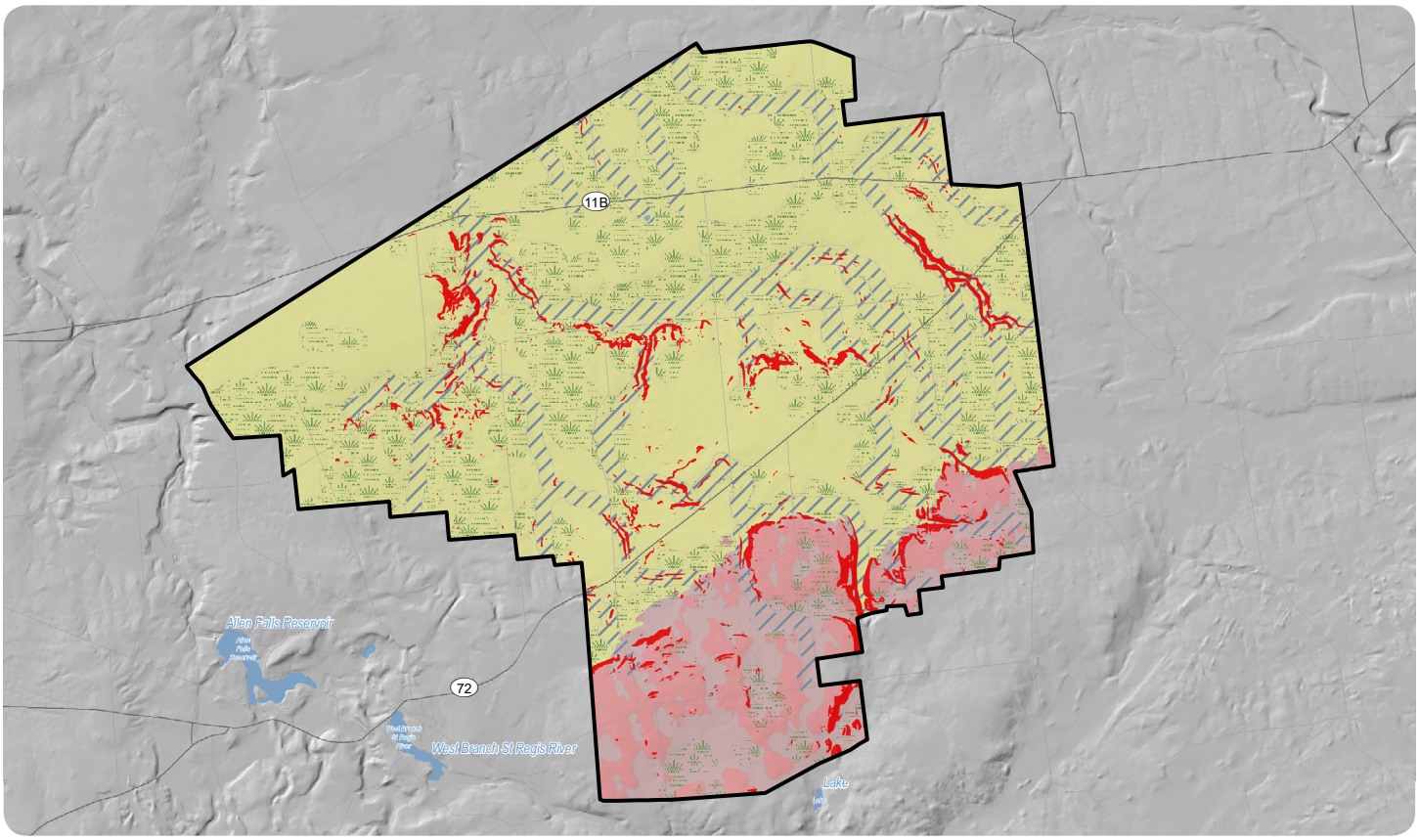
Appendix E

Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan



Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan

North Ridge Wind Farm Project

Towns of Hopkinton and Parishville, St. Lawrence County, New York

Prepared for:

Avangrid Renewables
Atlantic Wind, LLC
2 Radnor Corp. Ct., Ste. 200
Radnor, Pennsylvania 19087
Contact: Jenny L. Briot
P: 844.308.4616

Prepared by:

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P: 315.471.0688
F: 315.471.1061
www.edrdpc.com

April 2017

Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan

North Ridge Wind Farm Project

Towns of Hopkinton and Parishville, St. Lawrence County, New York

Prepared For:

Avangrid Renewables
Atlantic Wind, LLC
2 Radnor Corp. Ct., Ste. 200
Radnor, Pennsylvania 19087
Contact: Jenny L. Briot
Phone: 1-844-308-4616

Prepared by:

Environmental Design & Research,
Landscape Architecture, Engineering, & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
www.edrdpc.com

April 2017

MANAGEMENT SUMMARY

SHPO Project Review Number:	____
Involved State and Federal Agencies:	Department of Public Service (DPS), Article 10 Application
Phase of Survey:	Phase 1A Archaeological Resources Survey and Phase 1B Work Plan
Location Information:	Towns of Hopkinton and Parishville, St. Lawrence County, New York
Survey Area:	
Project Description:	Up to 40 wind turbines and associated infrastructure
Project Area:	Approximately 24 square miles (APE for Direct Effects = approximately 342.3 acres)
USGS 7.5-Minute Quadrangle Map:	*Nicholville, Parishville, Rainbow Falls,* and *Sylvan Falls, NY*
Archaeological Resources Overview:	No previously recorded archaeological sites occur within the Archaeological Study Area. One previously recorded historic archaeological site (USN 08914.000002) and one New York State Museum Archaeological Area (No. 5986) occur within 1 mile (1.6 kilometers) of the Archaeological Study Area.
Report Authors:	Nicholas P. Freeland, RPA; Patrick J. Heaton, RPA; Grant Johnson, and Lisa Young
Date of Report:	April 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF INSETS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Atlantic Wind, LLC, a wholly owned subsidiary of Avangrid Renewables ("the Applicant"), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) has prepared a Phase 1A archaeological resources survey and Phase 1B work plan for the proposed North Ridge Wind Farm Project (the Facility), located in the Towns of Hopkinton and Parishville, St. Lawrence County, New York. The Phase 1A survey supports the Preliminary Scoping Statement (PSS) being prepared as part of review of the Project under Article 10 (Certification of Major Electrical Generating Facilities) of the New York State Public Service Law. The information and recommendations included in this report are intended to assist the Department of Public Service (DPS) and the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) in their review of the proposed Project in accordance Article 10. Please note that this report addresses only archaeological resources; information concerning the Project's potential effect on historic-architectural resources has been (and will continue to be) provided to NYSOPRHP under separate cover.

As described in 16 NYCRR § 1001.20 (Exhibit 20: Cultural Resources), an Article 10 application must include:

> (a) A study of the impacts of the construction and operation of the facility interconnections and related facilities on archaeological resources including:
>
> (1) a summary of the nature of the probably impact on any archaeological/cultural resources identified addressing how those impacts shall be avoided or minimized;
>
> (2) a Phase 1A archaeological/cultural resources study for the Area of Potential Effect (APE) for the facility site and any areas to be used for interconnections or related facilities, including a description of the methodology used for such study;
>
> (3) a Phase 1B study, if required, as determined in consultation with OPRHP;
>
> (4) where warranted based on Phase I study results as determined in consultation with OPRHP, a Phase II study based on intensive archaeological field investigations shall be conducted to assess the boundaries, integrity and significance of cultural resources identified in Phase I studies. Phase II shall be designed to obtain detailed information on the integrity, limits, structure, function, and cultural/historical context of an archaeological site, as feasible, sufficient to evaluate its potential eligibility for listing on the State or National Register of Historic Places. The need for and scope of work for such investigations shall be determined in consultation with OPRHP and DPS;
>
> (5) a statement demonstrating that all archaeological materials recovered during the facility cultural resources investigation shall be cleaned, catalogued, inventoried, and curated according to New York Archaeological Council standards; that to the extent possible, recovered artifacts shall be identified as to material, temporal or cultural/chronological associations, style and function; and that the facility archaeologists shall provide temporary storage for artifacts until a permanent curatorial facility is identified; and
>
> (6) an Unanticipated Discovery Plan that shall identify the actions to be taken in the unexpected event that resources of cultural, historical, or archaeological importance are encountered during the excavation process. This plan shall include a provision for work stoppage upon the discovery of possible archaeological or human remains. In addition, the plan shall specify the degree to which the methodology used to assess any discoveries follows the most recent Standards for Cultural Resource Investigations and Curation of Archaeological Collections in New York State. Such an

> assessment, if warranted, shall be conducted by a professional archaeologist, qualified according to the standards of New York State Archaeological Council.

The purpose of the Phase 1A archaeological resources survey and Phase 1B work plan is to:

- define the Facility's area of potential effect (APE) relative to archaeological resources;
- determine whether previously identified archaeological resources are located within the APE; and,
- propose a methodology to identify archaeological resources within the APE, evaluate their eligibility for the State/National Register of Historic Places (S/NRHP), and assess the potential effect of the Facility on those resources.

All cultural resources studies undertaken by EDR in association with the Facility have been conducted by professionals who satisfy the qualifications criteria per the Secretary of the Interior's Standards for archaeology and historic preservation (36 CFR 61), as appropriate. The Phase 1A report was prepared in accordance with the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work* (the *SHPO Wind Guidelines*; NYSOPRHP, 2006) and applicable portions of NYSOPRHP's *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005).

1.2 Facility Location and Description

The Applicant is proposing to construct an up to 100 megawatt (MW) wind powered electric generating project located within the Towns of Hopkinton and Parishville, St. Lawrence County, New York. The regional Facility location and general Facility area (or Archaeological Study Area) is depicted on Figures 1 and 2, respectively. The Facility will be located on leased private land that is rural in nature (Appendix A: Photographs 1-8). The actual footprint of the proposed Facility components will be located within the leased land, and will enable farmers and landowners to continue with farming operations or other current land uses such as forestry practices.

The proposed Facility consists of the construction and operation of a commercial-scale wind power project, including the installation and operation of up to 40 wind turbines, together with a system of associated 34.5 kV collection lines (below grade and overhead), a network of access roads, up to 2 permanent meteorological towers, one operation and maintenance (O&M) building, and temporary construction staging/laydown areas. To deliver electricity to the New York State power grid, the Applicant proposes to construct a collection substation adjacent to a National Grid interconnection switching station which will interconnect with National Grid's Colton to Malone #3 115 kV transmission line. A 34.5 kV collection system will extend from the collection substation to the wind turbines.

The following terms are used throughout this document to describe the proposed action:

Facility:	Collectively refers to all components of the proposed project, including wind turbines, access roads, buried and above ground collection lines, substations, meteorological towers, staging areas, operations and maintenance building.
Facility Area:	An area of land within which all Facility components will ultimately be located (depicted on Figure 2).
Facility Site:	Those parcels currently under, or being pursued, for lease (or other real property interests) with the Applicant for the location of all Facility components (which will be defined in the Article 10 Application).
Area of Potential Effect (APE) for Direct Effects:	The Area of Potential Effect (or APE) for Direct Effects for the Facility is the area containing all proposed soil disturbance associated with the Project. As presently envisioned, the current Facility layout has an APE for Direct Effects of 342.3 acres. It is anticipated that the APE for Direct Effects will change as the Facility's design advances and becomes more refined.
Archaeological Study Area	An approximately 24-square mile polygon around the APE for Direct Effects which serves as the limits for all analysis associated with the archaeological landscape model (see Figure 2; Section 2.0).

1.3 NYSOPRHP Consultation

16 NYCRR § 1001.20 indicates that the scope of cultural resources studies for a major electrical generating facility should be determined in consultation with NYSOPRHP. In addition, the *SHPO Wind Guidelines* request that cultural resources surveys for wind energy projects include consultation with NYSORPHP to determine an appropriate research design for the identification of archaeological resources.

The submission of this Phase 1A report and Phase 1B work plan constitutes the formal initiation of consultation with NYSOPRHP via the Cultural Resources Information System (CRIS) website. The Public Involvement Program Plan (PIP) was prepared as part of the Article 10 process, released in May 2016, and revised in July 2016.[1] The PIP is designed to initiate the Article 10 process, and includes consultation with the affected agencies and other stakeholders; pre-application activities to encourage stakeholders to participate at the earliest opportunity; activities designed to educate the public as to the specific proposal and the Article 10 review process, including the availability of funding for municipal and local parties; the establishment of a website to disseminate information to the public and updates regarding the Facility and the Article 10 process; notifications to affected agencies and other stakeholders; and activities designed to encourage participation by stakeholders in the certification and compliance process.

[1] The Public Involvement Program Plan (PIP) for the Facility is available on DPS' website here: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={7FBE40A0-131C-4AF3-AD77-68260AD5E6F8}.

This Phase 1A archaeological survey report and Phase 1B work plan has been prepared in accordance with the requirements of 16 NYCRR § 1001.20 (Exhibit 20: Cultural Resources) and in anticipation of a request for such a study from NYSOPRHP. This report includes a map of the Archaeological Study Area, as well as a review of archaeological resources within and near the Archaeological Study Area, and a work plan for a subsequent Phase 1B archaeological survey, including a definition of the APE for Direct Effects. Following submission and review of this work plan by NYSOPRHP, EDR anticipates that a Phase 1B archaeological survey will be conducted, as described herein. As stated in Section 1.1, this report addresses only archaeological resources; information concerning the Facility's potential effect on historic architectural resources is being provided to NYSOPRHP under separate cover via the CRIS website.

1.4 Facility's Area of Potential Effect and Study Area

The Facility's APE for Direct Effects relative to archaeological resources is defined as those areas where soil disturbance is proposed to occur during construction. The potential impact assumptions included below describe the Facility layout as presently envisioned and characterize anticipated limits of soil disturbance for each proposed Facility component, which cumulatively make up the North Ridge Wind Farm's APE for Direct Effects (Table 1). For purposes of describing the APE, the areas of disturbance listed below represent the temporary extent of soil disturbance anticipated to occur during Facility construction and do not represent permanent soil disturbance associated with the Facility. Note that the final Facility layout is still being determined. The assumptions provided below present the anticipated size of the Facility (based on the current, preliminary design) and areas of disturbance associated with proposed Facility components. These assumptions provide a basis for preparing an archaeological survey research design (as presented herein in Section 4.4). The archaeological survey will be conducted concurrently with wetland survey and delineation and a limited number of proposed Facility components will likely be moved following these surveys to reduce impacts to wetlands and archaeological sites.

Table 1. Impact Assumptions for the Proposed North Ridge Wind Farm.

Facility Components	Typical Area of Vegetation Clearing	Area of Total Soil Disturbance (temporary and permanent)	Area of Permanent Soil Disturbance
Wind Turbines and Workspaces	Up to 200' radius per turbine	Up to 200' radius per turbine	0.20 acre per turbine (pedestal plus crane pad)
Access Roads	75' wide per linear foot of road	60' wide per linear foot of road	20' wide per linear foot of road
Buried Electrical Collection Lines	40' wide per linear foot of line per collection circuit	20' wide per linear foot of line per collection circuit	None

Facility Components	Typical Area of Vegetation Clearing	Area of Total Soil Disturbance (temporary and permanent)	Area of Permanent Soil Disturbance
Overhead Electrical Collection Lines	75' wide per linear foot of line	25' wide per linear foot of line	0.10 acre per pole
Permanent Meteorological Towers	1 acre per tower	1 acre per tower	0.10 acre per tower
O&M Building and associated site (4,000 – 6, 000 sf)	6 acres	5.5 acres	5 acres
Staging Area	10 acres per staging area	10 acres per staging area	None
Collection Substation	3 acres	3 acres	2 acres
Point of Interconnection Substation	3 acres	3 acres	2 acres

- **Wind Turbines**. A 200-foot radius around each proposed wind turbine site will be cleared of vegetation, temporarily stripped of topsoil, and graded to create a workspace for turbine assembly and erection. This will result in temporary soil disturbance of approximately 2.9 acres per turbine.
- **Access Roads**. The total length of gravel-surfaced access roads to be constructed for the Facility has not yet been determined. However, for the purposes of this report and work plan, it is assumed that the Facility will include up to 18 miles of gravel-surfaced access roads. As the Facility design is developed, this number may change and the APE calculations will be revised accordingly. anticipated permanent width of access roads will be 20 feet. During construction, the anticipated width of access roads will be up to 60 feet, within a 75-foot wide road corridor cleared of vegetation (to allow for crane movement and oversized vehicles delivering turbine components). The APE for Direct Effects for the proposed access roads consists of the maximum extent of soil disturbance (i.e., up to 60 feet).
- **Collection Lines**. The total length of combined overhead and underground collection lines that will collect power from the turbines to deliver to the collection substation has not yet been determined. However, for the purposes of this report and work plan, it is assumed that the Facility will include up to 28 miles of overhead and underground collection lines. As the Facility design is developed, this number may change and the APE calculations will be revised accordingly. Although underground cabling is the primary option for the electrical collector system, overhead cables will also be used where requested by landowners or where underground installation is prohibitive or infeasible due to constraints such as steep slopes, rivers, streams or creek

crossings, bedrock etc. The maximum width of temporary soil disturbance is currently assumed to be 30 feet for buried collection line construction. The maximum width of temporary soil disturbance for overhead collection line construction is 25 feet.

- **Meteorological Tower**. Up to two permanent meteorological towers are proposed for the Facility. During construction, it is anticipated that up to 1-acre of vegetation clearing and temporary soil disturbance may be necessary. Following construction, each meteorological tower will occupy approximately 0.1-acre.
- **O&M Facility**. Construction of the Facility's proposed O&M building is anticipated to require up to 6 acres of soil disturbance.
- **Staging Area**. Up to two temporary staging areas/laydown yards, up to 10 acres in size each, are proposed for the Facility. Construction of the staging areas/laydown yards will include stripping/stockpiling topsoil, grading and compacting the subsoil, and installation of geotextile fabric and gravel.
- **Substations**. The Facility will require one collection substation which will be constructed adjacent to the proposed point of interconnect (POI) substation to allow connection to the existing power grid. Construction of each substation is anticipated to disturb up to 3 acres, for a total of up to 6 acres.

As noted above, the final Facility layout is still being determined. For the purpose of proposing a Phase 1B methodology and approximate level of effort for an archaeological survey, this Phase 1B work plan is based on a preliminary Facility layout that includes the installation and operation of up to 40 wind turbines, together with approximately 28 miles of associated 34.5 kV collection lines (below grade and overhead), approximately 18 miles of access roads, up to two permanent meteorological towers, one operation and maintenance (O&M) building, and up to two temporary construction staging/laydown areas. In addition, the Facility will include a collection substation and a point of interconnect (POI) substation.

Based on these impact assumptions, the Facility's APE for Direct Effects is anticipated (based on the preliminary layout) to be approximately 342.3 acres in size. Note that this represents the total areas that will be temporarily disturbed by construction. Following construction, the operating Facility is anticipated to have a permanent footprint that is significantly smaller and the remaining portions of the APE will be restored to their current use and/or condition. Note that as the Facility design is further refined, the APE for Direct Effects for the Facility is anticipated to change. The Facility's APE relative to archaeological resources may be revised in association with subsequent layout changes during the permitting process, and that changes in the layout of the Facility are likely to result in changes in the size of the APE, which will be documented in the Phase 1B archaeological survey report described herein.

2.0 BACKGROUND AND SITE HISTORY

2.1 Geology and Soils

The proposed Facility is located in Northeastern St. Lawrence County approximately 20 miles (32 kilometers) south of the St. Lawrence River/Canadian Border and immediately north of the Adirondack Park Boundary. Northeastern St. Lawrence County occurs on the border between the St. Lawrence Lowlands physiographic province to the north and the Adirondack Mountains physiographic province to the south (see Figure 2). The St. Lawrence Lowlands consist of a north-sloping to level plain of Cambrian- and Ordovician-age sedimentary rocks surrounding the roughly northeast-flowing St. Lawrence River. The Adirondack Mountains consist of an asymmetrical dome of Precambrian metamorphic rocks with the highest elevations in the eastern-central portion of the uplift.

St. Lawrence County was under as much as 2 miles (3.2 kilometers) of the Laurentide Ice Sheet during the Pleistocene Epoch and as a result, much of the landscape is blanketed with glacial till. Following the recession of the ice sheet, around 13,000 years ago, the St. Lawrence and Champlain Valleys remained isostatically depressed from the weight of the ice sheet and both flooded with sea water from the North Atlantic creating the inland "Champlain Sea" which persisted until approximately 10,000 years ago. The Champlain Sea extended south to the vicinity of the modern-day southern end of Lake Champlain in the Champlain Valley, and west to the vicinity of modern-day Ogdensburg in the St. Lawrence Valley (Soil Conservation Service [SCS], 2005; Robinson, 2012).

The highest elevations within St. Lawrence County are in the southeastern portion of the county, with the high point, Mount Matumbla in the Adirondack Mountains, standing at 2,688 feet (819 meters) above sea level. The lowest point is approximately 180 feet (56 meters) above sea level along the St. Lawrence River at the eastern edge of the county. Drainage within St. Lawrence County is predominantly to the north and northwest away from the Adirondack Mountains into the St. Lawrence River. The primary drainages in the county are the Oswegatchie, Grasse, Raquette, and St. Regis Rivers (from west to east) (SCS, 2005).

The Archaeological Study Area is situated on generally north-sloping terrain which drains north via Dan Wright, Hopkinton, and Rosenbarker Brooks, all part of the St. Regis River Basin. The southernmost and westernmost portions of the Archaeological Study Area drain south directly into the West Branch of the St. Regis River. Bedrock within the Archaeological Study Area consists of Potsdam Sandstone in the northern half of the area, and biotite and/or hornblende granite gneiss, leucogranite gneiss, and undivided metasedimentary rock and related migmatite in the southern half (Dicken et al, 2005).

EDR reviewed the *Soil Survey of St. Lawrence County, New York* (SCS, 2005) for data concerning soils within the Archaeological Study Area as well as electronic data for the St. Regis subbasin from the Environmental Systems Research Institute (ESRI) and Natural Resources Conservation Service (NRCS) online SSURGO service (ESRI and NRCS, 2016). Seventy-nine mapped soil units occur within the Archaeological Study Area (Figure 3); however, only 17 soil units make up more than 2% of the Archaeological Study Area, individually. They are summarized in Table 2 and depicted in Figure 3. The major mapped soil units consist primarily of silty and sandy loams as well as sand and range from very poorly drained to somewhat excessively drained (see Table 2).

Table 2. Major Mapped Soil Units within the Facility APE (Esri and NRCS, 2016).

Map Unit Name	% of Facility APE	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Malone loam, 0 to 8 percent slopes, very stony	10.4%	0 to 10 inches: 10 to 19 inches: 19 to 25 inches: 25 to 72 inches:	VDkGrBr VDkGrBr GrBr LiBrGr	Lo Lo GrSaLo GrSaLo	0-8%	Somewhat poorly drained	Broad ridges and hilltops and benches and footslopes on glacial till plains.
Crary and Potsdam soils, 3 to 8 percent slopes, very bouldery	4.8%	**Crary soils** 0 to 8 inches: 8 to 14 inches: 14 to 20 inches: 20 to 24 inches: 24 to 72 inches: **Potsdam soils** 0 to 3 inches: 3 to 6 inches: 6 to 9 inches: 9 to 12 inches: 12 to 22 inches: 22 to 34 inches: 34 to 72 inches:	 DkBr DkBr YlBr GrBr Br Bl Bl PiGr DkRdBr RdBr LiOlBr OlBr	 SiLo SiLo VFiSaLo VFiSaLo StFiSaLo Slightly decomp. leaf litter Highly decomp. organic matter VFiSaLo SiLo StSiLo GrSaLo GrSaLo	3-8%	Moderately well drained	Glacial till plains
Adams sand, 2 to 8 percent slopes	4.4%	0 to 7 inches: 7 to 8 inches: 8 to 13 inches: 13 to 20 inches: 20 to 72 inches:	DkBr PiGr DkBr&YlRd StBr LiYlBr	Sa Sa LoSa Sa Sa	2-8%	Somewhat excessively drained	Broad hilltops, and other elevated areas on sand plains and other sandy deposits.
Tunbridge-Lyman-Dawson complex, rolling, very rocky	4.4%	**Tunbridge soil** 0 to 2 inches: 2 to 3 inches: 3 to 19 inches: 19 to 30 inches: 30 inches: **Lyman soil** 0 to 3 inches: 3 to 4 inches: 4 to 14 inches: 14 inches: **Dawson soil** 0 to 5 inches: 5 to 30 inches: 30 to 72 inches:	 DkRdBr Br DkRdBr&DkBr DkYlBr -- Bl PiGr RdBr -- YlBr Bl GrLo	 SiLo SiLo SiLo GrVFiSaLo Granite bedrock SiLo SiLo SiLo Granite bedrock Peat Muck Sa	Unknown	Well drained	Rolling landforms on uplands on granitic bedrock-controlled landscapes.

Map Unit Name	% of Facility APE	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Kalurah fine sandy loam, 3 to 8 percent slopes	4.1%	0 to 11 inches: 11 to 24 inches: 24 to 47 inches: 47 to 72 inches:	DkBr Br Br DkYlBr	FiSaLo FiSaLo GrFiSaLo GrFiSaLo	3-8%	Moderately well drained	Broad tops of low ridges and hills on benches; and convex backslopes on glacial till plains.
Adams loamy fine sand, 2 to 8 percent slopes	3.9%	0 to 7 inches: 7 to 8 inches: 8 to 13 inches: 13 to 20 inches: 20 to 72 inches:	DkBr PiGr DkBr&YlRd StBr LiYlBr	LoFiSa Sa LoSa Sa Sa	2-8%	Somewhat excessively drained	Broad hilltops on sand plains and other sandy deposits.
Malone loam, 3 to 8 percent slopes	3.8%	0 to 10 inches: 10 to 19 inches: 19 to 25 inches: 25 to 72 inches:	VDkGrBr DkYkBr GrBr LiBrGr	Lo GrFiSaLo GrSaLo GrSaLo	3-8%	Somewhat poorly drained	Broad ridges and hilltops and; benches and footslopes on glacial till plains.
Colton-Duxbury complex, 2 to 8 percent slopes	3.5%	**Colton soil** 0 to 6 inches: 6 to 7 inches: 7 to 14 inches: 14 to 20 inches: 20 to 72 inches: **Duxbury soil** 0 to 7 inches: 7 to 14 inches: 14 to 24 inches: 24 to 72 inches:	 DkRdBr DkRdBr RdBr Br&PaBr Br&PaBr DkBr StBr DkYlBr DkYlBr	 GrLoSa VGrSa VGrSa VGrSa VGrSa SiLo SiLo GrLo VGrCoarseSa	2-8%	Excessively drained	Outwash plains and the tops of low hills and ridges
Sunapee and Berkshire soils, 3 to 8 percent slopes, very bouldery	3.1%	**Sunapee soils** 0 to 1 inch: 1 to 4 inches: 4 to 13 inches: 13 to 17 inches: 17 to 23 inches: 23 to 72 inches: **Berkshire soils** 0 to 7 inches: 7 to 11 inches: 11 to 30 inches: 30 to 72 inches:	 Bl Bl DkRdBr RdBr DkYlBr LiBrGr DkBr Br Br DkYlBr	 Mod. Decomp. Forest litter FiSaLo FiSaLo FiSaLo FiSaLo FiSaLo Lo Lo GrLo SaLo	3-8%	Moderately well drained	Glacial till plains.
Roundabout silt loam, 0 to 2 percent slopes	3.0%	0 to 10 inches: 10 to 17 inches: 17 to 31 inches: 31 to 55 inches: 55 to 72 inches:	VDkGrBr Br GrBr LiBrGr GrBr	SiLo SiLo SiLo SiLo SiLo	0-2%	Poorly drained	Lake plains or floors of small valleys surrounded by bedrock-controlled uplands.
Borosaprists and Fluvaquents, frequently flooded	2.9%	0 to 10 inches: 10 to 72 inches:	Bl or DkGr Mottled stratified Gr to Br	Sa to SiClLo Sa to SiClLo	Unknown	Very poorly drained	Flood plains near slow-moving streams.
Berkshire-Lyme complex, rolling, very bouldery	2.7%	**Berkshire soil** 0 to 7 inches: 7 to 11 inches: 11 to 30 inches: 30 to 72 inches: **Lyme soil** 0 to 3 inches:	 DkBr Br Br DkYlBr VDkGr	 Lo Lo GrLo SaLo SaLo	5-15%	Well drained	Small, rounded hills and swales.

Map Unit Name	% of Facility APE	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
		3 to 6 inches: 6 to 11 inches: 11 to 16 inches: 16 to 24 inches: 24 to 72 inches:	GrBr DkGrBr Br Cobbly DkGrBr& GrBr Br	SaLo SaLo SaLo GrSaLo GrSaLo			
Potsdam and Crary soils, 8 to 15 percent slopes, very bouldery	2.6%	**Potsdam soils** 0 to 3 inches: 3 to 6 inches: 6 to 9 inches: 9 to 12 inches: 12 to 22 inches: 22 to 34 inches: 34 to 72 inches: **Crary soils** 0 to 8 inches: 8 to 14 inches: 14 to 20 inches: 20 to 24 inches: 24 to 72 inches:	 Bl Bl PiGr DkRdBr RdBr LiOlBr OlBr DkBr DkBr YlBr GrBr Br	 Slightly Decomp. Leaf litter Highly Decomp. Organic matter VFiSaLo SiLo StSiLo GrSiLo GrSaLo CoSiLo CoSiLo VFiSaLo VFiSaLo Stony FiSaLo	8-15%	Well drained	Glacial till plains.
Kalurah and Pyrities soils, 0 to 8 percent slopes, very stony	2.3%	**Kalurah soils** 0 to 11 inches: 11 to 24 inches: 24 to 47 inches: 47 to 72 inches: **Pyrities soils** 0 to 8 inches: 8 to 30 inches: 30 to 40 inches: 40 to 72 inches:	 DkBr Br Br DkYlBr DkBr Br Br Br	 FiSaLo FiSaLo FiSaLo GrFiSaLo FiSaLo FiSaLo GrFiSaLo GrFiSaLo	0-8%	Moderately well drained	Glacial till plains.
Coveytown and Cook soils, very stony	2.3%	**Coveytown soils** 0 to 1 inch: 1 to 5 inches: 5 to 20 inches: 20 to 38 inches: 38 to 72 inches: **Cook soils** 0 to 7 inches: 7 to 39 inches: 39 to 72 inches:	-- VDkGr Br Br Br & YlBr VDkGr GrBr Gr	 Slightly Decomp. Forest litter LoFiSa GrLoFiSa GrLoSa GrSaLo LoFiSa LoSa SaLo	Unknown	Somewhat poorly drained	Glacial till plains.
Nicholville very fine sandy loam, 2 to 6 percent slopes	2.1%	0 to 8 inches: 8 to 14 inches: 14 to 18 inches: 18 to 23 inches: 23 to 39 inches: 39 to 55 inches: 55 to 72 inches:	VDkGrBr Br DkYlBr Br Br DkGrBr DkBr	VFiSaLo VFiSaLo VFiSaLo VFiSaLo VFiSaLo LoVFiSa VFiSaLo	2-6%	Moderately well drained	Dissected plains.
Crary silt loam, 3 to 8 percent slopes	2.1%	0 to 8 inches: 8 to 14 inches: 14 to 20 inches: 20 to 24 inches: 24 to 72 inches:	DkBr DkBr YlBr GrBr Br	SiLo SiLo VFiSaLo VFiSaLo Stony FiSaLo	3-8%	Moderately well drained	Concave footslopes, broad hilltops, and along drainageways on glacial till plains.

2.2 History of the Facility Area

Archives and repositories consulted during EDR's historic research for the Facility included EDR's in-house collection of reference materials, and online digital collections of the New York State Library, Ancestry.com, New York Heritage, David Rumsey Map Collection, and United States Geological Survey (USGS). Among the sources reviewed for the historic context of the Facility area are the *A History of St. Lawrence and Franklin Counties* (Hough, 1853), the *Our County and Its People: A Memorial Record of St. Lawrence County, New York* (Curtis, 1894), and *Early History of the Town of Hopkinton* (Sanford, 1903). Historic maps reproduced in the report include the 1858 Rogerson *Map of St. Lawrence County, New York* (Figure 5), the 1908 *Potsdam, NY*, and 1921 *Nicholville, NY* 1:62500 topographic quadrangle maps (Figure 6), and the 1964 Nicholville, NY, Parishville, NY, Rainbow Falls, NY, and Sylvan Falls, NY 1:24000 topographic quadrangles (Figure 7).

St. Lawrence County experienced low density occupation during the Paleoindian (ca. 12,500 to 10,000 years ago) and Archaic (ca. 10,000 to 3,000 years ago) periods. Abel and Fuerst (1999:10) note that a small number of isolated Paleoindian fluted projectile points have been found in St. Lawrence County, typically occupying relic lacustrine beaches and glacial landforms. A cluster of three major Archaic Period sites occur near the northeast end of Black Lake along the Indian River (Abel and Fuerst, 1999). This area is approximately 30 miles (48.3 kilometers) west of the proposed North Ridge Wind Facility.

Between approximately A.D. 1350 and 1550, Jefferson and St. Lawrence Counties contained three communities that crafted Iroquoian material culture (Abel, 2002). These communities were not historically part of the original five, or later six, nations of the Haudenosaunee Confederacy. However, they appear to have shared significant cultural links with the Haudenosaunee to the south, based on their ceramic industry and settlement patterns. These communities in Jefferson and St. Lawrence Counties, along with related communities in southern Ontario, are known as the St. Lawrence Iroquoians (Engelbrecht, 1995; Abel and Fuerst, 1999; Able 2001; 2002).

Abel and Fuerst (1999:30) note that St. Lawrence Iroquoian sites are most notable for their ceramic industry, which includes tobacco pipes; whereas lithic artifacts are relatively rare and typically consist of retouched debitage, with notched net sinkers and soapstone beads present in high numbers at certain sites. The paucity of lithic artifacts is often compensated for in St. Lawrence Iroquoian assemblages by a high number of bone tools, including projectile points, awls, and needles (Abel and Fuerst, 1999). The St. Lawrence Iroquoians lived in villages on both sides of the St. Lawrence River in northern New York and Southern Ontario during the terminal Late Woodland through early Contact Era (circa AD 1350 through 1450). In St. Lawrence County, specifically, St. Lawrence Iroquoian communities have been documented in a discrete cluster of village sites immediately south of Black Lake ("the Black Lake Cluster") (Abel, 2001; 2002), which is approximately 40 miles (64 kilometers) west of the proposed North Ridge Wind Facility. The

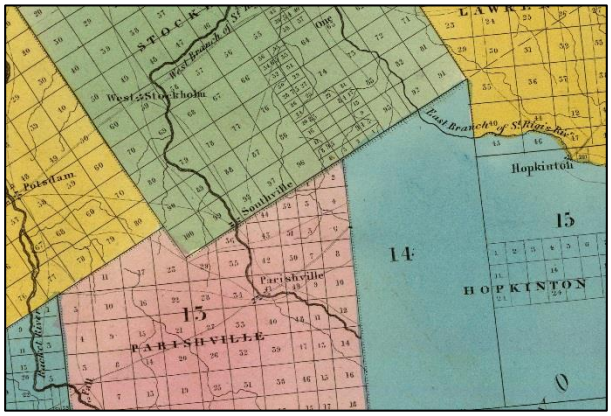
Black Lake Cluster was occupied between circa A.D 1350 and 1450, at which point the residents of the cluster appear to have either moved north to form the Prescott Cluster of villages in southeastern Ontario or southwest to form the Clayton Cluster in Jefferson County (Pendergast, 1985; 1993; Abel and Fuerst, 1999).

Regarding the placement of St. Lawrence Iroquois sites on the landscape, there appears to be a preference for proximity to wetlands combined with defensive positions such as promontories (Engelbrecht et al., 1990; Engelbrecht, 1995; Abel and Feurst, 1999). There are several wetland areas within the North Ridge Wind Facility Site; however, the Archaeological Study Area is approximately 20 miles (32.2 kilometers) south of the St. Lawrence River, whereas all previously recorded St. Lawrence Iroquoian village sites are located within approximately 15 miles (24.1 kilometers) or less of the St. Lawrence River or Lake Ontario (Abel, 2001). Therefore, it is unlikely that a St. Lawrence Iroquoian Village would be present within the North Ridge Wind Project Area; however, smaller resource procurement sites dating to the terminal Woodland Period could be expected to occur in the area.

The Facility is located in the Towns of Hopkinton and Parishville, St. Lawrence County, New York. Unlike much of New York State, the area comprising modern day St. Lawrence County does not exhibit extensive evidence of significant historic Native American habitation. French exploration of the St. Lawrence River in the sixteenth century revealed some occupation by St. Lawrence Iroquois, though later French expeditions did not find many traces of Native American occupation (Curtis, 1894; Mooers, 2005a). As previously noted, St. Lawrence Iroquoians may have moved north into Ontario or west into Jefferson County by this point (Abel and Feurst, 1999; Abel, 2001).

Widespread settlement of northern St. Lawrence County was encouraged by the formation of the St. Lawrence Ten Towns by the State of New York in 1787, which covered approximately 64,000 acres. However, the county did not experience the same late nineteenth century settlement boom as other parts of New York State, due to a lack of easy transportation in the areas south of the St. Lawrence River valley (see Inset 1). The county was officially formed in March 1802, and Ogdensburg (originally named Oswegatchie) was originally chosen as the county seat; however, due to vulnerabilities revealed during the War of 1812, Canton became the county seat in 1828. Early county settlements continued to grow slowly, and were primarily located along major waterways and at crossroads throughout the northern part of the county (see Inset 2). The southern portions of the county remained largely undeveloped due to the heavy forest and mountains that would later become the Adirondack Park, although these barriers to settlement proved a boon to forestry and extraction industries that took shape throughout the nineteenth century. The southern portions of the county also grew slowly due to the lack of railroads, which came comparatively later to St. Lawrence County (the first, Northern Railroad, was not established in the county until 1850) and ran through more significant population centers to the north such as Ogdensburg and Massena. However, construction of these railroads allowed the

considerable number of dairy products produced in St. Lawrence County in the nineteenth century to be shipped to distant markets throughout the state and northeast region (Hough, 1853; Curtis, 1894; Mooers, 2005a)



Inset 1. 1812 Lay *Map of the State of New York* (left)
St. Lawrence County experienced gradual settlement in the early nineteenth century, with only a handful of village centers established at the junctions of surface roads and waterways. By 1812, the settlements of Potsdam, Parishville and Hopkinton had formed along or directly adjacent to the many rivers that flowed through the various towns of the county (Lay, 1812; collections of David Rumsey).

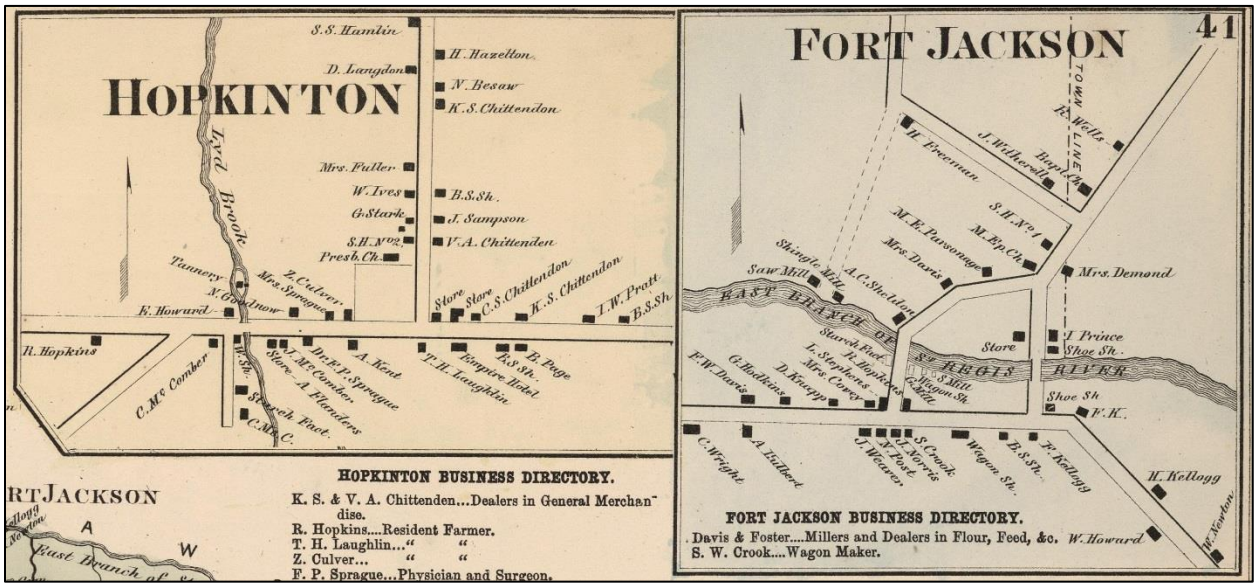
Inset 2. 1829 Burr *Map of the County of St. Lawrence* (right)
By 1829, minimal additional development had occurred with the Towns of Parishville and Hopkinton, aside from the establishment of additional hamlets such as West Stockholm and Southville along branches of the St. Regis River. Much of the Town of Hopkinton was still wilderness, and had yet to be subdivided into smaller parcels as had occurred in neighboring towns (Burr, 1829; collections of David Rumsey).

St. Lawrence County has long been the county with the largest land area and the lowest population density in New York State, with approximately 2,686 square miles of land and an average of just 10 people per square mile. The population of St. Lawrence reached its maximum of 114,254 people in 1980, before leveling off to 111,944 by 2010. Major population and employment centers in the twenty-first century include the City of Ogdensburg, and the Villages of Potsdam, Canton, and Massena. The primary industry in the twenty-first century outside of these municipalities is agriculture, with an emphasis on dairy production. Approximately three-fourths of the county is forested, and one-third of the county is located within the Adirondack Park boundary (Mooers, 2005a; USCB, 2017a).

The area comprising the Town of Hopkinton was initially settled in 1802. Roswell Hopkins, namesake of the town, arrived in the vicinity of the present-day Hopkinton from Vermont in 1802, and quickly began to improve the land, building a grist mill along Lyd Brook (west of the current location of Hopkinton Green). The town was officially formed from Massena in 1805, and the first town meeting was held the following year. The first frame house was erected in 1809. The town was the site of a notable event during the War of 1812, where British troops unsuccessfully attempted to destroy a large amount of flour stored in barns owned by Roswell Hopkins (Sanford, 1903; Krattinger, 2013).

The majority of land within the town is located within the boundary of the Adirondack Park, and remained wilderness throughout much of the nineteenth century. The northern portion of the town also developed slowly due to a lack of

roads, with the only settlements in the town (Hopkinton, Fort Jackson and Nicholville) forming around the east branch of the St. Regis River and its tributaries (see Inset 3). Agriculture has remained the major industry of Hopkinton throughout the nineteenth, twentieth and early twenty-first centuries, as the town never developed any significant commercial or industrial operations. The town grew to a maximum population of 1,922 people in 1880, declining considerably to 1,020 in 2005 and rebounding slightly to 1,108 in 2010 (Mooers, 2005b; USCB, 2017b).



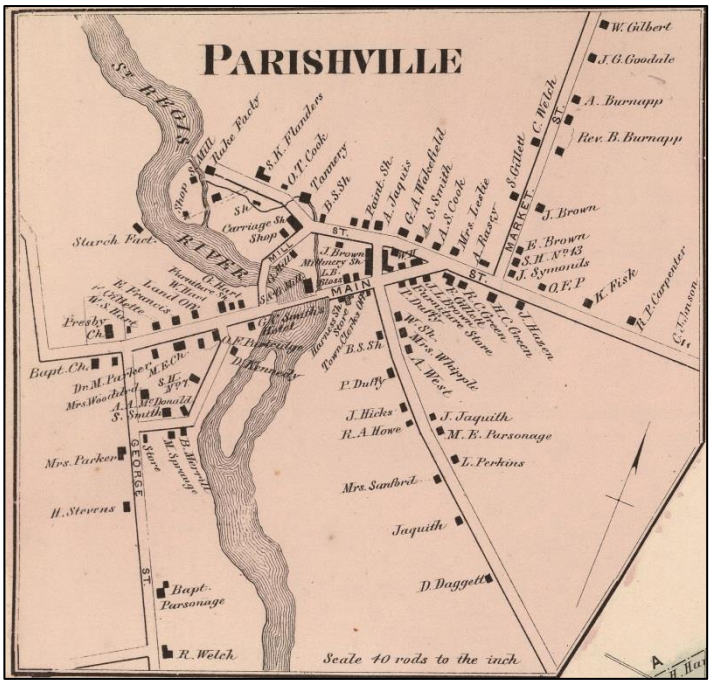
Inset 3. 1865 Beers & Beers *New Topographical Atlas of St. Lawrence Co., New York* – detail of Hopkinton and Fort Jackson
By the time of the Civil War, the hamlet of West Stockholm had grown in just a few decades to include several commercial operations taking advantage of the waterpower of the west branch of the St. Regis River, including starch and grist mills, a woolen factory and a box factory. The hamlet also boasted of two blacksmiths and approximately two dozen residences (Beers & Beers, 1865; collections of David Rumsey).

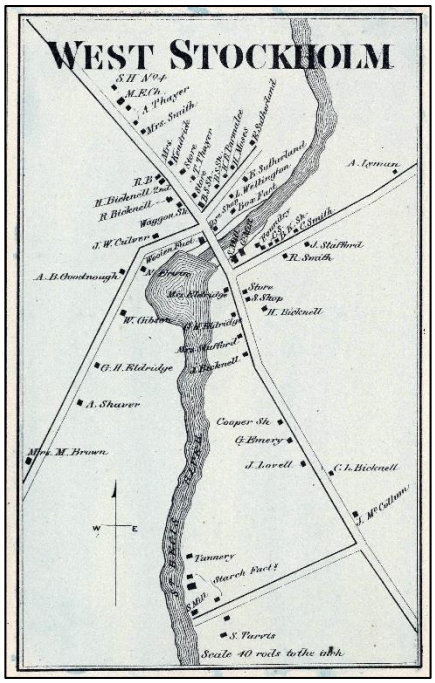
The area comprising the present-day Town of Parishville was initially settled beginning in 1809 by surveyors employed by early settler and land agent David Parish. A road was surveyed and cut from Potsdam to the future site of the hamlet of Parishville by Daniel Hoard in the fall of 1809, leading to significant clearing in the vicinity of the future settlement. In 1812, Parish platted the hamlet of Parishville along the west branch of the St. Regis River, where a grist mill and distillery had been built for him the previous year by Sewll Raymond and D.W. Church. Parish and others soon began the construction of numerous factories and manufacturing concerns that grew rapidly throughout the nineteenth century (see Inset 4). The town was officially formed from the Town of Hopkinton in March 1814, and was the fourteenth town established in St. Lawrence County (Curtis, 1894; Mooers, 2005c).

Similar to Hopkinton, much of the Town of Parishville is located in areas of thick wilderness, and therefore largely undeveloped throughout the nineteenth century. No significant industries developed outside the hamlet of Parishville throughout the nineteenth and twentieth centuries, and agriculture and dairy farming remain the largest source of

employment in the town. The population of the town reached its peak of 2,384 in 1880, declined to 2,049 in 2005, and rebounded to 2,153 by 2010 (Mooers, 2005c; USCB, 2017c).

The surrounding area developed on a simialr trajectory to the Towns of Hopkinton and Parishville, with the hamlets of West Stockholm and Nicholville being the only other significant settlements established in the early nineteenth century. Despite the development of commercial and industrial operations typical to northern New York towns in the early-to-mid nineteenth century (such as saw and grist mills, tanneries, and blacksmith and carriage shops) the populations of these hamlets did not expand significantly beyond the area in the vicinity of the crossroads or immediately adjacent waterways that initially encouraged settlement and commerce (see Inset 5).





Inset 4. 1865 Beers & Beers *New Topographical Atlas of St. Lawrence Co., New York* – detail of Parishville (right)
The hamlet of Parishville was one of the most significant settlements to develop in mid-nineteenth century St. Lawrence County, benefitting from a particularly wide portion of the west branch of the St. Regis River, as well as the convergence of numerous county roads. By 1865, the hamlet included several churches, hotels, mills, shops, factories, stores, and two schoolhouses (Beers & Beers, 1865; collections of David Rumsey).

Inset 5. 1865 Beers & Beers *New Topographical Atlas of St. Lawrence Co., New York* – detail of West Stockholm (left)
By the time of the Civil War, the hamlet of West Stockholm had grown in just a few decades to include several commercial operations taking advantage of the waterpower of the west branch of the St. Regis River, including starch and grist mills, a woolen factory and a box factory. The hamlet also boasted of two blacksmiths and approximately two dozen residences (Beers & Beers, 1865; collections of David Rumsey).

Historic maps reflect the slow rate nineteenth century settlement and expansion of the towns within the county and the Archaeological Study Area, and the continued lack of significant growth throughout the twentieth century. The 1858 Rogerson *Map of St. Lawrence County, New York* (Figure 5) shows populations within the Facility study area concentrated around the settlements that had formed at crossroads, or had grown around the major waterways

throughout towns of Hopkinton and Parishville. The hamlets of Parishville, Hopkinton, Fort Jackson, Nicholville, and West Stockholm are the most significant population and commercial centers in the area, with additional, smaller hamlets such as Southville noted adjacent to clusters of residences without notable commercial operations or schools located nearby. Most residences are spaced regularly along roads that cut across the towns in the Archaeological Study Area.

The 1908 *Potsdam, NY* and 1921 *Nicholville, NY* 1:62,500 topographic quadrangle maps (Figure 6) show similar conditions to the 1858 Rogerson map, with a more formalized and defined network of roads located throughout the Archaeological Study Area. Additional growth is noticeable in the hamlets of Parishville and West Stockholm, and additional smaller hamlets such as Beechertown, Converse and Allens Falls. Development is relatively sparse in the remainder of the study area, though several schools are noted throughout the towns located in the vicinity. The 1964 *Nicholville*, *NY*, *Parishville*, *NY*, *Rainbow Falls*, *NY*, and *Sylvan Falls*, *NY* 1:24000 topographic quadrangles (Figure 7) do not show significant change to the Archaeological Study Area in terms of additional development, though the maps indicate the extent of forest land throughout the study area.

2.3 Previous Archaeological Resources Surveys within the Facility Site

No previous archaeological surveys have been conducted within the Archaeological Study Area; however, two previous combination Phase 1A/1B archaeological surveys have been conducted within 1 mile (1.6 kilometers). The previous surveys were conducted by Panamerican Consultants, Inc. (PCI) for a Wetlands Restoration Project in the Towns of Macomb, Lisbon, and Stockholm on behalf of the NRCS (PCI, 2001) and by Hudson Valley Cultural Resource Consultants, Ltd. (HVCRC) for proposed upgrades to the White Hill Communications Tower in the Town of Hopkinton on behalf of The Chazen Companies (HVCRC, 2016):

- PCI (2001) conducted Phase 1 archaeological surveys at five separate wetland restoration sites in St. Lawrence County. They excavated 41 shovel tests at 50-foot (15-meter) intervals, and did not identify any cultural resources. No further work was recommended.
- HVCRC (2016) conducted a Phase 1 archaeological survey of the White Hill Tower upgrade APE in the Town of Hopkinton. They excavated nine shovel tests at 50-foot (15-meter) intervals, and did not identify any cultural resources. No further work was recommended.

2.4 Previously Identified Archaeological Sites within the Facility Site

The NYSOPRHP *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005) indicate that Phase 1A survey reports should include a summary of previously identified archaeological sites located within 1 mile (1.6

kilometers) of the project. No previously recorded archaeological sites occur within the Archaeological Study Area, but two previously reported archaeological sites occur within 1 mile of the Archaeological Study Area:

- Unique Site Number (USN) 08914.000002 is the Site of a War of 1812 British Raid in Hopkinton located approximately 0.2 miles (0.3 kilometers) east of the Archaeological Study Area. The site is located in the center of the Town of Hopkinton, and is described on the NYSOPRHP site form as "in Feb. 1814, British troops raided this village. They seized 300 barrels of flour of the U.S. government and stored in barns of Colonel Hopkins." In addition to seizing the flour, the British captured the village and briefly occupied it before continuing east to Malone (Sanford, 1903:270-271). Based on the available documentation, it appears this site number corresponds to the approximate location of these events in the modern-day Hopkinton Town Center. It specifically corresponds to a historic marker commemorating the event located on the Hopkinton Town Green. The USN does not appear to correspond any identified archaeological materials associated with the events. The S/NRHP eligibility of the site is currently undetermined.
- New York State Museum (NYSM) Site 5986 is located approximately 0.5 miles (0.8 kilometers) west of the Archaeological Study Area. According to the NSYOPRHP/NYSM records, NYSM Site 5986 corresponds to an isolated find of one fluted (Paleoindian Period) projectile point near the location of Allen Falls on the West Branch of the St. Regis River. The S/NRHP eligibility of this area is undetermined.

2.5 Existing Conditions

The Facility is proposed in a rural portion of St. Lawrence County, which is characterized by a mix of agricultural and forested land (see Appendix A: Photographs 1-8). Currently, the APE for Direct Effects occurs in agricultural lands (approximately 10%) (see Appendix A: Photographs 1-4) and undeveloped forest (approximately 90%) (see Appendix A: Photographs 5-8). Existing conditions within the Archaeological Study Area have been observed and evaluated via examination of aerial imagery for the vicinity and site visits. Land-use in the area is typical of northern New York and consists of agricultural hay, corn, and soy bean fields (see Appendix A: Photographs 1-4), scattered residential development along area roadways, and large tracts of undeveloped second-growth forest (see Appendix A: Photographs 5-8). New York State Route 72 trends northeast/southwest through the Archaeological Study Area, dividing it approximately in half. Agricultural use is more prevalent in the northern half of the APE, while the southern half consists almost completely of undeveloped forest, some of which has been recently logged. General observations of existing conditions within the vicinity of the Facility site include the following:

- The Archaeological Study Area is characterized by a patchwork of forested woodlots, more extensive tracts of forest, open agricultural fields, pasture, reverting former agricultural lands in various stages of secondary succession, and scattered residences and farms.

- The Archaeological Study Area does not contain any areas of concentrated development.
- Where present, residences are scattered along area roadways.

3.0 ARCHAEOLOGICAL SENSITIVITY ASSESSMENT

3.1 Pre-Contact Native-American Archaeological Sensitivity Assessment

As described in Section 2.3 of this report, one previously recorded Pre-Contact Native American archaeological site (NYSM Site 5986, an isolated fluted point) occurs within 1 mile (1.6 km) of the Archaeological Study Area. Native American archaeological sites in St. Lawrence County could be expected to be clustered along major streams and rivers, and particularly along the St. Lawrence River. The Archaeological Study Area for the proposed Facility is considered of low sensitivity for pre-contact archaeology, with elevated sensitivity for those areas in close proximity to streams and wetlands. Pre-contact archaeological sites are most likely to be encountered near streams and wetlands (i.e., within approximately 100 meters [328 feet]) and least likely to be encountered in upland areas away from streams or wetlands (see additional discussion in Section 4 of this report).

As part of the background research for the current Phase 1A survey and Phase 1B work plan, EDR reviewed several previous Phase 1B archaeological surveys conducted for wind facilities in northern New York. The studies reviewed were conducted in the North Country and Tug Hill regions and occur in similar landscapes and environmental settings to the currently proposed North Ridge Wind Project (i.e., the north-sloping escarpment of the North Country or the rolling upland plateau of Tug Hill). Table 3 summarizes the pre-contact archaeological resources (sites and isolated finds) identified during these surveys.

Per the data summarized in Table 3, it is evident that very few pre-contact archaeological sites have been recorded in northern New York as a result of wind projects. Among the seven projects reviewed, three pre-contact isolated finds and no pre-contact archaeological sites were identified. Furthermore, two of those isolated finds (USNs 01909.000067 and 01907.000102) were assessed by John Milner Associates, Inc. (JMA) as likely resulting from natural weathering/breakage of quartzite cobbles, and therefore not archaeological artifacts (JMA, 2007a). Even including the two questionable isolated finds recorded by JMA (2007a), the sample of three pre-contact isolated finds is too small to confidently assign any correlation between landscape classification and pre-contact occupation. However, it is worth noting that two of the three pre-contact isolated finds occur in “near wetland” settings which is consistent with the expectations for pre-contact site locations outlined earlier in this section.

Much of the paucity of previously recorded pre-contact archaeological within wind projects in northern New York is due to the preferential siting of wind farms on interfluvial ridges away from major lakes, streams, and rivers. The majority of wind turbines and associated infrastructure for the current Facility are sited on elevated landforms between, from east to west, Hopkinton Brook, Dan Wright Brook, Rosenbarker Brook, Trout Brook, and the West Branch of the St. Regis River.

Table 3. Pre-contact archaeological sites and isolated finds identified during archaeological surveys for wind projects in northern New York.

Project	Site Name/Number	Site Type[1]	S/NRHP Eligibility	Landscape Class	Equivalent EDR Landscape Class
Flat Rock Wind (Maple Ridge) (Lewis County) (John Milner Associates, Inc. [JMA], 2003; 2005)	No Pre-contact Archaeological Sites or Isolates	N/A	N/A	N/A	N/A
Noble Windpark (Clinton County) (Ecology and Environmental [E&E], 2006a; 2006b; PCI, 2007a)	No Pre-contact Archaeological Sites or Isolates	N/A	N/A	N/A	N/A
Marble River Wind Farm (Clinton County) (JMA, 2007a; 2007b)	Marble River Prehistoric Isolate 1 (01909.000067)	Isolated Find (likely naturally modified quartzite)	Not Eligible	Outwash Plain, No Associated Water	Valley Bottom – No Water
	Marble River Prehistoric Isolate 2 (01907.000102)	Isolated Find (likely naturally modified quartzite)	Not Eligible	Knoll, Ridge or Beach, Near Wetland	Upland Knoll or Ridge - Near Wetland
Chateaugay Clinton and Ellenburg Wind Parks (Clinton and Franklin Counties) (PCI, 2007b)	No Pre-contact Archaeological Sites or Isolates	N/A	N/A	N/A	N/A
Roaring Brook Win Farm (Lewis County) (JMA, 2009a; 2009b)	No Pre-contact Archaeological Sites or Isolates	N/A	N/A	N/A	N/A
Copenhagen Wind Farm (Jefferson and Lewis Counties) (EDR, 2014)	Number Three Road Site 1	Isolated Find	Not Eligible	Upland – Near Wetland	Upland Knoll, Ridge, or Saddle – Near Wetland
Jericho Rise (Franklin County) (EDR, 2015; Tetra Tech EC, Inc. [TT], 2008)	No Pre-contact Sites or Isolates	N/A	N/A	N/A	N/A

[1]To compensate for differing methodologies and terminologies, an Isolated Find is defined as a single pre-contact artifact with no associated artifacts or features; whereas a Site was defined as two or more pre-contact artifacts.

Based on EDR's experience conducting archaeological surveys for other wind energy projects, the majority of archaeological sites that are identified during surveys for wind projects are historic period sites (e.g., farmsteads and similar). As previously discussed, this is typically attributed to the upland and relatively marginal (from a natural resource perspective) character of many wind facility sites, which are often sited on ridges or other elevated areas away from the river valleys and waterbodies that served as attractive resources for larger Native American settlements. This is also the case with the currently proposed Facility. The overall pre-contact archaeological sensitivity of the Archaeological Study Area is low; however, as previously noted, areas near perennial streams and wetlands are considered to have an elevated sensitivity for pre-contact archaeology.

3.2 Historic Period Archaeological Sensitivity Assessment

As described in Section 2.4 and illustrated on historic maps (see Figures 5-7), the Archaeological Study Area has been occupied historically since at least the early nineteenth century. There is one previously recorded historic archaeological site within 1 mile of the Archaeological Study Area (USN 08914.000002 – the site of the 1814 British Raid of Hopkinton). The locations of former structures within and near the Facility Site are shown on the Rogerson 1858 *Map of St. Lawrence County, New York* (Rogerson, 1858) (Figure 5), the United States Geological Society (USGS) 1908 *Potsdam* and 1921 *Nicholville, New York* 15-minute Topographic Quadrangle Maps (USGS, 1908; 1921) (Figure 6), and the USGS 1964 *Nicholville*, *Parishville*, *Rainbow Falls,* and *Sylvan Falls, New York* 7.5-minute Topographic Quadrangle Maps (Figure 7).

MDS locations within the Facility site are generally located adjacent to existing roadways. In some instances, MDS represent existing buildings and/or farms. In other instances, they are abandoned structures that now may be represented only by archaeological remains. Potential archaeological resources associated with these MDS locations could include abandoned residential and/or farmstead sites, where the complete residential and/or agricultural complex consisting of foundations, structural remains, artifact scatters, and other features, would constitute an archaeological site. In other locations more limited remains of these sites, perhaps represented by only a foundation or an artifact scatter, may be extant.

Areas located in the immediate vicinity (within approximately 200 feet [61 meters]) of MDS locations are considered to have high potential for the presence of historic-period archaeological resources. The remaining (non-MDS) portions of the Facility site exhibit minimal (if any) likelihood for significant historic period archaeological sites to be present.

3.3 Prior Ground Disturbance

The *NYAC Standards* indicate that Phase 1 archaeological survey is not necessary in wetland areas, previously disturbed areas, and areas where slopes exceed 12-15% (NYAC, 1994). Slope is anticipated to be a relatively minor factor as much of the APE for Direct Effects occurs on relatively flat to rolling hill and ridge tops along the generally north-sloping escarpment between the Adirondack Mountains and the St. Lawrence River. Wetland communities within the Facility site are being investigated as part of the environmental review for the Facility. In general, Facility components have been and will be sited to minimize impacts to wetland communities. Previous ground disturbance within the APE for Direct Effects is for the most part limited to previous or ongoing agricultural activities. Farming is not considered significant in terms of its potential to affect the integrity of archaeological resources (NYAC, 1994; NYSOPRHP, 2005). Additionally, some areas immediately adjacent to existing roads within the Facility Site include drainage ditches, culverts, and areas of cut and/or fill. With the exception of these areas, the Facility Site in general does not appear to have been subjected to significant previous disturbance.

4.0 ARCHAEOLOGICAL RESOURCES SURVEY WORK PLAN

4.1 Phase 1B Archaeological Survey Methodology

The APE for Direct Effects for the Project includes active agricultural lands (including pastures, corn, and hay fields), open meadows, forested/shrubland areas, and steeply sloped areas (i.e., areas in excess of 12-15% slopes per the *NYAC Standards* [NYAC, 1994]). Following previously applied fieldwork methods, it is anticipated that EDR's additional archaeological survey work in these areas will consist of the following:

- **Corn fields**. In existing corn fields and/or previously cultivated areas with greater than 80% ground-surface visibility, EDR personnel will conduct a pedestrian surface survey to determine whether archaeological sites are present (in accordance with *the NYAC Standards*; NYAC, 1994). In these areas, EDR personnel will traverse the APE for Direct Effects along transects spaced at 3- to 5-meter (10- to 16-foot) intervals while inspecting the ground surface for artifacts and/or archaeological features. The timing for this work is critical because surface survey needs to be conducted after a field has been freshly plowed and disked, and preferably following a rain event. If any artifacts or other indications of an archaeological site are observed on the ground surface, then the location of all finds will be recorded using professional-grade Global Positioning System (GPS) equipment. After recording the locations of all artifacts and/or features in a given area, EDR personnel will collect observed artifacts (or a sample thereof) for subsequent laboratory identification and analysis, in accordance with standard archaeological methods.
- **Hay fields, forests, and shrubland**. In selected areas not suitable for pedestrian surface survey, EDR personnel will excavate shovel tests to determine whether archaeological sites are present. shovel tests will be excavated along transects or in grid patterns at 5-meter (16-foot) intervals within selected areas to provide for intensive sampling of the various environmental zones within the Facility site (per the SHPO Wind Guidelines; see *Landscape Classification Geographic Information System [GIS] Model* section below). shovel tests excavated for the Project will be 30-50 cm (12-20 inches) in diameter and excavated to sterile subsoil or the practical limits of hand excavation (in accordance with *the NYAC Standards*; NYAC, 1994). Field notes for each shovel test will be recorded on standardized forms that describe soil stratigraphy, record whether any artifacts were recovered, and note any other relevant observations. All soils excavated from shovel tests will be screened through 0.25-inch hardware cloth. If pre-contact Native American artifacts are recovered from an isolated shovel test, then up to eight additional shovel tests will be excavated at one-meter and three-meter intervals around the original shovel test to determine whether the artifacts represent an isolated find or may indicate the presence of a more substantial archaeological site.
- **Steeply sloped, wetland, and disturbed areas**. No systematic archaeological survey work is proposed in steeply sloped areas, delineated wetlands, or areas where visual inspection can confirm previous soil

disturbance (per the *NYAC Standards*; NYAC, 1994). In these areas, archaeological survey will be restricted to pedestrian walkover supplemented by judgmental shovel testing if indications of a potential archaeological site are observed (e.g., foundations, structural remains, or rock overhangs suitable for use as shelters).

4.2 Archaeological Work Scope

The Phase 1B survey methodology proposed in this Work Plan was designed in accordance with the 2006 *SHPO Wind Guidelines* (NYSOPRHP, 2006). This approach entails using the acreage of the project's archeological APE (i.e., the APE for Direct Effects) to determine the appropriate level of effort required for the Project, and then concentrating survey efforts within selected portions of each landscape class identified in the Geographic Information System (GIS) model. Table 4 provides the APE for Direct Effects associated with each Facility component (based on the current preliminary Facility design, as described in Section 1.4 of this report), distinguishing proposed pedestrian surface survey areas (i.e., cultivated areas) from proposed shovel testing areas (i.e., wooded or idle areas). Based on review of aerial imagery for the Facility Site, it is estimated that approximately 10% of the APE for Direct Effects occurs in agricultural fields where pedestrian surface survey will be possible. This is only an estimate and the actual proportion of pedestrian surface survey conducted during the Phase 1B survey effort may be higher or lower than this. The extent of shovel testing will be adjusted in accordance with any adjustments to the extent of pedestrian surface survey so that the overall extent of survey coverage proposed in this work plan will remain the same.

Table 4. Anticipated Phase 1B Archaeological Survey APE and Methods.

Project Component	APE for Direct Effects (acres)	Portion of APE in Steeply Sloped Areas Exempt from Phase 1B Survey (acres)	Portion of APE within Agricultural Areas Potentially Suitable for Pedestrian Surface Survey (acres)	Portion of APE within Non-Agricultural Areas Where it is Assumed Archaeological Survey Would be Accomplished via Shovel Testing[2] (acres)
Wind Turbines	118.0	1.5	7.6	108.9
Access Roads[1]	113.5	2.3	10.3	100.9
Buried Collection Lines[1]	60.8	2.4	6.1	52.3
Overhead Collection Lines	18.3	1.4	3.2	13.7
Meteorological Towers	0.2	0	0.1	0.1
Staging Areas[3]	20			
O&M Facility[3]	5.5			
Collection Substation	3	0.8	0	2.2
POI Substation	3	0.1	0	2.9
Total	**342.3**	**8.5**	**27.3**	**281.0**

[1] In areas where access roads or collection lines overlap turbine workspaces, the overlapping acreage is included under turbine workspaces (and excluded from access road and buried electrical lines) to avoid duplication. Similarly, in areas where buried electrical lines are within the access road width of disturbance, the overlapping acreage is included under access roads.
[2] For instance, forested and/or idle areas are typically not suitable for pedestrian surface survey.
[3] These components have not been sited as of this Phase 1A report. Therefore, they are not attributed to specific survey techniques (i.e., shovel testing or pedestrian surface survey) or landscape classifications (see Section 4.2).

4.3 Landscape Classification GIS Model

EDR performed a GIS-based landscape classification analysis for the Archaeological Study Area in accordance with the *SHPO Wind Guidelines*. The landscape classification identified environmental zones within the Archaeological Study Area following the example set forth in the New York State Museum Bulletin entitled *Archeological Investigations in the Upper Susquehanna Valley, New York State* (Funk, 1993).

The landscape classification model was created based on a digital elevation model (DEM) obtained from the USGS National Elevation Dataset, which provides basic elevation information for earth science studies and mapping applications in the United States (USGS, 2017). The resolution of the DEM used for this analysis was 10 by 10 meters. According to these data, the elevation within the Archaeological Study Area site ranges from approximately 555 to 1,185 feet (170 to 360 meters). Based on elevation alone, the area would fall within the valley floor and valley wall environmental zones defined by Funk (1993). However, review of the DEM and USGS topographic mapping of the surrounding landscape indicates that the study area is situated near the top of the St. Lawrence River valley wall as it begins to transition to the Adirondack Mountains, thereby including both valley wall and upland, or interfluve, environmental zones. These environmental zones were further divided into the following 10 landscape classes identified within the Archaeological Study Area:

1. Upland knolls and ridges near streams
2. Upland knolls and ridges near wetlands/hydric soils
3. Upland knolls and ridges without associated water features
4. Upland saddles near streams
5. Upland saddles near wetlands/hydric soils
6. Upland saddles without associated water features
7. Valley Wall near streams
8. Valley Wall near wetlands/hydric soils
9. Valley Wall without associated water features
10. Steep slopes (>12%)

The 10 landscape classes were identified by applying the following methods and definitions to the Archaeological Study Area through the use of ArcGIS software and the associated Spatial Analyst extension:

- *Steep Slopes*. Slope was calculated from the DEM and areas of greater than 12% slope were extracted for this landscape class.
- *Upland, Valley Wall, and Valley Floor*. Based on review of the DEM and USGS topographic mapping, areas of elevation greater than 950 feet were classified within the upland environmental zone, and areas of elevation

lower than 950 feet were classified within valley wall environmental zone. No areas within the Archaeological Study Area were classified within the valley floor environmental zone.

- *Knolls and Ridges*. For the purposes of this analysis, ridges and knolls were defined as areas of elevation more than 2 feet greater than the local average elevation, where 'local' is defined as a 1,000-foot radius neighborhood around each cell of the DEM. Consistent with the methodology set forth by Funk (1993), knolls and ridges were identified only within the upland portion of the Archaeological Study Area.
- *Saddles*. Areas within the upland environmental zone that were not identified ridges/knolls or steep slopes were considered to be saddles.
- *Streams and Wetlands/Hydric Soils*. Areas near streams and wetlands/hydric soils were defined by 328-foot (100 meters, per Funk, 1993) buffers applied to ESRI mapped streams; National Wetland Inventory (NWI) and New York State Department of Environmental Conservation (NYSDEC) mapped wetlands; and soil map units with greater than 66 percent hydric soil components. Hydric soils were included in the analysis as a representation of potential historic/paleo wetlands, which are often significant predictors of pre-contact Native American archaeological sites in landscape sensitivity studies (PAF, 2009). The NRCS Web Soil Survey defines five ratings of hydric soils based on percent of hydric components (NRCS, 2015). Although not explicitly defined, these ratings could reasonably be considered to represent: non-hydric (less than 1 percent hydric components), mostly non-hydric (1 to 32 percent hydric components), partially hydric (33 to 65 percent hydric components), mostly hydric (66 to 99 percent hydric components), and hydric (100 percent hydric components). Therefore, a cut off of 66 percent hydric components was selected for this analysis to include areas of mapped soil types most likely to support wetlands, either currently or historically (i.e. prior to significant development/drainage). Areas where a stream and wetland/hydric soil buffer overlapped were classified as near stream.

The final landscape classification was created by combining the files resulting from the list above into one shapefile representing the spatial extent of each of the 10 landscape classes within the Archaeological Study Area. This file was then evaluated with respect to the proposed Facility layout to determine the acreage of soil disturbance anticipated to occur in each of the landscape classes. Note that the proposed staging areas and O&M building have not been sited yet. Therefore, although their proposed disturbance is taken into account in the calculations of overall survey extent/APE for Direct Effect, they are not included in the landscape model calculations presented below.

4.4 Archaeological Survey Research Design

The resulting landscape classification for the Facility is presented in Table 5 and Figure 8. Table 5 provides the acreage of APE for Direct Effects associated with each Facility component (based on the current preliminary Facility design, as

described in Section 1.4 of this report) within each of the identified landscape classes. Figure 8 depicts the extent of the 10 landscape classes within the APE for Direct Effects in relation to the proposed Facility layout.

Table 5. APE for Direct Effects by Facility Component and Landscape Class

Landscape Classification	APE for Direct Effects by Project Component (Acres)						Total APE for Direct Effects (Acres)
	Wind Turbine	Access Road[1]	Buried and Overhead Collection Line[1]	Collection and POI Substation	Met Towers	O&M Facility and Staging Areas[2]	
Steep Slopes (>12%)	1.5	2.3	3.8	0.9			**8.5**
Upland Ridges and Knolls							
No Associated Water	15.8	14.9	2.6	0	0.1		**33.4**
Near Wetland/Hydric Soil	8.1	3.5	1.7	0			**13.3**
Near Stream	0.2	0.4	0.5	0			**1.1**
Upland Saddles							
No Associated Water	11.9	4.9	2.4	0			**19.2**
Near Wetland/Hydric Soil	1.8	5.6	2.4	0			**9.8**
Near Stream	0.7	2.2	1.4	0			**4.3**
Valley Wall							
No Associated Water	44.1	45.6	29.6	0			**119.3**
Near Wetland/Hydric Soil	29.7	29.5	21.6	0	0.1		**80.9**
Near Stream	4.1	4.6	13.2	5.1			**27**
Landscape Classification TBD						**25.5**	**25.5**
Total	**117.9**	**113.5**	**79.2**	**6.0**	**0.2**	**25.5**	**342.3**

[1]In areas where access roads or collection lines overlap turbine workspaces, the overlapping acreage is included under turbine workspaces (and excluded from access road and buried electrical lines) to avoid duplication. Similarly, in areas where collection lines are within the access road width of disturbance, the overlapping acreage is included under access roads.
[2] These components have not been sited as of this Phase 1A report. Therefore, they are not attributed to specific survey techniques (i.e., shovel testing or pedestrian surface survey) or landscape classifications (see Section 4.2).

As shown in Table 5, approximately 81.1 acres of the APE occurs on uplands, 227.2 acres on valley walls, and 8.5 acres of the APE occur on steep slopes which will not be subject to Phase 1B survey[2]. A relatively small portion of the Project APE occurs near streams (only 32.4 acres of APE within 328 feet of a mapped stream). Areas of APE near wetlands/hydric soils are more common (104.0 acres), but areas with no associated water features dominate (171.9 acres).

As described in Section 3.1, wind energy projects are typically sited on ridges or other uplands away from the river valleys and waterbodies that served as attractive resources for larger Native American settlements. In most instances, pre-contact sites are located in relatively close proximity to of drainages and/or wetlands, both because of the

[2] Note, this does not include the impacts associated with the proposed staging areas and O&M building. The impacts associated with these Facility components (which total 25.5 acres) will be incorporated into the landscape model, using the same logic applied to the other Facility components discussed herein, prior to the initiation of Phase 1B fieldwork.

availability of freshwater and diverse natural resources (e.g., Funk, 1993; PAF, 2009). Therefore, those portions of the APE for Direct Effects generally located proximate to drainages and/or wetlands should be considered as having a relatively higher potential for the presence of pre-contact Native American archaeological resources. In general terms, areas that are not located close to freshwater sources (and associated ecological habitats) are less likely to include pre-contact Native American archaeological sites.

Per the landscape classification model described in Section 4.3 and depicted in Figure 8, areas within the Facility Site classified as "No Associated Water" include those areas located more than 100 meters (or 328 feet) from a mapped stream, wetland, or areas with greater than 66% hydric soils. To allow for a cost-effective and efficient archaeological survey for the Project, EDR proposes that within those portions of the APE for Direct Effects that are identified as "No Associated Water", only 50% of the overall level of effort that would be typically required for the acreage of the APE be sampled (shovel tested) as part of the Phase 1B survey. In other words, approximately 171.9 acres of the APE for Direct Effects are in areas with "No Associated Water". Typically, the total level of shovel testing for these areas would be equivalent to 2,750 shovel tests (at 16 shovel tests/acre). However, because these areas have a relatively lower potential for Native American archaeological sites to be present, EDR proposes excavating 1,375 shovel tests (or 50%of the typical level of effort) in areas with "No Associated Water" (see Table 6).

In addition to the 50% reduction of Phase 1B survey scope in areas with "No Associated Water", EDR proposes to increase the emphasis on pedestrian survey with a corresponding reduction in shovel testing in these areas. Whereas in areas proximate to water features, EDR has assumed that only 10% of the APE for Direct Effects will be suitable for pedestrian survey, we currently propose that in areas with "No Associated Water", 50% of the required Phase 1B survey will be undertaken via pedestrian survey of agricultural fields, with the remaining 50% of survey undertaken via shovel testing (see Table 6). This means that a certain amount of pedestrian surface survey will occur in agricultural fields outside the APE for Direct Effects (but within the Facility site – i.e., in areas that could potentially be included in the APE); however, all shovel testing survey will still occur within the APE for Direct Effects. This proposed methodology should increase the potential to identify pre-contact archaeological materials as well as reducing time spent surveying in relatively unproductive "No Associated Water" areas. It is worth noting that cultivated land within these areas that is suitable for pedestrian survey will be surveyed consistent with the methods described in Section 4.1. In addition, any map-documented structures or areas with other indicators of a potential historic-period archaeological site will be investigated without any reduction in effort.

Without the proposed reduction in sampling in areas with 'No Associated Water', the survey would require the excavation of up to 5,477 shovel tests, which is significantly greater than the level of effort for previous archaeological surveys for wind energy projects in New York. Examples of previous Phase 1B archaeological surveys for wind projects

include: Allegany Wind Power Project – 1,455 shovel tests (JMA, 2010); Arkwright Summit (formerly New Grange) Wind Farm – 4,010 shovel tests (Tetra Tech, 2008b, 2009a, 2009b); Copenhagen Wind Farm – 3,425 shovel tests (EDR, 2014); Hardscrabble (formerly Top Notch) Wind Farm – 4,097 shovel tests (Panamerican Consultants, Inc. [PCI], 2006); Howard Wind Farm – 880 shovel tests (JMA, 2006a); Jericho Rise Wind – 3,455 shovel tests (EDR, 2015; Tetra Tech, 2008a); Jordanville Wind Farm – 1,562 shovel tests (JMA 2006b); Marble River Wind Farm – 4,913 shovel tests (JMA, 2007a, 2007b); and the Roaring Brook Wind Farm – 3,068 shovel tests (JMA, 2009a; 2009b). The total level of effort proposed for the archaeological survey for the North Ridge Wind Project is expected to generate an adequate testing sample to evaluate the Facility's potential effect on archaeological resources, particularly given the relatively low density of pre-contact archaeological sites encountered by previous archaeological surveys in the vicinity (see Table 6).

Table 6. Summary of Archaeological Survey Method by Landscape Class.

Landscape Classification	Number of Shovel Tests (Idle Areas)	Surface Survey Acreage (Cultivated Areas)
Steep Slopes (>12%)	n/a	n/a
Upland Ridges and Knolls		
No Associated Water	134[1]	8.4
Near Wetland/Hydric Soil	192	1.3
Near Stream	16	0.1
Upland Saddles		
No Associated Water	78[1]	4.9
Near Wetland/Hydric Soil	141	1.0
Near Stream	62	0.4
Valley Wall		
No Associated Water	477[1]	29.9
Near Wetland/Hydric Soil	1,165	8.1
Near Stream	389	2.7
Landscape Classification TBD[2]		
Total	**2,654**	**56.8**

[1] The proposed number of shovel tests in areas with "No Associated Water" (i.e., those areas located more than 100 meters or 328 feet from a mapped stream, wetland, or areas with greater than 66% hydric soils) was reduced by 50% to reflect that Native American archaeological sites are not typically located in these areas. Additionally, 50% of the required survey in these areas will be undertaken via pedestrian surface survey and 50% will be undertaken via shovel testing.

[2] As previously noted, these include the proposed staging areas, and O&M building.

Table 6 provides the research design for the Phase 1B Archaeological Survey, based on the currently preliminary Facility layout. The research design reflects the distribution of various landscape classes according to existing land cover/land use (e.g., agricultural fields, wooded areas) and associated archaeological survey methods (pedestrian surface survey and shovel testing), as appropriate. In addition, the research design assumes that 50% reduction in survey effort for those portions of the APE for Direct Effects located in areas with "No Associated Water" as well as the shift to 50% pedestrian surface survey and 50% shovel testing for these areas.

As noted in Section 1.4 of this report, the final Facility layout is still being determined. For the purpose of proposing a Phase 1B methodology and approximate level of effort for an archaeological survey, this Phase 1B work plan is based on a preliminary Facility APE for Direct Effects (based on the preliminary layout) of 342.3 acres. As the Facility design is further refined, the APE for Direct Effects for the Facility is anticipated to change. Changes in the layout of the Facility are likely to result in changes in the size of the APE and corresponding level of effort. However, the final level of effort for the Phase 1B archaeological survey will be determined based on the Facility layout at the time the survey is conducted in accordance with the landscape model and assumptions regarding proposed level of effort described herein, which will be documented in the subsequent Phase 1B archaeological survey report.

The locations of areas selected for intensive archaeological sampling within the APE for Direct Effects will be made on a judgmental basis in the field under the direction of a Registered Professional Archaeologist. Selection of areas for shovel testing, in accordance with the research design presented in Table 6, will prioritize areas of high sensitivity for historic or pre-contact archaeological sites within or adjacent to proposed Facility components. In general, high pre-contact archaeological sensitivity will be assigned to areas with little to no slope, moderate- to well-drained soils, and close proximity to water sources (including wetlands). High historic archaeological sensitivity will be assigned to areas of the APE in close proximity to historical MDS locations. Additionally, shovel testing at or near MDS locations will emphasize archaeological site boundary definition for the purposes of site avoidance. This may involve testing adjacent to identified archaeological features such as foundations; or testing within the APE for Direct Effects in the vicinity of MDS locations with or without identified archaeological features.

4.5 Phase 1B Archaeological Survey Report and Delivery of Electronic Data

Results of the Phase 1B archaeological survey will be summarized in an illustrated report prepared in accordance with the *New York State Historic Preservation Office (SHPO) Phase 1 Archaeological Report Format Requirements* issued in April 2005 (NYSOPRHP, 2005). Descriptive information for any archaeological sites identified during the Phase 1B survey will be uploaded to NYSOPRHP's online CRIS database at the same time as the survey report. In accordance with the *SHPO Wind Guidelines* (NYSOPRHP, 2006), EDR will also provide accurate location information for any sites identified during the Phase 1B survey. EDR anticipates these data will be provided when uploading site descriptions into the CRIS database.

5.0 SUMMARY AND CONCLUSIONS

5.1 Potential Effect on Archaeological Resources

Relative to the potential for archaeological sites to be located in the Facility Site, the results of the Phase 1A archaeological resources survey for the proposed North Ridge Wind Farm can be summarized as follows:

- There are no previously recorded historic-period or Pre-Contact Native American archaeological sites located within the Archaeological Study Area for the North Ridge Wind Farm. There is one historic-period archaeological site and one Native American site within 1 mile (1.6 kilometer) of the Archaeological Study Area. Neither will be impacted by the proposed Facility.
- In general terms, areas that are not located close to freshwater sources (and associated ecological habitats) are less likely to include pre-contact Native American archaeological sites. Therefore, those portions of the Facility site generally located proximate to (i.e., within 100 meters [328 feet]) drainages and/or wetlands should be considered as having a relatively higher potential for the presence of pre-contact Native American archaeological resources.
- As previously, noted, no previously recorded historic archaeological sites occur within the Archaeological Study Area. Historic maps (see Figures 5-7) identify the locations of farmsteads and other potential historic-period archaeological sites within the Facility site; archaeological resources associated with these sites could include foundations, structural remains, artifact scatters, and/or other features. The sensitivity for historic period archaeological remains is considered to be high within close proximity (i.e., within approximately 200 feet [61 meters]) to these MDS and low for the rest of the Facility Site.

Proposed construction of the Facility will include ground disturbing activities that have the potential to impact archaeological resources. The APE for Direct Effects includes all areas within the limits of disturbance for proposed construction activities. These areas include proposed turbine pad and assembly areas, access roads, buried and overhead collection lines, overhead transmission lines, laydown and staging areas, operations and maintenance facilities, and substations. Any archaeological sites located within the Facility Site, or within the broader Archaeological Study Area, that are not within the limits of disturbance for proposed Facility components will not be affected by the Facility.

5.2 Summary of Archaeological Survey Work Plan

On behalf of North Ridge Wind, LLC EDR has prepared a Phase 1A Archaeological Resources Survey and Phase 1B Archaeological Survey Work Plan for the proposed North Ridge Wind Farm, located in the Towns of Hopkinton and Parishville, St. Lawrence County, New York. Per the *SHPO Wind Guidelines*, a project's APE for Direct Effects is

defined as those areas where soil disturbance is proposed to occur during construction (NYSOPRHP, 2006). Based on the current (preliminary) Facility design, the Facility's APE for Direct Effects is 342.3 acres in size. Please note that the Facility layout will be reviewed prior to conducting the Phase 1B survey. The Facility APE and survey effort will be adjusted in accordance with Facility layout modifications consistent with the assumptions and methodology for determining the APE as presented herein.

Based on the current Facility design, it is anticipated that the Phase 1B archaeological survey for the Facility will include:

- The excavation of approximately 2,654 shovel tests and the pedestrian surface survey of approximately 56.8 acres within agricultural fields.
- Preparation of a Phase 1B archaeological survey report, to be submitted to NYSOPRHP via the CRIS website. The report will be prepared in accordance with NYSOPRHP's *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005).
- Submission of site information for any identified archaeological sites via the CRIS website.

EDR has provided this work plan to NYSOPRHP in advance of conducting the Phase 1B archaeological survey to confirm the landscape classification model, proposed sampling strategy, and anticipated field methodology and to ensure that the proposed scope of the survey is consistent with NYSOPRHP's expectations. Please provide a formal response indicating NYSOPRHP's concurrence with and/or comments on the work plan described herein.

6.0 REFERENCES

Abel, Timothy J. 2001. *The Clayton Cluster: Cultural Dynamics of a Late Prehistoric Village Sequence in the Upper St. Lawrence Valley.* PhD Dissertation, Department of Anthropology, State University of New York at Albany.

Abel, Timothy J. 2002. Recent Research on the St. Lawrence Iroquoians of Northern New York. *Archaeology of Eastern North America* Vol. 30:137-154.

Abel, Timothy J. and David N. Fuerst. 1999. Prehistory of the St. Lawrence River Headwaters Region. *Archaeology of Eastern North America* Vol. 27:1-53.

Beers, S.N. and D.G. Beers. 1865. *New Topographical Atlas of St. Lawrence County, New York.* Stone & Stewart, Philadelphia, PA. Available at http://www.davidrumsey.com/.

Burr, David. 1829. *Map of the County of St. Lawrence.* From *An Atlas of the State of New York.* Published by the Surveyor General of New York State. Available at http://www.davidrumsey.com/.

Curtis, Gates. 1894. *Our County and Its People: A Memorial Record of St. Lawrence County, New York.* D. Mason & Company, Syracuse, NY.

Dicken, Connie L, Suzanne W. Nicholson, John D. Horton, Scott A. Kinney, Gregory Gunther, Michael P. Foose, Julia A.L. Mueller. 2005. *Integrated Geologic Map Databases for the United States: Delaware, Maryland, New York, Pennsylvania, and Virginia*. United States Geological Survey Open-File Report No. 2005-1325. United States Geological Survey, Reston, VA. Available online at: https://pubs.usgs.gov/of/2005/1325/

Ecology and Environment, Inc. (E&E). 2006a. *Phase 1 Archaeological Survey of the Proposed Noble Windpark Project, Town of Clinton, Clinton County, New York*. Report prepared for Noble Environmental Power, LLC by Ecology and Environment, Inc., Lancaster, NY.

E&E. 2006b. *Draft Addendum Report for Additional Phase 1 Archaeological Survey of the proposed Noble Windpark Project, Town of Clinton, Clinton County, New York*. Report prepared for Noble Environmental Power, LLC by Ecology and Environmental, Inc., Lancaster, NY.

Engelbrecht, William. 1995. The Case of the Disappearing Iroquoians: Early Contact Period Superpower Politics. *Northeast Anthropology* Vol. 50:35-59.

Engelbrecht, William, Earle Sidler, III and M. Walko. 1990. The Jefferson County Iroquoians. *Man in the Northeast* 39:65.

Environmental Systems Research Institute and Natural Resources Conservation Service (ESRI and NRCS). 2016. SSURGO Downloader: St. Regis Subbasin Soils. Available online at: http://landscapeteam.maps.arcgis.com/apps/SimpleViewer/index.html?appid=4dbfecc52f1442eeb368c435251591ec

Environmental Design and Research Landscape Architecture, Engineering, and Environmental Services, D.P.C. (EDR). 2014. *Phase 1B Archaeological Survey: Copenhagen Wind Farm, Town of Denmark, Lewis County and Towns of Champion and Rutland, Jefferson County, New York*. Report prepared for Copenhagen Wind Farm by Environmental Design and Research Landscape Architecture, Engineering, and Environmental Services, D.P.C., Syracuse, NY.

EDR. 2015. *Supplemental Phase 1B Archaeological Survey: Jericho Rise Wind Farm, Towns of Chateaugay and Bellmont, Franklin County, New York*. Report prepared for Jericho Rise Wind Farm, LLC by Environmental Design and Research Landscape Architecture, Engineering, and Environmental Services, D.P.C., Syracuse, NY.

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

Hough, Franklin B. *A History of St. Lawrence and Franklin Counties, New York, From the Earliest Period to the Present Time.* Little & Co., Albany, NY.

Hudson Valley Cultural Resource Consultants, Ltd. (HVCRC). 2016. *Phase 1 Cultural Resource Survey St. Lawrence County 911 Public Radio System Upgrade Proposed White Hill Tower, Town of Hopkinton, St. Lawrence County, New York*. Report prepared for the Chazen Companies by Hudson Valley Cultural Resource Consultants, Ltd., Poughkeepsie, NY.

John Milner Associates, Inc. (JMA). 2003. *Phase 1 Cultural Resources Survey: Flat Rock Wind Power Project, Towns of Harrisburg, Martinsburg, and Lowville, Lewis County, New York*. Report prepared for Flat Rock Wind Power LLC, by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2005. *Stage 1B Archaeological Resources Survey Addendum Report: Flat Rock Wind Power Project, Towns of Harrisburg, Martinsburg, and Lowville, Lewis County, New York*. Report prepared for Flat Rock Wind Power, LLC by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2006a. *Howard Wind Farm: Phase 1B Archaeological Survey, Town of Howard, Steuben County, New York.* Report prepared for Everpower Renewables by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2006b. *Jordanville Wind Farm: Phase 1B Archaeological Survey, Towns of Warren and Stark, Herkimer County, New York.* Report prepared for Community Energy, Inc. by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2007a. *Marble River Wind Farm Phase 1B Archaeological Survey, Towns of Clinton and Ellenburg, Clinton County, New York*. Report prepared for ESS Group, Inc. and Marble River, LLC by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2007b. *Marble River Wind Farm Addendum Phase 1B Archaeological Survey and Phase 1B-2 Archaeological Investigations: Clinton Mills Historic Site (OPRHP 01907.000088), Towns of Clinton and Ellenburg, Clinton County, New York*. Report prepared for ESS Group, Inc. and Marble River, LLC by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2009a. *Roaring Brook Wind Farm: Phase 1B Archaeological Survey, Town of Martinsburg, Lewis County, New York*. Report prepared for Iberdrola Renewables by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2009b. *Roaring Brook Wind Farm: Supplemental Phase 1B Archaeological Survey, Town of Martinsburg, Lewis County, New York*. Report prepared for Iberdrola Renewables by John Milner Associates, Inc., Croton-on-Hudson, NY.

JMA. 2010. *Allegany Wind Power Project: Phase 1B Archaeological Survey, Town of Allegany, Cattaraugus County, New York.* Report prepared for Nobel Allegany Wind Park by John Milner Associates, Inc., Croton-on-Hudson, NY.

Krattinger, William. 2013. *Hopkinton Green Historic District.* National Register of Historic Places Registration Form. On file, New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. Available at https://cris.parks.ny.gov/.

Mooers, Richard E. 2005a. St. Lawrence County. In *The Encyclopedia of New York State*, edited by P. Eisenstadt, p. 1484-1487. Syracuse University Press, Syracuse, NY.

Mooers, Richard E. 2005b. Hopkinton. In *The Encyclopedia of New York State*, edited by P. Eisenstadt, p. 731-732. Syracuse University Press, Syracuse, NY.

Mooers, Richard E. 2005c. Parishville. In *The Encyclopedia of New York State*, edited by P. Eisenstadt, p. 1180. Syracuse University Press, Syracuse, NY.

Natural Resources Conservation Service (NRCS). 2015. Web Soil Survey. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

New York Archaeological Council (NYAC). 1994. *Standards for Cultural Resources Investigations and the Curation of Archaeological Collections in New York* State. New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY.

New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP). 2005. *New York State Historic Preservation Office (SHPO) Phase 1 Archaeological Report Format Requirements*. New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY.

NYSOPRHP. 2006. *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work*. New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY.

Panamerican Consultants, Inc. (PCI). 2001. *Phase 1 Cultural Resources Investigations for the Natural Resource Conservation Service Wetlands Restoration Project, St. Lawrence County, New York*. Report prepared for the U.S. Department of Agriculture, Natural Resources Conservation Service by Panamerican Consultants, Inc., Buffalo, NY.

PCI. 2007a. *Phase 1AB Cultural Resources Investigation for the Proposed Noble Windpark in Chateaugay and Bellmont, Towns of Chateaugay and Bellmont, Franklin County, New York*. Report prepared for Noble Chateaugay Windpark, LLC by Panamerican Consultants, Inc., Buffalo, NY.

PCI. 2007b. *Addendum 1 to the Phase 1B Cultural Resources Investigation for the Proposed Wetland Mitigation as Part of the Chateaugay, Clinton, and Ellenberg Wind Power Projects, Franklin and Clinton Counties, New York*. Report prepared for Noble Chateaugay Windpark, LLC, Noble Clinton Windpark, LLC, and Noble Ellenburg Windpark, LLC by Panamerican Consultants, Inc., Buffalo, NY.

Panamerican Consultants, Inc. (PCI). 2006. *Phase 1B Cultural Resources Investigation for the Proposed Top Notch Wind Power Project, Towns of Fairfield and Norway, Herkimer County, NY*. Report prepared for Atlantic Wind, LLC by Panamerican Consultants, Inc., Buffalo, NY.

Pendergast, James F. 1985. Huron-St. Lawrence Iroquois Relations in the Terminal Pleistocene Period. *Ontario Archaeology* Vol. 44:23-39.

Pendergast, James F. 1993. More on How and Why the St. Lawrence Iroquois Disappeared. In *Essays in St. Lawrence Iroquoian Archaeology: Selected Papers in Honour of J.V. Wright*, edited by James F. Pendergast and Claude Chapdelaine, pp. 9-47. Occasional Papers in Northeastern Archaeology No. 8. Copetown Press, Dundas, Ontario.

PAF. 2009. *Cultural Resource Management Report, Cornell University Gas Transmission Line Project 07PR06440 Cascadilla Creek Prehistoric Archaeological District Alternative Mitigation, Town of Ithaca, Tompkins County, New York*. Binghamton University, State University of New York, Binghamton, NY.

Robinson, Francis W., IV. Between the Mountains and the Sea: An Exploration of the Champlain Sea and Paleoindian Land Use in the Champlain Basin. In *Late Pleistocene Archaeology and Ecology in the Far Northeast*, pp. 191-217. Texas A&M University Press, College Station.

Rogerson, Andrew E. 1858. *Map of St. Lawrence County, New York*. J.B. Shields Publisher, Philadelphia, PA.

Sanford, Carlton E. 1903. *Early History of the Town of Hopkinton*. The Bartlett Press, Boston, MA.

Soil Conservation Service (SCS). 2005. *Soil Survey of St. Lawrence County, New York*. Produced in cooperation with the Cornell University Agricultural Experiment Station by the United States Department of Agriculture, Soil Conservation Service, Washington, D.C.

Tetra Tech EC, Inc. 2008a. *Phase 1B Archaeological Investigation: Jericho Rise Wind Farm, Towns of Bellmont and Chateaugay, Franklin County, NY*. Tetra Tech EC, Inc., Morris Plains, NJ.

Tetra Tech, In. 2008b. *Phase I Cultural Resources Investigation Report: New Grange Wind Farm Project: Town of Arkwright, Chautauqua County, New York*. Report prepared for New Grange Wind Farm, LLC by Tetra Tech, Buffalo, NY.

Tetra Tech, Inc. 2009. *Supplemental Phase I Archaeological Investigation Report: Arkwright Summit Wind Farm Project: Town of Arkwright, Chautauqua County, New York*. Report prepared for Arkwright Summit Wind, LLC by Tetra Tech, Buffalo, NY.

Tetra Tech, Inc. 2009b. *Addendum Phase 1 Archaeological Investigation Report: Arkwright Summit Wind Farm Project, Town of Arkwright, Chautauqua County, New York*. Report prepared for Arkwright Summit Wind, LLC by Tetra Tech, Buffalo, NY.

United States Census Bureau (USCB). 2017a. American FactFinder: St. Lawrence County, New York. United States Census Bureau website. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

USCB. 2017b. American FactFinder: Hopkinton town, St. Lawrence County, New York. United States Census Bureau website. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

USCB. 2017c. American FactFinder: Parishville town, St. Lawrence County, New York. United States Census Bureau website. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Geological Survey (USGS). 1908. *Potsdam, New York* Topographic Quadrangle. 15-minute Topographic Quadrangle Map. United States Geological Survey, Washington, D.C.

USGS. 1921. *Nicholville, New York* Topographic Quadrangle. 15-minute Topographic Quadrangle Map. United States Geological Survey, Washington, D.C.

USGS. 1964. *Nicholville, New York* Topographic Quadrangle. 7.5-minute Topographic Quadrangle Map. United States Geological Survey, Washington, D.C.

USGS. 1964. *Parishville, New York* Topographic Quadrangle. 7.5-minute Topographic Quadrangle Map. United States Geological Survey, Washington, D.C.

USGS. 1964. *Sylvan Falls, New York* Topographic Quadrangle. 7.5-minute Topographic Quadrangle Map. United States Geological Survey, Washington, D.C.

USGS. 2017. *National Elevation Dataset*. Available at: http://ned.usgs.gov/.