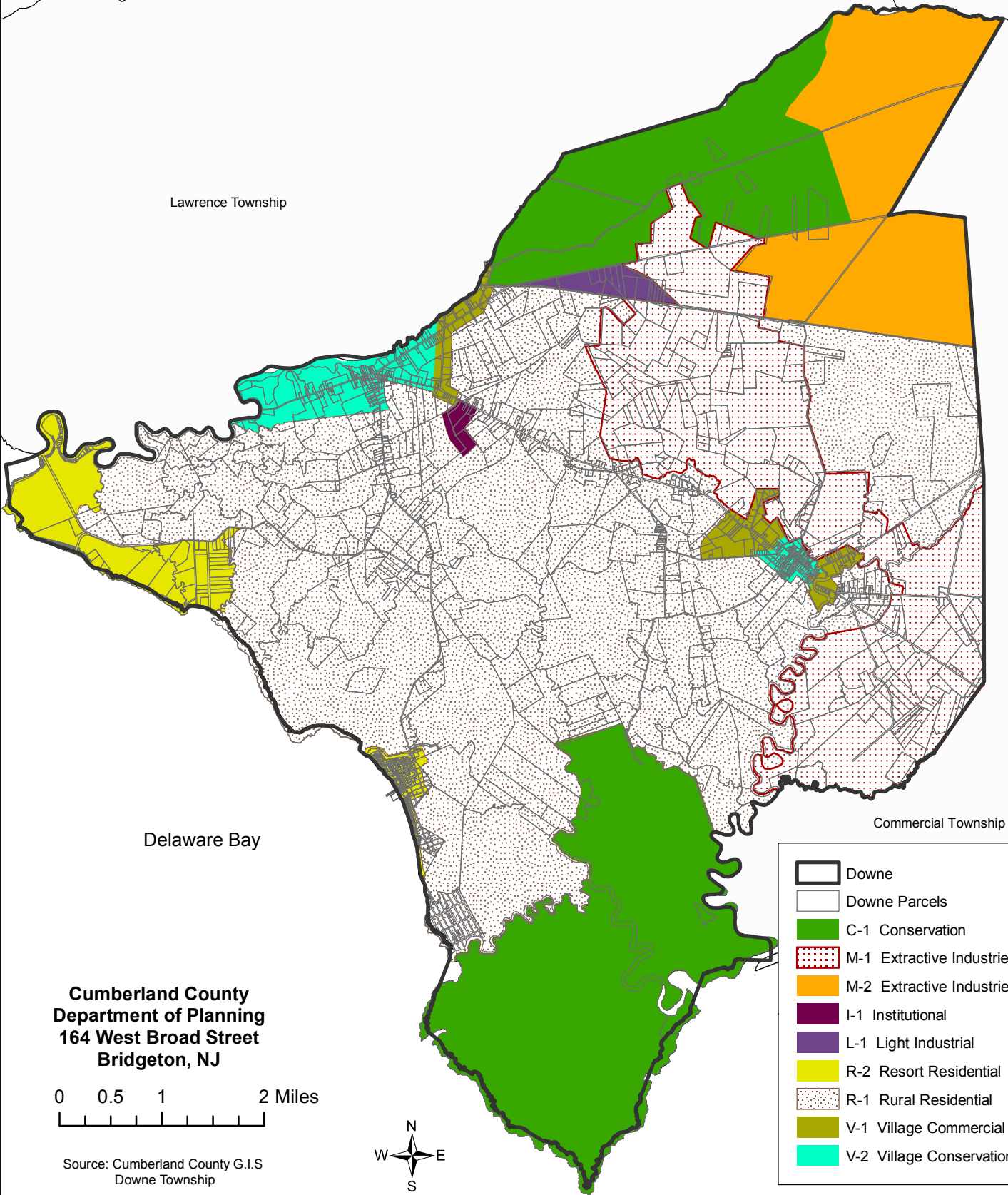
Delaware Bay

Commercial Township

Cumberland County
Department of Planning
164 West Broad Street
Bridgeton, NJ

0 0.5 1 2 Miles

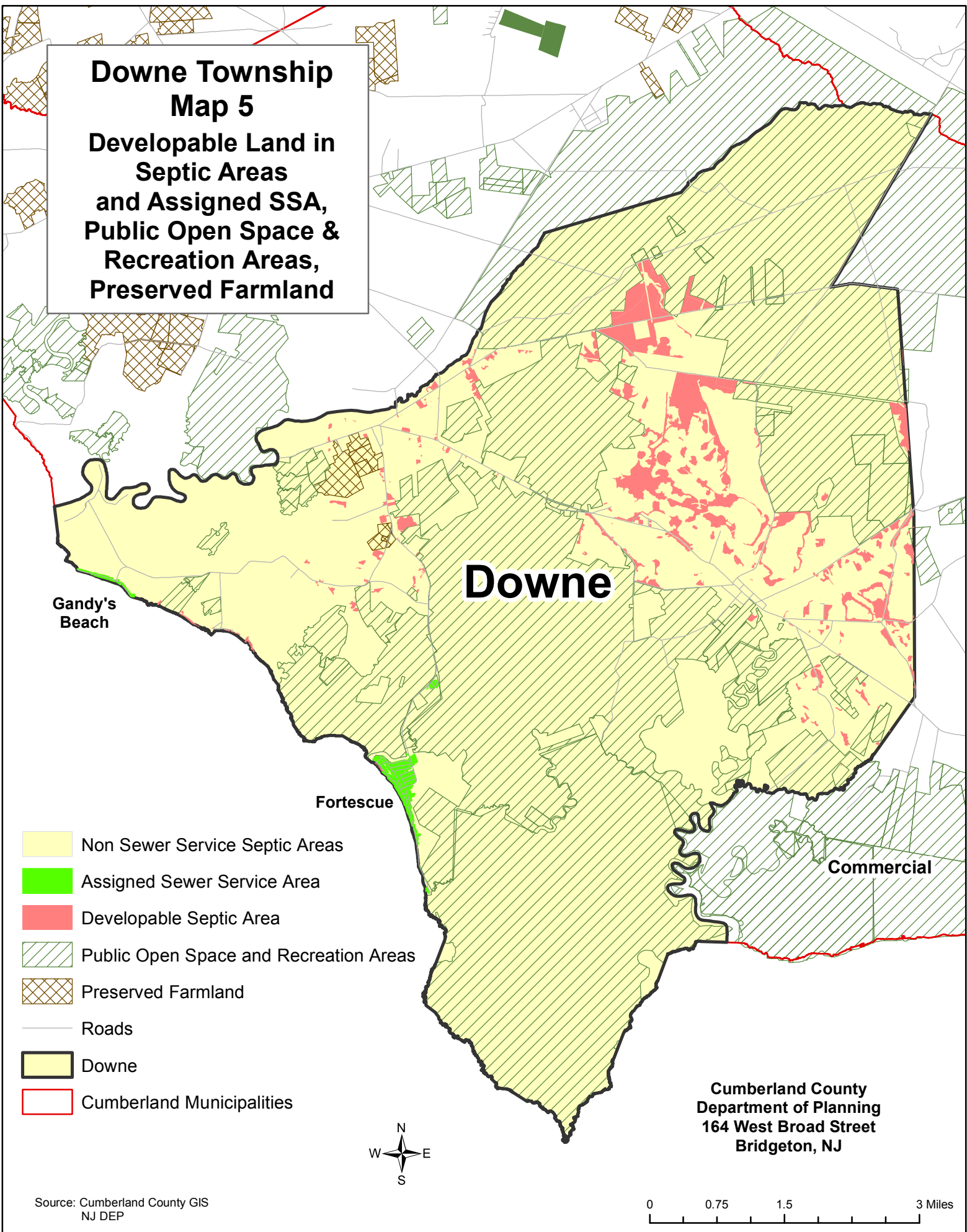
Source: Cumberland County G.I.S
Downe Township



	Downe
	Downe Parcels
	C-1 Conservation
	M-1 Extractive Industries
	M-2 Extractive Industries/Pub
	I-1 Institutional
	L-1 Light Industrial
	R-2 Resort Residential
	R-1 Rural Residential
	V-1 Village Commercial
	V-2 Village Conservation

Downe Township Map 5

Developable Land in
Septic Areas
and Assigned SSA,
Public Open Space &
Recreation Areas,
Preserved Farmland



Downe

Gandy's
Beach

Fortescue

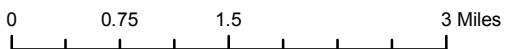
Commercial

- Non Sewer Service Septic Areas
- Assigned Sewer Service Area
- Developable Septic Area
- Public Open Space and Recreation Areas
- Preserved Farmland
- Roads
- Downe
- Cumberland Municipalities



Cumberland County
Department of Planning
164 West Broad Street
Bridgeton, NJ

Source: Cumberland County GIS
NJ DEP



Cohansey River (below Cornwell Run)
02040206090

Downe Township Map 5a

Hydrologic Unit Code
HUC 11
F-1 Non-Degradation Areas

Maurice River (Menantico Ck to Union Lk)
02040206170

Lawrence

Back / Cedar / Nantuxent Creeks
02040206100






Delaware Bay
(Cape May Pt to Fishing Ck)
02040204910

Downe

Dividing Creek
02040206110


Commercial

HUC11

-  02040206090
-  02040206100
-  02040206110
-  02040206170
-  02040204910

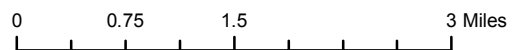
 Non-degradation Areas

 Downe

 Cumberland Municipalities

Delaware Bay
(Cape May Pt to Fishing Ck)
02040204910

Delaware Bay
(Cape May Pt to Fishing Ck)
02040204910



Source: Cumberland County GIS
NJ DEP

Cumberland County
Department of Planning
164 West Broad Street
Bridgeton, NJ

Appendix A – Municipal Sewer Service Area Buildout Results

This section includes tables summarizing sewer service area build-out results and zoning summary tables from which the build-outs are based. Refer to Map 4 for a visual representation of zoning. Refer to Map 5, which shows existing sewer service area, preserved lands, and the developable areas of which the build-out analyses are based. Detailed parcel-based data was submitted to NJDEP electronically and is included in the Department’s electronic database. Composite zoning was not used.

See Appendix D for Zoning Schedule

Downe Township

Table 4. Downe Township – Assigned Sewer Service Area Build-out – proposed Fortescue/Gandy’s Beach

Wastewater Treatment Facility (or “Proposed” Facility)	Zone	Developed Area ⁸ (Acres)	Developable Area (Acres)	# of Units (residential)	Build-out (MGD)
Fortescue Package Plant (Proposed)	R-1	1	0	0	0
	R-2	104	0.25	487	0.146
Total SSA Build-out					0.146

Appendix B – Municipal Septic Area Buildout Results

This section includes tables summarizing septic area build-out results and zoning summary tables from which the build-outs are based. Refer to Map 4 for a visual representation of zoning. Refer also to Map 5 and 5a, which show HUC11 boundaries, preserved lands, and the developable areas of which the build-out analyses are based.

⁸ Total acres of existing development not yet connected to the WTF

DOWNE TOWNSHIP

HUC 11	Residential Area (Acres)	# of Units Residential	Non-Residential Area (Acres)	# of Units Non-Residential	Total Acres	Total New Units
02040204910	0	0	0	0	4	0
02040206170	0	0	2,852	0	2,852	0
02040206110	16,580	454	12,267	16	28,847	268
02040206100	423	172	1,706	21	2,129	15
Totals	17,033	626	16,825	37	33,832	283

Downe Township had a 2010 Census population of 1,585 and a 2015 population estimate of 1,519. Population projections from the South Jersey Transportation Authority predict Downe Township to have a population of 1,803 by 2030.

Residential wastewater management relies on individual on-site subsurface septic systems. The density of on-site septic systems and water systems coupled with environmentally sensitive conditions gives rise to potential health and environmental threats.

The coastal resort areas of Fortescue and Gandy’s Beach are in need of upgraded wastewater management. Both areas have been identified as areas of special concern and a proposal to add centralized sewer service to Fortescue and Gandy’s Beach has been put forward. The installation of centralized sewers in Gandy’s Beach and Fortescue will allow for reasonable economic development that compliments and is compatible with the current demographics of the town, such as the enhancement of marinas with the addition of showers and restrooms, new bait shops, coffee shops and delis to support recreational activities available in the area. The proposal to add Fortescue and Gandy’s Beach to the sewer service area would add approximately 105 acres containing approximately 558 total lots and a total MGD of 0.146. Calculations used 300 GPD per dwelling. It should be noted that most of the residences in Fortescue and Gandy’s Beach are seasonally occupied.

Dividing Creek and Newport are also areas of special concern.

A description of the Downe Township municipal zoning can be found in Table 7. The Downe Township Municipal Zoning Schedule from the Downe Township Zoning Ordinance (June 2004) can be found in Appendix D. (Copy of entire ordinance available on request.)

Downe Township has nine categories in its zoning ordinance. They are shown in Table 7 below

Table 7. Municipal Zoning

Zone Name	Developed Acres	Undeveloped Land (acres)
C-1 – Conservation	7,131	25
M-1 – Extractive Industries	5,476	907
M-2 – Extractive Industries / Pub	2,994	0
I-1 – Institutional	69	0
L-1 – Light Industrial	172	18
R-2 – Resort Residential	1,104	5

DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

R-1 – Rural Residential	16,138	264
V-1 Village Commercial	754	12
V-2 Village Conservation	461	19
Total	34,293	1,250

The above zones were used in the build-out analysis. Composite zoning was not used in the WMP as the municipal zoning ordinances in the Rural District are not uniform in their nomenclature or definitions.

Results of the Nitrate Dilution Model (Table 3) show that Downe Township can accommodate 197 additional septic systems, while the zoning (Table 7) will allow for 283 new units.

Suggestions for solving the situation include: a change in zoning; increasing the minimum lot size; and consolidating acreage into preserved farmland or parkland, thereby excluding the land from development and freeing other lands for development.

Existing NJPDES Facilities:

Fortescue Park	NJG0246603 (T-1)
Garrison House Trailer Park/Campground	NJG0241075 (T-1)
Sundog Marina	NJG0241831 (T-1)

Appendix C – Wastewater Facility Tables

Table 7 SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT (T-1 PERMIT) TREATMENT FACILITY TABLE	
1. Existing Facility Name:	FORTESCUE PARK (HERTIAGE HILL ESTATES LLC)
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0246603
3. Discharge to ground water (DGW):	DGW
4. Receiving aquifer:	
5. Classification of receiving aquifer:	
6. Owner of facility:	Heritage Hill Estates LLC
7. Operator of facility:	James Sullivan
8. Location of facility:	
a. Municipality & County	Downe Twp., Cumberland
b. Street address	240 New Jersey Ave.
c. Block(s) and Lot(s)	Block 74, Lot 42
9. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _____
	b. Latitude _____ or
	c. State Plane Coordinates X 301960 Y 147812
10. Summary of current population served identifying all wastewater generating uses:	
School: <u>Identify number of students and staff (specify cafeteria, labs, showers)</u>	
Institution: <u>Identify number of beds</u>	
Restaurant: <u>Identify number of seats</u>	
Commercial: <u>Identify amount of square footage</u>	
Campground: <u>Identify numbers of sites (specify if laundry, store, bathhouses)</u>	
Other: <u>Refer to N.J.A.C. 7:9A-7.4</u>	

DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

**Table 8
Proposed Fortescue Package Plant**

1. Proposed facility:	Proposed Fortescue Package Plant	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ TBD	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Fortescue	
5. Classification of receiving water or aquifer:		
6. Owner of facility:	Downe Township	
7. Operator of facility:	Downe Township	
8. Co-Permittee of facility (<i>where applicable</i>):		
9. Location of facility:		
a. Municipality & County	Downe Township, Cumberland County	
b. Street address	223 – 225 Pennsylvania Ave., Fortescue	
c. Block(s) and Lot(s)	Block 85, Lot 2	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude -75.1695718	
	b. Latitude 39.2370508 or	
	c. State Plane Coordinates	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	TBD MGD	
*12. Summary of population served/to be served (including major seasonal fluctuations if applicable):	Current (Year 2016) Population	Build-out or 20-Year Future (Year 2040) (specify as applicable)
Municipality: Downe – Fortescue/ Gandy's Beach	986	1297
Municipality:		
Municipality:		
Municipality:		
Total		
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2018) Flow (in MGD)	Build-out or 20-Year Future (Year 2040) (specify as applicable) (in MGD)
Municipality: Downe – Fortescue/ Gandy's Beach	TBD	0.146
Municipality:		
Municipality:		
Facility Total		0.146

DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

**Table 9
SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT
(T-1 PERMIT) TREATMENT FACILITY TABLE**

1. Existing Facility Name:	SUNDOG MARINA
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0241831
3. Discharge to ground water (DGW):	DGW
4. Receiving aquifer:	
5. Classification of receiving aquifer:	
6. Owner of facility:	Newport Landing LLC
7. Operator of facility:	Josh Finnical
8. Location of facility:	
a. Municipality & County	Downe Twp., Cumberland County
b. Street address	91 Landing Rd.
c. Block(s) and Lot(s)	Block 10, Lot 2
9. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _____
	b. Latitude _____ or
	c. State Plane Coordinates X 294899 Y 167746
10. Summary of current population served identifying all wastewater generating uses:	
School: <u>Identify number of students and staff (specify cafeteria, labs, showers)</u>	
Institution: <u>Identify number of beds</u>	
Restaurant: <u>Identify number of seats</u>	58 Seats
Commercial: <u>Identify amount of square footage</u>	
Campground: <u>Identify numbers of sites (specify if laundry, store, bathhouses)</u>	18 park model trailers
Other: <u>Refer to N.J.A.C. 7:9A-7.4</u>	

DOWNE TOWNSHIP WASTEWATER MANAGEMENT CHAPTER

**Table 10
SANITARY SUBSURFACE SEWAGE DISPOSAL SYSTEM GENERAL PERMIT
(T-1 PERMIT) TREATMENT FACILITY TABLE**

1. Existing Facility Name:	GARRISON HOUSE TRAILER PARK/CAMPGROUND
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJG0241075
3. Discharge to ground water (DGW):	DGW
4. Receiving aquifer:	
5. Classification of receiving aquifer:	
6. Owner of facility:	Fortescue Marine Services
7. Operator of facility:	William Johnson Jr.,
8. Location of facility:	
a. Municipality & County	Downe Twp., Cumberland
b. Street address	621 Fortescue Rd.
c. Block(s) and Lot(s)	Block 62, Lot 5
9. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _____
	b. Latitude _____ or
	c. State Plane Coordinates X 303802 Y 154271
10. Summary of current population served identifying all wastewater generating uses:	
School: <u>Identify number of students and staff (specify cafeteria, labs, showers)</u>	
Institution: <u>Identify number of beds</u>	
Restaurant: <u>Identify number of seats</u>	
Commercial: <u>Identify amount of square footage</u>	
Campground: <u>Identify numbers of sites (specify if laundry, store, bathhouses)</u>	10 campground sites
Other: <u>Refer to N.J.A.C. 7:9A-7.4</u>	Mobile home park with 28 units.

Appendix D – Municipal Zoning Schedule

Appendix E – Municipal Zoning Schedule

ARTICLE VI AREA AND BULK REQUIREMENTS FOR ZONES

SECTION 600 PURPOSE

The purpose of this article is to define the scale of development in Downe Township based on the goals and objectives of the municipal master plan, the conditions of the area, the availability of public services and utilities, the requirements of this Ordinance, and other applicable regulations of the Township.

SECTION 601 (R-1) RURAL RESIDENTIAL DISTRICT

The Rural Residential District provides the opportunity for low density residential development, agricultural operations, and other open space and recreational activities that are low intensity uses compatible with the rural character of the community. The following area and bulk regulations shall apply in the (R-1) Rural Residential District unless stated otherwise in this Ordinance.

601.1 Single Family Residential Uses

A. Minimum Lot Size	1 Acre
B. Minimum Lot Frontage	100 Feet
C. Minimum Lot Depth	150 Feet
D. Maximum Lot Coverage	20%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	50 Feet
G. Minimum Rear Yard Setback	30 Feet
H. Maximum Height	35 Feet
I. Minimum Habitable Floor Area	980 Square Feet
J. Accessory Use Setback	15 Feet from property line or right-of-way

601.2 Agricultural Uses (Exclusive of Single Family Farm Residence)

A. Minimum Lot Size	6 Acres except where a single family farm
B. Minimum Lot Frontage	200 Feet residence shall be located
C. Minimum Lot Depth	300 Feet on a separate lot, the lot
D. Maximum Lot Coverage	30%* size for that residence can
E. Minimum Side Yard Setback	150 Feet* be 1 Acre in size.
F. Minimum Front Yard Setback	50 Feet*
G. Minimum Rear Yard Setback	150 Feet*
H. Maximum Height	35 Feet
I. Accessory Use Setback	100 Feet from property or right-of-way

**This shall not include the planting of crops or cultivating of fields which can occur within 50 feet of any property line, stream, or right-of-way. Lot coverage shall not include seasonal, plastic coverings for crop protection.*

601.3 Parks and Recreational Facilities, Excluding Campgrounds

A. Minimum Lot Size	10 Acres
B. Minimum Lot Frontage	200 Feet
C. Minimum Lot Depth	300 Feet
D. Maximum Lot Coverage	30%
E. Minimum Side Yard Setback	150 Feet
F. Minimum Front Yard Setback	50 Feet
G. Minimum Rear Yard Setback	150 Feet
H. Maximum Height	35 Feet
I. Accessory Use Setback	100 Feet from property line or right-of-way

601.4 Other Uses

All other uses will be governed in accordance with the area and bulk standards and other rules and regulations set forth in this Ordinance and other applicable ordinances of the Township.

SECTION 602 (R-2) RESORT RESIDENCE ZONE

The Resort Residence Zone provides the opportunity for residential, commercial, and recreational development and redevelopment in the bay shore area of the Township. The following area and bulk regulations shall apply in the (R-2) Resort Residence Zone unless stated otherwise in this Ordinance.

602.1 Single Family Residential Uses

A. Minimum Lot Size	1 Acre with No Public Water or Sewer 1/2 Acre with Public Water Only 7,500 Square Feet with Public Water & Sewer
B. Minimum Lot Frontage	50 Feet
C. Minimum Lot Depth	100 Feet
D. Maximum Lot Coverage	60%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	25 Feet
G. Minimum Rear Yard Setback	15 Feet
H. Maximum Height	35 Feet
I. Minimum Habitable Floor Area	980 Square Feet
J. Accessory Use Setback	5 Feet from property line or right-of-way

602.2 Multi-Family Residential Uses

A. Minimum Density Requirement	1 Acre per dwelling unit with no public water or sewer 1/2 Acre per dwelling unit with public water only 4,000 square feet per unit with public water and sewer
B. Minimum Lot Frontage	50 Feet
C. Minimum Lot Depth	75 Feet
D. Maximum Lot Coverage	60%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	25 Feet
G. Minimum Rear Yard Setback	15 Feet
H. Maximum Height	35 Feet
I. Minimum Habitable Floor Area	980 Feet per Unit
J. Accessory Use Setback	5 Feet from property line or right-of-way

602.3 Bed & Breakfast, Rooming House, Hotel and Motel Requirements

A. Minimum Density per Rental Unit	<u>1-3 Units</u> 1/2 Acre per unit with no public water or sewer <u>4+ Units</u> 5,000 square feet per unit with public water only <u>4+ Units</u> 3,000 square feet per unit with public water and sewer 1,500 square feet per unit with architectural approval by the Township Planning & Zoning Board and public water & sewer.
B. Minimum Side Yard Setback	<u>1-3 Units</u> : 15 Feet <u>4+ Units</u> : 25 Feet
C. Minimum Rear Yard Setback	<u>1-3 Units</u> : 15 Feet <u>4+ Units</u> : 25 Feet
D. Minimum Habitable Floor Area	144 Square Feet per Rental Unit
E. Other Requirements, per Section 602.2	

602.4 Commercial Uses

A. Minimum Lot Size	1/2 Acre with no public water or sewer 10,000 square feet with public water only 5,000 square feet with public water & sewer
---------------------	--

B. Minimum Lot Frontage	75 Feet
C. Minimum Lot Depth	150 Feet
D. Maximum Lot Coverage	60%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	25 Feet
G. Minimum Rear Yard Setback	15 Feet
H. Maximum Height	35 Feet
I. Accessory Use Setback	15 Feet

SECTION 603 (V-1) VILLAGE CONSERVATION ZONE

The Village Residential District is intended to conserve the character of the rural, historic villages of Downe Township by promoting residential and other development at a scale, density, and style that is compatible with existing development patterns.

603.1 Single Family Residential Uses

A. Minimum Lot Size	1 Acre or 1/2 Acre upon meeting conditions of 103.2
B. Minimum Lot Frontage	75 Feet
C. Minimum Lot Depth	150 Feet
D. Maximum Lot Coverage	20%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	20 Feet
G. Maximum Front Yard Setback	30 Feet
H. Minimum Rear Yard Setback	30 Feet
I. Maximum Height	35 Feet
J. Minimum Habitable Floor Area	980 Square Feet

603.2 Special Conditions for Lot Size Reduction

- A. House will conform to Architectural Guidelines prescribed by the Downe Township Planning and Zoning Board, (See Subdivision and Site Plan Regulations for Downe Township.)
- B. Landscaping will conform to Guidelines prescribed by the Downe Township Planning and Zoning Board;
- C. Applicant for development will submit and have approved a concept plan in advance of site plan approval by the Downe Township Planning & Zoning Board.
- D. Proposed Lot is elongated to the extent possible to conform with the dimensions of other lots in the village.

603.3 Duplex Development

A. Minimum Lot Size	3/4 Acre or 1/2 Acre upon meeting conditions of 603.2
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B. Minimum Lot Frontage	100 Feet
C. Minimum Lot Depth	150 Feet
D. Minimum Lot Coverage	25%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	20 Feet
G. Maximum Front Yard Setback	30 Feet
H. Minimum Rear Yard Setback	30 Feet
I. Minimum Habitable Floor Area	980 Square Feet per Dwelling Unit
J. Accessory Use Setback	15 Feet from property line or right-of-way

603.4 Commercial Uses

A. Minimum Lot Size	20,000 square feet
B. Minimum Lot Frontage	100 Feet
C. Minimum Lot Depth	150 Feet
D. Maximum Lot Coverage	30%
E. Minimum Side Yard Setback	15 Feet
F. Minimum Front Yard Setback	20 Feet
G. Maximum Front Yard Setback	30 Feet
H. Minimum Rear Yard Setback	30 Feet
I. Maximum Height	35 Feet
J. Accessory Use Setback	15 Feet from property line or right-of-way

SECTION 604 (V-2) VILLAGE COMMERCIAL ZONE

This zone is intended to address the needs of commercial development adjacent to the historic villages of Downe Township. This zone has been designed to include more than the small, neighborhood commercial uses of the village conservation zones and to provide a wider range of commercial and other development opportunities in Downe Township.

A. Minimum Lot Size	30,000 Square Feet
B. Minimum Lot Frontage	100 Feet
C. Minimum Lot Depth	150 Feet
D. Maximum Lot Coverage	30%
E. Minimum Side Yard Setback	25 Feet
F. Minimum Front Yard Setback	50 Feet
G. Minimum Rear Yard Setback	50 Feet
H. Maximum Height	35 Feet
I. Accessory Use Setback	25 Feet from property line or right-of-way

SECTION 605 (C-1) RURAL CONSERVATION ZONE

This zone is intended to accommodate a range of conservation and low density uses in the Township as outlined in Article V, Section 505.

A. Minimum Lot Size	5 Acres
B. Minimum Lot Frontage	200 Feet
C. Minimum Lot Depth	600 Feet
D. Maximum Lot Coverage	10%
E. Minimum Side Yard Setback	50 Feet
F. Minimum Front Yard Setback	100 Feet
G. Minimum Rear Yard Setback	50 Feet
H. Maximum Height	35 Feet
I. Accessory Use Setback	50 Feet

SECTION 606 (L-1) LIGHT INDUSTRIAL ZONE

This zone is designed to accommodate a range of light industrial uses at a scale and density in keeping with the conditions of the development location and the goals of the master plan.

A. Minimum Lot Size	80,000 Square Feet
B. Minimum Lot Frontage	200 Feet
C. Minimum Lot Depth	300 Feet
D. Maximum Lot Coverage	40%
E. Minimum Side Yard Setback	50 Feet
F. Minimum Front Yard Setback	100 Feet
G. Minimum Rear Yard Setback	50 Feet
H. Maximum Height	35 Feet
I. Accessory Use Setback	50 Feet

SECTION 607 (M-1) and (M-2) EXTRACTIVE INDUSTRY ZONES

These Zones are established to allow for the extraction of sand and gravel from suitable locations in Downe Township, in conjunction with the Extractive Industries Ordinance, 90-7 as amended, and other applicable regulations of the Township. (See Section 1009.)

A. Minimum Lot Size	25 Acres
B. Minimum Lot Frontage	400 Feet
C. Minimum Lot Depth	600 Feet
D. Maximum Extractive Area	60%
E. Maximum Lot Coverage	70%
F. Minimum Side Yard Setback	100 Feet
G. Minimum Front Yard Setback	100 Feet
H. Minimum Rear Yard Setback	100 Feet
I. Maximum Height	35 Feet
J. Accessory Use Setback	100 Feet