

**STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

Docket No. 2015-06

**Joint Application of Northern Pass Transmission, LLC
and Public Service Company of New Hampshire
d/b/a Eversource Energy for a Certificate of Site and Facility**

**PREFILED DIRECT TESTIMONY OF AMMY HEISER ON BEHALF OF
THE CONSERVATION COMMITTEE FOR THE TOWN OF PEMBROKE**

November 15, 2016

Background and Qualifications

Q. Please state your name and address.

A. My name is Ammy Heiser. My address is 604 Buck Street, Pembroke, NH 032705.

Q. Please describe your official capacity in the Town of Pembroke?

A. I have served as Chairman of the Conservation Commission since 2008.

Q. What is your professional background and experience?

A. I am self-employed at a Domicile Management LLC and volunteer for the Town of Pembroke as Chairman of the Conservation Commission. I have been recognized by the New Hampshire Fish and Game Commission with an Award of Excellence for my effort in the conservation field in support of the New Hampshire Fish and Game Department's mission. I also received a volunteer Award of Excellence for my efforts in the permanent conservation of the Hillman property in Pembroke, a 44-acre working farm along the Suncook River.

Purpose of Testimony

Q. What is the purpose of this prefiled direct testimony?

A. My testimony is being presented on behalf of the Conservation Commission for the Town of Pembroke.

Q. Is the Conservation Commission concerned that the Northern Pass Project will unduly interfere with the orderly development of the Town of Pembroke?

A. Yes. The Conservation Commission has concerns about this project's impact on the rural character of areas in town, as well as its impacts to the residential and commercial

1 properties that are adjacent to the proposed project. As currently proposed, any public benefits
2 are outweighed by the negative impacts that the project will have on the Town of Pembroke. For
3 further information, please see my attached report.

4 **Other Impacts**

5 **Q. Are there other concerns that the Conservation Commission for the Town of**
6 **Pembroke has about the impacts of the Northern Pass Project?**

7 A. Yes. The Conservation Commission for the Town of Pembroke has concerns
8 about other issues, which includes impacts to natural resources, historic sites, aesthetics and the
9 public interest. It is anticipated that further testimony on these additional issues will be provided
10 by the deadline of December 30, 2016.

11 **Q. Does this end your testimony?**

12 A. Yes.



TOWN OF PEMBROKE
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November 14, 2016

RE: Pre-Filed Testimony for Pembroke, NH

The Pembroke Conservation Commission received Mr. Normandeau's letter dated July 18th, responding to our Request to Deny NPT's Wetlands Permit Application. Thank you for your reply, however, our concerns are not allayed for these reasons:

The visual impact is unchanged for Pembroke. The NPT Project has listened to NH citizens, especially in the North and has conceded to burying 60 miles of the transmission lines and plans to replace the structures with fewer, lower and more streamlined towers. The structures in Pembroke have not been downsized and there are still an estimated 54 new towers at an average height of 130 feet with some at 145 feet. These behemoth lattice structures will be an eyesore in our town. According to a 2003 Community Survey referred to in Pembroke's Master Plan, 73% of respondents indicated that maintaining the rural character is an important contributing factor for living in Pembroke (MP VII-1). These towers will give the town a more industrial character, destroying our coveted rural landscape permanently.

The audio and electro-magnetic impacts are not being addressed and therefore, anyone living nearby will suffer with the consequences of living in close proximity to high voltage transmission lines. These are considered a health concern to all.

NPT's proposed route crosses approximately 56 wetland units and through several of the town's districts including Aquifer Conservation, Floodplain Development, Shoreland Protection, Wetlands Protection and Wellhead Protection Zones. Each of these districts was created to protect the town's natural resources. Two of Pembroke's three rivers will be crossed, the Soucook, considered the highest value wetland unit (WEU) as well as a critical water resource area (NRI, VII-22), and the Suncook. Pembroke derives its public water supply from stream-side wells adjacent to these rivers. Pettengill Brook Headwaters and Lower Ames Brook are also within the projected route. Two Wellhead Protection areas are within the ROW. Permanent and temporary disturbance, associated with construction and the long term maintenance of the project corridor will affect the Town's watersheds, water supplies, river corridors, wetlands, and other natural areas as well as the flora and fauna dependent on them. In the 2003 Community Survey referred to in the Master Plan, 70% of respondents indicated that "protection of groundwater and surface water ranked highest" when asked which would you like the town to develop and/or improve. (MP, VII-5).

Our Natural Resource Inventory states "that there is a need to carry out

strategies to appropriately conserve the town's key natural resources." (VII-1) The NRI also encourages identification and protection of surface and subsurface water resources. The proposed construction occurring in these very sensitive protection districts will certainly have adverse impacts. Ruts created by construction vehicles, earth moving activities, soil disturbance and compaction will compromise the ecological integrity of these environmentally sensitive areas.

Our Master Plan specifies the importance of aquifer protection (VII-2) and our Zoning regulations state that "the purpose of these regulations is in the interest of public health, safety, and general welfare, to protect, preserve, and maintain existing potential groundwater supply and groundwater recharge areas within known aquifers from adverse development, land use practices, or depletion." According to Pembroke's recent Natural Resource Inventory, Pembroke has one of the highest drainage densities in NH and consequently "it is difficult to find any place in town farther than a few hundred feet away from any given stream or river" (VII-16). There is an increased likelihood of contamination due to the fact that water is not static and since streams are in such such large numbers, pollutants will accumulate as the water travels.

During the construction phase of the proposed NPT project, temporary roadways will need to be constructed and there is an impact to water quality, potential for point pollution, erosion, improper AOT modifications, soil compaction, vegetative removal and wildlife habitat destruction. Our NRI suggests we identify and monitor all types of threats to the integrity, sustainability and potential use of natural resources including: habitat fragmentation, forestry activities that alter surface water flows and increase sedimentation, and the loss of soil integrity through erosion, compaction, removal, and alteration (VII-3). Who will be overseeing this expansive project to insure all measures to minimize damage will be enforced and to insure all of these resource areas will be restored? Who will be managing stormwater runoff in order to protect our water resources, sensitive wetlands and wildlife habitats? There are numerous challenges for this project due to the varied terrain and the necessity to preserve natural drainage flow.

Wildlife habitat will be impacted either temporarily or permanently by NPT. Most notably in Pembroke are Northern Black Racer, Eastern Hognose Snake, Wood Turtle, Frosted Elfin, Bald Eagle, Eastern Whip-Poor-Will, Salamanders and the Karner Blue Butterfly (KBB). "The KBB is a federally threatened species that breeds in just 2 locations in the state, one of which is Pembroke. Without this habitat it would not exist." (NRI, VII-32). Their habitat is the Pitch Pine Forest/Woodland and is also known as Pitch Pine-Scrub Oak Woodland. Some of those species mentioned may have their nesting habitat within the ROW (Wildlife Resources and Impact Assessment). Several plant species are also at risk due to the disturbance that will occur in our exemplary natural communities within the ROW. Wild Lupine, Spiked Needlegrass, and Licorice Goldenrod are found in these communities. How can you avoid disturbing or destroying these species? Finding suitable habitat for mitigation is difficult. Avoidance is the preferable solution. Another concern for the wildlife in the ROW is the risk of avian collisions with these tall towers. In the NPT Wildlife Resources and Impact Assessment, it shows there is a higher risk for waterfowl collision on the 130' Monopole Structure 3132-218 located on the Suncook River.

Our town's forests will also be impacted in many ways. Our forested wetlands will be converted to scrub-shrub through the extensive tree clearing necessary to expand the ROW. The Pembroke Board of Selectmen held a Public Hearing on November 2, 2015.

Approximately 70 people attended that meeting, myself included. Mr Kayser, a representative of NPT, responded to a question about clear cutting and he stated that 150' will need to be clear cut in the ROW depending on the height and type of the structure. The structures that are proposed in Pembroke are at an average height of 135' and so it is likely that there will need to be significant clear cutting. Our town's forests will also be impacted in many ways. Our forested wetlands will be converted to scrub-shrub through the extensive tree clearing necessary to expand the ROW. This will effect upland tree canopy and this alteration can impact water temperature and change habitat. The expansion and construction on the forested ROW will create a major disturbance which will impact connectivity. The ROW runs through our Range Roads which is our town's most rural area. This area is significant because of the large tracts of land mainly protected by their current use rating. Pembroke has tried to protect this area of town because of the historic, recreation, ecologic, and aesthetic value of these Class VI roads and their surrounds. Within this area are high valued wetlands which the town would like to designate as Prime Wetlands in order to better preserve them. Pettingill Brook and the area by the Soucook River near the Concord Well Field where critical habitat for the pitch pine barren species has been found, are two such high valued wetlands within the ROW.

ATV trails will most definitely expand with the newly created pathways. Pembroke doesn't have enough officers to patrol our existing Range Roads and trails and so we have had an increase in destruction of our wetlands and trails due to this lack of enforcement. The Board of Selectmen, with the advice from the CC, instituted seasonal Class VI road closures to help curb this ongoing problem. The expanded utility ROW's will certainly contribute to vehicular destruction of our unfragmented lands by allowing those motorists alternative access. I do hope that gates and barriers will be installed where needed most.

In closing, on March 8, 2011 at Pembroke's Town Meeting, the citizens overwhelmingly voted yes, by a show of hands, on Warrant Article #12 which reads, "We the undersigned residents and registered voters of the Town of Pembroke do hereby submit the following petition to see if the town will vote to register and disseminate to all concerned its objection, opposition and commitment to stop the construction of any new portion of the high voltage transmission line that deviates from the alignment of the present existing right of ways in the Town of Pembroke NH as presently proposed by Northeast Utilities, NStar and Hydro-Quebec since such a huge scar constructed and erected through and above the town's treasured residential and scenic private properties will cause inestimable damage to the orderly economic development of the Town, and the health and wellbeing of its residents; or to take any other action relative thereto."

On March 15, 2014, at the Town's Annual Meeting, once again the citizens of Pembroke overwhelmingly voted yes by a show of hands, to a similar warrant article, #15, "requiring the Town of Pembroke to state its opposition to any new overhead high voltage transmission lines within its borders and to manifest the Town's strong preference for the burial of such lines."

In 2004, Pembroke's Master Plan established goals to protect water resources, mitigate pollution sources and other threats to these resources, protect prime wildlife habitat, and wetland and riparian areas, and to provide long-term protection to the town's core rural areas and scenic resources. NPT project is not in keeping with Pembroke's goals to protect our natural resources particularly in areas of special ecological significance defined as those areas, by virtue of their physical, chemical, and/or biological

characteristics, support unique, rare or sensitive elements that are readily subject to degradation or diminution by human disturbance (NRI, VII-48). NPT travels through several of these. The environmental impact is enormous to our town and New Hampshire. We appreciate your time and consideration in reviewing all of our concerns.

Sincerely,
Ammy Heiser
Conservation Commission Chair
Town of Pembroke

Chapter VII NATURAL RESOURCES

INTRODUCTION

With a variety of forestry, farm, and soils types, numerous plants and wildlife species, and three of the five major rivers in the Central New Hampshire Region forming its borders, Pembroke's 14,528 acres of land is rich in natural resources. Currently, there are 285.85 acres of land in conservation and approximately 9,000 acres of land in current use. Wetlands are found scattered throughout the town, and many tracts of land remain undeveloped. Two hills exist in the Town, and three types of bedrock geology underlay Pembroke. The presence of the Merrimack River along its western border with Bow and the Suncook River along its southeastern border with Allenstown has helped shape the Town's development patterns. This rich diversity is one of the reasons people have been attracted to Pembroke throughout its history.

The Natural Resource section of the 1993 Master Plan, amended in 1998, addressed basic data about the town's resources. It included information about water features, topography, agriculture, soils and restrictive development constraints associated with the presence of certain natural resources. Some of the key natural resource goals of the 1993 Master Plan were to discourage growth in environmentally sensitive areas, explore innovative land use controls to maintain an appropriate level of open space and to identify and conserve areas of agricultural or natural significance. In 2001, the Town of Pembroke worked with Central New Hampshire Regional Planning Commission to develop an Open Space Trails System Plan. This plan, briefly discussed in this Chapter, further addresses some of the goals set forth in the 1993 Master Plan.

The March 2003 Community Survey indicates that the people of Pembroke view local natural resources as playing an important role in the town's quality of life with over 73% of responding residents indicating that the town's rural character, in which natural resources plays a role in defining, is an important contributing factor for living in Pembroke. Approximately 75% of survey respondents considered agriculture and forestry land uses to be important objectives of the Master Plan and 50% of the respondents wanted to discourage development along rivers. Taken as a whole, these survey results suggest that the need for the Planning Board to identify and to then to carry out strategies to appropriately conserve the town's key natural resources.

OBJECTIVES OF THE CHAPTER AND RECOMMENDATIONS

These Objectives were developed as a result of Subcommittee analysis and interpretation of the data contained within the following Chapter and from concerns raised from concerns raised from Pembroke residents and landowners in the Community Survey. They are listed in the beginning to give the reader the opportunity to view the results without reading through the entire Chapter. The following Objectives protect and enhance environmentally sensitive and important natural resources and natural areas within the Town.

- To preserve a variety of natural areas within the Town.
 - Identify all natural resources/areas in Town, according to their type (i.e. Conservation lands, forest types, recreation areas). Also, identify the issues that could threaten or enhance each area.
- To identify land parcels for future conservation-related acquisitions or easements.
 - Develop and implement a classification system to rank parcels for future land acquisition, including steps to acquire lands of importance.
- To identify and protect surface (ponds, rivers, streams) and subsurface (aquifers) water resources.
 - Accurately map aquifers as a beginning point in developing measures to assure adequate protection of this resource.
 - Examine the provisions of the Aquifer Conservation District for potential changes that would enhance the effectiveness of this District.
- To identify and mitigate both point and non-point pollution sources and other threats to the Town's water resources.
 - Continue to provide the Town with "Hazardous Waste Disposal" opportunities.
 - Work in conjunction with the NH Department of Environmental Services to locate and monitor known and potential sources of point source pollution.
 - Examine existing land uses to identify known and potential point and non-point source pollution.
 - Develop a water quality monitoring program to test water throughout the Town of Pembroke.

- To identify and classify wetland areas by their ecological significance so that they may be generally protected and so that the most important, or prime, wetlands and their riparian buffer areas may be targeted for heightened conservation.
 - Explore minimum setback regulations from wetlands and follow through with appropriate measures.
 - Explore the range of existing wetlands to determine whether any wetland areas should be designated as “prime wetlands”.
- To develop alliances and provide educational opportunities which protect the town’s natural resources and promote a heightened awareness of their important values.
 - Promote alliances with a variety of public and private groups (i.e. Boy Scouts, ATV user groups, local schools, etc.) to assist the town in carrying out environmentally related educational activities.
 - Establish a practical interpretive signage educational program which promotes an understanding of the town’s most noteworthy natural resource sites.
 - Establish, maintain and publicize a “clean-up program” to keep roadsides, trails and river banks free from refuse.
- To provide long-term protection to the town’s core rural areas by identifying and safeguarding the town’s prime forestlands and agricultural areas.
 - Update the zoning ordinance to more strongly protect, promote and enhance the town’s long-established timber conservation and silviculture areas by establishing large minimum lot-size standards within one or more appropriately situated newly created Timber Conservation Districts.
 - Update the zoning ordinance to more strongly protect, promote and enhance the town’s traditional agricultural areas by establishing large minimum lot-size standards within appropriately situated newly created Agricultural Conservation Districts.

- To identify and analyze wildlife habitat throughout the town to understand which environments are most valuable and/or at-risk, and establish a preservation/conservation program for those habitat areas deemed most in need of protection.
 - Establish criteria and procedures for identifying the town's most important wildlife habitat areas and habitat-connective corridors and, for study and educational purposes, show these areas on appropriate maps.
 - Develop a mitigation strategy using best management practices to protect those wildlife habitats and connective corridors deemed most "at risk".
- To identify existing and former sand and gravel excavation sites as well as all areas in town containing stratified drift earth materials with the aim of defining a smaller, more appropriately sized, earth excavation zone than currently exists.
 - Map existing stratified drift earth material areas.
 - Develop one or more appropriately sized earth excavation zoning districts.
 - Carry out and enforce current reclamation regulations.
- To identify the Town's scenic resources such as scenic roads, vistas and other viewsapes.
 - Locate and map existing scenic resources for study and educational purposes.
 - Develop a program to enhance existing scenic areas throughout the town.

COMMUNITY SURVEY RESULTS

The March 2003 Community Survey yielded 780 replies from 2956 surveys distributed, which equals a 26.4% return rate. The following questions were pertinent to the NATURAL RESOURCES CHAPTER. The full survey results are displayed in the APPENDIX CHAPTER.

What do you consider the desirable features of the Town of Pembroke?

Approximately 73% of respondents considered the rural atmosphere of the town to be a desirable feature. Location was considered desirable by 74.5% of the respondents. Conservation of natural resources was considered to be a "low" desired feature by just over 16 % of the respondents, indicating that approximately 84% of the respondents may feel that conservation of natural resources was a desired feature.

Please indicate which of the following recreational opportunities you would like the Town to develop and/or improve.

Approximately 50% of respondents want to see walking trails on Town property developed or improved, while 42.3% of the respondents want bike paths within the town developed and improved.

Should development along rivers be encouraged or discouraged?

51% of respondents discouraged development along rivers while 25½% wanted to promote development in this area.

Are agriculture and forestry land uses important objective of the Master Plan?

Approximately 75% of respondents considered agriculture and forestry land uses to be important objectives to the Master Plan.

Should the Town acquire undeveloped land for protection?

58% of respondents felt that the Town should work at acquiring undeveloped lands for preservation.

If Pembroke were to expand trails, how would this be done?

34.3% of respondents felt that this should be accomplished through landowner permission to use the land. Town purchase of land, transfer of development rights, Town purchase of easements, subdivision requirements and private organization purchase of land were all ranked favorably by 9%-19% of survey respondents.

Please indicate which of the following you would like the Town to develop and/or improve?

Protection of groundwater and surface water ranked highest with 70.3% of respondents indicating that this was a high priority of for development or improvement. Also ranking high are protection of forests at 59.6%, protection of wetlands at 53.3% and protection of wildlife habitat at 50.8%.

Table VII-1
Excavation Operations

Name	Status	Map and Lot	Location	Description
Concord Sand & Gravel	Grandfathered	Map 256 Lot 22	Ricker Road	Operating conditions from Special Exception granted in 1986
Concord Sand & Gravel	Grandfathered; may need a permit	Map 256 Lot 25	Ricker Road	Subject to 1986 operating conditions
Concord Sand & Gravel	Grandfathered	Map 256 Lots, 22-3, 22-1, and 26-2	Ricker Road	Subject to 1986 operating conditions; Reclaimed; Asphalt plant permitted in 1999
Concord Sand & Gravel	Permit granted in 1985	Map 559 Lot 6	North Pembroke Road	Permit issued by Special Exception and Site Plan
Silver Hill Development Corp	Grandfathered	Map 559, Lot 12	North Pembroke Road	3 acres (total w/Silver Hill) excavated as of 7/91; excavation began in 1930s
Manchester Sand & Gravel	Grandfathered	Map 634, Lot 41	West side of Route 3, Pembroke Street, ¼ mi south of Rte 106 intersection	Excavation began in 1940s
D'Agnese & Keeler	Permitted	Map 634 Lot 43-2	West side of Route 3 adjacent to Manchester Sand & Gravel pit	26 acre excavation began 1996; reclamation scheduled for fall 2003
Plourde Sand and Gravel / Plausawa Valley Country Club Pit	Grandfathered	Map 634, Lot 2	Along Soucook River south of the ninth hole	Excavation began in 1963; gravel rights expired May 14, 2003; rights renewed

Sources: 1993 Master Plan; 2002 Digital tax maps; Subcommittee Input

Water Resources

The *Water Resources Map* depicts the location of the most known water features within the Town. Included on this map are ponds, rivers, streams, wetlands, water supplies and water-bearing sand and gravel aquifers. A detailed description of each resource type follows.

Water Supply

Pembroke contains many private well sites along with several public water supply sites. These locations can be seen on the *Water Resources Map*. Presently, Pembroke has a total of 10 public water supply sites serving the Towns of Allenstown and Pembroke as well as the City of Concord. As defined by NH Department of Environmental Services, public water systems "are systems that serve at least 25 people or 15 service connections for at least 60 days each year". Pembroke's public water supply system is fed through five well sites; three of these wells are located in close proximity to the Soucook River and two are sited near the Suncook River. The wells located near the Soucook River each pump approximately 600 gallons per minute while the wells located near the Suncook River each pump approximately 300 gallons per minute. These five public water wells serve the downtown area, Buck Street and properties along Route 3 and Route 106.

Currently, approximately 6,000 Pembroke residents are connected to the public water system (this figure does not include residents served in Allenstown or Concord). Table VII-2 provides a list of public water supply sites in Pembroke.

Table VII-2
Public Water Supply Sites

Map Index	Name	Address	Map-Lot	Owner
1	Concord Dept/Water Resources	125 Hall Street	559-8	Concord
2	Concord Dept/Water Resources	125 Hall Street	559-8	Concord
3	Concord Dept/Water Resources	125 Hall Street	559-8	Concord
4	Concord Dept/Water Resources	125 Hall Street	559-8	Concord
5	Pembroke Well	Route 106	632-17	Pembroke
6	Pembroke Water Works	Route 3	632-3	Pembroke
7	Pembroke Water Works	Route 3	632-3	Pembroke
8	Meeting House Water Company	Woodlawn Ridge Road	634-14	Pembroke
9	Maple Grove Park	Rte 28	870-20	Pembroke
10	Plausawa Valley Club House	Whittemore Road	634-23	Pembroke

Source: NH DES Public Water Supplies GIS Layer supplied to NH GRANIT, 1998

The remainder of the Town is served by private wells. From 1984 to 2002, the NH Department of Environmental Services has issued approximately 95 permits for installment of private wells in Pembroke. Table VII-3 shows an approximate break-down of these private water wells as they occur along particular Pembroke roadways. It is important to note that this list of private wells is not 100% complete in that a few private well installations may not have been reported to the NH Department of Environmental Services as is required, and data for wells installed before 1984 were not collected by state or local agencies.

Table VII-3
New Residential Wells Installed
By Road Occurrence, 1984-2002

Road Name	# Wells 1984-2002
Beacon Road	10
Belfry Court	1
Bombay Bridge Road	1
Borough Road	5
Brickett Hill Road	2
Buck Street	1
Church Road	9
Cross Country Road	18
Deer Path Lane	3
East Meadow Lane	1
8th Range Road	1
4th Range Road	15
North Pembroke Road	7
Pembroke Hill Road	2
Pheasant Run Road	1
Plausawa Hill Road	2
Rosedale Lane	7
Route 106	1
Route 28	2
Route 9	1
6th Range Road	1
3rd Range Road	4
Total	95

Sources: NH DES Well Inventory, 2003

Wellhead Protection Areas

In order to minimize potential opportunities for contamination of public water supplies, the NH Department of Environmental Services has implemented a regulatory strategy of limiting the types of land use activities which can occur in the vicinity of wellhead locations. This geographic area of limited land uses is known as a wellhead protection area. A typical wellhead protection area in New Hampshire is normally denoted by a 4000 foot radius around a public well location although it is not unusual for a wellhead protection area to have variable radii to suitably cover site specific local conditions. As may be seen on the *Potential Threats to Water Resources Map*, for example, most of the state-assigned protection areas for wells located in Pembroke have variable radii.

Ponds and Lakes

The 5-acre Bragfield Pond is the one named pond that exists in the Town of Pembroke. Located between Brickett Hill and Beacon Hill Roads, the land around this water body is owned by the Town and managed by the Conservation Commission. In addition to Bragfield Pond, several smaller unnamed ponds can be found in other areas of Pembroke. Several of these appear to have been caused by beavers resulting in "beaver ponds."

Rivers

Pembroke is bordered by three rivers that travel through the Central New Hampshire Region. Much of the development in the Town has occurred along these river corridors. This is in part due to the historical dependence on the rivers for drinking water, their use as irrigation for farmland and as travel ways. A brief description of the three rivers bordering Pembroke follows.

The Soucook River acts as Pembroke's western border with the City of Concord. Though its banks are largely undeveloped, most of the land bordering the Soucook is currently zoned for commercial use and it is estimated that significant areas of this commercially zoned land will face development pressure in the near future.

The Suncook River forms Pembroke's southeastern boundary with Allenstown. In the *History of Barnstead* (Jewett, 1872), an early writer observed that the Suncook River had drainage so complete that it left no bogs or meadows along its banks and, perceiving the early settlement uses of the land, concluded that the environs of the Suncook River were a wonderful location for community-building and development. Because the river's significant fall in elevation in the vicinity of Suncook Village produced great water generated power, that area of Town saw the development of important commercial and industrial activities throughout the settlement period through the 1800's such as saw and grist mills, and cotton and wool spinning mills. Historically important to the Town of Pembroke, the presence of the Suncook River is central to the development and identity of Suncook Village, an unincorporated area uniquely shared by Pembroke and Allenstown. Jewett (1872) notes that the word "Suncook" is believed to be a Native American word meaning "the place where the wild goose rested."

Forming Pembroke's southwestern border with Bow, the Merrimack River acts to drain the entire central and south areas of the State of New Hampshire. Both the Soucook and Suncook Rivers empty into the Merrimack River.

Brooks

The 5.8 mile long *Ames Brook* begins its flow on the southeastern flank of Plausawa Hill in the northeast corner of Pembroke and is ultimately joined by four intermittent tributary streams before it empties into the Suncook River. Leaving the area south of Plausawa Hill Road, the brook shortly passes beneath North Pembroke Road and flows about 0.9 before it crosses beneath Cross Country Road. In another 1.2 miles it passes below Hardy Road. Continuing southeasterly in the low area between North Pembroke and Seventh Range Roads, Ames Brook passes through a small portion of the neighboring town of Epsom before coursing beneath Route 28 about 3.2 miles from Hardy Road. Shortly thereafter, the brook enters the Suncook River just south of the intersection of North Pembroke Road and Buck Street Extension (Old Route 28) dropping about 400 feet in elevation from its origin.

Pettingill Brook is composed of nine tributary streams which enter the main branch at regularly interspersed intervals along its 6.8 mile length. Pettingill Brook initially flows in a south direction starting about 0.3 miles west of Cross Country Road between the Sixth and Seventh Range Roads. About 0.3 miles to the southeast of this point, it crosses beneath Sixth Range Road and meanders to the southwest for about 1.3 miles until it passes beneath Kimball Road between Sixth and Seventh Range Roads. Continuing in the same general southeasterly direction, Pettingill Brook crosses beneath Sixth Range Road about 1.0 further downstream. In another 0.5 miles, it flows below Buck Street just to the north of Ryan Drive and shortly thereafter veers in a southwesterly direction after which it soon flows beneath Ryan Drive and enters the Suncook River about 0.7 miles south of Buck Street.

Hartford Brook begins in the environs of Pembroke Hill and Fourth Range Roads where two unnamed intermittent tributary streams unite to form the Hartford Brook mainstem. The 2.9 mile long Hartford Brook flows southeasterly beneath Church Road and Academy Road, ultimately crossing beneath Buck Street between Academy and Dearborn Roads, before entering the Suncook River shortly thereafter.

The 3.0 mile long *French's Brook* originates from the intermingling of two unnamed intermittent streams which flow a short distance westerly off the lower southern flank of Plausawa Hill in the vicinity between North Pembroke and Seventh Range Roads. A short distance further west, French's Brook picks up the flow of two more unnamed intermittent streams which originate on the west side of Plausawa Hill and eventually enter the north side of French's Brook to the east of Borough Road. French's Brook continues meandering westerly near the south side of North Pembroke Road for another 1.6 miles until it enters the Soucook River below Route 106 just south of Concord's Steeplegate Mall.

The 1.8 mile *Meetinghouse Brook* begins in the boggy wetland area surrounding Church Road between Pembroke Street and Cross Road. It is fed by several intermittent tributary streams as it flows generally northwesterly before reaching Pembroke Street (just south of Bow Lane). The brook thereafter continues in a westerly direction through the gully which is situated between Bow Lane and Donna Drive after which it flows beneath Nadine Road (just south of Donna Drive) before emptying into the Merrimack River just south of White Sands Recreation Area.

Watersheds

Pembroke is made up of three minor watersheds which are all contained within the larger Merrimack River Watershed. The eastern half of the town is located in the Lower Suncook River Watershed, accounting for approximately 7,365 acres of Pembroke's total land area. The Lower Suncook River Watershed encompasses the Suncook River and some of its tributaries such as Hartford Brook, Pettingill Brook and Ames Brook. The Soucook River Watershed accounts for 5,120 acres and is situated in the northwestern portion of Pembroke. Included in this watershed is French's Brook. A small area located in the southwestern area of town drains into the Merrimack River. This area is known as the Concord Tributaries Watershed and it accounts for 2,113 acres of land. Meetinghouse Brook is included in this watershed.

Because all surface water within a particular watershed drains as a unified hydrolic system, separate from any other neighboring watershed area, knowledge of watershed locations and how their drainage system works, combined with knowledge about under-lying water-bearing aquifers, plays a big role in helping town planners locate and protect town wells and regulate those surface land uses which could contaminate water resources.

Aquifers

The *Water Resources Map* shows the location of Pembroke's three stratified drift aquifers (or sand and gravel deposits which hold significant amounts of water) as identified by the United State Geological Service. All three local aquifers are directly linked to the three rivers that border the Town. As may be seen on the map, the largest aquifer occurs along the Soucook River. These aquifers provide a valuable resource as sources for public and private drinking water. In addition, most of the excavation of sand and gravel occurs in the stratified drift aggregate deposits which are located directly over the aquifers. These sand and gravel aggregate deposits are known to play an important role in filtering rain water as it passes through to the aquifer deposit below.

Wetlands

The National Wetlands Inventory (or NWI), performed by the United States Fish and Wildlife Service between 1986 and 1990, identified prime wetlands in the State of New Hampshire. The *Topography and Wetlands Map* shows the location of these wetlands in Pembroke. The highest concentration of wetlands occurs in the northeast section of town along Sixth Range Road and Borough Road.

Wetlands serve many ecological and environmental roles such as a source of wildlife habitat, recharge areas for aquifers, water purification and act as natural buffers for lakes and ponds. Due to the many benefits of wetlands this natural feature is viewed as a sensitive natural resource. The classification used by the National Wetlands Inventory is based on soil type, vegetative cover, and soil saturation and, taken together they form about 3.7% of all land cover in Pembroke. The NWI wetland categories are as follows:

Table VII-6
Dams in Pembroke

Map Index	Hazard Class	Name	River	Type	Status	Ownership
A		Suncook River Dam	Suncook River	Stone/earth	Ruins	Private
B	AA	Recreation Pond Dam	Unnamed Brook	Earth	Active	Private
C		Rousseau Dam	Unnamed Stream	Earth	Exempt	Private
D	AA	Farm Pond	State Game Farm Pond	Earth	Active	Private
E	AA	Plausawa Country Club Pond	Natural Swale	Earth	Active	Private
F	A	Buck Street West Dam	Suncook River	Earth	Active	State
G	AA	Wildlife Pond Dam	Hartford Brook	Concrete	Active	Private
H		Farm Pond Dam	Unnamed Brook	Earth	Exempt	Private
I	AA	Wildlife Pond Dam	Unnamed Brook	Earth	Active	Private
J		Farm Pond Dam	Unnamed Brook	Earth	Not Built	Private
K	AA	Rugged Acres Detention Pond	Runoff	Earth	Active	Town
L	AA	Sawmill Dam	Suncook River	Concrete	Active	Private
M	A	Pembroke Dam	Suncook River	Concrete	Active	Private
N	A	China Mill Dam	Suncook River	Concrete	Active	Private
O	B	Webster Mill Dam	Suncook River	Concrete	Active	Private

Source: NH Department of Environmental Services, 2003

Potential Threats to Water Resources

Because a large portion of Pembroke receives water from public water supplies the need to identify and mitigate potential threats to these water resources is very important. As discussed elsewhere in this Chapter, Pembroke's public water supply is drawn from aquifers underlying the town's land surface (see Table VII-2), while non-public water users make use of private wells (see Table VII-3). Also, surface water is used for a wide variety of recreational purposes and also provides habitat and a drinking water supply for natural fauna and is an important food supply for plant and vegetative life.

Threats to water supplies may stem from many different potential contaminant sources and each pollutant threat may affect water at a different stage of its movement from being water vapor in the atmosphere to being liquid groundwater. Simply put, water is not static or stays in a single place; it collects in the atmosphere and may be released to the ground as rain or fog after which it is either absorbed into the ground, collected by plants or begins to move across the ground surface until it is collected into a water body.

Ultimately, water flowing across the earth's surface becomes absorbed into underground aquifers or settles into rivers, streams and ponds where, if it is not impounded for a local purpose, will continue downstream eventually winding up in the ocean. Rainwater which reaches underground aquifer catchment areas may be pumped to the surface by public or private wells for use as a public water supply resource. Surface water may also be converted back to water vapor either by a process of evaporation or released from plants by a process of plant transpiration. In this way, through these "evapotranspiration" processes, ground water is returned to the atmosphere.

Water in the atmosphere or collected on the earth's surface often has many opportunities to encounter a large variety of potential contamination sources which could dramatically affect its quality. Mercury and other air-borne pollutants emitted into the atmosphere by coal-fired power plants may affect water vapor collected in clouds and be widely scattered, fertilizer runoff from agricultural fields can run into nearby streams, fecal material released from nonfunctional septic systems and gasoline or other chemicals spilled from commercial and industrial sites can leach into aquifer recharge and filtration areas and eventually reach and contaminate ground water. Thus, there is an essential need to identify, analyze, monitor and appropriately control potential point and non-point water pollution sources throughout the Town of Pembroke. Part of this identification and control process is currently being carried out by the New Hampshire Department of Environmental Services (NHDES) who are presently responsible for monitoring all public water supplies. There are, however, no regulations which scrutinize private water wells or the quality private well water. Thus, this chapter was developed in part to provide guidance so that the Town may have an accurate record of where local water resources are located, how these resources may be threatened, and what actions and programs should be put into place which will remove or mitigate the perceived sources of pollution.

Protection from Point Pollution Sources

A point pollution source is one where a particular pollutant is emitted into the atmosphere from a single, narrowly defined, place or point. Examples of point pollution sources may include sewer overflow pipes, leaking underground fuel tanks, above ground storage tanks, junkyards and hazardous spills. Also, if they are not properly maintained, public sewer or septic systems have the potential to become sources of point pollution.

Obviously, identification and control of point pollution sources is important in maintaining overall water quality for both surface water and ground water. Continued efforts should be made to identify and correct potential point source pollution generators in Pembroke. At the present time, NHDES has identified a list of 20 potential or known point pollution sites within Pembroke. They include above ground storage tanks, excavation sites, leaking underground storage tanks, and hazardous spills. Table VII-7 shows a list of the sites that have been documented and these points have been mapped and may be seen on the *Potential Threats to Water Resources Map*. It is important to note that there is potential for undocumented sites to exist within Pembroke.

Table VII-7
Known Locations of Point Source Pollution

Hazard Type	Location
Above Ground Storage Tank	Rymes Heating Oils, Inc.
Above Ground Storage Tank	Pleasant View Gardens
Above Ground Storage Tank	Plourde Sand And Gravel
Exiting Landfill or Landfill Closure	Pembroke Landfill
Initial Response Spill	Donald Phipps
Isolated Groundwater Sample	Town Of Pembroke Water Works
Leaking Underground Storage Tank	Kimballs Country Store
Leaking Underground Storage Tank	S&B Auto. Serv.Inc./Pembroke Power Test
Leaking Underground Storage Tank	Pembroke Highway Garage
Leaking Underground Storage Tank	Gap Auto Parts
Oil Spills or Releases	Webster Mills Condominiums
On-Premise Use Facility Containing Fuel Oil	Pembroke Congregational Church
On-Premise Use Facility Containing Fuel Oil	Tirrell(Federal Home Loan Corp)
On-Premise Use Facility Containing Fuel Oil	Lemieux Residence
Underground Injection Control	Penn-Hampshire Lubricants
Underground Injection Control	Halvorsen Kennels
Underground Injection Control	P H Precision Products Corp
Underground Injection Control	Hyster New England Inc.
Underground Injection Control	The Kennel At Hemlock Hill Farms
Underground Injection Control	S&B Auto. Serv.Inc./Pembroke Power Test
Underground Storage Tank	Hyster New England Inc.

Source: NH Department of Environmental Services

Protection from Non-Point Pollution Sources

Because of an inability to identify the source of a contaminant, non-point pollution events are typically more difficult to control than point pollution sources. Non-point pollution usually occurs when water running over the ground surface becomes contaminated after picking up various pollutants. Sources of non-point contamination tend to be related to human activities such as farming, forestry and development that results in the creation of impervious surfaces such as paved roads and parking lots. One of the greatest known sources of non-point pollution is improper application of road salt. In most instances, potential non-point pollution sources may be mitigated by preventing the contaminated water source from being more widely dispersed. By controlling the location and amount of salt placed on the roads, for example, the potential for salt contamination can be minimized. And earthen berms erected between fertilized agricultural fields and abutting surface water resources such as rivers and streams may significantly lessen the potential of pollutants from entering the water supply.

Land Resources

Recent calculations indicate that, despite the fact that Pembroke has several highly visible and densely developed areas such as the Suncook Village district and its surrounding neighborhoods – which stretch out to the vicinity of Dearborn and Academy Roads – and the Route 3 (Pembroke Street) and Route 106 transportation corridors, approximately 41% of Pembroke's land still remains significantly undeveloped. These undeveloped rural areas, which are located away from the built-up sections of town where community infrastructure is located, are, for the most part, geographically situated within the central, north and northeastern parts of town which are surrounded by the perimeter Range Road system – a significantly intact rural environment typified by sparsely settled forested areas which contain many large-sized (50 acre+) parcels of land. Significantly, only 2% of Pembroke's undeveloped land has been permanently conserved.

One conclusion which can be drawn from this reality is that Pembroke's long-term plan to concentrate its primary community infrastructure (major roadways, water and sewer lines, police, fire, schools, etc.) along the Route 3 and Route 106 transportation corridors has succeeded as an inducement or stimulus in attracting into its immediate vicinity much of the town's recent commercial and residential development activity – thus keeping a significant amount of that development expansion from locating in the more rural areas of Pembroke where it would fragment the landscape and fill in the existing open spaces.

A second conclusion which can be drawn is that, because the Zoning Ordinance allows relatively small 1.8-acre minimum lot sizes in the R-3 district which comprises the rural areas of Pembroke, and because only a tiny portion (2%) of Pembroke's undeveloped land is protected from development, it is only a matter of time before subdivision of the town's many large-sized rural parcels takes place. This assessment is based on the knowledge that the recent heavy influx of population into the southern New Hampshire and Greater Concord area, which has been well noted to have contributed greatly to land fragmentation and loss of undeveloped open spaces throughout the region via the suburban sprawl process, will not likely bypass Pembroke if current zoning rules are maintained. This looming suburbanization threat to Pembroke's largely undeveloped rural areas is being taken seriously by local planners who understand that the town's rural character and nature is being threatened; at present, however, Pembroke remains, geographically speaking, an essentially rural town containing significant amounts of undeveloped, wooded, open spaces where typical lot sizes are quite large.

Town Forests

Pembroke has a number of parcels of Town owned land, some of which are used to house or otherwise accommodate various community facilities and schools. Additional Town-owned lands have been set aside for conservation purposes or for recreational and forestry uses. Although many parcels in the latter category are utilized for timber harvesting practices, the assessors' database only lists one Town forest in Pembroke, the Butterfield Tract, which accounts for 28.48 acres of land. Other forestlands owned by the Town include the Bragfield Pond Conservation Area, the Whittemore Conservation and Recreation Area and the White Sands Recreational Area which are not officially considered Town forests though there is potential for the Town to use them as such. The White Sands Recreational Area, for example, was subjected in 2003 to a selected timber cut.

Timber Harvesting

Timber harvesting occurs throughout the Town, although primarily this practice occurs in the large unfragmented tracts of land to the north, around the Range Roads, and along the Soucook River. Though the Timber Tax Revenue varies greatly from year to year, as seen in Table VII-13, this income can be beneficial to the Town as a source of income. In addition, when harvesting of timber is done correctly, the practice can continue without negative effects on the forest ecosystem.

Table VII-13
Timber Tax Revenue 1996 - 2003

Year	Timber (Yield) Tax Collected
1996	\$9,431
1997	\$11,575
1998	\$7,532
1999	\$11,906
2000	\$9,684
2001	\$2,622
2002	\$22,792
2003	NA

Source: Pembroke Town Reports

Tree Farms

One method that has been implemented to assure good timber management practice is the development of the Tree Farm Program. The American Tree Farm System® (ATFS) is a program of the American Forest Society aimed at educating landowners how to manage their forests for multiple uses. Since 1941, members of the Tree Farm program have been educated on topics such as wildlife habitat, watersheds, soil conservation, and forest resources.

The ATFS indicates that to qualify for the program, landowners must:

- Dedicate at least 10 acres to growing and harvesting forest products;
- Have a written plan for the future management of their forest;
- Follow management recommendations prescribed by a licensed forester; and
- Demonstrate a commitment to stewardship of their forest for multiple values.

Though not mandatory, programs like this one may assure continued conservation of Pembroke's forests while providing for a consistent source of revenue.

Ecological Resources

Wildlife Corridors

Wildlife corridors, which play an important role in the conservation and preservation of wildlife species, are normally made up of unfragmented or minimally developed stretches of land which serve to provide animal species with safe travel and sustenance as they move from one location to another. Quite often, such a corridor will be water based such as when wildlife uses the riparian edge of a river or stream as a passage for travel. Though never surveyed as such, it is fair to say that Pembroke has many miles of flowing water resources whose immediate environs have the natural capacity to be used as a dependable travel corridor by a wide range of indigenous wildlife.

With respect to their long-term conservation, these water-based wildlife corridors face a wide variety of threats which are primarily related to disruptive land-development activities. We would note that these corridors may be preserved for the long term if the town considers adopting strategies to mitigate the established threats to these corridors. This could be possibly find broad community favor given that approximately 50% of community attitude survey respondents indicating their preference to discourage development along rivers.

In addition to undeveloped land and water-based wildlife corridors, Pembroke also has several human-made corridors which can be used for animal movement. Perhaps the most noted of these human-constructed passageways are the town's various power line and utility right-of-ways which can often provide a safe travel corridor for many animal species. The minimal development allowed within many of these normally narrow protected areas often provide good refuge for migrating wildlife.

Exemplary Natural Communities

The Natural Heritage Inventory identifies a single natural community within the Town of Pembroke – a “Terrestrial Community” which is made up of New England Pine Pitch and Scrub Oak Barrens. Other unexplored or defined areas may exist in the Town but they have yet to be identified.

Plant and Wildlife Species

Pembroke contains a rich diversity of plant and wildlife species which, in order to thrive, rely upon the amount, and number of different types, of available habitat in a given area. As a rule, a large-sized undeveloped and unstressed environment will attract and foster a wider and richer range of plant and wildlife species than will a developed, fragmented environment. Large tracts of open spaces are especially important for the proliferation of large wildlife species such as deer and black bear. Such tracts in Pembroke are primarily located in the central, northern and eastern sections of town.

Natural Heritage Inventory

Native species of flora and fauna have gradually decreased their numbers in the face of ever escalating development pressure which threatens their traditional habitat. Concerned about this situation, Pembroke’s town planners regularly consider whether there are any threatened or endangered species or other natural communities present on or near an affected site whenever they review proposals to develop land. To acquire this information, they turn to *The New Hampshire Natural Heritage Bureau*, which is part of the State of New Hampshire Division of Forests & Lands. *The New Hampshire Natural Heritage Bureau* is responsible for finding, tracking and recording the rare plants, animals and natural communities in New Hampshire. To accomplish this, the *Bureau* works in conjunction with the New Hampshire Fish & Game Department’s Nongame & Endangered Wildlife Program. The result of this state-level collaboration is the establishment of a document entitled the Natural Heritage Inventory, which is a list of all the rare plant, natural communities and rare wildlife species which are found in the State of New Hampshire. This list was last updated in June of 2003.

Table VII-14 identifies all flora and fauna identified by the Natural Heritage Inventory for the Town of Pembroke. As may be seen, each listed species is given a rank of importance which is based upon the distribution of that species within New Hampshire and within the entirety of its known range outside the state. The less frequent the species, the higher ranking that is given. The classifications are as follows: Highest Importance (HI) indicates species that are rare to nonexistent in New Hampshire and within its known range. Extremely High Importance (EH) are species that are rare in New Hampshire and in its entire range, though they are slightly more numerous than those in the HI category. Very High Importance (VH) species are rare within New Hampshire but may be more common throughout the entirety of its range. High Importance (H) species are rare to infrequent within the state though they may be somewhat more numerous outside the state in other areas of its range. The No Importance category indicates that although the species may be listed as endangered within New Hampshire, the species is not so threatened in other areas of its known range.

The Natural Heritage Inventory presently identifies only two endangered plants that, until a few years ago, were found in Pembroke though only one of these plant species, the Wild Lupine, is still known to exist in town. With respect to endangered wildlife, the Inventory lists eleven animal species as existing within the Town, of which three have been classified as "Threatened" within the State of New Hampshire. They include the Grasshopper Sparrow, the Pine Barrens Zanclognatha Moth and the Eastern Hognose Snake. One of the animal species, the Bald Eagle, is listed as Endangered at both the State and federal level. Of the fourteen listings of endangered species in Pembroke only one relates to a Natural Community – more specifically, the terrestrial natural community. This is the New England Pine Pitch/Scrub Oak Barrens which is ranked in the Highest Importance category. In all, ten of the fourteen Natural Heritage Inventory listings for Pembroke are considered to be of Very High Importance.

Due to their high level of sensitivity and to protect their exact location, these endangered species and natural communities are not point located on any maps provided by *The New Hampshire Natural Heritage Bureau*. What the town receives instead is a high-scale map which only approximately locates the species or community type as a broad, 1-mile wide, buffered area. Nonetheless, most of the endangered wildlife species which are listed in the Natural Heritage Inventory for Pembroke are generally found along the Route 106 corridor and further north along the western border of Pembroke.

Table VII-14
Natural Heritage Inventory, 2003

Type	Species or Community Type	Scientific Name or Community Name	Listed		# Reported in the Last 20 Years		Importance
			Federal	State	Town	State	
Plants	Wild Lupine	Lupinus perennis	-	T	5	38	VH
Plants	Golden-Heather	Hudsonia ericoides	-	T	Historical	12	
Birds	Bald Eagle	Haliaeetus leucocephalus	T	E	1	14	VH
Birds	Common Nighthawk	Chordeiles minor	-	T	1	10	VH
Birds	Grasshopper Sparrow	Ammodramus savannarum	-	T	1	10	VH
Insects	A Geometrid Moth	Eumacaria latiferrugata	-	-	2	3	VH
Insects	Apantesis carlotta	Apantesis carlotta	-	-	1	1	VH
Insects	Barrens Xylotype	Xylotype capax	-	-	1	5	VH
Insects	Pine Barrens Zanclognatha Moth	Zanclognatha martha	-	T	1	5	VH
Insects	Southern Pine Sphinx	Lapara Coniferarum	-	-	1	2	VH
Insects	A Noctuid Moth	Platyperigea meralis	-	-	1	2	
Reptiles	Eastern Hognose Snake	Heterodon platirhinos	-	T	1	15	VH
Reptiles	Spotted Turtle	Clemmys guttata	-	-	1	39	VH
Reptiles	Blanding's Turtle	Emydoidea blandingii	-	-	Historical	61	
Natural Communities	Terrestrial	New England Pine Pitch/Scrub Oak Barrens	-	-	2	16	HI
Codes: T - Threatened E - Endangered HI - Highest Importance VH - Very High Importance							

Source: NH National Heritage Bureau, July 2003

“Importance” categories:

- HI = Highest Importance - species that are rare to nonexistent in New Hampshire and within its known range.
- EH = Extremely High Importance - species that are rare in New Hampshire and throughout its natural range, though slightly more frequent than HI.
- VH = Very High Importance - species that are rare in New Hampshire but may be more common throughout its entire range.
- H = High Importance - species that are rare to infrequent in New Hampshire but which are frequent in other areas of its natural range.

No entry = No specified importance indicates that although the species is not endangered in other areas of its known range though it is considered to be endangered within the State of New Hampshire.

Viewsheds

Currently, the Town has not identified any viewsheds. However, an objective of this chapter will be to accurately identify and map these locations.

2001 Open Space Trails System Plan for the Town of Pembroke

Developed by the Pembroke Conservation Commission and the Trails Steering Committee, with assistance from the Central New Hampshire Regional Planning Commission, this goal of this plan is to develop a private/public trails system for the enjoyment of residents and visitors. The plan's specific goals are as follows:

1. Inventory existing public lands, easements, rights-of-way, and trails;
2. Determine where linkages to existing public lands and trails should be obtained; and
3. Provide recommendations on (a) how to acquire or otherwise obtain the needed linkages and (b) how to maintain a public trail system.

With just under 50% of the Community Survey respondents wanting improved walking trails and 42.3% of respondents wanting improved bike trails, the development and utilization of the Open Space Trails System Plan should prove to be a valuable tool in achieving this goal.

NATURAL RESOURCE CONCERNS

Some of the most important natural resource concerns facing Pembroke involve the need to fully identify existing natural resources, developing and putting into action appropriate management plans to use or conserve those resources, and also educating the public about those resources. Many of the goals associated with this Chapter aim at satisfying these concerns.

Contamination of Water Resources

Although much of the town relies on public water supply for drinking water, there is an overall concern for maintaining high water quality throughout the town – and this concern includes private wells. A goal of this Chapter is to identify present and potential sources of pollution that may affect any surface and ground water resource in town. Though point pollution sources are easier to identify and mitigate, the desire to identify and alleviate non-point pollution source is also an important goal. Practical steps such as implementing local water testing programs, continuing hazardous waste days and “roadside” trash clean-up days as all tactics which helps to decrease potential pollution of water resources.

Development Sprawl

The concept of sprawl, as it applies to the southern New Hampshire region, refers to haphazard and widespread, automobile-dependent, low-density land development which occurs beyond the edge of traditional service and employment areas. Sprawl’s noted effects on natural resources typically includes fragmentation of the landscape, increased potential for water contamination, permanent loss of traditional agricultural land and forested areas, and increased local property taxes to fund new community infrastructure which is needed to accommodate the needs of sprawl development. It is the goal of the Pembroke Planning Board to avoid this situation by channeling future development away from the town’s most important rural areas where agriculture and forestry-related land uses have been deemed important and toward those areas of town which are medium to high density residential in nature and which already contain high capacity transportation corridors and a built up primary community infrastructure which is capable of handling new development.

Loss of Open Space

As discussed elsewhere in this Chapter, Pembroke’s existing open spaces serve a number of important roles. For example, they act as critical wildlife habitat, they provide room for recreational fields and other leisure activities, and to the extent in which the wooded and exposed open spaces can be maintained and fostered into the future, they act to sustain the town’s remaining rural character and quality of life. With this in mind, a goal of this Chapter is to identify those areas of town that are considered to have the most valuable open space resources and develop a conservation plan which would preserve into the future those open spaces that are deemed most important.

REGULATORY PRESERVATION TECHNIQUES

Pembroke currently employs many regulatory techniques that can aid in the conservation of its natural resources. By reviewing its existing regulations while also considering added regulatory measures, the Town can provide supplementary methods of natural resource conservation.

Open Space Conservation Zoning

Area: Town-wide, focused between 4th and 5th Range Roads and extending north of 4th Range Road between Flagg Road and Borough Road.

The intent of Open Space Conservation zoning would be to minimize the widespread development of new small-sized lots (2-acres or less minimum lot size) in areas of town where a traditional rural quality of life has been deemed important. Such zoning would be put into place as a response to the threat of suburban sprawl and the possible onset of large-sized “cookie cutter” subdivisions and for the purpose of maintaining Pembroke’s longstanding rural character and improving the town’s tax base. Areas designated for Open Space Zoning would typically feature minimum lot sizes in the range of 5-acres.

Timber and Agriculture Conservation Zoning

Area: Area surrounding Range Roads from Flagg Road to Buck Street and East of Buck Street

The purpose for Timber and Agricultural Conservation zoning would be to preserve Pembroke’s last remaining agricultural fields and forested silvicultural areas from small lot-size building development through the creation of new land use zones in targeted agricultural and timber areas which would feature large-sized minimum lot sizes (between 5-50 acres).

Overlay Districts

Area: As appropriate for districts

The creation of overlay zoning districts is a technique which is already widely used by the Town of Pembroke to protect existing natural, historical and architectural resources. Typically, overlay zoning involves the targeting (or “overlying”) of certain resources in a geographical area with added land use or design protections to achieve a positive social good. An example of this would be the protection of important wetlands from destruction or the prevention of buildings and structures being constructed in known flood hazard areas).

Pembroke currently maintains the following six overlay districts:

Architectural Design District	Aquifer Conservation District
Floodplain Development District	Home Business District
Shoreland Protection District	Wetlands Protection District

Aesthetics-Based Land Use Regulations*Area: Town-wide*

These types of planning regulations may be established whenever there is an important need to address aesthetic design issues within the community. Typical aesthetics-based land use policies can be used to regulate the visual look, feel and placement of new buildings and roadways, the design consequence of lot fragmentation that takes place during the subdivision process, judge the design and placement of signage and lighting, and regulate design changes which are proposed for historic residential and commercial structures. The Pembroke Planning Board currently employs a variety of aesthetics-based rules throughout its land use ordinances and regulations. In particular, aesthetically-based rules are currently found in the provisions of the Architectural Overlay District for Pembroke Street, the Cluster Subdivision Zoning provisions and the Site Plan Review regulations, all of which provide the Planning Board with the capacity to regulate appropriate aesthetic concerns.

Flexible Zoning*Area: Suncook Village Area*

Flexible Zoning techniques typically provides the Planning Board with great flexibility in the application of land use and design regulations in order to assist in the positive design and building of a new development project. This type of zoning is an established feature within the zoning rules associated with the Soucook River Development District. Flexible zoning regulations should also be explored for the Suncook Village area due to the close proximity throughout that vicinity of commercial and residential land uses.

Phased Growth Plan*Area: Town-wide*

New Hampshire towns may adopt phased growth-related regulations whose purpose is to control the rate at which a development project is constructed. In certain rapid growth situations, a town's capacity to slow the speed at which certain developments are constructed (by spacing, for example, the construction of a large project over a multi-year period) could provide the time needed for the town to adequately cope with the impact which that development would have on the town. Pembroke's Subdivision Regulations have provisions which allow the Planning Board to okay phased growth plans for approved subdivisions.

Growth Management Regulations - Limitations to the Number of Building Permits*Area: Town-wide*

One way for a community to cope with unusual circumstances requiring prompt attention and for the purpose of developing or altering a growth management process under RSA 674:22, or a master plan or capital improvement program, is to adopt a growth management ordinance. One effect of such an ordinance could be to limit the number of new building permits that will be allowed in any given year until such a time that the goals of the ordinance are satisfied or the ordinance expires. The Town of Pembroke adopted such a plan in 2004 for the purpose of preventing large-scale subdivision activity during the period of time the Planning Board is updating its Master Plan. Typically, the number of building permits which are annually allowed under a growth management ordinance must be rationally correlated to the rate at which subdivision growth is occurring and building permits are being issued in the community.

NON-REGULATORY PRESERVATION TECHNIQUES**Conservation Easements***Area: Town-wide*

A conservation easement is a permanent, legally binding, agreement that ensures that certain uses will never be allowed on that property. Typically conservation easements prevent development of land uses such as construction, subdivision and mining while at the same time promoting uses such as agriculture, forestry, wildlife habitat, scenic views, watershed protection and education. A conservation easement typically exists between a willing landowner and a qualified recipient, which can be the Town or State government or an appropriate conservation organization. Each such easement is tailored to the interests of the landowner, the receiving entity and the unique characteristics of the property. Land affected by a conservation easement can be sold or deeded by the original owner and subsequent owners but the easement is binding on all future owners.

Management Agreement*Area: Town-wide*

Management agreements primarily focus on a particular feature of open space administration and such an agreement can be custom tailored to any specific situation, such as the following:

Right-of-Way for Trails

The Town may protect open spaces along a recreational trail corridor through the use of this type of management agreement. The right-of-way could be arranged and exist as a legal agreement between the Town or nonprofit organization and the owner(s) of the land where the trail is located.

Wildlife Corridors

Local private and public management plans which strive to protect open spaces associated with the natural movement and migration of wildlife is another practical use for management agreements. Typically, a management agreement for the protection or administration of a recognized wildlife corridor seeks to regulate how land in that corridor is used.

Buffers Between Uses

Written agreements which relate to the establishment and maintenance of buffer areas between incompatible land uses can be used to ensure that issues related to development and growth do not have a negative impact on the rural and scenic qualities that are valued by the Town.

SUMMARY

Pembroke has an abundance of natural resources deserving of preservation. Together, the Conservation Commission and Planning Board have an opportunity to conserve and manage these resources for the present and future generations of the community.

**MINUTES OF THE ANNUAL TOWN MEETING
TOWN OF PEMBROKE, NH
MARCH 8, 2011**

The meeting was opened by Moderator Thomas E. Petit at 11:00 a.m.

A motion was made to act on Articles #1 and #2 and to act on the remaining articles at the deliberative session on March 12, 2011 at the Pembroke Academy Auditorium.

MOVED: Chester Martel

SECONDED: Charles Mitchell

VOTE: YES

MOTION PASSED

ARTICLE #1: To choose all necessary officers for the ensuing year.

*Denotes elected

Town Clerk for one year:
vote for not more than one
James F. Goff

*522

Sewer Commissioner for three years:
vote for not more than one
Paulette Malo

*461

Treasurer for one year:
vote for not more than one
Charles L. Connor

*491

Water Commissioner for five years:
vote for not more than one
Louise Petit Roberts

*465

Selectman for three years:
vote for not more than two
Robert Samson
Justine "Tina" Courtmanche
Dana J. Dexter
Cindy Lewis

*288

*343

85

240

Library Trustee for three years:
vote for not more than two
no one filed

Patricia Crafts

*59 write-in votes

Trust Fund Trustee three years:
vote for not more than one

Gerard Fleury

*467

Selectman for one year:
vote for not more than one

Larry Preston

96

Richard Bilodeau

83

Fred Kline

*329

5436 names on checklist

551 ballots cast

ARTICLE 2 – AMEND ZONING ORDINANCE

Are you in favor of adopting the following amendments to the existing Zoning Ordinance of the Town of Pembroke?

Amendment #1

Are you in favor of the adoption of Amendment #1 as proposed by the Planning Board for the Town Zoning Ordinance as follows:

To amend § 143-8 Definitions, to amend the definition of dwelling unit to include what constitutes cooking facilities and to replace the definition of wetlands to reference the

had done so, the moderator closes the polls for voting on Articles #3 and #4 at 12:05 p.m.. The ballots were counted and the results are as follows:

ARTICLE #3: 2/3 ballot vote required

YES 193 NO 52 78% in favor ARTICLE #3 ADOPTED

ARTICLE #4: 2/3 ballot vote required

YES 198 NO 50 80% in favor ARTICLE #4 ADOPTED

ARTICLE #11: Shall the Town vote to discontinue a portion of Ricker Road as noted below and annex said description to Map 256, Lot 21 as follows; Commencing at a point on the southerly sideline of Ricker Road, said point being the following courses, as measured along the sideline of Ricker Road, from the center of a stone headwall marking the northwesterly most corner of land now or formerly of John and Christine Beausoleil; N25°49'10"E a distance of 11.59 feet to a point; thence along a curve to the right having a central angle of 17°29'04" and a radius of 100.50 feet a distance of 30.67 feet to the true point of beginning, thence commencing from the point of beginning N37°35'10"E a distance of 465.45 feet to a point; thence by a curve to the left, having a central angle of 19°14'09" and a radius of 200.50 feet a distance of 67.31 feet to a point; thence S14°14'10"W a distance of 98.06 feet to a point; thence by a curve to the right, having a central angle of 44°28'30" and a radius of 199.50' a distance of 154.86 feet to a point; thence S58°42'40"W a distance of 142.75 feet to a point; thence by a curve to the left, having a central angle of 15°24'26" and a radius of 100.50 feet a distance of 27.03 feet to the point of beginning, containing 17,892 square feet or 0.41 acres. This discontinuance of this area will be at no cost to the Town.

MOVED: David Sheldon

SECONDED: John Duggan

VOTE: YES

ARTICLE #11 ADOPTED

ARTICLE #12: (By Petition) We, The undersigned residents and registered voters of the Town of Pembroke do hereby submit the following petition for Town Meeting vote: To see if the Town will vote to register and disseminate to all concerned its objection, opposition and commitment to stop the construction of any new portion of the high voltage transmission line that deviates from the alignment of the present existing right of ways in the Town of Pembroke NH as presently proposed by Northeast Utilities, NStar and Hydro- Quebec since such a huge scar constructed and erected through and above the town's treasured residential and scenic private properties will cause inestimable damage to the orderly economic development of the Town, and the health and wellbeing of its residents; or to take any other action relative thereto.

MOVED: Charles Schmidt

SECONDED: Rob Farley

There was a motion made to amend Article #12 to now read: We, The undersigned residents and registered voters of the Town of Pembroke do hereby submit the following petition for Town Meeting vote: To see if the Town will vote to register and disseminate to all concerned its objection, opposition and commitment to stop the construction of any new High Voltage Transmission Line in the Town of Pembroke NH as presently proposed by Northeast Utilities,

NStar and Hydro-Quebec, since such a huge scar constructed and erected through and above the Town's treasured residential and scenic private properties will cause inestimable damage to the orderly economic development of the Town, and the health and wellbeing of its residents; or to take any other action relative thereto.

MOVED: Marc Chronis

SECONDED: John French

After much discussion, a vote was taken on the amendment.

VOTE: YES

AMENDMENT PASSED

There was a motion made to add "advisory only." at the end of this article.

MOVED: Larry Preston

SECONDED: David Sheldon

VOTE ON AMENDMENT: YES

AMENDMENT PASSED

After much discussion on the effects that this will have on the Town of Pembroke and the loss of property values, a vote was taken on Article #12 as amended.

VOTE: YES

ARTICLE #12 PASSED AS AMENDED

ARTICLE #13: (By Petition) To see if the Town will vote to appropriate the sum of \$100,000 from the paving budget to finish the paving of Cross Country Road. The Town has \$600,000 for paving in the budget and there will be no impact on your taxes. (This article is advisory only)

MOVED: Harold Paulsen

SECONDED: Chester Martel

Marc Chronis asked which section of Cross Country Road this article pertains to.

Steven Abbott explained that it is the dirt section north of North Pembroke Road and that there is a maintenance and dust issue.

Larry Preston speaks in opposition to the article.

VOTE: NO

ARTICLE #13 FAILS

ARTICLE #14: To see if the Town will vote to raise and appropriate the Budget Committee's recommended amount of \$7,019,322 for the 2011 Municipal operating budget, not including appropriations by special warrant articles and other appropriations voted separately. The Board of Selectmen recommend raising and appropriating the sum of \$7,045,493 as the 2011 municipal operating budget.

Budget Committee Recommends \$7,019,322

Board of Selectmen Recommends \$7,045,493

TOWN MEETING MINUTES

MINUTES OF THE ANNUAL TOWN MEETING TOWN OF PEMBROKE, NH MARCH 11, 2014

The meeting was opened by Moderator Thomas E. Petit at 11:00 a.m.

A motion was made to read and act on Articles #1 and #2 and to read and act on the remaining articles at the deliberative session on March 15, 2014 at the Pembroke Academy Auditorium.

MOVED: Chet Martel

SECONDED: Pam Allgeyer

VOTE: YES

MOTION PASSED

ARTICLE #1: To choose all necessary officers for the ensuing year.

*Denotes elected

Town Clerk for one year:
vote for not more than one
James F. Goff

*306

Library Trustee for three years:
vote for not more than two
Patricia Y. Crafts
Susanne Whitbeck

*251

*247

Moderator for 2 years:
Vote for not more than one
Thomas E. Petit

*298

Library Trustee for two years:
vote for not more than one
Judy Mitchell

*274

Treasurer for one year:
vote for not more than one
Charles L. Connor

*283

Trust Fund Trustee for three years:
vote for not more than one
Gerard Fleury

*274

Selectman for three years:
vote for not more than two
Justine "Tina" Courtemanche
Michael Crockwell
Robert G. Samson

*181

*192

149

Trust Fund Trustee for one year:
vote for not more than one
Courtney Eschbach

*255

Sewer Commissioner for three years:
vote for not more than one
Daniel Driscoll
Paulette Malo

*157

128

Checklist Supervisor for six years
vote for not more than one
Patricia Y. Crafts

*280

Water Commissioner for five years:
vote for not more than one
no one filed

4776 voters on the Pembroke Checklist
318 ballots cast
7% voter turnout

Andrew Boisvert
Richard Bilodeau

*8 write-in votes

4 write-in votes

TOWN MEETING MINUTES

At this point in the meeting, there being no one else in attendance wishing to vote on Article #3 and the polls for voting had been open for more than the mandatory one hour, Moderator Petit closes the polls at 11:25 a.m.

The ballots are counted and the results are as follows:

115 ballots cast

YES 108 NO 7 ARTICLE #3 ADOPTED

There being no one in attendance wishing to vote on Article #4 and the polls for voting had been open for the mandatory one hour, Moderator Petit closes the polls at 11:29 a.m.

The ballots are counted and the results are as follows:

115 ballots cast

YES 111 NO 4 ARTICLE #4 ADOPTED

ARTICLE 15 - To see if the Town of Pembroke shall state its opposition to any new overhead development of alternating current and direct current high voltage transmission lines within its borders; and in turn manifest the Town's strong preference for the burial of such lines, in a manner consistent with state and federal requirements, under rights of way and power line corridors now existing or to be established. Although burial in all instances is preferred, this statement of opposition shall not apply to distribution lines carrying electrical power and other utility lines, such as telephone and cable television, for Town residential or commercial use.

MOVED: Tina Courtemanche SECONDED: Vincent Greco

Marie Straiton spoke in support of this article stating that the project now is intending to use the existing right-of-way erecting 59 new towers of over 135 feet in height. This will affect 40 properties in the Town of Pembroke. She urged the voters to join 33 other communities and demand the burial of the electric transmission lines.

Charles Schmidt stated that there is a bill in the house that is addressing the idea of burying the lines in the states transportation corridors. He also stated that other states have in fact demanded the burial of the transmission lines, not as long as it would be in NH, but they have done it.

Wayne Burt spoke about how the wind farms have scarred the beauty of NH and this would look even worse.

VOTE: YES ARTICLE #15 ADOPTED