

### 3.1.3.4 Management of Oil and Hazardous Materials

Wind turbines, and their associated equipment, use lubricating and insulating oils in a closed system. A SPCC Plan would be developed as part of the SWPPP for the construction and operation of the Project as required by the SPDES permits.

## 3.2 Water Resources

### 3.2.1 Groundwater and Groundwater Quality

#### 3.2.1.1 Affected Environment

Glaciolacustrine lake silts and clays overlie consolidated rocks of sedimentary origin in the area of the Project (Cadwell *et al.*, 1991). Small portions of the Project consist of peat muck (swamp deposits) which are poorly drained areas and include of organic silts and sands. The glacial till deposits form surficial aquifers, while bedrock consisting of carbonate rocks (primarily limestone) form deep aquifers. These consolidated rocks yield water primarily from bedding planes, fractures, joints, and faults, rather than from intergranular pores. Carbonate rocks generally yield more water than other types of consolidated rocks because carbonate rocks are subject to dissolution by slightly acidic groundwater. Dissolution along bedding planes, fractures, and joints enlarges these openings and increases the permeability of these carbonate rocks (Isachsen *et al.*, 2000).

No known sole-source aquifers occur within the Project area or its vicinity (United States Environmental Protection Agency [EPA], 2006a). In 2000, total freshwater use was 17.21 million gallons per day (Mgal/d), of which 13.25 Mgal/d (27 percent) was from surface-water sources and 3.96 Mgal/d (73 percent) was from groundwater (USGS, 2006). However, domestic users acquired 100 percent of their water supply from groundwater sources (USGS, 2006). Table 3-2 lists an excerpt from the USGS report of water usage statistics in Jefferson County, New York. Current data (October 2006) from the EPA indicates that drinking water is obtained from groundwater, surface water and purchased groundwater/surface water resources in Jefferson County (EPA, 2006b).

**Table 3-2**  
**Year 2000 Water Usage Statistics in Jefferson County <sup>1</sup>**

Type of Usages	Water Withdrawals <sup>2</sup>		
	Groundwater	Surface	Unit
Public supply <sup>3</sup>	2.17	8.20	Mgal/d
Domestic, self-supplied withdrawals	0.45	0.00	Mgal/d

<sup>1</sup> Source: <http://water.usgs.gov/watuse/data/2000/index.html>

<sup>2</sup> 6.39 Mgal/d was industrial use

<sup>3</sup> Population (Year 2000) in Jefferson County was approximately 111,740

### **3.2.1.2 Potential Impact**

Construction of the proposed wind energy project would have minimal to no impact to groundwater quality in the Towns of Cape Vincent and Lyme in Jefferson County. Potential impact would result from soil erosion during construction.

### **3.2.1.3 Mitigation Measures**

Potential soil erosion generated during construction would be avoided or mitigated with sediment and erosion control measures described in the Project SWPPP.

## **3.2.2 Streams, Rivers, Lakes**

### **3.2.2.1 Affected Environment**

Surface water bodies within the Project area include Wheeler Creek, Scotch Brook, Chaumont River, Kents Creek, Shaver Creek, Three Mile Creek, and 25 unnamed tributaries. These surface waters are perennial and located within the Saint Lawrence River Basin. The Saint Lawrence River drains a total area of nearly 300,000 square miles. Within New York State, approximately 5,600 square miles are drained by tributaries that enter the Saint Lawrence River between Lake Ontario and Montreal. Land use in the Saint Lawrence River Basin consists of densely forested woodlands and agriculture. The region is economically supported by agriculture, logging, mining, and recreational and tourism activities. In 1996, the Saint Lawrence River Basin population was approximately 192,000 (NYSDEC, 2004).

Water bodies within the Project area are classified by NYSDEC as Class C and D waters. Class C waters are best used for fishing, but are also suitable for fish propagation and survival, and primary and secondary contact recreation. Class D waters are best used for fishing and are also suitable for primary and secondary contact recreation.

Federal Emergency Management Agency maps (FEMA, 1992, 1993) were reviewed to evaluate the presence of floodplains within the Project area. A 100-year floodplain is associated with the following streams and rivers in the Town of Cape Vincent:

- Unnamed tributary to and wetlands associated with Wilson Bay;
- Unnamed tributary to St. Lawrence River North of Route 12E;
- Unnamed tributary to Millen Bay;
- Kents Creek west of abandoned railroad right-of-way;
- Kents Creek east of Route 8;
- Central area bounded by Route 12E, Favret Road, Rosiere/Swamp Roads, and the abandoned railroad right-of-way; and

- Wetland area along southern Township limits between Route 12E and just east of abandoned railroad right-of-way.

### **3.2.2.2 Potential Impact**

Fifty-one crossings of 21 surface waterbodies (several waterbodies are crossed more than once) were identified through desktop evaluations. Ten of these waterbody crossings are located within the interconnect rights-of-way and 11 are located within the overhead transmission line right-of-way. Only one waterbody crossing is located within a 200-foot turbine laydown. This is a 30 foot crossing located on the periphery of a 200-foot turbine laydown. This will be avoided during construction. Table 3-3 lists each watercourse crossed by the Project, Project component associated with crossing, crossing length, percent of crossing, and the NYSDEC Classification. The total length of stream crossings within the Project's interconnect rights-of-way, overhead transmission line right-of-way, and turbine laydown areas are 1147.3, 2696.3, and 32.0 feet, respectively.

SLW proposes to use an overhead crossing of the Chaumont River and floodway for the overhead transmission line. Most of the Project area will be located in FEMA designated Zone C (identified as an area outside the 500-year floodplain). Most of the construction work will also be located in Zone C. The Chaumont River will be crossed by the proposed overhead transmission line. All permanent structures, except for certain utility poles, associated with the proposed wind farm will be located outside of the floodplain. Potential impacts to surface waters will be minimal and would only occur during the construction of the Project. Potential impacts during construction would result from clearing and grading near stream banks. Vegetation near the Chaumont River will not be removed to construct the transmission line, as the Chaumont River will be spanned by overhead lines. Clearing near surface water will be kept to a minimum to prevent significant disturbance to the habitats associated with the creek and its tributaries.

### **3.2.2.3 Mitigation Measures**

Potential soil erosion generated during construction will be avoided or mitigated with sediment and erosion control measures described in the Project SWPPP.

## **3.2.3 Wetlands**

### **3.2.3.1 Affected Environment**

Wetlands provide many valuable functions to the biological environment. They supply valuable nesting and feeding grounds for many mammals and birds. To assess Project impacts to wetlands, the NYSDEC Freshwater Wetland Maps and the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps were reviewed. In addition, a site

**Table 3-3**  
**NYSDEC Streams Crossed by the Project**

Stream Name	Component	Stream Classification	Total Linear Feet	Percent of Total Area
Chaumont River	Overhead Transmission	C	120	3
Kents Creek	Interconnect	C	173	4
Kents Creek	Overhead Transmission	C	122	3
Scotch Brook	Interconnect	-	66	2
Shaver Creek	Overhead Transmission	-	120	3
Three Mile Creek	Overhead Transmission	C	124	3
Unnamed	Interconnect	D	25	1
Unnamed	Interconnect	D	63	2
Unnamed	Interconnect	D	103	3
Unnamed	Interconnect	D	70	2
Unnamed	Interconnect	D	83	2
Unnamed	Interconnect	D	148	4
Unnamed	Interconnect	C	366	9
Unnamed	Interconnect	C	50	1
Unnamed	Overhead Transmission	C	128	3
Unnamed	Overhead Transmission	C	235	6
Unnamed	Overhead Transmission	C	724	19
Unnamed	Overhead Transmission	C	147	4
Unnamed	Overhead Transmission	C	123	3
Unnamed	Overhead Transmission	C	164	4
Unnamed	Overhead Transmission	C	689	18
Unnamed	Turbine	D	32	1

reconnaissance was conducted to determine if mapped wetlands accurately represent field conditions. The NYSDEC Freshwater Wetland Maps indicated 11 state jurisdictional wetlands within the proposed Project area boundaries (Figure 3-5). The USFWS NWI maps for the Project area indicated 184 wetlands within the vicinity of the Project area (Figure 3-6), ranging from 0.03 to 272.5 acres and averaging 6.5 acres.

NWI wetlands that occur in the vicinity of the proposed Project area approximately total 1,192 acres. These include palustrine emergent (PEM), palustrine forested (PFO), palustrine scrub-shrub (PSS), palustrine unconsolidated bottom (PUB), and palustrine unconsolidated shore (PUS) cover classes. Forested-scrub/shrub complexes (35 percent) are the most abundant in the Project areas, based on acreage, followed by forested wetlands (32 percent), scrub/shrub-emergent complexes (26 percent), and scrub/shrub wetlands (7 percent) and emergent wetlands (<1 percent). NYSDEC wetlands total 3,000 and include Class II (90 percent) (5 percent) and IV (5 percent) wetlands.

*Shallow Emergent Marsh (PEM)* - Shallow emergent marshes are permanently saturated and seasonally flooded wetlands that can be dominated by a variety of herbaceous vegetation. Common dominant herbaceous plants within this community include woolgrass (*Juncus effusus*), cattails (*Typha latifolia*), reedgrass (*Calamagrostis canadensis*), reed canary grass (*Phalaris arundinacea*), sedges (*Carex* spp.), and meadow-rues (*Thalictrum* spp.). Other plants characteristic of shallow emergent marshes include, blue flag iris (*Iris versicolor*), sensitive fern, cinnamon fern, and rushes (*Juncus* spp.). Shallow emergent marshes commonly have scattered shrub species including speckled alder, dogwoods (*Cornus* spp.), willows (*Salix* spp.), and meadow sweet (*Spiraea alba*).

*Shrub Swamp (PSS)* - Shrub swamps are a broadly defined, highly variable covertype that includes several distinct communities and many intermediates. Shrub swamps may have a single dominant shrub species or be co-dominated by a mixture of species. Speckled alder (*Alnus incana* sp. *rugosa*) is a common shrub of this community. Red osier dogwood (*Cornus stolonifera*), silky dogwood (*Cornus amomum*), and *Spiraea* spp. also occur either as a dominant species or codominant with speckled alder. Various other shrub species with occasional occurrence include highbush blueberry (*Vaccinium corymbosum*), smooth alder (*Alnus serrulata*), willows (*Salix* spp.), and viburnums. These wetland communities are frequently associated with stream complexes and may also contain patches of emergent wetland sedges and grasses.

*Hemlock-hardwood swamp (PFO)* - The tree canopy in this wetland is typically dominated by hemlock (*Tsuga canadensis*), and co-dominated by yellow birch (*Betula alleghaniensis*), and red maple (*Acer rubrum*). Other less frequently occurring trees include white pine (*Pinus strobus*), black gum (*Nyssa sylvatica*), and green ash (*Fraxinus pennsylvanica*). Characteristic shrubs include saplings of canopy trees and highbush blueberry (*Vaccinium corymbosum*). Other less frequently occurring shrubs include various viburnums (*Viburnum cassinoides*, *V. lentago*, and *V. lanatanoides*), winterberry (*Ilex verticillata*), and mountain holly (*Nemopanthus mucronatus*). Characteristic herbs are cinnamon fern (*Osmunda cinnamomea*) and sensitive fern (*Onoclea sensibilis*). Groundcover may also be fairly sparse. Other less frequently occurring herbs include sedges (*Carex trisperma*, *C. folliculata*, and *C. bromoides*), goldthread (*Coptis trifolia*), Canada mayflower (*Maianthemum canadense*), mountain sorrel (*Oxalis montana*), foamflower (*Tiarella cordifolia*), and sarsparilla (*Aralia nudicaulis*).

In addition, two rare wetland community types are located near the Project area:

- Silver maple-ash swamp – Four discrete fragments of this rare community type occur within 1.5 miles of the Project. Canopy cover includes silver maple, swamp white oak, and green ash.
- Sinkhole wetlands – Sinkhole wetlands in and around the Project are a series of small wetlands that lie in the limestone bedrock. They occur in linear groups and are surrounded by either cow pasture or old fields.

### 3.2.3.2 Potential Impact

Project facilities would cross nine wetlands, two NYSDEC and nine NWI wetlands, as identified through desktop evaluations and site reconnaissance. The two NYSDEC wetlands coincide with NWI wetlands. Table 3-4 summarizes the wetlands crossing by covertype. All crossings occur within the proposed overhead transmission line right-of-way.

SLW is committed to avoiding temporary and permanent impacts to wetlands during the construction of the Project. Desktop data indicates there could be minor temporary impacts associated with nine NWI wetlands and two NYSDEC wetlands along the overhead transmission line right-of-way. Desktop data will be field verified by qualified wetland biologists during the growing season. If, upon field verification, wetlands are present in the area to be impacted by construction of the overhead transmission line, SLW will review alternatives to relocate those areas, if at all practicable, completely avoiding wetland impact.

**Table 3-4**

**Summary of Wetlands Crossed by the Project**

Wetland Class	Total Acres	Percent Total
<b>NWI</b>		
PEM	0.3	< 1
PFO	126	32
PFO/SS	139	35
PSS	29	7
PSS/EM	103	26
<b>NYSDEC</b>		
II	337	100

Construction of the overhead transmission line will avoid wetland impacts to the extent practicable. Crossings of the Chaumont River will be accomplished by overhead spanning, and it is very likely that utility poles can be located 50 feet from both sides of the river banks. It is possible to string cable between these utility poles in a manner that will not require construction equipment to drive through the streams. There is the possibility that wetland vegetation in the

overhead transmission line corridor crossing the Chaumont River may need to be cleared. If practicable, SLW will avoid such clearing.

Although wetland impacts will be avoided if practicable, any clearing through forested wetlands could result in a change from tree species to shrub and herbaceous vegetation. Non-forested wetlands within the proposed overhead transmission line right-of-way consist of emergent and scrub-shrub wetlands. Impacts to non-forested wetlands are expected to be short term and the vegetation should return to pre-construction conditions in one to two growing seasons.

### **3.2.3.3 Mitigation Measures**

To minimize the impacts to wetlands no Project infrastructure will be placed in wetlands, unless absolutely necessary. SLW will have qualified wetland biologists field verify the absence of wetlands in the Project footprint, using field delineation methods prescribed by the United States Army Corps of Engineers (USACE). Where impacts could occur, if practicable, Project components will be moved to avoid or minimize impacts to wetlands. Any unavoidable wetland impacts will be permitted according to USACE Sections 10 and 404 regulations, and NYSDEC Freshwater Wetlands, as well as Water Quality Certification requirements.

## **3.3 Ecological Resources**

The St. Lawrence Wind Energy Project is located in the St. Lawrence River Valley, the physiographic area associated with the floodplain of the St. Lawrence River. In New York, elevations in this vast flat plain are generally below 900 feet. The valley is characterized by abundant diverse wetland resources, interspersed with dairy-based agricultural grasslands that support large populations of waterfowl and grassland-nesting birds. It represents the best farmland in much of the northeastern United States and functions as an expansive "agricultural grassland" that supports some of the largest populations of grassland and early successional bird species found in eastern North America. In this region, unlike other agricultural regions, climate and poor drainage conditions favor establishment of freshwater wetlands and promote late season harvesting, which enhance the value of the region to breeding birds (Pashley, *et al.*, 2000). Forest habitat occurs as isolated fragments displaying reduced tree species diversity due to repeated selective harvesting.

The river valley is also an important part of the Atlantic Flyway providing stopover habitat for migratory birds. The valley lies in the Lower Great Lakes-St. Lawrence Conservation Region (Region 13), as designated by the North American Bird Conservation Initiative and is considered one of the three most important focal regions in that four state, two province region. It is also listed as a priority area for migratory birds in several management plans, including the North