Phase 1A Cultural Resources Survey

Copenhagen Wind Farm

Town of Denmark - Lewis County, New York
and Towns of Rutland, Champion, and Watertown - Jefferson County, New York

Prepared for:

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edr COMPANIES

January 2013

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MANAGEMENT SUMMARY

SHPO Project Review Number:	_
Involved State and Federal Agencies:	Town of Denmark Planning Board (SEQRA) NYSDEC SPDES General Permit
Phase of Survey:	Phase 1A
Location Information:	Town of Denmark, Lewis County (Wind Project) and Towns of Champion, Rutland, and Watertown, Jefferson County, New York (Transmission Line)
Survey Area:	
Project Description:	62 wind turbines and associated infrastructure 9-mile-long 115kV transmission line
Project Area:	approximately 9,705 acres
USGS 7.5-Minute Quadrangle Map:	*Rutland Center, Copenhagen, Carthage, New Boston, West Lowville*
Archeological Survey Overview:	
Number/interval of shovel tests:	n/a (Phase 1A only)
Number/size of excavation units:	n/a (Phase 1A only)
Pedestrian surface survey:	n/a (Phase 1A only)
Surface survey transect interval:	n/a (Phase 1A only)
Report Authors:	Patrick J. Heaton, RPA Eric Lockard Grant Johnson
Date of Report:	January 2013

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Copenhagen Wind Farm, LLC, **edr** Companies (**edr**) prepared a Phase 1A Cultural Resources Survey for the proposed Copenhagen Wind Farm, located in the Town of Denmark, in Lewis County, New York. The purpose of the Phase 1A survey is to determine whether previously identified cultural resources (historic and archeological sites) are located in the areas that may be affected by the proposed project, and to evaluate the potential for previously unidentified cultural resources to be located in the project's area of potential effect (APE). The information included in this Phase 1A cultural resources survey report is intended to assist the Town of Denmark Planning Board in their review of the proposed project under the State Environmental Quality Review Act (SEQRA). Background research for the Phase 1A survey was conducted under the supervision of a Registered Professional Archeologist (RPA) in a manner consistent with the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work* (the *SHPO Wind Guidelines*) issued by the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) in 2006. The Phase 1A report was prepared in accordance with NYSOPRHP's *Phase 1 Archeological Report Format Requirements* (NYSOPRHP, 2005).

1.2 Project Location and Description

Copenhagen Wind Farm, LLC is proposing to develop a wind-powered electric generating facility (the Project) in the Town of Denmark, Lewis County, New York (see Figure 1). The Project also includes a proposed 9-mile, 115-kilovolt (kV) Transmission Line that will be located in the Towns of Champion, Rutland, and Watertown, in Jefferson County, New York. The proposed wind-generating facility Project site is located on a several ridges and hilltops in the Town of Denmark. The Project site consists of open fields, mature forests, areas of successional shrubland and wetlands, with elevations in the range of 835 to 1,500 feet above mean sea level (amsl) (Figure 2). Land use within the Project site is dominated by active and reverting agricultural land. With the exception of the Village of Copenhagen, the area surrounding the Project is primarily undeveloped, with farms and rural residences interspersed along area roadways. In addition to the Village of Copenhagen (population of approximately 800), more concentrated development also occurs in the nearby City of Watertown and Villages of Carthage, West Carthage and Castorland.

The Project is anticipated to include up to 62 wind turbines with a rated capacity of 1.6 megawatts (MW), for a total generating capacity up to 100 MW. As presently envisioned the Project will use the GE 1.6 - 100 wind turbine (or equivalent). Each wind turbine will include a three-bladed upwind rotor, with a diameter of 100 meters (328 feet), mounted on a 96-meter (315-foot) tubular steel tower (total height 150 meters (492 feet). The Project will also involve construction of approximately 17 miles of gravel access roads, approximately 24 miles of buried or overhead 34.5 kV electrical collector lines, a collection substation, and three permanent 100-meter (328 feet) tall

meteorological towers, located in the Town of Denmark, Lewis County. To service the facility, an operations and maintenance building (O&M facility) will house operations personnel, equipment and materials, and provide staff parking. To deliver power to the New York State power grid, the Project sponsor proposes to construct a collection substation located north of Route 12 in the Town of Denmark. This station will connect to the power grid via a newly constructed 115kV electrical interconnection line connecting to the National Grid East Watertown substation via a new Point of Interconnection (POI) station located in the Town of Watertown. The interconnection route will be comprised of approximately nine miles of overhead line on wooden or steel pole structures, and located within a right-of-way (ROW) located in the Towns of Rutland, Champion and Watertown, Jefferson County. See Figure 3 for the proposed Project layout.

Approximately 2.9 acres of temporary disturbance is anticipated at each proposed wind turbine site, which will include vegetation clearing (if necessary) and soil disturbance of a 200-foot radius around each turbine site for turbine construction and rotor assembly. The minimum permanent width of access roads will be 20 feet, although during construction a 100 foot-wide road corridor cleared of vegetation will be required for crane movement. The collection lines will be installed within a trench three to four feet-deep, and will require a construction corridor with a maximum width of 25 feet. The total area of disturbance associated with the substation and switchyard and laydown areas for the Project is expected to be 14.5 acres in total. All proposed Project facilities will be located within the Town of Denmark in Lewis County and Towns of Champion, Rutland, and Watertown in Jefferson County.

2.0 BACKGROUND RESEARCH

2.1 Geology and Soils

The Project site and proposed Transmission Line are located on the Tug Hill Plateau physiographic province. The plateau generally consists of sandstones and shales of the Ordovician Period (SCS, 1960). The Tug Hill Plateau is approximately 1,000 square miles in area, with elevations ranging between approximately 1,800-2,000 feet amsl (Einhorn, 1969). The Black River, the nearest major water feature, is located 3 miles northeast of the Project site.

2.1.1 Project Site

edr reviewed the *Soil Survey of Lewis County, New York* (SCS, 1960) for data concerning soils within the Project site as well as electronic data for Lewis County from the Natural Resources Conservation Service (NRCS, 2012). The majority of Project-related soil disturbance will occur within the Nellis-Amenia General Soil Map Unit, which is characterized as "dominantly deep, well drained and moderately well drained soils on high-lime glacial till" (USDA, 1993). The dominant soil series/complexes within the Project site (Figure 4) include Nellis loam (NaE, NbB, NbC, NbD, NcB, NcC, NdD, NeB, NeC, NfC, and NfD), Kendaia Silt Loam (KbA, KbB, KcA, and KcB), and Poland silt loam (PhB, PhC, and PhD). Cumulatively, these soils cover over 60% of the Project site. Table 1 summarizes typical characteristics for the dominant soils (i.e., those soils that cover more than 500 acres) located within the Project site.

Table 1. Dominant Soils within the Project Site

Map Unit Name	Acres w/in Project Site	Soil Horizon & Depth	Description	Slope Drainage & Landform
Nellis loam (NaE/NbB/ NbC/NbD/NcB/ NcC/NdD/NeB/ NeC/NfC/NfD)	NaE: 23 NbB: 1,077 NbC: 86 NbD: 33 NcB: 570 NcC: 27 NdD: 38 NeB: 574 NeC: 194 NfC: 10 NfD: 286	0-18cm (0-7in) 18-30cm (7-12in) 30-51cm (12-20in) 51-66cm (20-26in) 66cm (26in)	Very dark grayish-brown loam Brown to yellowish-brown lom Brown to dark grayish-brown light loam Brown to dark grayish-brown fine sandy loam or loam Grayish-brown fine sandy loam	(NaE): 25-35% slopes (NbB):0-8% slopes, shallow (NbC):8-15% slopes, shallow (NbD):15-25% slopes, shallow (NcB):2-8% slopes, moderately deep (NcC):8-15% slopes, moderately deep (NdD):15-25% slopes, moderately deep and deep (NeB):2-8% slopes, deep (NeC):8-15% slopes, deep (NfC):3-15% slopes, ledgy (NfD):15-35% slopes, ledgy Well drained; On terrace like areas that overlie nearly level bedded limestone

Map Unit Name	Acres w/in Project Site	Soil Horizon & Depth	Description	Slope Drainage & Landform
Kendaia silt loam (KbA/KbB/ KcA/KcB)	KbA: 191 KbB: 34 KcA: 407 KcB: 7	0-15cm (0-6in) 15-23cm (6-9in) 23-61cm (9-24in) 61cm (24in)	Black to very dark grayish-brown silt loam Light yellowish-brown silt loam Reddish-yellow, strong-brown, and light yellowish-brown loam to silt loam Light yellowish-brown highly calcareous gritty loam till derived mainly from limestone	(KbA): 0-3% slopes (KbB): 3-8% slopes (KcA): 0-3% slopes, shallow (KcB): 3-8% slopes, shallow Poorly drained to somewhat poorly drained; In depressions and swales along drainageways.
Poland silt loam (PhB/, PhC/PhD)	PhB: 402 PhC:162 PhD:13	0-15cm (0-6in) 15-41cm (6-16in) 41-56cm (16-22in) 56-91cm (22-36in) 91-114cm (36-45in) 114cm (45in)	Very dark grayish-brown silt loam Brown silt loam Dark grayish-brown to dark-brown heavy silt loam or silty clay loam Dark grayish-brown to dark-brown silty clay loam or heavy silt loam Olive brown to dark grayish-brown heavy loam or silt loam Olive brown to dark grayish-brown loam or silt loam	(PhB): 3-8% slope (PhC):8-15% slope (PhD):15-25% slope Well drained; Undulating to moderately steep

2.1.2 Transmission Line Corridor

edr reviewed the *Soil Survey of Jefferson County, New York* (SCS, 1989) for data concerning soils within the proposed Transmission Line Corridor as well as electronic data for Jefferson County from the Natural Resources Conservation Service (NRCS, 2012). The transmission line construction will occur within the Madrid-Galway-Nellis and Farmington-Galway-Benson General Soil Map Units, which are characterized as "nearly level to very steep soils, well drained and moderately well drained, medium textured soils;" and "nearly level to very steep soils, shallow to moderately deep, well drained to excessively drained, medium textured soils" respectively (USDA, 1989). These soils formed in glacial till and are found on elongated hills interspersed with nearly level to sloping plains (Madrid-Galway-Nellis) and nearly level to strongly sloping areas interspersed with moderately steep to very steep ridges where bedrock is at a shallow depth (USDA, 1989). The dominant soil series/complexes within the proposed Transmission Line Corridor (Figure 4) include Galway silt loam (GlA and GlB), Madrid sandy loam (MdA, MdB, MdC, and MdD) and Bombay loam (BoA and BoB). Cumulatively, these soils cover over 45% of the Transmission Line Corridor. Table 2 summarizes typical characteristics for the dominant soils (i.e., those soils that cover more than 225 acres) located within the proposed Transmission Line Corridor.

Table 2. Dominant Soils within the Transmission Line Corridor

Map Unit Name	Acres w/in Project Site	Soil Horizon & Depth	Description	Slope Drainage & Landform
Galway silt loam (GlA/GlB)	GlA: 178 GlB: 467	0-23cm (0-9in) 23-36cm (9-14in) 36-58cm (14-23in) 58-66cm (23-26in) 66cm (26in)	Very dark grayish brown silt loam Dark yellowish brown gravelly silt loam Dark grayish brown and brown gravelly loam Brown and grayish brown very gravelly loam Gray limestone	(GlA): 0-3% slopes, (GlB): 3-8% slopes Well drained to moderately well drained.
Madrid sandy loam (MdA/MdB/ MdC/MdD)	MdA: 3 MdB:101 MdC: 199 MdD: 56	0-20cm (0-8in) 20-53cm (8-21in) 53-71cm (21-28in) 71-81cm (28-32in) 81-97cm (32-38in) 97-152cm (38-60in)	Very dark grayish brown sandy loam Brown sandy loam Yellowish brown sandy loam Dark brown fine sandy loam Dark brown fine sandy loam Brown gravelly fine sandy loam	(MdA):0-3% slopes (MdB): 3-8% slopes (MdC): 8-15% slopes (MdD): 15-25% slopes Well drained; On drumlins on upland till plains.
Bombay loam (BoA/BoB)	BoA:26 BoB: 219	0-20cm (0-8in) 20-33cm (8-13in) 33-43cm (13-17in) 43-74cm (17-29in) 74-99cm (29-39in) 99-165cm (39--65in)	Very dark grayish brown loam Dark brown loam Brown loam Dark brown gravelly fine sandy loam Dark brown gravelly fine sandy loam Grayish brown gravelly fine sandy loam	(BoA): 0-3% slope (BoB): 3-8% slope Moderately well drained; On ridges and drumlins.

2.2 Previously Identified Archeological Sites

In accordance with NYSOPRHP's *Phase 1 Archeological Report Format Requirements* (NYSOPRHP, 2005), this Phase 1A report includes a summary of previously identified archeological sites located within one mile of the Project. **edr** retained Croshier Archeological Services to conduct a review of the consolidated archeological site files of the NYSOPRHP and New York State Museum (NYSM) to identify archeological sites located in the vicinity of the Project. Five previously identified archeological sites are located within the Project site, and 26 additional sites are located within one mile of the Project site (see Table 2; Figure 5).

Table 3. Archeological Sites Located in the Vicinity of the Project Site

Site Identifier	Site Name	Time Period	Description	Distance from Project Site
045.18.0016	J. Sidmore Farmstead	Historic	Map-documented site; various material remains found	Within Project Site
045.18.0017	G.W. Spinning Farmstead	Historic	Map-documented site; various material remains found	Within Project Site
NYSM 3465	--	Prehistoric	Traces of occupation	Within Project Site
NYSM 3538	--	Prehistoric	Traces of occupation	Within Project Site
NYSM 3539	--	Prehistoric	Traces of occupation	Within Project Site
045.18.0014	E. Benington Farmstead	Historic	Map-documented site, various remains found	<0.1 mile
045.18.0015	B. Andrus Farmstead	Historic	Map-documented site, various remains found	<0.1 mile
045.18.0005	Searles House Foundation	Historic	Map-documented dwelling; ceramic, glass, and brick found	0.1 mile
045.20.0016	Abel Site	Prehistoric	Buried artifacts found	0.1 mile
NYSM 1492	--	Prehistoric	Evidence of a camp	0.1 mile

Site Identifier	Site Name	Time Period	Description	Distance from Project Site
049.02.0042	U.A. Twitchel	Historic	Map-documented site; various material remains found	0.2 mile
NYSM 10417	Twitchel, U.A.	Historic	Domestic	0.3 mile
NYSM 3455	--	Prehistoric	Village	0.3 mile
NYSM 3464	--	Prehistoric	Earthwork and Artifacts	0.3 mile
049.43.0081	School House Site	Historic	Map-documented site; various material remains found	0.4 mile
049.02.0041	W. Henry Barn	Historic	Map-documented site; various material remains found, foundation evident	0.4 mile
NYSM 10416	Henry, W. Barn	Historic	Barn	0.4 mile
NYSM 10420	Davenport, J.R.	Historic	Domestic	0.5 mile
NYSM 10418	Carriage Shop	Historic	Shop	0.5 mile
049.02.0043	Carriage Shop	Historic	Map-documented site; various material remains found	0.5 mile
049.02.0044	Southwest Bridge Quadrant	Historic	Map-documented site; various material remains found, foundation evident	0.5 mile
049.02.0045	J.R. Davenport	Historic	Map-documented site; various material remains found, foundation evident	0.5 mile
NYSM 3448	--	Prehistoric	Burial Site	0.6 mile
NYSM 1491	--	Prehistoric	Camp	0.7 mile
NYSM 3472	--	Prehistoric	Earthwork	0.8 mile
NYSM 3471	--	Prehistoric	Village	0.9 mile
NYSM 9345	--	Prehistoric	Earthwork	0.9 mile
045.20.0021	A.A. Prentice Site	Historic	Map-documented site; various material remains found	0.9 mile
NYSM 3458	--	Prehistoric	Village	1 mile
NYSM 1490	--	Prehistoric	Camp	1 mile
NYSM 3468	--	Prehistoric	Village	1 mile

There are no previously reported archeological sites located within the proposed wind generating facility Project site. NYSM Sites 3465, 3538, and 3539 are located within the portion of the proposed Transmission Line Corridor located north of New York State Route 12 and south of Middle Road (County Route 160) in Jefferson County. These sites are described as "traces of occupation" reported in the *Archaeological History of New York State* (Parker, 1922), which implies a general area from which Native American artifacts have been recovered or reported. This site description usually indicates the presence of small camp sites and/or lithic scatters. The other sites within the Transmission Line Corridor (NYSOPRHP Sites 045.18.0016 and 045.18.0017; see Table 3) were identified during archeology survey conducted in association with the planning and construction of County Route 162 reconstruction (Abel, 2004). These are historic-period archeological sites that represent remains associated with farmstead sites depicted on historic maps of the area. In addition, there are 14 historic-period and 12 prehistoric sites located within one mile of the Project. These sites are generally located within one-mile of the westernmost portion of the Transmission Line, in Jefferson County. The historic-period sites are for the most part farms or other structures depicted on historic maps.

2.3 Previously Identified Historic-Architectural Resources

edr reviewed the State Preservation Historical Information Network Exchange (SPHINX) database maintained by NYSOPRHP to identify significant historic buildings and/or districts located within five miles of the Project. Historically significant properties include buildings, districts, objects, structures and/or sites listed, or that NYSOPRHP has formally determined are eligible for listing, on the State and/or National Register of Historic Places (NRHP). Criteria set forth by the National Park Service for evaluating historic properties (36 CFR 60.4) state that a historic building, district, object, structure or site is significant (i.e., eligible for listing on the NRHP) if the property conveys:

> "The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history" (CFR, 2004a; NPS, 1990)

Per the *SHPO Wind Guidelines*, the APE for visual impacts on historic properties for wind projects is defined as those areas within five miles of a project which are within the potential viewshed (based on topography) of the project (NYSOPRHP, 2006). This report provides a conservative presentation and includes all historic resources located within five miles of the Project (i.e., not only the resources within the Project's viewshed), and identifies which resources have potential views of the proposed project. Historic properties located within the study area for the Project include one property (the Hiram Hubbard House) listed on the National Register of Historic Places (NRHP), four historic districts (that include a total of 36 contributing properties) and 12 individual properties that have formally been determined to be by the NYSOPRHP to be NRHP-Eligible (Table 4; Figure 6).

Table 4. Historic Resources Located in the Vicinity of the Project

Site Identifier	Property Name, Address, and/or Description	Turbine Visibility		Determination	Distance from Nearest Turbine (Miles)
		Considering Topography Only[1]	Considering Vegetation and Topography[2]		
049.02.0036	Structure D	Visible	Visible	NRHP-Eligible	0.8
049.43.0080	Copenhagen Village Historic District South	Visible	Visible	NRHP-Eligible	0.8
049.43.0051	Structure U	Visible	Visible	NRHP-Eligible	0.9
049.43.0052	Structure V	Visible	Visible	NRHP-Eligible	0.9
049.43.0053	Structure W	Visible	Visible	NRHP-Eligible	0.9
049.43.0054	Monument Park	Visible	Visible	NRHP-Eligible	0.9
049.43.0055	Structure X	Visible	Visible	NRHP-Eligible	0.9
049.43.0056	Structure T3	Visible	Visible	NRHP-Eligible	0.9
049.43.0058	Structure Y2	Visible	Visible	NRHP-Eligible	0.9
049.43.0059	Structure Z2	Visible	Visible	NRHP-Eligible	0.9
049.43.0060	Structure A3	Visible	Visible	NRHP-Eligible	0.9
049.43.0061	Structure B3	Visible	Visible	NRHP-Eligible	0.9
049.43.0062	Structure C3	Visible	Visible	NRHP-Eligible	0.9
049.43.0063	Structure E3	Visible	Visible	NRHP-Eligible	0.9
049.43.0065	Structure F3	Visible	Visible	NRHP-Eligible	0.9
049.43.0066	Structure G3	Visible	Visible	NRHP-Eligible	0.9
049.43.0067	Structure H3	Visible	Visible	NRHP-Eligible	0.9
049.43.0068	Structure I3	Visible	Visible	NRHP-Eligible	0.9
049.43.0069	Structure J3	Visible	Visible	NRHP-Eligible	0.9
049.43.0070	Structure K3	Visible	Visible	NRHP-Eligible	0.9
049.43.0071	Structure L3	Visible	Visible	NRHP-Eligible	0.9
049.43.0072	Structure M3	Visible	Visible	NRHP-Eligible	0.9
049.43.0074	United Church of Copenhagen	Visible	Visible	NRHP-Eligible	0.9
049.43.0075	Structure K2	Visible	Visible	NRHP-Eligible	0.9
049.43.0076	Structure L2	Visible	Visible	NRHP-Eligible	0.9
049.43.0079	Copenhagen Village Historic District North	Visible	Visible	NRHP-Eligible	0.9
049.43.0042	Structure L	Visible	Visible	NRHP-Eligible	1.0
049.43.0043	Structure M	Visible	Visible	NRHP-Eligible	1.0

[1]Potential visibility of the Project based on topography only; the potential screening effects of structures and vegetation are not taken into account. The topography-only viewshed analysis therefore overstates the potential visibility of the Project.

[2] Potential visibility of the Project taking into account the potential screening effect of forest vegetation (with an assumed height of 40 feet), which reduces the amount of area from which the Project will be potentially visible.

Site Identifier	Property Name, Address, and/or Description	Turbine Visibility		Determination	Distance from Nearest Turbine (Miles)
		Considering Topography Only[1]	Considering Vegetation and Topography[2]		
049.43.0044	110 High Street	Visible	Visible	NRHP-Eligible	1.0
049.43.0045	Structure O	Visible	Visible	NRHP-Eligible	1.0
049.43.0046	Structure P	Visible	Visible	NRHP-Eligible	1.0
049.43.0047	116 High Street	Visible	Visible	NRHP-Eligible	1.0
049.43.0048	Structure R	Visible	Visible	NRHP-Eligible	1.0
049.43.0049	Structure S	Visible	Visible	NRHP-Eligible	1.0
049.43.0050	122 High Street	Visible	Visible	NRHP-Eligible	1.0
049.43.0057	Structure X2	Visible	Visible	NRHP-Eligible	1.0
049.05.0040	2952 Alexander Road	Visible	Visible	NRHP-Eligible	1.2
049.05.0038	Gallup Cemetery	Visible	Visible	NRHP-Eligible	1.4
--	Number Three Road Historic District	Visible	Visible	NRHP-Eligible	1.7
049.05.0040	Harrisburg Historic District	Visible	Visible	NRHP-Eligible	1.7
049.05.0034	Fairview Cemetery	Visible	Visible	NRHP-Eligible	1.9
049.05.0033	House in Harrisburg Historic District	Visible	Visible	NRHP-Eligible	2.0
049.05.0035	House in Harrisburg Historic District	Visible	Visible	NRHP-Eligible	2.1
049.05.0036	Battle Cemetery	Visible	Not Visible	NRHP-Eligible	2.2
045.18.0035	30497 NY 12	Visible	Visible	NRHP-Eligible	2.4
08NR05893	Hiram Hubbard House	Visible	Not Visible	NRHP-Listed	2.6
045.06.0050	Louis J. Waite Farm	Not Visible	Not Visible	NRHP-Eligible	2.7
049.09.0023	8049 Number 3 Road	Visible	Visible	NRHP-Eligible	3.4
049.41.0004	Railroad Depot	Visible	Not Visible	NRHP-Eligible	3.4
049.09.0030	8205 NYS Route 12	Visible	Visible	NRHP-Eligible	3.5
049.09.0024	7477 Rice Road	Visible	Visible	NRHP-Eligible	3.7
049.13.0081	BIN 3339920 Steel Truss Bridge CR33	Visible	Visible	NRHP-Eligible	4.5
045.20.0038	24992 NY 12	N/A	N/A	NRHP-Eligible	8.0[3]

Historic resources listed on the NRHP located within five miles of the Project include:

- The Hiram Hubbard House, located approximately 2.5 miles north of the proposed Project, is a residential dwelling constructed in 1820 just east of the intersection of NYS Route 26 and County Route 47 (see Appendix A: Photograph 1). The house is associated with Noadiah Hubbard who was one of the early settlers of the Town of Champion (Thornton and Zando, 2012).

[3] Although 24992 NY Route 12 is located more than five miles from a proposed turbine, the property is located within one mile of the Project's proposed transmission line, so it is included within the study area for the purpose of this report.

Historic resources within five miles of the Project that NYSOPRHP has formally determined are eligible for listing on the NRHP (Table 3; Figure 6) include residences, cemeteries, farms, bridges, parks, and various other structures. In addition, there are numerous nineteenth-century structures, primarily residences and farmsteads, which have not been previously evaluated by NYSOPRHP to determine if they are NRHP-eligible. These types of resources are typically determined NRHP-eligible under NRHP Criterion C (i.e., they "embody the distinctive characteristics of a type, period, or method of construction" [CFR, 2004a]), and often derive their significance from being representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials. Within the Tug Hill Plateau, many nineteenth-century farmhouses were originally Folk, Georgian or Federal-inspired vernacular houses with modest details. The architectural integrity of historic resources throughout the five-mile radius study area is highly variable, with many showing noticeable alteration.

An architectural survey for Phase 1 of the Maple Ridge (formerly Flat Rock) Wind Power Project in the Towns of Martinsburg, Harrisburg and Lowville was conducted in October 2002, and another for Phase 2 on August 2003. As a result of these surveys, 89 properties of interest were identified by NYSOPRHP. Of these 89 properties, NYSOPRHP determined 19 were individually NRHP-eligible, 49 were NRHP-eligible as contributing to 5 potential historic districts, 8 were not eligible, and 13 were not formally evaluated for National Register eligibility (JMA, 2004b; **edr**, 2004). Of the 48 previously identified historic sites in the study area, all but five (and all four of the proposed historic districts) were documented and evaluated during the historic resources survey for the Maple Ridge project (Figure 6).

In addition, a Stage 1B Cultural Resource Survey was conducted for the Natural Gas Pipeline No. 56, from Holcomb Road in the City of Watertown to the Village of Carthage (Pratt and Pratt, 1990). The survey area was located north and west of the Project area, along a proposed right-of-way for a gas pipeline. No historic structures are located along the right-of-way. Cultural resources were found in thirteen locations, but none were deemed culturally significant, or eligible for the National Register of Historic Places.

2.4 History of the Project Site and Study Area

The Project site is located primarily in the Town of Denmark in Lewis County, and the Project also includes a proposed Transmission Line Corridor that extends through portions of the Towns of Champion, Rutland, and Watertown in Jefferson County. The five-mile-radius study area for the Project also includes parts of the Towns of Croghan, Harrisburg, Pinckney and Lowville in Lewis County, and Wilna in Jefferson County. Archives and repositories consulted during **edr**'s research for the Project included the Lewis County Historical Society, the Northern New York Library Network and other on-line history resources, and **edr**'s in-house collection of reference

materials. Maps reviewed for the Project included the 1864 Beers *Atlas of Jefferson County* (Figure 7), the 1875 Beers *Atlas of Lewis County* (Figure 8), the 1888 Robinson *Atlas of Jefferson County* (Figure 9), the 1904 USGS *Carthage, NY* topographic survey (Figure 10), and 1909 USGS *Watertown, NY* topographic survey (Figure 11). Sources reviewed for the Project included *A History of Jefferson County, New York* (Hough, 1854), two separate volumes of *A History of Lewis County, New York* (Hough, 1860; Hough, 1883), *Geographical Gazetteer of Jefferson County, NY 1684-1890* (Child, 1890), and *History of Lewis County New York 1880-1965* (Bowen, 1970).

In the Late Woodland and Early Contact periods, central New York State was Iroquois Confederacy territory. The oral history of the Iroquois maintains that intense hostility and warfare among regional Native American groups characterized the time period immediately preceding European contact. This era of conflict resulted in the establishment of the Iroquois Confederacy, which was an organized association of Iroquois tribes created for the purpose of conflict resolution and strategic alliance. The original groups included in the Confederacy were the Cayuga, Mohawk, Oneida, Onondaga, and Seneca nations, who collectively identified themselves as the People of the Longhouse (Klein, 2001; Tooker, 1978).

The mythology and oral history of the Iroquois maintained that Tug Hill was the place where the Iroquois first emerged into the world (Sylvester, 1877). Archeological surveys during the early-twentieth-century documented several Late Woodland occupations in Jefferson and Lewis Counties, suggesting that the region was extensively occupied in the late prehistoric period (Harrington, 1920). Archeologists William M. Beauchamp and Arthur C. Parker identified two Native American village sites in Lewis County. One was located on the Black River, across from the Deer River railroad station, and the other was two miles downstream from Deer River at the location of a mill yard (Beauchamp, 1900; Parker, 1922). Both sites were located in northern Lewis County in the hamlet of Deer River, northeast of the Project site.

After the middle of the sixteenth century, northern New York State was largely unoccupied by Native Americans. Early maps of the region labeled it “the Land of the Iroquois,” “Dismal Wilderness,” and the “Deer Hunting Grounds of the Five Nations.” A 1756 map characterized the area as “impassible and uninhabitable” due to the mountains, swamps and drowned lands (Hough, 1883). At the time of European contact and colonization in the seventeenth and eighteenth centuries, Lewis and Jefferson Counties (including the Project site) were located within the territory and traditional hunting grounds of the Oneida Nation of the Iroquois Confederacy. Oneida Iroquois lands included the area around Oneida Lake and along Oneida Creek, with hunting territory extending north to the Saint Lawrence River and south to the Susquehanna River. Despite fighting alongside the Americans in the Revolutionary War, Oneida lands were ceded as a result of the Second Treaty of Fort Stanwix in 1784 (Klein, 2001).

Following the American Revolution, land speculation dominated western, central and northern New York. In 1789, the state sold a massive tract of land comprising 3,670,715 acres in Northern New York to Alexander Macomb, Daniel McCormick and William Constable. This land grant came to be known as Macomb's Purchase and included almost all of the lands in present-day Franklin, Saint Lawrence, Jefferson, and Lewis Counties (Hough, 1883; Klein et al, 1985). Lands within the Project area were included in subsequent sales from Macomb's Purchase. In 1796 William Constable sold most of the land south and west of the Black River to a group of New York City speculators as the Black River Tract. The present Towns of Denmark, Champion and Harrisburg were also part of the Black River Tract, sold to Richard Harrison and Josiah Ogden Hoffman along with other lands. William Henderson purchased the Towns of Pinckney and Rutland, as well as Henderson, and 649 surplus acres (Hough, 1883). Erroneous surveys, numerous sales, and competing land claims characterized many of these early transactions. These complications, combined with the undeveloped frontier character of the region, delayed settlement of northern New York until the early nineteenth century.

Lewis and Jefferson Counties were formed from Oneida County by an act of legislature in March 1805. The Towns in which the Project area is located were founded before and after the formation of the counties. Lewis County was originally comprised of five towns: Leyden, Turin, Martinsburg, Lowville and Harrisburg. Jefferson County was originally comprised of two towns in Oneida County: Mexico and Leyden. In Jefferson County, the Towns of Champion and Watertown were taken from Mexico in 1800, the Town of Rutland was taken from Watertown in 1802, and the Town of Wilna was taken from LeRay and Leyden in 1813 (Hough, 1854). In Lewis County, the Town of Lowville was formed in 1800 from Mexico, the Town of Harrisburg (originally spelled Harrisburgh) was formed in 1803 from Lowville, Champion and Mexico, the Town of Pinckney was formed in 1808 from Harrison (the original name for the Town of Rodman) and Harrisburg, and the Town of Croghan was formed in 1841 from Watson and Diana. The Town of Denmark was founded in 1807 from part of Harrisburg and was initially known as Mantua, a name given by the Surveyor-General on maps published in 1802 and 1804. Its name was changed to Denmark upon its founding (Hough, 1883; Einhorn, 2005a, 2005b, 2005c).

The first recorded knowledge of the Town of Denmark was by Benjamin Wright, who surveyed the area in early 1776, and noted this "excellent township of land" was "beautifully watered with small streams." The triangular form of the Town of Denmark (as well as the Town of Champion) was due to a wish on the part of the landowners of the Black River tract to give each township a proportional river front. The first settlement was made around 1799 at the site of what became the Village of Deer River by Abel French, a land agent from Albany. French employed Joseph Crary that same year to subdivide the township into farms. The next settlement was by Jesse Blodget, who settled at Denmark in 1800. Blodget's wife was the first woman to settle in the town, and his son Harrison was the first male

child born in town (Bowen, 1970; Einhorn, 2005a). After opening a tavern in 1812, Blodget built a large stone hotel in 1824, which still stands in the hamlet of Denmark (see Appendix A: Photograph 2).

The hamlet of Denmark is regarded as the birthplace of Jefferson and Lewis counties, as the meeting of the town delegates who wished to make part of Oneida County into two new counties by petitioning the State Legislature occurred here in November 1804 at the inn of Freedom Wright, an early settler. Due to the presence of Blodget's stone hotel and tavern as well as Wright's inn, Denmark was a popular stop and transfer point on the old plank state road to and from northern New York. Upon the establishment of the Utica-Black River Railroad route through the Town of Denmark in 1871, the hamlets of Denmark, Deer River and other villages in eastern Lewis County were not visited as frequently by travelers, and did not grow significantly after the mid-nineteenth century (Bowen, 1970; Einhorn, 2005a).

The Village of Copenhagen grew out of a settlement called Munger's Mills, named for a father and son who founded a saw-mill along the Deer River near the present-day village in 1801. A store, inn, and other mills soon followed, and in 1807 the settlement was renamed Copenhagen in tribute to the Danish city of the same name. In the 1820s, a rope manufactory was established, which burned in 1843 but was rebuilt and continued operation for several decades. The land around the settlement was surveyed in 1853 as part of the location process for the Rome and Watertown railroad, which led to preliminary measures being taken to obtain a village charter. This initiative was dormant until 1869, when the village was officially incorporated, with a population of 559 (Hough, 1883). The next century saw relatively little change in the size of the village, and by 1960, the population had grown to only 673. Several businesses were important to the development of Copenhagen, including a cheese factory, boot and shoe factory, furniture-making business, and multiple blacksmith shops. A fire destroyed an entire block of the village in 1889, followed by the flooding of the Deer River in 1890, which also destroyed several buildings and ended a number of businesses (Bowen, 1970; Einhorn, 2005b). This helps to account for the abundance of late-nineteenth and early-twentieth century architecture throughout the village.

The predominance of Federal and Greek Revival domestic architecture in the rural portions of the Project area corresponds to the settlement period (1800s to 1860s) in the towns in and around the Black River valley. Numerous Federal-style houses constructed of stone are found near the Project area, specifically in the villages of Champion and Denmark (see Appendix A: Photographs 3-4). This settlement pattern also explains why many vernacular buildings in the Village of Copenhagen, as well as the eastern parts of the study area that were largely settled in the later half of the nineteenth century, have comparatively few Greek Revival features and exhibit more elements of later styles, such as Italianate.

The 1875 Beers atlas shows the settlement patterns in the Project area during the late nineteenth century (Figure 8). The late-nineteenth-century settlement pattern was organized according to a grid-like network of rural roads laid out during the original early-nineteenth-century property surveys. Farmsteads are generally dispersed throughout the Project area, although households tended to be constructed in clusters in the vicinity of crossroads or major thoroughfares. Clusters of nineteenth-century farmsteads within the Project area were located along present-day New York State (NYS) Routes 12, 26 and 126 in the villages and hamlets throughout both counties. The locations of structures from this period are also indicated on the 1904 and 1909 USGS topographic surveys (Figures 10 and 11). As shown in the 1888 Robinson *Atlas of Jefferson County*, the area immediately surrounding the transmission line was largely unsettled in the late nineteenth and into the early twentieth centuries (Figure 9).

The alluvial soils of the Black River valley were fertile and allowed for the cultivation of market crops, leading agriculture to become the dominant economic pursuit in Lewis County in the nineteenth (and twentieth) century. Due to the thin soils of the Tug Hill Plateau being better suited to pasturage, by the 1840s, dairying had become the principal agricultural activity within the county, replacing the earlier dominant crops of small grains. Initially the dairy industry served local markets, but as numerous small cheese factories flourished in the late nineteenth century,, and cheese began to be exported from Lewis County by railroad to farther markets. The number of cheese factories declined in the early twentieth century as transportation and milk-handling technologies improved. These improvements allowed for the consolidation of cheese-making operations, as well as the sale of a greater portion of Lewis County's milk production as fluid milk in larger metropolitan markets (Bowen, 1970; Hough, 1883; PCI, 2001). Cheese remains important to Lewis County dairy farmers, and dairying has remained the primary economic pursuit for farms located within or near the Project area in the nineteenth and twentieth centuries. In the last quarter of the nineteenth century, hops became the second most-important agricultural commodity grown in Lewis County, but ceased to be of much importance after the turn of the twentieth century (Hough, 1883; Bowen, 1970). The current second-most-important agricultural product of Lewis County is maple syrup, in which Lewis County leads New York State in production. Numerous maple sugar stands are found throughout the Project area. Large dairy barns and grain silos are the predominant agricultural building types found within the Project area, and several large farm complexes as well as agricultural outbuildings are found throughout the region (see Appendix A: Photographs 5-6).

In the early twentieth century, Lewis County experienced another wave of immigrants as Polish émigrés began purchasing Lewis County dairy farms, primarily in the poorer soils on the Tug Hill Plateau. As soils in this area became depleted, many of these farmers relocated their operations to the better soils of the Black River valley (Bowen, 1970). By the late twentieth century, agriculture was still a major force in Lewis County economics, though the number of farms had decreased, and their average acreage had increased. Many of the farms on the Tug Hill Plateau or in the hills east of the Black River had been abandoned for the more fertile soil of the Black River valley

(JMA, 2003). The early twenty-first century has also seen an influx of Amish families purchasing farms throughout Lewis and Jefferson Counties.

2.5 Existing Conditions

Site reconnaissance-level field visits to the Project site and vicinity were conducted by **edr** personnel on August 20, 21, 22, and 23, and September 19, 2012. Existing conditions within the Project site are shown on Figure 3 and in photographs included in Appendix A. The Project site is primarily located around the Village of Copenhagen in the Town of Denmark, on the north and south sides of State Route 12. The Project site is characterized by a patchwork of forested woodlots, open agricultural fields (primarily hay), pasture, reverting former agricultural lands in various stages of secondary succession, and scattered residences and farms (Appendix A: Photographs 7-10).

Portions of Deer River, as well as Stebbins Creek, Stony Creek, and several smaller tributaries occur within the Project site. Deer River flows from the Black River at the eastern boundary of the Town of Denmark, through the village of Copenhagen, with several unnamed tributaries to the Deer and Black Rivers located in the Project site. The Deer River is known regionally for the presence of two waterfalls, which are written about extensively in county histories, and provided waterpower for early mills and industries. High Falls is located just north of the village, and King's Falls is located two miles downstream. Several cemeteries dating to the early-to-mid-nineteenth century are located throughout the study area, with five noted in the Town of Denmark, and several others visited and noted on field maps (see Appendix A: Photographs 11-14). Of particular note are the white bronze (or zinc) monuments found in many of these cemeteries (see Appendix A: Photographs 15-16).

The area within five miles of the Project site is for the most part rural and lightly populated, and the majority of homeowners appear to be long-time residents. Older homes and farms are typically spaced at regular intervals along roadways and include houses in a variety of vernacular traditions (Federal, Greek Revival, Italianate) and traditional agricultural buildings, intermixed with modern houses and farm facilities. Numerous abandoned houses and farms, as well as houses of more recent construction, are also found throughout the area (see Appendix A: Photographs 17-22). Larger settlements within five miles of the Project site include:

- The Village of Copenhagen is located in the center of the Project site. Turbines are located in clusters north, east and west of the village. The structures in the village are for the most part nineteenth-century in origin, although most include twentieth-century alterations or additions such as siding or replacement windows (see Appendix A: Photographs 23-25). Portions of the village along NYS Route 12 have been determined to be NRHP-eligible, per earlier historic resource surveys for the Maple Ridge (formerly Flat Rock) Wind Project

- The Village of West Carthage is located 4.5 miles northeast of the Project site along NYS Route 126, features several nineteenth-century area structures, and is located across the Black River from the Village of Carthage (outside of the study area), which contains several NRHP-listed properties (see Appendix A: Photograph 27).
- The Village of Champion, located approximately 2.5 miles north of the Project site along NYS Route 126, features a number of early nineteenth-century stone structures, including the Hiram Hubbard House, which is listed on the NRHP (see Appendix A: Photographs 1, 3).
- Other principal settlements and hamlets located with five miles of the Project include Burrville and Champion in Jefferson County, and Castorland, Denmark, and Deer River in Lewis County.

3.0 ARCHEOLOGICAL SENSITIVITY ASSESSMENT

3.1 Prehistoric Native-American Archeological Sensitivity Assessment

There are relatively few previously reported Native American archeological sites located on the Tug Hill Plateau (Einhorn, 1969). However, to some extent this may reflect that relatively little previous archeological research has been undertaken on Tug Hill (Klein et al., 1985; JMA, 2004a, 2007). Large Phase 1 archeological surveys were recently undertaken as part of environmental compliance review for the Maple Ridge (formerly Flat Rock) Wind Farm (constructed 2005-2006) and the proposed Roaring Brook Wind Farm (JMA, 2004a, 2009), both of which are located south of the Project site on Tug Hill. No Native American artifacts or archeological sites were identified as a result of either of these previous surveys. Native American archeological sites that have been identified on Tug Hill typically consist of only one or a few artifacts resulting in small and ephemeral archeological sites, which appear to represent short term hunting or foraging (Einhorn, 1969). In general, the wind generating facility Project site can be considered to have relatively low potential for Native American archeological sites to be present. Soils within the Project site are stony, relatively shallow soils formed in glacial till. There is no possibility for deeply buried archeological sites to be located within the Project site.

As described in Section 2.2, NYSM Sites 3465, 3538, and 3539 are located within or adjacent to the proposed Transmission Line Corridor. These sites are described as "traces of occupation" reported in the *Archaeological History of New York State* (Parker, 1922), which implies a general area from which Native American artifacts have been recovered or reported, and are located at or around the locations where the proposed Transmission Line Corridor crosses the headwaters of Boynton, Jacob, and Sandy Creeks. Based on the locations of these sites, those portions of the proposed Transmission Line Corridor located in the vicinity (i.e., within approximately 200 feet) of stream crossings and/or associated wetlands should be considered as having a moderate to high potential for Native American archeological sites to be present. Other portions of the proposed Transmission Line Corridor (i.e., those located away from streams and wetlands) should be considered as having a low to moderate potential for Native American archeological sites to be present.

3.2 Historic Period Archeological Sensitivity Assessment

Historic-period archeological sites located in the vicinity of the Project site could include settlements, farms, or early industrial sites (e.g., mills) dating from the nineteenth and early-twentieth centuries. The locations of nineteenth-century structures within and near the Project site and Transmission Line Corridor are shown on the 1864 Beers *Atlas of Jefferson County*, the 1875 Beers *Atlas of Lewis County*, the 1888 Robinson *Atlas of Jefferson County*, the 1904 USGS *Carthage, NY* topographic survey, and 1909 USGS *Watertown, NY* topographic survey (Figures 7-11). Map-documented structures (MDS) within the Project site are generally located adjacent to existing roadways.

In some instances MDS represent existing buildings and/or farms. In other instances, the MDS are abandoned structures that now may be represented only by archeological remains. Potential archeological resources associated with these MDS could include abandoned farmstead sites, wherein the complete residential and agricultural complex consisting of foundations, structural remains, artifact scatters, and other features, would constitute an archeological site. In other locations more limited remains of these complexes, perhaps represented by only a foundation or an artifact scatter, may be extant. Areas located in the immediate vicinity (within approximately 200 feet) of MDS locations should be considered as having a high potential for the presence of historic-period archeological resources. The remaining portions of the Project site exhibit minimal (if any) likelihood for significant historic period archeological sites to be present.

3.3 Prior Ground Disturbance

Previous ground disturbance within the Project site is for the most part limited to previous or ongoing timber and/or agricultural activities. These types of activities, particularly farming, are not considered significant in terms of their potential to affect the integrity of archeological resources (NYAC, 1994; NYSOPRHP, 2005). The area around existing meteorological, cellular and radio towers is previously disturbed associated with tree clearing and site-preparation work associated with the installation of a meteorological tower, similar to those currently found near the Project site (see Appendix A: Photograph 28). Additionally, some areas immediately adjacent to existing roads within the Project site include drainage ditches, culverts, and areas of cut and/or fill. With the exception of these areas, the Project site in general does not appear to have been subjected to significant previous disturbance.

4.0 SUMMARY AND CONCLUSIONS

4.1 Potential Effect on Archeological Resources

Relative to the potential for archeological sites to be located in the Project site, the results of the Phase 1A cultural resources survey for the proposed Copenhagen Wind Farm can be summarized as follows:

- There are no previously reported archeological sites located within the wind generating facility Project site, and more generally there are relatively few previously reported Native American archeological sites located on the Tug Hill Plateau (Einhorn, 1969; Parker, 1920). Native American archeological sites that have been identified on Tug Hill typically consist of only one or a few artifacts resulting in small and ephemeral archeological sites, which appear to represent short term hunting or foraging. In general, the wind generating facility Project site can be considered to have relatively low potential for Native American archeological sites to be present.
- There are three Native American archeological sites, described as "traces of occupation," located within or adjacent to the proposed Transmission Line Corridor. These sites are located at or around the locations where the proposed Transmission Line Corridor crosses the headwaters of Boynton, Jacob, and Sandy Creeks. Based on the locations of these sites, those portions of the proposed Transmission Line Corridor located in the vicinity (i.e., within approximately 200 feet) of stream crossings and/or associated wetlands should be considered as having a moderate to high potential for Native American archeological sites to be present. Other portions of the proposed Transmission Line Corridor (i.e., those located away from streams and wetlands) should be considered as having a low to moderate potential for Native American archeological sites to be present.
- Historic maps (see Figures 7-10) identify the locations of farmsteads and other potential historic-period archeological sites within the Project site; archeological resources associated with these sites could include foundations, structural remains, artifact scatters, and/or other features.

Proposed construction of the Project will include ground disturbing activities that have the potential to impact archaeological resources. The APE for archeological resources includes all areas within the limits of disturbance for proposed construction activities. These areas include proposed turbine pad and assembly areas, access roads, buried collection lines, laydown and staging areas, operations and maintenance facilities, and other all other areas where construction activities are proposed. Any archeological sites located within the Project site but that are not within the limits of disturbance for proposed Project facilities will not be affected by the Project.

4.2 Potential Effect on Historic-Architectural Resources

Relative to historic-architectural resources, the results of the Phase 1A cultural resources survey for the proposed Copenhagen Wind Farm can be summarized as follows:

- The five-mile-radius visual study area for the Project includes one property (the Hiram Hubbard House) listed on the National Register of Historic Places (NRHP), four historic districts (that include a total of 36 contributing properties) and 12 individual properties that have formally been determined to be by the NYSOPRHP to be NRHP-Eligible.
- There are additional buildings greater than 50 years old within the five miles of the Project site that have not been previously evaluated. It is likely that some of these satisfy NRHP eligibility criteria.

Construction of the Project will not require the demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic-architectural resources will occur as a result of the Project.

The Federal Regulations entitled "Protection of Historic Resources" (36 CFR 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources. The following types of effects apply to wind energy projects include:

> "Adverse effects on historic properties include, but are not limited to: [items i-iii do not apply]; (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; [items vi-vii do not apply]" (CFR, 2004b).

The Project's potential effect on a given historic property would be a change (resulting from the introduction of wind turbines) in the property's visual setting. As it pertains to historic properties, *setting* is defined as "the physical environment of a historic property" and is one of seven aspects of a property's *integrity*, which refers to the "ability of a property to convey its significance" (NPS, 1990:44-45). The other aspects of integrity include location, design, materials, workmanship, feeling, and association (NPS, 1990). The potential effect resulting from the introduction of wind turbines into the visual setting for any historic or architecturally significant property is dependent on a number of factors including distance, visual dominance, orientation of views, viewer context and activity, and the types and density of modern features in the existing view (such as buildings/residences, overhead electrical transmission lines, cellular towers, billboards, highways, and silos).

It is worth noting that visibility of a project does not necessarily indicate that an adverse effect will occur. The New York State Department of Environmental Conservation (NYSDEC) guidance concerning visual impacts on aesthetic resources of statewide significance (which include NRHP-listed and NRHP-eligible structures) defines significant aesthetic impacts as those "that may cause a diminishment of the public enjoyment and appreciation of an inventoried resources, or one that impairs the character or quality of such a place… Mere visibility, even startling visibility of a project proposal, should not be a threshold for decision making. Instead a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation of the appearance of an inventoried resource" (NYSDEC, 2000:5). In addition, visual setting may not be an important factor contributing to a given property's historical significance. For instance, in most cases rural residential and farmstead properties in New York are determined NRHP-eligible under NRHP Criterion C (i.e., they "embody the distinctive characteristics of a type, period, or method of construction" [CFR, 2004a]). These properties are typically determined NRHP-eligible because they are representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials. These properties would retain the characteristics that caused them to be recommended eligible after the introduction of wind turbines and/or a transmission line into their visual settings. For these types of resources, the potential change in the setting resulting from the Project will not necessarily result in diminished public enjoyment and appreciation of a given historic property, or impair its character or quality (per NYSDEC, 2000, see above).

4.3 Conclusions and Recommendations

In the opinion of **edr**, the following additional measures or studies should be conducted to determine the Project's potential effect on cultural resources:

1. **A historic-architectural resources survey should be conducted prior to the construction of the Project.** The *SHPO Wind Guidelines* (NYSOPRHP, 2006) request that cultural resources surveys for wind projects include a historic-architectural resources survey to assess all buildings greater than 50 years old within a five-mile-radius study area (as defined by topographic viewshed analysis) to evaluate potential NRHP-eligibility of previously undocumented resources. It is likely that additional NRHP-eligible properties (i.e., that have not been previously identified or formally evaluated) are located within five miles of the Project. The identification and enumeration of these properties will allow for a more thorough evaluation of the Project's potential effect on the visual setting associated with historic resources located within five miles of the Project. It is worth noting that a significant portion of the five-mile-radius study area for the Project was recently (2003-2004) surveyed for historic resources for the Maple Ridge Wind Farm project (JMA, 2004b; see Figure 6). In the opinion of **edr**, no additional historic-architectural resources survey is necessary within this recently surveyed area.

2. **A Phase 1B archeological survey should be conducted prior to construction of the Project.** Based on the recorded presence of Native American archeological sites along portions of the proposed Transmission Line Corridor as well as map-documented structures identifying nineteenth-century farmsteads within the Project site, the Project site has a moderate potential to include archeological sites. The *SHPO Wind Guidelines* (NYSOPRHP 2006) request that archeological surveys for wind projects be conducted in accordance with a specialized methodology, which includes:

    a. Conducting a landscape classification analysis for the Project site following the criteria presented in the *Archeological Investigations in the Upper Susquehanna Valley, New York State* (Funk, 1993a);
    b. Preparing an archeological sampling protocol that provides for intensive sampling of environmental zones identified in the landscape classification analysis;
    c. Providing the archeological sampling protocol (in the form of a work plan) to NYSOPRHP staff for comment prior to conducting fieldwork; and,
    d. Conducting a Phase 1B archeological field survey in accordance with the approved work plan.

3. **Identified archeological sites within the Project site should be avoided during Project construction.** The mapped locations of identified archeological sites should be included on Project construction maps surrounded by a 100-foot (minimum) buffer, identified as "Environmentally Sensitive Areas" or similar, and marked in the field by construction fencing with signs that restrict access. Because the Project site includes large tracts of mostly open agricultural or forest land, and because of the dynamic and flexible nature of wind energy project components (in terms of siting requirements), it should be possible to avoid any archeological sites identified within the APE for the Project through relatively minor modifications to the Project layout.

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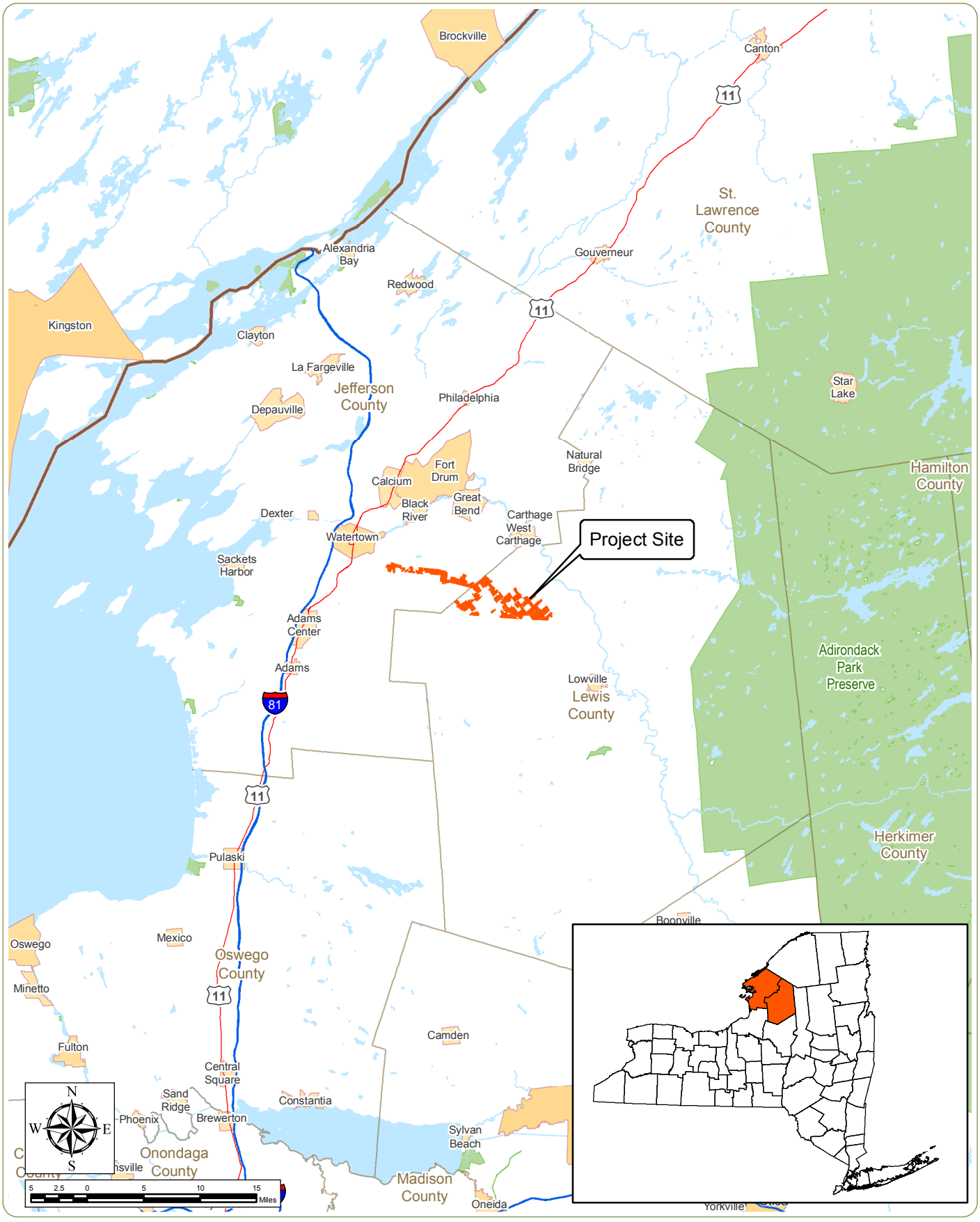
Figures



Copenhagen Wind Farm

Town of Denmark - Lewis County, NY and
Towns of Rutland, Champion, and Watertown - Jefferson County, NY

Figure 1: Regional Project Location

January 2013

Notes: Basemap: ESRI Streetmap North America, 2008.

Project Site

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Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 2: Site Topography

January 2013

Project Boundary

Notes:
Basemap: ArcGIS Online USGS Topographic Basemap.

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Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 3: Project Layout
Sheet 1 of 2: Project Site

January 2013

- Wind Turbine
- Transmission Line
- Collection Line
- Access Road
- Project Site
- Collection Station
- O&M Facility and Laydown Yard
- Substation

Notes:
Basemap: NYS Orthimagery 2009, 2ft resolution.

0 950 1,900 3,800 5,700 7,600 Feet

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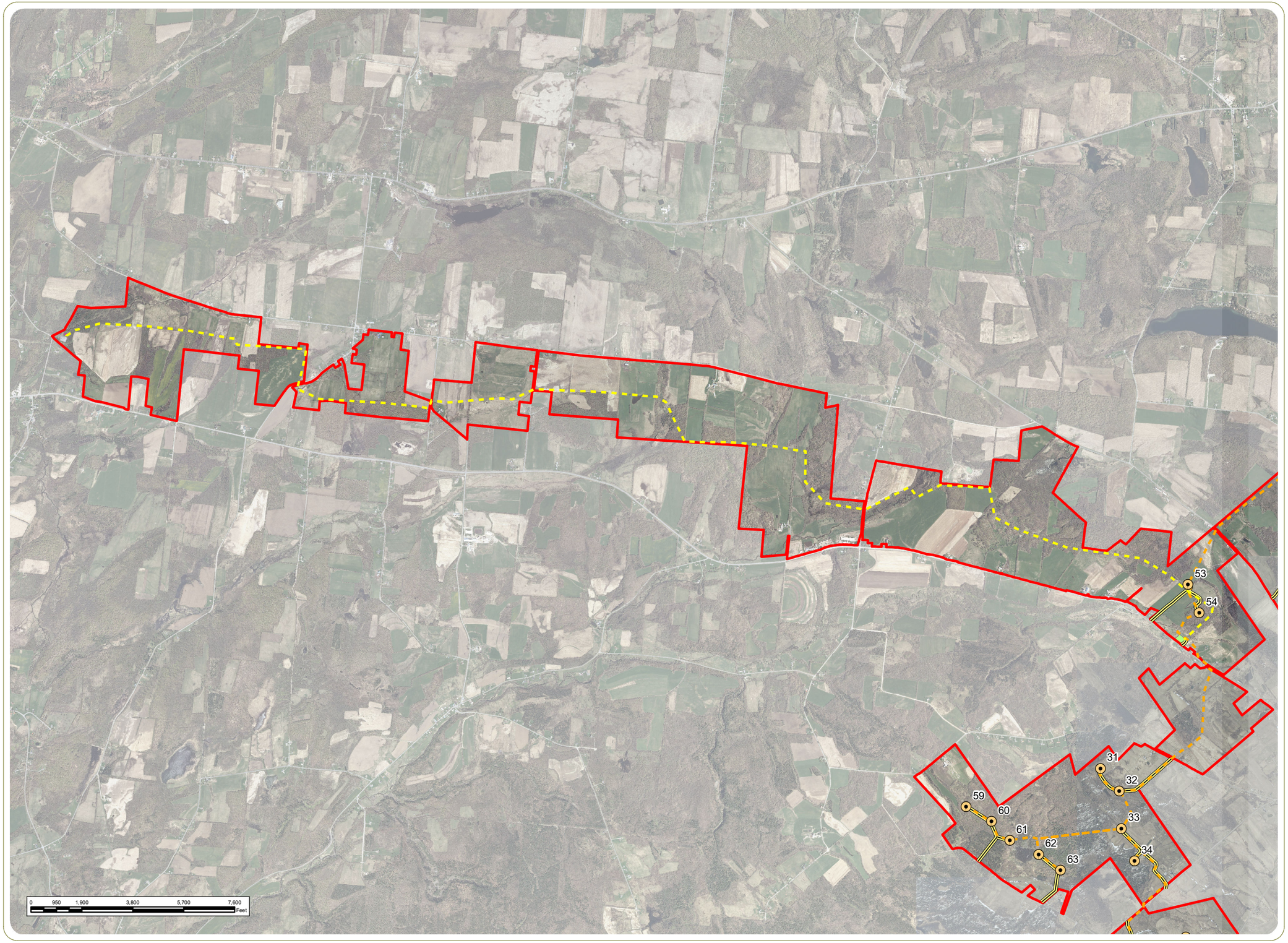
Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 3: Project Layout
Sheet 2 of 2: Transmission Line

January 2013



- Wind Turbine
- Transmission Line
- Collection Line
- Access Road
- Project Site
- Collection Station
- O&M Facility and Laydown Yard
- Substation

Notes:
Basemap: NYS Orthimagery 2009, 2ft resolution.

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Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 4: Soils
Sheet 1 of 2: Project Site

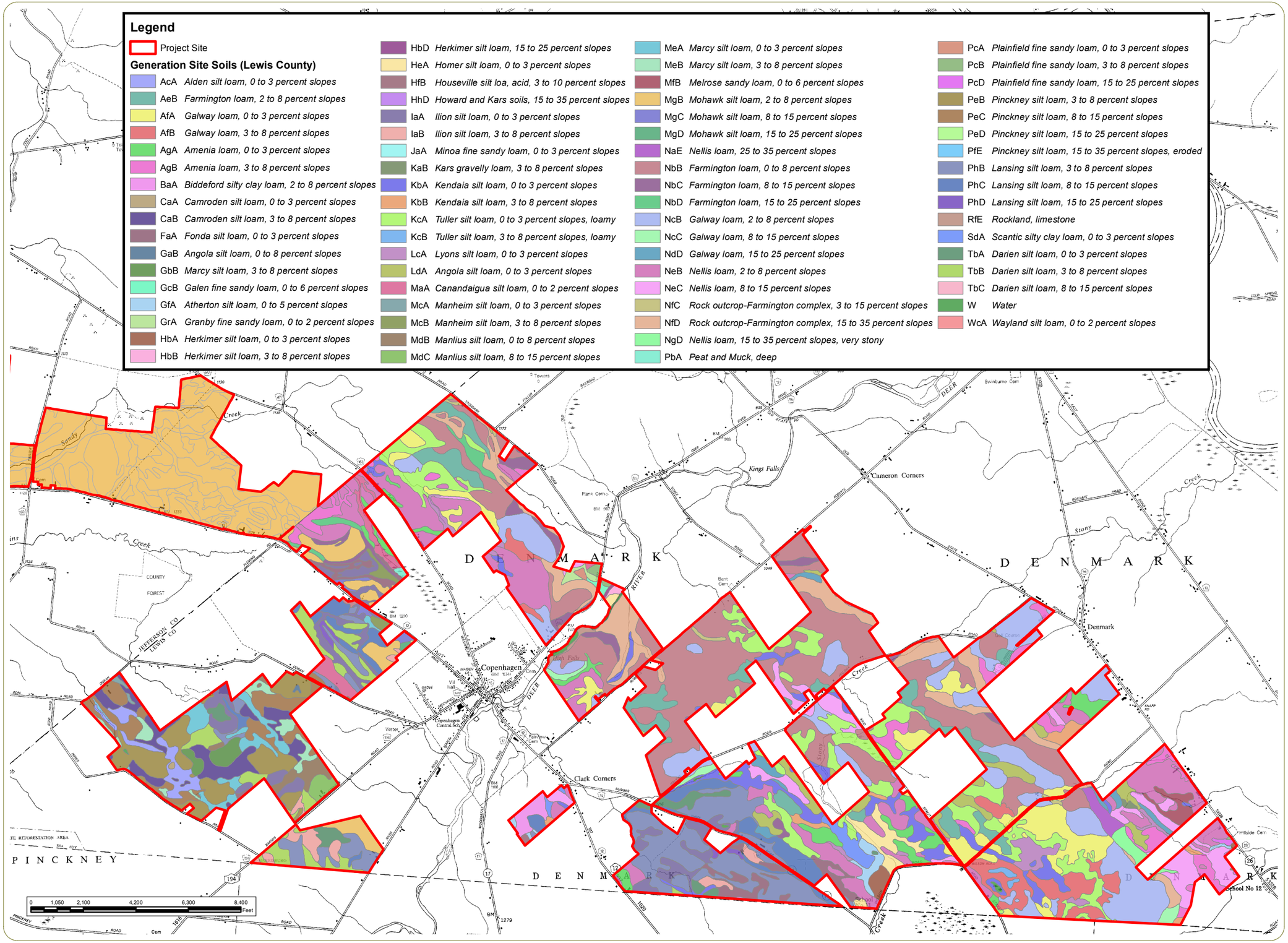
January 2013

Legend

Project Site

Generation Site Soils (Lewis County)

- AcA *Alden silt loam, 0 to 3 percent slopes*
- AeB *Farmington loam, 2 to 8 percent slopes*
- AfA *Galway loam, 0 to 3 percent slopes*
- AfB *Galway loam, 3 to 8 percent slopes*
- AgA *Amenia loam, 0 to 3 percent slopes*
- AgB *Amenia loam, 3 to 8 percent slopes*
- BaA *Biddeford silty clay loam, 2 to 8 percent slopes*
- CaA *Camroden silt loam, 0 to 3 percent slopes*
- CaB *Camroden silt loam, 3 to 8 percent slopes*
- FaA *Fonda silt loam, 0 to 3 percent slopes*
- GaB *Angola silt loam, 0 to 8 percent slopes*
- GbB *Marcy silt loam, 3 to 8 percent slopes*
- GcB *Galen fine sandy loam, 0 to 6 percent slopes*
- GfA *Atherton silt loam, 0 to 5 percent slopes*
- GrA *Granby fine sandy loam, 0 to 2 percent slopes*
- HbA *Herkimer silt loam, 0 to 3 percent slopes*
- HbB *Herkimer silt loam, 3 to 8 percent slopes*
- HbD *Herkimer silt loam, 15 to 25 percent slopes*
- HeA *Homer silt loam, 0 to 3 percent slopes*
- HfB *Houseville silt loa, acid, 3 to 10 percent slopes*
- HhD *Howard and Kars soils, 15 to 35 percent slopes*
- IaA *Ilion silt loam, 0 to 3 percent slopes*
- IaB *Ilion silt loam, 3 to 8 percent slopes*
- JaA *Minoa fine sandy loam, 0 to 3 percent slopes*
- KaB *Kars gravelly loam, 3 to 8 percent slopes*
- KbA *Kendaia silt loam, 0 to 3 percent slopes*
- KbB *Kendaia silt loam, 3 to 8 percent slopes*
- KcA *Tuller silt loam, 0 to 3 percent slopes, loamy*
- KcB *Tuller silt loam, 3 to 8 percent slopes, loamy*
- LcA *Lyons silt loam, 0 to 3 percent slopes*
- LdA *Angola silt loam, 0 to 3 percent slopes*
- MaA *Canandaigua silt loam, 0 to 2 percent slopes*
- McA *Manheim silt loam, 0 to 3 percent slopes*
- McB *Manheim silt loam, 3 to 8 percent slopes*
- MdB *Manlius silt loam, 0 to 8 percent slopes*
- MdC *Manlius silt loam, 8 to 15 percent slopes*
- MeA *Marcy silt loam, 0 to 3 percent slopes*
- MeB *Marcy silt loam, 3 to 8 percent slopes*
- MfB *Melrose sandy loam, 0 to 6 percent slopes*
- MgB *Mohawk silt loam, 2 to 8 percent slopes*
- MgC *Mohawk silt loam, 8 to 15 percent slopes*
- MgD *Mohawk silt loam, 15 to 25 percent slopes*
- NaE *Nellis loam, 25 to 35 percent slopes*
- NbB *Farmington loam, 0 to 8 percent slopes*
- NbC *Farmington loam, 8 to 15 percent slopes*
- NbD *Farmington loam, 15 to 25 percent slopes*
- NcB *Galway loam, 2 to 8 percent slopes*
- NcC *Galway loam, 8 to 15 percent slopes*
- NdD *Galway loam, 15 to 25 percent slopes*
- NeB *Nellis loam, 2 to 8 percent slopes*
- NeC *Nellis loam, 8 to 15 percent slopes*
- NfC *Rock outcrop-Farmington complex, 3 to 15 percent slopes*
- NfD *Rock outcrop-Farmington complex, 15 to 35 percent slopes*
- NgD *Nellis loam, 15 to 35 percent slopes, very stony*
- PbA *Peat and Muck, deep*
- PcA *Plainfield fine sandy loam, 0 to 3 percent slopes*
- PcB *Plainfield fine sandy loam, 3 to 8 percent slopes*
- PcD *Plainfield fine sandy loam, 15 to 25 percent slopes*
- PeB *Pinckney silt loam, 3 to 8 percent slopes*
- PeC *Pinckney silt loam, 8 to 15 percent slopes*
- PeD *Pinckney silt loam, 15 to 25 percent slopes*
- PfE *Pinckney silt loam, 15 to 35 percent slopes, eroded*
- PhB *Lansing silt loam, 3 to 8 percent slopes*
- PhC *Lansing silt loam, 8 to 15 percent slopes*
- PhD *Lansing silt loam, 15 to 25 percent slopes*
- RfE *Rockland, limestone*
- SdA *Scantic silty clay loam, 0 to 3 percent slopes*
- TbA *Darien silt loam, 0 to 3 percent slopes*
- TbB *Darien silt loam, 3 to 8 percent slopes*
- TbC *Darien silt loam, 8 to 15 percent slopes*
- W *Water*
- WcA *Wayland silt loam, 0 to 2 percent slopes*



Notes:
Basemap: NYSDOT 1:24,000 Quadrangles, Copenhagen, Carthage, Rutland Center, Barnes Corners, New Boston, and West Lowville.

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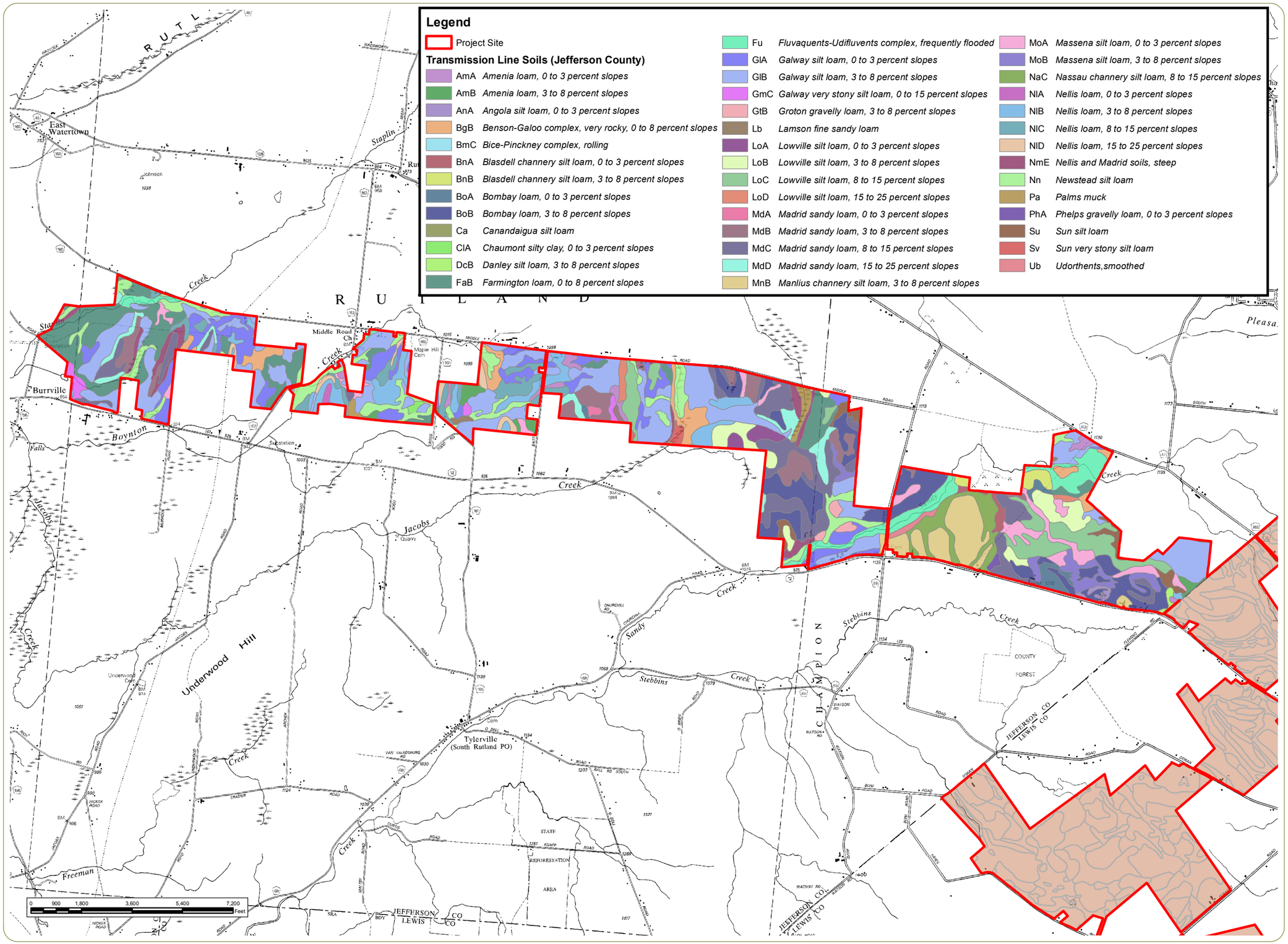

Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 4: Soils
Sheet 2 of 2: Transmission Line

January 2013

Notes:
Basemap: NYSDOT 1:24,000 Quadrangles, Copenhagen, Carthage, Rutland Center, Barnes Corners, New Boston, and West Lowville.

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Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 5: Archeological Resources

January 2013

Patriot Estates Subdivision
Champion Water District No.4 Expansion
Climax Transmission Line
Champion Water District No.6
Route 26 West
Champion Water District No. 4
Natural Gas Pipeline
Route 126
County Route 162
Champion Green
Champion Water Districts 5&6
Copenhagen Water
American Cell-Watertown
American Cell-Rutland
County Route 156
Rutland NYS Route 12
Castorland Sewage
County Route 69
Copenhagen NYS Route 12
Route 177

0 2,350 4,700 9,400 14,100 18,800 Feet

Archeological Sensitive Area
Previous Cultural Resources Survey
Project Site
5 Mile Study Area

Notes:
Basemap: NYSDOT 1:24,000 Quadrangles, Copenhagen, Carthage, Rutland Center, Barnes Corners, New Boston, and West Lowville.

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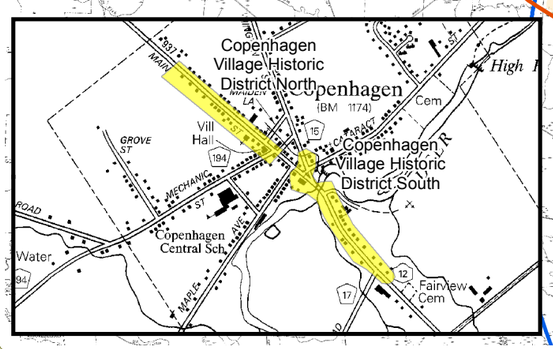
Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 6: Architectural Resources

January 2013

Hiram Hubbard House
045.06.0050
045.20.0038
45.18.0035
Copenhagen Village Historic District North
Copenhagen Village Historic District South
049.02.0036
049.05.0040
049.05.0038
049.05.0036
Harrisburg Historic District
Number Three Road Historic District
049.13.0081
049.41.0004
049.09.0023
049.09.0030
049.09.0024



- NRHP Eligible Site
- Wind Turbine
- Project Site
- 5 Mile Study Area
- NRHP Listed Site
- NRHP Eligible District
- Previous Cultural Resources Survey (Maple Ridge Wind Farm)

Viewshed Analysis

- Potential Visibility Considering Vegetation and Topography
- Potential Visibility Considering Only Topography

0 2,350 4,700 9,400 14,100 18,800 Feet

Notes:
Basemap: NYSDOT 1:24,000 Quadrangles, Copenhagen, Carthage, Rutland Center, Barnes Corners, New Boston, and West Lowville.

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Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 7: 1864 Childs Gazetteer of Jefferson County, NY

January 2013

Transmission Line

Project Site

Notes:
Basemap: 1864 Childs Gazetteer of Jefferson County, Champion, Rutland, and Watertown panels.

0 1,000 2,000 4,000 6,000 8,000 Feet

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Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 8: 1875 Beers Atlas of Lewis County, NY

January 2013

Project Site

0 950 1,900 3,800 5,700 7,600 Feet

Notes:
Basemap: 1875 Beers Atlas of Lewis County, NY, Denmark Panel.

Copenhagen Wind Farm

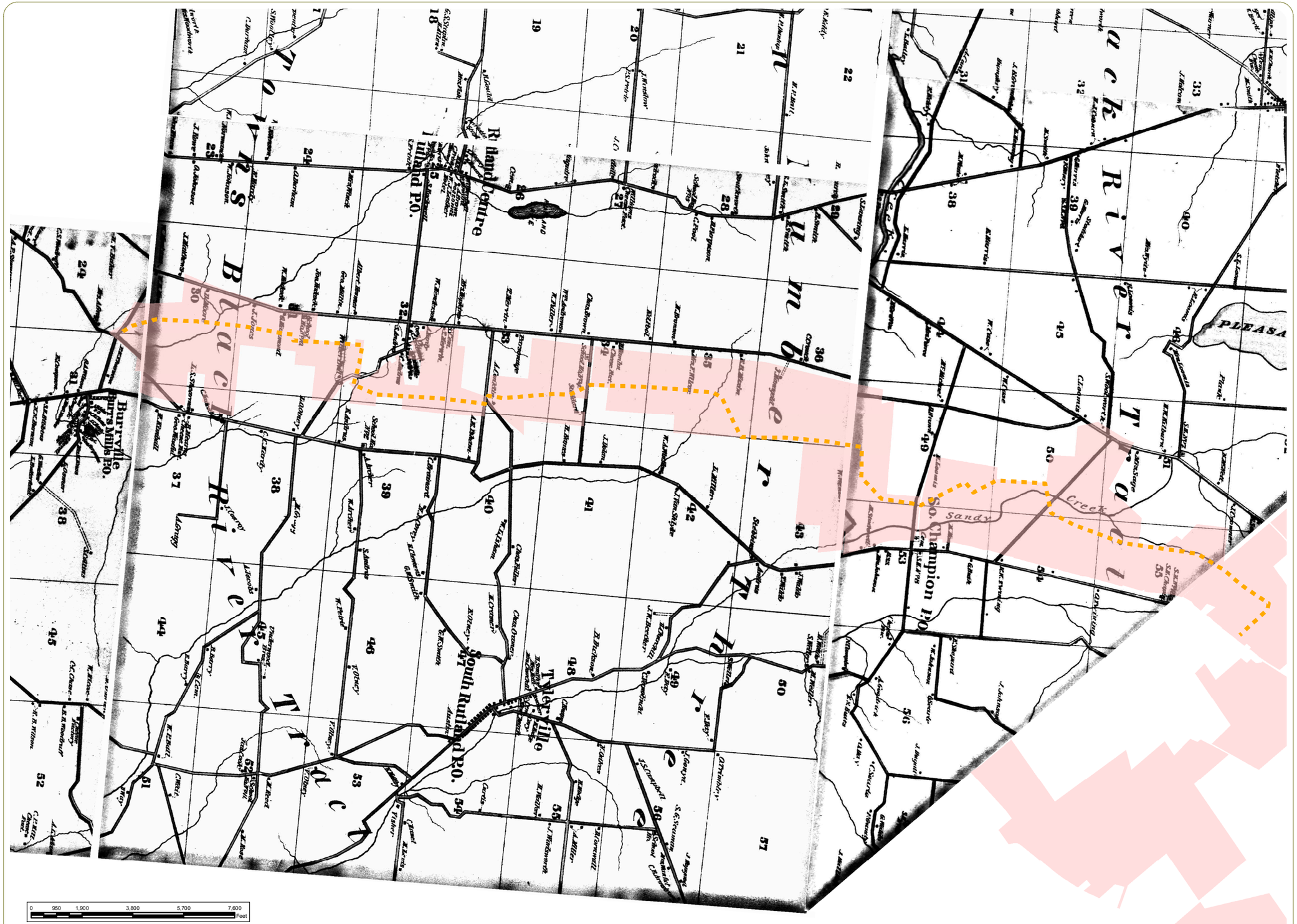
Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 9: 1888 Robinson's Atlas of Jefferson County, NY

January 2013

Transmission Feeder

Project Site



Notes:
Basemap: 1888 Robinson's Atlas of Jefferson County, NY, Champion, Rutland, and Watertown panels.

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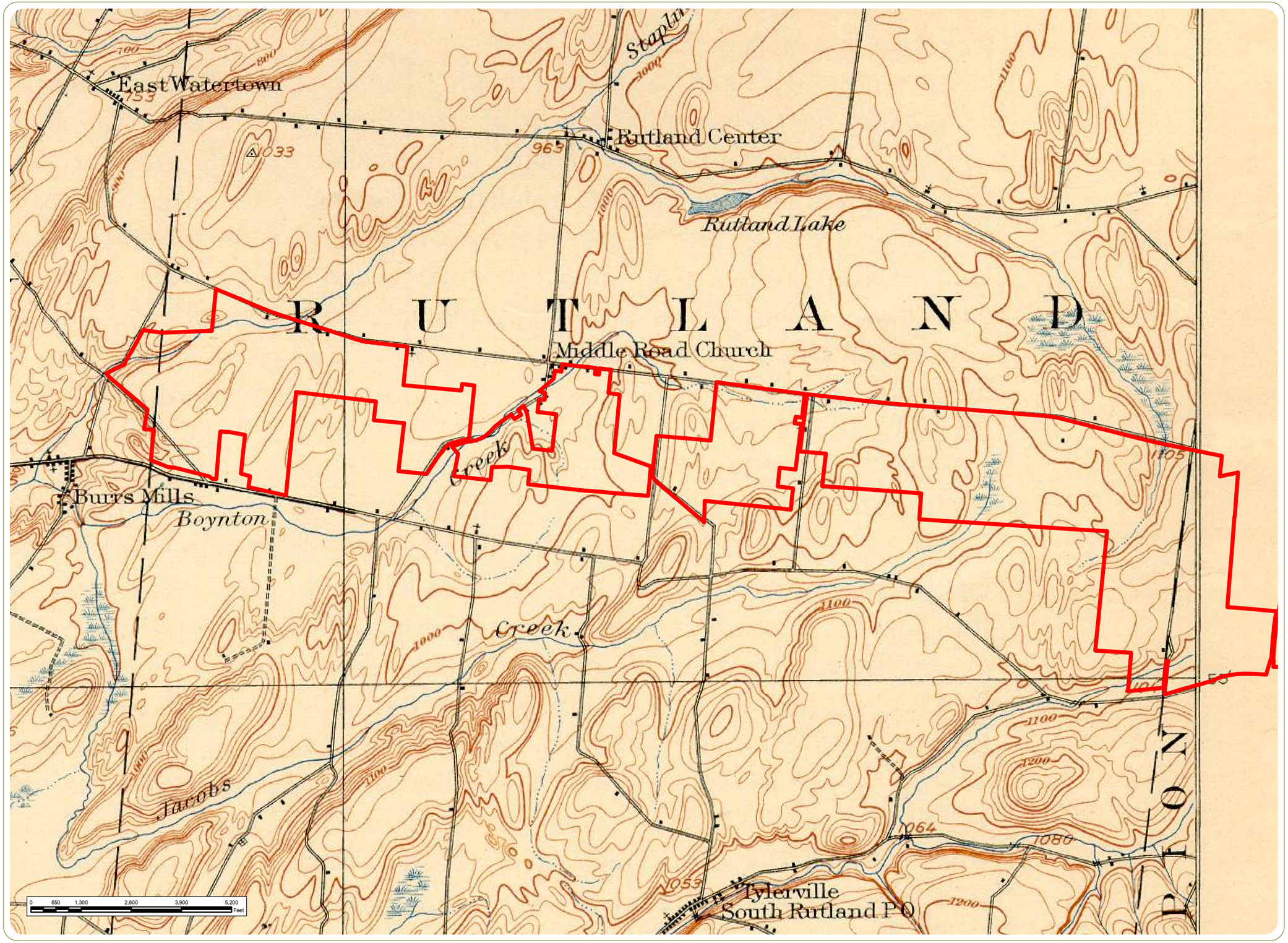
Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 10: 1904 USGS Map

January 2013

Project Site

Notes:
Basemap: 1904 USGS Topographic Quadrangle, Carthage, NE and NW panels.



Copenhagen Wind Farm

Towns of Denmark, Rutland, Champion, and Watertown - Lewis and Jefferson County, NY

Figure 11: 1909 USGS Watertown, NY Topographic Map

January 2013

Project Site

Notes:
Basemap: 1909 USGS Topographic Quadrangle, Watertown, NE panel.

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Appendix A: Photographs

Photo - 01

The Hiram Hubbard House (1820), Village of Champion, listed on the National Register of Historic Places.

Photo - 02

The former Blodget Hotel (1824), Hamlet of Denmark, Town of Denmark.

Photo - 03

Stone house, Town of Champion.

Photo - 04

Stone house, Town of Denmark.

Photo- 05

Farm complex, County Route 14, Town of Lowville.

Photo - 06

Hay barn and agricultural machinery, County Route 14, Town of Lowville.

Photo - 07

Stoddard Road, looking toward Project site, Town of Denmark.

Photo - 08

Intersection of Alexander Road and Woodbattle Road, looking toward Project site, Town of Denmark.

Photo - 09

Woodbattle Road, looking toward Project site, Town of Denmark.

Photo - 10

County Route 12, looking toward Project site, Town of Denmark.

Photo - 11

Fairview Cemetery, State Route 12,Town of Harrisburg.

Photo - 12

Swinburne Cemetery, County Route 12, Hamlet of Deer River, Town of Denmark.

Photo - 13

St. Patrick's (Battle) Cemetery, Woodbattle Road, Town of Harrisburg.

Photo - 14

South Champion Cemetery, County Route 12, Town of Champion.

Photo - 15

Zinc monument, Fairview Cemetery, Town of Harrisburg.

Photo - 16

Zinc Monument, South Champion Cemetery, Town of Champion.

Photo - 17

Italianate style house, County Route 14, Town of Lowville.

Photo - 18

Abandoned farm, Willow Grove Road, Town of Harrisburg.

Photo - 19

Abandoned house, County Route 12, Town of Harrisburg.

Photo - 20

View of farms and Maple Ridge Wind Farm, State Route 177, Town of Harrisburg.

Photo - 21

Newer house, County Route 12, Town of Harrisburg.

Photo - 22

Stone house, Old State Road, Hamlet of Denmark.

Photo - 23

State Route 12, Village of Copenhagen, Town of Denmark.

Photo - 24

State Route 12, Village of Copenhagen, Town of Denmark.

Photo - 25

State Route 12, looking northeast, Village of Copenhagen, Town of Denmark.

Photo - 26

State Route 12 and Maple Avenue, looking north, Village of Copenhagen, Town of Denmark.

Photo - 27

House, State Route 126, Village of West Carthage, Town of Denmark.

Photo - 28

Existing meteorological tower near Project site, Town of Denmark.