Phase IA Archaeological Survey

Wild Meadows Wind Farm Project

Grafton and Merrimack Counties New Hampshire

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Abstract

The Louis Berger Group, Inc. (Louis Berger), Albany, New York, completed a Phase IA archaeological survey for the proposed Wild Meadows Wind Farm Project in the Town of Alexandria in Grafton County and the Town of Danbury in Merrimack County, New Hampshire, on behalf of Atlantic Wind, LLC, a subsidiary of Iberdrola Renewables, LLC of Portland, Oregon. The purpose of the survey was to identify and assess areas of archaeological sensitivity in the area of potential effect (APE), or project area, which for this survey included the project footprint, i.e., all parts of the proposed project that will be subject to ground disturbance, including turbines and associated crane pads, collector lines, access roads, a substation, a permanent meteorological tower, and an operations and maintenance (O&M) building. This investigation was designed and performed using the professional guidelines and standards set forth in the Procedures for the Protection of Historic and Cultural Properties (36 CFR 800) and the Procedures for Determining Site Eligibility for the National Register of Historic Places (36 CFR 60 and 63). This investigation also conformed to the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 *Federal Register* 44716) and *Archaeological Standards and Guidelines* (New Hampshire Division of Historic Resources [NH DHR] 2007).

Project components will include up to 23 wind turbines, each rated at 3.3 megawatts (MWs), for a total of up to 75.9 MWs. The proposed turbine type is the Vestas V112 turbine or similar, which has a hub height of approximately 308 feet (94 meters), a rotor diameter of approximately 367 feet (112 meters), and a total height of approximately 492 feet (150 meters). The western portion of the Project includes Tinkham Hill, at an elevation of 2,270 feet (692 meters), and Braley Hill, 2,083 feet (635 meters). The central portion of the project area includes the Pinnacle, 1,981 feet (604 meters), and the eastern portion of the project area includes Forbes Mountain, 2,159 feet (658 meters), and Pine Hill, 2,091 feet (637 meters). The proposed project area lies in a rural, unpopulated setting and consists of variable terrain. Along the ridgelines where the proposed turbines are to be erected, the terrain is rugged with primarily moderate to steep slopes and thin, typically very stony, poorly drained soils, as well as outcrops of exposed bedrock.

The Phase IA archaeological survey consisted of background research and a pedestrian survey to gain an understanding of previous disturbances, identify and assess areas of archaeological sensitivity, and identify any extant archaeological sites in the APE. Project designs were revised several times throughout the duration of the survey, resulting in the identification of historical archaeological sites outside the final APE. Background research was conducted in October 2012, January 2013, and October 2013; pedestrian surveys were conducted October 14-16, 2012, May 2-3, 2013, and October 9-10, 2013. Background research did not identify any previously recorded precontact or historical archaeological sites in the APE, but one historical archaeological site was identified within a 3-mile (4.8-kilometer) radius of the APE. [redacted]

Based on the results of this survey, it is Louis Berger's opinion that a Phase IB archaeological survey is warranted for the Wild Meadows Wind Project.

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I. Introduction

The Louis Berger Group, Inc. (Louis Berger), Albany, New York, has completed a Phase IA archaeological survey for the proposed Wild Meadows Wind Farm Project in the Town of Alexandria in Grafton County and the Town of Danbury in Merrimack County, New Hampshire, on behalf of Atlantic Wind, LLC, a subsidiary of Iberdrola Renewables, of Portland, Oregon (Figures 1-3). The survey's purpose was to identify and assess areas of archaeological sensitivity in the area of potential effect (APE), or project area, which for this survey includes the project footprint, i.e., all parts of the proposed project that will be subject to ground disturbance, including collector lines, access roads, a substation, a permanent meteorological tower, and an operations and maintenance (O&M) building. All cultural resource services were performed using the professional guidelines and standards set forth in the Procedures for the Protection of Historic and Cultural Properties (36 CFR 800) and the Procedures for Determining Site Eligibility for the National Register of Historic Places (36 CFR 60 and 63). This investigation also conformed to the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 *Federal Register* 44716) (U.S. Department of the Interior 1983) and *Archaeological Standards and Guidelines* (New Hampshire Division of Historic Resources [NH DHR] 2007). The cultural resource specialists who performed this work satisfy the Secretary of the Interior's Professional Qualifications standards as specified in 36 CFR 66.3(b)(2).

Project components include up to 23 wind turbines and associated access roads. The Wild Meadows Wind Farm Project will be accessed from the existing Wild Meadows Road, in the Town of Danbury. The proposed turbine type is the Vestas V112 turbine or similar, rated at 3.3 megawatts (MWs) for a total up to 75.9 MWs. The proposed turbine type has a hub height of approximately 308 feet (94 meters), a rotor diameter of approximately 367 feet (112 meters), and a total height of approximately 492 feet (150 meters).The proposed access roads will be new construction with an operational width of 16 feet (4.88 meters). The proposed O&M Building measures approximately 4,000 square feet (371.6 square meters); the proposed fenceline, which will encompass the proposed electrical interconnect substation, measures approximately 3,891.47 square feet (361.53 square meters); and the proposed collector substation measures approximately 2,063.08 square feet (191.67 square meters).

A. Project Location

The Wild Meadows Wind Project is proposed for installation in portions of Grafton and Merrimack counties. The proposed project is accessed by a proposed access road off existing Wild Meadows Road, with wind turbines situated along four roughly north-south oriented ridges on Tinkham Hill, The Pinnacle, Forbes Mountain, and Pine Hill and one roughly east-west oriented ridge on Braley Hill. The northern turbine string along Braley Hill will consist of four turbines (N1-N4). The center turbine string is located along Tinkham Hill and will contain nine proposed turbines (C1-C9). Two proposed turbines are located on the Pinnacle (G1 and G2) between the center and eastern turbine strings. The eastern turbine string along Forbes Mountain and Pine Hill consists of eight proposed turbines (E1-E8) (see Figures 1-3).

Wind turbine locations range in elevation from about 1,444 to 2,257 feet (440 to 688 meters) above mean sea level (amsl). The proposed project site lies in a rural, unpopulated setting and consists of variable terrain. Along the ridgelines where the proposed turbines are to be erected, the terrain is rugged with primarily moderate to steep slopes and thin, typically very stony, poorly drained soils, as well as outcrops of exposed bedrock.

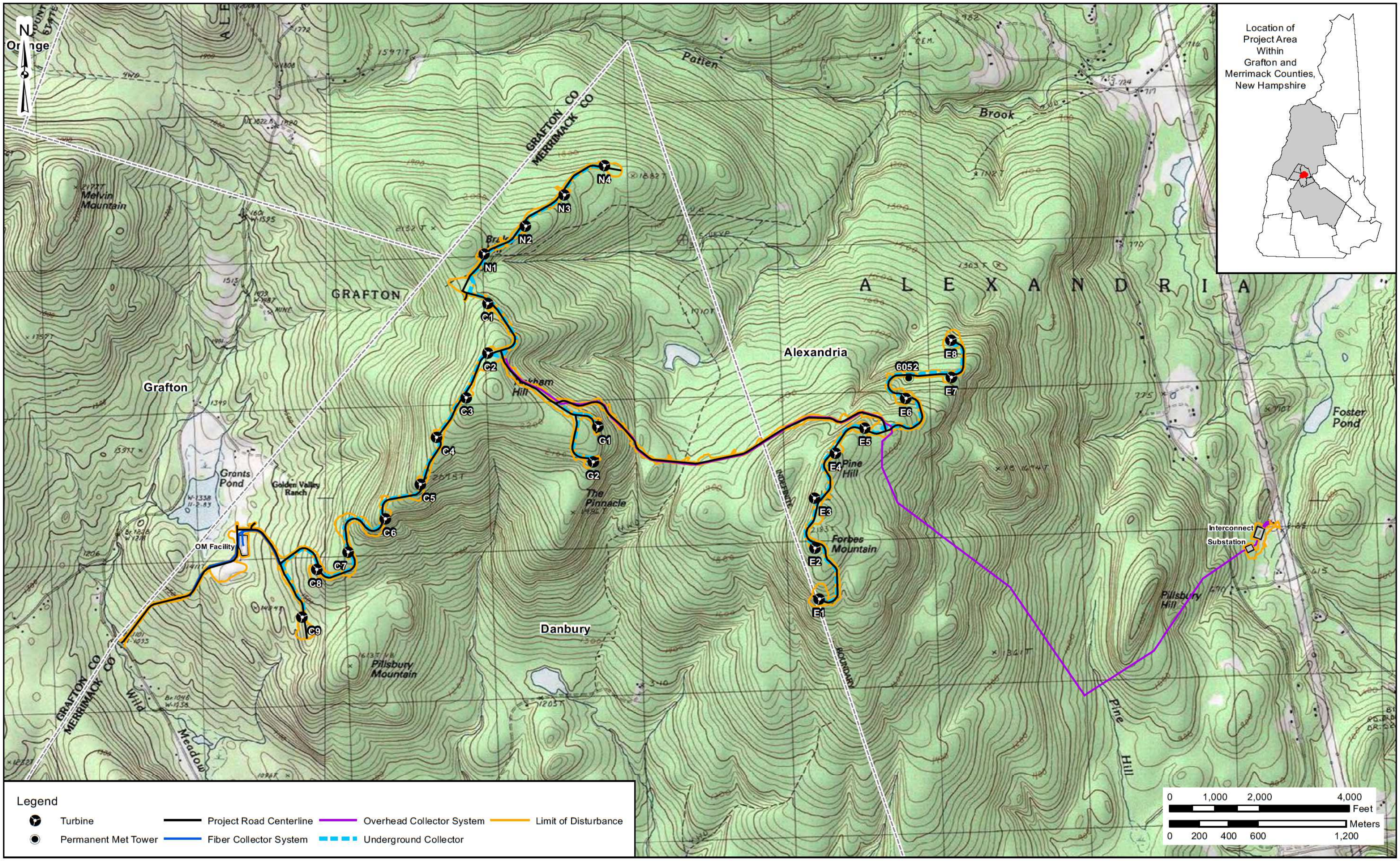

FIGURE 1: Location of Project Area

SOURCE: Iberdrola 2013; ESRI 2013a

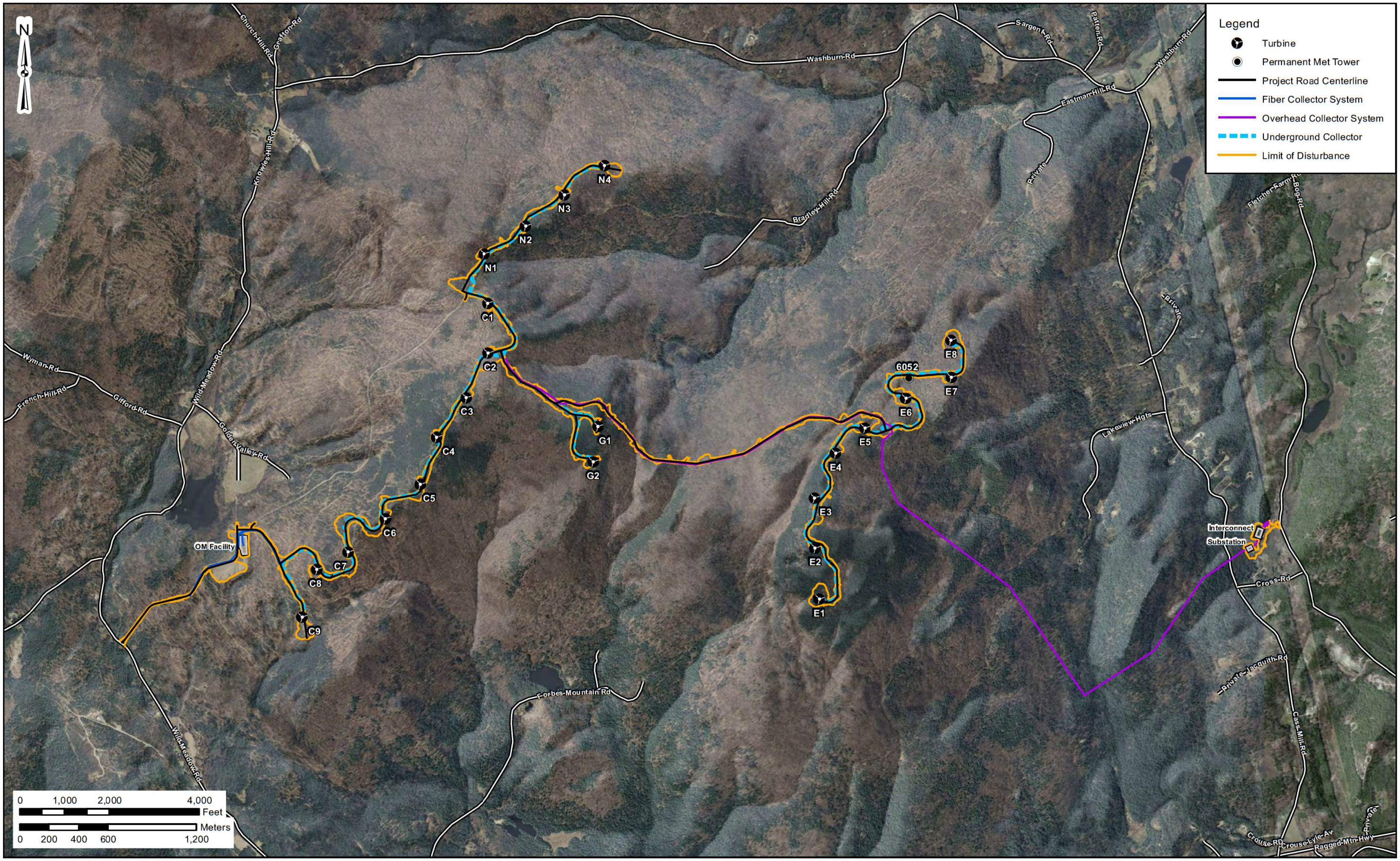

FIGURE 2: Aerial View of Project Area

SOURCE: Iberdrola 2013; ESRI 2013b

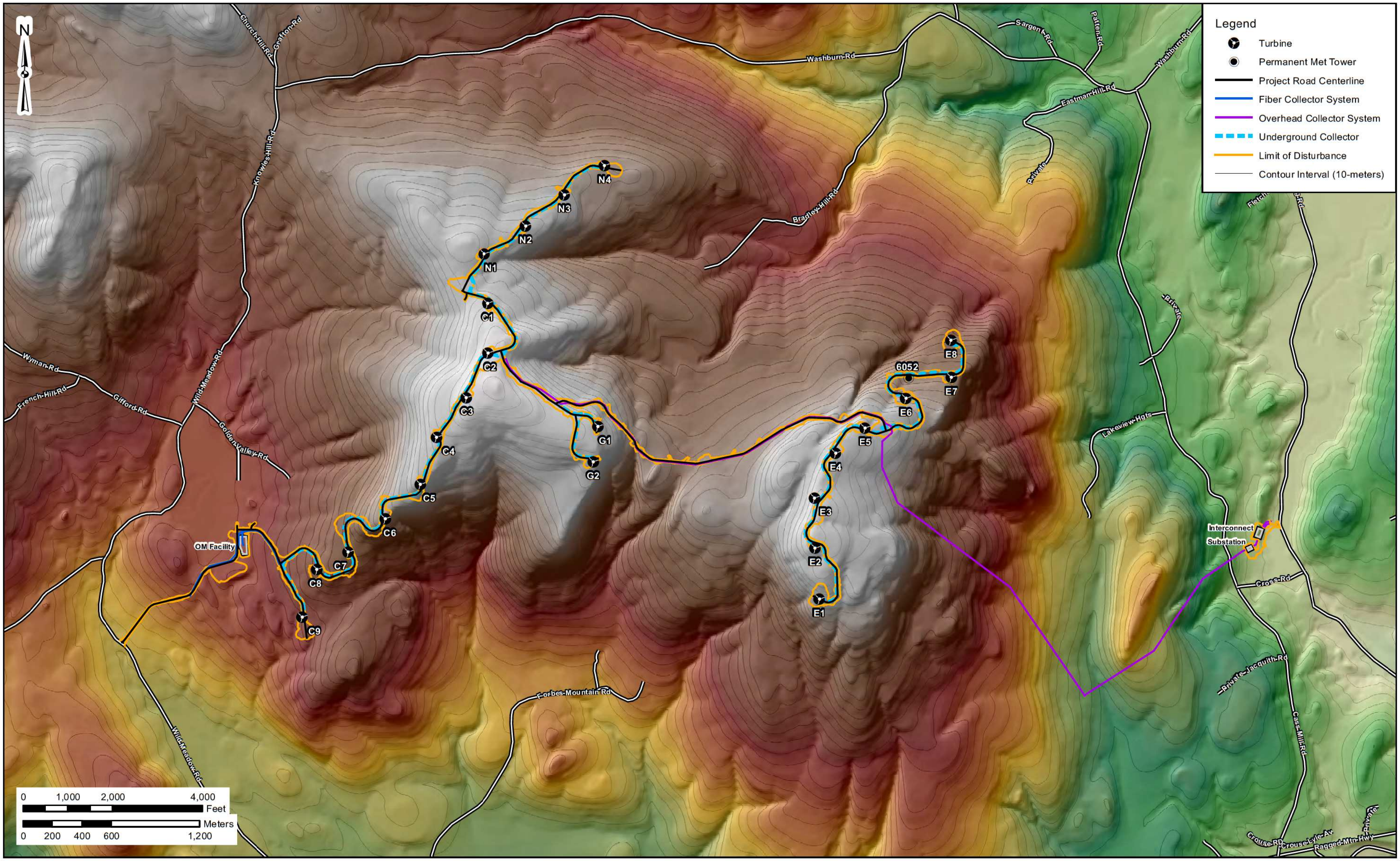

FIGURE 3: Topographic Relief in Project Area

SOURCE: Iberdrola 2013; USGS 2013

B. Scope of Services

The objective of the survey was to identify and assess areas of archaeological sensitivity and identify any extant archaeological sites in the APE. The survey included background research and a pedestrian survey. Louis Berger conducted the Phase IA background research in October 2012, January 2013, and October 2013. The goal of the first part of the research was to assess the potential for cultural resources in the APE. This research included a review of archaeological site files at the NH DHR in Concord, New Hampshire, and of previous cultural resource management projects conducted in this region of Grafton and Merrimack counties. Research was also conducted on the environmental and cultural context of the region, in particular how it related to the APE. Additional research was conducted in January 2013 and October 2013 to gather information on the cultural resources identified during the pedestrian survey.

The Phase IA investigation included a pedestrian survey with the goal of covering the entire APE. Louis Berger conducted a walkover of the APE between October 14 and 16, 2012, May 2 and 3, 2013, and on October 13, 2013, including all proposed turbine locations and access roads, the proposed O&M building, substation and portions of the proposed overhead collector to which landowner access was granted (see Figures 1-3).

This report has been organized into five chapters. After the introduction, Chapter II summarizes the results of the background research conducted for this project, including environmental and cultural contexts, previously recorded sites, and results of previous surveys. Chapter III describes the methods and results of the archaeological investigations. Chapter IV provides a summary and recommendations. Chapter V contains a list of the references cited.

Louis Berger Vice President-Cultural Resources Hope E. Luhman, Ph.D., directed this survey, and Louis Berger Archaeologist Lauren Hayden served as Principal Investigator. Ms. Hayden conducted background research at the NH DHR and along with Senior Field Supervisor Delland Gould conducted the field survey of the project area. Ms. Hayden authored the report with contributions from Dr. Luhman and Mr. Gould. Senior Editor Anne Moiseev supervised the editing and production of the report, and Principal Draftsperson Jacqueline L. Horsford completed the graphics.

II. Background Research

A. Introduction

The background research for the Phase IA survey of the Wild Meadows Wind Farm Project included general environmental, cultural, and historical research, and examination of archaeological site files at the NH DHR, cultural resource management reports, and published archaeological articles on the region. The prehistory and history of the region were reviewed to understand the project area's historical background and provide a context for the sensitivity assessment. Information on earlier archaeological surveys and types and locations of previously recorded archaeological sites in the project vicinity were used as a guide to help determine archaeological sensitivity and expected site types in the APE.

B. Environmental Context

1. *General Project Area Setting*

The Wild Meadows Wind Project lies in the New England Upland physiographic province of the Appalachian Highlands. The New England Upland physiographic province covers the southern portion of New Hampshire west of the Seaboard Lowland province. Elevations in the New England Upland physiographic province range between 152 and 610 meters (500 and 2,000 feet) amsl, and the province consists of a central spine that runs north-south, separating streams that flow southwest into the Connecticut River and east into the Merrimack River. Numerous isolated hills and mountains dot the province, and stream valleys deeply dissect the landscape. The project area is generally located in the higher elevations of the New England Upland physiographic province.

The project's proposed turbine strings and ridgeline access roads are situated over a combination of rugged and steeply sloped ridgelines. The proposed access road begins at the existing Wild Meadows Road where the terrain is relatively level. There are also areas of more gradual and level terrain that are adjacent to Grants Pond, Wild Meadows Brook, and some of the other unnamed drainages.

The predominant soil associations in APE consist of steep and stony soils, especially across the ridgelines where there are vast areas of rock outcrops (Table 1). For instance, the majority of the hilly eastern ridgeline contains steep Becket-Lyman-Rock outcrop complex between 15 and 60 percent slopes. The western ridgeline contains large areas of Rock outcrop-Lyman complex with 15 to 35 percent slopes, and the central turbine string contains large areas of Lyman-Tunbridge-Rock outcrop complex with 15 to 35 percent slopes (U.S. Department of Agriculture-National Resource Conservation Service [USDA-NRCS] 2013).

2. *Environmental History*

Paleoecologists have constructed the environmental history of New Hampshire and New England from a variety of sources, including pollen cores, sedimentation histories, and faunal collections. New Hampshire was largely deglaciated by 13,000 years before present (BP), although the mountain valleys were probably not free of ice for another 1,000 years (Potter 1994). Glacial Lake Hitchcock had drained probably by 13,000 BP, revealing today's Connecticut River valley. As the glaciers retreated north, they continued to affect climate for thousands of years, producing a wet and cold arctic climate, leaving the ground frozen for most of the year. Vegetation in the wake of the glaciers consisted of moss, lichens, and stunted shrubs. Fauna during this period likely included wooly mammoths, mastodons, moose, elk, herds of caribou, musk ox, and smaller arctic animals, such as ptarmigan, arctic shrews, and lemmings.

TABLE 1

SOILS IN THE PROJECT APE

NAME	RELATIVE DEPTH	SOIL FORMATION	TEXTURE, INCLUSIONS	SLOPE (%)	DRAINAGE
Adams loamy sand	Very deep	Glaciofluvial or glaciolacustrine sand on outwash plains, deltas, lake plains, moraines, terraces, and eskers		15-60	Excessively drained
Beckett-Lyman Rock outcrop	N/A	N/A	N/A	15-60	N/A
Beckett-Monadnock	Very deep	Loamy mantle overlying dense, sandy till on glaciated uplands	Very stony	3-25	Moderately well drained
Beckett-Turnbridge	Very deep	Loamy mantle overlying dense, sandy till on glaciated uplands	Very stony	15-60	Moderately well drained
Berkshire loam	Very deep	Till on glaciated uplands		3-75	Well drained
Chocorua mucky peat	Very deep	Organic accumulations underlain by stratified sand and gravel on outwash plains, lake plains, and glacial till uplands	N/A	0-2	Very poorly drained
Dixfield fine sandy loam	Very deep	Dense till	Very stony	0-50	Moderately well drained
Hermon fine sandy loam	Very deep	Glacial till on upland till plains, hills, and ridges	Very stony	25-35	Somewhat excessively drained
Hermon-Monadnock	Very deep	Glacial till on upland till plains, hills, and ridges	Very stony	Undulating	Well drained
Lyman-Turnbridge Rock outcrop	Shallow	Till on rocky hills, mountains, and high plateaus	Very rocky	15-35	Somewhat excessively drained
Marlow-Lyman rock outcrop	N/A	N/A	N/A	15-60	N/A
Monadnock sandy loam	Very deep	Loamy mantle overlying sandy glacial till on uplands and mountain sideslopes	Very stony	3-35	Well drained
Monadnock Beckett-Skerry	Very deep	Loamy mantle overlying sandy glacial till on uplands and mountain sideslopes	Very stony	8-15	Moderately to well drained

TABLE 1 (continued)

NAME	RELATIVE DEPTH	SOIL FORMATION	TEXTURE, INCLUSIONS	SLOPE (%)	DRAINAGE
Peru-Marlow	Moderate to very deep	Dense, loamy glacial till on drumlins and glaciated uplands	Very stony	0-35	Moderately well drained
Pillsbury fine sandy loam	Very deep	Compact loamy till on glaciated uplands	Very stony	3-8	Poorly drained
Rock outcrop-Lyman complex	Shallow	Rock outcrop and shallow soils on hilly uplands	Very stony	15-35	Somewhat excessively drained
Skerry fine sandy loam	Very deep	Loamy mantle overlying dense, sandy till on drumlins and glaciated uplands	Very stony	3-15	Moderately to well drained
Skerry-Lyman rock outcrop	Shallow	Loamy mantle overlying dense, sandy till on drumlins and glaciated uplands	Very stony	Undulating	Moderately to well drained
Skerry-Turnbridge	Moderate to very deep	Loamy till on glaciated uplands	Very stony	Undulating	Moderately well drained
Turnbridge-Lyman-Beckett	Shallow to moderately deep	Loamy till on glaciated uplands	Very stony	15-25	Well drained
Waumbek loamy sand	Very deep	Stony, sandy till on glaciated uplands	Very stony	3-8	Moderately well drained
Waumbek-Lyme	Very deep	Stony, sandy till on glaciated uplands	Very stony	Undulating	Moderately well drained

Source: USDA-NRCS (2013)

By 10,000 BP and the beginning of the Holocene, the climate was warming and tree populations of pine, spruce, and birch expanded, changing the landscape from open woodland to closed forest (Potter 1994). Between 9000 and 4000 BP, the climate in general became warmer and dryer, and the modern forest of hemlock, beech, and yellow birch developed, although with much local variation (Potter 1994). These changes led to growth in the populations of many animals that today live in the Northeast, including moose, beaver, porcupine, snowshoe rabbit, spruce grouse, mice, voles, and other animals that likely came in from the south.

Different strands of evidence from the Upper Midwest and the wider Northeast reveal that between 7500 and 5300 BP, precipitation was higher than today and the climate was fairly warm. Along the Missisquoi River to the northwest in Vermont, evidence of rapid sedimentation and increased channel migration between 6500 and 5400 BP indicates a higher level of rainfall. Other evidence of a wetter environment includes high rates of hemlock and beech pollen deposition, as well as beech, cedar, maple, and hemlock logs found along the Missisquoi floodplain that date to this time period (COHMAP Members 1988; Thomas and Dillon 1983).

In general, rivers in New England between 10,000 and 7000 BP meandered widely and did not reach their present channels until after isostatic rebound from the receding glaciers (Potter 1994). Evidence of drier conditions after the sixth millennium BP includes the entrenchment and infrequent flooding of rivers in the upper Midwest (Thompson and Bettis 1982). The climate was probably between two and four degrees centigrade warmer than today (Dincauze 1989). After 5000 BP the quantity of hemlock went into steep decline and the amount of oak and hickory increased (Whitehead and Bentley 1963), also indicating drier conditions.

Temperatures likely became cooler after about 2800 BP, and precipitation probably increased until about AD 270. These changes led to greater quantities of spruce and fir at higher elevations and a general increase in pine in the lowlands (Bernabo and Webb 1977; Whitehead and Bentley 1963). Warmer temperatures then returned during the first millennium AD, with a rise in precipitation after about AD 750 (Swain 1978). Most of the state is now reforested; original timber stands over much of the state were cut in the nineteenth century.

C. Cultural Context

Archaeologists in New Hampshire have identified four major periods covering the more than 10 millennia of Native American occupation and settlement of the region before European settlement (Bunker 1994:20-21): Paleoindian, Archaic, Woodland, and Contact. Further subdivisions exist for each of these periods.

1. Paleoindian Period (11,000 to 9000 BP)

The earliest known human occupations of New Hampshire date to the Paleoindian period. These occupations are marked by the widespread use of narrow, unnotched spearpoints, the faces of which were typically marked by the removal of a single long flake, or flute. Projectile points of this period broadly resemble the Clovis point type, which was a key diagnostic element of the first Paleoindian tradition defined in the western United States. In the past two decades archaeologists in northern New England have begun to recognize that a later manifestation of Paleoindian culture also occurred in the region, characterized by an unfluted lanceolate projectile point. This point is somewhat analogous to those from the Plano tradition of the later Paleoindian period in the western United States. The recognition of fluted point and unfluted lanceolate point assemblages in northern New England has led archaeologists recently to divide the Paleoindian period into early and late subperiods (Curran 1994). In addition to fluted points, the stone technologies of these groups consisted of a flake-based toolkit with general categories of wide- and narrow-bit unifacial tools, unifacial gravers, utilized flakes, bipolar artifacts, and large bifaces.

[redacted]

People during the Paleoindian period in the Northeast probably preferred bedrock lithic sources as opposed to secondary cobble, and this lithic procurement strategy may have been driven, in part, by the design requirements of their highly transportable stone toolkits. Locations of raw material sources for Paleoindian stone toolkits are often many kilometers distant from the sites where these tools are recovered. These distances indicate that people in the Northeast traveled far to collect stone for tool making either during their seasonal movements or as part of trips made specifically to gather new supplies of lithic materials (Seeman 1994).

Disagreement exists over whether people at the end of the Pleistocene in the Northeast were specialists following herds of caribou, or generalists living off a diverse environment, collecting and hunting a wide range of resources (Dincauze and Curran 1983; Pelletier and Robinson 2005). More than likely the reality varied over time and across space, and was a question not of specialist versus generalist but rather of degree and scale. As specialists people likely gathered together in larger, multifamily settlements at key times of the year along strategic intercept points to hunt caribou. These larger aggregations then split up into smaller groups and moved widely across the landscape. As generalists the people of the Paleoindian period may have moved in small family-sized groups, mapping their movements to the availability of resources.

2. Archaic Period (9000 to 3000 BP)

Archaeologists call the period beginning 9,000 years ago following the end of the Pleistocene and the beginning of the Holocene the Archaic period. They further subdivide the Archaic into at least three subperiods, Early (9000 to 7500 BP), Middle (7500 to 6000 BP), and Late (6000 to 3000 BP), largely based on changes in projectile point styles.

In the past archaeologists generalized the environment of the early Holocene (Early and Middle Archaic) in the Northeast as closed woodlands dominated by conifers (Dincauze and Mulholland 1977; Fitting 1968, Ritchie 1980). Since a low carrying capacity characterizes such an environment, they hypothesized there was a low population until about 6,000 years ago, which resulted in low site density. More recently archaeologists have questioned this understanding. George Nicholas (1991a, 1991b, 1998) cites evidence that the landscape in the early Holocene was far more diverse, supporting a broader resource base than that characterized by a closed conifer forest environment. According to Nicholas's "glacial lake basin mosaic model" (1991a, 1991b, 1998), people took advantage of a highly productive ecosystem that contained a complex system of lakes, ponds, and wetlands.

Robinson and Petersen (1993) cite the problems encountered with trying to attach changing demographics to known frequencies of temporally diagnostic projectile points. Since earlier archaeologists did not find many sites with temporally diagnostic points in early Holocene contexts, they assumed that this meant that there were few people and that the region was fairly uninhabited. Robinson and Petersen (1993) further observe that the lithic technology recovered from known early Holocene components was typically very expedient, resulting in the production of few temporally diagnostic formal artifacts, such as projectile points. Assemblages from these sites consist mostly of flakes, and as a result many of the components dating to this time period have likely gone unrecognized. Furthermore, it is possible that many sites from the Early and Middle Archaic now lie deep beneath river floodplains (Vermont Division for Historic Preservation [VT DHP] 1991:5-1).

The combination of environmental and technological changes during the transition to the Early Archaic may indicate an increase in the importance of plant foods and shifts in the exploitation of certain terrestrial fauna, such as the hunting of deer rather than caribou. As opposed to the Paleoindian use of high-quality cherts brought long distances before discard, evidence from early Holocene sites indicates a change to the use of local chert, quartzite, and quartz during the Early Archaic. The change is likely the result of people living in far more restricted areas than their Paleoindian period ancestors, as well as a lack of widespread external contacts (VT DHP 1991:5-6). Archaeologists have long thought that people remained within these more restricted territories, spending significant portions of the year in larger base camps while also using smaller, more task-specific camps in the surrounding area (Snow 1980:171).

The number of known sites, as well as diagnostic artifact types and projectile points, dating to the Late Archaic (6000 to 3000 BP) is far greater throughout the Northeast than for any of the preceding periods. There is also greater evidence of the use of mortuary ceremonialism. Archaeologists have traditionally characterized the Late Archaic in the Northeast into three basic traditions based on these numerous changing artifact types. The first of these, the Laurentian tradition, is thought to date between about 5600 to 4400 BP and is known from sites throughout the Northeast, including New York, southern Ontario, southern Quebec, and northern New England. The Narrow Point tradition follows the Laurentian and dates roughly between 4400 and 3600 BP. Archaeologists have found artifacts associated with this tradition along the East Coast from as far south as North Carolina and as far north as the Upper St. Lawrence River. The Susquehanna tradition dates to about 3800 to 1800 BP. It is thought that traits associated with this tradition were brought north from the Southeastern Piedmont to as far north as Maine and the Upper St. Lawrence.

These traditions differ from each other based largely on changing artifact traits; however, Dean Snow (1980) and others (e.g., Braun and Braun 1994) geographically split the Northeast during the Late Archaic into three very general sections, based on broad generalizations about adaptations to major regional environments. The Maritime Archaic lay in the coastal regions of northern New England and the Canadian Maritimes and is defined as an adaptation based on the resources of the ocean. The Lake Forest Archaic stretched from the Eastern Great Lakes across northern New England. Snow (1980) believes that the people of the Lake Forest Archaic lived around the many lakes and rivers found in the region. The Mast Forest Archaic ran from the coastal plains of southern New England into the oak forests of the interior. Here people are thought to have made use of the abundant nut-bearing deciduous trees in the region. Although these models are useful in a very general sense, they are also problematic because they mask much of the potential for variation across the Northeast.

Our understanding of the lives people led in the Northeast is largely shaped by where the vast majority of archaeologists have worked along the great rivers of the region, including the Connecticut, the Hudson, and the Merrimack. Thousands of years ago, people migrated to these rivers each spring to take advantage of the abundant annual migrations of anadromous fish. Each spring these fish swam far up the rivers and their tributaries to spawn until stopped by falls. They created a plentiful food resource for people at the leanest time of year, when the winter stocks were empty. These large groups of people likely stayed together throughout much of the warm-weather months, splintering off periodically to hunt, gather different food, and collect other needed resources. There is ample archaeological evidence along the floodplains of large rivers in much of the Northeast of these large gatherings at so-called "base camps." With the onset of the cold weather, people are thought to have splintered into smaller groups, likely extended families, and moved inland away from the river. Ritchie and Funk (1973:340) define this pattern of small groups of hunter-gatherers aggregating during the spring and then splintering in the fall as the "central-based wandering" pattern.

3. *Woodland Period (3000 BP to AD 1600)*

As with the Archaic period, the Woodland period is also subdivided into three periods, Early (3000 to 2000 BP), Middle (2000 to 1000 BP), and Late (1000 BP to AD 1600), largely based on the presence or absence of different projectile point types. The Woodland period, however, is distinctive from the Archaic because of the introduction of ceramic technology. Changes in ceramic types provide an additional means for separating the Woodland period into subperiods.

Evidence of the use of ceramics in the Northeast dates to the Early Woodland about 3,000 years ago; the earliest dates in New Hampshire come from the Beaver Meadow Brook and Eddy sites in the Merrimack Valley (Bunker 1994:23). With ceramic technology people could create highly durable containers that provided waterproof storage and could withstand the rigors of cooking with direct heat. These changes in cooking may have affected the nutrition and population dynamics of Woodland groups. The capability to store food likely helped offset seasonal changes in the availability of different foods and made it possible for people to become more sedentary. Despite the possibilities presented by this new technology, there is little evidence of any profound changes in life across New Hampshire after 3000 BP, and the Archaic period use of riverine environments remained the overall focus of the Early Woodland period (Bunker 1994).

Victoria Kenyon (1982) interprets the variability in ceramic decoration within sites and the similarities in decorative patterns between sites as evidence of increased regionalism during the Middle Woodland in the Amoskeag area of New Hampshire. Many sites dating to this period are large sites on large waterways; fewer Middle Woodland sites are known on smaller streams. These changes may indicate less of the "central-based wandering" patterns that were common for millennia in the past, perhaps further indicating increased regionalism. Middle Woodland sites in the Merrimack River valley of New Hampshire include the Neville, Smyth, Garvins Falls, Beaver Meadow Brook, and Smolt (Kenyon 1983) sites.

Throughout the Northeast the Late Woodland period is associated with the introduction of horticulture, particularly the importation of domesticated maize, but it is more than likely that maize did not appear in New England until after about AD 1300 (Chilton 2006), several centuries after the Iroquois to the west had adopted it and made it a key component in their development of large permanent villages. Although maize was eventually adopted in New Hampshire and elsewhere in New England, there is little evidence of development of large sedentary villages based on maize horticulture as in New York (c.f., Petersen and Cowie 2002). Rather, archaeological evidence indicates that people remained mobile hunter-gatherers, using maize only as a dietary supplement, therefore becoming what Elizabeth Chilton (2002) has called mobile farmers because although they planted, they did not become sedentary farmers like the Iroquois.

4. Contact Period (AD 1600 to 1750)

The Contact period began with the colonization of New England by Europeans. Native American sites associated with this period are characterized by the presence of materials that are European in origin, often reworked to fit traditional Native American needs. Increasing pressure from European settlers, wars, and diseases forced Native Americans to move into more isolated but less advantageous locations, such as hilltops. Those Native American settlements of the Late Woodland and early Contact periods in the choicest locations along the rivers, such as falls, became prime sites for European settlement.

The lack of documented Contact period sites is primarily the result of expanding European settlement in the area. Beginning in the early 1600s, European exploration and immigration in New England resulted in the spread of disease and war throughout the region. Population estimates suggest that prior to an epidemic spread of European diseases in the 1670s, approximately 25,000 to 30,000 Native Americans may have been living in the major drainage areas of New Hampshire (Stewart-Smith 1994). While large numbers of Native Americans died during these epidemics, European immigrants continued moving into the valley and establishing settlements.

In the late seventeenth and early eighteenth centuries, hostilities and armed conflicts between natives and European settlers continued in northern New England. After repeated attacks on native communities in the region during the 1720s by militia groups from southern New England, these settlements tended to become small and dispersed into more remote areas of the White Mountains and upper Connecticut Valley regions (Bunker et al. 1995:9).

Because intact Contact period sites are rare in the region, the discovery of such sites would provide valuable information on settlement patterns of Native American peoples in the region and on the movement of Native American peoples out of the region.

D. Historic Context

The Wild Meadows Project is situated in Grafton and Merrimack counties. Grafton County, originally known as "The Fifth," was established by the colonial legislature on March 19, 1771, and named after Augustus Henry Fitzroy, Duke of Grafton. Grafton was originally an immense tract of land, extending 150 miles south from what is now the province of Quebec, Canada. Over time the county was divided. In November 1800 Burton [later known as Albany] was ceded to Strafford County. In December 1803 the northern half of Grafton County was made into Coos County. On June 18, 1805, the country was reduced once again by the cession of "Nash and Sawyer's Location" to Coos. The legislature finally fixed the boundaries of the county at their present locations on January 2, 1829 (Child 1886:112). It covers 4,532 square kilometers (1,750 square miles).

Grafton County was divided into 39 towns, 29 of which were granted under King George III (11 in 1761) and 10 under the state government. In the northern section are the mountains making up part of the White Mountain range; to the southwest, in Benton, is Mount Moosilauke, reaching an altitude of 1,466 meters (4,811 feet). In the eastern and southeastern sections of the county are parts of the Whiteface and Campton mountains. The southern section of the county is more hilly than mountainous. Key waterways are the Connecticut River and its tributaries in the western section, the largest of which are the Lower and Wild Ammonoosuc rivers, and the Mascoma in the southern section. The Pemigewasset and Baker run through the central portion of the county. Squam Lake and Newfound Lake in the southern and southeastern section are the major lakes (Child 1886:112).

Merrimack County was formed in 1823 from parts of northern Hillsborough and Rockingham counties and was named after the Merrimack River. In 1841 part of the northeastern portion of Merrimack County was transferred to the newly created Belknap County.

Merrimack County is divided into 25 towns and two cities and consists of 2,476 square kilometers (956 square miles). The capital of New Hampshire, Concord, is located in Merrimack County. The county is made up of two topographic types. The east-central portion of the county consists of valleys formed by the Merrimack River. Surrounding these valleys are hills and mountains; the highest elevations are located in the western portion of the county where Mount Kearsarge, Ragged Mountain, and Mount Sunapee are located. The Merrimack River is the most significant waterway of the county, formed near the northern boundary at the confluence the Pemigewasset and Winnipesaukee rivers (Mooney et al.1906). Water makes up 2.31 percent of the county's area because of the many lakes and ponds located throughout the county.

1. Alexandria

The Town of Alexandria is located in the southeastern portion of Grafton County, bounded by Groton and Hebron in the north, Bristol in the northeast, Grafton, Danbury, and Hill in the south, and Orange in the west. Alexandria was granted to Joseph Butterfield, Jr. and others in March 1762 by the Masonian proprietors, an influential group of 12 men from Portsmouth who distributed undeveloped land from Mason's grant. An additional parcel of land was granted by the proprietors in 1773; however, in 1779 this parcel was incorporated as the town of New London. In 1795 the large town was split to make travel for the residents more manageable, with the southern portion incorporated into Danbury (Shattuck 1982:54). Several more changes to the town boundaries were made during the ensuing years, the last in 1820 (Child 1886).

After the French and Indian War ended in 1763, people began moving up to central New Hampshire from the more populated areas in the south and east, such as southern New Hampshire, Connecticut, Massachusetts, and upstate New York (Shattuck 1982:3). Alexandria was first settled by William, Jonathan, and John Moor Corliss in 1769. Settlement occurred rapidly thereafter; by 1775 there were 137 residents. By 1777 there was one sawmill and one corn mill (Child 1886). The first church in Alexandria, which was Congregational, was formed in 1788 (Coolidge 1859:407). The primary occupation of the early settlers of Alexandria was farming because of the abundance of intervale land near the Fowler and Smith rivers (Hayward 1839).

During the early nineteenth century the economy of the area became a bit more mixed; agriculture, mica mining, sheep farming and lumbering activities were the primary vocations of the residents of Alexandria. By 1850 Alexandria had 1,273 residents, most of whom considered themselves farmers and laborers. Some of the other occupations included on the 1850 census were lumberer, shoemaker, carpenter, sailor, blacksmith, wheelwright, physician, clerk, clock repairer, Baptist preacher, machinist, hatter, stone cutter, teamster, foundry man, peddler, carriage maker, and Methodist preacher (United States Bureau of Census [U.S. Census] 1850a). In 1859 there were 14 school districts, nine sawmills, three gristmills, and two churches (Coolidge and Mansfield 1859). The population began to decline significantly after 1860, by 1940 there were only 396 people living in Alexandria (U.S. Census 1940a). During the latter part of the twentieth century, the population began to steadily increase again, most likely because of the scenic and recreational appeal of the area. By 2010 there were 1,613 residents in Alexandria (NH Employment Security 2013, Alexandria).

2. Danbury

The Town of Danbury is located in the northern portion of Merrimack County, bounded by the Town of Grafton in the west, Alexandria on the north and east, Hill on the east, and the Towns of Wilmot and Andover in the south. Danbury was originally part of the town of Alexandria before it was split off in an effort to manage residential travel to civic meetings, which had proven much too difficult in the large, topographically challenging town of Alexandria. In 1795 Danbury was created from the southern portion of Alexandria.

Anthony Taylor was the first settler of Danbury in 1771, when it was still Alexandria. Early settlement was mainly concentrated around Smith River east of the project area. There was no formal church in Danbury until a Baptist church was established in 1818 (Danbury Bicentennial Committee 1995:7).

The arrival of the Northern Railroad in 1847 connected Danbury to Concord and Lebanon. Farming, including the raising of sheep and cattle, was the primary occupation during the mid-nineteenth century, often supplemented by timbering. By 1850 Danbury had a population of 934 with 280 farmers, seven tanners, three blacksmiths, seven shoemakers, three merchants, three joiners, two carpenters, a wheelwright, a machinist, a physician, a lawyer, a Baptist clergyman, and a station agent (U.S. Census 1850b). In 1859 Danbury had two post offices, 10 school districts, three stores, seven sawmills, two shingle mills, a lath and clapboard mill, and a tannery (Coolidge 1859:463). During the nineteenth century mines were also operated in Danbury, with garnet the principal product.

By the end of the nineteenth century and throughout the early twentieth century, Danbury's population followed the declining trend of the surrounding towns. By 1880 Danbury had a population of 760. In 1960 the population hit a low of 435 residents before it began to increase again. During the first half of the twentieth century, farming and timber-related activities continued to be the primary source of income for most of the residents of Danbury. A garnet mill was in production during the 1940s, which processed the garnet for windshield polish for the Ford Motor Company (Danbury Bicentennial Committee 1995:31).

The second half of the twentieth century was a time of population resurgence for the area as people became attracted to the rural, scenic lifestyle central New Hampshire had to offer. In 1964 the Ragged Mountain ski resort opened in Danbury, providing employment opportunities and attracting recreational visitors to the area (Danbury Bicentennial Committee 1995:79).

E. Archival Research

1. Previous Archaeological Surveys and Recorded Sites Close to the Project Area

Background research at the NH DHR indicated that within a 3-mile (4.8-kilometer) radius of the project, two archaeological surveys have been conducted and one archaeological site has been recorded. One previously conducted archaeological survey has also been conducted over 5 miles (8.0 kilometers) south of the project. The identified site is a historical archaeological site located approximately 1.5 miles (2.4 kilometers) southwest of the project area. The background research showed that there are no previously recorded precontact archaeological sites in the vicinity of the APE.

The first of the two previous archaeological surveys was a Phase IB survey conducted approximately 1.86 miles (3 kilometers) southwest of the project area for the New Hampshire Department of Transportation Bridge Project (Independent Archaeological Consulting, LLC 2000). The APE for the survey was located on three river terraces above the Smith River in the Town of Grafton. A total of 130 historic artifacts and one precontact artifact were recovered during subsurface testing. The historical archaeological site was dated to the late eighteenth century through the early nineteenth century and was determined to represent a domestic occupation. The precontact artifact recovered was a non-diagnostic quartz flake. Independent Archaeological Consulting, LLC recommended additional Phase IB testing and a title search to better evaluate the recovered artifacts.

The second archaeological survey was a Phase IA and IB investigation conducted approximately 1 mile 91.6 kilometers) north of the project area for a road and bridge alignment in Alexandria (HAA 2008). Despite its location close to existing late nineteenth- and early twentieth-century structures, no precontact or historical artifacts or features were identified during the subsurface survey (HAA 2008).

[redacted]

One additional archaeological survey was also identified over 5 miles (8.0 kilometers) south of the APE, a Phase I Preliminary Archeological Reconnaissance of the Ragged Mountain Resort (Victoria Bunker, Inc. 2008). This study determined that there were no areas in the project area that exhibited sensitivity for precontact archaeological resources. As a result of a field inspection and historical map review, the study recorded seven historic-period archaeological sites in the project area. [redacted] The study recommended that the sites be avoided and buffered during construction-related activities and that any secondary impacts to the sites, e.g., dumping, grading, and filling, be halted. If the proposed project could not avoid impacts to the identified sites, the study recommended a Phase II archaeological survey of the sites to assess their potential for listing in the National Register of Historic Places. No other archaeological sites were identified in the project area; however, several historic period cellar holes and two historic period standing structures were identified outside the project area. The study recommended additional cultural resource investigations of these structures if these locations were to be disturbed by the proposed construction.

2. Historical Map Review

To further assess the historical sensitivity for the project area, Louis Berger examined historical maps to identify map-documented structures (MDSs) in or adjacent to the APE. The map review revealed that portions of the APE are located in the vicinity of MDSs dating to as early as 1860 and therefore are considered to have moderate to high sensitivity for archaeological resources.

The *Topographical Map of Grafton County, New Hampshire* (Walling 1860) was the oldest map reviewed (Figure 4). The Walling map illustrates Wild Meadows Road, which is the primary access road for the project, as well as Airport Road, which will be partially used as an access road to the central turbine, and Golden Valley Road, which splits off from Airport Road slightly north of the APE. Grants Pond, which is situated near Wild Meadows Road and Airport Road, is labeled on Walling (1860) as Wild Meadows Pond. The map displays good detail of the APE in terms of secondary road locations and property owner names. The majority of structures in the vicinity of the APE are located along Wild Meadows Road. A structure labeled "N. Heath" is depicted along Golden Valley Road. A structure depicted farther down Golden Valley Road is labeled "G. Silloway." There is also a structure in the vicinity of turbine location C8 labeled "J.T.G Eastman." At the northern tip of Danbury near Braley Hill, three structures are depicted and labeled as "S. Braley Jr." and "D. Braley." The 1860 map also depicts a structure labeled "J. Russell," in the vicinity of the primary access road from Wild Meadows Road.

The *Atlas of the State of New Hampshire* (Hurd and Company [Hurd] 1892) shows the APE on Alexandria and Danbury town maps (Figure 5). Some of the structures depicted on Walling (1860) do not appear on Hurd (1892), including the structures labeled "N. Heath," "G. Silloway," and "J.T.G. Eastman." Additionally, the structures located near Braley Hill are labeled "Mrs. Bailey" on the 1892 map and the structure in the vicinity of the primary access road is labeled "G.S. Tenney." No additional structures are depicted on this map in the vicinity of the APE.

The next maps examined were the 1927 and 1930 United States Geological Survey (USGS) maps of Cardigan (Figures 6 and 7). These maps do not provide names associated with structures, and it cannot be determined if the structures on the USGS maps are the same structures from the earlier maps. The declining population is evident from these maps. The only structures depicted in the vicinity of the APE are those located along Wild Meadows Road and the structure in the vicinity of the primary access road (see Figures 6 and 7).

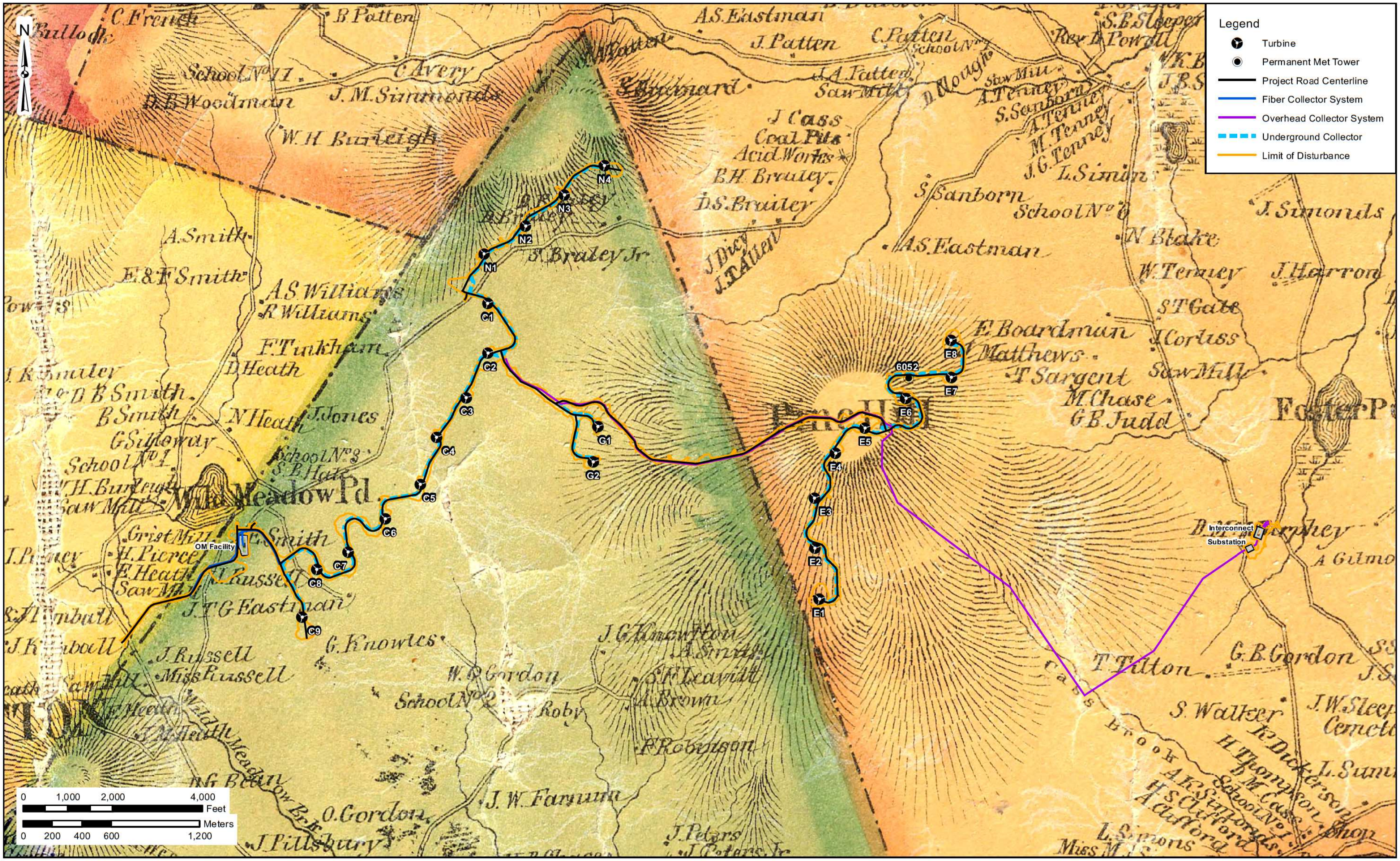

FIGURE 4: Location of Project Area in 1860

SOURCE: Iberdrola 2013; Walling 1860

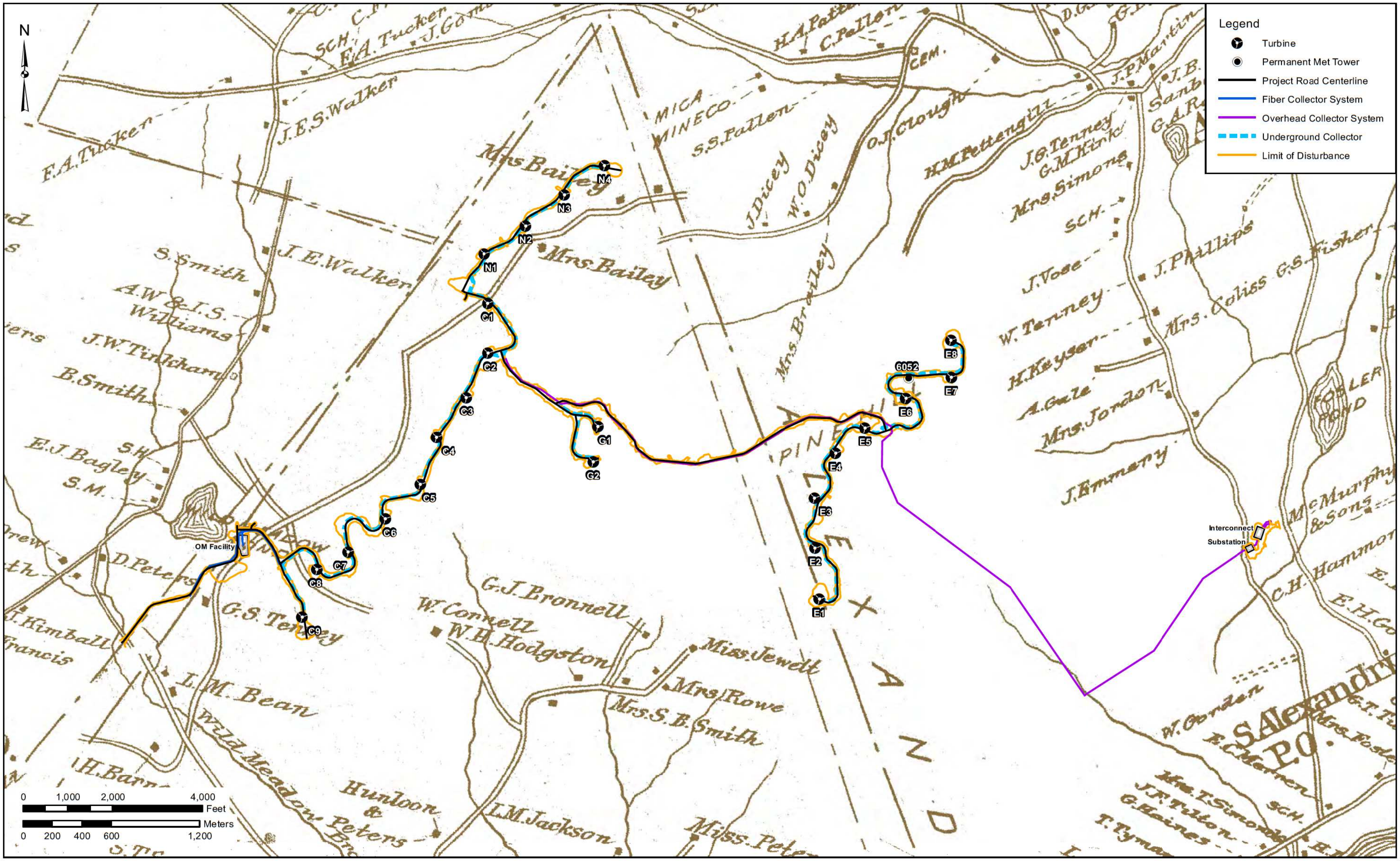

FIGURE 5: Location of Project Area in 1892

SOURCE: Iberdrola 2013; Hurd 1892

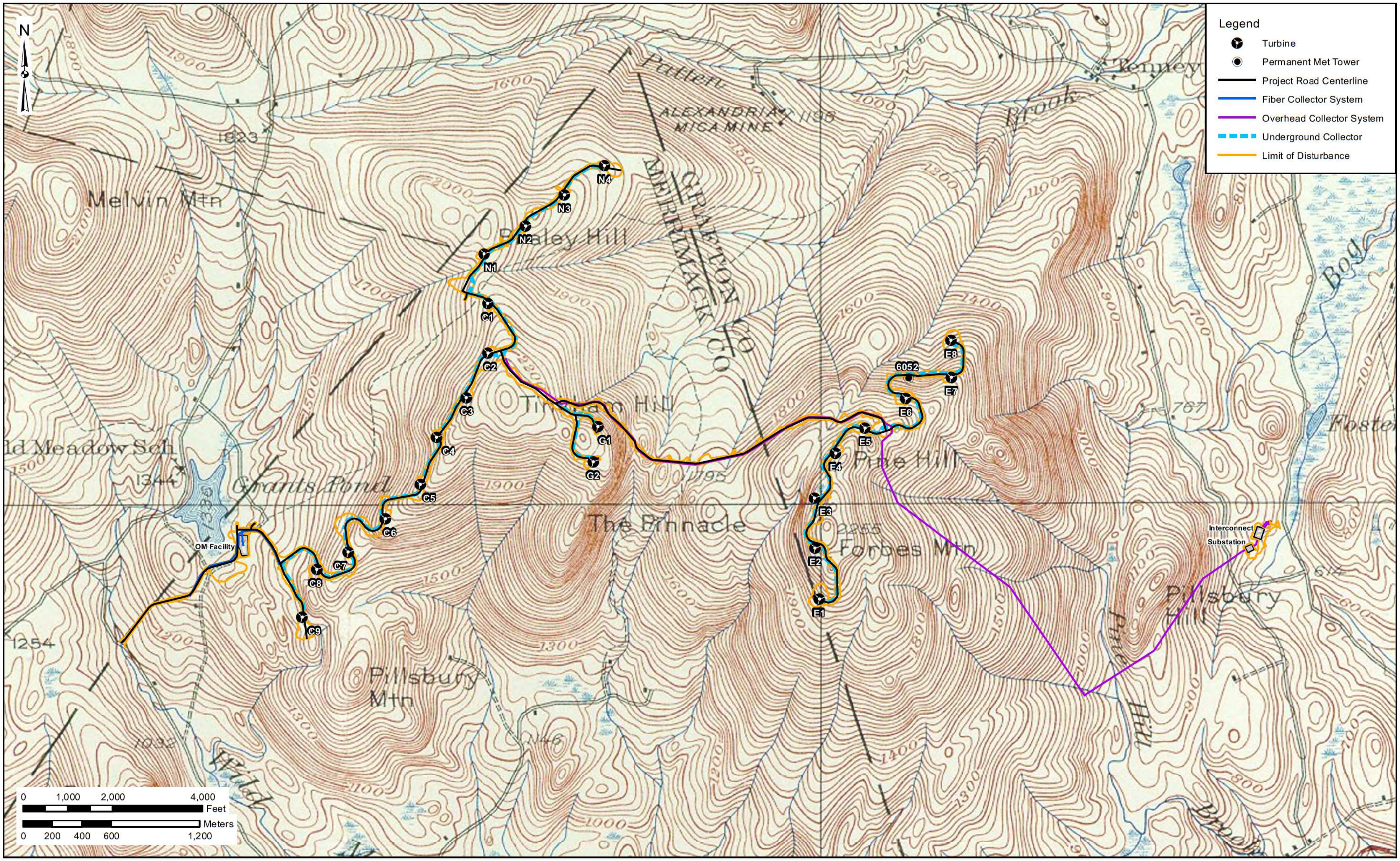

FIGURE 6: Location of Project Area in 1927

SOURCE: Iberdrola 2013; USGS 1927

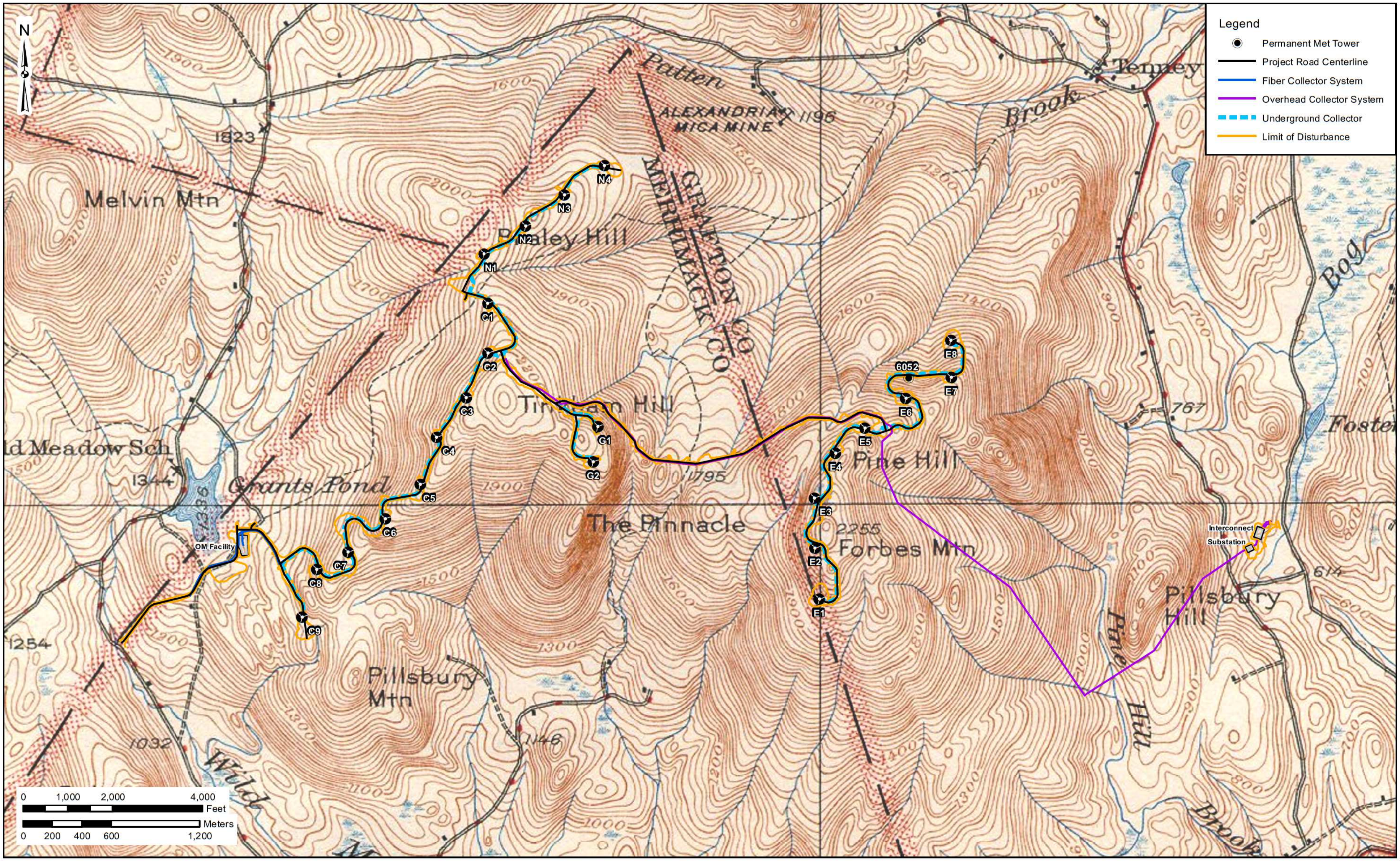

FIGURE 7: Location of Project Area in 1930

SOURCE: Iberdrola 2013; USGS 1930

III. Fieldwork and Results

A. Phase IA Field Methods

The purpose of the pedestrian survey was to assess the degree of disturbance present and the likelihood of encountering precontact or historical archaeological resources in the APE. The pedestrian survey was conducted October 8-12, 2012, May 2-3, 2013, and October 9-10, 2013. Pedestrian survey of the portions of the overhead collector that were not surveyed during the Phase IA investigation, as well as any additional or altered project components, is recommended as a first stage in a Phase IB investigation. The information collected from the pedestrian survey was used in conjunction with topographic USDA soil survey maps and soil descriptions to gain an understanding of the terrain and soil conditions throughout the APE. The results of the background research and pedestrian survey were used to delineate zones of archaeological sensitivity throughout the APE.

Louis Berger used information obtained from archaeological surveys of upland locations (Lacy 1994, 1999) and other large-scale archaeological surveys conducted in New Hampshire, and in particular in Grafton and Merrimack counties, because few precontact archaeological sites have been recorded in this region compared with the rest of the state and no models have been generated for predicting site locations in this region (Wheeler 2000:3). Factors that archaeologists have considered to define precontact sensitivity on past large-scale New Hampshire surveys include the following.

[redacted]

It is only recently that archaeologists have begun to tackle the archaeology of upland areas in the Northeast. From its inception archaeology in this part of the country has followed modern development, and in particular it has followed agriculture along alluvial landforms near major rivers. Collectors first found precontact artifacts in those locations, and so that was where archaeologists began their investigations. Of equal importance in the selection of early excavation sites were the traditional research interests of archaeologists to create chronologies based on charting changes in point and ceramic typologies through time and across space. [redacted] In these excavations archaeologists could easily see the relationships of different artifact types to each other as they changed in form through time, with one type replacing the types that preceded it. Farming and later urban and industrial development have remained in the valleys, and as a result of these research priorities as well as the patterns of European-American settlement, upland and mountainous areas were not thought to warrant archaeological consideration.

Over the last few decades archaeologists have become interested in a wider range of issues beyond chronology and identifying changes in the form of artifact types over time. The current understanding is that people were living across the entire landscape and that their use of the landscape varied across space, resulting in spatial variation in the material culture they left behind. [redacted]

Ecologically determinist models dominate the models used to identify areas of possible precontact archaeological sensitivity. These models are based on the assumption that where people deposited artifacts is determined by the distribution of resources, i.e., people choose to live where they can most effectively and easily get what they need to live well. David Lacy (1994, 1999) has conducted research in the Green Mountains of Vermont located approximately 125 kilometers west of the Fletcher and Tenney mountains in Groton, New Hampshire. [redacted]

The New York Office of Parks, Recreation and Historic Preservation (OPRHP) (2007) has produced guidelines for the investigation of wind farms in upland areas in the state of New York. These guidelines instruct archaeologists to divide the project area into environmental zones derived from Robert Funk's (1993) description of environmental zones in the Upper Susquehanna Valley. Funk (1993) divided this region into valley floor, valley walls, and uplands, reviewing 14 environmental factors and subjectively applying scores to each based on the assumed relative probability for site selection. Funk (1993:80) considered six of these factors most important: slope, drainage, proximity to potable water, proximity to aquatic resources, proximity to terrestrial resources, and availability of good soils for growing corn, beans, and squashes. He concluded that the highest scores for landforms in upland areas included upland hilltops, saddles between knolls and ridges, rockshelters, and banks and benches along stream headwaters.

Basing methods on ecological variables as understood today presents archaeologists with numerous problems. To begin with, we see the landscape very differently from how people saw the same landscape hundreds and thousands of years ago. Archaeologists today see the landscape in terms of sites identified by concentrations of artifacts, and separate between uplands and lowlands in ways shaped by our own conception of the landscape, in which we view the mountains "as an environment 'apart'" (Lacy and Mooney 2004:9). Lacy's (1994, 1999) and Funk's (1993) models expect that people assessed the landscape by what we today perceive of as physical and material needs. But people in the past, particularly hunter-gatherers practicing a way of life completely foreign to us, saw their landscape, and in particular upland and mountainous areas, in ways that do not fit our understanding of what was most economically convenient from the perspective of resource availability. As a result precontact people may have used upland areas in ways that archaeologists are presently not able to see and understand.

Another problem with using ecological variables is that the environment and the landscape have changed extensively since the late Pleistocene, therefore affecting the choices people made in relation to the landscape. Also, the ecological variables we use may be at a scale that is too large, given the extent of micro-topographical and micro-ecological variation in upland areas. Since much of this ecological variation may involve small areas, the landscape could be quite fragile in the face of both environmental change as well as change brought on by humans both before and after Contact. Micro-topographic features, such as an attractive clearing in the trees that may have existed hundreds of years ago, may now be long gone. In addition, George Nicholas (1998) discusses the importance of beavers in understanding ecological changes on a small scale. Beavers construct dams that create ponds and wetlands. Human hunting or lack of hunting affects beaver populations, thereby affecting the creation of ponds and wetlands.[redacted]

The archaeology of upland and mountainous areas is still in its infancy, and large project areas such as the present APE present an interesting opportunity to learn more about how people lived in the uplands of the Northeast. While accepting the critiques discussed above, this project used the list of ecological criteria presented by Lacy (1994) and Funk (1993) to identify areas for possible testing. Ultimately, however, the identification of these areas relied on an intuitive read of the landscape.

The criteria and landscape features considered to assess precontact archaeological sensitivity in the APE for this project include the following.

[redacted]

Louis Berger's previous surveys for three proposed wind farms located in upland environments in New Hampshire similar to the current APE utilized the above mentioned criteria (Louis Berger 2011, 2010a, 2010b, 2008a, 2008b, 2008c, 2007). Louis Berger determined that all three of those projects contained areas of precontact sensitivity and subsequently field tested those areas. These subsurface investigations did not identify any precontact artifacts or precontact archaeological sites in any of the APEs.

Historical cartographic research assisted in identifying areas where potential exists for historical archaeological sites, combined with assessment of the degree of subsequent disturbance.

B. Archaeological Sensitivity Assessment

This review has determined that the majority of the APE for the proposed project generally has no to low sensitivity for the presence of precontact archaeological resources, using the criteria listed above; however, the possibility of discovering precontact sites cannot be entirely dismissed. There are some locations that meet the criteria and where subsurface testing should be conducted.

[redacted]

Judging from the review of historical maps and other background research, it was thought likely that the APE had potential to contain historical archaeological resources. The earliest known settlements in vicinity of the APE were dated to the nineteenth century (see Figures 4-7), and there is no evidence of any large-scale filling or grading in the vicinity of the APE. Besides the presence of MDSs in and around the APE, five historic-period foundations and associated features and one mica mine pit complex were identified during the pedestrian reconnaissance in the project area. Louis Berger identified a total of five areas as sensitive for historical archaeological resources (see Table 2).

[redacted]

The archaeological sensitivity of the APE is discussed in more detail below. To assess the archaeological sensitivity for the project more precisely, the APE was subdivided into sections by the turbine strings and their associated access roads [redacted]

1. *Central Turbine String and Access Roads*

The central turbine string lies along a ridgeline on Tinkham Mountain, aligned roughly from the northeast to the southwest and accessed from a proposed access road extending northeast from Wild Meadows Road. The proposed access road extends northeast from Wild Meadows Road, approximately 0.65 mile (1.05 kilometers) toward the proposed OM Facility. Nine turbines are proposed for the central turbine string. Proposed turbine locations C1 through C4, C6, and C7 and their associated access roads are located on very rocky, sloped terrain (Plates 1-5). As such, they are not considered to be archaeologically sensitive.

The proposed O&M building is located west of the central turbine string and is situated on flat, well-drained soils relatively close to potable water. The location of the proposed O&M building is therefore considered to possess moderate to high sensitivity for precontact archaeological resources. This portion of the APE is designated Sensitive Area 1.

[redacted]

[redacted]

FIGURE 8: Proposed Central Turbine String, Northern and G Turbine String, and Access Roads: Sensitive Areas

SOURCE: Iberdrola 2013; ESRI 2013a

[redacted]

FIGURE 9: Proposed Eastern Turbine String and Access Roads: Sensitive Areas *SOURCE: Iberdrola 2013; ESRI 2013a*

[redacted]

FIGURE 10: Proposed Overhead Collector and Substation

SOURCE: Iberdrola 2013; ESRI 2013a

PLATE 1: Current Conditions in the Vicinity of Proposed Turbine Location C1. View South

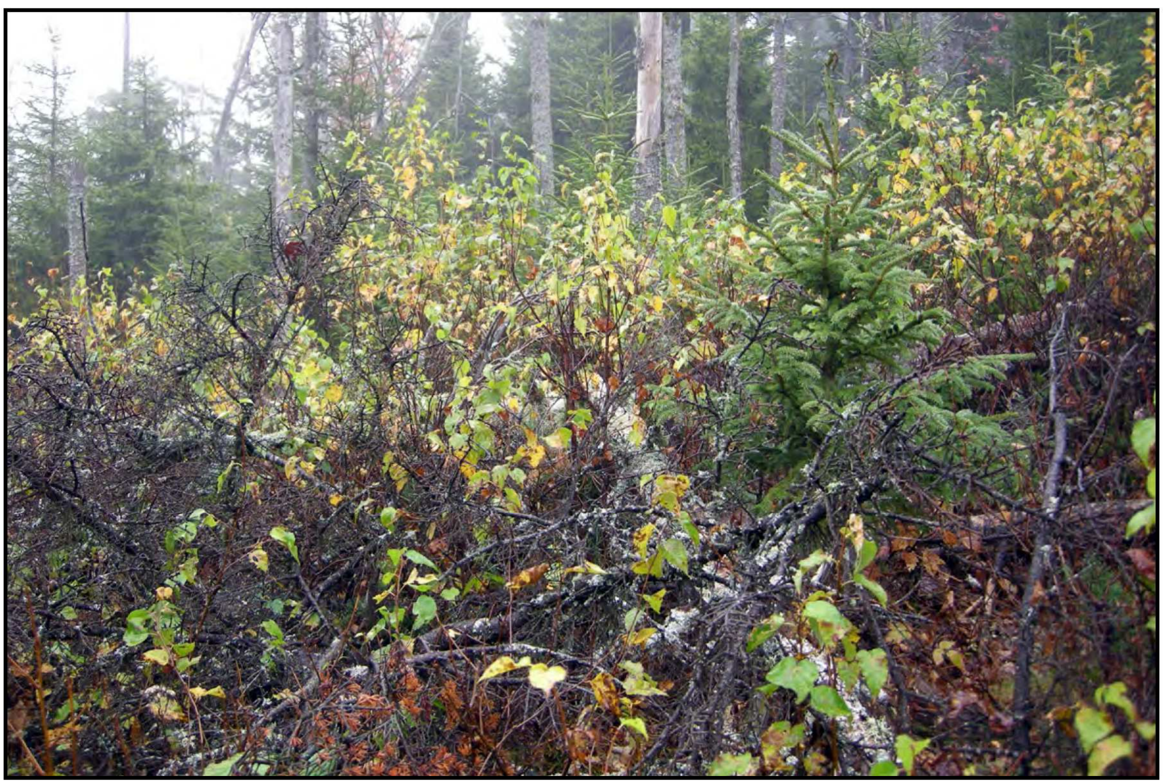

PLATE 2: Current Conditions in the Vicinity of Proposed Turbine Location C4. View North

PLATE 3: Current Conditions in the Vicinity of Proposed Turbine Location C5. View Southeast

PLATE 4: Current Conditions in the Vicinity of Proposed Turbine Location C6. View Southeast

PLATE 5: Current Conditions Along the Access Road Between the Central and Northern Proposed Turbine Strings. View North

PLATE 6: Current Conditions along the Access Road between Proposed Turbine Locations C4 and C5. View West

[redacted]

[redacted]

FIGURE 11: Sketch Map of TS-4980-03

SOURCE: Iberdrola 2013; ESRI 2013b

PLATE 7: Stone Foundation, TS-4980-03. View Southwest

PLATE 8: Stone Cellar, TS-4980-03. View Northeast

PLATE 9: Stone Lined Well, TS-4980-03. View Northeast

PLATE 10: Depression, TS-4980-03. View West

PLATE 11: Pit, TS-4980-03. View South

PLATE 12: Pit, TS-4980-03. View North

[redacted]

FIGURE 12: Sketch Map of TS-4980-08

SOURCE: Iberdrola 2013; ESRI 2013b

PLATE 13: Stone Foundation, TS-4980-08. View Northwest

PLATE 14: Stone Wall, TS-4980-08. View East

[redacted]

FIGURE 13: Sketch Map of TS-4980-07

SOURCE: Iberdrola 2013; ESRI 2013b

PLATE 15: Stone Foundation, TS-4980-07. View North

PLATE 16: Stone Lined Well. View North

PLATE 17: Historic Sheet Refuse. View North

2. Northern Turbine Strings and Access Road

The northern turbine string is located along the northwestern side of Braley Hill and its ridgeline aligned roughly from the southeast to the northwest. The proposed northern turbine string is accessed from the central turbine string. The four proposed turbine locations for the northern string are labeled N1 through N4. As mentioned above, the area where the proposed access roads for the central and northern string intersect has potential for precontact resources [redacted]

Turbine locations N2 and N3 and the access road between N3 and N4 are located on rocky, sloped terrain with exposed bedrock in some areas (Plate 18). None of these proposed turbine locations and access roads is considered sensitive for archaeological resources.

[redacted]

[redacted]

3. G Turbine Strings and Access Road

The proposed G turbine string consists of 2 proposed turbines located on a wet, side slope of Tinkham Hill (see Figures 1-3; Plates 21 and 22). No archaeological resources were observed during the pedestrian reconnaissance of the G turbine string. Due to the lack of observed archaeological resources and the undesirable terrain, the proposed turbine locations and the ridgeline access road between them are not considered to have any potential to contain archaeological resources.

4. Eastern Turbine String and Ridgeline Access Road

The eastern turbine string, located along ridgelines on Forbes Mountain and Pine Hill, consists of eight proposed turbines oriented roughly northeast-southwest and a proposed permanent meteorological tower (see Figures 1-3). The majority of the terrain along the proposed string is very steep, wet, and rocky (Plates 23-25). Additionally, no archaeological features were observed during the pedestrian reconnaissance of this area. The majority of proposed eastern turbine string is therefore not sensitive for archaeological resources; [redacted]

PLATE 18: Current Conditions in the Vicinity of Proposed Turbine Location N4. View Northeast

PLATE 19: Stone Retaining Wall, TS-4980-04. View West

[redacted]

FIGURE 14: Sketch Map of TS-4980-04

SOURCE: Iberdrola 2013; ESRI 2013b

PLATE 20: Cellar Hole, TS-4980-04. View North

PLATE 21: Current Conditions in the Vicinity of Proposed Turbine Location G1. View East

PLATE 22: Current Conditions in the Vicinity of Proposed Turbine Location G2. View Southeast

PLATE 23: Current Conditions at Proposed Turbine Location E1. View Southwest

PLATE 24: Current Conditions Between Proposed Turbine Locations E2 and E3 Along Proposed Access Road. View West

PLATE 25: Current Conditions at Proposed Turbine Location E7. View West

5. Overhead Collector, Interconnect Station and Substation

The proposed interconnect station and substation are located between Bog Road and Cass Mill Road in Alexandria. The proposed overhead collector extends approximately 0.93 miles (1.5 kilometers) southwest of the proposed substation, at which point it turns and heads northwest for approximately 1.44 (2.32 kilometers), where it connects with the proposed eastern turbine string between proposed turbines E5 and E6 (see Figures 1-3). A portion of the overhead collector measuring approximately 0.83 miles (1.34 kilometers) was not included in the pedestrian reconnaissance because formal landowner access had not been granted at the time of survey. The portions of the proposed overhead collector that were walked over, in addition to the proposed interconnect station and substation, are not considered sensitive for archaeological resources because they are located on sloped and rocky terrain (Plates 26 and 27). Although access was not granted to an approximately 0.83-mile (1.3-kilometer) stretch of the proposed overhead collector, current topographic maps indicate that this area is severely sloped. On the basis of the steep topography and its similarity to other steep portions of the proposed overhead collector that were walked over, this area is also not considered sensitive for archaeological resources.

6. Historical Sites Identified in the Vicinity of Eliminated Project Designs

[redacted]

[redacted]

[redacted]

[redacted]

PLATE 26: Current Conditions Along Proposed Overhead Collector. View East

PLATE 27: Current Conditions Along Proposed Overhead Collector. View Northwest

[redacted]

FIGURE 15: Sites Identified in the Vicinity of Eliminated Project Designs

SOURCE: Iberdrola 2013; ESRI 2013a

[redacted]

[redacted]

[redacted]

FIGURE 16: Location of Mica and Feldspar Mines in Vicinity of Project Area

SOURCE: Iberdrola 2013; U.S. Government Printing Office 1942

IV. Summary and Recommendations

Louis Berger, Albany, New York, has completed a Phase IA archaeological survey for the proposed Wild Meadows Wind Farm Project in the Town of Alexandria, Grafton County, and the Town of Danbury in Merrimack County, New Hampshire, on behalf of Atlantic Wind, LLC. The purpose of the survey was to identify and assess areas of archaeological sensitivity (or potential) and identify any archaeological sites in the APE, which for this survey includes the project footprint, i.e., all parts of the proposed wind farm that will be subject to ground disturbance, including turbine construction, access road improvements and construction, substation and switchyard construction, and collection line installation.

Project components will include up to 23 wind turbines, each rated at 3.3 MWs), for a total of up to 75.9 MWs. The proposed turbine type is the Vestas V112 turbine or similar, which has a hub height of approximately 308 feet (94 meters), a rotor diameter of approximately 367 feet (112 meters), and a total height of approximately 492 feet (150 meters). The western portion of the Project includes Tinkham Hill, at an elevation of 2,270 feet (692 meters), and Braley Hill, 2,083 feet (635 meters). The central portion of the project area includes the Pinnacle, 1,981 feet (604 meters), and the eastern portion of the project area includes Forbes Mountain, 2,159 feet (9,658 meters), and Pine Hill, 2,091 feet (9,637 meters). The proposed project area lies in a rural, unpopulated setting and consists of variable terrain. Along the ridgelines where the proposed turbines are to be erected, the terrain is rugged with primarily moderate to steep slopes and thin, typically very stony, poorly drained soils, as well as outcrops of exposed bedrock.

The Phase IA archaeological survey consisted of background research and a pedestrian reconnaissance to gain an understanding of previous disturbances, identify and assess areas of archaeological sensitivity (or potential), and identify any extant archaeological sites in the APE. Background research did not identify any previously recorded precontact or historical archaeological sites in the APE, but one historical archaeological site was identified within a 3-mile (4.8-kilometer) radius of the APE.

[redacted]

Based on the results of this survey, it is Louis Berger's opinion that a Phase IB archaeological survey is warranted for the Wild Meadows Wind Project.

V. References

Bernabo, J.C., and T. Webb III
1977 Changing Patterns in the Holocene Pollen Record of Northeastern North America. *Quaternary Research* 8:64-96.

Boisvert, Richard A.
1998 The Israel River Complex: A Paleoindian Manifestation in Jefferson, New Hampshire. *Archaeology of Eastern North America* 26:97-106.

1999 Paleoindian Occupation of the White Mountains, New Hampshire. *Géographie physique et Quaternaire* 53:159-174.

Braun, D.P., and E.K. Braun
1994 The First Peoples of the Northeast. Moccasin Hill Press, Lincoln, Massachusetts.

Bunker, Victoria
1994 New Hampshire's Prehistoric Settlement and Chronology. *The New Hampshire Archeologist* 33/34(1):20-28.

Bunker, Victoria, Jane Potter, and Robert Goodby
1995 *Technical Report: Archaeological Resources Phase I-Preliminary Assessment, Portland Natural Gas Transmission System, New Hampshire Segment*. Prepared for Stone and Webster Environmental Technology Services, Boston.

Child, Hamilton
1886 *Gazetteer of Grafton County 1709-1886*. Syracuse Journal, Syracuse, New York.

Chilton, Elizabeth
2002 "Towns They Have None": Diverse Subsistence and Settlement Strategies in Native New England. In *Northeast Subsistence-Settlement Change: A.D. 700 - A.D. 1300,* edited by J. Hart and C. Reith, pp. 289-300. Bulletin No. 496. New York State Museum, Albany.

2006 Pre-Contact Maize Horticulture in New England: A Summary of the Archaeological Evidence. In *A Memorial Volume in Tribute to Elizabeth Alden Little (1926-2003),* edited by Mary Lynne Rainey. Nantucket Historical Society and the Massachusetts Archaeological Society.

COHMAP Members
1988 Climatic Changes of the Last 18,000 Years: Observations and Model Simulations. *Science* 241:1043-1052.

Coolidge, Austin J.
1859 *A History and Description of New England*. Boston, Massachusetts.

Curran, Mary Lou
1994 New Hampshire Paleo-Indian Research and the Whipple Site. *The New Hampshire Archeologist* 33/34(1):20-28.

Cushing, Kenneth R.
1992 *Isinglass, Timber, and Wool: A History of the Town of Grafton, New Hampshire*. K.R. Cushing, New Hampshire.

Danbury Bicentennial Committee
1995 *Danbury, New Hampshire 1795-1995: 200 Years of History.* Danbury, New Hampshire.

Dincauze, Dena F.
1989 Geoarchaeology in New England: An Early Holocene Heat Spell? *The Review of Archaeology* 10(2):1-4.

Dincauze, Dena F., and Mary Lou Curran
1983 Paleoindians as Generalists: An Ecological Perspective. Paper presented at the 48th Annual Meeting of the Society for American Archaeology, Pittsburgh.

Dincauze, Dena F., and Mitchell T. Mulholland
1977 Early and Middle Archaic Site Distributions and Habitats in Southern New England. In *Amerinds and Their Paleoenvironments in Northeastern North America*, edited by W.S. Newman and B. Salwen, pp. 439-456. Annals of the New York Academy of Sciences 228.

Environmental Systems Research Institute, Inc. [ESRI]
2013a USA Topographic Maps data layer. Detailed topographic maps for the United States at multiple scales. ESRI GIS and Mapping Software, Redlands, California. GIS Basemap imagery accessed November 2013 via ArcMap 10.1 (http://goto.arcgisonline.com/maps/USA_Topo_Maps).

2013b World Imagery data layer. High-resolution imagery for the United States. ESRI GIS and Mapping Software, Redlands, California. GIS Basemap imagery accessed November 2013 via ArcMap 10.1 (http://goto.arcgisonline.com/maps/World_Imagery).

Fitting, J.E.
1968 Environmental Potential and the Post-glacial Readaptation in Eastern North America. *American Antiquity* 33(4):441-445.

Funk, Robert E.
1993 *Archaeological Investigations in the Upper Susquehanna Valley, New York State*. Volume 1. Persimmon Press, Buffalo.

Grafton County Registry of Deeds
var. Deed Books, Tax Assessor Records, and Maps. On file, the Registry of Deeds Office, North Haverhill, New Hampshire.

Hartgen Archeological Associates, Inc. [HAA]
2008 *Phase IA/B Archaeological Survey, Berry Road Bridge (NHDOT 14049), Alexandria, Grafton County, New Hampshire*. Hartgen Archeological Associates, Inc., Rensselaer, New York, and Putney, Vermont.

Hayward, John
1830 *The New England Gazetteer.* Concord, New Hampshire.

Hurd and Company
1892 *Atlas of the State of New Hampshire.* Reproduced copy on file, New Hampshire Division of Historical Resources, Concord.

Iberdrola Renewables, LLC [Iberdrola]
2013 Geospatial data for the Phase IA Archaeological Survey, Groton Wind Project, Town of Groton, Grafton County, New Hampshire. Iberdrola Renewables, LLC, Portland, Oregon.

Independent Archaeological Consulting, LLC
2000 *Phase IB Archaeological Survey for NH Department of Transportation Project (12803), Smith River Bridge Replacement, Grafton, New Hampshire.* On file, New Hampshire Division of Historical Resources, Concord.

Kenyon, Victoria B.
1982 Middle Woodland Pottery of the Central Merrimack Valley in New Hampshire. *The New Hampshire Archeologist* 23:103-118.

1983 The Smolt Site: Seasonal Occupation in the Merrimack Valley. *The New Hampshire Archeologist* 24:1-47.

Lacy, David M.
1994 Prehistoric Land-Use in the Green Mountains, a View from the National Forest. *The Journal of Vermont Archaeology* 1:92-102.

1999 Myth Busting and Prehistoric Land Use in the Green Mountains of Vermont. In *The Archaeological Northeast*, edited by Mary Ann Levine, Kenneth E. Sassaman, and Michael S. Nassaney, pp. 115-124. Begin & Garvey, Westport, Connecticut.

Lacy, David, and Donna Roberts Mooney
2004 Green Mountain Stewardship: One Landscape, Multiple Histories. Manuscript on file, The Louis Berger Group, Inc., Albany, New York.

The Louis Berger Group, Inc. [Louis Berger]
2007 *Phase IA Archaeological Survey. Proposed Wind Farm Project, Town of Lempster, Sullivan County, New Hampshire.* Report on file, New Hampshire Division of Historical Resources, Concord.

2008a *Phase IB Archaeological Survey. Proposed Wind Farm Project, Town of Lempster, Sullivan County, New Hampshire*. Report on file, New Hampshire division of Historical Resources, Concord.

2008b *Phase IA Archaeological Survey. Granite Reliable Power, LLC Proposed Wind Park, Coos County, New Hampshire.* Report on file, New Hampshire Division of Historical Resources, Concord.

2008c *Phase IB Archaeological Survey. Granite Reliable Power, LLC Proposed Wind Park, Coos County, New Hampshire.* Report on file, New Hampshire Division of Historical Resources, Concord.

2010a *Phase IA Archaeological Survey. Groton Wind Project, Town of Groton, Grafton County, New Hampshire*. Report on file, New Hampshire Division of Historical Resources, Concord.

2010b *Phase IB Archaeological Survey. Groton Wind Project, Town of Groton, Grafton County, New Hampshire.* Report on file, New Hampshire Division of Historical Resources, Concord.

2011 *Addendum Report, Phase I Archaeological Survey. Groton Wind Project, Town of Holderness, Grafton County, New Hampshire.* Report on File, New Hampshire Division of Historical Resources, Concord.

Mooney, Charles N., H.L. Westover and Frank Bennet
1906 *Soil Survey of Merrimack County, New Hampshire*. U.S. Government Printing Office.

New Hampshire Death Records, 1654-1947
1879 *John T. G. Eastman*. Index. FamilySearch, Salt Lake City, Utah, 2010. New Hampshire Bureau of Vital Records, Concord, New Hampshire. Accessed online February 2013 at <www.Ancestry.com>.

1905 *Squire Braley*. Index. FamilySearch, Salt Lake City, Utah, 2010. New Hampshire Bureau of Vital Records, Concord, New Hampshire. Accessed online February 2013 at <www.Ancestry.com>.

1912 *Daniel B Smith*. Index. FamilySearch, Salt Lake City, Utah, 2010. New Hampshire Bureau of Vital Records, Concord, New Hampshire. Accessed online February 2013 at <www.Ancestry.com>.

New Hampshire Division of Historical Resources [NH DHR]
2007 *Archaeological Standards and Guidelines*. New Hampshire Division of Historical Resources, Bureau of Environment, New Hampshire Department of Transportation, Concord.

New Hampshire Employment Security
2013 Community Profile. Economic and Labor Market Information Bureau, New Hampshire Employment Security, Concord. Accessed May 2013 at <http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/alexandria.htm>.

New Hampshire Marriage and Divorce Records, 1659-1947
1879 *George S. Tenney.* Index. New Hampshire Bureau of Vital Records, Concord, New Hampshire. Accessed online February 2013 at <www.Ancestry.com>.

New York State Historic Preservation Office [NYSHPO]
2007 *Guidelines for Wind Farm Development Cultural Resources Survey Work*. On file, New York State Office of Parks, Recreation, and Historic Preservation, Peebles Island, Waterford.

Nicholas, George P.
1991a Places and Spaces: Changing Patterns of Wetland Use in Southern New England. *Man in the Northeast* 42:75-98.

1991b Putting Wetlands into Perspective. *Man in the Northeast* 42:29-38.

1998 Assessing Climatic Influences on Human Affairs: Wetlands and the Maximum Holocene Warming in the Northeast. *Journal of Middle Atlantic Archaeology* 14:147-160.

Pelletier, B.G., and B.S. Robinson
2005 Tundra, ice and a Pleistocene cape on the Gulf of Maine: a case of Paleoindian Transhumance. *Archaeology of Eastern North America* 33:163-176.

Petersen, James B., and Ellen R. Cowie
2002 From Hunter-Gatherer Camp to Horticultural Village: Late Prehistoric Indigenous Subsistence and Settlement in New England. In *Northeast Subsistence-Settlement Change: AD 700-1300*, edited by J.P. Hart and C.B. Rieth, pp. 265-288. Bulletin 496. New York State Museum, Albany.

Potter, Jane
1994 New Hampshire's Landscape and Environment. *The New Hampshire Archeologist* 33/34(1):9-19.

Ritchie, William A.
1980 *The Archaeology of New York State*. Purple Mountain Press, Fleischmanns, New York.

Ritchie, William A., and Robert E. Funk
1973 Aboriginal Settlement Patterns in the Northeast. Memoir 20. New York State Museum and Science Service, Albany.

Robinson, B.S., and J.B. Petersen
1993 Perceptions of Marginality: The Case of the Early Holocene in Northern New England. *Northeast Anthropology* 46:61-75.

Seeman, Mark F.
1994 Intercluster Lithic Patterning at Nobles Pond: A Case for "Disembedded" Procurement Among Early Paleoindian Societies. *American Antiquity* 59(2):273-288.

Shattuck, Bernard F.
1982 *A Little History of a Small Town, Alexandria, New Hampshire*. B.F. Shattuck, New Hampshire.

Snow, Dean R.
1980 *The Archaeology of New England*. Academic Press, New York.

Stewart-Smith, Davis
1994 The Pennacook: Lands and Relations, An Ethnography. *The New Hampshire Archaeologist* 33/34(1): 66-80.

Swain, A.M.
1978 Environmental Changes During the Past 2,000 Years in North-Central Wisconsin: Analysis of Pollen, Charcoal, and Seeds from Varied Lake Sediments. *Quaternary Research* 10:55-68.

Thompson, D.M., and E.A. Bettis III
1982 Out of Site, Out of Planning: Assessing and Protecting Cultural Resources in Evolving Landscapes. *Contract Abstracts* 2(3):16-21.

United States Bureau of the Census [U.S. Census]
1830 Danbury, Grafton County, New Hampshire; Roll 75; Page 106, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search. Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1840 Danbury, Grafton County, New Hampshire; Roll 237; Page 162; Image 905, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1850a Alexandria, Grafton County, New Hampshire; National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1850b Danbury, Grafton County, New Hampshire; National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1850c Danbury, Grafton County, New Hampshire; Roll M432_430; Page 183A; Image 364, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1850d Danbury, Grafton County, New Hampshire; Roll M432_430; Page 191B; Image 383, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1850e Danbury, Grafton, New Hampshire; Roll M432_430; Page 181A; Image 360, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1860a Danbury, Grafton County, New Hampshire; Roll M653_670; Page 191; Image 196, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1860b Danbury, Grafton County, New Hampshire; Roll M_653; Page 195; Image 200, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1860c Danbury, Grafton County, New Hampshire; Roll M653; Page 670; Image 200, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1860d Grafton, Grafton County, New Hampshire; Roll M653_671; Page 621; Image 78, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1870a Danbury, Grafton County, New Hampshire; Roll M593_840; Page 348A; Image 264, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1870b Danbury, Grafton County, New Hampshire; Roll M593_840; Page 347A; Image 262, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1870c Grafton, Grafton County, New Hampshire; Roll M593_840; Page 397A; Image 364, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1880a Danbury, Merrimack County, New Hampshire; Roll 766; Page 243D; Image 0316, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online October 2013 at <www.Ancestry.com>.

1880b Danbury, Merrimack County, New Hampshire; Roll 76; Page 244A; Image 317, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online October 2013 at <www.Ancestry.com>.

1880c Grafton, Grafton County, New Hampshire; Roll 765; Page 166A; Image 53, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1900a Danbury, Merrimack County, New Hampshire; Roll 9949; Page 2A, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online October 2013 at <www.Ancestry.com>.

1900b Danbury, Merrimack County, New Hampshire; Roll 949; Page 2A, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online October 2013 at <www.Ancestry.com>.

1900c Grafton, Grafton County, New Hampshire; Roll 944; Page 11A, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1910a Danbury, Merrimack County, New Hampshire; Roll T624_861; Page 5A, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online October 2013 at <www.Ancestry.com>.

1910b Grafton, Grafton County, New Hampshire; Roll T624_861; Page 4A, National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

1940a Population enumeration sheets, Alexandria, Grafton County, New Hampshire; National Archives and Record Service (NARS) microfilm; images reproduced by Family Search, Inc., Provo, Utah. Accessed online February 2013 at <www.Ancestry.com>.

United States [U.S.] Department of Agriculture-National Resource Conservation Service [USDA-NRCS]
2013 *Web Soil Survey*. United States Department of Agriculture – National Resource Conservation Service, Washington, D.C. Accessed January 9, 2013, at <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdnamequery.cgi>.

United States [U.S.] Department of the Interior
1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. *Federal Register*, Part IV, 48(2):44716-44742. Annotated version showing later technical and officially adopted revisions available from the National Park Service's preservation laws, regulations, and standards webpage at <http://www.cr.nps.gov/local-law/arch_stnds_0.htm>.

United States [U.S.] Fish and Wildlife Service
2009 Geospatial data. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed online November 2009 at <http://www.fws.gov/wetlands/>.

United States Geological Survey [USGS]
1927 *Cardigan, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1930 *Cardigan, New Hampshire-Maine*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

2013 National Elevation Dataset (NED), 1/3 arc-second (approx. 10 meters). The National Map Viewer, United States Geological Survey, Reston, Virginia. Accessed online November 2013 at <http://nationalmap.gov/viewer.htm>.

U.S. Government Printing Office
1942 *Mica-Bearing Pegmatites of New Hampshire*, map, page 390. Bulletin 931-P, United States Geological Survey. United States Department of the Interior, Washington, D.C. Printed by United States Government Printing Office.

Vermont Division for Historic Preservation (VT DHP)
1991 *Vermont Historic Preservation Plan: Planning for the Future of Vermont's Heritage, Vermont's Prehistoric Cultural Heritage*. Vermont Division for Historic Preservation, Agency of Development and Community Affairs, Montpelier.

Victoria Bunker, Inc.
2008 *Phase I Preliminary Archeological Reconnaissance, Ragged Mountain Resort, Danbury, NH.* Prepared for Sherwood Design Engineers.

Walling, H.F.
1860 *Topographical Map of Grafton County, New Hampshire. From the actual surveys by H. F. Walling*. Smith, Mason and Company, New York.

Wheeler, Kathleen
2000 *Archaeological Sensitivity Assessment for 300-Acre Parcel, Berlin (Coos County), New Hampshire*. Prepared for the Berlin Industrial Development and Park Authority by Independent Archaeological Consulting, Portsmouth, New Hampshire.

Whitehead, D.R., and D. Bentley
1963 Post-Glacial Pollen Diagram from Southwestern Vermont. *Pollen et Spores* 5:115-127.

THE Louis Berger Group, INC.