

**MUNICIPAL STORMWATER
MANAGEMENT PLAN FOR THE
BOROUGH OF WOOD-RIDGE
BERGEN COUNTY, NEW JERSEY**

NEGLIA PROJECT NUMBER: WRIDMUN05.012

LAST REVISED: MARCH 23, 2006
DATE: MARCH 03, 2005

PREPARED BY:
NEGLIA ENGINEERING ASSOCIATES
34 Park Avenue
P.O. Box 426
Lyndhurst, NJ 07071

Table of Contents

Introduction.....	3
Goals	3
Stormwater Discussion	5
Background	6
Design and Performance Standards	8
Plan Consistency	9
Nonstructural Stormwater Management Strategies	10
Land Use / Build-Out Analysis.....	12
Mitigation Plans	13

List of Figures

Figure C-1: Groundwater Recharge in the Hydrologic Cycle	5
Figure C-2: Borough and Its Waterways	16
Figure C-3: Borough Boundary on USGS Quadrangles.....	17
Figure C-4: Groundwater Recharge Areas in the Borough	18
Figure C-5: Wellhead Protection Areas in the Borough.....	19
Figure C-6: Borough's Existing Land Use	20
Figure C-7: Hydrologic Units (HUC14s) within the Borough	21
Figure C-8: Zoning Districts Within the Borough.....	22
Figure C-9: Wetlands and Water Land Uses within the Borough – Constrained	23
Figure C-10: Flood Insurance Rate Map (Panel 251).....	24
Figure C-11: Flood Insurance Rate Map (Panel 252).....	25
Figure C-12: Flood Insurance Rate Map (Panel 254).....	26
Figure C-13: Soil Survey of Bergen County (Sheet 11).....	27

APPENDIX

Figure Source Information and Date of Preparation

Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Wood-Ridge (“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. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the lost 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.

A “build-out” analysis has not been included as the Borough does have one square mile of agricultural or vacant land. 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. The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

Goals

The goals of this MSWMP are to:

1. Reduce flood damage, including damage to life and property
This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing flooding impacts. This is accomplished through flow and suspended solids reduction to watercourses and stormwater conveyance systems.
2. Minimize, to the extent practical, any increase in stormwater runoff from any new development
This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing stormwater runoff quantities from new development.
3. Reduce soil erosion from any development or construction project
This is to occur through the implementation of the New Jersey’s Soil Erosion and Sediment Control Standards requirements. This Plan is to be consistent with those Standards. The requirements are also included within the Stormwater Control Ordinance to be adopted by April 1, 2006.

4. Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures

This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing flow and suspend solids which affect flow channels through culverts and bridges. In addition, inadequate culverts that were constructed prior to the Stormwater Control Ordinance may be updated through the Mitigation Plan section (see below).

5. Maintain groundwater recharge

This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. Groundwater recharge requirements for all major development will be governed through the adoption of this ordinance.

6. Prevent, to the greatest extent feasible, an increase in nonpoint pollution

This is to occur through the adoption of a series of ordinances by October 1, 2005 which include a pet waste and wildlife feeding ordinance.

7. Maintain the integrity of stream channels for their biological functions, as well as for drainage

This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing pollutants within the flow which affect biological function and drainage conveyance ability of stream channels.

8. 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

This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. This ordinance will govern stormwater quantity, stormwater quality, and groundwater recharge thereby reducing pollutants. In addition, the adoption of a series of ordinances by October 1, 2005 which include a pet waste and wildlife feeding ordinance will reduce pollutants within stormwater runoff.

9. Protect public safety through the proper design and operation of stormwater basins.

This is to occur through the adoption of the Stormwater Control Ordinance by April 1, 2006. A section within the adopted ordinance will address safety standards for stormwater management basins.

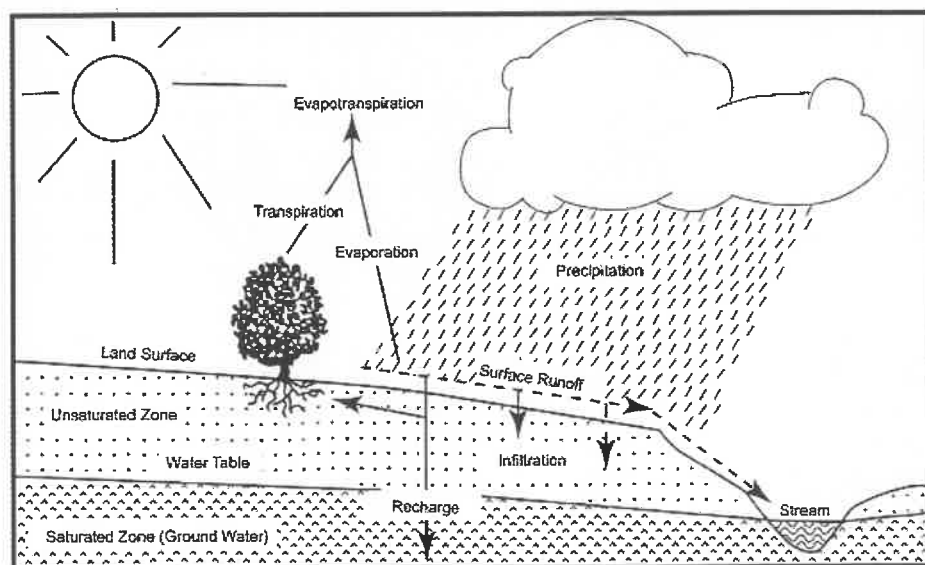
To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development (see Mitigation Plans section). Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities (see Design and Performance Standards section). The plan

also outlines safety standards for stormwater infrastructure to be implements to protect public safety.

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. Increase in impervious area can also decrease opportunities for infiltration, which, in turn, reduced stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

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.

Background

The Borough of Wood-Ridge encompasses a 1.09 square mile area in Bergen County, New Jersey. Figure C-3 depicts the Borough boundary on the USGS quadrangle maps. At this point in time, 97.2 percent of the Borough is considered developed (see Land Use Table in Land Use / Build-out Analysis Section below). There are 19.95 acres (0.03 square miles) of developable lands which includes vacant and agricultural parcels within the Borough. The Borough of Wood-Ridge is located within the Planning Area 1 (PA-1), Metropolitan Planning Area as identified on the New Jersey State Plan Policy Map.

The total housing units for the Borough has increased from 2,835 in 1980 to 2,982 in 1990 to 3,088 in 2000. The population of the Borough has varied from 5,644 in 1980 to 5,303 in 1990 to 5,745 in 2000. The Borough is a stable community, but is gradually increasing its population based on the Bergen County Data Book Year 2003.

The Borough has full sanitary sewer service and is unaware of any existing septic systems within the Borough. It does not have combined sewers. Sanitary waste flows are collected by sanitary sewers that are under the jurisdiction of the Bergen County Utilities Authority. Domestic water and fire service flow are provided by the United Water conveyance system. The Borough is not aware of any private domestic wells located within the Borough. In addition, no public wellheads are located within the Borough. There are two public wellheads located within the Borough of Wallington (to the west of the Borough of Wood-Ridge). The most eastern wellhead has its two-year zone of influence encroach into the Borough, while the western well has its five-year zone of influence encroach into the Borough. Figure C-5 depicts the Borough boundary and the location of public wellheads and their zones of influence. The Borough contains stormwater features which include but are not limited to drainage swales and detention basins. At this time, a detailed list of the individual stormwater features is not available.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired,

moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. The following streams and rivers traverse the Borough:

1. Berry's Creek along the Borough's eastern boundary (tidally influenced)
2. There are a series of piped streams within the Borough (historically piped).

The Berry's Creek contains floodplains as shown on FEMA (Federal Emergency Management Agency) FIRMs (Flood Insurance Rate Maps). Figure C-10, Figure C-11, and Figure C-12 (Flood Insurance Rate Maps) illustrate the 100-year floodplain affected areas throughout the Borough. The area adjacent to Berry's Creek is tidally influenced and has a 100-year elevation of 8 feet based on the aforementioned mapping.

The Borough of Wood-Ridge is located within two Watershed Management Areas (WMA4 and WMA5). WMA4 and WMA5 are the Lower Passaic WMA and Hackensack and Pascack WMA, respectively. There are two HUC14s within the Borough. They are as follows:

1. 02030103140070 – Lower Passaic River – Saddle River below Lodi Gage (WMA 4)
2. 02030103180060 –Berry's Creek above Paterson Avenue (WMA 5)

Berry's Creek within the Borough is not categorized as Category One (C-1) Stream by the NJDEP. This watercourse does not flow to a reservoir utilized for drinking water.

The Berry's Creek is moderately impaired based on AMNET data. In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. This data shows that the instream water quality constituents frequently exceed the state's criteria. This means that these rivers are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants for each waterway.

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

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey water is attaining water quality standards, and identifies waters that are impaired. Water waterbodies are classified through the use of Sublists. Sublist 1 and 2

waterbodies are unimpaired. Sublist 3 waterbodies have limited assessment or data availability. Sublist 4 waterbodies are impaired due to pollution rather than pollutants or have had a TMDL or other enforceable management measure approved by the EPA expected to achieve Water Quality Standards. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed. The following is the Berry's Creek with its location, sublist, and sublist constituents:

1. Berry's Creek

It is on Sublist 5 for mercury, arsenic, lead, copper, and PCB.

With the Berry's Creek list on Sublist 5 for five constituents, a TMDL will be required for each item. The Borough is unaware of the status of these TMDLs. The Borough will monitor Berry's Creek through the implementation of the requirements set forth in the Illicit Connection Program within the Borough's Stormwater Pollution Prevention Plan. In addition, an Illicit Connection Ordinance along with a Wildlife Feeding and Pet Waste Ordinance will be adopted by October 15, 2005 to attempt to limit pollution of the Creek.

The impervious area within the Borough has decreased groundwater recharge, decreasing base flows in streams during dry weather periods. Lower base flows can have a negative impact on instream habitat during the summer months. A map of the groundwater recharge areas are shown in Figure C-4. At this time, the Borough does not have an existing groundwater assessment.

Brownfields are typically defined as abandoned, idled or under-utilized industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination, possibility groundwater contamination. The Wood-Ridge Sports Complex on Union Avenue was identified as a brownfield site and has received a No Further Action Letter from the NJDEP. From the construction of the facility in 1926 to the closure of the facility in 1987, the brownfield site contained silver reclamation activities and nitrocellulose processing.

Prior to the redevelopment of this site and the issuance of the No Further Action Letter from the NJDEP on May 22, 1998, it was determined that this site (formerly Cellofilm Corp., Polychrom Chemicals Corp., Reichold, Inc.) contained slightly elevated levels of base neutral compounds and metals which included silver, lead and barium over the New Jersey Residential Direct Contact Soil Cleanup Criteria. Typically, these constituents do not migrate within groundwater flow to affect streams and remain at the point / site of contamination. For this reason, the Borough did not anticipate to groundwater and stream water quality to be impacted other than the groundwater located on site. A deed restriction has been issued for the site stating that the use of groundwater is prohibited.

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. 7:8-5.6 Safety Standards for Stormwater Management Basins. The ordinance will be submitted to the county for review and approval within 24 months of the effective date of the Stormwater Management Rules (April 2006).

During construction, Borough inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed. If the Borough determines that non-compliance is occurring, the Borough shall issue non-compliance citations, stop work orders, and fines to ensure compliance.

Once construction is completed, long-term maintenance is required for existing and future stormwater facilities to ensure long-term operation for all project governed by the requirements set forth within the Stormwater Control Ordinance to be adopted by April 1, 2006. The ordinance will require a maintenance and repair plan that will provide specific preventative maintenance tasks and schedules along with the name of the person or people responsible for preventive or corrective maintenance. The person responsible for maintenance will be required to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as necessary.

To ensure proper maintenance and facility repair, the Borough will notify the responsible person in writing should a stormwater facility become a danger to public safety, public health, or require maintenance or repair. Upon receipt of the written notice, the responsible person will have fourteen days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer. The Borough, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall bill the cost to the responsible person.

Plan Consistency

The Borough is within a Regional Stormwater Management Planning Area (Bergen County) and TMDLs have been developed for waters within the Borough; therefore this plan does need to be consistent with the regional stormwater management plan (RSWMP's) and the TMDLs. The TMDLs have been developed for fecal coliform due to waterfowl and pet waste.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) as 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 updated to the RSIS. In addition, during each Municipal Master Plan Re-examination, the Borough of Wood-Ridge Master Plan is to be reviewed and revised, if necessary to ensure that it reflects the requirements listed within the New Jersey Residential Site Improvement Standards and this Municipal Stormwater Management Plan.

The Borough's Stormwater Management Ordinance required all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. Projects with limits of disturbance greater than or equal to 5,000 SF require review by the Bergen County Soil Conservation District (excluding a one lot, single-family dwelling development). During construction, Borough inspectors will observe on-site 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 (Borough of Wood-Ridge Master Plan Re-Examination Report, prepared by The Nelson Consulting Group, dated March 26, 1997) 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. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval within 24 months of the effective date of the Stormwater Management Rules. A copy will be sent to the Department of Environmental Protection at the time of submission.

Chapter 45 LAND USE PROCEDURES, Chapter 220 - SUBDIVISION OF LAND, SITE PLANS, Chapter 248 ZONING were reviewed with regard to incorporating nonstructural stormwater management strategies. Some / several changes listed below will be considered to the followings Sections within these Chapters:

Master Plan Section 3.7. Stormwater Management states that all new development in the Borough was required to comply with the stormwater regulations that were enacted by the Borough Council. The Master Plan and future Master Plan re-examination reports shall be revised to state that new development shall comply with the New Jersey State Stormwater Management Regulations and the adopted Borough Stormwater Control Ordinance which is to be adopted by April 1, 2006.

Section 220-58. Easements ; natural features ; public use or service areas states that natural features shall be preserved whenever possible in designing any subdivision containing such features. This section will be amended to expand to forested areas and tree stands, to ensure that leaf litter and other beneficial aspects of the forest and tree stands are maintained.

Section 248-4. Word usage; definitions states that a setback / distance shall be provided from the boundary line in which a building can not be placed. This section will be amended to include that care be taken to preserve native trees and shrubbery located within this setback area. In addition, the section will be amended to state that native plant species shall be planted in setback areas where feasible.

Section 220-3. Definitions will be amended to provide the definition of a cluster development and will provide requirements to subdivide a lot into smaller conforming lots. A cluster development is a subdivision option utilized to preserve land for public and agricultural purposes, to prevent development on environmentally sensitive areas, and to aid in reducing the cost of providing streets, utilities and services in residential developments. This cluster option is

an excellent tool for reducing impervious roads and driveways. The option allows for small lots with smaller front and side yard setbacks than traditional development options. It also minimizes the disturbance of large tracts of land, which is a key nonstructural stormwater management strategy. The section will include a cluster development subdivision option. The option will include a percentage of the total tract to be preserved as open space for residential area. It will also include language promoting the use and / or preservation of native vegetation.

Section 248-60 Buffer strips requires buffers for development. Buffers are a pervious coverage setback for a lot to its boundary line. This section will be amended to include a definition of a buffer which is to preserve existing natural features within this area, such as trees, brooks, swamps, hilltops, and views, and that care be taken to preserve trees to enhance soil stability and landscaped treatment of the area. The section will be amended to supplement proposed buffer areas with native landscaping. Structural buffering methods (berms, walls, fences, etc.) shall not be considered until all landscaping methods have been exhausted. Additionally, language will be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.

Section 220-57 Lots states that the Borough can withhold approvals for a lot due to flooding conditions. This section will be amended to limit improvement and maintenance within the floodplain which shall follow all applicable state regulatory requirements.

Section 220-61. Topsoil; soil erosion; and sediment control and 220-62. Information to be indicated on plans states that soil erosion control measures will be required as part of both site plan and subdivision plan preparation. In addition, this section will be amended to state that developers will not be permitted to encroach upon areas outside of the approved limit of disturbance shown on the approved Soil Erosion and Control Plan for the development.

Section 220-55 Streets and sidewalks addresses the design standards for Borough streets. Street paving widths are a function of the type of development, number of units served, whether a street is curbed, whether on-street parking is permitted, and whether on-site topographical constraints allow design flexibility. This section will be amended to encourage developers to limit on-street parking to allow for narrower paved widths that will conform to the New Jersey Residential Site Improvement Standards where applicable.

SCHEDULE OF AREA, BULK AND YARD REQUIREMENTS has the buffer requirements for developments within the Borough. The Borough utilizes buffer requirements as a means to govern impervious coverage. The table will be amended to include a note stating that if a developer is given a variance to decrease the required buffer, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in the Borough Stormwater Control Ordinance which is to be enacted.

Section 220-87 Curbing states the requirement of curbing within the Borough. This section will be amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas where feasible.

Section 220-85. Stormwater drainage states that provisions shall be made for the drainage of surface runoff waters in and from the premises so that flooding and erosion of the property and the property of others will be prevented. This section will be amended to require that all streets be provided with inlets and pipes where the same are necessary for proper drainage. In addition, this section will be amended to encourage the use of natural vegetated swales in lieu of inlets and pipes where appropriate. Language will be added to allow for use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers where feasible. Also, this section will be amended by referencing the Borough's Stormwater Control Ordinance which will be updated to include all requirements outlined in N.J.A.C. 7:8-5.

Section 220-71. Driveways describes the procedure for construction of any new driveway or accessway to any street. This section will be amended to allow the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge where appropriate.

Section 220-16. Improvements; guaranties and Section 220-43 Time limit for action; effect of preliminary approval discusses off-tract improvements for both site plans and minor subdivisions. Language will be added to this section to require that any off-site and off-tract stormwater management and drainage improvements for site plans and subdivision plans must conform to the Borough Stormwater Control Ordinance.

Section 220-58. Easements ; natural features ; public use or service areas Natural features, such as trees, brooks, hilltops and views, shall be preserved whenever possible in designing any subdivision containing such features. This section will be amended to restrict and control the removal of matures trees throughout the Borough. This revision is to recognize that the preservation of matures trees and forested areas are a key strategy in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. This complies with minimizing land disturbance, which is a nonstructural stormwater management strategy.

Section 220-89. Sidewalks describes sidewalk requirements for the Borough. Language will be added to this section to require developers to design sidewalks to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces, or use permeable paving materials where appropriate.

Currently, the Borough Department of Public Works routinely cleans stormwater conveyance system pipes and catch basins filled with debris. The Borough will continue this stormwater system maintenance.

Land Use / Build-Out Analysis

As per the March 1997 Master Plan and an analysis of the existing land use per the NJDEP GIS, Wood-Ridge is a fully developed community and contains less than one square mile (0.03 square miles as per table below) of vacant and agricultural area. For this reason, a land use / building-out analysis is not required for the Borough of Wood-Ridge.

NJDEP LAND USE / LAND COVER 1986 WOOD-RIDGE ~ BERGEN COUNTY ~ NEW JERSEY LAND USE / LAND COVER		
NJDEP LAND USE LABLE	AREA (ACRES)	AREA (SQ.ML.)
DECIDUOUS FOREST	13.31	0.02
BRUSHLAND/SHRUBLAND	6.61	0.01
TOTAL VACANT LAND FOR DEVELOPMENT	19.95	0.03
WOOD-RIDGE LAND AREA	700.27	1.09
PERCENTAGE OF AVAILABLE LAND		2.8%

LAND USE / LAND COVER		
NJDEP LAND USE LABLE	AREA (ACRES)	AREA (SQ.ML.)
INDUSTRIAL	194.48	0.30
COMMERCIAL	51.28	0.08
RECREATIONAL LAND	0.61	0.00
RESIDENTIAL	415.50	0.65
ATHLETIC FIELDS	3.83	0.01
DECIDUOUS SHRUB/SHRUB WETLANDS	1.99	0.00
HERBACEOUS WETLANDS	0.08	0.00
MIXED URBAN OR BUILT-UP LAND	3.25	0.01
SALINE MARSHES	0.46	0.00
TRANS/COMM/UTILITY	8.84	0.01
TOTAL LAND AREA	680.32	1.06
WOOD-RIDGE LAND AREA	700.27	1.09
PERCENTAGE OF OCCUPIED LAND		97.2%

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. Presented is a hierarchy of options (1 and 2).

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.

The applicant can select one of the following projects listed to compensate for the deficit from the performance standards resulting from the proposed project. More detailed information on the projects and a current list of additional projects can be obtained from the Borough Engineer. Listed below are some specific projects that can be used to address the mitigation requirement.

Groundwater Recharge

- a. Wood-Ridge Little League Field (6th Street between Union and Center Avenues)
- b. Valley Boulevard Legion Park
- c. Valley Boulevard Tot Park / Playground
- d. William Kour Park and Playground (13th Street)
- e. Wood-Ridge Sports Complex (Union Avenue)

Water Quality

- a. Park Place adjacent to the Conrail Rail Road (siltation)

Water Quantity

- a. Union Avenue and Arnot Place adjacent to the Borough's boundary with the Borough of Wallington

Possible strategies to be implemented at these aforementioned sites would be as follows:

- a. Dry Wells
- b. Extended Detention Basins
- c. Infiltration Basins
- d. Manufactured Treatment Devices
- e. Pervious Paving Systems
- f. Sand Filters
- g. Vegetative Swales

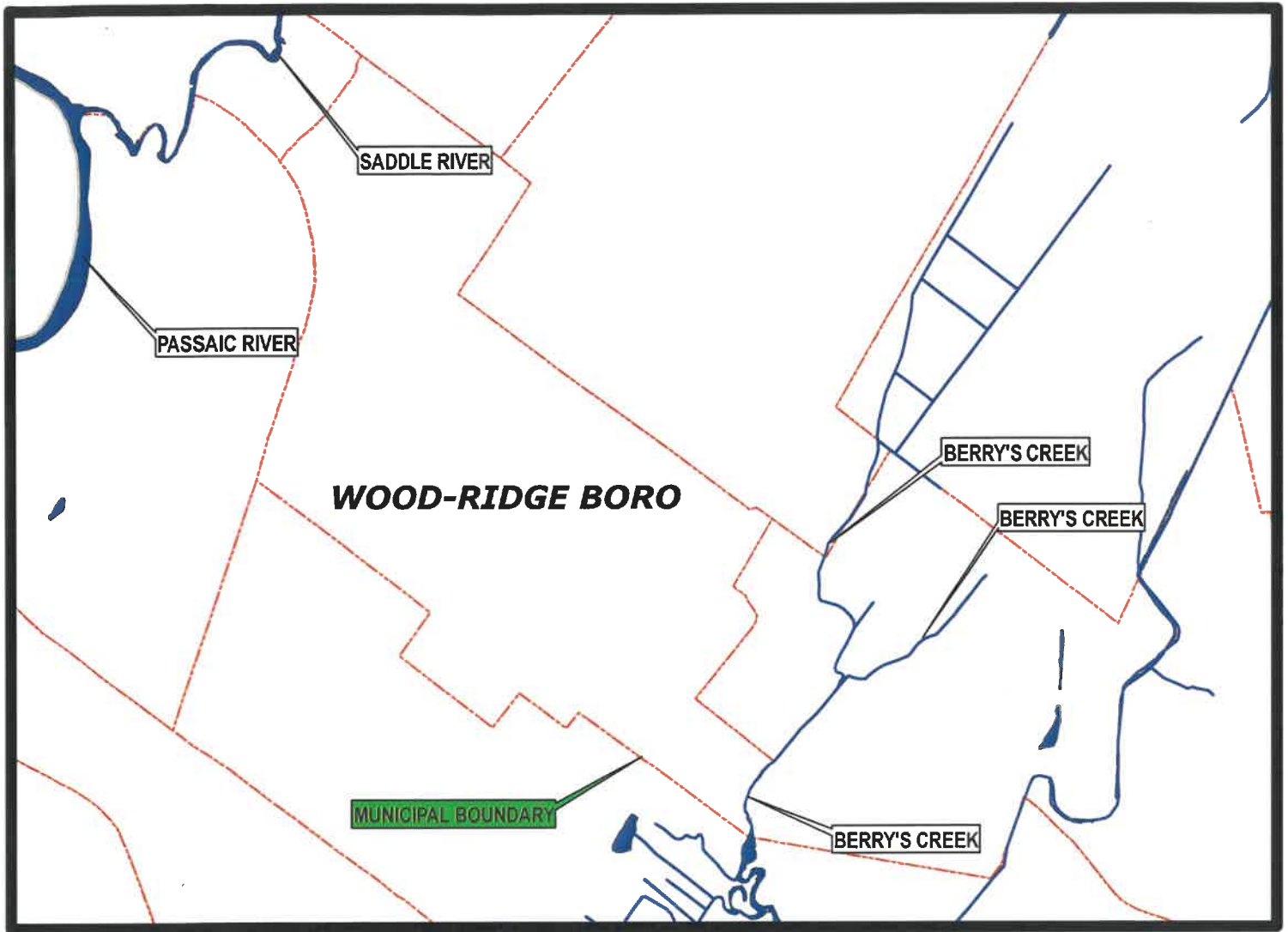
Site viability of these strategies would have to be evaluated by the Borough on a site by site basis.

2. If a suitable site cannot be located in the same drainage area as the proposed development, as discussed in Option 1, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. For example, if a variance is given because the 80 percent TSS requirements are not met, the selected project may address water quality impacts due to a fecal impairment. Listed below are specific projects that can be used to address the mitigation option.

Water Quality

- Re-establish a vegetative buffer (minimum 50 foot wide) along a Borough Pond or Watercourse. The buffer and preservation could occur through a conservation easement.
- Provide goose management measures including public education at a Borough Park and / or field

The Borough of Wood-Ridge shall permit the perspective development to provide funding or partial funding for an environmental enhancement project that has been identified in the Municipal Stormwater Management Plan or towards an environmental enhancement project that has been deemed by the Borough as an environmentally sensitive area. The funding shall be equal to or greater than the cost to implement the mitigation outlined above or in subsequent environmental reports, including costs associated with but not limited to purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.



WOOD-RIDGE AND ITS WATERWAYS

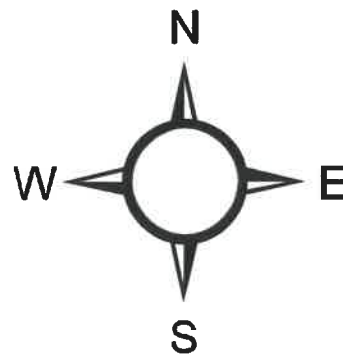
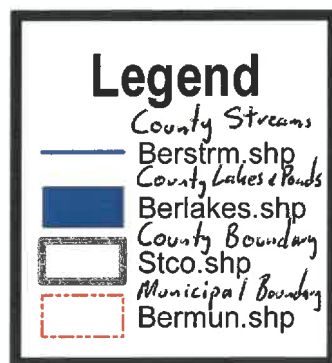
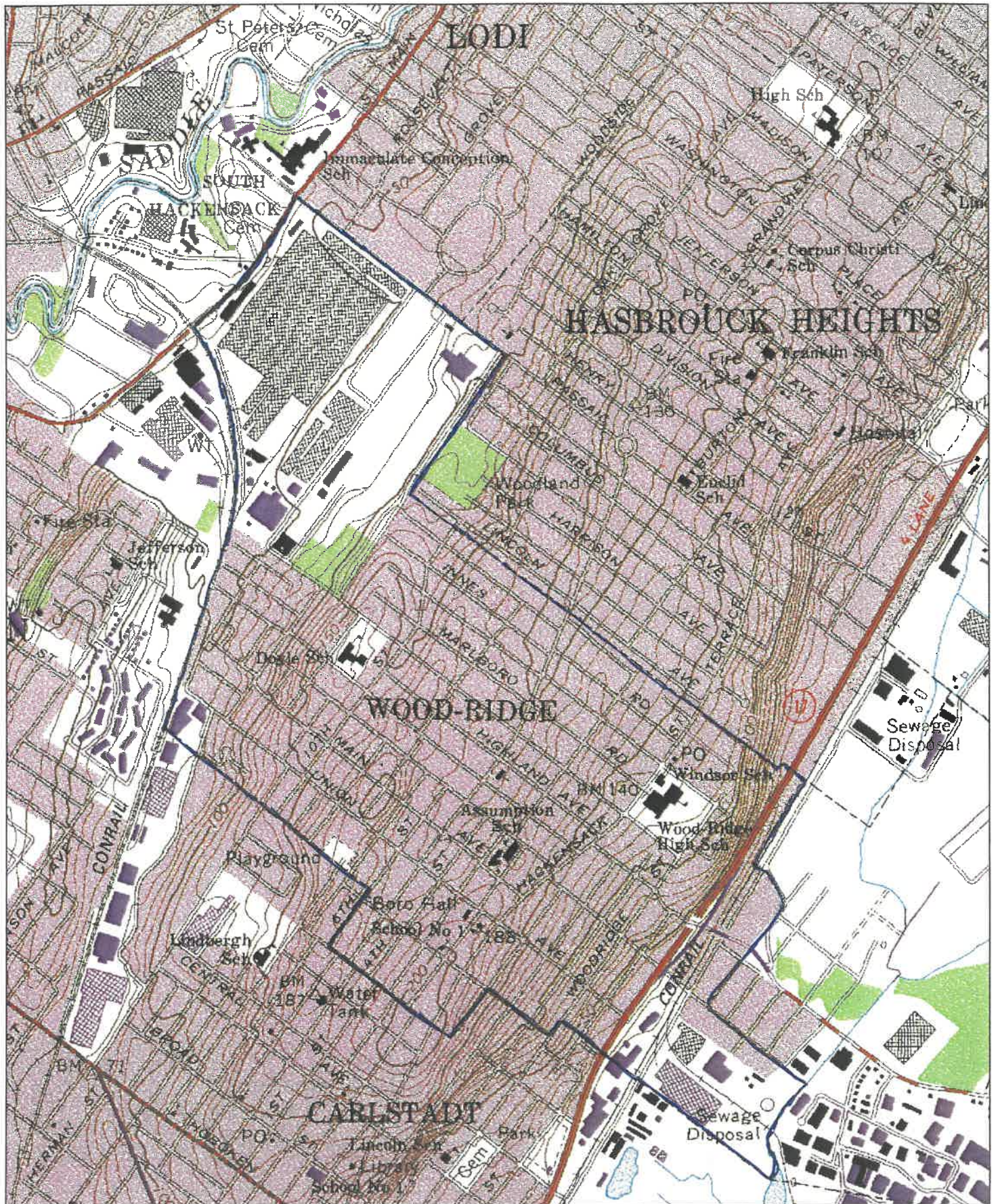


FIGURE C-2

WEEHAWKEN, NJ QUADRANGLE

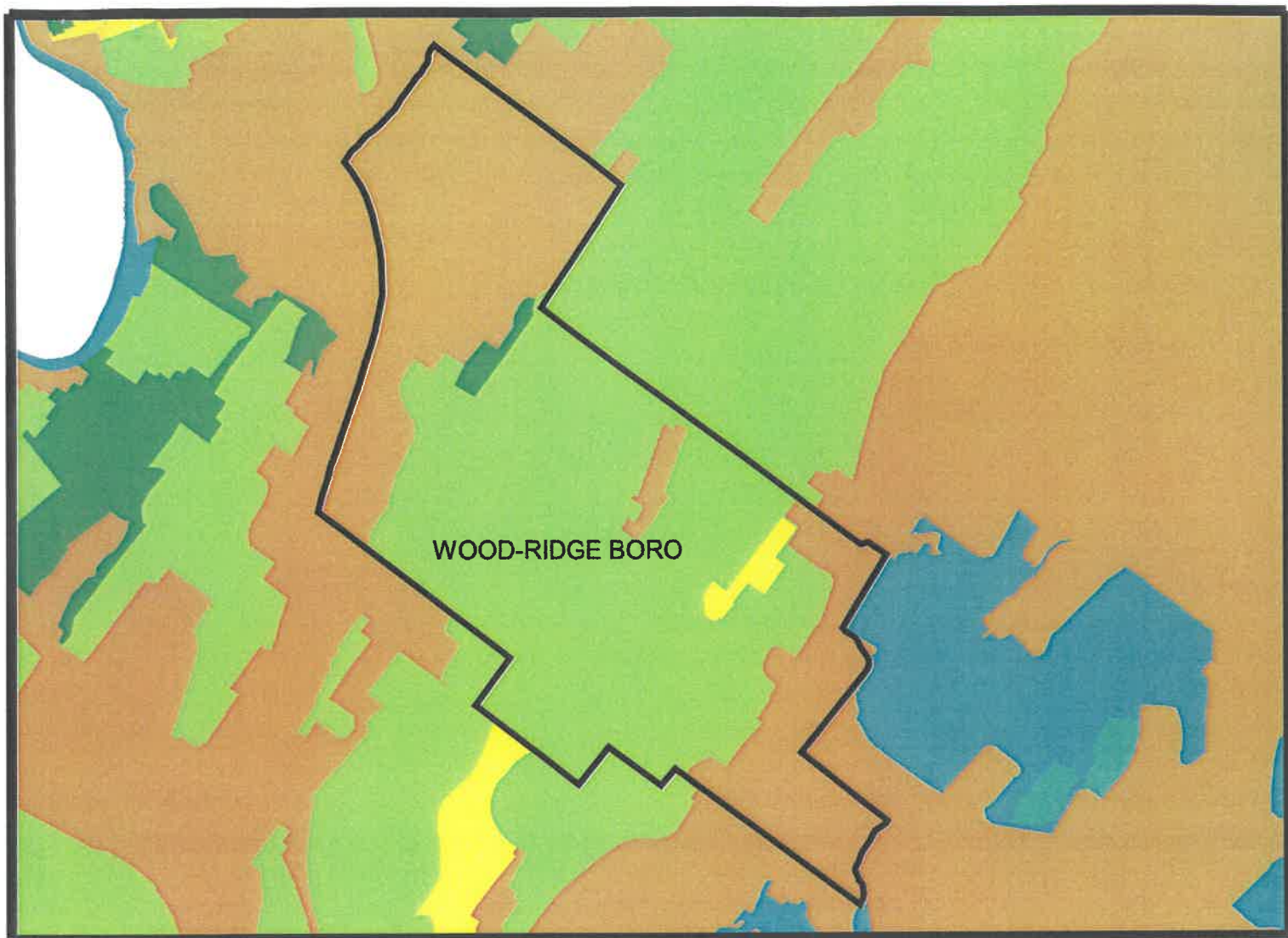


Copyright © 2000 DeLorme. TopoTools Advanced Print Kit. Scale: 1 : 16,000 Zoom Level: 14-0 Datum: WGS84

1000 ft

FIGURE C-3

17



GROUNDWATER RECHARGE AREAS

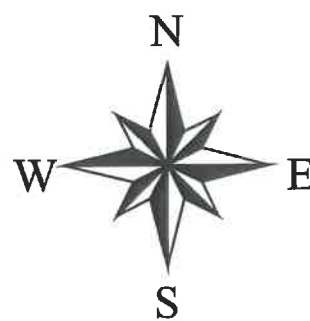
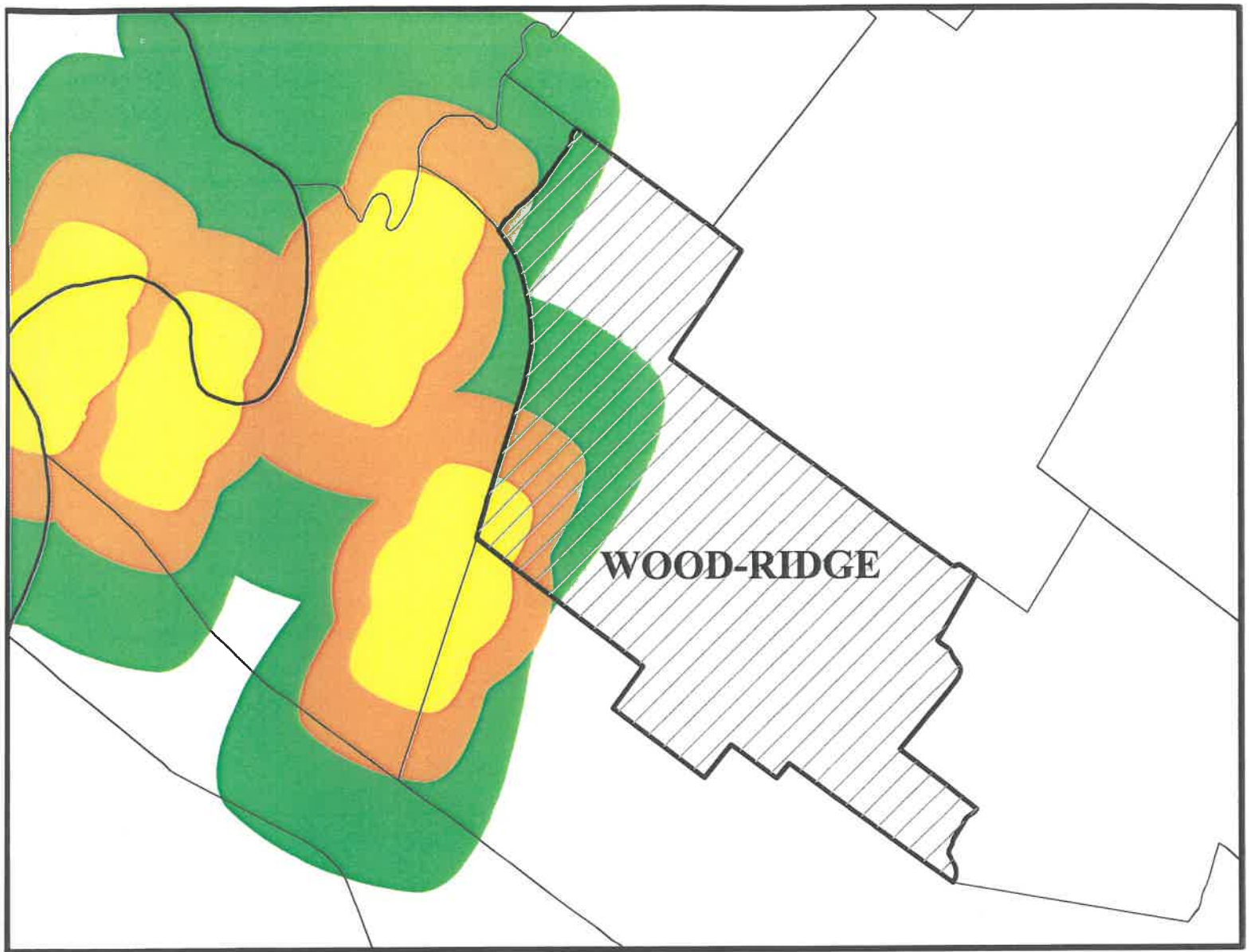


FIGURE C-4



WELLHEAD PROTECTION AREAS

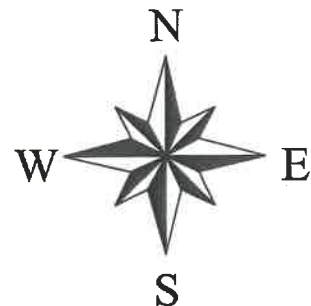
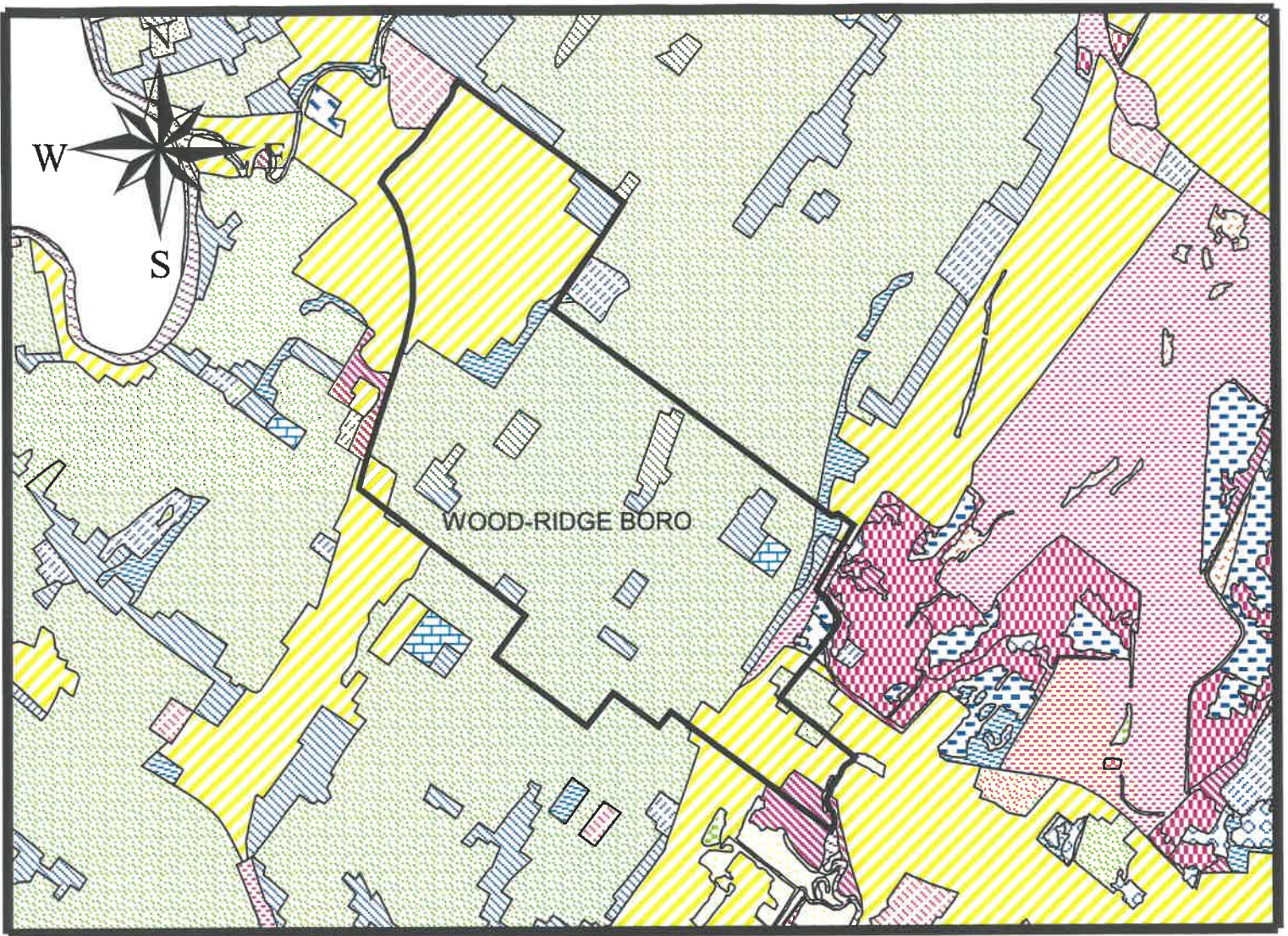


FIGURE C-5



NJDEP LANDUSE/LANDCOVER 1986

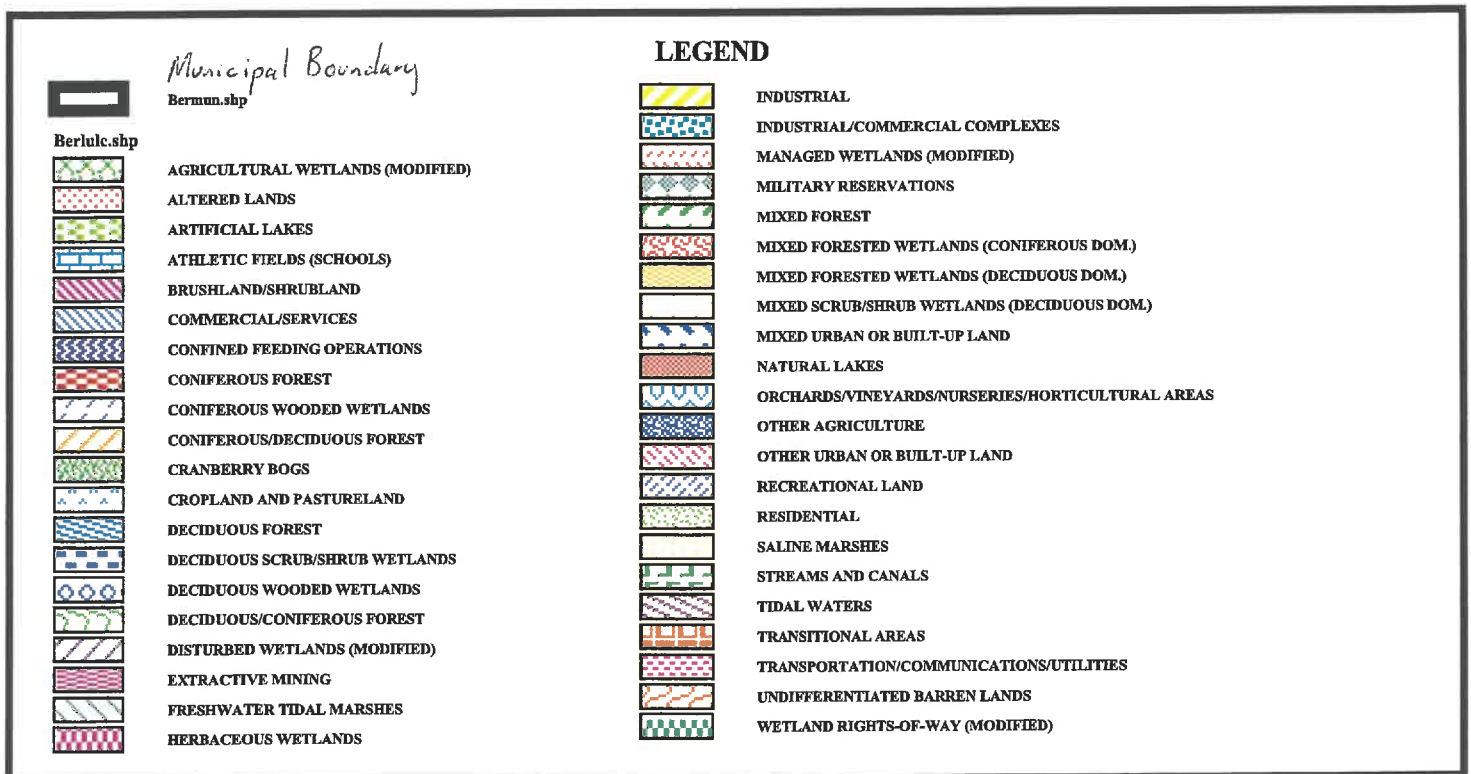
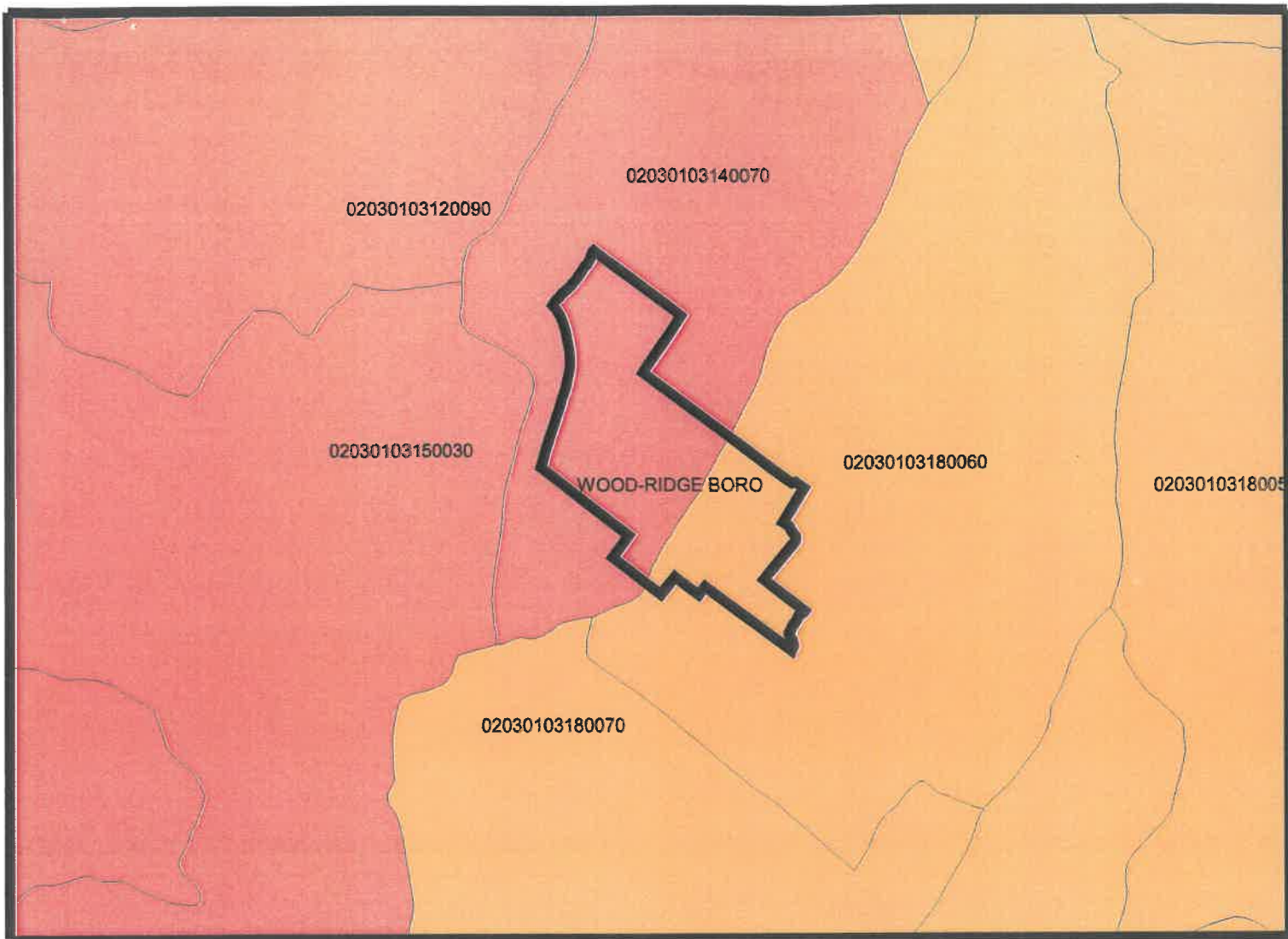


FIGURE C-6



NJDEP HUC14 WATERSHEDS

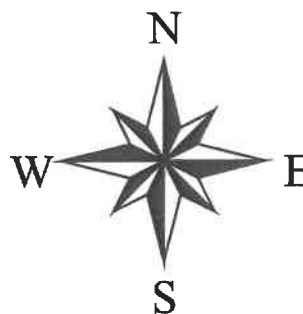


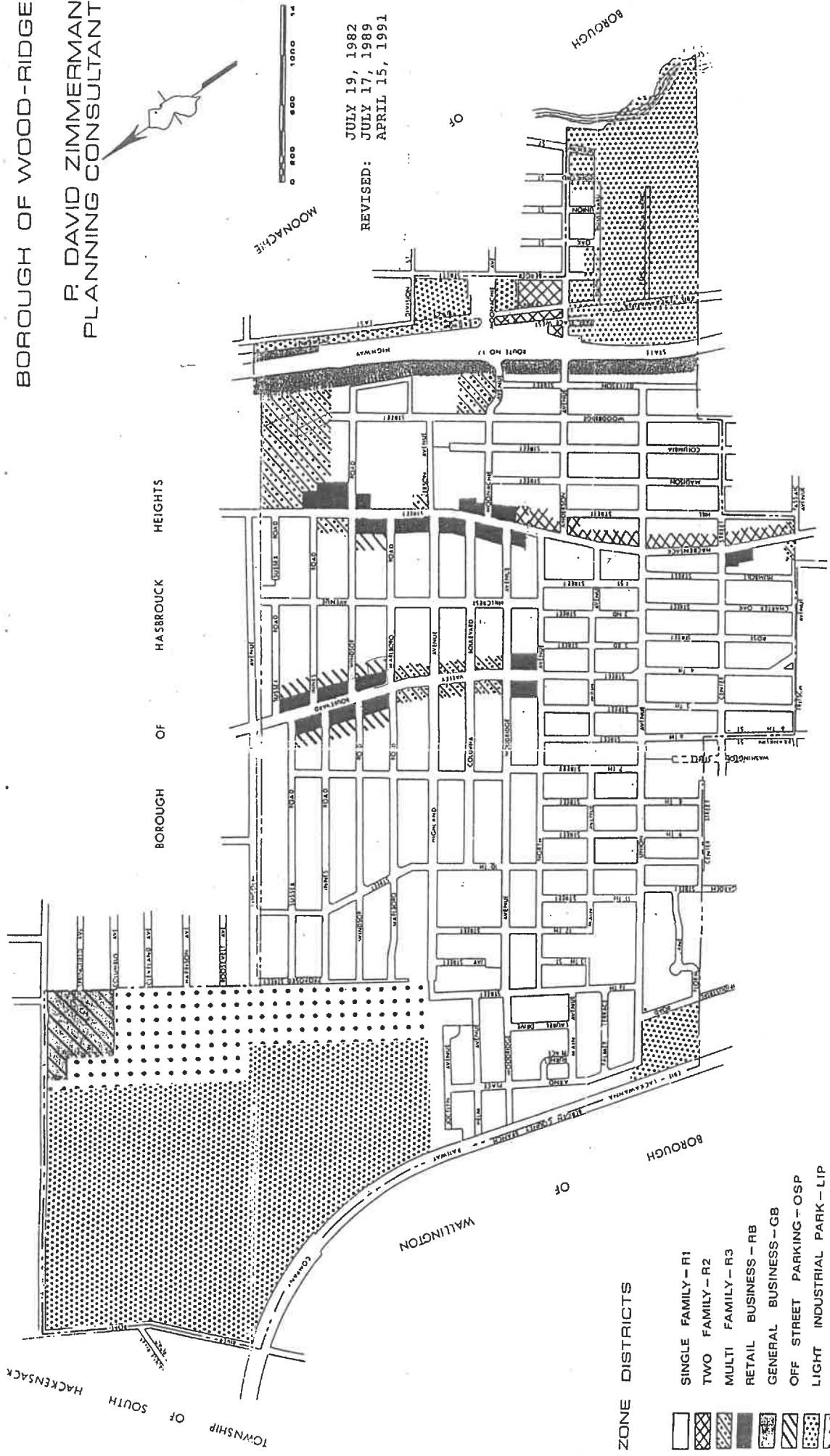
FIGURE C-7

ZONE DISTRICT MAP BOROUGH OF WOOD-RIDGE R. DAVID ZIMMERMAN PLANNING CONSULTANT

BOROUGH OF HASBROUCK HEIGHTS

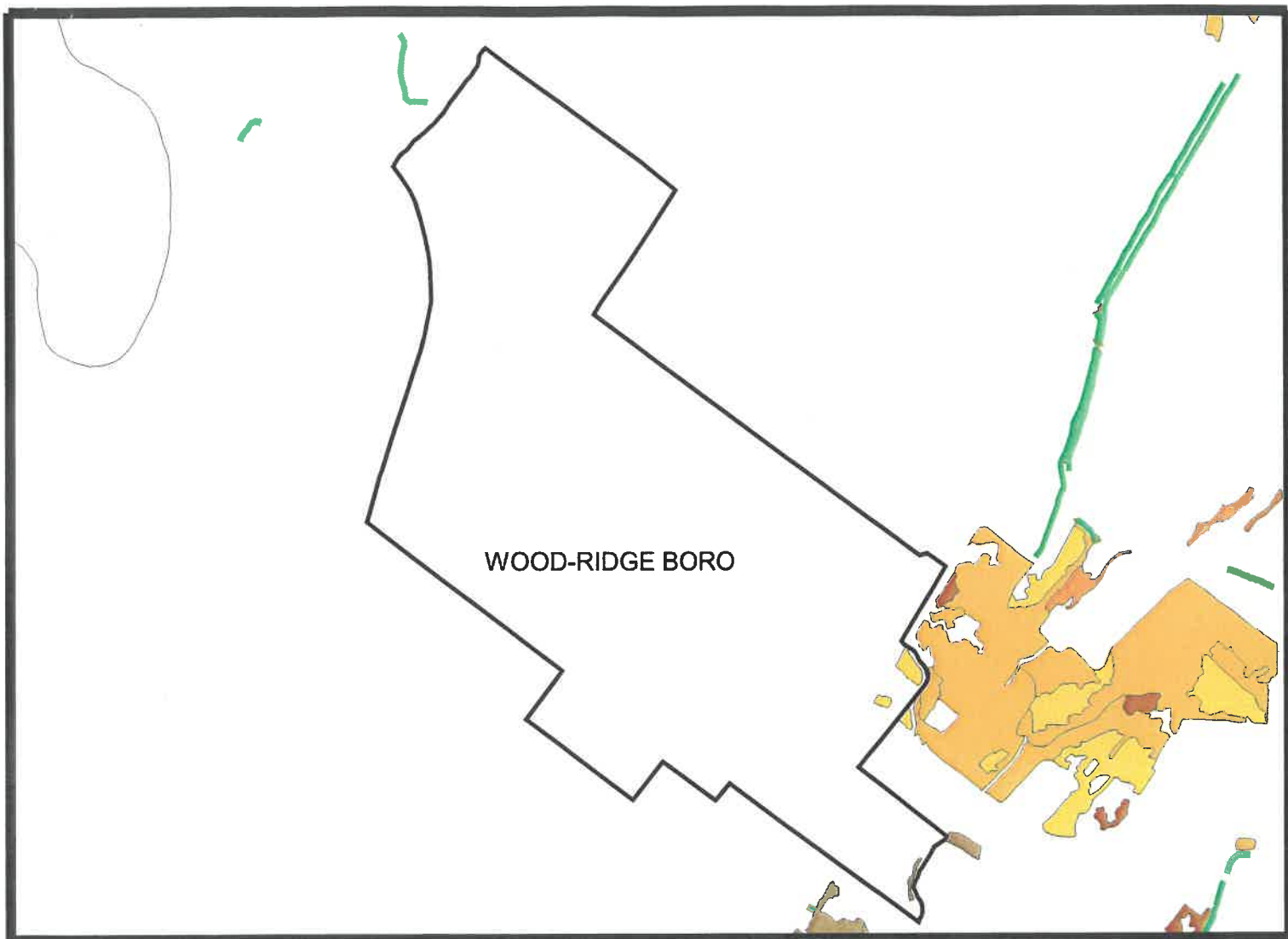
BOROUGH OF CARLSTADT

REVISIED:
JULY 19, 1982
JULY 17, 1989
APRIL 15, 1991



- ZONE DISTRICTS**
- SINGLE FAMILY - R1
 - TWO FAMILY - R2
 - MULTI FAMILY - R3
 - RETAIL BUSINESS - RB
 - GENERAL BUSINESS - GB
 - OFF STREET PARKING - OSP
 - LIGHT INDUSTRIAL PARK - LIP
 - OFFICE RESEARCH LABORATORY - ORL
 - NEIGHBORHOOD SHOPPING CENTER - NSC

FIGURE C-8



WETLANDS, LINEAR WETLANDS AND WATER LAND USES

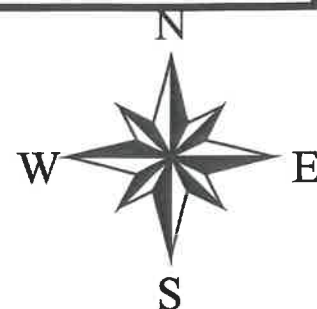
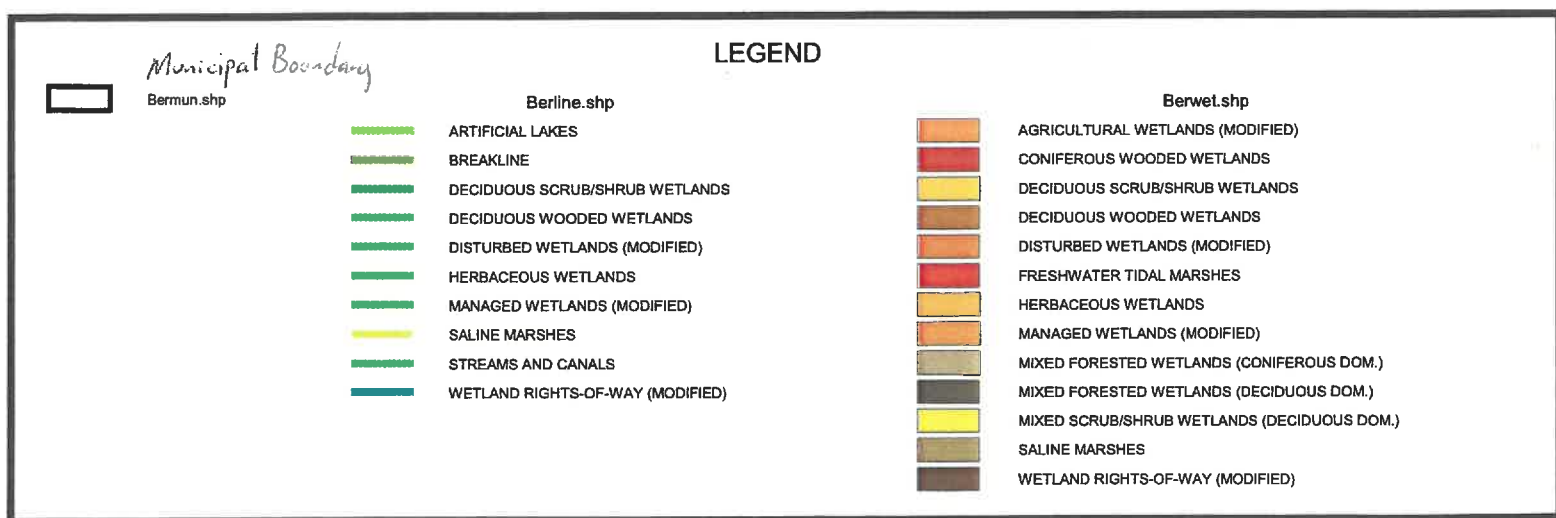
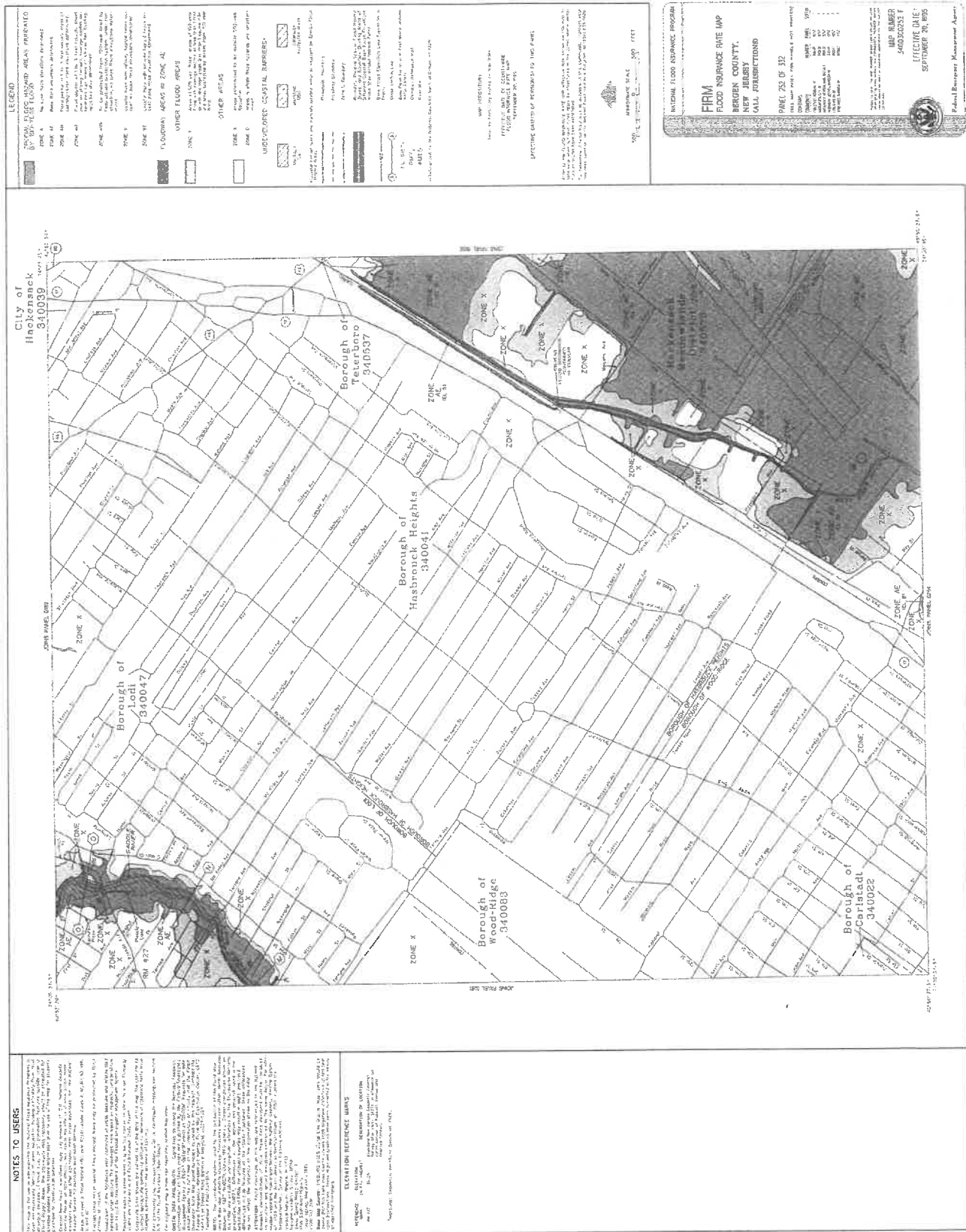


FIGURE C-9

25



26

