

# VILLAGE OF RIDGEWOOD

## STORMWATER MANAGEMENT PLAN

Date: January 30, 2005



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Revised: March 10, 2005  
May 5, 2006  
January 21, 2007  
Proposed Revision: December 29, 2020

## Table of Contents

1.1	Introduction.....	3
1.2	Goals .....	5
1.3	Discussion.....	7
1.4	Background.....	9
2.1	Design and Performance Standards .....	17
2.2	Plan Consistency.....	17
2.3	Nonstructural Stormwater Management Strategies .....	18
3.1	Land Use/Build-Out Analysis.....	22
4.1	Mitigation Plans.....	26

## SECTION 1

### 1.1 Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Village of Ridgewood to address stormwater-related impacts. The creation of this plan is required by N.J.S.A. 40:55D Article 14 as amended and N.J.A.C. 7:14A-25 Municipal Stormwater Management Regulations. This plan contains all of the required elements described in N.J.A.C. Chapter 7:8 Stormwater Management Rules, including the revised rules adopted by the NJDEP on March 20, 2020. This MSWMP is also prepared in accordance with the Municipal Land Use Law, 40:55D-93, which requires periodic updates of the MSWMP.

The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for major new development, defined as projects that disturb one or more acre of land or the creation of one-quarter acre or more of regulated impervious surfaces. The plan also addresses all development projects up to one acre in size. 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.

A “build-out” analysis has not been included in this plan because the Village of Ridgewood has less than 60 acres remaining for development based on existing zoning and land use codes and ordinances.

Ridgewood Water Company is the water purveyor for the Village of Ridgewood. Ridgewood Water Company is a ground water aquifer supplied water purveyor. Ridgewood Water Company has interconnections with United Water Company and Hawthorne Water Company for emergency back up. Well aquifer recharge is assisted by roof drainage runoff directed to underground seepage tanks at residential and commercial properties throughout the Village. The seepage tanks have been required by the Village for the past 25 years for properties that create additional impervious surface and consequently additional stormwater runoff. Ridgewood Water Company has 23 deep supply wells within the Village boundaries in addition to 93 known private wells. Well head protection in the Village is addressed by the Village Code in Chapter 269, section 30 and 31.

The Village of Ridgewood is 99.6% serviced by a non-combined sanitary sewer collection system. There are currently approximately 33 homes still on septic systems due to topography and geology. The Village operates its own Water Pollution Control Plant, under NJPDES Permit No. 0024791.

The Water pollution Control Plant serves the Village and several fringe areas of the surrounding municipalities. The surrounding municipalities are serviced due to drainage basin and topographic configurations.

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 have been identified to lessen the impact of existing development.

This Stormwater Management Plan is a working document, which shall be revised, when necessary, to comply with regional plans and changes in NJDEP regulations. As such, it is now being amended to incorporate amended stormwater management rules adopted by the NJDEP on March 2, 2020.

Along with this revised MSWMP for the Village of Ridgewood, an accompanying ordinance is proposed to implement the revisions to this SWMP and to provide compliance with the amended NJDEP regulations.

## 1.2 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 or redevelopment;
- 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 and encourage groundwater recharge;
- prevent, to the greatest extent feasible, any increase in nonpoint source pollution;
- maintain the integrity of stream channels for both their biological and wildlife functions, as well as for drainage;
- minimize pollutants in stormwater runoff from new and existing development with the intent 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
- provide for public safety through the proper design and operation of stormwater basins; and,
- provide for compliance and consistency with State and County stormwater policies and regulations.
- To help support the Village's FEMA/FIRM Community Rating Service (CRS) value of 6.

To achieve these goals, this MSWMP outlines specific stormwater design and performance standards for new development and redevelopment in the Village. Preventative and corrective maintenance strategies are also presented 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 provide for public safety.

Achievement of the above listed goals is through the efforts of the various divisions of the Village's Department of Public Works. The Engineering Division has several inspectors that monitor various construction sites throughout the Village for compliance with the requirements of the Village's Stormwater Management Plan. The inspectors also help enforce the Village's ordinances on the prevention of stormwater pollution, which have all been recently adopted.

One of the primary methods the Village uses to assist its compliance efforts is our requirement of a Site Grading and Stormwater Control Plan permit (issued by the Engineering Division, in conjunction with Building Department construction permits). The Site Grading and Stormwater Control Plan permit assists in the

Village's efforts in educating builders and local contractors on the requirements (and goals) of the Stormwater Management Plan and soil erosion & sediment control. The permit also emphasizes the Village's requirements that runoff from impervious surfaces be directed into seepage tanks for groundwater recharge.

The Engineering Division also logs and keeps track of the efforts of the Streets Division in maintaining drainage structures and stream channels in the Village. This effort is also part of the Village's on-going Community Rating Service (CRS) program to maintain our Flood Insurance Rating of 6 from the National Flood Insurance Program. Our CRS program requires a detailed annual report on the Village's flood control efforts and the outreach programs we conduct. The Village obtained its current CRS Rating of 6 on October 1, 2018.

The Village of Ridgewood Streets Division has a busy street sweeping program. The Village sweeps approximately 1,500 miles of Village streets annually collecting approximately 350 cubic yards of materials. This material is then sieved/segregated to dispose of in a legal, properly documented manner.

### 1.3 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 can also compact the soil and diminish its porosity and 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 under natural conditions. These increases can create additional flooding and aggravate existing downstream flooding because runoff travel time can also lead to erosion problems and increase the quantity of sediment in the channel.

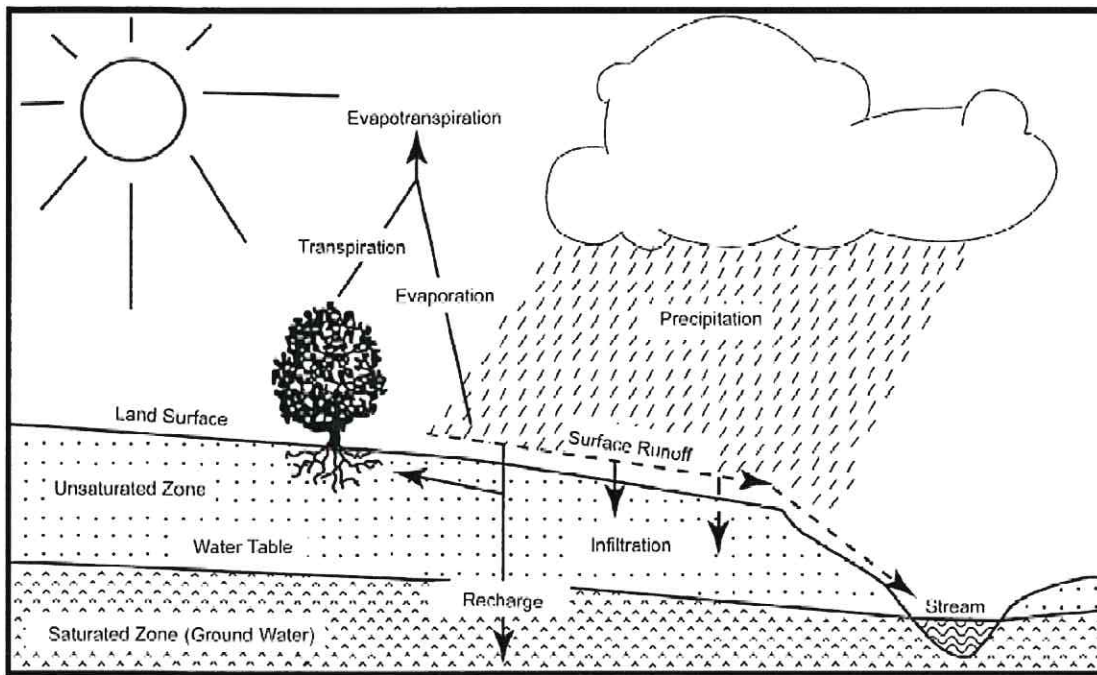
Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration, which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal 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 and redevelopment can adversely affect water quality and stream biota in more subtle ways. For example, rain water 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, bank stabilization, and leaf litter which falls into streams and becomes food for the aquatic community.

**Figure C-1: Groundwater Recharge in the Hydrologic Cycle**



Source: New Jersey Geological Survey Report GSR-32.



## 1.4 Background

The Village of Ridgewood encompasses an approximately 5.8 square mile, 3,710.73-acre area in Bergen County. The population of the Village has remained fairly stable from 25,391 in 1960 to 24,152 in 1990, to 24,958 in 2010. The dwelling units in the Village have slowly increased from 8,470 in 1980, to 8,666 in 1998, to 8,743 in 2010, due to minor home development, increases in condominium construction and senior housing units. The Village, under the current zoning, is over 98% developed, of total, 234.1 acres are for municipal use as follows:

Board of Ed/Playgrounds	22.4 Acres
Playing Fields	30.9 Acres
Parks	74.7 Acres
Municipal Use	41.0 Acres

The available land for new development is less than sixty acres. The Village's current development trends are to expand existing homes, demolish and build larger homes, or on the fringe areas of the multi-family zones to construct condominium projects. The Village Planning Board has addressed this impervious area expansion by such projects by decreasing the allowable impervious area.

The Department of Public Works, Engineering Division, requires a site plan for: all new single-family homes, any development that creates more than 200 square feet of impervious surface, any "teardowns" (when an existing structure is demolished and reconstructed with a new one), and whenever more than 40% the exterior of an existing structure or building (as listed on the Tax Assessor property card) is altered. Wherever possible, sufficient drywells (seepage pits) shall be installed to accept 100% of the storm runoff from all impervious surfaces on the property.

All development, as defined above, below the Bergen County Soil Conservation Disturbance limits of  $\frac{1}{4}$  acre for soil erosion, shall require a Soil Erosion Control Plan submitted to the Village Engineering Division, which can be included on all single-family home site plans. All development larger than a single-family unit or requiring lot subdivision is reviewed by either the Village Planning Board or the Zoning Board of Adjustment. The Village, wherever and whenever possible, makes every effort to reduce stormwater runoff volumes and pollutant loads to the waterways of the Village, County, and State.

Figure C-2 illustrates the waterways in the Village.

Figure C-2.1 illustrates the Bergen County Soils Map.

Figure C-3 illustrates the Village of Ridgewood boundary on the USGS Quadrangle Map.

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 macro invertebrates 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 macro invertebrate community dynamics. The major rivers and streams within the Village are the Saddle River, the HoHoKus Brook, the Diamond Brook and the Goffle Brook which are listed as low priority impaired waterways. The NJDEP 2004 Integrated Water Quality Monitoring and Assessment Report (305 [b] Report & 303 (d) List is the reference source for all streams.

The Diamond Brook was delisted at Fair Lawn by NJDEP for fecal. The Diamond Brook originates in the Village, draining into Glen Rock after a short distance. The Goffle Brook, HoHoKus Brook, and Saddle River are not listed as Category C-1 Streams and do not feed reservoirs. These streams are listed for benthic macro invertebrates and unknown toxicity. United Water Company has a draft point at approximately station 465+00 on the Saddle River, approximately 1,100 feet above the Saddle River/HoHoKus Brook convergence. In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the Village. The data indicates the impairments are low.

The NJDEP 2004 Integrated Water Quality Monitoring and Assessment Report lists the Saddle River at Lodi for a Total Maximum Daily Load (TMDL) assessment to be completed by 2006. The Village of Ridgewood is located in Watershed Management Area 4. In general, all wetlands are located along the embankments of all rivers, streams and ponds.

A TMDL is a measurement of 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 (i.e. Village of Ridgewood Water Pollution Control Facility Permit NJPDES No. NJ0024791) to discharge, and non-point source, which includes stormwater runoff from agricultural areas and residential areas, plus 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 include the Village's Water Pollution Control Facilities twenty-million-dollar reconstruction which has been completed and may also include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other Best

#### Management Practices (BMP's).

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305[b] and 303[d]) (Integrated List) is required by the Federal Clean Water Act to be prepared biennially and is a valuable source of water quality information.

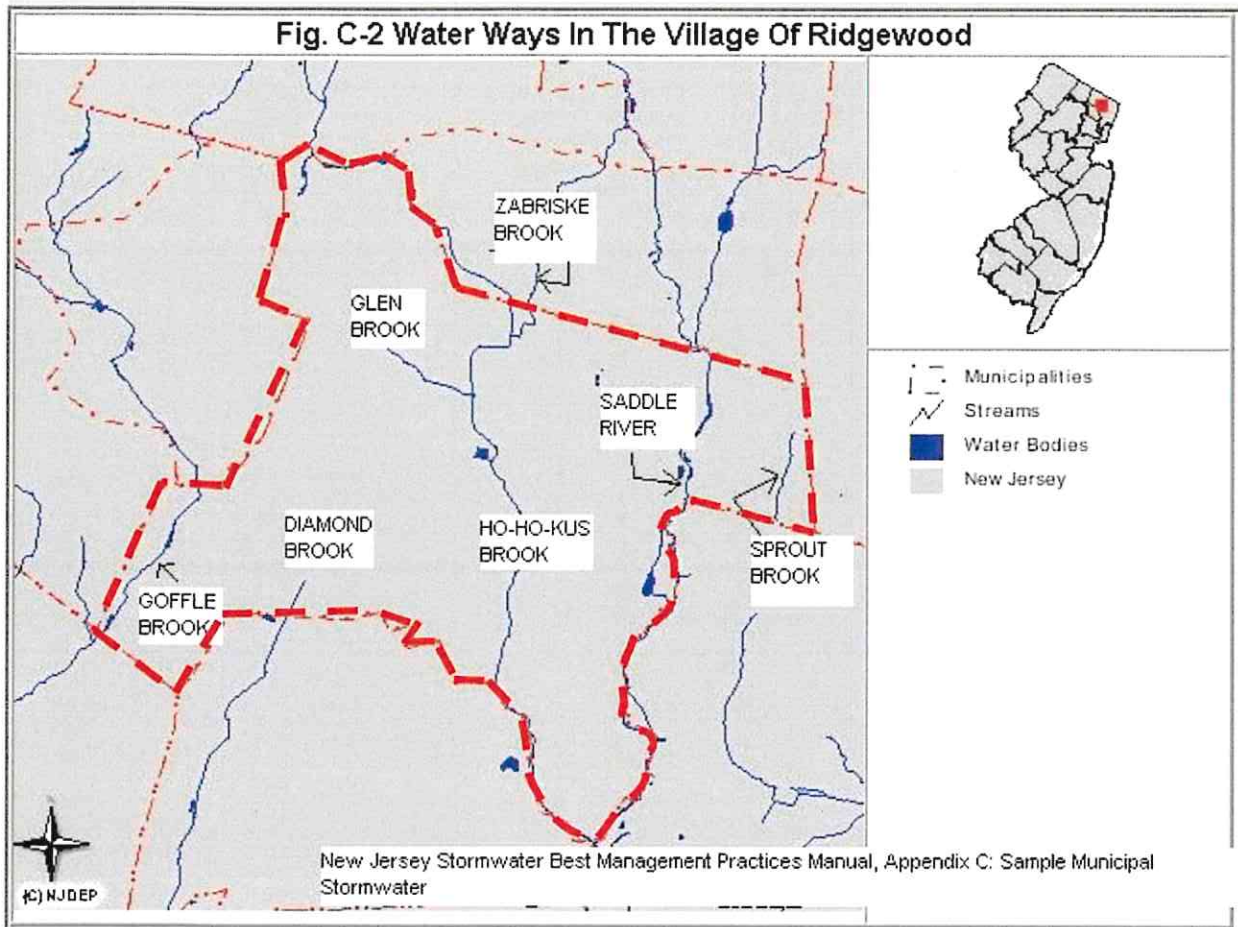
This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

In addition to water quality problems, the Village is subject to severe water quantity problems, including flooding, stream bank erosion, and diminished flow in the Saddle River, HoHoKus Brook, Goffle Brook, and Diamond Brook. As a result of the impervious cover increase from upstream, development plus minor increases from the Village, the peak volume and flows of stream flows have increased. The higher peaks and flows has resulted in some stream bank erosion, home flooding, and degraded stream habitats. Lower summer base flows can have a negative impact on in-stream habitat during the summer months and dry weather periods.

The Village has been proactive by requiring all roof runoff in the recharge areas, wherever possible, to be routed to dry wells (seepage pits) and that zero increase in runoff be accomplished. The Village also participates in the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP). The Village's efforts to meet the goals in the NFIP has resulted in the community being upgraded to a Class 7 community from a Class 10. The Flood Hazard Areas on all streams are from the FEMA FIRM Maps and are shown on Figure C-10.

A map of the groundwater recharge areas are shown in Figure C-4. Wellhead protection areas, also required as part of the MSWMP, are shown on Figure C-5.

**Fig. C-2 Water Ways In The Village Of Ridgewood**





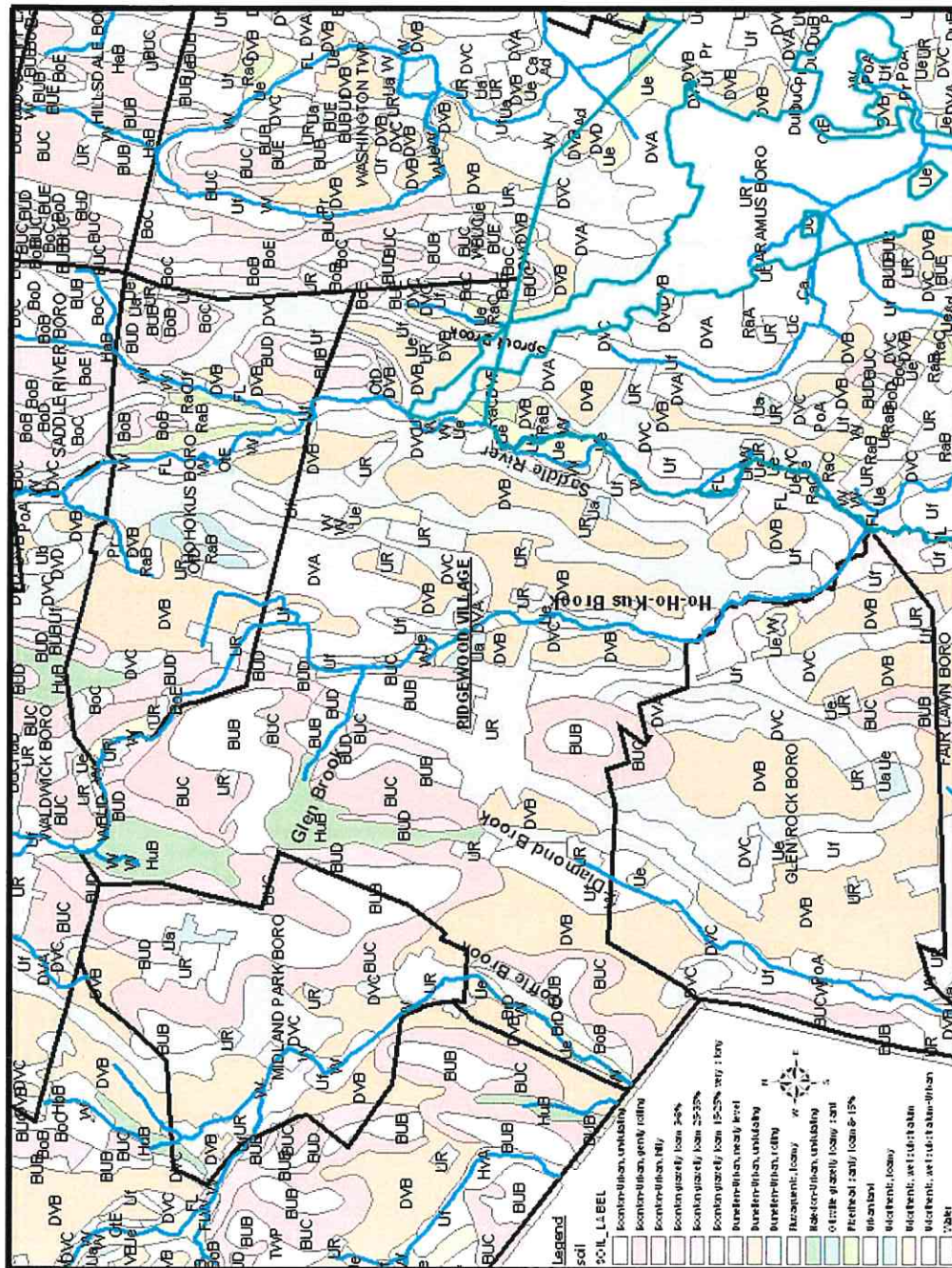
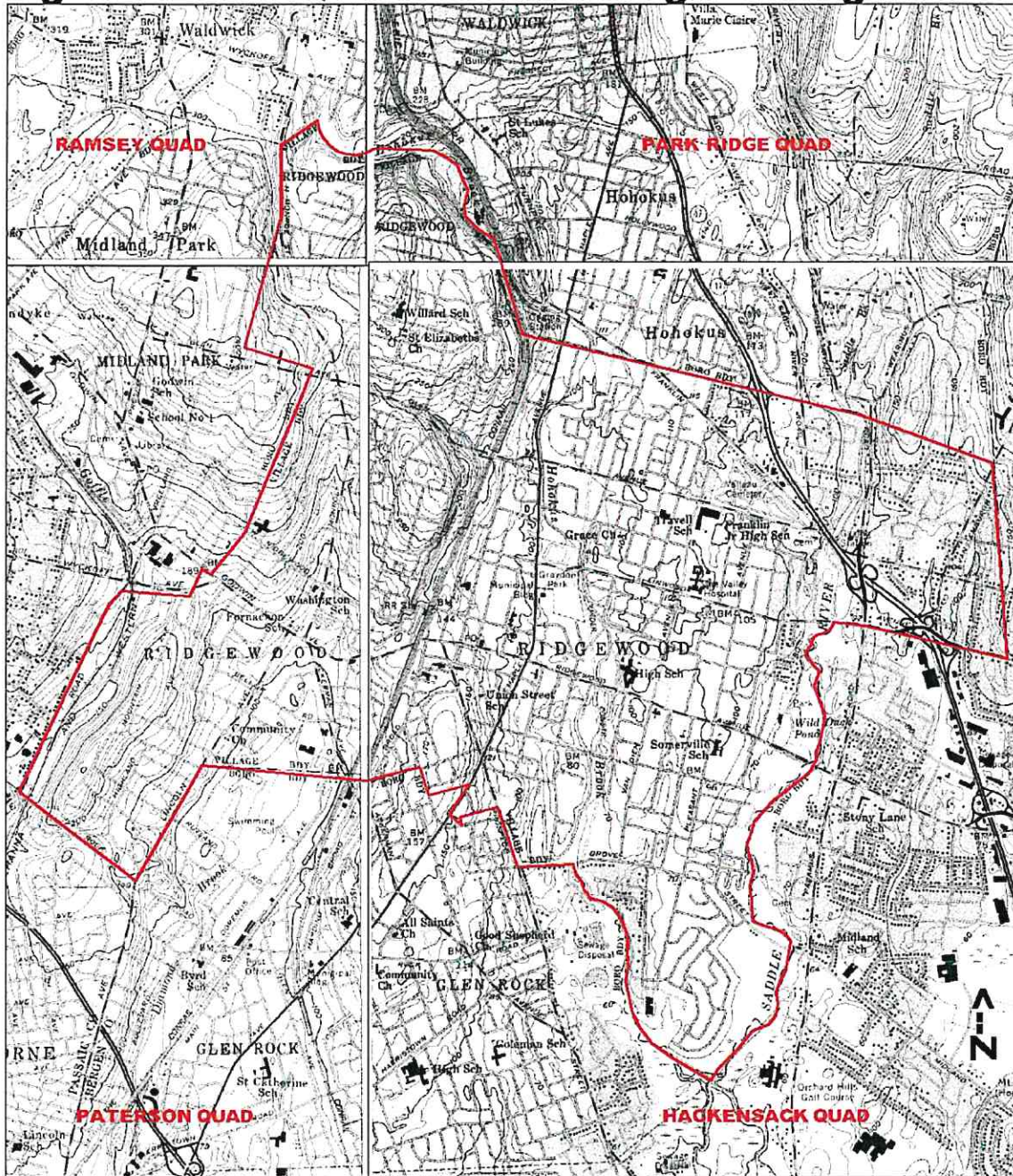


Fig. C-2.1 Bergen County Soil Survey

0 1,250 2,500 5,000 Unknown Units



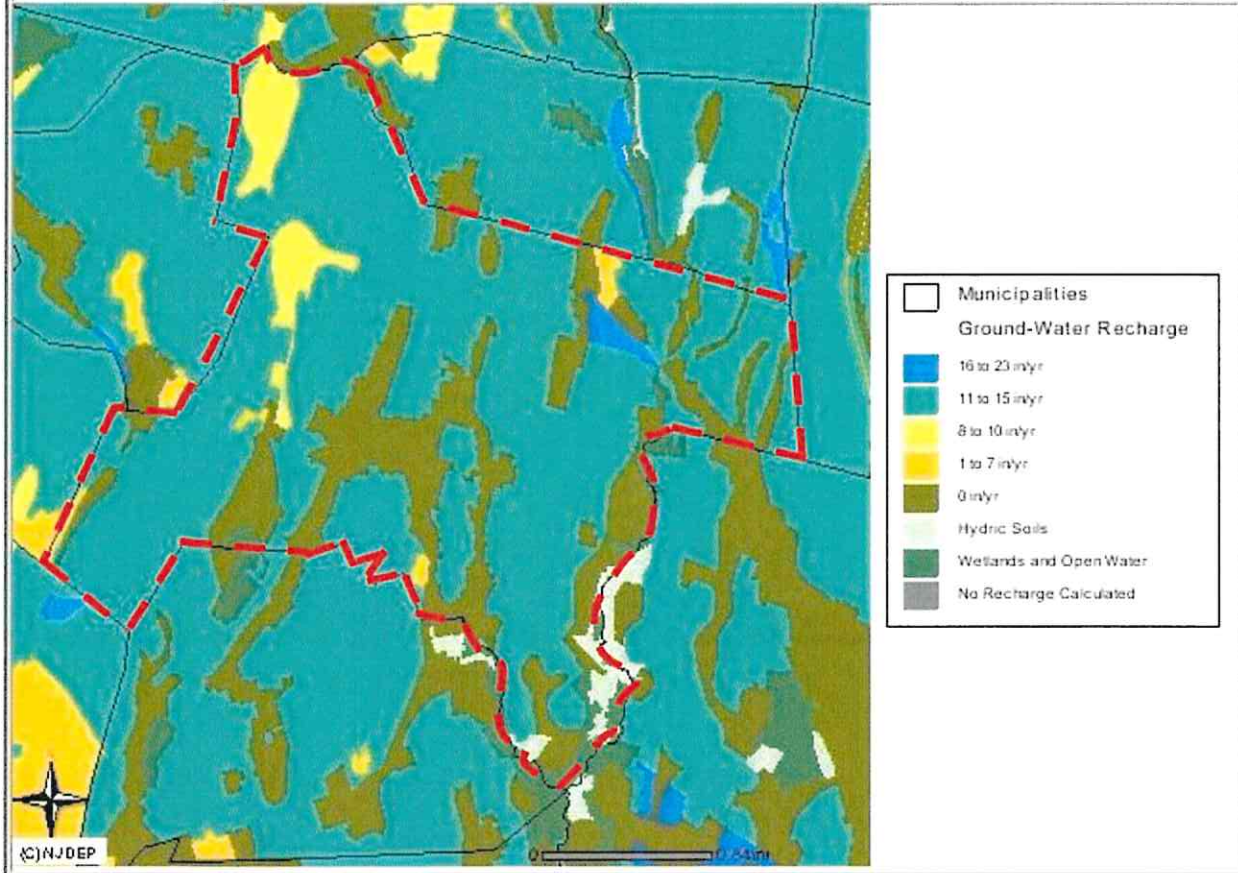
**Fig. C-3 USGS Quad For The Village Of Ridgewood**



New Jersey Stormwater Best Management Practices Manual, Appendix C. Sample Municipal Stormwater Management Plan, February 2004, Page C-7



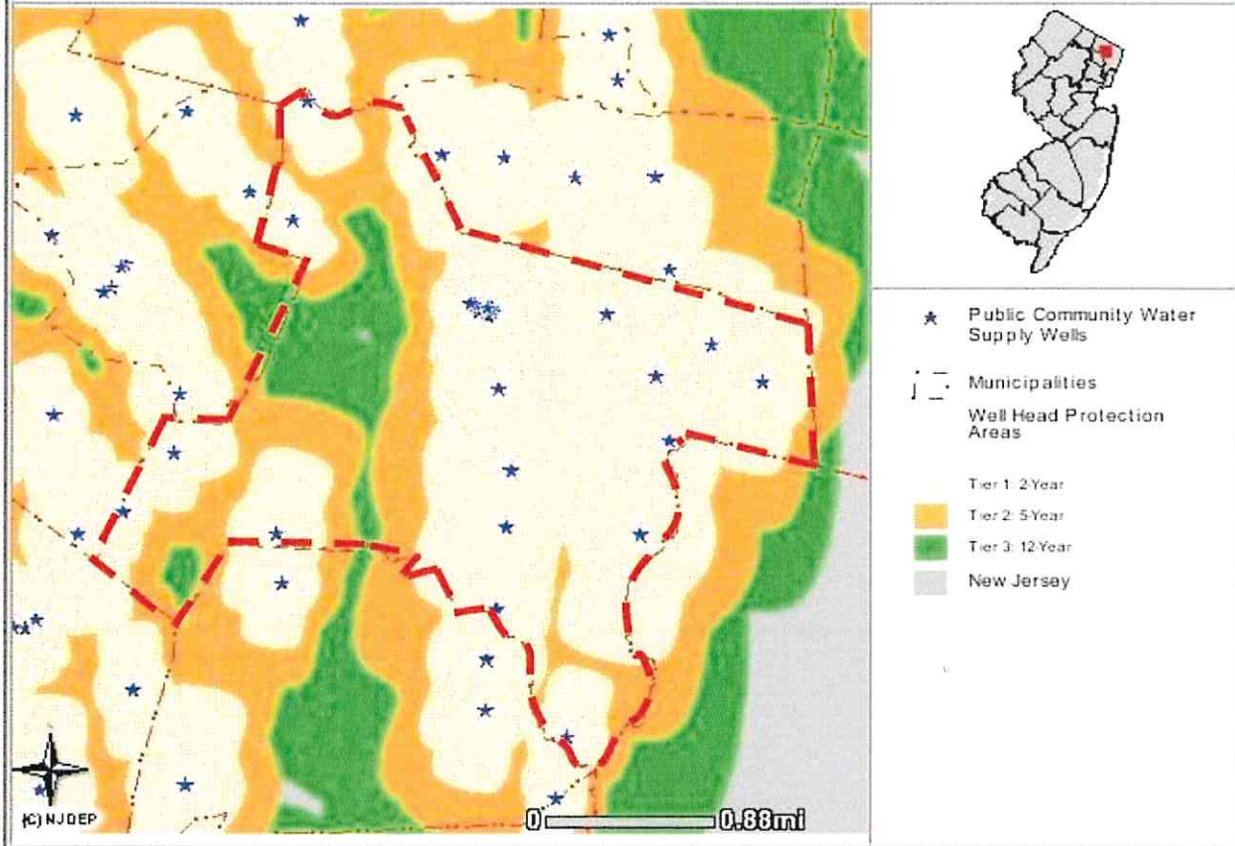
Fig. C-4 Ground Water Recharge In The Village Of Ridgewood



New Jersey Stormwater Best Management Practices Manual, Appendix C: Sample Municipal Stormwater Management Plan, February 2004, Page C-9



Fig. C-5 Well Head Protection In The Village Of Ridgewood



New Jersey Stormwater Best Management Practices Manual, Appendix C: Sample Municipal Stormwater Management Plan, February 2004, Page C-10.

## SECTION 2

### 2.1 Design and Performance Standards

The Village has adopted 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. The design and performance standards also address the loss of groundwater recharge to 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 Village's updated Stormwater Control Ordinances are pending before the Village Council.

During development's construction phases, Village inspectors observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

### 2.2 Plan Consistency

The Village is not currently within a Regional Stormwater Management Planning Area and no TMDL requirements have been developed for waters within the Village; therefore, this plan does not need to be consistent with any regional stormwater management plans (RSWMPs) nor any TMDL requirements. This MSWMP will be modified to be consistent with the Bergen County Stormwater Plan along with NJDEP Regulatory modifications. 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 Village utilizes the most current update of the RSIS in the stormwater management review of applications for development that are required to appear before the Planning Board or the Zoning Board of Adjustment.

The Village'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, Village inspectors will observe on-site soil erosion and sediment control measures and either report any inconsistencies to the Bergen County Soil Conservation District (for those properties under the Soil Conservation District's jurisdiction) or utilize the Village's own ordinances to ensure compliance.

The Village's most recent Stormwater Control Ordinance was adopted by the Village Council in January 2007, with an effective date of February 6, 2007. The ordinance modifies the previous Ordinance adopted by the Village due to review comments from Bergen County.

### 2.3 Nonstructural Stormwater Management Strategies

In addition to the Village's current and proposed stormwater regulations, various non-structural land use stormwater management strategies are being employed by the Village. These include;

**Section 190-04: Landscaping and Buffers** requires buffer areas along all lot and street lines separating residential uses from arterial and collector streets. Will also require separating a nonresidential use from either a residential use or residential zoning district line. The landscaping requirements is a minimum of 25 feet buffer areas for new subdivisions over 6 lots, in the existing section do not recommend the use of native vegetation.

**Section 190-124: Special Regulations for Certain Uses and Structures** provides for a cluster development option to preserve land for public and agricultural purposes, to prevent development on environmentally sensitive area, and to aid in reducing the cost of providing streets, utilities and services in residential developments. Cluster Development is permitted by zoning in designated areas and is not a floating overlay zone. The option allows for smaller 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 cluster option is being amended to require that 40% of the total tract be preserved as common open space for residential area, and that 25% of the green or common area be landscaped with trees and/or shrubs. This language will have to be amended to promote the use of native vegetation, which requires less fertilization and watering than non-native ornamental plants.

**Section 190-80: Curbs and Gutters** requires that concrete curb and gutter, concrete curb, or Belgian block curb be installed along every street within and fronting on a development. This section was amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas.

**Section 190-83 Stormwater Management and Flood Protection** requires that all streets be provided with inlets and pipes where the same are necessary for proper drainage.

**Section 190-120: Environmental Standards** provide for non-point source pollution control related to the activities of development in the Village. The standards prohibit the depositing of materials or waste upon a lot or parcel in a manner that can cause said materials to migrate or be carried off of the lot, either directly or indirectly, by natural forces such as precipitation, evaporation, wind or the actions of individuals. The standards also require that all material and wastes that might cause a non-point source of pollutant or hazard, be protected in appropriate containers.

**Section 190-28: Appeals, Nonconforming Uses, Structures or Lots** requires a variance for existing single family homes proposing additions that exceed the maximum percent impervious. The homeowner must mitigate the impact of the additional impervious surfaces unless the Stormwater Management Plan for the development

provided for these increases in impervious surfaces. This mitigation effort must address water quality, flooding and groundwater recharge. A detailed description of how to develop a mitigation plan has been added to the Village Code.

**Section 190-55: Off-Tract Improvements** describes essential off-site and off-tract improvements. Language was added to this section to require that any off-site and off-tract stormwater management and drainage improvements must conform to the “Design Guidelines, Standards and Construction Specifications” described in this and part of the Village Code.

**Section 190-90: Off-Street Parking and Loading, Circulation and Access** details off-street parking and loading requirements. All parking lots with more than 10 spaces and all loading areas are required to have concrete or Belgian block curbing around the perimeter of the parking and loading areas. This section also requires that concrete or Belgian block curbing be installed around all landscaped areas within the parking lot or loading areas. This section has been amended to allow for flush curb with curb stop, or curbing with curb cuts to encourage developers to allow for the discharge of impervious areas into landscaped areas for stormwater management. Also, language has been added to allow for use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers. This section also provides guidance on minimum parking space requirements. These requirements are based on the number of dwelling units and/or gross floor area.

**Section 190-81: Sidewalks** describe sidewalk requirements for the Village. Although sidewalks are not required along all streets, the Village can require them in areas where the probable volume of pedestrian traffic, the development’s location in relation to other populated areas and high vehicular traffic, pedestrian access to bus stops, schools, parks and other public places, and the general type of improvement intended, indicate the advisability of providing a pedestrian way. Sidewalks are to be a minimum of four feet wide and constructed of concrete. Language was 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.

**Section 190-120: Soil Erosion and Sediment Control** addresses soil erosion and sediment control by referencing Chapter 190, the Village’s Soil Erosion and Sediment Control Ordinance. This ordinance requires developers to comply with the New Jersey Soil Erosion and Sediment Control Standards and outlines some general design principles, including: whenever possible, retain and protect natural vegetation; minimize and retain water runoff to facilitate groundwater recharge; and, install diversions, sediment basins, and similar required structures prior to any on-site grading or disturbance.

**Section 190-83: Stormwater Management and Flood Protection** addresses stormwater runoff by referencing Chapter 190 of the Village Code.

**Section 190-79: Streets** describes the requirements for streets in the Village. The Village has several street classifications, ranging from “Arterial”, which has a minimum right-of-way of 60 feet, to “Secondary Local”, which has a minimum right-of-way of 50 feet. Street paving widths are a function of the number of units served, whether a street is curbed, whether on-street parking is permitted, whether the interior streets serve lots of two acres or larger, and whether on-site topographical constraints allow design flexibility. Depending on these factors, paving width for secondary local streets has a range from 20 to 40 feet. This section requires that cul-de-sacs have a minimum radius of 30 feet. Language was added to this section to reduce the minimum radius of cul-de-sac designs. The Village is a proactive community and has made many changes to Chapter 190 “Land Use and Development” to reduce ground coverage and prevent storm runoff.

The Village is divided into twenty-three (23) Zone Districts and one (1) Historic District which are designated as:

R-125	Single-Family Residence District
R-110	Single Family Residence District
R-1	Single-Family Residence District
R-1A	Single-Family Attached Residence District
R-2	Single-Family Residence District
R-2A	Residence District
R-3	Two-Family Residence District
R-4	Garden Apartment Residence District
R-5	Multifamily Residence District
R-7	Multifamily Residence District
B-1	Retail Business District
B-2	Retail Business District
B-3	Affordable Housing District
C	Commercial District
P	Professional and Office District
P-2	Professional and Office District
H	Hospital District
OB-1	Office Building District
OB-2	Office Building District
T	Transition District
AH-1	Affordable Housing District
AH-2	Affordable Housing District
AH-3	Affordable Housing District

The Single-Family and Multi-Family Zones are restricted to maximum ground cover limits of:

Total Lot Area (square feet)	Maximum Coverage by Improvements (percent of total lot area)
0 to 13,999	45% but not above 5,600 square feet
14,000 to 24,999	40% but not above 8,750 square feet
25,000 and over	35%

The Village Code, Chapter 190, has been amended to remind developers that satisfying the percent impervious cover responsibility listed in Chapter 190 of the Village Code does not relieve them of responsibility for complying with the Design Guidelines, Standards and Construction Specifications for Stormwater Management, contained in Chapter 190 of the Village Code.

The MSWMP incorporates a detailed mitigation plan, which has been included in Chapter 190 of the Village Code.



### SECTION 3

#### 3.1 Land Use/Build-Out Analysis

The Village of Ridgewood's current Land Use Analysis is as follows:

<u>Land Use</u>	<u>Acres</u>	<u>Percent of Developed Land</u>	<u>Percent of Total Area</u>
Residential	2,312.61	63.33	62.32
Commercial	140.23	3.84	3.78
Public, Semi Public	521.36	14.37	14.05
Right-of-Ways	677.80	18.56	18.26
Total Developed Land	3,651.00	100	98.39
Vacant Land	<u>59.73</u>		<u>1.61</u>
Total Area	3,710.73		100

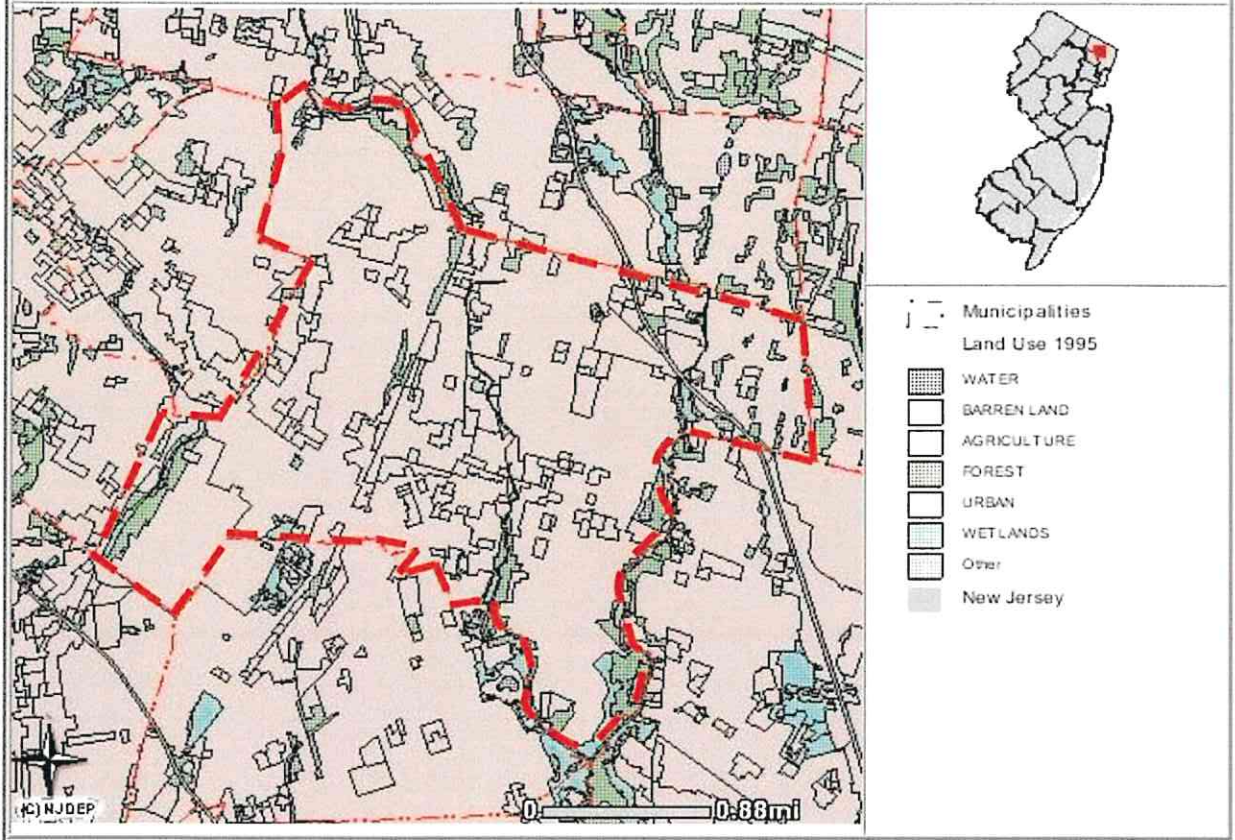
The Village of Ridgewood's available developable land is 59.73 acres or 1.61% of total land. Since the Village's available developable land is less than 640 acres, the Village is not currently required to complete a Build-Out Analysis, as stated in the Stormwater Management Plan Guideline.

Since the last update of the MSWMP, the Village acquired the Habernickel Horse Farm for parkland, recreation, and passive use. The proposed breakdown of use is one-acre - existing pond; three acres - passive along the northerly and westerly property lines, and five and six tenths acres - park and recreation.

The Village's Existing Land Use, Figure C-6, Hydrologic Units (HUC-145) within the Village, Figure C-7, Zoning Map and Figure C-8 Maps, are included in this section of the Plan.



Fig. C-6 Land Use 1995 In The Village Of Ridgewood



New Jersey Stormwater Best Management Practices Manual, Appendix C. Sample Municipal Stormwater Management Plan, February 2004, Page C-17

Fig. C-7 HUC 14 In The Village Of Ridgewood

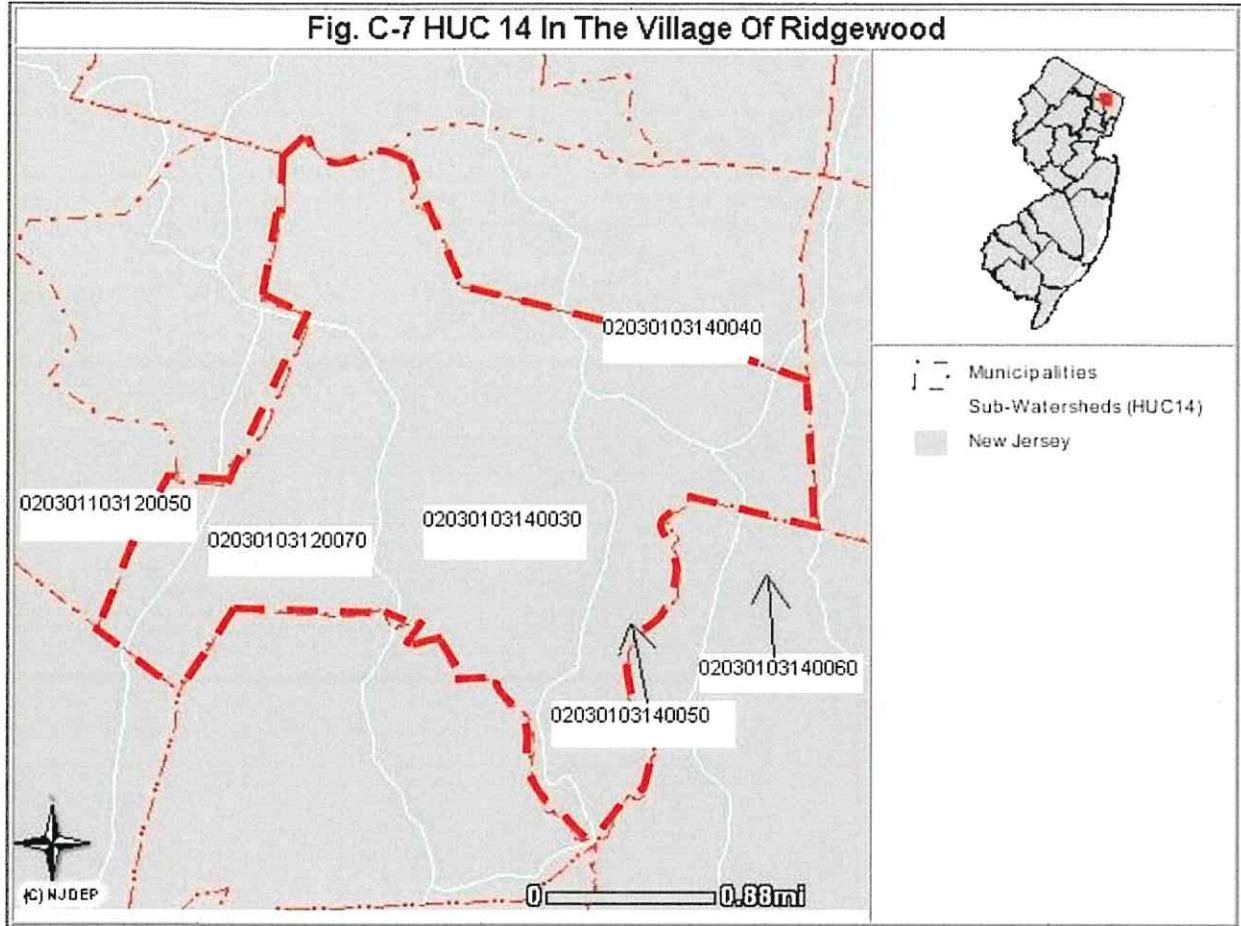
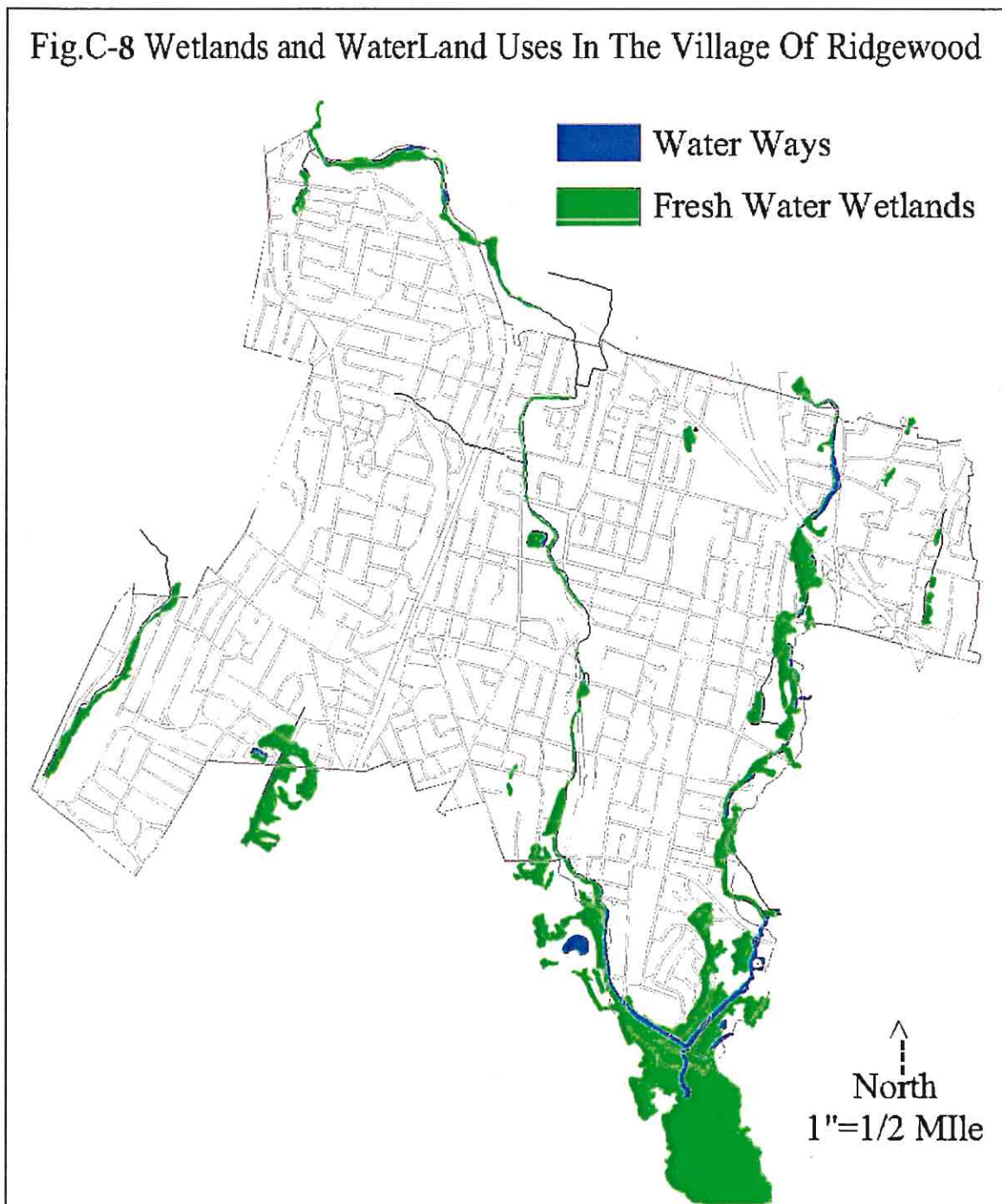


Fig.C-8 Wetlands and WaterLand Uses In The Village Of Ridgewood



New Jersey Stormwater Best Management Practices Manual. Appendix C: Sample Municipal Stormwater Management Plan, February 2004, Page C-21

## SECTION 4

### 4.1 Mitigation Plans

This Mitigation Plan is provided for a proposed development consisting of one acre or more of disturbance and/or ¼ acre or more increase of impervious surface that is granted a variance or exemption from the Stormwater Management Design and Performance Standards. Presented is a hierarchy of options.

#### Mitigation Criteria

1. The Mitigation Project must be implemented in the same drainage area (HUC 14 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 Stormwater BMP Manual.
  - A. 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 can be obtained from the Village Engineer. Listed below are specific projects that can be used to address the mitigation requirements.

#### GROUNDWATER RECHARGE

- Retrofit Hawes School, or Travell School, or Ben Franklin School, or Ridgewood High School or Glen School roof runoff to maximize groundwater recharge.
- Retrofit any one of the Village or Board of Education parking lots constructed on permeable soils to facilitate additional groundwater recharge.

#### WATER QUALITY

- Retrofit any one of the Village or Board of Education parking lots constructed on low permeable soils or locate in high water table areas to provide 80 percent (80%) of total solids removal. Due to site constraints, the retrofit BMP must be installed underground and cannot reduce the existing number of spaces.



## WATER QUANTITY

- Install Stormwater Management measures on Village or Board of Education properties to reduce the minimum or equal, to the project created impervious area and additional surface area volumes of the 2, 10, and 100-year storms, respectively.
2. If a suitable site cannot be located from mitigation in the same drainage (HUC 14) area as the proposed development, as presented 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. The Village will only permit this alternate option when all other mitigation venues have been exhausted. For example, if a variance is given because the 80% TSS requirement cannot be met, the selected project may address water quality impacts due to other impairments. Listed below are specific projects that can be used to address the mitigation option.

## WATER QUALITY

- Re-establish a vegetative buffer (minimum 50 feet wide) along the west shoreline of King's Pond as a goose control measure and to filter stormwater from the high-water fowl traffic areas.
- Provide goose management measures, including public education at Veteran's Field.

The Village may allow a developer to provide funding or partial funding to the municipality for an environmental enhancement project that has been identified in a Municipal Stormwater Management Plan, or towards the development of a Regional Stormwater Management Plan. The funding must be equal to or greater than the cost to implement the mitigation outlined above, including costs associated with purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.

3. Small projects that create up to 10,890 S. F. (1/4 acre) of impervious area and/or 500 S.F. to 43,560 S.F. of disturbance, and cannot provide recharge or increase surface runoff may be permitted to provide funding to a Village Stormwater Management Trust Fund. This fund will be utilized for other projects, maintenance, retrofits, abatement, and equipment specific to the Village's compliance with the Stormwater Management Regulations. The funding amounts will be set by ordinance for impervious area by square feet and planted/vegetative/lawn area by square feet.