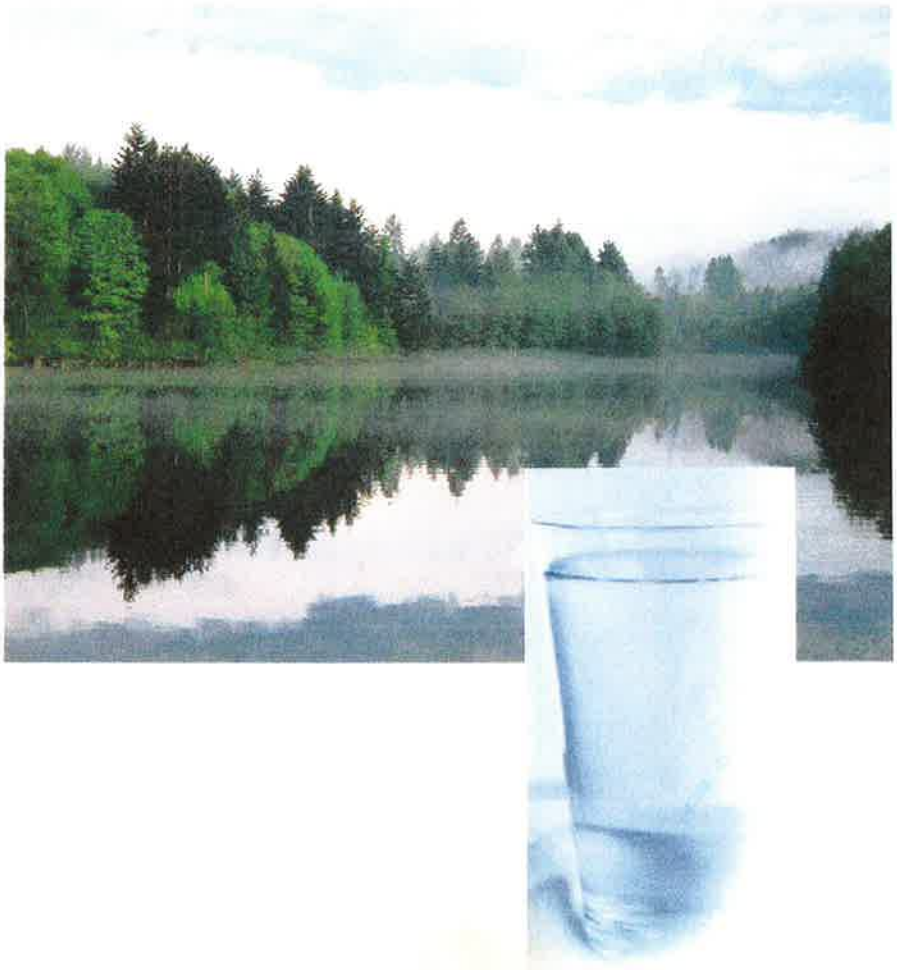
Rindge, New Hampshire

Water Resources Management and Protection Plan

2002



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Rindge, New Hampshire

Water Resources Management and Protection Plan – 2002

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INTRODUCTION

"It cannot be overstated: water is essential to life. Water moves ceaselessly through the natural and manmade environment. The supply and quality of water are directly affected by all that water encounters - the land it flows over and through, pavement and rooftops, through homes and industries. The water cycle is continuous and links all living and inanimate things.

"New England is water rich. The landscape is green. Rain and snow are part of everyday life. But the need for clean water has always been and will be an ever more important limiting factor for the kinds and intensity of development a town, Region, or the landscape can support. New England rivers have rebounded dramatically from the polluted conditions prevalent prior to the 1970's. Scientific and political actions built safeguards against that sort of pollution occurring again in our streams, ponds and groundwater. Today most people have a good understanding about the relationship between use of chemicals and protecting clean water. As our management of threats to water quality become more sophisticated, we are recognizing that water quantity, that is supply of enough water, is fast becoming a management issue as well. We are discovering that even the water-rich northeast has a finite amount of water available each year. About 42 inches of water falls here as rain and snow each year, half of which ultimately drains away to the ocean or evaporates back to the atmosphere. We are capable of using our annual water supply faster than it is replaced.

"Historically, the Southwest Region's abundant streams and ponds enabled the development of water-powered industry, the seeds of villages and connecting road networks. River valleys for our larger rivers – the Ashuelot, Connecticut, and Contoocook – provided fertile agricultural land. Rivers and ponds still drive hydroelectric plants, but much of the river valley land now hosts residential and small urban development, and our surface waters are valued mostly as recreation areas and scenery. The vast majority of Southwest Region residents are supplied with drinking water by wells drilled into bedrock. We have distanced our everyday lives from thoughts of water resources: for most of us water comes from the tap not the landscape outside our door." [1]

The purpose of the document is to provide the Planning Board and the Conservation Commission with the best possible tools for managing and protecting the water resource for the Town of Rindge.

The goals of this document are to:

- Identify and evaluate the adequacy of existing and potential water supply sources to meet the current and future needs of the community:
- Identify existing and potential threats to surface and groundwater resources:
- Evaluate existing local programs, policies, and regulations as they relate to water resources:
- Identify regulatory and non-regulatory programs that would benefit the Town in its water resource management and protection efforts.

[1] Southwest Region Planning Commission. 1998. "Introduction to Southwest Region Towns: Southwest Region Natural Resources"

The variables examined here to support Rindge's decisions about water resource management are:

- Hydrography: the characteristics of surface and groundwater, including stream miles, area of surface water, and the nature of geological formations that may contain ground water;

- Land cover and land use: landscape characteristics including area of land covered by natural vegetation and land area altered by development and inventory of land use by type, including potential contamination sources; and

- Future land use: zoning.

Water resource management uses a geography of watersheds as management units - land areas for managing land use and monitoring environmental quality. A watershed is any contiguous land area from which all surface water drains at a single point. Watersheds can be any size, from the Connecticut River watershed which includes most of central New England to a parking lot at a local store. Watersheds are the basic management unit because, simply put, we know where the water that flows through streams, ponds and aquifers within a watershed comes from. Watersheds are delineated or defined by connecting high ground between stream drainage networks. The network formed by rivers, streams, lakes, and ponds is known as the drainage system of the watershed.

Water resource management must account for human effects on the movement and quality of water. Human activity can jeopardize the availability of clean water for human and ecological needs by disrupting the natural processes of water movement. The water cycle is a network of pathways and processes by which water circulates through the environment. **Figure 1.** depicts the basic pathways, i.e. precipitation, runoff, infiltration, evaporation, and states, i.e. water vapor, soil moisture, ground water, surface water, and biomass (plants and animals) that comprise the water cycle. One important aspect of the movement of water is that ground water (water below the water table) tends to flow in the same directions as surface water. The significance of this fact is that idea of using the geography of watersheds to manage surface water is equally useful for ground water.

Altering the terrain and vegetation, dispersing chemicals on purpose or by accident, even drawing water from one place and releasing it elsewhere do effect water quality and quantity locally. The cumulative effect of small changes with each new home and business, each day's car exhaust, and most routine activities do effect water quality and quantity. Increased development has meant an increase in both impervious surface (compacted earth, pavement and rooftops) and site design that drains water away from development into streams. Both divert water from infiltrating into the soil and aquifers which in turn increases flooding during storms, decreases ground water, decreases stream flow between storms, and can impair water well productivity. Development has also increased the likelihood of the release of pollutants into the soil or onto the surface which are then spread by water. **Figure 2.** depicts how urbanization can change percentage of precipitation that runs off to streams and ponds or infiltrates into the ground.

Water resources management strives to minimize disruption of the hydrologic cycle and water quality. Clean water requires clean air and clean soil.

DESCRIPTION OF CONDITIONS AND VARIABLES

WATERSHEDS

The land in Rindge is divided into two different watersheds: the Contoocook River Watershed, which is part of the Merrimack River Basin; and the Millers River Watershed, which is part of the Connecticut River Basin. The Contoocook River Watershed drains water to the north and east, ultimately to the Merrimack River at Concord, from 490,240 acres in 34 New Hampshire communities, ranging as far north as Danbury and as far east as Concord. The Contoocook River watershed includes about 7,450 acres of Rindge. The Contoocook River begins in Rindge at Contoocook Lake. The Millers River Watershed consists of approximately 250,880 acres in portions of Rindge, Fitzwilliam, Jaffrey, New Ipswich and Richmond in New Hampshire and extends as far south as Templeton Massachusetts. About 18,150 acres of Rindge drains into the Millers River and ultimately the Connecticut River.

These two watersheds are further divided into twelve sub-watersheds. **Map 1.** shows the locations of all twelve sub-watersheds within the municipal boundaries of Rindge. The Contoocook River Watershed contains the following sub-watersheds: Contoocook Lake, Hubbard Pond and Gridley River. The Millers River Watershed contains the following sub-watersheds: Sip Pond, Robbins Brook, Robbins Pond, Lake Monomonac, Converse Meadow, Binney Hill, Pearly Lake, and the Damon Reservoirs.

Lying at the headwaters of two watersheds is a beneficial situation for water resources protection – the vast majority of water running over and through the land of Rindge falls on Rindge as rain or snow. Most of the streams in Rindge begin in Rindge. The exceptions are the headwaters of Pearly Pond and Converse Meadow watersheds. But, both of these originate in remote undeveloped areas of Jaffrey and New Ipswich, providing some assurance of low risk for pollution of the water entering Rindge. There is also some surety that the same assumptions apply to Rindge's groundwater. This means that Rindge has a high degree of control over the aspects of land use management that affect water quality in Rindge.

The watersheds delineated in this Plan were selected to encompass land areas that are simultaneously 1) of homogeneous development conditions, 2) large enough to support a community water supply, and 3) small enough to support special management programs or activities if desired. Also, watershed areas outside the town boundaries were included only if they are upstream of Rindge, i.e., only if the surface and ground water moving through them are known to or potentially may also pass through Rindge, thereby directly affect Rindge's water resources

1. Sip Pond Watershed
   Total area: 4,300 +/- acres in portions of Rindge and Fitzwilliam, and Winchendon Massachusetts. Area within Rindge: 84 acres. Waterbodies: none. Watercourses: none

2. Robbins Pond Watershed
   Total area: 2,284 +/- acres in Rindge and Winchendon, Massachusetts.
   Area within Rindge: 1,790 acres. Waterbodies: Robbins Pond Watercourses: Streams

3. Robbins Brook Watershed
   Total area: 2,175 +/- acres in Rindge and Winchendon, Massachusetts.
   Area within Rindge: 268 acres. Waterbodies: none. Watercourses: Streams

4. Lake Monomonac Watershed
   (Shown as Lake Monomonac AND Converse Meadow on Map 1.) Total Area: 12,510 +/- acres in Rindge, New Ipswich, and the Massachusetts communities of Ashburnham and Winchendon.

Area within Rindge: 7,556 acres. Waterbodies: Lake Monomonac, Converse Meadow Pond, McGregor Meadow Pond, Crowcroft Pond, Emerson Pond, and other ponds. Watercourses: Lord Brook and other streams.

5. Converse Meadow
A sub-watershed of Lake Monomonac. Total area: 4,519 +/- acres in Rindge and New Ipswich. The Rindge portion consists of approximately 1,400 acres.
Waterbodies: Converse Meadow, Stump Pond, Bancroft Reservoir, Island Pond, Divol Pond and other ponds. Watercourses: North Branch of Millers River and streams.

6. Pecker Pond Watershed
Total area: 220 +/- acres in Rindge, and Ashburnham, Massachusetts.
Area within Rindge: 177 acres. Waterbodies: Pecker Pond. Watercourses: Bear Meadow Brook and other streams.

7. Binney Hill 1 and Binney Hill 2 Watersheds
Total area: 685 +/- acres in Rindge and New Ipswich.
Area within Rindge: 630 acres. Waterbodies: none Watercourses: none.

8. Hubbard Pond Watershed
Total area: 4,082 +/- acres in Rindge, Jaffrey, New Ipswich and Sharon.
Area within Rindge: 2,607 acres. Waterbodies: Hubbard Pond, Black Reservoir and other ponds.

9. Contoocook Lake Watershed
Total area: 5,554 +/- acres in Rindge and Jaffrey.
Area within Rindge: 4,490 acres. Waterbodies: Contoocook Lake, Pool Pond, Grassy Pond, Bullet Pond, Rugg Pond and other ponds.

10. Pearly Lake Watershed
Total area: 2,321 +/- acres in Rindge and Jaffrey.
Area within Rindge: 1,641 acres. Waterbodies: Pearly Lake and other Ponds.

11. Damon Reservoirs Watershed
Total area: 5,270 +/- acres in Rindge, Jaffrey and Fitzwilliam.
Area within Rindge: 4,240 acres. Waterbodies: Damon Reservoirs, Taggart Meadow and other ponds. Watercourses: Tarbell Brook and other small streams.

Damon Reservoirs with Pearly Lake
Total area: 7,597 +/- acres in Rindge, Jaffrey and Fitzwilliam.
Area within Rindge: 5,881 acres. Waterbodies: Pearly Lake, Damon Reservoirs, Taggart Meadow and other ponds. Watercourses: Tarbell Brook and other small streams.

12. Gridley River Watershed
Total area: 4,403 +/- acres in portions of Rindge and Jaffrey, New Ipswich, Peterborough, Sharon and Temple. Area within Rindge: 272 acres. Waterbodies: none Watercourses: none

SURFACE WATER

Surface water systems are any type of water resource located above the ground on the earth's surface, such as streams, rivers, ponds, lakes, and wetlands. Surface water systems may be more dynamic than

groundwater systems, in that they are directly effected by wind, rain, radiation from the sun, daily and seasonal temperature change, and changes on or above the earth's surface created by human activity. Surface water systems can be flowing or standing (e.g. bogs). Surface water systems are also important plant and animal habitat.

As surface water systems flow over the land, they are subject to pollution caused either by hazardous materials located in close proximity to the system, or by pollutants discharged into the water. There are two types of pollution source categories; non-point sources and point sources. Non-point pollution sources are small dispersed sources that collectively release contaminants over large areas, such as exhaust from automobiles and lawn mowers; pesticides spread on lawns and farm fields; junkyards; and oil, other chemicals and metal particles left on pavement by motor vehicles. Point sources are large, stationary points of emissions, such as effluent from storm sewers systems and industrial smoke stacks.

Surface water resources function as holding areas for floodwaters and seasonal high waters. Surface waters are also usually hydrologically connected with groundwater, most commonly, a discharge from groundwater. Groundwater discharge supplies stream flow between rain storms and snow melt periods and during the dryer summer months. See "Groundwater" below.

There are nearly 50 named and unnamed ponds and lakes in Rindge and approximately 60 perennial streams. A more complete description of these waterbodies and watercourses can be found at the Planning Board office.

Surface Water Quality

Each of New Hampshire's lakes, ponds and rivers is assigned a legislative water quality classification as follows:

- Class A – The highest quality and potentially acceptable as public water supply sources after disaffection. No sewage or wastes shall be discharged into these waters.

- Class B – The second highest quality and no objectionable physical characteristics. No sewage or waste shall be discharged in to these waters unless it has been treated. Acceptable for bathing and other recreational purposes and, after adequate treatment, for use as public water sources.

- Class C – Acceptable for boating, fishing, or for industrial water supply. These waters cannot be used as a public water supply source.

Currently, the Town's only Class A waterbody is Bullet Pond, which has been a municipal water supply for Jaffrey in the past. The remaining water bodies in Rindge are classified as Class B Waters.

The NH Department of Environmental Services has carried out a field research program: "New Hampshire Lakes and Ponds Inventory," since 1976. "The purpose of the survey is to provide information on current baseline conditions, long-term trends, water quality compliance, trophic state, acid rain impacts, and exotic weed distribution" in New Hampshire's great ponds (waterbodies ten acres or larger). NH DES accomplishes inventory surveys for 50 or so of the State's 780 great ponds each year. Thirteen ponds in Rindge have been surveyed one or more times by NH DES since 1978:

Year	Waterbody
2002	Crowcroft Pond
2000	Grassy Pond
2000	Hubbard Pond
2000	Robbins Pond
1994	Poole Pond
1993	Robbins Pond
1993	Lake Monomonac (Station A)
1992	Black Reservoir
1992	Divol Pond
1992	Pearly Lake
1989	Lower Damon Reservoir
1989	Upper Damon Reservoir
1984	Emerson Pond
1984	Grassy Pond
1984	Pecker Pond
1982	Pool Pond
1981	Hubbard Pond
1978	Lake Monomonac (Station A)
1978	Lake Monomonac (station B)

The reports include a bathymetric map for each pond that also shows the general distribution of aquatic plant species, the results of standard chemical and physical water quality tests, and comments about dams, wildlife, or other incidental observations. The full reports for these ponds are available for review from the NH DES Lakes Program.

Today, NH DES conducts a Volunteer Lakes Monitoring Program (VLAP) which provides training, lends equipment, and provides laboratory testing for standard water quality parameters of water samples collected by volunteer groups – often private lake associations or Conservation Commissions. Since 2000, Franklin Pierce College has operated a satellite lab for VLAP. Three ponds in Rindge were monitored through VLAP in 2000: Lake Monomonac, Pearly Pond, and Pecker Pond.

Wetlands

Wetlands, for regulatory purposes in Rindge, are "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Wetlands provide value in the hydrologic cycle for water storage, including floodwater, and eliminating sediments from runoff (including pollutants), as well as contributing to biological diversity. Regarding water supply concerns, wetlands tend to be a source of water loss from the watershed through evaporation of standing water and evapotranspiration of water taken up by plants and released into the air as water vapor through normal plant metabolism. Evaportranspiration rates for forested wetlands, especially hemlock, can be very high during the growing season. But, the flood mitigation, water quality and biodiversity benefits of wetlands are essential to healthy communities.

Floodplains

Floodplains are unique ecological communities: terrestrial systems adjacent to streams and rivers that develop under the dominating effect of periodic flooding. Some species of plants and animals are found only in floodplain habitats. Floodplains provide flood water storage and elimination of sediments from streams – as flood water moves through forested flat land, the water slows and sediment falls out. Recharge to groundwater may also take place on floodplains.

Because the landscape of floodplains is flat and often with sandy soils, floodplains are often desirable for development. However, using floodplains for development jeopardizes both the sustainability of development and the natural hydrology and ecology of the floodplains.

Rindge participates in the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA). FEMA conducted a flood hazarded study for Rindge in 1997 and flood hazard areas were identified in the Pool Pond, Contoocook Lake area as well as areas along the Millers River and Lake Monomonac. Flood Insurance Rate Map (FIRM) and Flood Hazard Boundary Maps were prepared by FEMA and are available for review at the Rindge Planning Board office. See "Zoning" below.

GROUNDWATER

Groundwater is a concentration of water in soils and rock formations. It is re-supplied through precipitation. Rain water and melting snow infiltrates into the ground. Water that is not taken up by plant roots or trapped as soil moisture will continue downward. As water passes through soil, "normal background" impurities (such as, naturally occurring plant nutrients or microbes) are usually removed through chemical reactions with soil particles and soil microbes. Conversely, if the soil is contaminated with chemicals or high concentrations of pathogens, infiltrating water can be contaminated as well. Infiltrating water eventually accumulates on top of an impervious layer below ground, e.g. clay or bedrock, and fills the spaces between grains of sand, gravel or soil particles above that barrier. The top of this saturated zone is the water table (Figure 1.).

Groundwater flows in the same general direction as surface water unless confined by bedrock or clay. Most surface water is the result of groundwater "breaking out" and flowing or accumulating on the surface – where the slope of the water table is intersected by the slope of the land surface. In the bottom of valleys, groundwater from the hillsides accumulates in the valley and the surface of rivers and ponds may literally be the top of the water table. Upland streams will also be fed by groundwater. As mountain streams dry up from the top of the hill down in summer, we can observe the fall of the water table as groundwater drains down hill. However, it is not uncommon in central New England highlands for small depressions in bedrock to create groundwater pools – creating "bodies" of groundwater that are isolated from groundwater at lower elevations. Many of the wetlands in Rindge may be a result of just such features.

It is very important that the surface of the earth is not altered to prevent water from infiltrating to groundwater. Paving, buildings, compacted dirt, and any other changes in the surface (including deforestation) that will increase runoff during storms and snow melt also decrease the amount of water that can infiltrate to groundwater. (Figure 2.). The U.S. Geologic Survey reports that about 50% of the annual precipitation in central New England infiltrates into the soil, sand, gravel and spaces in bedrock under natural forested conditions.

Aquifers are geologic formations, either bedrock or sand and gravel deposits, which can store and transmit sufficient quantities of groundwater to support private residential or community water wells.

Deposits of sand and gravel and bedrock fractures in Southwest New Hampshire are known to have medium to high potential as aquifers.

Bedrock and Glacial Till Aquifers

Bedrock fractures can be very productive water sources, especially if the fractures are connected to sand and gravel over the bedrock. This allows recharge to occur directly from above. Bedrock fractures are usually adequate for domestic wells and can sometimes support community systems. There is very little known about the location or qualities of bedrock fractures in New Hampshire that might provide water. It is expensive and labor-intensive to study bedrock hydrogeology – typically such research is undertaken only when a developer or community is imminently in need of a new well.

In contrast, the mixture of "dirt" and stones that covers most of the bedrock in central New England's uplands is a poor aquifer. This mixture is known as glacial till which resulted from the mixing of material picked up by the glaciers as they flowed many miles from the north. As the glaciers melted the mixture was laid down in-place unless carried away by running water. Till is a mix of clay, silt, sand, gravel, and boulders which tends to be very compact due to the variety soil particle sizes. While till can hold a tremendous amount of water, it is very difficult to extract due to the small, even microscopic spaces between soil particles.

Stratified Drift Aquifers

Sand and gravel deposits, also called stratified drift deposits, are typically layers of gravel, sand, silt and/or clay that were sorted and deposited by running water from the melting glaciers 40,000 years ago. They are found primarily along valley bottoms. Stratified drift can have abundant space between same-sized gravel or sand where water can accumulate and flow freely (much like the space in a jar filled with marbles). The space can be more than 30% of the deposit's total volume. Consequently, stratified deposits of sand and gravel are often very good aquifers.

The U.S. Geologic Survey (USGS) completed descriptive studies of the stratified drift aquifers in the Connecticut and Merrimack River basins in the mid-1990's. Data from those studies are used to depict the extent and some characteristics of the stratified drift aquifers in and around Rindge shown in Map 2.

Three characteristics are used to understand stratified drift aquifers: material, saturated thickness and transmissivity. The material is the kind of geologic material, whether it's sand or gravel, the size of the sand grains or gravel, etc. All of the stratified drift deposits in Rindge are thought to consist of material ranging from medium-sized sand grains to gravel, possibly with interspersed deposits of fine sand. While stratified drift may be layered with fine sediments that can inhibit the flow of water, e.g. clay as found in lake bottoms, none of the deposits in Rindge are thought to be so.

The saturated thickness of a stratified drift deposit is the vertical distance from the water table in the aquifer to the bottom of the aquifer, typically bedrock. The saturated thickness of the deposits in Rindge, measured in 40-foot intervals, range from less than 40 feet to more than 80 feet. Most of the deposits are less than 40 feet. The greatest saturated thickness is found in the Lake Monomonac and Hubbard Pond aquifers.

Transmissivity is a measure of the rate at which water can move through the material, using a usual unit of measure: "feet squared per day". Transmissivity takes into account the size of the spaces between sand grains or gravel and the saturated thickness. Transmissivity is reported by the USGS in 1,000 ft^2/d

intervals. Transmissivity of less than 1,000 are generally considered inconsequential for large water supply wells, but, are excellent aquifers for individual wells serving homes or businesses. Transmissivity of aquifers in Rindge range from less than 1,000 to over 8,000. Again, the Lake Monomonac and Hubbard Pond aquifers have the greatest potential for high yield wells due to high saturated thickness and high transmissivity.

Note: Saturated thickness and transmissivity values are not reported for the Converse Meadow aquifer as insufficient data was available to the USGS for that report. However, it is known that a private well drilled there in the late 1990's is very high yield.

WATER SUPPLY

All water supplies, private and public, in Rindge are groundwater wells. A public water supply is any source that provides water to 15 permanent connections or 25 people 60 or more days a year. Public water supplies are regulated by the State, as required by the US EPA. This definition captures municipal and private wells, such as, schools, campgrounds, restaurants, large employers, village systems. Also, since 1984, water well drillers are required to report the location and basic information (depth to water table, pump test results, etc.) for new or re-drilled wells of any kind in New Hampshire (Map 2.) While there remain hundreds of private residential and commercial wells in Rindge that are not identified in any data base, it is safe to assume that every house, apartment building and business has a water well.

Another level of regulation is involved when water withdrawals by a single user exceed 20,000 gallons per day. Such users are required to be registered with the NH DES Water Supply Engineering Bureau. There are two registered water users in Rindge: Franklin Pierce College with four wells and the Town of Jaffrey's well near Black Reservoir (Table 3.)

Pumping water from wells can change the direction of groundwater flow in the vicinity of the well. Three variables affect the magnitude of this effect: the gradient of the water table, the transmissivity of the aquifer and the pumping rate of the well. In general, the lower the gradient, or flatter and slower moving, the water in the aquifer; the higher the transmissivity of the aquifer; and the higher the pumping rate of the well; the greater the area influenced by well pumping. This area is known as the Zone of Contribution, or the Wellhead Protection Area (WHPA).

The shape of WHPA's in stratified drift aquifers varies a great deal, but generally extends farther from the well uphill or upstream from the well. The WHPA for bedrock wells is often simply assumed to be circular with the well at the center; the size of the circle determined by the pumping rate of the well. Map 2. includes WHPA's calculated or estimated by NH DES for the public water supplies in Rindge.

Understanding the size and shape of WHPA's is important because these are areas where public health is most directly threatened by pollution of the soil or groundwater. Groundwater use, regulation of potential pollutants, and design of septic systems are in part based on assumptions about the fate of potential pollutants (chemical or biological) once released onto or into the air, soil or water. Much of the conventional risk management is based on pollutants being diluted in water or otherwise attenuated by adhesion to soil particles or biodegradation. These assumptions may not apply to WHPA since the groundwater moves very quickly to the well therein. Any substances released into the soil or water within WHPA's can move directly to the well undiluted or otherwise attenuated.

ANALYSIS OF CONDITIONS

Analysis of water resources and effective landscape, land use and regulatory variables was undertaken both qualitatively and quantitatively by watershed, primarily using the SWRPC Geographic Information System. Results of analysis are described below and presented in a series of tables and maps:

Table 1. Watershed Landscapes: the amounts of watershed area, surface water, streams, wetlands, floodplain, forest cover, stratified drift aquifer, developed land; with associated **Maps 1., 2. and 3.**

Table 2. Watershed Land Use: number and size of properties, road miles, count of properties by type of land use, water supplies, and count of potential contamination sources; with **Maps 1., 2. and 3.**

Table 3. Potential Contamination Sources, with **Map 4.**

Table 4. Public Water Supplies

Table 5. NH DES Drinking Water Supply Assessment Report

Table 6. Watershed Zoning: area of land by Use District by watershed; with **Map 5.**

Table 7. Watershed Summary; and

Table 5. Aquifer Analysis.

WATERSHED LANDSCAPES

The watersheds delineated in Rindge are mostly forested. Estimated percentages of forest cover range from 65% for the Contoocook Lake watershed to 90% for Gridley River and Converse Meadow. Nearly 10% of the land areas of both Contoocook Lake and Lake Monomonac are developed. Stream densities (miles of stream per acre) are fairly uniform throughout the area. Not surprisingly, the Contoocook Lake and Lake Monomonac watersheds also have the highest number of shoreland miles. The topography for all watersheds in Rindge is relatively uniform in terms of both the range of slopes and changes in elevation.

Wetlands and other surface water features are generally areas of water loss from a watershed, through runoff and evaporation. Surface water is typically a result of ground water breaking out. The elevation of the surface of water in streams, lakes, ponds and wetlands is often the elevation of the groundwater at that point – that is, the ground surface is below the elevation of the water table. Streams, lakes and ponds drain water out of watersheds and are also areas of evaporation. Wetlands, whether part of the drainage network or isolated in depressions, tend to have high rates of evaporation and evapotranspiration – water released into the atmosphere as a by-product of plant metabolism. Rindge receives about 42 inches of water from snow and rain each year, of which up to 20 inches is released back into the atmosphere by evaporation and evapotranspiration – these are average annual values. Converse Meadow, Pearly Pond, Damon Reservoir and Gridley River watersheds have higher proportion of surface area occupied by wetlands, streams and waterbodies. Hubbard Pond and Lake Monomonac have relatively moderate proportions of surface water area.

Stratified drift aquifers, measured by area, are most abundant both in absolute and relative terms in the Hubbard Pond, Lake Monomonac, and Contoocook Lake watersheds. However, the characteristics of these formations relevant to water supply vary, particularly in regarding the saturated thickness (the

vertical thickness of sand and gravel filled with water) and the transmissivity (the rate at which water can move through the deposit – a measure of how easily a well can be replenished during pumping). Both the Hubbard Pond and Lake Monomonac formations have areas with transmissivity rates up to 4,000 square feet per day, while the Contoocook Lake formation is limited to 2,000. The high transmissivity zone of the Hubbard Pond aquifer currently supplies water to the Jaffrey municipal system. Converse Meadow also has a large area of stratified drift, but the saturated thickness and transmissivity are unknown.

Table 5. presents summary statistics and a rough numeric assessment of favorability for water supply – in terms of the total volume of water theoretically available. The acres and percentage of watershed that are developed, presented adjacent to the favorability value, should generally be considered to detract from the favorability estimate. (Note: The favorability value was contrived for discussion only, to provide decision-makers with some relative values for comparing the aquifer deposits. This value is not conventional in hydrogeology.) The favorability value was calculated by multiplying the area of the aquifer by the saturated thickness and the land area of the watershed (subtracting the area of surface water). Given the generally uniform distribution of the development and forest composition, and the uniform stream drainage density at the watershed scale in Rindge, the amount of water available for infiltration to groundwater and to aquifers is a function of watershed size and aquifer size. The aquifers Lake Monomonac, Contoocook Lake, Damon reservoir and Converse Meadow have the highest potential for water supply in terms of volume. The transmissivity and saturated thickness of the Converse Meadow aquifer are unknown, but a private well there is known to have a high yield.

WATERSHED LAND USE

Watersheds were assessed for a number of properties as a measure of the number of individual land owners which in turn may represent the complexity of management programs. The size of properties was also queried, again, as a proxy measure possibly for imminence of development or opportunity for land protection or the effectiveness of new protective zoning standards on future development. Contoocook Lake and Lake Monomonac have by far the highest count of properties. Lake Monomonac has an especially small average lot size at only six acres – accounted for by the many small lakeside properties and Rindge Center. The density of residential development (number of properties in residential use per acre of watershed) is highest in Contoocook Lake and Lake Monomonac, both with 0.162 residential properties per acre, but watershed-wide, these are low densities – reflecting the town-wide low development density.

Commercial and industrial development accounts for very little land area in Rindge. There are 76 properties with commercial or industrial uses in the four watersheds with stratified drift deposits. As of 2000, there were 1,863 households reported in Rindge by the U.S. Census. Road densities are very low throughout the area. The distribution of land uses in Rindge is depicted in Map 3.

NH DES reports a total of 115 Potential or known sources of groundwater contamination in Rindge and over the contiguous stratified drift deposits in the neighboring towns (Table 3.). Ninety-two of these are within Rindge's boundaries. GIS data available as of 2002 are depicted in Map 4. Each of the four watersheds with stratified drift deposits also have potential pollution sources and all but Hubbard Pond have pesticide application permittees within their boundaries.

Individual septic systems are also of concern regarding surface water and groundwater protection. Failing or substandard systems can release pathogens, nutrients and chemicals from households to groundwater and surface water. Areas with higher density and older housing, such as village centers or developed lake fronts are especially susceptible to septic system failures due to aged or under-designed systems. Again, development density and age are the key factors – review of land use densities (Map 3.) combined with

local knowledge of the age and history of neighborhoods can provide Town officials with good indication of the level of threat throughout town. The villages of East Rindge and West Rindge and communities on the shores of Lake Monomonac and Contoocook Lake may be most vulnerable to system failure or cumulative effects of decades of high density on-site septic disposal – much of which was designed and operated prior to the establishment of State-level standards.

There are 34 public water suppliers in Rindge, using 66 wells (Table 4. and Map 2.). One of these is a registered water user (withdrawing more than 20,000 gallons per day): Franklin Pierce College's four wells. The Town of Jaffrey's well on Contoocook Lake Road in Jaffrey is also registered (Table 3.)

The 1990 U.S. Census reported 266 households supplied by public water supplies in Rindge, 1,362 on private wells, and seventeen on "other" sources – probably springs. Also, the same year's Census reported 1,599 private on-site septic systems and 178 households served by waste water treatment systems.

NH DES has prepared "Assessments of Public Water Supply Sources" for many supplies in New Hampshire, including 24 in Rindge (Table 5.) These reports rank the level of risk imposed by fifteen variables, such as proximity of the well and the WHPA to septic systems, development and known potential contamination sources. The variables used are displayed in an associated map prepared by NH DES which follows Table 5. Overall, the level of risk to the wells investigated by NH DES to-date in Rindge is low. Further information can be had from the NH DES Water Supply Engineering Bureau or on the NH DES website. Reports for Rindge water supplies are available for review at the Town Offices.

If water is routinely withdrawn and removed from one watershed for use and release elsewhere, there can be a long-term loss of water from the watershed of origin – with negative effects for human use and ecological functions. In general, water drawn from wells in Rindge is discharged, returned to the ground in close proximity to the well. The possible exception to this finding is the Town of Jaffrey's wells in the Hubbard Pond aquifer which is distributed throughout Jaffrey water supply system, much of which ultimately is discharged at Jaffrey's waste water treatment plant downstream on the Contoocook River. This is somewhat of a short circuit for the hydrology of the watershed downstream from the well site. The zone of contribution from which that well draws water has a considerable radius with the Town of Rindge (Map 2.)

Regarding water consumption in Rindge, estimates can be applied to better understand the amount of water used in Rindge. As stated above, water used in Rindge is processed through homes, gardens and businesses and returned to the ground or surface waters nearby. USGS recommends an estimate of 65 gallons per day per person in New England. The principal variable in rates of water use appears to be household income. Northeast Rural Water Association provides the following use rates:

National Average for Residences	170 gallons per connection
National Average for Businesses	250 gallons per connection
Central New England Residences	
Low-Moderate Income	55 gallons per day per person
Middle Income	65 gallons per day per person
High Income	500 (up to 1,000) gallons per day per person

A very rough estimate of residential water demand can be calculated using information about household size and income from the 2000 U.S. Census. The 2000 population of Rindge was 5,451 (which includes

college students) living in 1,514 households. The average household size was 2.87 persons per household. If income groups of less than $35,000 for low-moderate income households, $35,000 - $150,000 for medium income and greater than $150,000 for high income are used, the first step is to multiply the number of households reported in these income intervals by the Census by the average household size of 2.87; the second step is to multiply the number of people in the household income intervals by the water use rates provided by Northeast Rural Water; fourth, add the daily water use estimates for the three income intervals; and last multiply that daily total by 365 days. The resulting estimates for residential water demand in Rindge are 363,795 gallons per day and 132,785,000 gallons of water are drawn from wells, processed through the daily routine of Rindge residents and returned to the ground through septic systems or other waste water treatment each year.

The American Water Works Association, published in 1997 the following national average water consumption rates in gallons per person per day by type of indoor domestic use:

USE	National Average	Percent of Total
	(gal / person / day)	
Clothes Washer	11	23
Shower/Bath	10	21
Toilet	10	21
Faucets	15	30
Dishwasher	1 +	2 ±
Other	1 +	3 ±
TOTAL	**48 +**	**100**

Information on the withdrawal and discharge of surface water supplies by registered water users (more than 20,000 gallons per day) is filed with the Water Resources Division of the NH Department of Environmental Services in accordance with the provision of the New Hampshire Code of Administrative Rules Wr 700. There are two major users of surface water in Rindge.

1. Withdrawals – The Town of Jaffrey has used Bullet Pond for municipal water supply in the past. The pond is approximately 38 acres in size and is the only waterbody in town to fall under the Class A legislative classification. Its safe yield is estimated at approximately 185,000 gallons per day, an estimated maximum day yield of 400,000 gallons per day and a storage capacity of 83 million gallons. Jaffrey owns about 140 acres of land that encompass Bullet Pond. The Town anticipates that renewing municipal use of the Pond is likely in the coming years..

2. Discharges – Franklin Pierce College has a small wastewater treatment plant which discharges wastewater into a tributary (identified within the Plan as Stream C) of Pearly Lake. The average flow of this discharge is approximately 14,000 gallons per day. The College has obtained a National Pollution Discharge Elimination System (NPDES) permit from the Environmental Protection Agency for this discharge: Permit #NH0101044.

WATERSHED ZONING

Zoning districts for Rindge, Fitzwilliam, Jaffrey, Sharon, and New Ipswich were grouped into five generalized districts: Rural Residential, Residential, Commercial, Industrial, and College. Land subject to conservation easement or other prohibition of development, such as by fee ownership, were also segregated as Conservation.

The majority of land area in Rindge and the areas outside of Rindge within effective watersheds is zoned for rural residential use (24,948 acres or 62%). These districts are characterized by larger lot requirements, are currently largely undeveloped and are expected to continue to experience low-density residential development.

Rindge is expected to continue to experience a regionally high rate of residential development, with a high demand for low density, detached single-family housing. Population projections anticipate a 28% increase in residents during the next 20 years, from 5,451 in 2000 to about 7,000 in 2020 – which could translate to as many as 540 new homes. Lower density development can be less detrimental to water quality and quantity and support on-site water supply and waste water treatment, but, the cumulative effects of impervious surface and the purposeful or accidental release of pollutants in suburban areas can be every bit as damaging to water quality and supply as urban development.

Another 28% of the land area in question is zoned for medium density or village density residential and in some cases mixed use, as seen in West Rindge. Very little land area is devoted exclusively to commercial or industrial uses: 3% and less than 1%, respectively.

Conservation lands account for 12% of the total area, but only 2% within Rindge. However, three watersheds, Gridley River (15%), Hubbard Pond (33%), and Robbins Brook (19%) have appreciable amounts of protected land that will probably never be developed – an attractive characteristic for watersheds in which to develop water supply wells.

Zoning and Site standards are important aspects of water resource management. Rindge has land use standards found in several zoning provisions and subdivision and site plan review regulations, which specifically or indirectly protect water resources as follow:

Wetland Conservation District Ordinance ***(Overlay District)***
(Adopted March 11, 1986; Amended March 12, 2000)

- The Wetlands Conservation District is determined to be all surface waters and wetlands as determined by the criteria established in and defined by the Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1, Environmental Laboratory, Department of the Army, 1987 and Regional Field indicators for identifying Hydric Soils in New England, New England Interstate Water Pollution Control Commission, 1988. In addition, the Wetlands Conservation District includes a zone of minimal disturbance around all surface waters and wetlands over 3000 square feet.
- Septic System Setback: 100 foot setback to any wetland or the normal high water mark of any surface water.
- Use of Wetlands: A). Any use that does not result in the erection of any structure or alter the surface configuration by the addition of fill or by dredging and that which is otherwise permitted by the Ordinance; B). An application must be made to the Zoning Board of Adjustment for a special exception for any change in the use of wetlands.
- Special Exceptions may be granted by ZBA.

Aquifer Protection District Ordinance ***(Overlay District)***
(Adopted March 12, 1991; Amended March 10, 1992; March 9, 1993)

- The outer most edge of the surficial extent of all aquifer deposits presently designated in the Aquifer Map included in the Rindge Water Resources management and Protection Plan.
- Prohibited uses: Disposal of solid waste; Subsurface storage of petroleum and other hazardous materials; Disposal of liquid or leachable wastes; industrial uses which discharge contact type process waters on site; storage of road salt or salted sand, dumping of snow containing de-icing chemicals;

commercial animal feedlots, mining except earth excavation in compliance with Rindge's Earth Excavation regulations; all on site handling, disposal, storage, processing or recycling of hazardous or toxic materials; automotive services and repair shops, and junk and salvage yards; land uses that will render over 20% of lot impervious.

- Conditional Use Permits may be issued by the Planning Board.

Wetland Conservation District Ordinance ***(Overlay District)***
(Adopted March 11, 1986; Amended March 12, 2000)

- Septic System Setback – 100 feet
- Use of Wetlands – Any use that does not result in the erection of any structure or alter the surface configuration by the addition of fill or by dredging.
- Special Exceptions may be granted by ZBA.

Planned Unit Residential Development Regulations
(Adopted March 24, 1987; Amended March 14, 1989)

- Minimum Tract Size – 20 contiguous acres; no portion of any pond, lake, perennial stream or surface water may be used to fulfil the minimum tract size.
- Maximum Density – not greater than 1 dwelling unit (attached or detached) per conventional lot size.
- Tract Dimensional Requirements: Frontage – 250'; Front Setbacks and Buffers – 150'; Side and Rear Setbacks and Buffers – 100'
- Internal Dimensional Requirements: Front Setback – 30'; Side and Rear Setbacks – 25'
- Common Area – 25% of the acreage of the overall tract; 50% of total common area must be set aside as permanent open space.

Floodplain Development Ordinance ***(Overlay District)***
(Adopted June 9, 1998)

- Regulations apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the Town of Rindge, H.H." together with the associated Flood Insurance Rate Maps originally dated May 18, 1998, and subsequently amended by FEMA.
- The Building and Fire Safety Inspector shall review all permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding.
- Variances and Appeals: Any order, requirement, decision, or determination of the Building & Fire, Safety Inspector may be appealed to the ZBA as set forth in RSA 676:5. If the applicant, upon appeal, requests a variance as authorized by RSA 674:33, I(b), the applicant shall have the burden of showing in addition to the usual variance standards under state law: A.) that the variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; B.) that the requested variance is for activity within a designated regulatory floodway, no increase in flood levels during the base flood discharge will result; and C.) that the variance is the minimum necessary, considering the flood hazard, to afford relief.

Underground Storage Tanks Bylaws
(Adopted March 9, 1993; Amended March 14, 2000)

- By January 1, 1994, all owners or users of underground storage tanks must have registered those tanks with the Board of Selectmen.

- Within 14 days of registration the Board of Selectmen should have affixed a tag to the fill pipe or vent pipe of the registered tank.
- All underground storage tanks and associated piping located within the Town of Rindge are subject to mandatory testing 15 years after the date of installation.

Subdivision Regulations

Appendix A – Standards

A. Character of Land for Subdivision: Land judged by the Board to be unsafe for building development purposes (because of exceptional danger to health or peril from fire, flood, poor drainage, excessive slope, or other hazardous conditions) shall not be platted for residential commercial, or industrial subdivision nor for other uses that may increase danger to life or property or aggravate the flood hazard. Land judged by the Board to have inadequate characteristics or capacity for sanitary sewage disposal shall not be subdivided for residential, commercial, or industrial subdivision purposes.

C. Preservation of Existing Features: The subdivider shall identify and take suitable steps as required by the Board to preserve and protect significant existing features such as trees, scenic points, brooks, streams, rock outcroppings, water bodies, other natural and historic landmarks.

SECTION 2 PRELIMINARY PLAN

C. Sewage Disposal

4. Soils and Slope Specifications

c. Any land area with a natural slope of 12 percent or greater shall not be altered or used for the disposal of septic tank effluent, unless the system is designed by a sanitary engineer (registered with the State of New Hampshire) and overcomes the adverse land conditions to the satisfaction of the Board.

G. Drainage/Erosion

3. Storm water run-off shall be restricted to existing drainageways. No new drainageways shall be created unless necessary easements are obtained. No increase in surface run-off shall be permitted if such increased run-off passes beyond the property lines of the parcel in question.

Site Plan Regulations

Section VII. Purposes, General Standards and Requirements

2.(Q). Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties or the public storm drainage system....

Rindge's Site Plan Regulations allow the Planning Board to consider surface run-off and drainage flows when reviewing site plans and allows for the Board to take appropriate actions to safeguard neighboring properties and the town's drainage ways against negative impacts.

CONCLUSIONS

Based on the stated purposes of this Plan, three goals for Rindge can be articulated from which general discussion of three topics and a set of recommendations follow.

Goal 1: Preserve or enhance the quality of water resources within the Town of Rindge to ensure the provision of the social and ecological values they support.

Goal 2: Ensure a safe and sufficient supply of water to support existing and additional development within the Town of Rindge.

Goal 3: Develop a contingency strategy(ies) to on-site water supply and waste water treatment systems that may include centralized water supply and/or waste water treatment systems for districts within Rindge.

Water Supply

Regarding potential public water supply well locations, the Hubbard Pond and Converse Meadows watersheds are relatively free of land use and potential contamination sources, have relatively high percentage of currently protected land. The headwaters for both of these watersheds are in the Wapack Range of western New Ipswich. While beyond the control of Rindge's land use regulations or other water resource management programs, this land area in New Ipswich is currently zoned for low density development and the slope of much of the land is such that it may preclude development. The Hubbard Pond and Converse Meadow watersheds may offer the best potential for management to protect and develop future water supplies through land use management programs and land acquisition.

The Lake Monomonac and Contoocook Lake stratified drift deposits have high density development above the aquifers and/or upstream, higher numbers of potential contamination sources, and higher number of individual property owners – all factors that may render these aquifers less attractive for exploitation for public water supply.

The possibility of developing one or more high yield bedrock wells is uncertain. Information on the favorability for well development is not readily available today. The NH Department of Environmental Services and US Geologic Survey have developed a coarse resolution analytical method for assessing bedrock formations' probability of supporting high-yield wells. That methodology could be applied to Rindge to support preliminary discussion of the feasibility of further prospecting.

The likelihood of Rindge requiring a centralized public water supply system due to development density is low, and the cost of serving widespread, sparsely populated areas with centralized water is very high. The possible exceptions for future community water supplies are the several moderately densely developed districts: Lake Monomonac shoreland, the Contoocook Lake area and West Rindge village.

The possibility of the need arising to supply small or large areas of town following contamination of ground water by accidental release of contaminants (in a catastrophic spill or the cumulative effect of small or systematic release) is always present, particularly in highway corridors and areas with manufacturing land uses. Centralized water supply systems for village districts or other types of development clusters may rely on one medium-yield, or even several low-yield wells, which could exploit smaller stratified drift deposits or even be located in bedrock by trial-and-error drilling.

Large-scale residential or commercial developments should be encouraged to develop self-contained, on-site community water supply and waste water treatment systems. This can allow for locally greater densities and support smart growth objectives. The need for waste water treatment facilities to serve densely developed districts may also arise in the Lake Monomonac shoreland, the Contoocook Lake area and West Rindge village.

The town can consult with NH DES Hydrologists and NH Geologic Survey to explore the bedrock aquifer favorability analysis.

Water Resource Protection

The dispersed development patterns of Rindge, and the current zoning which will likely perpetuate that low density residential and commercial development, might best be served by measures that safeguard the quality and availability of water town-wide. The use of programs and standards that can assure "good environmental hygiene" – clean air, clean soil and clean water – can avoid the need for centralized water supply by avoiding the contamination of surface and groundwater.

New Hampshire Groundwater Protection Program enables municipalities to enact monitoring and enforcement measures in sensitive areas to prevent pollution of water resources. Through this program, the town is granted authority to enter properties in a designated area to inspect and enforce the implementation of Best Management Practices for the use, storage or handling of potential contaminants. To be granted this authority by the Commissioner of the NH Department of Environmental Services, the town must:

- Define the area for protection;
- Inventory land uses and identify potential contamination sources; and
- Develop and implement a management plan .

The management plan prescribes how the town will, at least once every three years:

- Update the land use inventory;
- Inspect each Potential Contamination Source for compliance with Best Management Practices; and
- Conduct a public education measure which will reach every property owner and resident within the protection area – this can be as simple as a letter informing them that they live or own property in a ground water protection area and providing lists of "Do's" and Don'ts" for ground water protection.

The Plan will also include an emergency response protocol for notification and actions.

There are varying levels of groundwater classes according to the aquifers' vulnerability and importance. GAA is the zone of contribution for existing wells and the only class that prohibits several high risk land uses (GAA classification is part of the Wellhead Protection Program). GA2 is any stratified drift aquifer. GA1 is "locally valuable for future water supply" – this could be invoked for any part or all of Rindge.

The town could approach the existing public water supply owners/operators in Rindge, including Franklin Pierce College and the Rindge Memorial School to ensure that they are aware of the wellhead protection programs and its benefits.

The town can initiate or otherwise promote a related set of measures to address surface water protection. Surface water quality is a function of both surface and subsurface conditions, since base stream flow, (between rain storms and snow melt periods) is supplied by ground water. Franklin Pierce College has a water quality testing lab that provides services to groups conducting volunteer lake water quality monitoring. The same model of volunteer effort can be applied to streams and ground water.

In general, local officials are strongly encouraged to become familiar with the protection measures described in the attached NH DES *Environmental Fact Sheet* :

- **"Protection Measures for Drinking Water Sources", WD-WSEB-12-8 and**
- **"Comprehensive State Source Water and Groundwater Protection program", WD-WSEB-12-9**

Zoning and Growth

Rindge's existing Zoning Ordinance and Subdivision and Site Plan Review Regulations are very protective within the conventional limits of land use regulation. In addition, the NH Shoreland Protection Act is in effect for all lakes and ponds in Rindge over 10 acres in size.

Watersheds with a high percentage of surface water area and more shoreline may be particularly attractive to new or intensified development: Contoocook Lake, Converse Meadow, and Pearly Pond. The potential for redevelopment of existing lakeside cottages and homes to larger homes may become more attractive as demand for lake front homes may rise if Rindge's population continues to grow. The demand for redevelopment may pose special challenges to the town's zoning and code enforcement.

Septic system performance can be a special concern for older, high density residential areas and lake front land may be especially prone to failure of septic systems installed prior to the enforcement of State permitting standards. Lake front areas may tend to have higher water tables and highly permeable soils. These risky conditions may be aggravated by the gradual conversion of what were originally seasonal cottages to year-round homes – the additional risk lying in the fact that often septic systems were not upgraded for year-round use or higher volumes due to family use.

Proposed above under "Water Supply" the practice of encouraging or requiring large-scale residential or commercial developments to develop self-contained, on-site community water supply and waste water treatment systems can allow locally greater densities and support smart growth objectives such as open space development, which in turn can ultimately retain a larger percentage of the town's land area in natural vegetation and terrain – protecting the natural hydrology.

A possible alternative to the Groundwater Reclassification program is the use of a Health Ordinance for the enforcement of the same standards for Best Management Practices. The Health Ordinance alone might not institutionalize public education and routine inspection as the Groundwater Reclassification program would. However, the Health Ordinance would enable to Town to collect fees and fines to offset the cost of enforcement.

RECOMMENDATIONS

1. In general, local officials are strongly encouraged to become familiar with the protection measures described in the NH DES *Environmental Fact Sheet* :

- "Protection Measures for Drinking Water Sources", WD-WSEB-12-8 and

2. The town of Rindge should enact the New Hampshire Groundwater Protection Program to achieve a management program through reclassification of Rindge's groundwater to GA1 town-wide. Reclassification to GA2 for land areas over stratified drift aquifers is a second option but may not protect the many dispersed bedrock wells in Rindge.

For more information refer to the NH DES *Environmental Fact Sheets* :

- "Local Reclassification of Groundwater to Implement Protection Programs: A Ten Step Process", WD-WSEB-22-2;
- "Groundwater Reclassification and How it Affects the Property Owner", WD-WSEB-22-3;
- "Delineating Wellhead Protection Areas", WD-WSEB-12-2; and
- "Performing an Inventory for Drinking Water Protection", WD-WSEB-12-3.

3. The town of Rindge should consider the establishment of a Health Ordinance pursuant to the guidance document "Model Health Ordinances to Implement a Wellhead of Groundwater Protection Program" published by the NH DES.

4. The Town of Rindge should establish and maintain the paid position of Health Officer in Rindge town government.

The maintenance of a Health Officer can provide dedicated municipal attention to a variety of issues, including water quality monitoring and protection. The Health Officers duties could include:

- Primary agent for carrying out Groundwater Reclassification and implementation of the resulting Management Plan;
- Maintain a data base of water use and existing or potential contamination sources;
- Design and implement a voluntary Septic System Monitoring program;
- Design and implement public education activities regarding water resource protection, including water conservation measures;
- Design and implement a volunteer water quality monitoring for streams and waterbodies in Rindge in conjunction with Franklin Pierce College; and
- Respond to complaints of water quality threats, such as substandard septic systems or misuse of potential contaminants.

5. The Town of Rindge should develop a town-wide Open Space Protection Plan.

This chapter of the Town's Master Plan identifies areas of Town, types of landscape conditions, or specific properties that are important for a variety of ecological and social values – including plant and animal habitat, scenic views, recreation, and water resource protection. An up-to-date Open Space Plan is the foundation for regulatory measures, municipal land acquisition and any other public policy issues involving conservation. This is lately becoming a standard element of modern Master Plans and would be a fitting companion to the Water Resources Management and Protection Plan.

6. The Town of Rindge should pursue Source Water Protection measures in addition to the Groundwater Protection Program, particularly land conservation, for existing public water supplies and high yield stratified drift aquifers in proximity to village and lake front neighborhoods.

Source water protection can be accomplished through restrictive zoning, land conservation through easement, land acquisition by the Town, a municipal management program such as affected by

Groundwater Reclassification, or public education. Areas for protection include the Wellhead Protection Areas for existing public water supplies as well as watershed and aquifer areas deemed suitable for future public water supplies. **The Hubbard Pond and Converse Meadows stratified drift aquifers may hold the most promise due to low density of existing and potential contaminant source, low density development, large watershed areas, and high yield stratified drift deposits.** Further development municipal support for source water protection and definition of areas for action would benefit from the process of developing a municipal Open Space Plan.

Matching funds for purchase of easements or land for source water protection are available on a competitive basis through New Hampshire's land and Community Heritage Program (LCHIP) and NH DES Source Water Protection program. Model easements developed by the Society for the Protection of New Hampshire Forests are available through NH DES. Assistance with land conservation is available locally through the Monadnock Conservancy.

For more information refer to the NH DES *Environmental Fact Sheets* :

- "Proposing to Create a New Public Water System", WD-WSEB-6-6 and
- " Protection Programs Required for New Production Wells", WD-WSEB-12-5

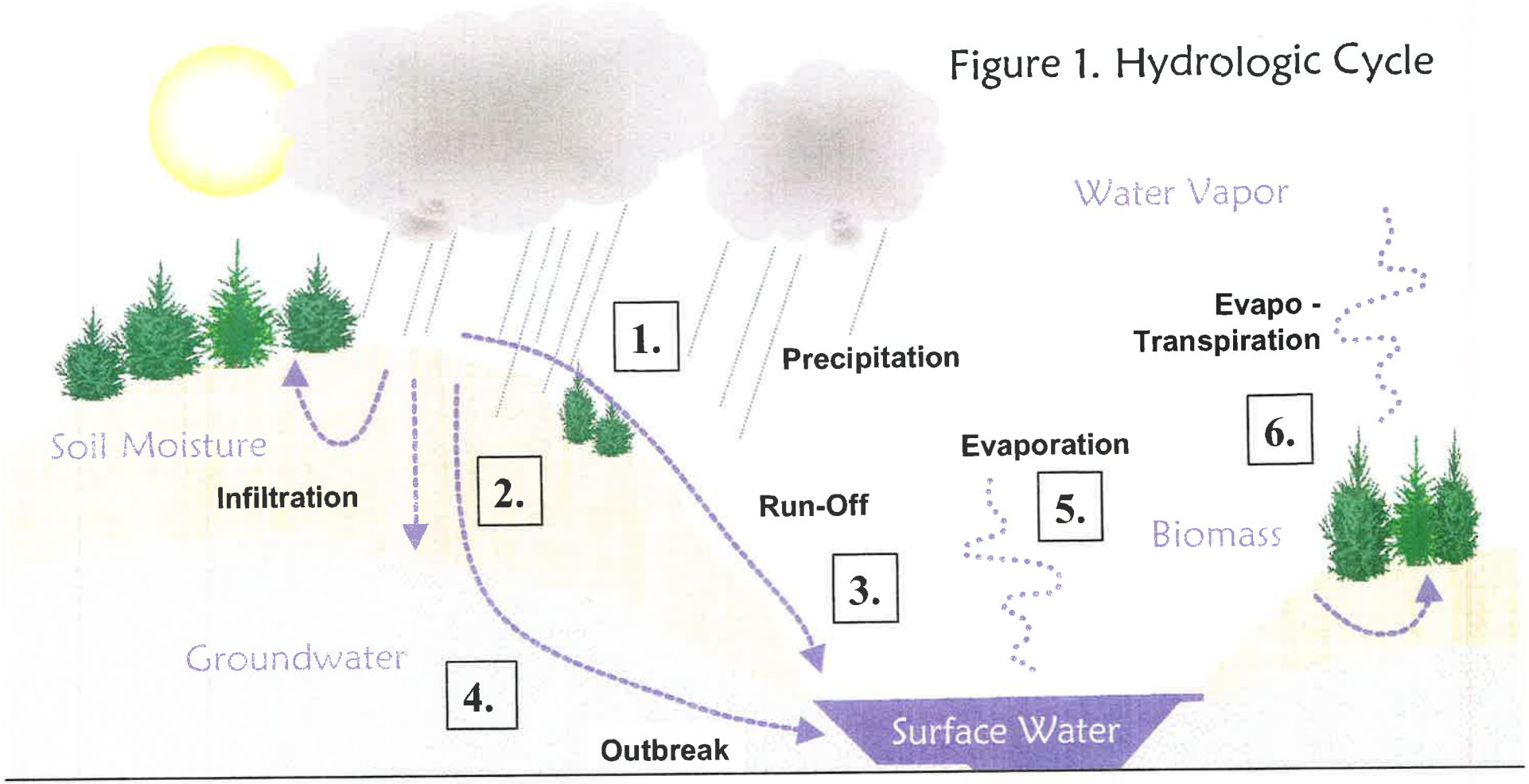
7. The Town of Rindge should investigate the use of Conservation Subdivision practices to protect water resources.

Conservation Subdivision, a.k.a. Conservation Zoning, like Cluster Development, sets aside part(s) of the property being subdivided for permanent protection from development. The uses of the set-aside may vary according to municipal policy. Unlike clustering, this practice is based in a town-wide plan for identifying the land to be set aside. The municipal Open Space Plan should be the basis for establishing standards or criteria for designating the conservation set-aside – a benefit over the case-by-case negotiation typical of implementation of Cluster Subdivision.

The article "Growing Greener: Conservation Subdivision Design" by Randall Arendt which was published in the Winter 1999 *Planning Journal*, provides and excellent explanation of the Conservation Subdivision concept.

8. The Town of Rindge should establish criteria for water resources protection by which proposed changes in the Town's zoning ordinance and subdivision and site plan review regulations should be evaluated.

Figure 1. Hydrologic Cycle



1. Water falls to the earth as precipitation, either rain or snow.
2. Precipitation infiltrates into the earth to become soil moisture where it is trapped in soil spaces, taken up by plants and animals, or continues downward to fill spaces in rock and soil. Water in the saturated zone is groundwater The Water Table is the top or surface of groundwater.
3. Water that doesn't infiltrate runs over land and collects in progressively larger wetlands, streams and water bodies as surface water.s
4. Groundwater also flows downhill, unless it encounters a barrier such as clay of bedrock. When the water table is higher than the earth surface groundwater "outbreaks" to surface water
5. Water can return to the atmosphere by evaporation driven by sun and wind, at any time: during storms or from snow and ice or from surface water.
6. Water is also taken up by living plants and animals: biomass. Plant metabolism releases water back to the atmosphere as water vapor through evapotranspiration.

FIGURE 2

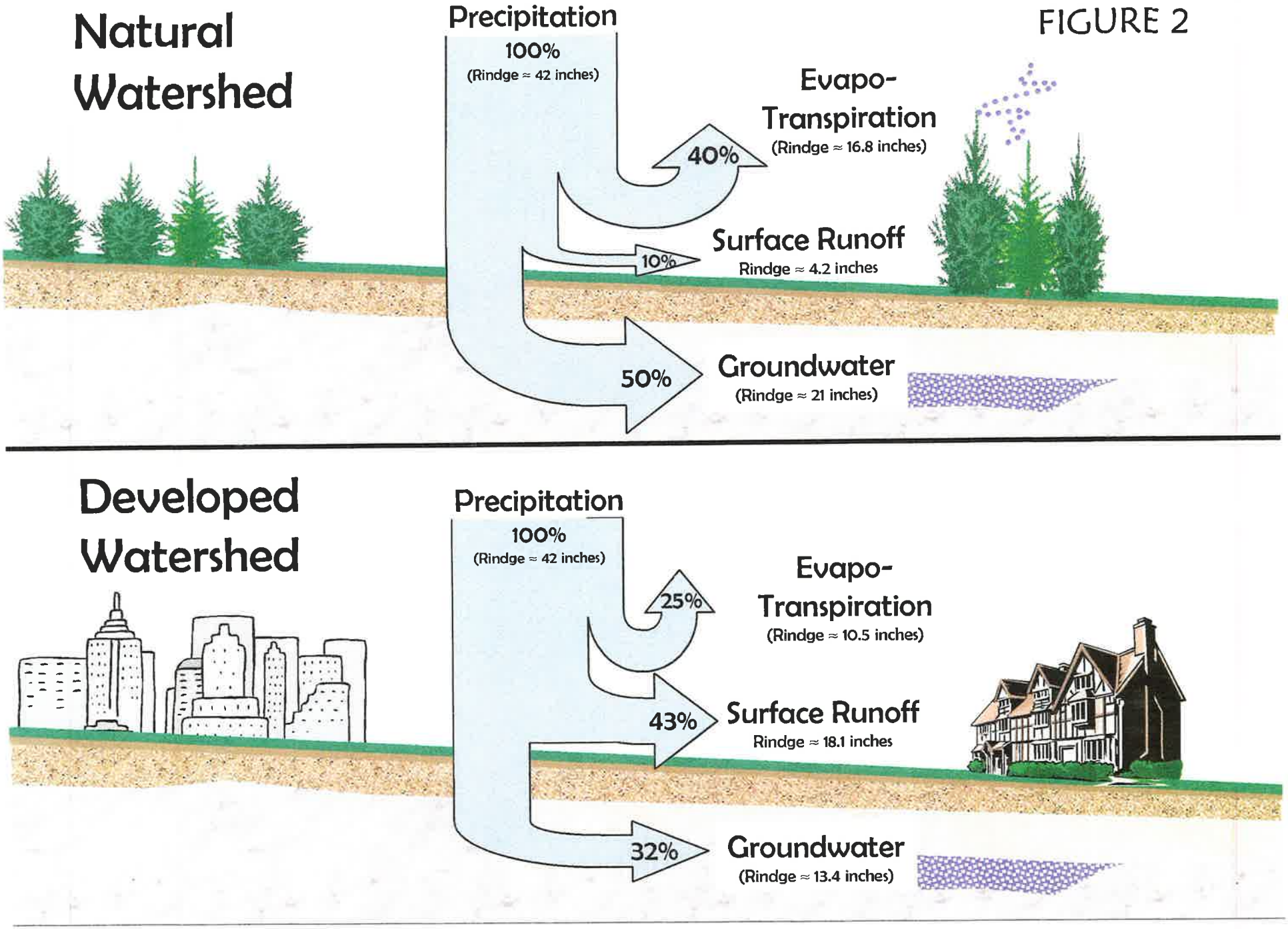

Natural Watershed
Precipitation
100%
(Rindge ≈ 42 inches)
Evapo-Transpiration
(Rindge ≈ 16.8 inches)
40%
Surface Runoff
Rindge ≈ 4.2 inches
10%
Groundwater
(Rindge ≈ 21 inches)
50%
Developed Watershed
Precipitation
100%
(Rindge ≈ 42 inches)
Evapo-Transpiration
(Rindge ≈ 10.5 inches)
25%
Surface Runoff
Rindge ≈ 18.1 inches
43%
Groundwater
(Rindge ≈ 13.4 inches)
32%

Table 1. Watershed Landscapes

		Surface Area	Surface Water		Wetlands		Stream Miles	Stream Density	Shoreland Miles	Stratified Drift Area		Developed Land		Forest Cover	
		Acres	Acres	% Total	Acres	% Total	Miles	Miles/Acre	Miles	Acres	% Total	Acres	% Total	Acres	% Total
Hubbard Pond	Total Value	4,082	212	5.2%	341	8.3%	4.6	0.004	11.4	2,495	61.1%	158	3.9%	3,159	77.4%
	Rindge Value	2,607	194	7.4%	217	8.3%	1.8	0.001	8.6	1,303	50.0%	67	2.6%	2,063	79.2%
Contoocook Lake	Total Value	5,554	707	12.7%	450	8.1%	4.1	0.001	21.4	1,322	23.8%	527	9.5%	3,527	63.5%
	Rindge Value	4,490	527	11.7%	337	7.5%	4.1	0.001	16.8	808	18.0%	409	9.1%	2,919	65.0%
Converse Meadow	Total Value	4,515	141	3.1%	599	13.3%	6.5	0.003	11.0	474	10.5%	173	3.8%	3,521	78.0%
	Rindge Value	1,402	40	2.9%	88	6.3%	1.3	0.001	2.1	0	0.0%	5	0.4%	1,263	90.1%
Lake Monomonac	Total Value	7,995	762	9.5%	617	7.7%	9.3	0.002	21.4	843	10.5%	561	7.0%	4,105	51.3%
	Rindge Value	6,154	606	9.8%	528	8.6%	8.8	0.001	16.5	843	13.7%	561	9.1%	4,105	66.7%
Pearly Pond	Total Value	2,321	202	8.7%	328	14.1%	2.3	0.002	4.8	151	6.5%	102	4.4%	1,662	71.6%
	Rindge Value	1,641	202	12.3%	260	15.8%	2.2	0.001	4.8	66	4.0%	83	5.1%	1,083	66.0%
Pecker Pond	Total Value	220	25	11.3%	3	1.4%	0.0	0.000	0.8	0	0.0%	1	0.2%	147	66.8%
	Rindge Value	177	25	14.0%	2	1.4%	0.0	0.000	0.8	0	0.0%	1	0.3%	146	82.4%
Damon Reservoir	Total Value	5,275	42	0.8%	595	11.3%	5.3	0.002	7.0	258	4.9%	260	4.9%	4,274	81.0%
	Rindge Value	4,240	42	1.0%	525	12.4%	4.4	0.001	6.6	240	5.7%	241	5.7%	3,348	79.0%
Gridley River	Total Value	4,403	19	0.4%	730	16.6%	5.6	0.001	3.8	1,438	32.7%	160	3.6%	3,647	82.8%
	Rindge Value	272	0	0.0%	122	44.9%	0.0	0.000	0.0	84	31.0%	0	0.0%	247	90.6%
Sip Pond	Total Value	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Rindge Value	84	0	0.0%	0	0.0%	0.0	0.000	0.0	0	0.0%	14	16.8%	58	68.3%
Binney Hill 1	Total Value	563	0	0.1%	53	9.5%	0.9	0.002	0.1	0	0.0%	17	3.0%	484	86.0%
	Rindge Value	509	0	0.1%	53	10.5%	0.9	0.002	0.1	0	0.0%	17	3.3%	431	84.7%
Binney Hill 2	Total Value	122	0	0.0%	0	0.0%	0.0	0.000	0.0	0	0.0%	16	13.5%	86	70.2%
	Rindge Value	122	0	0.0%	0	0.0%	0.0	0.000	0.0	0	0.0%	16	13.5%	86	70.2%
Robbins Brook	Total Value	2,284	47	2.1%	261	11.4%	3.0	0.003	3.2	71	3.1%	117	5.1%	1,382	60.5%
	Rindge Value	1,789	47	2.6%	206	11.5%	2.3	0.001	3.1	71	3.9%	117	6.5%	1,378	77.0%
Robbins Pond	Total Value	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Rindge Value	269	0	0.0%	11	4.2%	0.1	0.000	0.0	5	1.8%	4	1.5%	219	81.6%

Table 2. Watershed Land Use

		Count of Properties	Average Property Acres	Road Miles	Road Density	Count of Residential	Density of Residential	Count of Commercial	Density of Commercial	Count of Industrial	Density of Industrial	Count of PCS	Acres of PCS
Hubbard Pond	**Total Value**	251	66.4	8.39	0.002	na	na	na	na	na	na	7	
	Rindge Value	79	43.3	2.67	0.001	68	0.026	2	0.001	0	0	1	
Contoocook Lake	**Total Value**	1217	358.1	23.43	0.004	na	na	na	na	na	na	13	
	Rindge Value	907	353.1	18.17	0.004	728	0.162	42	0.009	0	0	11	49.48
Converse Meadow	**Total Value**	329	58.7	12.05	0.003	na	na	na	na	na	na	3	
	Rindge Value	277	16.5	10.64	0.003	223	0.072	3	0.001	0	0	3	36.20
Lake Monomonac	**Total Value**	1205	6.0	28.84	0.004	na	na	na	na	na	na	7	7.23
	Rindge Value	1205	6.0	28.84	0.005	995	0.162	19	0.003	0	0	4	7.23
Pearly Pond	**Total Value**	198	47.0	5.39	0.002	na	na	na	na	na	na	10	26.26
	Rindge Value	158	16.3	4.75	0.003	138	0.084	4	0.002	0	0	10	26.26
Pecker Pond	**Total Value**	12	49.2	0.2	0.001	na	na	na	na	na	na	4	
	Rindge Value	12	49.2	0.2	0.005	11	0.062	0	0.000	0	0	0	0.00
Damon Reservoir	**Total Value**	331	63.6	7.92	0.002	na	na	na	na	na	na	2	
	Rindge Value	243	22.2	6.32	0.001	177	0.042	6	0.001	0	0	2	
Gridley River	**Total Value**	213	217.0	11.31	0.003	na	na	na	na	na	na	3	
	Rindge Value	6	202.9	0	0.000	0	0.000	0	0.000	0	0	0	0.00
Binney Hill 1	**Total Value**	na	na	na	na	na	na	na	na	na	na	na	na
	Rindge Value	39	6.7	0	0.000	34	0.403	0	0.000	0	0	0	0.00
Binney Hill 2	**Total Value**	32	204.8	1.22	0.002	na	na	na	na	na	na	0	0.00
	Rindge Value	28	33.1	1.22	0.002	21	0.041	2	0.004	0	0	0	0.00
Sip Pond	**Total Value**	15	22.4	0.71	0.006	na	na	na	na	na	na	0	0.00
	Rindge Value	15	22.4	0.71	0.006	12	0.098	1	0.008	0		0	0.00
Robbins Brook	**Total Value**	136	17.7	2.87	0.001	na	na	na	na	na	na	1	48.07
	Rindge Value	136	17.7	2.87	0.002	84	0.047	11	0.006	0	0	1	40.10
Robbins Pond	**Total Value**	na	na	na	na	na	na	na	na	na	na	na	na
	Rindge Value	35	28.9	1.13	0.004	33	0.123	0	0.000	0	0	0	0.00
Total	**Total Value**	**3939**		**102.33**	**0.03**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**50**	**81.56**
	Rindge Value	**3140**		**77.52**	**0.02**	**2524**	**0.80**	**90**	**0.03**	**0**	**0.00**	**32**	**159.27**

Table 3.

Inventory of Public Water Supply Sources and Potential and Existing Sources of Groundwater Contamination in the Town of: RINDGE, NH

Report prepared 23 May 2002 by NHDES Water Supply Engineering Bureau. Please refer to the accompanying map.

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
Registered Water Users >20,000 gal/day (February 2001) "Use of water" includes the withdrawal of water from the ground or surface water body, the delivery of water from another supplier to the user indicated, the release of water from the user indicated to another facility, and/or the return of water to the environment.			
1	20051-S03	Jaffrey Water Works 10 GOODNOW STREET JAFFREY	WITHDRAWAL, WS CONTOOCOOK LAKE ROAD WELL (Avg 500.000 kgal/day; Max 900.000 kgal/day)
2	20598-S04	Franklin Pierce College 60 COLLEGE RAOD RINDGE	WITHDRAWAL, WS WELL #4 (Avg 34.000 kgal/day; Max 196.000 kgal/day)
3	20598-D01	Franklin Pierce College 60 COLLEGE RAOD RINDGE	RETURN, WS TRIBUTARY TO PERLEY LAKE (Avg 34.000 kgal/day; Max 196.000 kgal/day)
4	20598-S05	Franklin Pierce College 60 COLLEGE RAOD RINDGE	WITHDRAWAL, WS WELL #5 (Avg 34.000 kgal/day; Max 196.000 kgal/day)
5	20598-S06	Franklin Pierce College 60 COLLEGE RAOD RINDGE	WITHDRAWAL, WS WELL #6 (Avg 34.000 kgal/day; Max 196.000 kgal/day)
National Pollutant Discharge Elimination System (NPDES) outfalls (March 2002) All facilities which discharge any pollutant from point sources to surface waters (directly or indirectly) are required to obtain a federal permit from the US Environmental Protection Agency and State Water Discharge Permit from NHDES.			
6	0101044	Franklin Pierce College WWTF College Road Rindge	WW, Minor, Active Pearly Lake via wtld
7	0021326-001	Millipore Corporation Jaffrey	, Minor, Active Contoocook Lake via trib.
8	0021326-002	Millipore Corporation Jaffrey	, Minor, Active Contoocook Lake via trib.
Source Water Hazard Inventory sites (Updated monthly) (* Inactive sites are marked with an asterisk) This includes all sites that are regulated by NHDES to ensure water resource protection. See attached key for descriptions of particular project types. (Risk: 1 = immediate risk to human health; 2 = in wellhead protection area or within 1000ft of well; 3 = free product or high level source; 4 = surface water impact; 5 = groundwater impact, no alter. water; 6 = high concentration, alter. water available; 7 = low conc., alter water available; 8 = no sources, no ambient groundwater quality standards violations onsite; NDY = not yet defined)			
9	198402074	MILLIPORE CORP. PRESCOTT FR./RT 124 JAFFREY	HAZWASTE*, UIC*, Tax map: 256, Lot: 1 Risk: 8, 8; Staff: CLOSED, CLOSED
10	198500032	DIEANA PROPERTY TROOTING PARK ROAD JAFFREY	LUST*, Tax map: 240, Lot: 71 Risk: 8; Staff: CLOSED
11	198709013	KING MANUFACTURING SQUANTUM ROAD JAFFREY	HAZWASTE*, Tax map: 242, Lot: 45 Risk: 8; Staff: CLOSED
12	198908038	CONTOOCOOK LAKE WELL CONTOOCOOK LK RD JAFFREY	H2O SAMPLE*, Tax map: 242, Lot: 34.1 Risk: 8; Staff: CLOSED
13	199107025	FAMM STEEL, INC. 97 HUNT HILL RD RINDGE	LUST*, Tax map: 6, Lot: 49A Risk: 8; Staff: CLOSED

Table 3.

14	199311021	MONADNOCK FOREST PRODUCTS 233 SQUANTUM RD JAFFREY	LUST*, UST* Tax map: 257, Lot: 12 Risk: 8; Staff: CLOSED

Source Water Hazard Inventory sites (Updated monthly) continued (* Inactive sites are marked with an asterisk)

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
15	199309043	HAMPSHIRE COUNTRY SCHOOL HAMPSHIRE RD RINDGE	LUST*, UST* Tax map: 8, Lot: 36 Risk: 8; Staff: CLOSED
16	199312051	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	LUST*, UST* Tax map: 9, Lot: 20 Risk: 8; Staff: CLOSED
17	199212034	SANDS MOBIL ROUTE 119 RINDGE	UIC*, Tax map: 31, Lot: 4 Risk: 8; Staff: CLOSED
18	199403025	NORSA BUILDING NORTH ST RINDGE	LUST*, UST* Tax map: 7, Lot: 93-1 Risk: 8; Staff: CLOSED
19	199403025	NORSA BUILDING NORTH ST RINDGE	LUST*, UST* Tax map: 7, Lot: 93-1 Risk: 8; Staff: CLOSED
20	199312051	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	LWW/LAG, Tax map: 9, Lot: 20 Risk: NDY; Staff: BEBLOWSKI
21	199502001	TOWN OF RINDGE SALT SHED MAIN ST.(AT RECYCLING CTR) RINDGE	H2O SAMPLE, Tax map: , Lot: Risk: 1; Staff: UNASSIGNED
22	199311021	MONADNOCK FOREST PRODUCTS 233 SQUANTUM RD JAFFREY	UIC*, Tax map: 257, Lot: 12 Risk: 8; Staff: CLOSED
23	198402074	MILLIPORE CORP. PRESCOTT FR./RT 124 JAFFREY	AST, Tax map: 256, Lot: 1 Risk: NDY; Staff: WILLIS
24	198402074	MILLIPORE CORP. PRESCOTT FR./RT 124 JAFFREY	AST, Tax map: 256, Lot: 1 Risk: NDY; Staff: WILLIS
25	198402074	MILLIPORE CORP. PRESCOTT FR./RT 124 JAFFREY	AST, Tax map: 256, Lot: 1 Risk: NDY; Staff: WILLIS
26	199606032	GAP MOUNTAIN DRILLING ROUTE 119 RINDGE	AST, Tax map: , Lot: Risk: NDY; Staff: WILLIS
27	199408041	STATE LINE TRUCK SERVICE, INC. FULLAM HILL ROAD FITZWILLIAM	UIC*, Tax map: , Lot: Risk: 8; Staff: CLOSED
28	199510015	N.R. FOGG & SON INC. FOGG'S CORNER, 741 ROUTE 119 RINDGE	LUST, UST Tax map: 6, Lot: 18 Risk: 5; Staff: UNASSIGNED
29	199605002	BARBARA ROBBINS 46 CANDLELIGHT ROAD RINDGE	OPUF*, Tax map: , Lot: Risk: 8; Staff: CLOSED

Table 3.

30	199510015	N.R. FOGG & SON INC. FOGG'S CORNER, 741 ROUTE 119 RINDGE	AST, UST Tax map: 6, Lot: 18 Risk: NDY; Staff: WILLIS
31	199612012	CARRIAGE APARTMENTS CONVERSEVILLE ROAD/ROUTE 119 RINDGE	UIC, Tax map: 3, Lot: 58 Risk: 2; Staff: REGISTRATION

SITE INVENTORY
RINDGE, NH

Source Water Hazard Inventory sites (Updated monthly) continued (* Inactive sites are marked with an asterisk)

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
32	199705012	VILLAGE GROCER MAIN STREET RINDGE	OPUF*, Tax map: 27, Lot: 10 Risk: 8; Staff: CLOSED
33	199706039	RINDGE MEMORIAL SCHOOL SCHOOL STREET RINDGE	UIC, Tax map: 7, Lot: 11 & 12 Risk: 8; Staff: REGISTRATION
34	199702017	NHDOT-DIST 4, PS #413 1000 ROUTE 119 RINDGE	UIC*, Tax map: 35, Lot: 13 Risk: 8; Staff: CLOSED
35	199804045	CIAMPA RESIDENCE 37 LOOP ROAD RINDGE	OPUF*, Tax map: , Lot: Risk: 8; Staff: CLOSED
36	199702017	NHDOT-DIST 4, PS #413 1000 ROUTE 119 RINDGE	HOLDTANK, Tax map: 35, Lot: 13 Risk: 8; Staff: REGISTRATION
37	199312051	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	OPUF, UST Tax map: 9, Lot: 20 Risk: 5; Staff: UNASSIGNED
38	199107025	FAMM STEEL, INC. 97 HUNT HILL RD RINDGE	HAZWASTE, UIC*, Tax map: 6, Lot: 49A Risk: 5, 8; Staff: UNASSIGNED, CLOSED
39	199802091	HANNAFORD BROS. CO. 233 ROUTE 202 RINDGE	UIC, Tax map: 6, Lot: 99 Risk: 7; Staff: REGISTRATION
40	200008028	MARK HASKEL PROPERTY 27 MOUNTIAN RINDGE	OPUF, Tax map: , Lot: Risk: NDY; Staff: LEATHERS
41	200001006	WOODBOUND INN 62 WOODBOUND ROAD RINDGE	UIC*, Tax map: , Lot: Risk: 8; Staff: CLOSED
42	200110035	RINDGE TOUCHFREE CARWASH 233 ROUTE 202 RINDGE	HOLDTANK, Tax map: , Lot: Risk: 2; Staff: REGISTRATION
43	200009042	NOEL/ LOOKING GLASS SALON ROUTE 119 RINDGE	UIC, Tax map: , Lot: Risk: 8; Staff: REGISTRATION
44	200111001	HASBROUCK APARTMENT BUILDING HILL ROAD RINDGE	OPUF, Tax map: , Lot: Risk: 5; Staff: UNASSIGNED
45	199103038	RINDGE ABANDONED DUMP THOMAS HILL & PERKINS ROADS RINDGE	OLD DUMP, Tax map: 6, Lot: 8 Risk: 2; Staff: UNASSIGNED

Table 3.

46	199202021	RINDGE ABANDONED DUMP RTE 119 EAST RINDGE	OLD DUMP, Tax map: 4, Lot: 37 Risk: NDY; Staff: UNASSIGNED

Underground Storage Tank sites (Updated monthly) (* Inactive sites are marked with an asterisk)
These are sites where there are, or were in the case of inactive sites, underground storage tanks. If there is a documented release from a tank, it becomes a LUST project type and is listed above in the Source Water Hazard Inventory.

47	0110929	MILLIPORE CORP. PRESCOTT FR./RT 124 JAFFREY	UST, #Tanks: 1 Tax map: 256, Lot: 1

Underground Storage Tank sites (Updated monthly) continued (* Inactive sites are marked with an asterisk)

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
48	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 20
49	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 20
50	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 20
51	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 20
52	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 20
53	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 9, Lot: 10
54	0112869	NHDOT-DIST 4, PS #413 1000 ROUTE 119 RINDGE	UST, #Tanks: 2 Tax map: 9, Lot: 5
55	0110157	FRANKLIN PIERCE COLLEGE COLLEGE RD RINDGE	UST, #Tanks: 6 Tax map: 10, Lot: 13
56	0111590	WEST RINDGE BASKETS 93 WEST MAIN ST RINDGE	UST*, #Tanks: 0 Tax map: 33, Lot: 23
57	0113276	SANDS MOBIL ROUTE 119 RINDGE	UST, #Tanks: 3 Tax map: 31, Lot: 4
58	0110689	TOWN OF RINDGE SALT SHED MAIN ST.(AT RECYCLING CTR) RINDGE	UST*, #Tanks: 0 Tax map: 28, Lot: 7-1
59	0110191	RINDGE MEMORIAL SCHOOL SCHOOL STREET RINDGE	UST, #Tanks: 1 Tax map: 7, Lot: 12
60	0111521	FAMM STEEL, INC. 97 HUNT HILL RD RINDGE	UST*, #Tanks: 0 Tax map: 6, Lot: 49A

Table 3.

61	0110313	ROBERT A NORMANDIN JR 304 RTE 119 RINDGE	UST*, #Tanks: 0 Tax map: 3, Lot: 60
62	0111539	K F CROCKER TRANS COMPANY INC RTE 12 FITZWILLIAM	UST*, #Tanks: 0 Tax map: 4, Lot: 67
63	0111222	VALLEY MARINA INC 4 RTE 202 RINDGE	UST, #Tanks: 1 Tax map: 3, Lot: 1-1
64	0113928	WHITNEY JUNCTION INC RTE 119 RINDGE	UST, #Tanks: 4 Tax map: 31, Lot: 7

SITE INVENTORY
RINDGE, NH

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)

Underground Storage Tank sites (Updated monthly) continued (* Inactive sites are marked with an asterisk)

65	0113928	WHITNEY JUNCTION INC RTE 119 RINDGE	UST, #Tanks: 4 Tax map: 31, Lot: 7
66	0112905	VAN DYKE CONSTRUCTION RTE 202 RINDGE	UST*, #Tanks: 0 Tax map: 10, Lot: 28 & 28-1
67	0115056	FRANKLIN PIERCE FACILITY CTR 60 COLLEGE RD RINDGE	UST, #Tanks: 1 Tax map: 9, Lot: 20

Resource Conservation & Recovery Act (RCRA) sites (March 2002)
These are facilities that generate hazardous waste. If a release is documented, it is listed above under the Source Water Hazard Inventory sites.

68	NHD982755647	STATE LINE TRUCK SERVICE INC 1005 RTE 12 S FITZWILLIAM	Type: MANIF, Generator: SQG
69	NHD040236374	BOUDREAU TOOL & DIE 524 H RT 119 RINDGE	Type: RCRIS, Generator: SQG
70	NHD510119514	ROACH BRAD CO 50 BIRCH DR RINDGE	Type: , Generator:
71	NHD510118300	STATION 119 RTE 119 RINDGE	Type: , Generator:
72	NHD510131634	SOUTHSIDE BODY & PAINT RTE 202 S RINDGE	Type: , Generator:
73	NHD510155567	MONADNOCK BOAT STORE RTE 202 JAFFREY RD RINDGE	Type: , Generator:
74	NHD500020151	A CLASS ACT AUTO RESTORATION LISA DR RINDGE	Type: , Generator:
75	NHD510053846	MONADNOCK FABRICATORS HUNT HILL RD & RT 202	Type: , Generator:

Table 3.

		RINDGE	
76	NHD510096555	MCKINNEY SERVICE CENTER 594 RTE 119 RINDGE	Type: , Generator:
77	NHD500018429	NH STATE OF D O T DISTRICT 04 1000 RTE 119 RINDGE	Type: , Generator:
78	NHD510111396	SAFETY-KLEEN-TOWN OF RINDGE NH MAIN ST (@ HWY GARAGE) RINDGE	Type: , Generator:
79	NHD500004049	MEADOW VIEW CHIROPRACTIC 4 MEADOW VIEW DR RINDGE	Type: , Generator:
80	NHD510055031	STATE LINE GROCERY RTE 12 FITZWILLIAM	Type: , Generator:

Point/Non-point Potential Pollution Sources (March 1995) (* Inactive sites are marked with an asterisk)
These include local land use inventories performed by the regional planning commissions in 1995. See attached key for a description of project types. NOTE: storm drains and combined sewer outfalls are included, but not labelled, on the map.

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
81	192-33	MAIN STREET RINDGE	SC
82	192-35	RT 119 RINDGE	SC
83	193-01	TIMBERTOP ROAD NEW IPSWICH	MS
84	193-02	HUBBARD POND ROAD NEW IPSWICH	MS
85	193-03	HUBBARD POND ROAD NEW IPSWICH	MS
86	193-05	HUBBARD POND ROAD RINDGE	MS*
87	206-02	HARRIS ROAD FITZWILLIAM	MS
88	206-03	RT 202 RINDGE	MS
89	193-20	HUBBARD POND ROAD RINDGE	MS*
90	207-04	NORTH STREET RINDGE	MS*
91	207-05		MS

Table 3.

		WILLINGTON STREET RINDGE	
92	207-07		MS*
		RT 119 RINDGE	
93	207-08	DIVOL POND PIT RT 119 RINDGE	MS

Junkyards with 50+ automobiles (Nov. 1991) Salvage yards with 50 or more automobiles and registered with NHDES.
No occurrences.

Local Potential Contamination Source Inventory sites (March 2002)
Includes potential contamination sources within a source water protection area. Located by public water systems applying for a sampling waiver or during windshield surveys performed by NHDES-WSEB staff.

94	waiver236	FRANKLIN PIERCE COLLEGE (MAINTENANCE) , RINDGE	UST
95	waiver237	FRANKLIN PIERCE COLLEGE (MOUNTAINVIEW) , RINDGE	UST

SITE INVENTORY
RINDGE, NH

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS	PROJECT TYPE(S)
Local Potential Contamination Source Inventory sites (March 2002) continued			
96	waiver238	FRANKLIN PIERCE COLLEGE , RINDGE	UST
97	waiver239	FRANKLIN PIERCE COLLEGE , RINDGE	UST
98	waiver240	FRANKLIN PIERCE COLLEGE , RINDGE	UST
99	waiver241	HAMPSHIRE COUNTRY SCHOOL (DEER RUN DORM) HAMPSHIRE RD, RINDGE	UST
100	waiver242	CHESHIRE MARKET PLACE ROUTE 202, RINDGE	SEPTIC
101	waiver286	SHOP N SAVE ROUTE 202, RINDGE	AST
102	19960401/2A	Bean Rd, Rindge	EEE
103	19960401/2B	Wal-Mart-Photo Lab Route 202, Rindge	AST/GSR
104	19960401/2C	APS Auto Center 117 Hunt Hill Rd, Rindge	VSR
105	12210102A	Woodbound Golf Course Woodbound Rd, Jaffrey	GOLF
106	12210102B	Camire's Small Engine Repair Woodbound Rd, Jaffrey	GSR
107	19950202A	Rt 202, Rindge	MAN
108	19950202B	Quality Concrete Constuction Rt 202, Rindge	VSR

Table 3.

109	19950202C	Citgo Rt 202, Rindge	UST
110	19950202D	Allen and Mathewson Energy Corp. Rt 119, Rindge	AST
111	nhmvsy512	VANDYKE CONSTRUCTION , RINDGE	WSPS
112	nhmvsy515	(NONAME) , RINDGE	WSPS
113	nhmvsy513	(NONAME) , RINDGE	WSPS
114	nhmvsy510	SESIA'S GARAGE , RINDGE	WSPS
115	nhmvsy511	B-Z TOWING , RINDGE	WSPS
116	nhmvsy514	(NONAME) , RINDGE	WSPS

DISCLAIMER: The coverages presented in this program are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. The NH Department of Environmental Services is not responsible for the use or interpretation of this information. Please report any inaccuracies on either the map or inventory to Katie Callahan, NHDES Water Supply Engineering Bureau (271-7940) E-mail: kcallahan@des.state.nh.us For more information on the Source Water Assessment Program call 271-1168 or 271-7061.

Table 4. PUBLIC DRINKING WATER SUPPLIES IN THE TOWN OF RINDGE, NH

Report produced 23 May 2002 NHDES Water Supply Engineering Bureau *Please refer to the accompanying map.*

PWSID	SYSTEM NAME	ADDRESS	TOWN	SYS TYP	SYS ACT	SRC TYP	SRC ACT	SRC REC	WT	WD	POP SERV
1221010-004	JAFFREY WATER WORKS	104 TURNPIKE RD, RTE 124	JAFFREY	C	A	S	I	SS		0	3600
1992020-001	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	I	SG	BRW	700	60
1992020-002	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	I	SG	BRW	270	60
1992020-003	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	I	SG	BRW	620	60
1992020-004	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	I	SG	BRW	660	60
1992020-005	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	I	SG	BRW	660	60
1992020-006	HASBROUCK APTS	30 PAYSON HILL RD	RINDGE	C	A	G	A	SG	BRW	360	60
1992030-001	HUDSON APARTMENTS		RINDGE	C	I	G	A			0	0
1992040-001	HAMPSHIRE COURT WATER ASSOC	RTE 119, CROMWELL DR	RINDGE	C	A	G	A	SG	BRW	465	50
1992040-002	HAMPSHIRE COURT WATER ASSOC	RTE 119, CROMWELL DR	RINDGE	C	A	G	A	SG	BRW	365	50
1992040-501	HAMPSHIRE COURT WATER ASSOC	RTE 119, CROMWELL DR	RINDGE	C	A	E	A	PT		0	50
1992050-001	CARRIAGE APTS	CONVERSEVILLE RD, OLD NH TR 119	RINDGE	C	A	G	A	SG	BRW	505	43
1992050-501	CARRIAGE APTS	CONVERSEVILLE RD, OLD NH TR 119	RINDGE	C	A	E	A	PT		0	43
1992060-001	SAWMILL APTS	COLLEGE RD	RINDGE	C	A	G	A	SG	BRW	235	38
1992060-501	SAWMILL APTS	COLLEGE RD	RINDGE	C	A	E	A	PT		0	38
1993010-001	MONADNOCK TENANTS COOP	PO 326, MONADNOCK PARK	RINDGE	C	A	G	I	SG		0	190
1993010-002	MONADNOCK TENANTS COOP	PO 326, MONADNOCK PARK	RINDGE	C	A	G	A	SG	BRW	225	190
1993010-003	MONADNOCK TENANTS COOP	PO 326, MONADNOCK PARK	RINDGE	C	A	G	A	SG	BRW	425	190
1993010-502	MONADNOCK TENANTS COOP	PO 326, MONADNOCK PARK	RINDGE	C	A	E	A	PT		0	190
1993010-503	MONADNOCK TENANTS COOP	PO 326, MONADNOCK PARK	RINDGE	C	A	E	A	PT		0	190
1994010-001	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	I	SG	BRW	385	1300
1994010-002	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	I	SG	BRW	450	1300
1994010-003	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	I	SG	BRW	425	1300
1994010-004	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	550	1300
1994010-005	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	1010	1300
1994010-006	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	1420	1300
1994010-007	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	1325	1300
1994010-008	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	1100	1300
1994010-009	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	G	A	SG	BRW	480	1300
1994010-501	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	E	I	PM		0	1300
1994010-504	FRANKLIN PIERCE COLLEGE	COLLEGE ROAD	RINDGE	C	A	E	A	PT		0	1300
1995010-001	RINDGE MEMORIAL SCHOOL	SCHOOL ST	RINDGE	P	A	G	A	SG	BRW	155	460
1995020-001	THE MEETING SCHOOL	THOMAS RD	RINDGE	P	A	G	I	SG	BRW	660	50
1995020-002	THE MEETING SCHOOL	THOMAS RD	RINDGE	P	A	G	A	SG	BRW	585	50
1995020-501	THE MEETING SCHOOL	THOMAS RD	RINDGE	P	A	E	A	PR		0	50
1995030-001	HAMPSHIRE COUNTRY SCHOOL	122 HAMPSHIRE RD	RINDGE	P	A	G	A	SG	DUG	19	40
1995040-001	BUTTERNUT BUILDING	RTE 119	RINDGE	P	I	G	A	SG	DUG	12	25
1995050-001	HERITAGE CHRISTIAN SCHOOL	7E MAIN ST	RINDGE	P	A	G	A	SG	BRW	240	100
PWSID	SYSTEM NAME	ADDRESS	TOWN	SYS TYP	SYS ACT	SRC TYP	SRC ACT	SRC REC	WT	WD	POP SERV
1995050-501	HERITAGE CHRISTIAN SCHOOL	7E MAIN ST	RINDGE	P	A	E	A	PT		0	100

1996010-001	CHESHIRE MARKET PLACE	RTE 202 S	RINDGE	P	A	G	A	SG	BRW	148	200
1996020-001	WAL MART	RTE 202	RINDGE	P	A	G	A	SG	BRW	700	40
1996020-501	WAL MART	RTE 202	RINDGE	P	A	E	A	PT		0	40
1996030-001	PLANT FACILITIES BLDG	RTE 119	RINDGE	P	A	G	A	SG	BRW	300	37
1996040-001	SHOP N SAVE	ROUTE 202	RINDGE	P	A	G	A	SG	BRW	450	75
1996040-002	SHOP N SAVE	ROUTE 202	RINDGE	P	A	G	A	SG	BRW	800	75
1996050-001	FAMM STEEL INC	97 HUNT HILL RD, RTE 202	RINDGE	P	A	G	A	SG	BRW	0	65
1997010-001	CAMP MONOMONAC/BLUE HERON	EAST MONOMONAC RD	RINDGE	N	I	G	A	SG	BRW	550	40
1997020-001	HAMPSHIRE COUNTRY SCHOOL		RINDGE	N	I	G	A			0	0
1997030-001	CAMP WILDWOOD/DINING HALL	OLD IPSWICH RD	RINDGE	N	A	G	I	SG	DUG	10	150
1997030-002	CAMP WILDWOOD/DINING HALL	OLD IPSWICH RD	RINDGE	N	A	G	I	SG		0	150
1997030-003	CAMP WILDWOOD/DINING HALL	OLD IPSWICH RD	RINDGE	N	A	G	A	SG	BRW	340	150
1997040-001	CATHEDRAL OF THE PINES	CATHEDRAL RD	RINDGE	N	A	G	A	SG	BRW	0	50
1997050-001	CAMP MONOMONAC/KITCHEN	EAST MONOMONAC RD	RINDGE	N	I	G	A	SG	BRW	150	125
1997060-001	CAMP WILDWOOD/RANGERS HOUSE	OLD NEW IPSWICH RD	RINDGE	N	A	G	A	SG	BRW	600	110
1997070-001	INTERVARSITY/TOAH NIPI RETREAT	129 OLD ASHBURNHAM ROAD	RINDGE	N	A	G	A	SG	BRW	360	150
1997070-002	INTERVARSITY/TOAH NIPI RETREAT	129 OLD ASHBURNHAM ROAD	RINDGE	N	A	G	A	SG	BRW	500	150
1998010-001	MARSHALLS MINI MART	RTE 119, CATHEDRAL RD	RINDGE	N	A	G	A	SG	BRW	360	75
1998010-501	MARSHALLS MINI MART	RTE 119, CATHEDRAL RD	RINDGE	N	A	E	A	PT		0	75
1998020-001	CYPRUS GROVE RESTAURANT	RTE 119	RINDGE	N	A	G	A	SG	BRW	820	75
1998030-001	LILLYS ON THE POND	RTE 202	RINDGE	N	A	G	A	SG	BRW	280	50
1998040-001	RINDGE PIZZA HAVEN	683 RTE 119	RINDGE	N	A	G	A	SG	ART	150	100
1998050-001	WOODBOUND INN & COTTAGES		RINDGE	N	I	G	I	SG		0	25
1998060-001	FOUR STAR CATERING	RTE 202	RINDGE	N	A	G	A	SG	BRW	505	100
1998070-001	SAVVAS RESTAURANT	RTE 202	RINDGE	N	I	G	A	SG	BRW	0	50
1998080-001	FOGGS MINIMART	FOGGS CORNER 741 RTE 119, RTE 202	RINDGE	N	A	G	A	SG	BRW	0	250
1998090-001	KENTUCKY FRIED CHICKEN	240 RTE 202	RINDGE	N	A	G	A	SG	BRW	285	25

NOTES:

PWSID System-Source ID number

TOWN Town served by the source

SYS TYP System Type:

"C" = Community public water systems which serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents

"P" = Non-transient, Non-community systems which are not community systems and which serve the same 25 people or more over 6 months per year

"N" = Transient public water systems serving 25 people or more per day for 60 days or more per year, but not the same people every day – (examples include restaurants and hotels with fewer than 25 employees)

SYS ACT Active status of the System ("A" = active; "I" = inactive)

SRC TYP Source Type ("S" = surface water; "G" = groundwater; "E" = entity/treatment facility)

SRC REC Record Source Code and Water Type: ("EA" Surface, Non-purchased; "EB" Surface, Non-purchased, Emergency ; "EC" Groundwater, Non-purchased; "ED" Groundwater, Non-purchased, Emergency; "PH" Well Head; "PI" Intake; "PM" Pumping Facility; "PO" Other Plant or Facility; "PR" Storage Facility; "PT" Treatment Plant; "SG" Groundwater, Non-purchased; "SP" Surface, Purchased; "SS" Surface, Non-purchased; "SW" Groundwater, Purchased; "SY" Groundwater/Under Direct Influence; "SZ" Groundwater/(UDI) Purchased)

WT Well Type ("ART" Artesian well; "BRW" Bedrock well; "DUG" Dug well; "GPW" Gravel packed well; "GRW" Gravel well; "INF" Infiltration well; "PTW" Point well; "SPR" Spring)

WD Well depth in feet

POP SERV Population served by the System

Table 5: NH DES Drinking Water Supply Risk Assessment

Assessments of Public Water Supply Sources - RINDGE

Source Description	Source Type	Date Assessment Completed	Number of Vulnerability Rankings: High	Medium	Low	Susceptibility Ranking Criteria: Detects	Pathogens	KCSs	SCSs	Highways/RRs	Salt Storage	Septics	Ag Land Cover	Animals	Lagoons	Groundwater	Sanitary radius	GSC	Trophic status
System Type C — C=Community; P=Non-Transient, Non-Community; N=Transient																			
EPAID 1992020 **System Name:** HASBROUCK APTS																			
000 BRW	G	3/13/2001		1		L		L		L		M		H		L		L	
EPAID 1992050 **System Name:** CARRIAGE APTS																			
001 BRW	G	6/23/2000	4	2	8	L		L		H		L		H		L		M	
EPAID 1992060 **System Name:** SAWMILL APTS																			
001 BRW	G	2/27/2001	0	5	7	L		L		L		M		M		M		L	
EPAID 1993010 **System Name:** MONADNOCK TENANTS COOP																			
002 BRW	G	8/17/2000	1	4	7	L		L		L		M		M		M		L	
003 BRW	G	8/17/2000	1	4	7	L		L		L		M		M		M		L	
EPAID 1994010 **System Name:** FRANKLIN PIERCE COLLEGE																			
004 BRW	G	2/15/2002	1	3	8	L		L		M		L		H		M		L	
005 BRW	G	2/15/2002	0	3	9	L		L		M		L		L		M		L	
006 BRW	G	2/15/2002	0	2	10	L		L		M		L		L		M		L	
007 BRW	G	2/15/2002	1	2	9	L		L		M		L		H		M		L	
008 BRW	G	2/15/2002	0	2	10	L		L		M		L		L		M		L	
System Type N — C=Community; P=Non-Transient, Non-Community; N=Transient																			
EPAID 1997030 **System Name:** CAMP WILDWOOD/DINING HALL																			

Explanitory Notes Following Charts

Table 5: NH DES Drinking Water Supply Risk Assessment

	Source Number	Source Description	Source Type	Date Assessment Completed	Number of Vulnerability Rankings			Susceptibility Ranking Criteria														
					Highs	Mediums	Lows	Detects	Well/Intake	KCSs	PCSs	Highways/RRs	Pesticides	Septics	Urban Land Cover	Ag Land Cover	Animals	Lagoons	Dry discharges	Sanitary radius	CSOs	Trophic status
	001	DUG	G	3/1/2001	1	0	8	L	L	L	H	L	L	L			L	L				
	003	BRW	G	3/1/2001	1	0	8	L	L	L	H	L	L	L			L	L				
EPAID 1997040		System Name: CATHEDRAL OF THE PINES																				
	001	BRW	G	9/19/2000	1	0	8	L	L	L	H	L	L	L			L	L				
EPAID 1997070		System Name: INTERVARSITY/TOAH NIPI RETREAT																				
	001	BRW	G	3/1/2001	1	0	8	L	L	L	H	L	L	L			L	L				
	002	BRW	G	3/1/2001	1	0	8	L	L	L	H	L	L	L			L	L				
EPAID 1998010		System Name: MARSHALLS MINI MART																				
	001	BRW	G	7/25/2001	2	0	7	L	L	L	H	H	L	L			L	L				
EPAID 1998020		System Name: CYPRUS GROVE RESTAURANT																				
	001	BRW	G	9/19/2000	2	0	7	L	L	L	H	H	L	L			L	L				
EPAID 1998030		System Name: LILLYS ON THE POND																				
	001	BRW	G	9/19/2000	2	0	7	L	L	L	H	H	L	L			L	L				
EPAID 1998040		System Name: RINDGE PIZZA HAVEN																				
	001	ART	G	9/19/2000	2	0	7	L	L	L	H	H	L	L			L	L				
EPAID 1998060		System Name: FOUR STAR CATERING																				
	001	BRW	G	9/19/2000	1	0	8	L	L	L	H	L	L	L			L	L				
EPAID 1998080		System Name: FOGGS MINIMART																				
	001	BRW	G	9/19/2000	3	0	6	L	L	H	H	H	L	L			L	L				
EPAID 1998090		System Name: KENTUCKY FRIED CHICKEN																				
	001	BRW	G	3/1/2001	3	0	6	L	H	L	H	H	L	L			L	L				
System Type P		C=Community; P=Non-Transient, Non-Community; N=Transient																				
EPAID 1995010		System Name: RINDGE MEMORIAL SCHOOL																				

Explanitory Notes Following Charts

Table 5: NH DES Drinking Water Supply Risk Assessment

	Source Number	Source Description	Source Type	Date Assessment Completed	Number of Vulnerability Rankings			Susceptibility Ranking Criteria															
					Highs	Mediums	Lows	Detects	Well/Intake	KCSs	PCSs	Highways/RRs	Pesticides	Septics	Urban Land Cover	Ag Land Cover	Animals	Lagoons	Dry discharges	Sanitary radius	CSOs	Trophic status
	001	BRW	G	8/3/2001	4	1	7	L	L	L	L	H	L	H	H	M	L	L		H		
EPAID 1995020 System Name: THE MEETING SCHOOL																						
	002	BRW	G	5/8/2001	2	2	8	L	L	L	L	L	L	M	L	H	M	L		H		
EPAID 1995030 System Name: HAMPSHIRE COUNTRY SCHOOL																						
	001	DUG	G	9/27/2001	1	1	10	L	H	L	L	L	L	L	L	M	L	L		L		
EPAID 1995050 System Name: HERITAGE CHRISTIAN SCHOOL																						
	001	BRW	G	2/27/2001	5	0	7	L	H	L	L	H	L	H	H	H	L	L		L		
EPAID 1996010 System Name: CHESHIRE MARKET PLACE																						
	001	BRW	G	8/23/2000	2	3	7	L	L	L	L	H	L	M	M	M	L	L		H		
EPAID 1996020 System Name: WAL MART																						
	001	BRW	G	7/17/2001	2	2	8	L	L	L	M	H	L	L	L	M	L	L		H		
EPAID 1996030 System Name: PLANT FACILITIES BLDG																						
	001	BRW	G	2/27/2001	1	4	7	L	L	L	M	H	L	M	L	M	L	L		M		
EPAID 1996040 System Name: SHOP N SAVE																						
	001	BRW	G	3/15/2001	2	5	5	H	L	L	M	H	L	M	L	M	M	L		M		
	002	BRW	G	3/15/2001	2	5	5	H	L	L	M	H	L	M	L	M	M	L		M		
EPAID 1996050 System Name: FAMM STEEL INC																						
	001	BRW	G	3/15/2001	2	6	4	L	L	H	M	H	L	M	M	M	M	L		M		

Explanitory Notes Following Charts

Table 5: NH DES Drinking Water Supply Risk Assessment

Explanatory Notes

Source number: Each public water system is identified by a 7-digit number, and each source is further identified by 3 digits.

Source description: A description of the source from NHDES's database. (Some common abbreviations: BRW=bedrock well; GPW=gravel-pack well; GRW=gravel well; DUG=dug well; PTW=point well; SPR=spring; ART=artesian well; INF=infiltration well.)

Source type: G=groundwater (well or spring); S=surface water (lakes, reservoirs, ponds, rivers); E = water purchased from another system (*Purchased sources are not assessed per se, but the original sources used by the seller are assessed*).

Date Assessment Completed: The date NHDES completed the process of reviewing available data, collecting new data, and entered the assessment information into its database.

Number of Vulnerability Rankings: A count of the number of high, medium, and low rankings for that source listed in the columns to the right. Each criterion is explained below. Some criteria do not apply to all types of sources or systems.

Detects: Confirmed detections of certain contaminants of suspected human origin.

Well/Intake: The integrity of the well (if a groundwater source) or the intake (if a surface water source).

KCSs: Known contamination sources in the vicinity of the source.

PCSs: Potential contamination sources in the vicinity of the source.

Highways/RRs: The presence of numbered state highways or active railroads in the vicinity of the source.

Pesticides: Whether or not pesticides have been routinely applied in the vicinity of the source.

Septics: The presence or density of septic systems and sewer lines in the vicinity of the source.

Urban Land Cover: The percentage of urban land cover in the vicinity of the source. This criterion does not apply to sources serving transient systems.

Ag Land Cover: The percentage of agricultural land cover in the vicinity of the source. This criterion does not apply to sources serving transient systems.

Animals: The presence of concentrations of 10 or more animal units in the vicinity of the source.

Lagoons: The presence of wastewater treatment lagoons or spray irrigation sites in the vicinity of the source.

Dry Discharge: The presence of dry-weather stormwater discharge sites in the vicinity of the source. This criterion does not apply to sources serving transient systems.

Sanitary Radius: For groundwater sources, the presence of development not associated with the well within the sanitary radius (within 75 to 400 feet of the well). Of particular concern are sewer lines, septic systems, or storage or regulated substances in this area.

CSOs: The presence of combined sewer overflows in the watershed and in the vicinity of the intake. This criterion applies only to surface sources.

Trophic status: The projected trophic status of the source. This criterion applies only to lakes, ponds, and reservoirs of a certain size.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Key to Land Use Codes and Description of Risk for Table 3, Inventory of Public Water Supply Sources and Potential andExisting Sources of Groundwater Contamination in the Town of Rindge, NH

Land Use	Code	K/P/N*	Potential Risks
Farms with ≥ 10 animal units outdoors or with outdoor manure storage for that number of animals	ANIMAL	P	A potentially significant source of pathogens and nutrients. Cryptosporidium is particularly problematic. Subject to NH Department of Agriculture regulations, enforced on a complaint basis.* Note - many farms are not in GIS.
Aboveground storage tank facilities	AST	P	Contain toxic chemicals or oil products capable of contaminating surface or groundwater if released. Releases may occur when transferring product, through accidental damage, or due to lack of maintenance. Regulated by DES.
Superfund Site	CERCLA	K	Is known to contain toxic chemicals or oil products that have contaminated water bodies or groundwater. Clean-up regulated by DES and EPA.
Cemeteries	CEMETERY	P	Use of herbicides is a concern; herbicide use by commercial applicators is regulated by the Department of Agriculture and not by DES.
Complaints	COMPLAINTS	P	Site was referred to the Drinking Water Protection Bureau as a complaint and has not been reassigned to another project type.
Ether	ETHER	K	Ether contamination from unknown source.
Leaking bulk storage facilities containing fuel oil	FUEL	K	Is known to have leaked fuel oil (VOCs). Clean up regulated by DES.
Sites which have groundwater release detection permits and no other defined project type	GW RELDET	P	Groundwater Release Detection Permits issued by DES and monitoring conducted by operator to detect any releases to groundwater that may occur, e.g., lined lagoons, and lined landfills.
Water sample	H2O SAMPLE	N	Isolated groundwater sample with contaminant detection. Site has not been tied to a known contaminant source.
Hazardous waste project	HAZWASTE	K	Contain toxic chemicals or oil products that have at some point contaminated or increased contaminant levels in groundwater. Clean-up regulated by DES.
Non-hazardous, non-sanitary holding tank registration	HOLD TANK	P	Registered with DES. If used improperly, could contain toxic chemicals or oil products capable of contaminating surface or groundwater if released.
Initial response spill	IRSPILL	N	Initial response spill.
Junkyards	JUNKYARD	P	May contain toxic chemicals or oil products that could contaminate water bodies or groundwater, for example, from improper disposal of fluids from automobile or chemical tanks. Not regulated by DES.
Lined landfills	LAND/LN	P	May contain toxic chemicals or oil products that could contaminate water bodies or groundwater if a leak occurs. Monitored by a release detection permit.
Proposed landfill	LAND/PRP	P	Proposed landfill.
Unlined landfill	LAND/UNLN	K, P if closed	Existing landfill or landfill closure.
Leaking above ground bulk storage facilities containing motor fuel	LAST	K	Is known to have leaked petroleum products (VOCs). Cleanup regulated by DES.
Leaking underground storage tank projects	LUST	K	Is known to have leaked petroleum products (VOCs). Cleanup regulated by DES.
Lined wastewater lagoon	LWW/LAG	P	May contribute nitrates, microbiological and other pollutants to groundwater or surface water if a leak occurs. Monitored by a release detection permit.
Leaking motor oil storage tank	MOST	K	Is known to have leaked motor fuel (VOCs). Cleanup regulated by DES.
Old dump sites (non-landfill)	OLD	P	Generally benign, potentially could contain toxic chemicals or oil products that could contaminate water bodies or groundwater in the future.
Leaking residential or commercial heating tanks	OPUF	K	Is known to have leaked motor fuel (VOCs). Cleanup regulated by DES.
Potential contamination source	PCS	P	Catch-all category to include all land uses that typically use large quantities of regulated substances such as automotive repair, manufacturing facilities, etc. Many activities at these facilities may be regulated. Some facilities may have UIC wells (i.e. discharges to groundeater of non-domestic wastewater). Land uses listed under local inventory section on report.

Land Use	Code	K/P*	Potential Risks
Routine pesticide application areas	PESTICIDES	P	May contribute SOCs, nitrates and microbiological pollution sources to groundwater or surface water. Pesticide applicators are regulated by the Department of Agriculture. Not regulated by DES.
Rapid infiltration basins	RAPID INF	P	May contribute nitrates and microbiological pollution sources to groundwater or surface water. Monitored by DES under a groundwater discharge permit.
Resource Conservation & Recovery Act - registered hazardous waste handlers	RCRA	P	Facilities that generate hazardous wastes that could cause contamination if a release occurs. Regulated by DES.
Remediation recharge-treated or remediated	REMED/RCHG	P	Generally benign activity occurring at a contamination site during cleanup. Could contain toxic chemicals or oil products that could contaminate water bodies or groundwater. Regulated by DES.
Bulk uncovered storage of salt	SALT STORAGE	P	Storage pile of salt for winter deicing. Salt travels readily in surface water and groundwater. Sometimes a problem in wells although health effects on humans at drinking water levels not well established. Usually more harmful to aquatic life.
Septage lagoons	SEPT/LAG	P	May contribute nitrates and microbiological pollution sources to groundwater or surface water. Regulated by DES with monitoring under a groundwater monitoring permit.
Subsurface wastewater disposal systems greater than 20,000 gallons per day	SEPTIC	P	May contribute nitrates and microbiological pollution sources to groundwater or surface water. Design and installation are regulated and monitored by DES.
Sewer distribution lines	SEWERED	P	May break where faults or subsidence occurs or where system is in poor condition or old. Areas not sewered but developed have individual septic systems.
Unsolicited site assessment was done by others in response to contamination	SITEEVAL	K	Generally benign. If it contains VOCs, IOCs or SOCs it becomes a HAZWASTE or LUST site.
Sludge lagoons	SLUD/LAG	P	May contribute nitrates, microbiological, or other pollutants to groundwater or surface water. Regulated by DES. Requires monitoring under a groundwater monitoring permit.
Sludge application sites	SLUDGAP	P	Regulated by DES to ensure quality. Applied at agronomic rates for beneficial reuse. *Note - many of these are not in GIS.*
Sludge piles	SLUDG PILE	P	Regulated by DES, unless temporary, requires a groundwater permit. *Note - many of these are not in GIS.*
Special projects	SPECIAL	P	Various special projects.
Spill or release of petroleum	SPILL/RLS	K	VOCs. Impact depends on the size and nature of the spill. For example, gasoline spills are more hazardous than fuel oil spills. Hazard also depends on the quantity and the location of the spill in relation to wells or surface water bodies. Clean-up regulated by DES.
Spray irrigation projects	SPRAYIRR	P	May contribute nitrates and microbiological pollution sources and/or pesticides to groundwater or surface water. Monitored by DES under a groundwater discharge permit.
Concentrated discharge of storm water	STORM WATER	P	May contribute unregulated contaminants, VOCs, IOCs and SOCs and microbiologicals. Treatment at large sites required by DES. Monitoring at certain sites required by EPA.
Stump dump	STUMP/DEMO	N	Municipal or commercial stump or demo dump.
Solid waste transfer stations with groundwater permits	TRANS.STA	P	Generally not a threat to groundwater. Could release VOCs, IOCs and SOCs if improperly managed.
Underground injection control - discharge of benign wastewaters not requiring a groundwater discharge permit or request to cease a discharge (i.e., floor drain closure requests)	UIC	P	Generally benign. If improper discharges occur it could contain contaminants such as VOCs and IOCs. In such cases it would become a hazardous waste site. UICs registered by DES.
Underground storage tank facilities	UST	P	May contribute VOCs if leaking or if small quantities are released repeatedly during transfers. Regulated by DES.
Unlined wastewater lagoons	UWW/LAG	P	May contribute nitrates, microbiologicals, or other pollutants to groundwater or surface water. Regulated by DES under a groundwater discharge permit.

DES: Department of Environmental Services
K or P: Known or Potential Sources of Contamination
N: If groundwater has been impacted, these projects are classified to another project type.
VOC: Volatile Organic Compound (such as gasoline, solvents, etc)
SOC: Synthetic Organic Compound (mostly pesticides)
IOC: Inorganic Compounds (mostly metals)
EPA: Environmental Protection Agency
GIS: Geographic Information System (if a site is not in GIS, it will not be shown on the map.)

Insert
11 x 17

cc Drinking Water Resources +
Potential Contamination Sources

Table 6. Watershed Zoning

		Rural / Residential		Residential		Commercial		Industrial		College		Conservation	
		Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Hubbard Pond	Total Value	2,671	44%	1,345	22%	-	0%	66	1%	-	0%	2,020	33%
	Rindge Value	1,376	34%	1,230	30%	-	0%	-	0%	-	0%	1,477	36%
Contoocook Lake	Total Value	2,989	49%	2,041	34%	469	8%	-	0%	55	1%	510	8%
	Rindge Value	2,224	45%	1,742	36%	469	10%	-	0%	55	1%	412	8%
Converse Meadow	Total Value	3,578	71%	915	18%	22	0%	-	0%	-	0%	547	11%
	Rindge Value	2,176	59%	915	25%	22	1%	-	0%	-	0%	547	15%
Lake Monomonac	Total Value	3,455	56%	2,469	40%	229	4%	-	0%	-	0%	46	1%
	Rindge Value	3,455	56%	2,469	40%	229	4%	-	0%	-	0%	46	1%
Pearly Pond	Total Value	621	29%	542	25%	-	0%	-	0%	478	22%	488	23%
	Rindge Value	621	29%	542	26%	-	0%	-	0%	478	23%	478	23%
Pecker Pond	Total Value	49	28%	128	72%	-	0%	-	0%	-	0%	-	0%
	Rindge Value	49	28%	128	72%	-	0%	-	0%	-	0%	-	0%
Damon Reservoir	Total Value	4,972	88%	88	2%	65	1%	-	0%	150	3%	385	7%
	Rindge Value	3,937	85%	88	2%	65	1%	-	0%	150	3%	377	8%
Gridley River	Total Value	4,396	85%	7	0%	-	0%	-	0%	-	0%	764	15%
	Rindge Value	266	56%	7	1%	-	0%	-	0%	-	0%	204	43%
Binney Hill 1	Total Value	317	55%	37	6%	209	36%	-	0%	-	0%	13	2%
	Rindge Value	263	52%	37	7%	209	41%	-	0%	-	0%	-	0%
Binney Hill 2	Total Value	60	49%	-	0%	62	51%	-	0%	-	0%	-	0%
	Rindge Value	60	49%	-	0%	62	51%	-	0%	-	0%	-	0%
Sip Pond	Total Value	84	100%	-	0%	-	0%	-	0%	-	0%	-	0%
	Rindge Value	84	100%	-	0%	-	0%	-	0%	-	0%	-	0%
Robbins Brook	Total Value	1,442	81%	156	9%	191	11%	-	0%	-	0%	-	0%
	Rindge Value	1,442	81%	156	9%	191	11%	-	0%	-	0%	-	0%
Robbins Pond	Total Value	230	86%	38	14%	-	0%	-	0%	-	0%	-	0%
	Rindge Value	230	86%	38	14%	-	0%	-	0%	-	0%	-	0%
	Total Value	**24864**	63%	**7767**	20%	**1247**	3%	**66**	0%	**683**	2%	**4773**	12%
	Rindge Value	**16184**	56%	**7353**	25%	**1247**	4%	**-**	0%	**683**	2%	**3541**	12%

Table 7. Watershed Summary

		Surface Area	Surface Water		Development		Potential Contamination Sources		Stratified Drift Area	
		Acres	Acres	% Total	Acres	% Total	Miles	Miles/Acre	Acres	% Total
Lake Monomonac	Total Value	7,995	762	10%	617	8%	9.3	0.002	843	11%
	Rindge Value	6,154	606	10%	528	9%	8.8	0.001	843	14%
Damon Reservoir	Total Value	5,275	42	1%	595	11%	5.3	0.002	258	5%
	Rindge Value	4,240	42	1%	525	12%	4.4	0.001	240	6%
Contoocook Lake	Total Value	5,554	707	13%	450	8%	4.1	0.001	1,322	24%
	Rindge Value	4,490	527	12%	337	8%	4.1	0.001	808	18%
Converse Meadow	Total Value	4,515	141	3%	599	13%	6.5	0.003	474	11%
	Rindge Value	1,402	40	3%	88	6%	1.3	0.001	0	0%
Gridley River	Total Value	4,403	19	0%	730	17%	5.6	0.001	1,438	33%
	Rindge Value	272	0	0%	122	45%	0.0	0.000	84	31%
Hubbard Pond	Total Value	4,082	212	5%	341	8%	4.6	0.004	2,495	61%
	Rindge Value	2,607	194	7%	217	8%	1.8	0.001	1,303	50%
Pearly Pond	Total Value	2,321	202	9%	328	14%	2.3	0.002	151	7%
	Rindge Value	1,641	202	12%	260	16%	2.2	0.001	66	4%
Robbins Brook	Total Value	2,284	47	2%	261	11%	3.0	0.003	71	3%
	Rindge Value	1,789	47	3%	206	12%	2.3	0.001	71	4%
Pecker Pond	Total Value	220	25	11%	3	1%	0.0	0.000	0	0%
	Rindge Value	177	25	14%	2	1%	0.0	0.000	0	0%
Binney Hill 1	Total Value	563	0	0%	53	9%	0.9	0.002	0	0%
	Rindge Value	509	0	0%	53	10%	0.9	0.002	0	0%
Binney Hill 2	Total Value	122	0	0%	0	0%	0.0	0.000	0	0%
	Rindge Value	122	0	0%	0	0%	0.0	0.000	0	0%
Robbins Pond	Total Value	na	na	na	na	na	na	na	na	na
	Rindge Value	269	0	0%	11	4%	0.1	0.000	5	2%
Sip Pond	Total Value	na	na	na	na	na	na	na	na	na
	Rindge Value	84	0	0%	0	0%	0.0	0.000	0	0%

Table 8. Aquifer Analysis

Watershed		Surface Area	Surface Water and Wetlands		Acres of Stratified Drift		Transmis-sivity	Staurated Thickness	Favoribility	Development	
		Acres	Acres	% Total	Acres	% Total	(maximum)	(maximum)	AxSTx(SA-SW)	Acres	% Total
Lake Monomonac	Total Value	7,995	1,379	17%	843	11%				617	8%
	Rindge Value	6,154	1,134	18%	843	14%	4,000	80	3386	528	9%
Damon Reservoir	Total Value	5,275	637	12%	258	5%				595	11%
	Rindge Value	4,240	567	13%	240	6%	2,000	39	343	525	12%
Contoocook Lake	Total Value	5,554	1,157	21%	1,322	24%				450	8%
	Rindge Value	4,490	864	19%	808	18%	2,000	40	1172	337	8%
Converse Meadow	Total Value	4,515	741	16%	474	11%				599	13%
	Rindge Value	1,402	128	9%	474	34%	1,000	39	236	88	6%
Gridley River	Total Value	4,403	749	17%	1,438	33%				730	17%
	Rindge Value	272	122	45%	84	31%	1,000	39	50	122	45%
Hubbard Pond	Total Value	4,082	553	14%	2,495	61%				341	8%
	Rindge Value	2,607	411	16%	1,303	50%	4,000	40	114	217	8%
Pearly Pond	Total Value	2,321	530	23%	0	0%				328	14%
	Rindge Value	1,641	462	28%	0	0%				260	16%
Robbins Brook	Total Value	2,284	308	14%	71	3%				261	11%
	Rindge Value	1,789	253	14%	71	4%	1,000	39	42	206	12%
Pecker Pond	Total Value	220	28	13%	0	0%				3	1%
	Rindge Value	177	28	16%	0	0%				2	1%
Binney Hill 1	Total Value	563	0	0%	0	0%				53	9%
	Rindge Value	509	0	0%	0	0%				53	10%
Binney Hill 2	Total Value	122	0	0%	0	0%				0	0%
	Rindge Value	122	0	0%	0	0%				0	0%
Robbins Pond	Total Value	na	na	na	na	na				na	na
	Rindge Value	269	11	4%	5	2%	1,000	39	0	11	4%
Sip Pond	Total Value	na	na	na	na	na				na	na
	Rindge Value	84	0	0%	0	0%				0	0%

Insert Map 1.

"Watershed Boundaries and Hydrography"

Insert Map 2

Stratified Drift
Aquifers and Water Supplies