DOE/EA 1804

FINAL
ENVIRONMENTAL ASSESSMENT

FOR

SAUK VALLEY COMMUNITY COLLEGE'S WIND ENERGY PROJECT

DIXON
LEE COUNTY, ILLINOIS

U.S. Department of Energy
Golden Field Office

DECEMBER 2010

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COVER SHEET

RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

TITLE: Final Environmental Assessment for Sauk Valley Community College's Wind Energy Project, Dixon, Lee County, Illinois (DOE/EA 1804).

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ABSTRACT: DOE is proposing to authorize the expenditure of Federal funding to design, permit, and construct a single-turbine wind energy project to provide renewable energy to fulfill 100 percent of Sauk Valley Community College's (SVCC) annual electricity demand and help reduce greenhouse gas emissions. DOE has authorized SVCC to use a percentage of their federal funding for preliminary activities, which include EA preparation, studies related to the EA (noise, shadow flicker, visual), and obtaining local permits. The activities are associated with the Proposed Project and do not significantly impact the environment nor represent an irreversible or irretrievable commitment by DOE in advance of the conclusion of the EA for the Proposed Project. Illinois proposes to provide SVCC a $500,000 grant, which would come from a formula grant that Illinois received from DOE pursuant to the Department's State Energy Program.

SVCC has not yet finalized the selection of a manufacturer of wind turbine that it would install. Therefore, the analysis in this EA used specifications for one of the largest models under consideration, the Clipper Liberty 2.5-MW C99 wind turbine. The Clipper Liberty 2.5-MW C99 is a tubular steel monopole, three-blade, ground-mounted wind turbine. The turbine rotor diameter is 99 meters (322 feet), which would connect at its hub (midpoint) to an 80-meter (259-foot)-tall tower. The total maximum height of the wind turbine is 127 meters (418 feet) from the bottom of the tower to the blade tip at its highest point. This EA analyzes the potential environmental impacts of the proposed installation, operation, and decommissioning of the SVCC wind energy project and the alternative of not implementing this project (the No-Action Alternative).

PUBLIC INVOLVEMENT: DOE encourages public participation in the NEPA process. The Department placed a Notice of Availability for the draft EA in the Dixon Evening Telegraph and the Sterling *Gazette* on Friday, September 17, 2010. The Notice clearly identified a 15-day period for the public to comment on potential environmental impacts of the proposed project. DOE posted the Draft EA on its NEPA Website (http://nepa.energy.gov) and the DOE Golden Reading Room Website (http://www.eere.energy.gov/golden/Reading_Room.aspx). As of October 1, 2010, DOE had received no comments on the draft EA.

AVAILABILITY: This final EA is available at the above websites.

ACRONYMS AND ABBREVIATIONS

ARRA	*American Recovery and Reinvestment Act of 2009*
BMP	best management practice
CFR	*Code of Federal Regulations*
CO_2	carbon dioxide
dB	decibel
dBA	decibel on an A-weighted scale, used to approximate the human ear's response to sound
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DNL	Day Night Average Sound Level
EA	Environmental Assessment
EMF	electromagnetic field
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FR	*Federal Register*
IDNR	Illinois Department of Natural Resources
IHPA	Illinois Historic Preservation Agency
IL-2	Illinois State Route 2
IPCB	Illinois Pollution Control Board
MBTA	*Migratory Bird Treaty Act*
NEPA	*National Environmental Policy Act*
NHPA	*National Historic Preservation Act*
NRHP	*National Register of Historic Places*
NTIA	National Telecommunications and Information Administration
OSHA	Occupational Safety and Health Administration
RCRA	*Resource Conservation and Recovery Act*
SEP	State Energy Program
SHPO	State Historic Preservation Officer
Stat.	United States Statutes at large
SVCC	Sauk Valley Community College
THPO	Tribal Historic Preservation Officer
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

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1. INTRODUCTION

1.1 National Environmental Policy Act and Related Procedures

The *National Environmental Policy Act* (NEPA), the Council on Environmental Quality NEPA regulations (40 CFR Parts 1500 to 1508), and the U.S. Department of Energy (DOE or the Department) NEPA implementing procedures (10 CFR Part 1021) require that DOE consider the potential environmental impacts of a proposed action before making a decision. This requirement applies to decisions on whether to provide different types of financial assistance to states and private entities.

In compliance with these regulations and with its NEPA implementing procedures, DOE must evaluate the potential environmental impacts of its proposed action that could have a significant impact on human health and the environment, including decisions on whether to provide financial assistance to government agencies and private entities. In compliance with these regulations and DOE procedures, this Environmental Assessment (EA):

- Examines the potential environmental impacts of the Proposed Action and the No-Action Alternative;
- Identifies unavoidable adverse environmental impacts of the Proposed Action;
- Describes the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- Characterizes any irreversible and irretrievable commitments of resources that would be involved should DOE decide to implement its Proposed Action.

DOE must meet these requirements before it can make a final decision to proceed with any proposed Federal action that could cause adverse impacts to human health or the environment. This EA provides DOE and other decisionmakers the information needed to make an informed decision about the installation, operation, and eventual decommissioning of the proposed wind turbine. The EA evaluates the potential individual and cumulative impacts of the proposed project. For purposes of comparison, this EA also evaluates the impacts that could occur if DOE did not provide funding (the No-Action Alternative), under which DOE assumes the proposed project would not proceed. The EA does not analyze other action alternatives. Based on the analysis in this EA, DOE will either issue a Finding of No Significant Impact, which could include mitigation measures, or determine that it must prepare an Environmental Impact Statement.

1.2 Background

SVCC is proposing to construct, operate, and eventually decommission a single wind turbine and install approximately 984 feet of associated underground electrical transmission equipment, which would be connected to existing infrastructure. The proposed project would be located on SVCC property 0.17 mile directly southwest of the intersection of Illinois State Route 2 (IL-2)

and Sauk Road, near Dixon, Illinois (Figures 1 to 3 and 8 in Appendix A). The current estimated cost of the proposed project is $3.7 to $4.5 million. The Illinois Department of Commerce and Economic Opportunity selected the proposed project to receive a $500,000 grant.

This grant would come from money the State received from the *American Recovery and Reinvestment Act of 2009* (Pub. L. 111-5, 123 Stat. 115; ARRA) administered by DOE pursuant to the DOE State Energy Program (SEP). The purpose of the SEP is to promote the conservation of energy and reduce dependence on imported oil by helping states develop comprehensive energy programs and by providing them with technical and financial assistance. States can use SEP funds for a variety of activities related to energy efficiency and renewable energy. Congress appropriated $3.1 billion to the DOE SEP through ARRA, and the State of Illinois received $101,321,000 pursuant to a Federal statutory formula for distributing these funds. Illinois informed DOE that it proposes to use $500,000 of its SEP funds for the proposed project. The use of SEP funds to assist in the financing of the proposed project constitutes a major Federal action subject to review under NEPA.

DOE is proposing to authorize the expenditure of Federal funding to design, permit, and construct a single-turbine wind energy project to provide renewable energy to fulfill 100 percent of Sauk Valley Community College's (SVCC) annual electricity demand and help reduce greenhouse gas emissions. DOE has authorized SVCC to use a percentage of their federal funding for preliminary activities, which include EA preparation, studies related to the EA (noise, shadow flicker, visual), and obtaining local permits. The activities are associated with the Proposed Project and do not significantly impact the environment nor represent an irreversible or irretrievable commitment by DOE in advance of the conclusion of the EA for the Proposed Project. Because the proposed project would connect to existing infrastructure an access road or road improvements would be unnecessary.

SVCC has not yet finalized the selection of a manufacturer or wind turbine model. Therefore, the analysis in this EA used specifications for one of the largest models under consideration, the Clipper Liberty 2.5-megawatt C99 wind turbine. Using these specifications serves the purpose of bounding, or providing an upper limit on, the potential impacts associated with the proposed project. The Clipper Liberty 2.5-MW C99, Vestas 1.8-MW, and Siemens 2.3-MW are the largest wind turbine models under consideration. The analysis used the Clipper because it has the largest power generation output and is the loudest of the turbines under consideration, although it is 2 meters (6.6 feet) shorter in overall height than the Vestas 1.8-MW turbine. The Clipper Liberty 2.5-MW C99 is a tubular steel monopole, three-blade, ground-mounted wind turbine. The turbine rotor diameter is 99 meters (322 feet), which would connect at its hub (midpoint) to an 80-meter (259-foot)-tall tower. The total maximum height of the wind turbine is 127 meters (418 feet) from the bottom of the tower to the blade tip at its highest point. The electrical transmission line would connect to a parallel switching circuit in the SVCC physical plant.

The proposed project would provide 100 percent of the facility's annual energy needs using a 1.5-megawatt wind turbine. Using a 2.5-megawatt wind turbine would enable SVCC to sell the unneeded electricity to the electric grid. The existing infrastructure, with some minor internal updates, could facilitate selling the additional electricity to the grid; no additional transmission lines would be required. The existing transmission line can accept up to 5 megawatts of electricity, which is more than sufficient capacity if SVCC chose a 2.5-megawatt wind turbine.

This would enable the College to eliminate energy demands from the existing electricity source and lower its carbon footprint, and would provide an educational resource for the College's wind technician program.

1.3 Purpose and Need

1.3.1 DOE'S PURPOSE AND NEED

DOE's purpose and need is to ensure that SEP funds are used for activities that meet congressional statutory aims to improve energy efficiency, reduce dependence on imported oil, decrease energy consumption, create and retain jobs and promote renewable energy. Providing funding as part of the Illinois SEP grant to Sauk Valley Community College would partially satisfy the need of those programs to assist U.S. cities, counties, states, territories, and American Indian tribes to develop, promote, implement, and manage energy efficiency and conservation projects and programs designed to:

- Reduce fossil fuel emissions
- Reduce the total energy use of the eligible entities
- Improve energy efficiency in the transportation, building, and other appropriate sectors
- Create and retain jobs

ARRA enacted legislation to create jobs, restore economic growth, and strengthen America's middle class through measures that modernize the nation's infrastructure, enhance America's energy independence, expand educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need. Provision of funds under SEP would partially satisfy the needs identified under ARRA.

1.3.2 ILLINOIS' PURPOSE AND NEED

Illinois' purpose and need is to grow the economy of the state by connecting companies and communities to financial and technical resources to deploy renewable energy technologies, and to support the goals of SEP and ARRA to reduce energy costs, reduce reliance on imported energy, reduce the impacts of energy production and energy use on the environment, and preserve and create jobs.

1.3.2.1 Illinois' SEP Project Selection Process

The Illinois SEP is using its ARRA funding for programs to increase the energy efficiency of businesses and industry while promoting deployment of clean energy projects that will help improve the cost-effectiveness and economic stability of businesses and industry in the state. The Illinois Office of Energy SEP includes four subprograms:

- Energy Efficiency Development

- Renewable Energy Development
- Green Manufacturing
- Biofuels Development

The Illinois Office of Energy issued a Request for Proposals for the SEP-funded Renewable Energy Development Program. The Illinois Program used the following criteria for selection: project readiness; matching capabilities, financing, and cost-effectiveness; economic impact for Illinois; project characteristics and potential for innovation; and a project's ability to (1) provide emission-free energy and (2) create jobs during the construction of the project. SVCC was one of many renewable energy grant applicants to which the Office of Energy awarded SEP funds in 2009. Illinois has appropriated $500,000 to SVCC. For the proposed project, DOE is the Federal action agency, the Illinois Department of Commerce and Economic Opportunity is the recipient of Federal funding, and SVCC is the subrecipient of this funding. The proposed project would be on SVCC property.

1.4 Public and Agency Involvement

In accordance with applicable regulations and policies, DOE sent notices of public scoping to stakeholders and interested parties including local, State, and Federal agencies; organizations; and the public to solicit comment. On July 16, 2010, DOE sent postcards announcing the public scoping process and directing the stakeholders to its Golden Field Office Public Reading Room, where the scoping letter was available for review. The scoping letter described the DOE Proposed Action and SVCC proposed project, and requested assistance in identifying potential issues the Department could evaluate in this EA. The public comment period closed on July 30, 2010; DOE did not receive any comments. Appendix B contains a copy of the scoping letter, the stakeholder distribution list, and the Notice of Availability (discussed below).

SVCC presented the proposed project to the Palmyra Township Planning Committee and Palmyra Township Board on July 31, 2010, for a special use exemption to the present zoning; the Committee and Board deliberated and then accepted the project. (See Appendix G) SVCC also presented the proposed project to the Lee County Zoning Board of Appeals on August 5, 2010, for a special use exemption to the present zoning; the Board also accepted the project. This meeting served as the public hearing for the special use exemption. On August 17, 2010, SVCC met with the Lee County Board of Supervisors to request a special use variance to the existing zoning of the College property to install a 127-meter (418-foot)-high, 2.5-megawatt wind turbine on SVCC property. The Board unanimously approved the request. The County publicized the meetings through its notification process whereby it invited the public to attend and comment at these meetings. Letters to adjacent property owners and notices in the *Dixon Evening Telegraph* and the *Sterling Gazette* also provided public notice.

A member of the public raised a concern about student safety should anything happen to the turbine, such as lightning striking a blade, at the Zoning Board of Appeals meeting. This concern was addressed at the meeting; Section 3.2.2.8 of this EA discusses this matter. Two other individuals at the meeting expressed their support for the project.

Pursuant to Section 7 of the *Endangered Species Act* and Section 106 of the *National Historic Preservation Act* (NHPA), DOE sent letters to the USFWS and Illinois Historic Preservation

Agency (IHPA) describing the proposed project and requesting information on Federally listed species and known historic or cultural resources in the area, respectively, that the proposed project could affect. Appendix D contains copies of the response letters.

Draft Environmental Assessment

The draft EA was available for public comment for 15 days beginning with the publication of a Notice of Availability in the *Dixon Evening Telegraph* and the *Sterling Gazette* on Friday, September 17, 2010. The Notice clearly identified the public's opportunity to comment on potential environmental impacts from the proposed project in compliance with the NEPA process. DOE posted the draft EA on its NEPA Website (http://nepa.energy.gov) and the Golden Field Office Public Reading Room Website (http://www.eere.energy.gov/golden/Reading_Room.aspx). DOE had received no comments on the Draft EA.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 DOE's Proposed Action

DOE is proposing to authorize the expenditure of Federal funding to design, permit, and construct a single-turbine wind energy project to provide renewable energy to fulfill 100 percent of SVCC's annual electricity demand and help reduce greenhouse gas emissions. DOE has authorized SVCC to use a percentage of their federal funding for preliminary activities, which include EA preparation, studies related to the EA (noise, shadow flicker, visual), and obtaining local permits. The activities are associated with the Proposed Project and do not significantly impact the environment nor represent an irreversible or irretrievable commitment by DOE in advance of the conclusion of the EA for the Proposed Project.

2.2 Illinois' Proposed Project

The Illinois Department of Commerce and Economic Opportunity selected SVCC for a $500,000 grant based on the following criteria for selection: project readiness; matching capabilities, financing, and cost-effectiveness; economic impact for Illinois; project characteristics and potential for innovation; and a project's ability to (1) provide emission-free energy and (2) create jobs during the construction of the project. SVCC would implement the proposed project on its property in Dixon, Illinois.

The proposed project is to install, operate, and eventually decommission a wind turbine on the SVCC campus. SVCC has not decided on the make or model of the wind turbine; therefore, the analysis in this EA used one of the largest models under consideration, the Clipper Liberty 2.5-MW C99 wind turbine. Using these specifications bounds, or provides an upper limit on, potential impacts associated with the proposed project. The Clipper Liberty 2.5-MW C99 is a tubular, steel monopole, three-blade, ground-mounted wind turbine. The turbine rotor diameter is 99 meters (322 feet), which would connect at its hub (midpoint) to an 80-meter (259-foot)-tall tower. The total maximum height of the wind turbine is 127 meters (418 feet), from the bottom of the tower to the blade tip at its highest point. An electrical transmission line would connect to a parallel switching circuit in the SVCC physical plant. The proposed project would provide 100 percent of the facility's annual electricity needs using a 1.5-megawatt wind turbine. Using a 2.5-megawatt wind turbine would enable SVCC to sell unneeded electricity to the electric grid. The existing infrastructure, with some minor internal updates, could facilitate selling electricity to the grid; no additional transmission lines would be necessary. The existing transmission line can accept up to 5 megawatt of electricity, which is more than sufficient capacity if SVCC chose a 2.5-megawatt wind turbine. SVCC would install approximately 300 meters (984 feet) of associated underground electrical transmission equipment to connect the wind turbine to the existing parallel switching circuit. Because the proposed project would connect to existing infrastructure, an access road or road improvements for this project would be unnecessary

The purpose of the wind turbine is to reduce SVCC's carbon footprint, offset electrical usage at SVCC resulting in substantial savings in utility costs that the College could deploy to benefit students, and provide a hands-on classroom for students in the SVCC wind technician program.

2.2.1 PROJECT LOCATION

The proposed project would be on SVCC property 0.27 kilometer (0.17 mile) directly southwest of the intersection of IL-2 and Sauk Road, near Dixon, Illinois. The turbine would be sited in a large field of unmaintained turf north of SVCC buildings and south of IL-2. This field covers approximately 0.32 square kilometer (80 acres). The proposed project would require 0.001 square kilometer (0.33 acre) of permanently committed greenspace that SVCC owns. The College would continue to use the area immediately surrounding the location of the proposed tower as undeveloped greenspace. A prairie plot is to the northwest of the proposed turbine site. Figure 2-1 is a site location map and Figure 2 in Appendix A is a site plan showing the proposed project location and property boundaries.

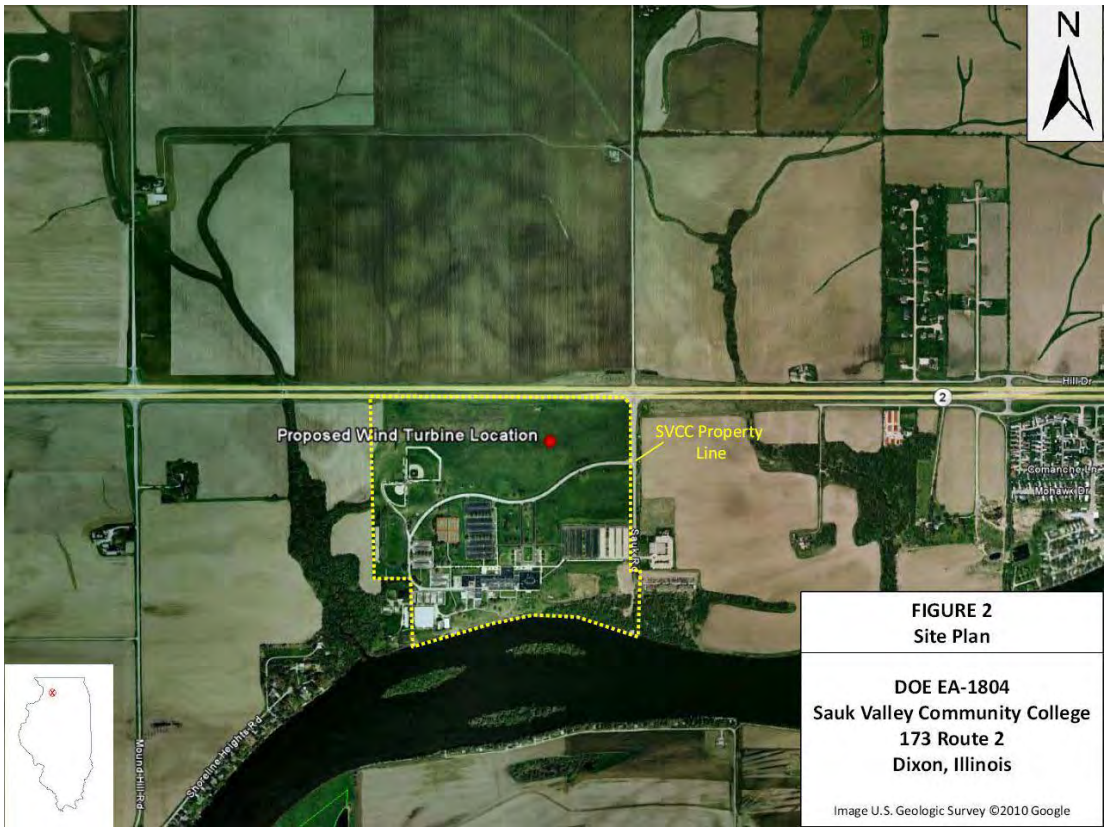


Figure 2-1. Site Plan Map

2.2.2 CONSTRUCTION AND INSTALLATION

The structural design would determine foundation size and dimensions based on checks of global stability, bearing capacity, stiffness, settlement, concrete and steel strength, and backfill density. The foundation for the Clipper 2.5-MW C99 wind turbine would be 17 to 20 meters (55 to 65 feet) in diameter and 2 to 3 meters (7 to 10 feet) deep. The project structural engineer would determine the final type and size of the foundation after selection of the wind turbine model. SVCC would install the underground transmission line using standard construction methods determined during final design. If SVCC chose the Clipper Liberty 2.5-MW C99 wind turbine,

the Clippers manufacturing and assembly facility in Cedar Rapids, Iowa, would ship it to the College. Existing roads are adequate to manage this delivery.

SVCC would start construction after it obtained all necessary Federal and State permits and approvals (Table 2-1). Construction would involve (1) constructing the turbine pad; (2) constructing a foundation for the tower; (3) trenching for underground utilities; (4) placing underground electrical cables in the trench; (5) connecting to the transformer; (6) transporting tower sections to the site and using a crane to assemble the towers; (7) installing nacelle, rotor, and other turbine equipment; (8) final testing; and (9) site cleanup. Completion of construction would occur within 5 months of project start.

Total land disturbance during construction would be approximately 0.02 square kilometer (5.33 acres) in the project area, including the turbine foundation and the temporary construction areas required for equipment and turbine laydown. Of this, 5 acres would be temporarily disturbed and 0.001 square kilometer (0.33 acre) would be permanently disturbed.

2.2.3 AVIATION LIGHTING

Aviation lighting would comply with Federal Aviation Administration (FAA) standards for marking and lighting structures. In its letter dated April 14, 2009, the FAA determined that the proposed project would not be a hazard to air navigation provided the structure was marked or lighted in accordance with FAA Advisory Circular 70/7460-1K Change 2 (FAA 2007). Appendix D contains a copy of the FAA letter. Because of this determination, SVCC has refined the proposed location of the wind turbine; the proposed project would be 120 meters (394 feet) from the previous location to which the FAA determination of no hazard to air navigation was applicable. This EA analyzes the updated location. This change voids the determination in Appendix D. Under the direction of DOE, SVCC is seeking a new determination from the FAA for the new location.

2.2.4 OPERATION AND MAINTENANCE

Because SVCC has not selected a wind turbine model, it has not determined specific operation and maintenance procedures; however, SVCC would maintain the turbine to manufacturer specifications while incorporating best management practices (BMPs). The College would train workers and students for turbine maintenance and safety. Routine maintenance of the turbine would be necessary to maximize performance and identify potential problems or maintenance issues. SVCC would monitor the turbine remotely to ensure efficient operation. Problems would be reported to operations and maintenance personnel, who would perform routine maintenance in partnership with the SVCC wind technician program. The manufacturer or the manufacturer's representative would perform major repairs. A maintenance crew that would not need to use a crane to remove the turbine from the tower would perform most up-tower servicing.

2.2.5 DECOMMISSIONING PHASE

The turbine and other infrastructure should have a useful life of at least 20 years. Retrofitting the turbine with upgrades could allow efficient production for many more years. As part of the Lee County zoning requirements, a decommissioning plan is required. SVCC would develop this plan after turbine construction. When the College terminated the project, it would decommission

the turbine and other infrastructure and remove all facilities to a depth of approximately 1 meter (3 feet) below grade. SVCC would restore the soil surface as close as possible to its original condition. Underground facilities would either be removed or safely secured and left in place. Salvageable items (including fluids) would be sold, reused, or recycled as appropriate; unsalvageable material would be disposed of at authorized and approved disposal sites. All decommissioning activities would be in accordance with the manufacturer's guidelines, the decommissioning plan, and all applicable Federal, State, and local regulations.

2.3 Alternatives

2.3.1 DOE ALTERNATIVES

Illinois' ARRA SEP funds are from a formula grant; the amount is established pursuant to a formula from DOE's SEP grant procedures at 10 CFR 420.11. Allocation of funds among the states is based on population and other factors. Recipients of these formula grants have broad discretion in how they use these funds as set forth by law and by SEP.

In compliance with applicable statutes and regulations, this EA examines the potential environmental impacts of the DOE's Proposed Action (providing funding for the Proposed Project) and the No-Action Alternative. This EA also describes options that SVCC considered during development of its application to the State of Illinois, which is the recipient of SEP funding. This EA provides DOE with the information needed to make an informed decision about whether allowing the State of Illinois to pass through some of its Federal funds for the proposed project may result in significant environmental impacts. Based on this EA, DOE either will issue a Finding of No Significant Impact (FONSI), which may include mitigation measures, or determine that additional study is needed in the form of a more detailed environmental impact statement.

2.3.2 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, DOE would not allow Illinois to use its SEP funds for this project. DOE assumes for purposes of this EA that the project would not proceed without SEP funding. Using this assumption allows a comparison between the potential impacts of the project as proposed and the impacts of not proceeding with the project. Without the proposed project, SVCC operations would continue as otherwise planned, but without the use and benefit of the proposed wind turbine and its generated energy. Without the wind-generated energy, SVCC would not meet its goals for reducing its reliance on commercially generated energy sources and its overall efforts to continue to operate while reducing its carbon footprint.

2.3.3 ALTERNATIVES CONSIDERED BY THE PROJECT PROPONENT

To meet the goals of a reduced carbon footprint and energy cost savings, SVCC considered the use of a geothermal system for direct heating; however, the College determined that the cost of the system would exceed the benefits. In addition, a geothermal system would not replace nonheating electricity and it would not provide training opportunities for wind technician students.

SVCC considered two alternative locations for the proposed project. The first was 37 kilometers (23 miles) southeast in Sublett, Illinois; this location was approved for wind turbine use. At the Sublett location, SVCC would sell the electricity to the electric grid rather than use it to provide power to the campus. This location was not feasible due to zoning and other feasibility issues and was too far for students to travel; therefore, it would not be an educational resource for the college's wind technician program. Finally, using this site would not help SVCC meet its goal of a reduced carbon footprint. The second location was 1.6 kilometer (1 mile) west of the proposed project area. This location was not feasible because it was on land not owned by SVCC and the costs associated with the transmission line were prohibitive. In addition, because this site would be closer to the Dixon city center, noise and visual impacts could be greater than those associated with the proposed project area. SVCC chose the proposed project area to conform to county fall zones and manufacturer distance specifications. Therefore, the unlikely event of the collapse of the turbine tower, lightning strikes, or ice throw, would not affect structures, public access, or roads.

2.4 Permits, Approvals, and Notifications

Before construction, SVCC would obtain all required Federal, State, and local permits and approvals. Table 2-1 lists these permits and approvals.

Table 2-1. Federal, State, and Local Permits, Approvals, and Notifications

Agency	Permit Approval/Type
Federal	
Federal Aviation Administration	FAA Aeronautical Determination
National Telecommunications and Information Administration	Radio Frequency Transmission Notification
U.S. Fish and Wildlife Service	Compliance with the *Endangered Species Act*, the *Migratory Bird Treaty Act*, and the *Bald and Golden Eagle Protection Act*
U.S. Department of Agriculture, Natural Resources Conservation Service Delegated to Lee County Soil and Water Resources Conservation District.	*Farmland Protection Policy Act*
State	
Illinois Department of Natural Resources	Title 17 Illinois Admin. Code Parts 1075 and 1090
Illinois Historic Preservation Agency	Compliance with the *National Historic Preservation Act of 1966*, as amended
Local	
Palmyra Township Planning Committee and Palmyra Township Board Lee County Zoning Board	Special use zoning recommendation for approval July 31, 2010 Special use zoning approval obtained August 17, 2010

2.5 Project Proponent-Committed Measures

SVCC has committed to the following measures and procedures to minimize or avoid environmental impacts if the proposed project is carried forward.

2.5.1 BIRD, BAT, AND RAPTOR AVOIDANCE AND MINIMIZATION MEASURES

During turbine siting, SVCC has and would continue to give consideration to the guidelines contained within the *Interim Guidelines to Avoid and Minimize Wildlife Impacts* (USFWS 2003). The following measures are part of the proposed project and would be implemented to minimize impact to avian and bat species:

· Electrical distribution line would be installed underground.

· Ground lighting would be limited to the immediate vicinity of the turbine tower base and lighting fixtures would be used that reduce the potential to attract songbirds and other bird species migrating at night.

· The turbine would be a monopole design. Lattice towers, which have become roosting sites for birds at other wind projects, would not be used to support the wind turbine.

· Ground guy wires would not be used for support of the wind turbines. Guy wires can be a challenge for birds and bats to locate, which makes them difficult to maneuver around them and can lead to injury or death.

SVCC has also reviewed and incorporated several of the BMPs from the USFWS Wind Turbine Guidelines Advisory Committee's Site Development and Construction BMPs (USFWS 2010a). Discussion of the applicable recommendations and actions are located within the "Direct and Indirect Impacts" section within Section 3.2.2.6 of this EA. SVCC reviewed the May 2010 Bat Conservation International report, "Effectiveness of Changing Wind Turbine Cut-in Speed to Reduce Bat Fatalities at Wind Facilities" prepared for the Bats and Wind Energy Cooperative and the Pennsylvania Game Commission (BCI 2010a). Based on the findings of this report, SVCC will consider increasing the turbine's cut-in speed during periods of known heavy bat migration (primarily during weather conditions favorable for migration during the period late August to October) after further evaluation of the specific turbine model chosen for the site. SVCC would conduct voluntary post-construction avian and bat mortality surveys. Voluntary monitoring would likely consist of an initial post-construction fall migration season (approximately 8-12 weeks, based predominantly on Indiana bat migration habits). SVCC plans to implement the voluntary monitoring with in-kind support/oversight from SVCC faculty/staff, or with faculty/staff support from nearby Illinois State University. This monitoring will provide data to the USFWS, DOE, and IDNR on potential avian and bat mortality associated with single wind turbines. DOE is working with USFWS Region 3 to establish an appropriate protocol for post-construction monitoring. The final protocol is expected to include details related to timing, frequency, and reporting. SVCC would implement monitoring consistent with the final protocol.

2.5.2 HUMAN HEALTH AND SAFETY

The construction contractor and SVCC would prepare a health and safety plan in compliance with Occupational Safety and Health Administration (OSHA) requirements and the manufacturer's guidelines before starting work. All construction activities would occur during normal working hours to the extent practicable to limit noise and other disturbances to surrounding areas. The proposed project would be in compliance with Illinois Pollution Control Agency Noise regulations. As stated in the special use permit (Appendix G), SVCC would

certify that the project is in compliance with these noise regulations. The construction of the proposed project would comply with all applicable Federal, State, and local requirements.

FAA Advisory Circular AC70/7460-1K Change 2 (FAA 2007) states the monopole (turbine tower) should be painted bright white and the lights should be placed as high as possible on the turbine nacelle for 360-degree visibility. In accordance with 14 CFR Part 77, SVCC has applied for an FAA Aeronautical Determination, which it would obtain before construction.

To minimize the risk associated with ice shedding and ice throw, SVCC would include physical and visual warnings, such as placing fences and warning signs as appropriate for the protection of site personnel and the public, and deactivating the turbine remotely when site personnel detected ice accumulation (GE Energy 2006).

Wind turbine facilities are subject to vandalism, such as unauthorized persons climbing towers, opening electrical panels, or encountering other hazards. SVCC would take precautionary actions by installing a chain link fence around the tower base to control access, and would use the 24-hour campus security. In addition, the turbine design would allow no opportunities for external climbing of the tower.

Lightning strikes can cause extensive damage to turbine blades, controllers, and power electronics. However, this damage would be reduced by integral blade protection in the form of conductors, bonding to minimize arcing, good turbine grounding, controller cable and controller shielding, and transient voltage surge suppression.

2.5.3 SOIL

SVCC would require its construction contractor to use BMPs during installation and operation to protect topsoil and minimize soil erosion, including containing excavated material, using silt fences, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas directly after construction activities.

2.5.4 WASTE MANAGEMENT

Construction and operation of the proposed project would generate used oil. SVCC would handle, collect, transfer, and reuse or recycle used oil in accordance with applicable Federal, State, and local regulations.

2.5.5 CULTURAL AND HISTORIC RESOURCES

Through the IHPA review of its internal archaeological database, the Agency concluded that impacts to archaeological resources during construction of the proposed project would be unlikely (Appendix D). However, if construction activities encountered archaeological resources, ground-disturbing activities would stop, and SVCC would contact the IHPA for resolution and further instruction on additional studies or potential mitigation measures in accordance with the NHPA.

2.5.6 OPERATION AND MAINTENANCE

Because SVCC has not selected the make and model of the wind turbine, it has not determined specific operation and maintenance procedures; however, the College would maintain the turbine to manufacturer specifications while incorporating BMPs. SVCC would train workers and students for turbine maintenance and safety. Routine maintenance of the turbine would be necessary to maximize performance and identify potential problems or maintenance issues. SVCC would monitor the turbine remotely to ensure efficient operation. Problems would be reported to SVCC operations and maintenance personnel, who would perform all routine maintenance in partnership with the College's wind technician program. Major repairs would be completed by the manufacturer or the manufacturer's representative. A maintenance crew that would not need to use a crane to remove the turbine from the tower would perform most up-tower servicing.

2.5.7 VISUAL RESOURCES

Based on the analysis DOE prepared for this EA, shadow flicker would be unlikely to have a significant effect on potential receptors. However, if shadow impacts became an annoyance for any receptor(s), as stated in the special use permit conditions, SVCC would plant trees or install awnings or use another remedy to resolve shadow flicker effects. In addition, if SVCC received a verifiable complaint about shadow flicker visibility from within a home owned by a person not participating in the project, the turbine would be shut down during the brief period during which shadow flicker could occur.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 No-Action Alternative

Under the No-Action Alternative, baseline conditions would continue pursuant to SVCC's current plan of purchasing energy from ComEd (parent company Exelon). If the College did not implement the proposed project, it would continue to purchase at least 3.3 million kilowatt-hours of electric power that the project could have provided. In 2009, ComEd generated about 38 percent of its total electricity with fossil fuels. The remaining 62 percent came from sources that do not directly emit carbon dioxide (renewables and nuclear); see Appendix C for the ComEd Environmental Disclosure Statement. Therefore, carbon dioxide emissions from electricity generation to serve SVCC would be higher under the No-Action Alternative, and the College would not meet its objective to reduce its carbon footprint. In addition, SVCC would not have a convenient, high-quality, on-campus, hands-on laboratory for its wind technician program students to apply newly acquired turbine operation and maintenance skills. The small number of jobs created by installation and operation of the wind turbine would not occur, and the local area would forego the economic benefit associated with these new jobs.

3.2 Sauk Valley Community College's Proposed Project

3.2.1 CONSIDERATIONS NOT CARRIED FORWARD FOR FURTHER ANALYSIS

Consistent with NEPA implementing regulations and guidance, DOE focuses the analysis in an EA on topics with the greatest potential for significant environmental impact. For the reasons discussed below, the proposed project is unlikely to have a measurable impact on the resources discussed in the following paragraphs. Therefore, DOE has not carried these resources forward for further analysis.

3.2.1.1 Waste Management

Solid wastes likely to be generated during installation would include equipment packaging materials and construction-related material debris. Solid wastes generated during operation of the turbines would be minimal. Solid wastes likely to be generated during decommissioning would include dismantled equipment and decommissioning-related material debris. Installation, operation, or decommissioning activities would be unlikely to generate hazardous and universal wastes. SVCC would handle, collect, transfer, and dispose of all wastes generated over the life of the proposed project in accordance with applicable Federal, State, and local regulations. Operations of the proposed project would generate used oil (for example, spent gear box oil, hydraulic fluid, and gear grease), which is not a waste because it can be reused or recycled. SVCC has a recycling program for used oil generated from its maintenance vehicles; it would handle, collect, transfer, and dispose of used oil from the wind turbine in accordance with this existing program and with applicable Federal, State, and local regulations.

Hazardous waste is a category of waste regulated under the Resource Conservation and Recovery Act (RCRA). To be considered hazardous, a waste must be a solid waste under RCRA and must exhibit at least one of four characteristics described in 40 CFR 261.20 through 40 CFR 261.24 (i.e., ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the EPA in 40 CFR 261.31 through 40 CFR 261.33.

Universal Waste includes batteries, pesticides, mercury-containing equipment, and lamps that are subject to the universal waste requirements of 40 CFR Part 273.

3.2.1.2 Intentional Destructive Acts

DOE considers intentional destructive acts (such as acts of sabotage or terrorism) in all its EAs and environmental impact statements (DOE 2006). Construction and operation of the proposed project would not involve the transportation, storage, or use of radioactive, explosive, or toxic materials. The proposed project would not offer particularly attractive targets of opportunity for terrorists or saboteurs to inflict adverse impacts to human life, heath, or safety.

3.2.1.3 Water Resources

3.2.1.3.1 Groundwater

According to the Illinois Environmental Protection Agency's Source Water Assessment and Protection Program, the proposed project location is not in a Phase I or II community water supply wellhead protection area or a noncommunity water supply wellhead protection area (IEPA 2010). Figure 7 in Appendix A is a map showing the Assessment and Protection Program output. There are no identified private domestic potable supply wells within 61 meters (200 feet) of the proposed project location, which is the default setback area for private domestic wells in Illinois. The proposed project would not use groundwater. Therefore, DOE does not anticipate impacts to groundwater resources.

3.2.1.3.2 Surface Water

The site of the proposed project was surveyed for the presence of surface water. There are no ponds, streams, or wetlands within 305 meters (1,000 feet) of the proposed project area. The nearest surface-water body is the Rock River, approximately 560 meters (1,837 feet) south of the project area. Two small tributaries to the Rock River are 635 meters (2,083 feet) to the east and 750 meters (2,461 feet) to the west of the project area. SVCC would use BMPs to prevent erosion and stormwater runoff; these would include containing excavated material, using silt fences, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas. Therefore, DOE does not anticipate impacts to surface-water resources.

3.2.1.3.3 Floodplains and Wetlands

Pursuant to 10 CFR Part 1022, DOE reviewed the results from the Illinois Department of Natural Resources (IDNR) Ecological Compliance Assessment Tool and the USFWS National Wetlands Inventory, and determined that there are no wetlands within 305 meters (1,000 feet) of the proposed project area. In addition, according to the IDNR Office of Water Resources, the site is not in the floodplain of the Rock River or of a stream draining 26 square kilometers (10 square

miles) or more in a rural area; therefore, the project would not require an IDNR Office of Water Resources floodplain construction permit.

3.2.1.3.4 National Wild and Scenic Rivers

A review of the proposed project area confirmed that there are no nationally recognized Wild and Scenic Rivers in or near the project site. The closest recognized Wild and Scenic River to the proposed project area is the Middle Branch of the Vermillion River, approximately 322 kilometers (200 miles) southeast of the proposed project area near Danville, Illinois.

3.2.2 CONSIDERATIONS CARRIED FORWARD FOR FURTHER ANALYSIS

3.2.2.1 Land Use

The proposed project area is primarily unmaintained turf with the SVCC facilities to the southwest. Figure 3-1 is a site plan showing adjacent and nearby properties that the EA analysis considered potential receptors. The northern boundary of the campus is IL-2, a four-lane highway, and then agricultural property. The eastern boundary of the campus is Sauk Road and then agricultural property, a commercial property, and a student housing complex approximately 550 meters (1,805 feet) southeast from the proposed wind turbine location (Potential Receptors 1 and 2 on Figure 3-1). The Rock River forms the southern boundary of the campus. The Hennepin Canal Parkway State Park is across the Rock River to the southwest of the project site. The campus is bounded on the west by agricultural land and a riverfront residential subdivision on the southwestern corner, approximately 965 meters (3,166 feet) from the proposed wind turbine location (Potential Receptor 16 on Figure 3-1). The nearest residence to the proposed location is approximately 850 meters (2,789 feet) northeast of the proposed project location (Potential Receptor 11). The nearest residential area with a zoning "R-1" ["Single Family Residential Area," Illinois Compiled Statues (55 ILCS 515-12001 et seq.)] is approximately 1,190 meters (3,904 feet) northeast of the proposed location (Potential Receptor 8). To the southwest of the campus along Shoreline Heights Road is a residential subdivision of riverfront houses (Potential Receptor 16).

The Palmyra Township Planning Committee and Palmyra Township Board accepted the proposed project on July 31, 2010, for a special use exemption to the present zoning. In addition, the Lee County Zoning Board of Appeals accepted the project on August 5, 2010, for a special use exemption to the present zoning. This meeting served as the public hearing for the special use exemption. On August 17, 2010, SVCC met with the Lee County Board of Supervisors to request special use variance to the existing zoning to install a 127-meter (418-foot)-high, 2.5-megawatt wind turbine on College property. The Board unanimously approved the request on August 17, 2010. Appendix G contains the August 5, 2010, meeting minutes for the Lee County Zoning Board of Appeals and the August 17, 2010, Lee County Zoning Board meetings.

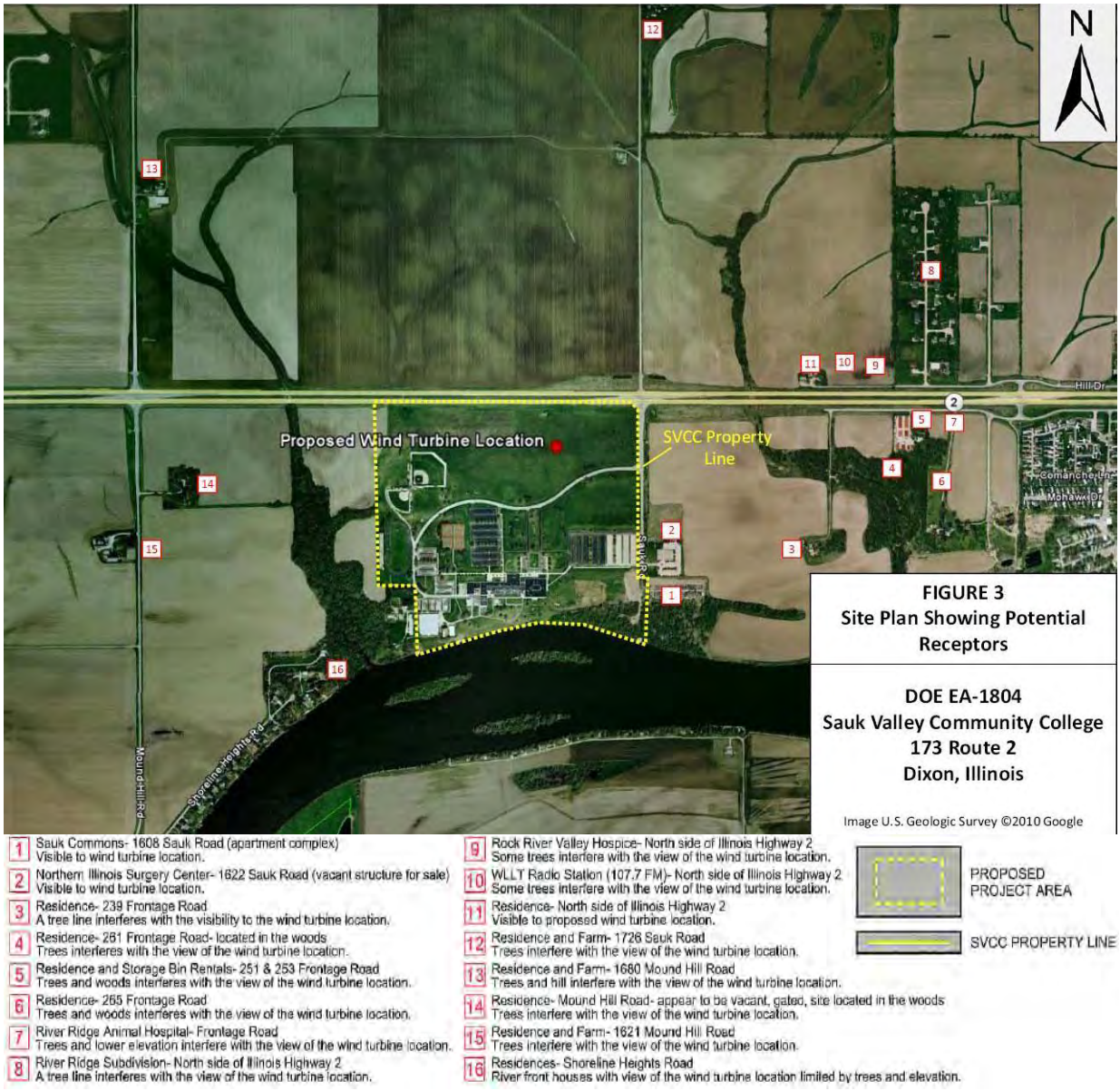


Figure 3-1. Site Plan Showing Potential Receptors

The special use exemption established a setback requirement of 152 meters (500 feet) or more for the turbine from all existing public roads, and distances to public utilities must be 1.1 times the height of the turbine with the blade tip at its highest point. In addition, the turbine would have to maintain a setback of 427 meters (1,400 feet) or more from any existing or occupied residence.

Direct and Indirect Impacts

Implementation of the proposed project would temporarily commit 0.02 square kilometer (5 acres) and permanently commit 0.001 square kilometer (0.33 acre) of greenspace that SVCC maintains as turf for possible future expansion. The overall use of the general area is primarily agricultural. The College would continue to use the area immediately surrounding the proposed

wind turbine location as undeveloped greenspace. The project area would comply with the setback requirements specified in the special use exemption.

3.2.2.2 Visual Quality

The existing view of the proposed project area is primarily agricultural, with the SVCC facilities on the southwestern portion (see Figure 3-1). The northern boundary of the campus is IL-2, a four-lane highway, and then agricultural property. The eastern boundary of the campus is Sauk Road and then agricultural property, a commercial property, and a student housing complex approximately 550 meters (1,805 feet) from the proposed turbine location. The Rock River forms the southern boundary of the campus. The campus is bounded on the west by agricultural land and a riverfront residential subdivision on the southwestern corner of the campus along Shoreline Heights Road, approximately 965 meters (3,166 feet) from the proposed wind turbine. The nearest residence is approximately 850 meters (2,789 feet) northeast of the proposed location. The nearest residential area with a zoning "R-1" ["Single Family Residential Area" Illinois Compiled Statues (55 ILCS 515-12001 *et seq*.)] is approximately 1,190 meters (3,904 feet) to the northeast. To address potential concerns about the aesthetic impacts of the proposed project, SVCC commissioned a visual simulation of the turbine from various points in the viewshed (Appendix H). The simulation estimated the scale of the turbine in relation to distance and is not an exact rendering of the proposed viewshed.

Shadow flicker is defined as alternating changes in light intensity caused by a moving object (such as a rotating rotor blade) casting shadows on another object. Shadow flicker from wind turbines can occur when moving turbine blades pass in front of the sun, creating alternating changes in light intensity or shadows. These flickering shadows can cause an annoyance when cast on nearby residences or other buildings ("receptors"). The spatial relationship between a wind turbine and a receptor, the location of trees, buildings, and other obstacles, and weather characteristics such as wind speed and direction and sunshine probability are key factors related to shadow flicker impacts. Shadow flicker becomes much less noticeable at distances beyond 305 meters (1,000 feet), except at sunrise and sunset when shadows are long.

Direct and Indirect Impacts

The proposed project would affect the viewshed in the project area. The turbine would be a dominant vertical structure in the landscape due to its height, but it would not obstruct views in the way a large building might. Because the proposed turbine would be in a landscape with other vertical elements (for example, mature trees and buildings), the visual impact would be minimized. Installation of the turbine in a landscape that already has vertical features typically has less impact than placing it in a flat landscape with no other vertical development.

The visibility of the proposed wind turbine would vary by location due to existing tree cover. The nearest day-to-day viewers of the turbine would be employees at SVCC, Rock River Hospice, radio station WLLT, Rock Ridge Animal Hospital, future occupants of the former Northern Illinois Surgery Center (currently for sale), and the residents of the surrounding area. Users of IL-2, Sauk Road, and SVCC access roads would have clear views of the turbine.

According to various sources, including the American Wind Energy Association and the U.S. Department of the Interior (DOI), shadow flicker is rarely a problem for residences near new

wind farms, especially in the United States, due to zoning restrictions, a less northerly latitude, and a higher angle of the sun in the winter sky (AWEA 2010a, 2010b; Windustry 2008). A study by Meridian Energy evaluated the effects of shadow flicker and concluded that the nearest affected receptors should be no closer than 10 rotor diameters from the turbines (Meridian Energy 2005). DOI also supports using 10 times the rotor's diameter as a threshold for conducting an assessment of shadow flicker impacts (DOI 2005), as have other flicker studies (DOE 2010a, 2010b; Saratoga Associates 2007). This would put the flicker assessment area at 990 meters (3,220 feet), which is three times the distance of AWEA's designated high-impact flicker area [300 meters (984 feet)] and half the distance of AWEA's no-impact flicker area [2 kilometers (1.2 miles)] (AWEA 2008). The EA analysis considered receptors within 1,000 meters (3,280 feet, or approximately 10 times the largest rotor diameter of one of the largest models under consideration) for potential impact. DOE performed a study (Appendix H) to determine if shadow flicker from the proposed project would produce adverse impacts to any nearby occupied dwelling. This study used a program available from the Danish Wind Energy Association to predict the shadow zone, which was superimposed on Figure 5 in Appendix A.

The results of the shadow flicker study indicate that, due to the isolated location for the proposed wind turbine, the presence of trees and tree lines, and the rolling terrain of the area, shadow flicker would affect a relatively small number of receptors. The nearest residence to the proposed project is approximately 850 meters (2,789 feet) to the northeast. The nearest residential area with a zoning "R-1" is approximately 1,190 meters (3,904 feet) to the northeast. Both locations are outside the shadow zone. A student housing complex is approximately 550 meters (1,805 feet) from the proposed location but is outside the shadow zone. The North Illinois Surgery Center is 460 meters (1,509 feet) from the proposed project location and is on the edge of the shadow zone. Figure 4 in Appendix A is a site plan showing the 1,000-meter (3,280-foot) radius and Figure 5 in Appendix A is a site plan showing the shadow flicker zone.

Based on the analysis for this EA, DOE does not expect shadow flicker to have a significant effect on potential receptors. However, if shadow impacts became an annoyance for receptor(s), in compliance with the special use permit conditions, SVCC would plant trees or install awnings or use another remedy to resolve such impacts. In addition, if SVCC received a verifiable complaint about shadow flicker visibility in any home owned by a person not participating in the project, it would shut the turbine down during the brief periods during which the shadow flicker occurred.

There is some concern that shadow flicker from wind turbines can cause epileptic seizures. Shadow flicker from wind turbines occurs much more slowly than the light "strobing" associated with seizures. The strobe rate necessary to cause seizures in people with photosensitive epilepsy is 3 to 5 flashes per second. Large wind turbine blades do not rotate at such a high rate (AWEA 2009). The rate at which modern three-bladed wind turbines rotate generates blade-passing frequencies of less than 1.75 hertz, below the threshold frequency of 2.5 hertz, indicating that seizures should not be an issue (Burton et al. 2001 as cited in DOI 2005)

The proposed project area does not have any nearby occupied dwelling that shadow flicker from the project would adversely affect. If shadow impacts became an annoyance for any receptor, SVCC would assist those receptors to purchase awnings and screening trees. In addition, on a case-by-case basis, SVCC would shut down the proposed wind turbine during the brief period

during which such shadow flicker occurred. The main receptors potentially affected by shadow flicker would be the traffic on IL-2, Sauk Road, around campus buildings, the entrance road to the campus, and the North Illinois Surgery Center. The proposed project would not result in any adverse impacts from shadow flicker.

3.2.2.3 Air Quality and Climate Change

The affected air environment can be characterized in terms of concentrations of the criteria pollutants carbon monoxide, sulfur dioxide, particulate matter, nitrogen dioxide, ozone, and lead. The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards for these pollutants. There are two standards for particulate matter, one for particulates with an aerodynamic diameter less than or equal to a nominal 10 micrometers and one for particulates with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. Lee County, Illinois, is in attainment for National Ambient Air Quality Standards (EPA 2010) and is also in attainment for the Air Quality Index (EPA 2008).

As part of its Final Rule on "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act," the EPA stated that the "aggregate group of the well-mixed greenhouse gases" constitutes an air pollutant that contributes to climate change (74 FR 66496, December 15, 2009). Carbon dioxide is a greenhouse gas, and the SVCC wind turbine would have an indirect impact on carbon dioxide emissions from fossil fuel sources.

Direct and Indirect Impacts

The proposed project would be an emission-free energy generation project that would not degrade air quality. Aside from temporary dust generated during construction and decommissioning, which SVCC would minimize to the extent practicable (for example, by watering dry roads), the proposed project would not result in adverse impacts to air quality. The project would not require any air permits.

Carbon dioxide is a greenhouse gas that contributes to climate change, which in turn causes harm to many physical and biological systems. The proposed project would reduce SVCC's carbon footprint by reducing reliance on fossil fuels. A 1.5-megawatt wind turbine would generate approximately 3.3 million kilowatt-hours per year and, if SVCC built the proposed project, it would supply approximately 100 percent of the electricity the College used. In 2009, ComEd generated about 38 percent of its total electricity with fossil fuels. The remaining 62 percent came from sources that do not directly emit carbon dioxide (renewables and nuclear); see Appendix C. The proposed project's carbon reduction is calculated as follows:

> 38% coal × 2.0562 pounds of carbon dioxide/kilowatt-hour × 3,338,897 kilowatt-hour/year = 2,608,867 pounds or 1,304 short tons or 1,183 metric tons or 1,165 long tons of carbon dioxide/year.

Under the proposed project, the wind turbine would reduce SVCC carbon usage and enable the College to meet its objective to reduce its carbon footprint. Under the No-Action Alternative, SVCC would not reduce its carbon footprint and the status quo would prevail.

SVCC would sell any excess energy from the proposed project to the electric grid for other users with credit for SVCC. If the project did not provide its entire energy need, SVCC could draw on the grid, using its credits.

The proposed project would produce significant amounts of clean electricity during its 20-year design life. In 20 years, a 1.5-megawatt wind turbine would generate 66,777,940 kilowatt-hours.

3.2.2.4 Biological Resources

Migratory Birds

The *Migratory Bird Treaty Act* (MBTA; 16 U.S.C. 703-7012) implements four international conventions that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, unless specifically authorized by the DOI. While the MBTA has no provision for allowing unauthorized take, the USFWS recognizes that some migratory birds could be taken during activities such as wind turbine operation even with the implementation of reasonable avoidance measures.

There are no existing bird surveys for the project area. Information of breeding bird use in the vicinity of the project area is limited to Illinois Breeding Bird Atlas survey block 039D3 (Dixon West-3). A total of 63 bird species were recorded for this block, of which 22 species were confirmed to be breeding, 10 were probable breeders, and 31 were possible breeders. Nine of these species are Species of Greatest Conservation Need (Sauer 2008). The nearest breeding bird survey route is the Halcomb Route, approximately 32 kilometers (20 miles) northeast of the project area.

The proposed project area is currently a landscaped lawn that is mowed regularly and is part of the SVCC campus. This decreases the amount of foraging and nesting habitats for migrating birds directly around the project area. The campus is surrounded to the north, east, and west by agricultural lands. The Rock River is just to the south of the campus, approximately 560 meters (1,837 feet) south of the proposed project site. This portion of the Rock River is not identified as a major migration corridor (Figure 3-2). There are no National Audubon Society-designated "Important Bird Areas" or other areas of high bird concentration or use close to the project area.

Based on the lack of suitable stopover habitat, migrating birds moving across the project area are not likely to use or stop at this site. The potential for project impacts to nonmigrating birds is greater for grassland species than for forest species or waterfowl, given the landcover composition in the area. The predominance of cultivated crops and the lack of highly suitable nesting or foraging habitats reduce the overall risk to birds from the project.

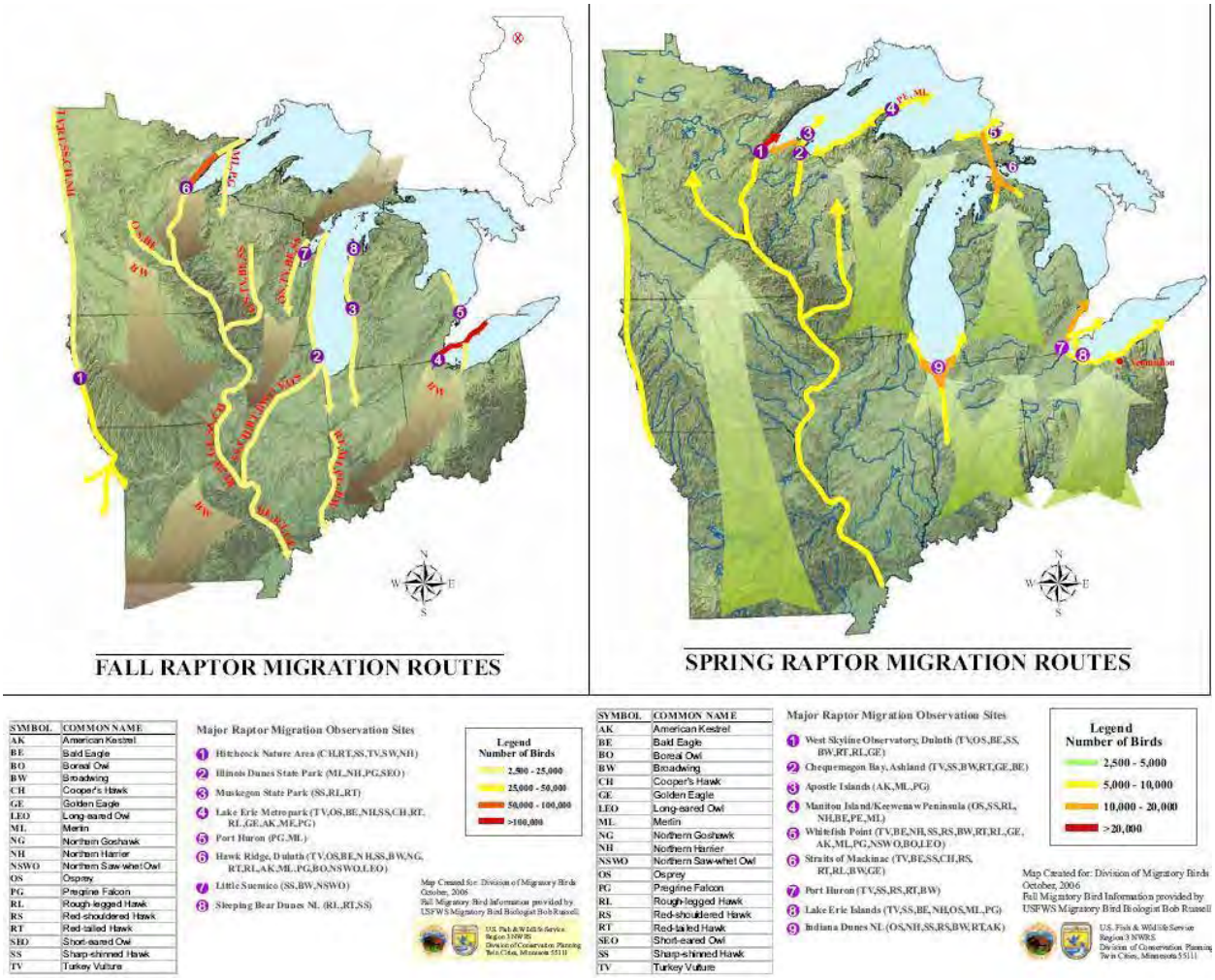


Figure 3-2. Fall and Spring Raptor Migration

Bald and Golden Eagles

Bald and golden eagles are included under the MBTA, and are afforded additional legal protection under the *Bald and Golden Eagle Protection Act* (16 U.S.C. 668-668d). On August 8, 2007, the bald eagle was removed from the list of threatened and endangered wildlife (72 FR 37345, July 9, 2007). After the delisting, the USFWS issued a final rulemaking (73 FR 29075, May 20, 2008) that provided a vehicle for limited take of bald and golden eagles, where the take to be authorized is associated with otherwise lawful activities. These regulations established permit provisions for intentional take of eagle nests under particular limited circumstances.

There has been considerable increase in the number of nesting bald eagles in Illinois in the past 10 to 15 years. By 2006, there were 100 known nesting pairs in the State, with the trend continuing upward. There are known occurrences of bald eagles nesting in Lee County (Illinois Endangered Species Protection Board 2009). IDNR has identified the nearest bald eagle nest approximately 6.4 kilometers (4 miles) southwest of the proposed project site and indicated that it was active in 2009 (Branham 2010). The nest is along the Rock River, downriver from the site of the proposed wind turbine. Ideal habitat for the bald eagle contains an appropriate mixture of tall perch, nest, and roost trees and snags containing exposed lateral limbs or dead tops, in

proximity to food sources (USFWS 2007a). The diet of a bald eagle consists primarily of fish, but can include waterfowl, shorebirds and colonial waterbirds, small mammals, turtles, snakes, rodents, and carrion (dead animals) (USFWS 2007a). The proposed wind turbine and college campus are within 0.8 kilometer (0.5 mile) of the Rock River corridor, which bald eagles might use for foraging. However, the campus area itself is well developed, consisting mainly of buildings, parking lots, and other hardscaped areas, landscaped grass, and other disturbed areas; it does not contain a significant tree canopy. The nest is sufficiently distant from the proposed wind turbine site such that it is unlikely to affect bald eagle nesting or foraging behavior. In addition, wind turbines to not tend to kill bald eagles. There are no reported bald eagle mortalities from wind turbines in Midwestern states (GAO 2005; Erickson et al. 2001; Kingsley and Whittam 2005), and only one record of mortality exists for the bald eagle from a wind turbine strike in North America (Norfolk County, Ontario, 2009) (Pearce 2010).

Golden eagles are not known to nest in Illinois. They are known to overwinter in the state, although not in Lee County (INHS 2005a).

Bats

The EA analysis found no records of specific bat surveys in Lee County. However, the proposed project area is in a national region of moderately high bat species density (Cryan 2008). Based on review of national and state range maps (BCI 2010; INHS 2005b), a total of four bat species have geographic distributions that might include the project area:

- Little brown bat (*Myotis lucifugus*)
- Big brown bat (*Eptesicus fuscus*)
- Eastern red bat (*Lasiurus borealis*)
- Hoary bat (*Lasiurus cinereus*)

The threatened and endangered species section of this EA (below) discusses the Indiana bat (*Myotis sodalis*).

The IDNR reviewed the proposed project and provided feedback and information concerning special-status species, habitat suitability, and other protected resources within or near the project area. According to the IDNR EcoCAT, there were no occurrences of the Indiana bat in the vicinity of the project (Appendix D).

All of these species use woodland habitat for feeding or roosting during the year (BCI 2010). Many forage along stream corridors or over water. A narrow, relatively small patch of trees occurs just to the west of the SVCC campus, approximately 0.8 kilometer (0.5 mile) from the project area. This area could provide a limited amount of suitable habitat. There are also patchy clusters of trees along the bank of the Rock River, which provides suitable foraging habitat for these bat species. The agricultural fields in and adjacent to the project area could also provide suitable foraging habitat.

Threatened, Endangered, and Special Concern Species

The EA analysis used the USFWS Endangered Species Website to review information on the potential occurrence of Federally listed species, which led to a list of potentially occurring listed species for Lee County, Illinois. The USFWS list identifies three Federally listed species as

potentially occurring in Lee County – the prairie bush clover (*Lespedeza leptostachya*), the Eastern prairie fringed orchid (*Platanthera leucophaea*), and the Indiana bat (USFWS 2009). Based on review of habitat requirements of prairie bush clover and Eastern prairie fringed orchid, the site of the proposed wind turbine does not provide suitable habitat due to its previously disturbed nature. DOE contacted USFWS for information on rare, threatened, and endangered species, and USFWS concurred with DOE's determination that the proposed site does not provide suitable habitat for either species (see USWFS letter dated September 10, 2010, in Appendix D of this EA).

There are no known Indiana bat occurrences in the project area or in Lee County based on a review of the Illinois Natural History Survey 2005 (INHS 2005a, 2005b). There are no summer records for the Indiana bat in Lee County and the nearest known hibernaculum (winter habitat) and designated critical habitat area is Blackball Mine in LaSalle County, Illinois (Priority 2 hibernaculum), about 69 kilometers (43 miles) southeast of the proposed project (USFWS 2007b). The proposed site does not include hibernacula, summer (maternal roosting habitat), or highly suitable foraging habitat for this species, which includes forested areas and habitat near or along open water and wetlands (USFWS 2007b). Mature trees or undisturbed habitats do not occur on the site.

Indiana bats do not tend to traverse open expanses of more than 305 meters (1,000 feet) for foraging (USFWS 2010a). The area surrounding the proposed project is predominately agricultural, with wooded areas no closer than approximately 518 meters (1,700 feet). The risk to migrating individuals is difficult to characterize because little is known of the migratory patterns of this species. Because the site of the proposed project does not include suitable hibernaculum, roosting, or foraging habitat and, due to the distance to the nearest known such habitat, it is not believed to be a migratory pathway for the Indiana bat.

The IDNR reviewed the proposed project and provided feedback and information on special-status species, habitat suitability, and other protected resources in or near the project area. This review searched the IDNR Illinois Natural Heritage Database (INHD 2010) for known occurrences of State-listed threatened or endangered species in Lee County. The database identified the closest known documented occurrence of an Indiana bat as 69 kilometers (43 miles) from the project location (Branham 2010), which is the Blackball Mine location discussed above. The INHD does not include records of Illinois Natural Area Inventory Sites, dedicated Illinois Nature Preserves, registered Land and Water Reserves, or wetlands in the vicinity of the project area. The IDNR has, therefore, concluded that adverse effects to State-listed species resulting from the proposed project would be unlikely (Appendix D).

Direct and Indirect Impacts

Migratory Birds, Bald Eagle, and Golden Eagle

SVCC has and will continue to give consideration to the *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (USFWS 2003). The college has committed to incorporate all applicable recommendations and has included them as project proponent-committed practices to avoid and minimize potential impacts to migratory birds and bald and golden eagles. SVCC has also reviewed and incorporated several BMPs from the USFWS *Wind Turbine Guidelines Advisory Committee's Site Development and Construction Best Management*

Practices (USFWS 2010b). The following demonstrates how the proposed project would incorperate the USFWS's Interim Guidelines:

- The project is a single wind turbine in already disturbed habitat and configuration of turbines is not applicable.
- The proposed turbine design is a monopole; SVCC proposes no external features to the design and all electric lines would be underground.
- The area around the turbine is mainly agricultural and does not provide significant bird habitat or fragment any such habitat.
- Although the proposed project would require temporary access and staging of approximately 0.02 square kilometer (5.33 acres), this area is unmaintained grass, and SVCC would implement construction BMPs.
- SVCC would revegetate all but the 0.001-square-kilometer (0.33-acre) footprint of the wind turbine and would continue to maintain it as landscaped grass.
- SVCC would use aviation lighting at the minimum required by FAA to minimize potential bird and bat impacts.

DOE consulted both the USFWS and IDNR before preparing this EA. Based on the feedback from IDNR (Appendix D) and the research on the proposed turbine design, height, and location, the risk of collisions by migratory birds, including bald and golden eagles, would be low. The proposed turbine location is not in a migratory pathway or in any area designated as an Important Bird Areas. Based on the lack of suitable stopover habitat, migrating birds moving across the project area are not likely to use or stop at this site. In fact, the potential for project impacts to nonmigrating birds is greater for grassland bird species than for forest bird species or waterfowl, given the landcover composition in the project area. The predominance of cultivated crops and lack of highly suitable nesting or foraging habitats lowers the overall risk to birds from the project. Avian habitat in the project area is of limited quality, given the predominance of disturbed habitat, cultivated crops, and proximity to human development. Therefore, the footprint of the proposed project would be unlikely to cause serious disturbance to networks of high-quality avian habitat in the region; therefore, a habitat restoration plan is not warranted. Moreover, wind farms typically result in the loss of 0.7 to 1.0 acre per turbine, leaving the majority of existing habitats on the project area intact (Strickland 2004).

Bats

The estimated mean bat fatality per turbine per year for Midwest sites is between 0.1 and 7.8 (Arnett et al. 2008). Given the similarity of the proposed project site to other Midwest sites with minimal suitable bat habitat, bat fatality for the SVCC project would probably be on the lower end of this range. Therefore, impacts to bat populations would not be significant.

Threatened and Endangered Species

The USFWS stated that, based on the habitat requirements of prairie bush clover and Eastern prairie fringed orchid, the site of the proposed wind turbine does not provide suitable habitat for

these species because of the disturbed nature of the area. As stated in the USFWS letter dated September 10, 2010 (Appendix D), the proposed project would have no effect on these species.

There are no known occurrences of the Indiana bat in Lee County; the nearest known occurrence is 69 kilometers (43 miles) from the site of the proposed project. Based on the lack of suitable hibernacula or roosting habitat and the distance to the nearest known occurrence of the Indiana bat, DOE determined that the site is not likely in a major migratory pathway. The likelihood that this project would affect individuals of this species or suitable habitats is negligible. "The risk to migrating individuals is more difficult to characterize because little is known of the migratory patterns of this species" USFWS letter dated September 10, 2010 (Appendix D). However, IDNR concluded that adverse effects to State-listed species resulting from the proposed project would be unlikely (Appendix D). In addition, in a letter dated September 10, 2010, the USFWS concurred with the DOE determination that the proposed project may affect, but is not likely to adversely affect, the Indiana bat. Further, that letter stated that "the likelihood for take is discountable" (Appendix D).

Monitoring

SVCC would conduct voluntary post-construction avian and bat mortality surveys. Voluntary monitoring would likely consist of an initial post-construction fall migration season (approximately 8-12 weeks, based predominantly on Indiana bat migration habits). SVCC plans to implement the voluntary monitoring with in-kind support/oversight from SVCC faculty/staff. This monitoring will provide data to the USFWS, DOE, and IDNR on potential avian and bat mortality associated with single wind turbines. SVCC will also comply with the conditions stated in the Special Use Permit issued by Lee County, by cataloging and reporting annually to the Lee County Zoning Office any birds discovered injured or killed by the project. DOE is working with USFWS Region 3 to establish an appropriate protocol for post-construction monitoring. The final protocol is expected to include details related to timing, frequency, and reporting. SVCC would implement monitoring consistent with the final protocol.

3.2.2.5 Cultural and Historic Resources

3.2.2.5.1 Section 106 of the National Historic Preservation Act

The NHPA is the primary Federal law protecting cultural, historic, American Indian, and Native Hawaiian resources. Section 106 of the NHPA (36 CFR Part 800) requires DOE and other Federal agencies to assess and determine the potential effects of their proposed undertakings on prehistoric and historic resources and to develop measures to avoid or mitigate any adverse impacts associated with the proposed project. Compliance with Section 106 requires consultation with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPOs), and affected tribes.

"Historic resources" mean any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the *National Register of Historic Places* (NRHP) maintained by the Secretary of the Interior. This term also includes artifacts, records, and remains that are related to and located in such properties as well as properties of traditional

religious and cultural importance to an American Indian tribal organization that meet the NRHP criteria [36 CFR 800.16(1)].

The Section 106 process contains six steps:

1. Initiate Section 106 consultation with SHPO and THPO.
2. Identify historic properties.
3. Assess adverse effects.
4. Resolve adverse effects.
5. Complete consultation.
6. Implement project.

For this project, a programmatic agreement between DOE and the IHPA (Appendix F) outlines these steps. Under this agreement, DOE is responsible for providing oversight of the programmatic agreement to ensure administration of the SEP (among other programs) in compliance with DOE Section 106 responsibilities for all individual undertakings. DOE would provide guidance on the NHPA to recipients before the release of any financial awards for undertakings under SEP (among other programs). In an effort to streamline the process, DOE authorized recipients to consult with SHPOs for compliance with all regulations under Section 106. The recipient responsibility under the programmatic agreement is to prepare and maintain all documentation for the SHPO and DOE and inform DOE of any adverse impacts on historic and cultural resources. On March 15, 2010, SVCC submitted a cultural and historic resources consultation letter to the IHPA for the proposed project in accordance with the submittal guidelines established by IHPA (IHPA 2010).

3.2.2.5.2 Definition of Historic Property

NEPA and NHPA require Federal agencies to consider the effect of their undertakings on historic properties. The criteria for listing an historic property, as defined in 36 CFR 60.4, state that a resource must be at least 50 years old (unless meeting exceptional criteria) and possess the quality of significance in American history, architecture, archaeology, engineering, or culture and is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, or association and meet one or more of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of history;

- Is associated with the lives of persons significant in the past;

- Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components might lack individual distinction; or

- Has yielded, or might be likely to yield, information important in prehistory or history.

If a particular unlisted resource meets one of these criteria and retains integrity, it is an eligible "historic property" for listing in the NRHP.

3.2.2.5.3 Application of the Criteria of Adverse Effect

To comply with Section 106 of the NHPA, any effects of the proposed undertaking on properties listed in or determined eligible for inclusion in the NRHP must be analyzed by applying the Criteria of Adverse Effect [36 CFR 800.16(1)]:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Known and Predicted Resources

DOE and the IHPA evaluated the proposed project by using an aboveground "area of potential effect" with a 1.6-kilometer (1-mile) radius around the proposed project location. The area of potential effect is the distance within which there is a potential to cause alterations in the character or use of historic properties, if present.

The closest known NRHP properties are approximately 8.8 kilometers (5.5 miles) from the proposed project area and include the bridge over Five Mile Branch carrying Schilpp Road (south, eligible for listing); properties in Dixon (east, entered in the NRHP – Illinois Central Stone Arch Railroad Bridges, Nachusa House, President Ronald Reagan's boyhood home, and William H. Van Epps House); and properties in Sterling (west, entered in the NRHP – Colonel Edward N. Kirk House, First Congregational Church of Sterling, and Sterling Masonic Temple).

There are no Federally recognized American Indian Tribes in the State of Illinois today. The *Native American Graves Protection and Repatriation Act* Native American Consultation Database identified six tribes with an historic presence in Lee County, Illinois: Citizen Potawatomi Nation, Oklahoma; Forest County Potawatomi Community, Wisconsin; Potawatomi Hannahville Indian Community, Michigan; Ho-Chunk Nation of Wisconsin; Prairie Band of Potawatomi Indians; and Winnebago Tribe of Nebraska. DOE sent the scoping notification postcard to these and the Sac and Fox Nation of Mississippi in Iowa, Sac and Fox Nation of Missouri, and Sac and Fox Nation of Oklahoma Tribes, but received no comments. DOE included these tribes on the distribution list of the Notice of Availability for this EA, which contained information on providing feedback on the proposed project.

Direct and Indirect Impacts

The proposed turbine is not in the viewshed of any NRHP-listed properties. In compliance with the programmatic agreement, SVCC contacted the IHPA to determine potential historic resources on the site. In its response dated March 29, 2010, the IHPA determined that implementation of the proposed project would not affect historic properties. Appendix D contains a copy of the IHPA response letter.

The IHPA review of its internal archaeological database concluded that impacts to archaeological resources during construction of the proposed project would be unlikely. The

proposed site has been previously disturbed. Further, if construction activities encountered archaeological resources, ground-disturbing activities would stop and SVCC would contact the IHPA for resolution and further instruction on additional studies or potential mitigation measures required in accordance with the NHPA.

DOE conducted a review for potential historic properties within a 1.6-kilometer (1-mile) area of potential effect. Based on this review and consultation with the IHPA, DOE determined there are no historic properties within this area; therefore, there would be no impacts to historic properties.

3.2.2.6 Environmental Justice and Socioeconomics

Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" (February 11, 1994), directs Federal agencies to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." SVCC is about 11 kilometers (7 miles) west of the city center of Dixon, Illinois. The racial makeup of Dixon in 2008 was 83.4 percent white, compared with 93 percent for Lee County. The median income in 2008 for a household within a 16-kilometer (10-mile) radius of Dixon was $42,312, compared with $56,235 for the State of Illinois. Between 6 and 10 percent of individuals were below the poverty level in Lee County in 2000 (which was $17,050 for a family of four) (Bureau of the Census 2010).

SVCC currently employs approximately 266 associates and educates more than 5,800 students. The SVCC workforce comprises 7 percent minority workers and 67 percent female workers.

Direct and Indirect Impacts

There are no disproportionately high populations of low-income or minority people in the project area. The analysis for this EA identified no potential high and adverse impacts to human health or environmental effects. Therefore, there would be no disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

DOE used the results of an extensive report titled *Economic Impact, Wind Energy Development in Illinois* (Center for Renewable Energy 2010) to calculate the job creation impact of the proposed project. The report cites that on average 5.38 construction jobs and 0.26 permanent jobs are created per each installed megawatt. Smaller projects have double that effect because of a similar amount of work required for a project and fewer megawatts over which to spread any effect. SVCC anticipates that its project would generate as many as 16 jobs during the selection, evaluation, and construction phases; in addition, the project would retain one permanent faculty position during the operation phase.

3.2.2.7 Geology and Soils

The site of the proposed project is on soil classified as Parkway silt loam, which is a well-drained soil on 2- to 5-percent slopes on the shoulders and summits of ground moraines (glacial depositional features). The soil does not have a frequency for ponding or flooding with low surface runoff. The high water table is between 1.2 and 1.8 meters (4 and 6 feet) below ground surface. The parent material to the Parkway soil is loess (windblown silt) and glacial till (an unsorted mix of sand and gravel in a silt and clay matrix).

DOE reviewed Illinois State Geological Survey Circular 532 (Berg et al. 1984) for information on the shallow subsurface materials in the area. According to the circular, the proposed project area is on the boundary of map units A2 and AX, which are defined as thick, permeable sand and gravel within 6 meters (20 feet) of land surface and alluvium (a mixture of gravel, sand, silt, and clay along streams, variable in composition and thickness), respectively.

According to Illinois State Geological Survey Circular 490 (Piskin and Bergstrom 1975), the thickness of glacial drift (subsurface materials that lie on top of the bedrock surface) in the vicinity of the proposed project area is less than 15 meters (50 feet). Bedrock is exposed in some areas. Bedrock in the area consists of Ordovician dolomite and limestone, which is widely exposed in the Rock River valley. Ordovician bedrock can be as thick as 244 meters (800 feet) in the project area.

The LaSalle Anticline fault trends northwest to southeast through the middle of Lee County, and the ancient Sandwich fault zone runs through the northeastern portion of the county. There are no known modern active fault zones in northern Illinois. Many small earthquakes have been reported in Lee County; however, none were measured to be greater than a magnitude of 5 on the Richter scale. According to the U.S. Geological Survey National Seismic Hazard Map, the proposed project location is between 6 and 8 percent of peak acceleration (USGS 2008), which is a low potential for an earthquake hazard.

Direct and Indirect Impacts

SVCC consulted with the Lee County Soil and Water Resources Conservation District about prime farmland. The District concluded in its June 10, 2010, letter that “no farm land will be taken out of production for this construction” (Appendix D). Therefore, should SVCC implement the proposed project, impacts to prime farmland would be unlikely.

Site preparation and project construction would result in soil disturbance. Construction would disturb approximately 0.001 square kilometer (0.33 acre) of open space currently held as SVCC greenspace. In addition, the burial of the transmission lines would disturb the path from the wind turbine to the physical connection point on the SVCC. Because ground-disturbing activity would involve less than 0.004 square kilometer (1 acre), a National Pollutant Discharge Elimination System Stormwater Program permit would not be required. Onsite construction personnel would perform weekly inspections of the erosion and sediment control structures and a third-party construction management and engineering firm would perform monthly inspections. SVCC would use BMPs to prevent erosion and stormwater runoff; these would include containing excavated material, using silt fences, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas.

3.2.2.8 Human Health and Safety

Workers can be injured or killed during the installation, operation, and decommissioning of wind turbines through industrial accidents such as falls, fires, and dropping or collapsing equipment. Such accidents are uncommon in the wind industry and for the most part are avoidable through implementation of proper safety practices and equipment maintenance.

Collapse of a turbine or breakage (and throwing) of one or more turbine blades are possible but very unlikely occurrences. Debris falling from these occurrences would likely be limited to a calculated fall zone, which is the approximate area around the base of the turbine that would be likely to receive the tower and turbine if it fell (that is, the turbine's total height at blade tip) (MacQueen et al. 1983). Estimates of blade throw vary, but MacQueen et al. (1983) estimate the probability of being struck outside this area (that is, within one blade diameter of the tower base) is about 10^{-7} per year for a fixed building, and substantially less for people who are mobile. The construction contractor and facility operator would prepare a health and safety plan pursuant to OSHA requirements before beginning work and, by following this plan, greatly reduce the potential for worker injury and fatalities.

Another potential source of accidents is ice shedding and ice throw. Ice shedding, or ice throw, refers to the phenomenon that can occur when ice accumulates on rotor blades and subsequently breaks free or melts and falls to the ground. This is a potential safety concern; however, while more than 90,000 wind turbines have been installed worldwide, there has been no reported injury caused by ice thrown from a turbine (Tetra Tech EC, Inc. 2007). The proposed wind turbine would have ice sensors on the blades. When ice formed, the sensors would engage and the turbine would not be able to rotate until the ice had melted. The purpose of this technology is to prevent ice throws. Ice that had accumulated on the blades would fall to the foot of the turbine as it melted. To prevent accident or injury from ice that fell as it melted, the area directly under the turbine would have to be a clear zone. This was a factor in the SVCC choice of a site for the turbine. The proposed location provides an adequate clear zone under the turbine. However, ice shedding does occur, and would be a potential safety concern. Recommendations to mitigate this risk, which SVCC would implement, include physical and visual warnings such as placing fences and warning signs for the protection of site personnel and the public, and turbine deactivation (that is, remotely switching off the turbine when site personnel detect ice accumulation) (GE Energy 2006). Another risk mitigation strategy SVCC could implement would be for site personnel to stay slightly upwind of the turbine during potential ice accumulation conditions (Morgan et al. 1998).

Wind turbine facilities have the potential for vandalism, including members of the public attempting to climb towers, open electrical panels, or encounter other hazards. SVCC restricts public access to the site and would continue to do so. Moreover, chain link fencing would surround the tower base to control access, and SVCC employs 24-hour campus security. In addition, the turbine design would provide no opportunities for external climbing of the tower.

A study conducted for the DOE National Renewable Energy Laboratory identified damage mechanisms due to direct and indirect effects of lightning strikes on wind turbines. Lightning strikes can cause extensive damage to turbine blades, controllers, and power electronics (NREL 2002). However, nearby tall communication towers can provide protection from such damage. Other ways to reduce damage that SVCC would implement include integral blade protection in the form of conductors, bonding to minimize arcing, good turbine grounding, controller cable and controller shielding, and transient voltage surge suppression. The height and prominence of the turbine, the terrain, and the lightning protection system in place are factors related to lightning damage. According to the National Oceanic and Atmospheric Organization, Illinois has midrange lightning activity (between 40 and 50 annual thunderstorm days) (NWS 2010).

Direct and Indirect Impacts

For this analysis, DOE calculated the fall zone radius to be the total height of the turbine, 127 meters (418 feet). In a turbine collapse, the turbine would tend to buckle and, therefore, fall somewhere in the fall zone. SVCC chose the project location so that, in the unlikely event of turbine collapse, lightning strikes, or ice throw, there would be no impacts to structures, public access, or roads. Some lubricants used in wind turbines, including gearbox oil, hydraulic fluid, and gear grease, require periodic replacement. SVCC would collect, handle, and dispose of these lubricants in accordance with all applicable local, State, and Federal regulations.

DOE and SVCC anticipate no adverse public safety or security impacts due to the proposed project. Chain link fencing and SVCC security would prevent members of the public from accessing the area. The College would post safety signage around the tower (where necessary), and transformers and other high-voltage facilities would conform to applicable Federal and State regulations. SVCC would educate its employees on security procedures in the vicinity of the turbine.

3.2.2.9 Noise

SVCC would install a single wind turbine in an undeveloped portion of the College campus, between the college buildings and IL-2. The College has not finalized the selection of the turbine model it would install. The analysis in this EA used one of the largest models under consideration, the Clipper Liberty 2.5-MW C99. This is a tubular steel monopole, three-blade, ground-mounted wind turbine. It has a hub height of 80 meters (262 feet), a rotor diameter of 99 meters (325 feet), with an overall height of 127 meters (418 feet) to the blade tip at its highest point. Table 3-1 lists the manufacturer's guaranteed octave band sound power levels at the nacelle.

Table 3-1. Clipper Liberty 2.5-MW C99 Wind Turbine Sound Power Levels

Frequency (Hz)	31	63	125	250	500	1,000	2,000	4,000	8,000
Sound Power Level (dB)	126.9	120.1	114.7	110.2	107.9	102.9	97.8	90.7	81.9

Source: Guldberg 2009.
dB = decibel; Hz = hertz.

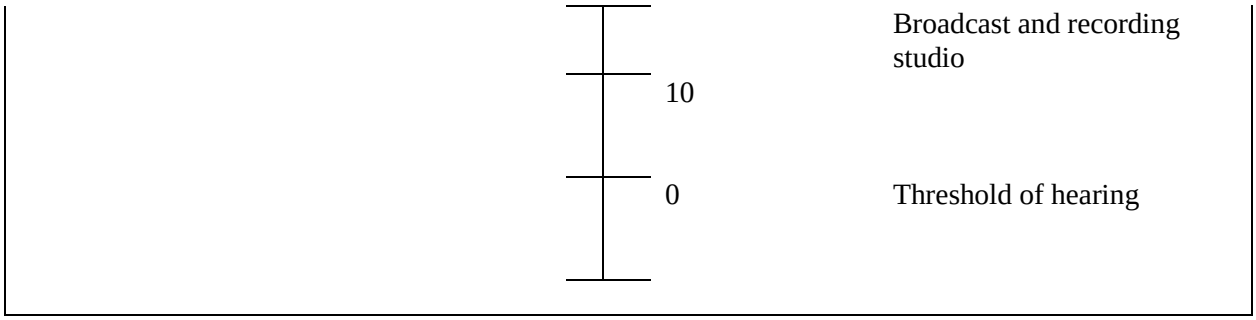
The standard unit of measure for sound pressure or sound power levels is the decibel (dB), which describes the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the measured pressure to the reference pressure, which is 20 micropascals. Typically, environmental sound pressure levels are measured in decibels on an A-weighted scale (dBA). The A-weighted scale deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear [i.e., using the A-weighting filter adjusts certain frequency ranges (those that humans detect poorly)] (Colby et al. 2009). The Day Night Average Sound Level (DNL), a standard environmental noise descriptor, is essentially a 24-hour average noise level with 10 dB added to nighttime noise levels. This 10-dBA adjustment accounts for people's increased sensitivity to noise at night.

The EPA has an existing design goal of DNL less than or equal to 65 dBA and a future design goal DNL of 55 dBA for exterior sound levels (EPA 1977). (The EPA noise guidelines are design goals and not enforceable regulations.) These guidelines and design goals are useful tools for assessing the affected environment. The Illinois Pollution Control Board (IPCB) noise regulations are in Illinois Administrative Code Title 35, Subtitle H, Chapter I, Part 901 "Sound Emissions Standards and Limitations for Property-Line Noise-Sources." The Code sets limits of allowable sound criteria for a variety of different land classifications (that is, business, industrial, agricultural, residential). Unlike the EPA noise guidelines, the IPCB noise regulations are enforceable. As part of the Lee County special use exempt conditions, SVCC must certify that the proposed project would be in compliance with the IPCB noise regulations.

Table 3-2 lists common outdoor and indoor sound sources and typical associated sound levels. It is important to list the distance to the source as well as the level. Indoor and outdoor sound levels technically should not be compared with each other because of context and expectations of different acoustical environments.

Table 3-2. Common Outdoor and Indoor Sound Sources and Typical Associated Sound Levels (dBA)

Common Outdoor Sound Levels	dBA	Common Indoor Sound Levels
		Rock band
Jet flyover at 1,000 feet	110	
	100	Inside subway train (New York)
Gas lawnmower at 3 feet		
Diesel truck at 50 feet	90	
Noisy urban daytime		Food blender at 3 feet
		Garbage disposal at 3 feet
	80	Very loud speech at 3 feet
Gas lawnmower at 100 feet		
	70	
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet		
	60	Large business office
		Quiet speech at 3 feet
		Dishwasher next room
	50	Small theater, large conference room
Quiet urban nighttime		(background)
	40	
Quiet suburban nighttime		Library
	30	Bedroom at night
Quiet rural nighttime		Concert hall (background)
	20	



dBA = A-weighted decibel.

The existing noise environment for the proposed wind turbine is an undeveloped area near the north boundary of the SVCC campus, which is IL-2, a four-lane highway, and then agricultural property. The eastern boundary of the campus is Sauk Road and then agricultural property, a commercial property, and a student housing complex approximately 550 meters (1,805 feet) from the proposed location. The Rock River forms the southern boundary of the campus. The campus is bounded on the west by agricultural land and a riverfront residential subdivision on the southwestern corner of the campus along Shoreline Heights Road [approximately 965 meters (3,166 feet) from the proposed wind turbine location].

Between 10:00 a.m. and 2:00 p.m. on July 14, 2010, an ambient noise survey recorded sound readings at eight locations on the campus and in the vicinity of the proposed wind turbine. The survey consisted of a series of five recording intervals of 5 minutes each. The minimum and maximum readings during each interval were recorded with a sound level meter with a windscreen over the microphone. The unit was set for dBA measurements. Ambient sound sources in the vicinity include traffic on campus and on IL-2, wind [gusting from 11 to 24 kilometers (7 to 15 miles) per hour], and activities on campus and the surrounding area. Figure 6 in Appendix A is a site plan showing sound reading locations. Appendix H contains the Noise Report.

The ambient sound level at the farmhouse approximately 850 meters (3,669 feet) from the proposed turbine location was 59 dBA. The ambient sound level at the student housing building approximately 550 meters (1,805 feet) away was 53 dBA.

Direct and Indirect Impacts

Construction equipment would generate temporary noise during the approximately 5-month active construction phase. However, due to the noise-generating activities from existing activities and traffic as described above, the wind turbine construction noise would be unlikely to increase ambient noise levels significantly.

Modern wind turbines have been designed to reduce the noise of mechanical components significantly, so the most audible noise is the sound of the wind interacting with the rotor blades. Such turbines are generally quiet in operation and the sound would be very low compared with that of the traffic and campus activities.

Sound pressure levels from point sources diminish at a rate of approximately 6 dB per doubling of distance from the source. At a distance sufficiently far from the turbine, turbine noise levels would be below ambient noise levels and inaudible. Table 3-3 lists the estimated octave band

sound pressure level due to the turbine at the nearest residence (student housing apartments), approximately 550 meters (3,669 feet) northeast of the proposed location and the farmhouse approximately 875 meters (2,871 feet) from the proposed location. Table 3-3 also lists the IPCB nighttime (most stringent) noise standard for Class A lands, which include residences.

Table 3-3. Estimated Turbine Sound Pressure Level at Nearest Residences

Frequency (Hz)	31	63	125	250	500	1,000	2,000	4,000	8,000	dBA
Student Housing Building	64	57	52	47	45	40	35	28	19	46
Farmhouse	60	53	48	43	41	36	31	24	15	42
***IPCB Nighttime Standard**	69	67	62	54	47	41	36	32	32	51

*Source: 35 IAC Part 901.
dBA = A-weighted decibel; Hz = hertz; IPCB = Illinois Pollution Control Board.

Estimated turbine noise levels at both the farmhouse and student housing building would be below IPCB noise standards; therefore, significant noise impacts would be unlikely. Turbine noise levels would be lower than the EPA noise level guidelines of 55 to 65 DNL. In addition, turbine noise levels would be lower than existing ambient noise levels at the nearest residence.

3.2.2.10 Transportation

IL-2 and Sauk Road serve the SVCC campus, including the site of the proposed project. There is a campus access drive through the property to provide access to SVCC facilities. Access to the Interstate Highway System (specifically Interstate Highway 88) is available by IL-26 in Dixon to the east or IL-40 in Sterling/Rock Falls to the west of the proposed location. SVCC has not finalized plans for transportation of project materials and equipment; however, it is likely all could use existing infrastructure. Therefore, no new access or other roads would be necessary for the installation of the wind turbine.

The project would be approximately 0.7 nautical mile (4,253 feet) southwest of the Collins Airstrip.

Direct and Indirect Impacts

Large pieces of equipment, such as the turbine tower, rotor blade, and nacelle, would be oversized loads and would temporarily slow traffic on Interstate Highway 88, IL-2, and Sauk Road. However, these would be short-term impacts. The Illinois Department of Transportation would require permits for this transportation before movement of these pieces to the proposed location could occur.

During the heavy construction phase of the project, there would be a temporary increase in the number and frequency of vehicles on the local roads surrounding the project site (identified above). No long-term or permanent impacts to the local transportation systems would occur as a result of this project.

According to the FAA in a letter dated April 14, 2009, the proposed project would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, the structure would not be a hazard to air navigation, provided SVCC marked or lit the structure in accordance with FAA Advisory Circular 70/7460-1K Change 2. Appendix D contains a copy of the FAA letter.

Since this determination, SVCC has refined the proposed location of the wind turbine. This updated location is what DOE has analyzed in this EA; the wind turbine would be 120 meters (394 feet) from the location on which the FAA determination of no hazard to air navigation was applicable. This change voids the determination in the FAA letter in Appendix D. Under DOE direction, SVCC is seeking a new determination from FAA for the new location. DOE anticipates that the wind turbine at the new location, due to the minimal change in distance, would not be a hazard to air navigation.

3.2.2.11 Utilities and Energy

ComEd currently provides electricity to SVCC. In 2009, ComEd generated about 33 percent of its total electricity from coal and 5 percent from natural gas. The remaining 62 percent came from sources that do not directly emit carbon dioxide (renewables and nuclear); see Appendix C.

The term *electromagnetic field* (EMF) refers to electric and magnetic fields that are present around any electrical device. Electric fields arise from the voltage or electrical charges and magnetic fields from the flow of electricity or current traveling along transmission lines, collector lines, substation transformers, house wiring, and electrical appliances. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors (wire). EMFs can occur indoors and outdoors. While the general consensus is that electric fields pose no risk to humans, the question of whether exposure to magnetic fields can cause biological responses or even health effects continues to be the subject of research and debate (Ontario Chief Medical Officer of Health 2010).

The National Telecommunications and Information Administration (NTIA) is responsible for managing the Federal spectrum and is involved in resolving technical telecommunications issues for the Federal government and the private sector. This information aids in siting wind turbines so they do not cause interference in radio, microwave, radar, and other frequencies, thereby disrupting critical lines of communication. While a voluntary process, on submittal by a wind project proponent, the NTIA provides project-specific information to the members of the Administration's Inter-department Radio Advisory Committee for review and comment on whether the proposed project could interfere with Federal radio communication links.

Direct and Indirect Impacts

A 1.5-megawatt wind energy project would generate approximately 3.3 million kilowatt-hours per year, or enough electricity to supply as many as 185 homes (at an average of 18,000 kilowatt-hours per year per home). The energy generated from the proposed project would meet approximately 100 percent of SVCC's annual electricity needs. The project would produce significant amounts of clean electricity for its 20-year design life.

At 20 years, a 1.5-megawatt wind energy project would generate approximately 66.8 million kilowatt-hours. Using a 2.5-megawatt wind turbine would enable SVCC to sell the unneeded electricity to the electrical grid. The existing infrastructure with some minor internal updates could facilitate selling the additional electricity back to the grid; no additional transmission lines would be necessary. The existing transmission line is capable of accepting up to 5 megawatt of electricity, which is more than sufficient capacity if SVCC chose the largest model under consideration, the Clipper Liberty 2.5-MW C99. No adverse energy impacts would result from the project.

The positive energy impact of the implementation of this project is that the project and not ComEd could supply approximately 100 percent of the electricity used by SVCC. This would reduce carbon emissions by 1,183 metric tons (1,304 tons) of carbon dioxide per year and enable SVCC to meet its objective to reduce its carbon footprint.

Implementation of the proposed project would not increase demand for natural resources or energy supplies to levels exceeding availability. The project's net impact on energy supplies would be positive, because the wind energy would be a renewable resource. Therefore, adverse impacts would be unlikely.

Wind turbines are not a significant source of EMF exposure because emission levels around wind farms are low (Ontario Chief Medical Officer of Health 2010). Based on the most current research on EMF, and the distance between any turbine and occupied residences, the proposed turbine would have no impact to public health and safety due to EMF.

On August 25, 2010, DOE received the NTIA finding of "no harmful interference anticipated." Four agencies provided responses: the U.S. Coast Guard, U.S. Department of Commerce, U.S. Department of Justice, and Department of the Navy. All responses stated that interference due to the proposed turbine would be unlikely. The other Inter-department Radio Advisory Committee agencies provided no comment, which NTIA interprets as no objections. DOE has determined that telecommunications interference due to the proposed project would be unlikely. In accordance with the special use permit conditions, if the proposed project caused television broadcast interference, SVCC would use reasonable mitigation measures on a case-by-case basis.

4. CUMULATIVE IMPACTS

4.1 Introduction

Cumulative impacts are those potential environmental impacts that result "from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

4.2 Existing and Reasonably Foreseeable Projects

DOE reviewed information on past, present, and reasonably foreseeable future projects and actions that could result in impacts to a particular resource over the same period and in the same general location as the proposed Wind Energy Project. DOE consulted with local planning departments and local chapters of the Chamber of Commerce via phone and email, and conducted searched via the internet, to identify current and future projects in to the vicinity of the proposed SVCC wind turbine location. No pending or planned projects were identified within the area to be affected by the turbine's land use, visual impacts, or noise impacts. Additionally no past projects have been identified that could have a cumulative impact when combined with the impacts of the proposed project.

In regard to cumulative impacts to biological resources, i.e., migratory birds and bats, and threatened and endangered species, DOE reviewed the April 2007 USFWS Indiana Bat (Myotis sodalis) Draft Recovery Plan (USFWS 2007). The Draft Recovery Plan notes that Indiana bat migration and swarming patterns "have not been extensively studied and are poorly understood" and summarizes existing data (USFWS 2007). Eight fall swarming period studies indicated a migratory range of 0.32 to 30.6 km (0.2 to 19 miles). Eight spring emergence studies indicated a migratory range of 16.1 to 96.6 km (10 to 60 miles) and two spring emergence studies indicated migratory distances of 477 and 575 km (296 and 357 miles) (USFWS 2007, pp. 41-44). Based on this data, DOE determined that 96.5 km (60 miles) is a reasonable distance for evaluating the potential for cumulative impacts to migrating individuals.

Existing projects

Communication Tower
A 34-meter (110-foot) tower approximately 1,219 meters (4,000 feet) south-southeast of the proposed turbine location

Bureau Valley Community Unit School District, Manlius, Illinois
Approximately 48 kilometers (30 miles) south
Operating one 660-kilowatt turbine

Erie Community Unit School District #1, Erie, Illinois
Approximately 55 kilometers (34 miles) west-southwest
1.2-megawatt capacity

GSG I and II wind farms, Lee and LaSalle Counties near La Salle, Illinois
Approximately 80 kilometers (50 miles) southeast
Operating 40 turbines totaling 80-megawatt output

Lee DeKalb Wind Energy Center west of Shabbona, Illinois
Approximately 64 kilometers (40 miles) east
Operating 145 turbines totaling 51.66-megawatt output

Mendota Hills wind farm near Paw Paw in Lee County.
Approximately 64 kilometers (40 miles) southeast
Operating 63 turbines totaling 51.66-megawatt output

Proposed Projects

Big Sky Wind Farm (under construction), near Ohio, Illinois
Approximately 45 kilometers (28 miles) south-southeast
239.4-megawatt capacity

Turbine EVE (permitted)
Exact location unknown, Lee County
2.5-megawatt capacity

Shady Oaks Windfarm (permitted)
Exact location unknown, Lee County
120-megawatt capacity

Marion Wind Farm (proposed)
Exact location unknown, Lee County
100-megawatt capacity

Walnut Ridge Wind Farm
Approximately 56 kilometers (35 miles) south
Capacity unknown at this time

NextEra Wind Farm
Approximately 64 kilometers (40 miles) east
Capacity unknown at this time

In addition, these projects have a cumulative impact on greenhouse gases; DOE identified the Rock Falls biomass power plant as appropriate for inclusion in the greenhouse gas cumulative impacts analysis.

Rock Falls 25 Megawatt Biomass power plant
Approximately 13 kilometers (8 miles) west
Scheduled to start construction late fall or December 2010 and begin operations in the fall of 2011 (Kuster 2010)

In addition, the *Sustainable Energy Plan*, which the Governor of Illinois proposed in early 2005, consists of a Renewable Portfolio Standard, which requires use of renewable energy such as wind, biomass, solar, and other sources. The State anticipates that about 95 percent of the renewable energy generated in Illinois will come from wind by 2025. There will be approximately 3,300 wind turbines constructed between 2010 and 2025; a small subset of the 3,300 would be within 97 kilometers (60 miles) of the proposed project. The average size of a wind turbine installed in 2008 in the United States was 1.67 megawatt; in 2007 it was 1.65 megawatt (AWEA 2009). Although it is reasonable to conclude from the Governor's Plan that more there will be more wind turbines proposed than those listed above, their locations and timing are not reasonably foreseeable at this time.

4.3 Summary of Cumulative Impacts

4.3.1 CUMULATIVE GREENHOUSE GAS IMPACTS

While the scientific understanding of climate change continues to evolve, the Intergovernmental Panel on Climate Change Fourth Assessment Report stated that warming of the earth's climate is unequivocal, and that warming is likely attributable to increases in atmospheric greenhouse gases caused by human (anthropogenic) activities (IPCC 2007). The Panel's Fourth Assessment Report indicates that changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts are linked to changes in the climate system, and that some changes might be irreversible (IPCC 2007).

The release of anthropogenic greenhouse gases and their potential contribution to global warming are inherently cumulative phenomena. DOE assumes that the proposed project would displace fossil fuel electricity currently used by SVCC, resulting in a net decrease in emissions of approximately 1,183 metric tons (1,304 tons) of carbon dioxide equivalents for each year of operation. In addition, the planned Biomass Power Plant in Rock Falls will replace fossil fuel energy and result in a net decrease of carbon dioxide emissions. The proposed project, in combination with the above-listed wind turbine projects and plans for additional turbines in Illinois by 2025, would neither measurably reduce the concentration of greenhouse gases in the atmosphere nor reduce the annual rate of greenhouse gas emissions. Rather, they would marginally decrease the rate at which greenhouse gas emissions are increasing every year and contribute to efforts ongoing globally to reduce greenhouse gases and slow climate change.

4.3.2 VISUAL RESOURCES

The proposed project would affect the viewshed in the project area. The wind turbine would be a dominant vertical component in the landscape due to its height. Although there are several wind projects in the region surrounding the proposed turbine, none of them are in the likely viewshed of the proposed project. The closest turbine, Bureau Valley Community Unit School District in Manlius, Illinois, is approximately 48 kilometers (30 miles) away. The closest communications tower is 1,219 meters (4,000 feet) from the proposed project site and is 34 meters (110 feet) tall.

This tower would partially be in the viewshed of the proposed project; therefore, there would be a small cumulative visual impact.

4.3.3 BIOLOGICAL RESOURCES

The USFWS lists all of Illinois as potential habitat for the Indiana bat, a threatened and endangered species (USFWS 2010c). There have been no known occurrences, however, of the Indiana bat in Lee County (USFWS 2010c). The closest known location of the Indiana bat is Black Ball Mine, a designated Critical Habitat, which is approximately 69 kilometers (43 miles) from the proposed project. Although some recent studies have shown that Indiana bat may migrate to hibernaculum up to 575 km (357 miles), the *Indiana Bat Draft Recovery Plan* (USFWS 2007) also indicates that the Indiana bat's typical migration is within a distance of 96 km (60 miles). Based on the existing 1004 turbines operating and the other reasonably foreseeable projects (estimated to be greater than 860 turbines) within 96 km (60 miles) of the proposed project, the potential for cumulative impacts to the Indiana bat cannot be ruled out. However, the proposed project includes the installation of a single turbine, which would provide only a small increment to any potential cumulative impact. Additionally, the USFWS Region 3 office recently began preparation of a regional habitat conservation plan. Although this plan likely will take several years to complete, it is intended to address cumulative impacts to the Indiana bat and develop avoidance, minimization and mitigation measures for existing and proposed wind turbines.

5. IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible and irretrievable commitment of resources is a permanent reduction or loss of a resource that, once lost, cannot be regained. The primary irretrievable and irreversible commitment of resources for the proposed project would be the labor, materials, and energy expended in clearing the site and installing the wind turbine. Approximately 0.001 square kilometer (0.33 acre) of land would be irreversibly committed during the functional life of the project.

6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term use of the environment, as used here, is that used during the life of the project, whereas long-term productivity refers to the period after project decommissioning, equipment removal, and land reclamation and stabilization. The short-term use of the proposed project area would not affect the long-term productivity of the area. If in the future SVCC decided the project has reached its useful life, it could decommission and remove the turbine, tower, and foundation, and reclaim and revegetate the site with indigenous plant species to resemble a habitat similar to predisturbance conditions. The installation of a wind turbine at this site would not preclude using the land for purposes that were suitable before implementation of the proposed project.

7. UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts associated with the proposed project would include:

- Long-term loss of approximately 0.001 square kilometer (0.33 acre) of vegetation resulting from the construction and installation of the tower foundation,
- An increase in noise levels during construction and operation,
- The introduction of a dominant vertical element into the existing viewshed, and
- Shadow flicker impacts for onsite campus buildings.

These impacts would be temporary, in the case of the construction noise, and long-term, in relation to the loss of vegetation and visual and shadow flicker impacts. Overall, impacts of the proposed project on the environment and human health would not be significant.

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9. AGENCIES AND PERSONS CONSULTED

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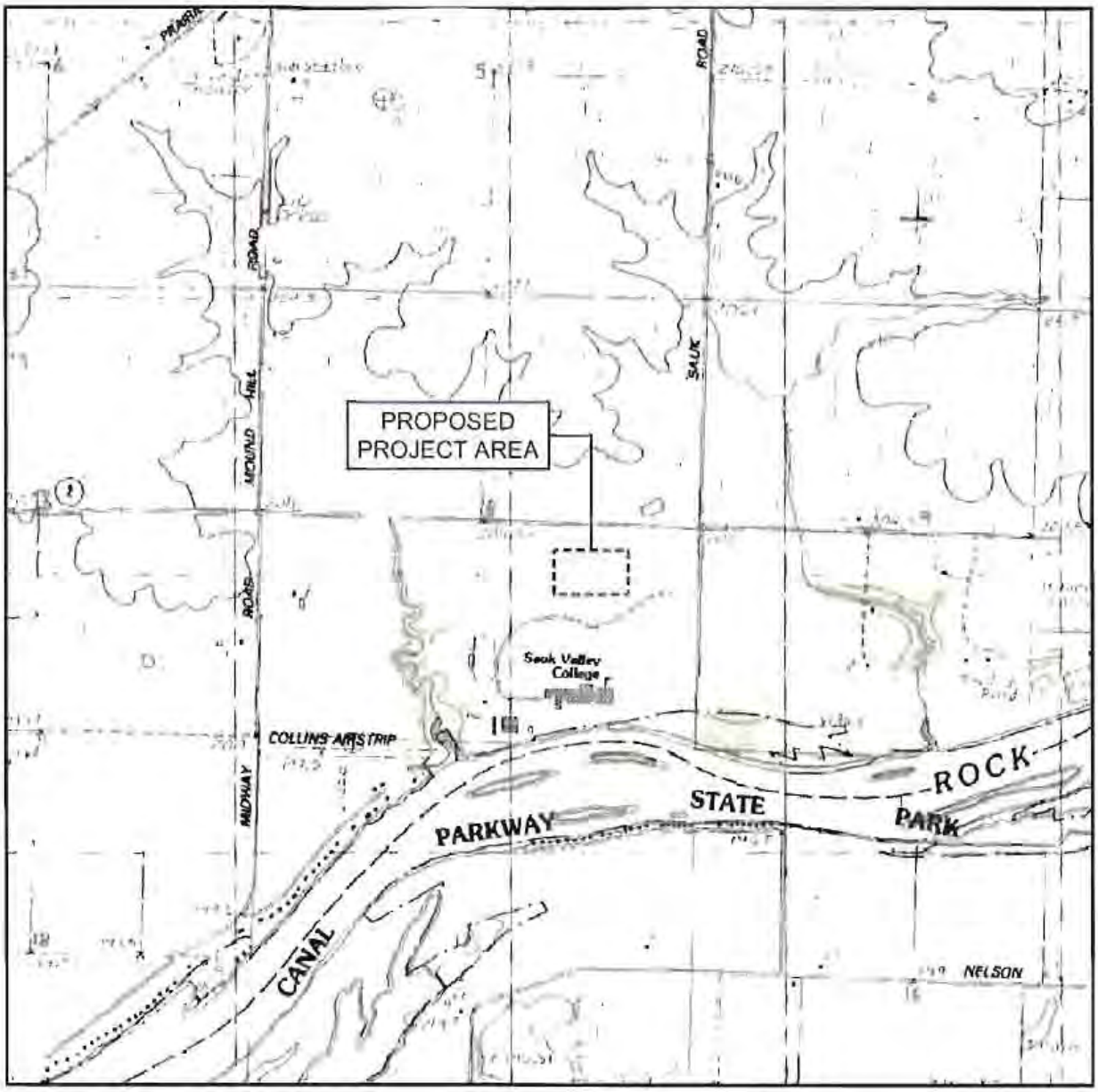
Ron Conderman, Dixon		[815] 284 7496	Lee County Zoning Board Chairman
John Nicholson, Franklin Grove		[815] 456 2622	Lee County Board Vice Chairman
Vern Gottel, Sterling		[815] 626 8722 [815] 284 2564	Palmyra Township Board Chairman
Eugene Hardiek, Dixon			Palmyra Township Planning Chairman
Lee County Soil and Water Conservation District			
Benda Merriman		[815] 857 3623	Resource Conservationist

Appendix A Figures



2000 0 2000

SCALE IN FEET

QUADRANGLE LOCATION
T21N, R8E, SECTION 8
DIXON WEST, ILLINOIS: 1995
PALMYRA TOWNSHIP, LEE COUNTY

CONTOUR INTERVAL = 3 METERS

ROAD CLASSIFICATION

Heavy Duty — Light Duty

Medium Duty — Unimproved Road

Interstate Route U.S. Route State Route

FIGURE 1
SITE LOCATION MAP

DOE/ EA-1804
SAUK VALLEY COMMUNITY COLLEGE
173 ROUTE 2
DIXON, ILLINOIS

project mgr.	Tom Dishno	date drawn	6/24/10
project #	RC1953.00	drawn by	WLG
RC1953 Sauk Valley-Dixon/Site Figures.dwg		revised	7/19/10

Superior
ENVIRONMENTAL CORP

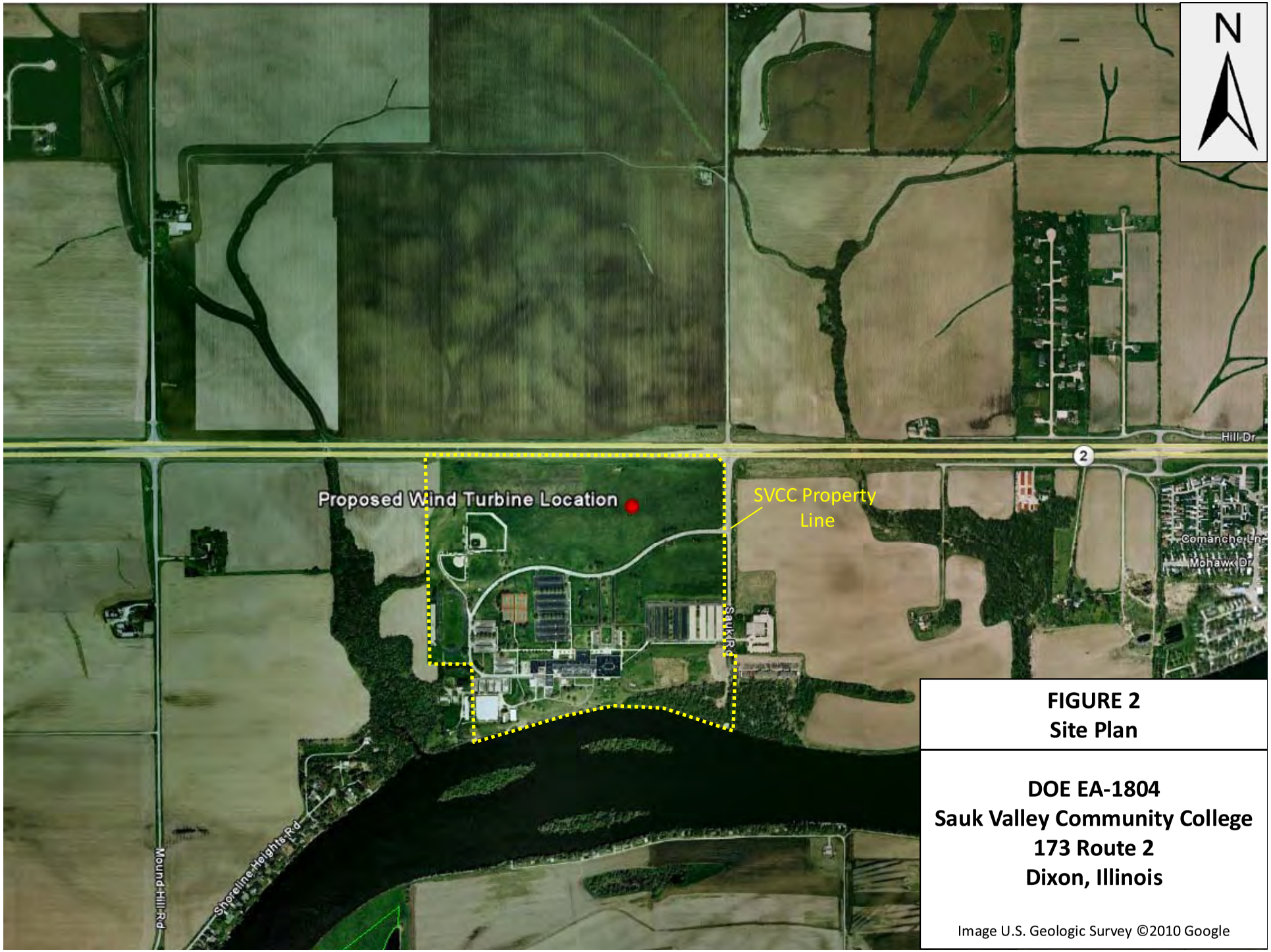


FIGURE 2
Site Plan

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

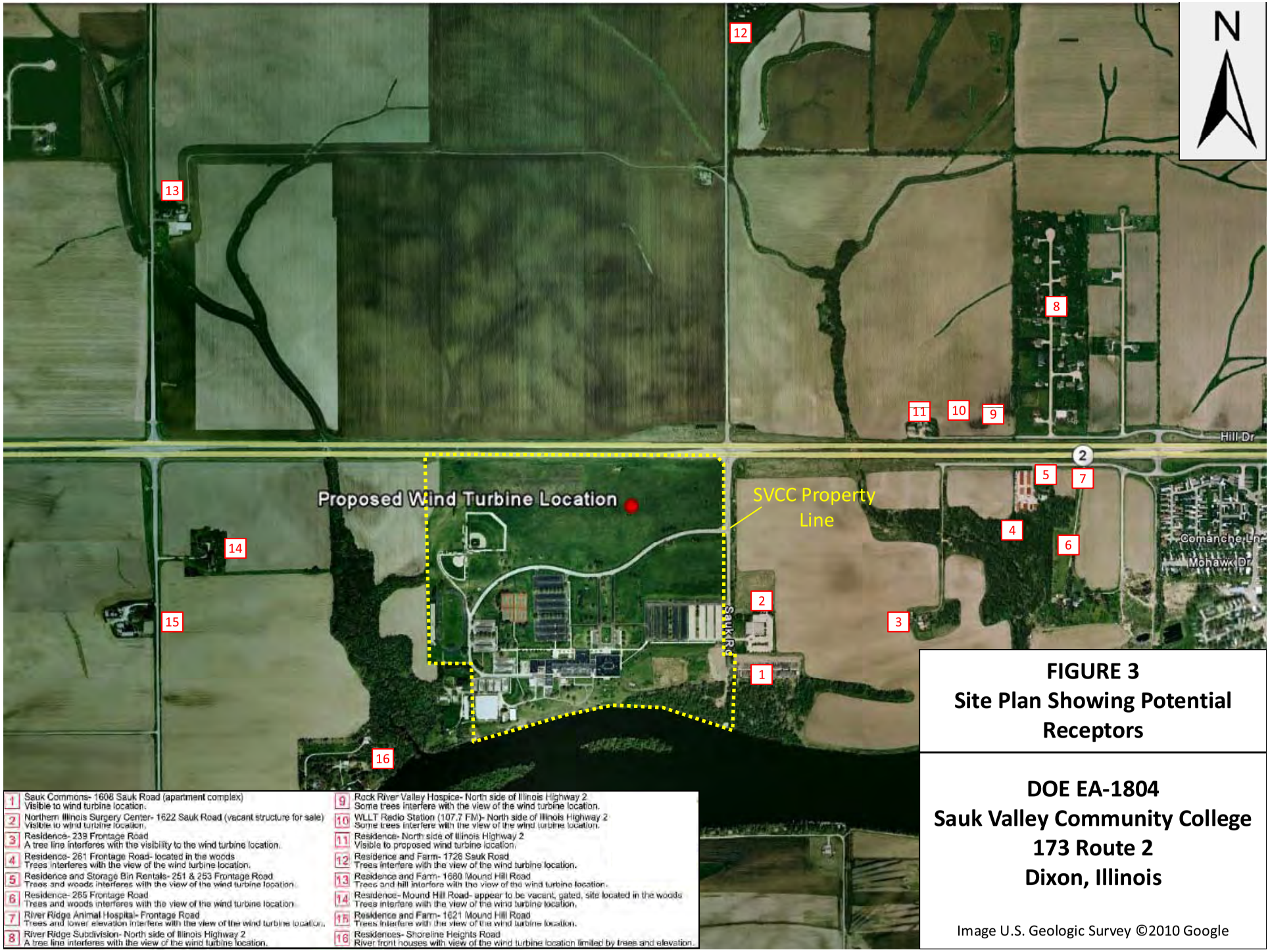


FIGURE 3
Site Plan Showing Potential Receptors

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

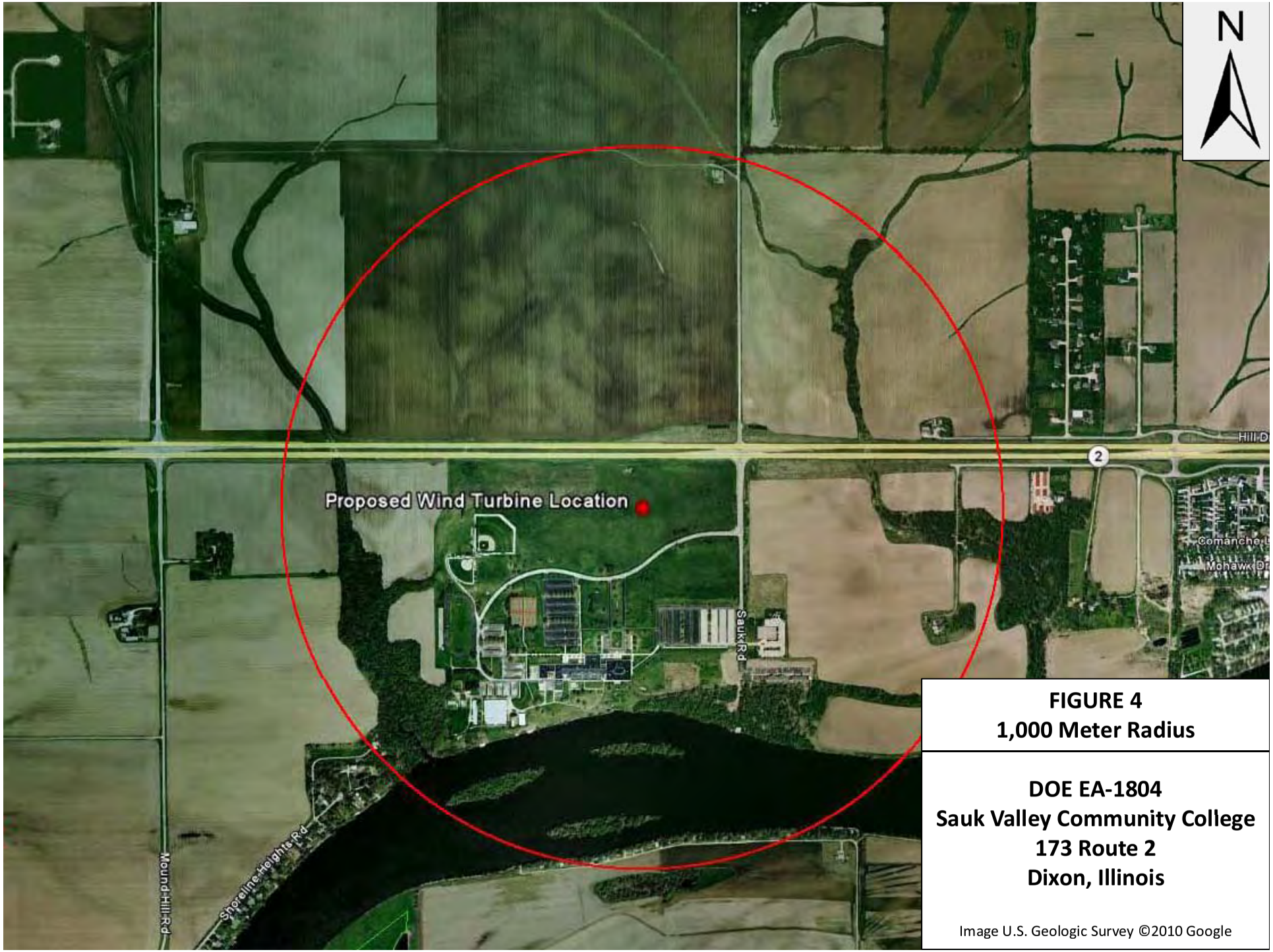


FIGURE 4
1,000 Meter Radius

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

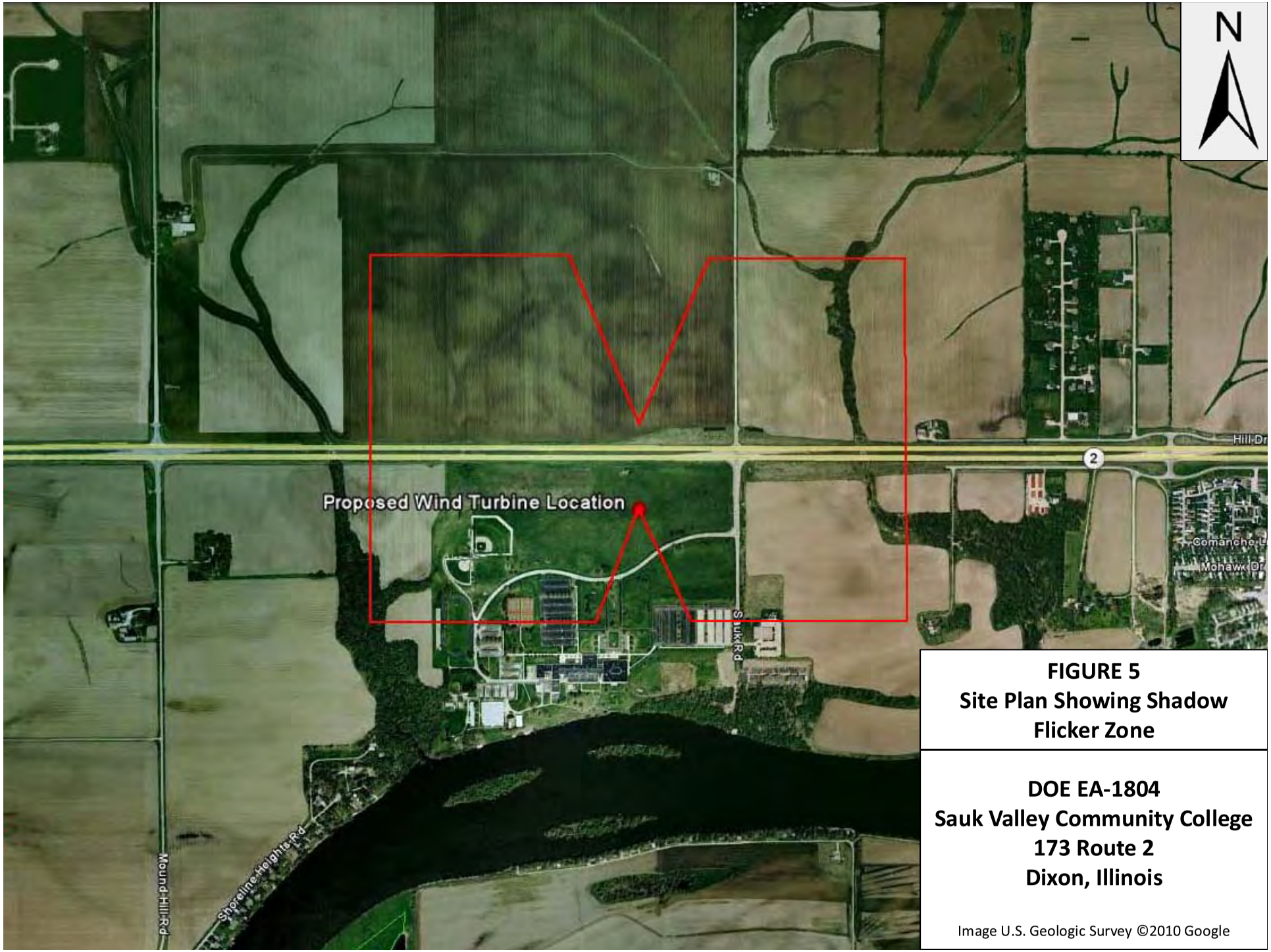


FIGURE 5
Site Plan Showing Shadow Flicker Zone

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

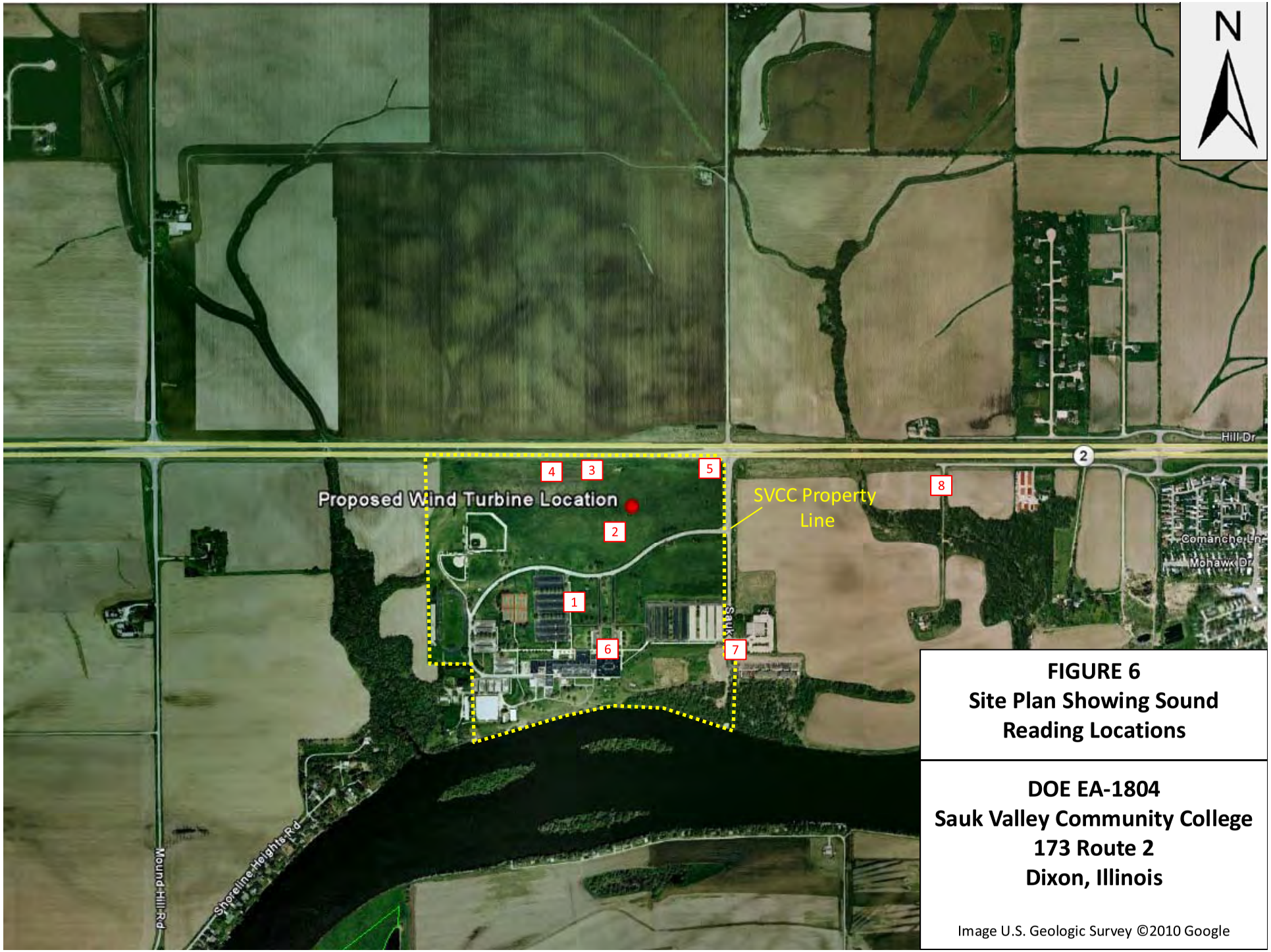
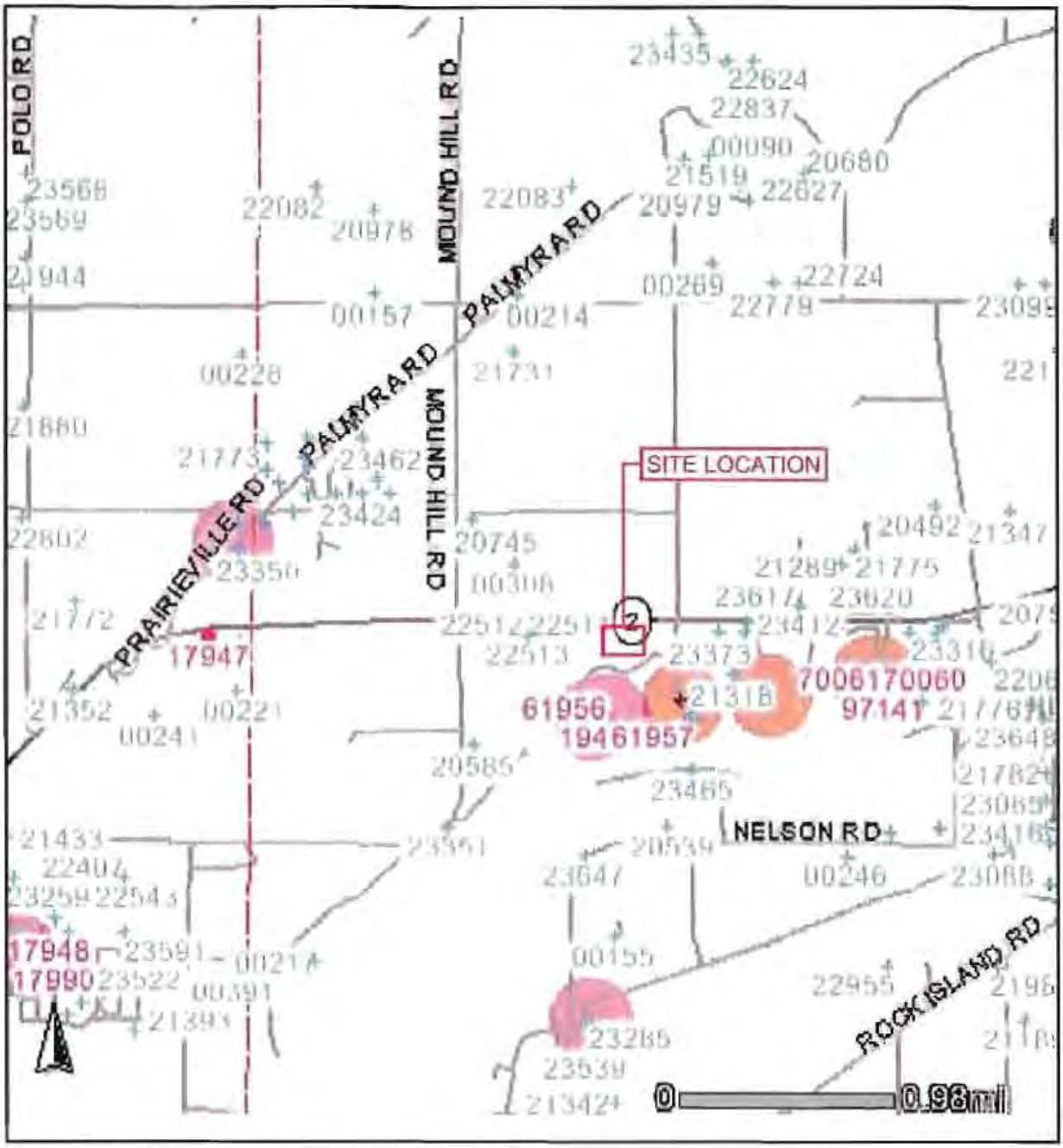


FIGURE 6
Site Plan Showing Sound Reading Locations

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois



LEGEND

- COUNTY LINES
- STATE LINE
- LOCAL ROADS
- MAJOR ROADS
- STATE HIGHWAYS
- U.S. HIGHWAYS
- INTERSTATES
- ISWS GROUNDWATER DATA
- ISGS WELLS
- NON-CWS PHASE I WELLHEAD PROTECTION AREA
- NON-CWS SURFACE WATER INTAKE
- NON-CWS WELLS
- CWS PHASE II WELLHEAD PROTECTION AREA
- CWS PHASE I WELLHEAD PROTECTION AREA
- CWS WELLS
  - ACTIVE
  - ABANDONED
  - INACTIVE
  - PLANNED

N W E S

FIGURE 7
SWAPP MAP

DOE/ EA-1804
SAUK VALLEY COMMUNITY COLLEGE
173 ROUTE 2
DIXON, ILLINOIS

project mgr.	Tom Dishno	date drawn	7/15/10
project #	RC1953.00	drawn by	WLG
RC1953 Sauk Valley - Dixon/Site Figures.dwg		revised	7/19/10

Superior
ENVIRONMENTAL CORP

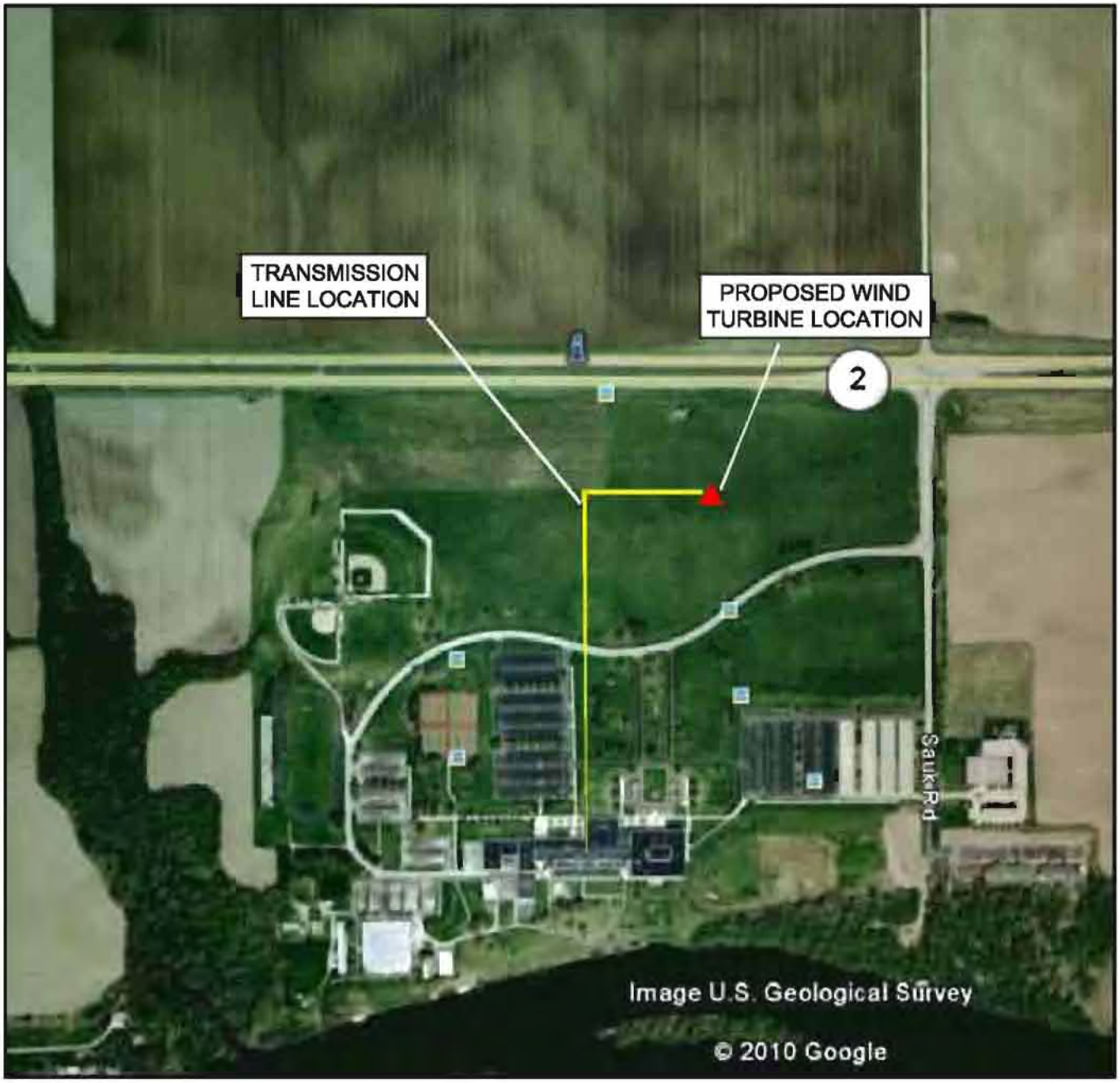


FIGURE 8:

N
W E
S

DRAWING IS NOT TO SCALE

ELECTRICAL TRANSMISSION LINE LOCATION

SAUK VALLEY COMMUNITY COLLEGE
173 ILLINOIS ROUTE 2
DIXON, ILLINOIS

project mgr.	Tom Dishno	date drawn	9/9/10
project #	RC1953.00	drawn by	WLG
RC1953 Sauk Valley-Dixon/Site Figures.dwg		revised	

Superior ENVIRONMENTAL CORP

NORTH

FIGURE 9: PHOTO LOCATIONS

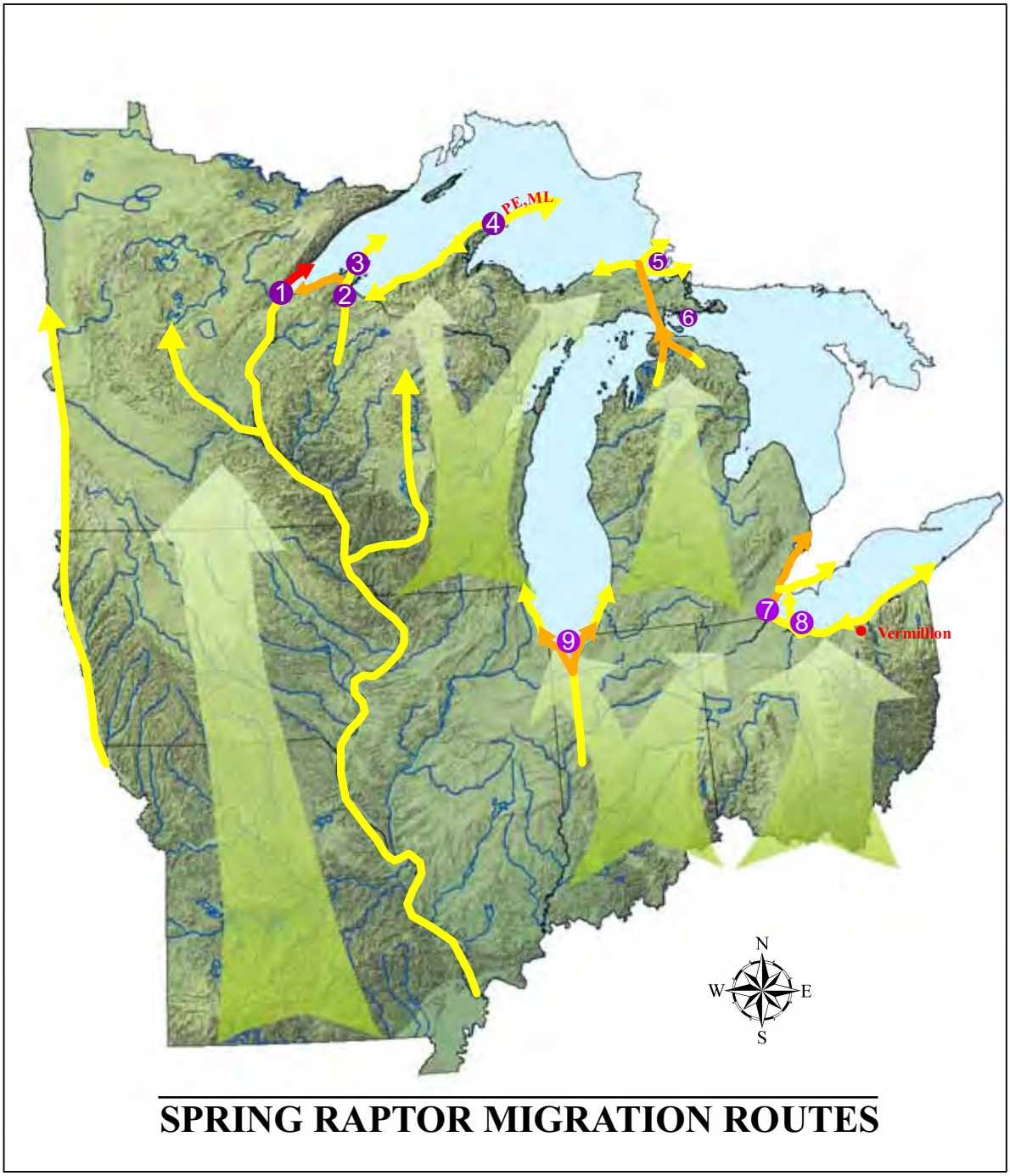
Sauk Valley Community College
173 Illinois Route 2
Dixon, Illinois

Superior ENVIRONMENTAL CORP
951 South 7th Street, Suite 200
Rochelle, IL 61068
815.562.5541

FILE: RC1953/technical/Site Loc Map

DATE:	8/25/2010
DRAWN BY	TD
SUPERVISOR	
CHECKED BY	
PROJECT NO.	RC1953.00

Figure 10



SPRING RAPTOR MIGRATION ROUTES

SYMBOL	COMMON NAME
AK	American Kestrel
BE	Bald Eagle
BO	Boreal Owl
BW	Broadwing
CH	Cooper's Hawk
GE	Golden Eagle
LEO	Long-eared Owl
ML	Merlin
NG	Northern Goshawk
NH	Northern Harrier
NSWO	Northern Saw-whet Owl
OS	Osprey
PG	Pregrine Falcon
RL	Rough-legged Hawk
RS	Red-shouldered Hawk
RT	Red-tailed Hawk
SEO	Short-eared Owl
SS	Sharp-shinned Hawk
TV	Turkey Vulture

Major Raptor Migration Observation Sites

1. West Skyline Observatory, Duluth (TV,OS,BE,SS, BW,RT,RL,GE)
2. Chequemegon Bay, Ashland (TV,SS,BW,RT,GE,BE)
3. Apostle Islands (AK,ML,PG)
4. Manitou Island/Keewenaw Peninsula (OS,SS,RL, NH,BE,PE,ML)
5. Whitefish Point (TV,BE,NH,SS,RS,BW,RT,RL,GE, AK,ML,PG,NSWO,BO,LEO)
6. Straits of Mackinac (TV,BE,SS,CH,RS, RT,RL,BW,GE)
7. Port Huron (TV,SS,RS,RT,BW)
8. Lake Erie Islands (TV,SS,BE,NH,OS,ML,PG)
9. Indiana Dunes NL (OS,NH,SS,RS,BW,RT,AK)

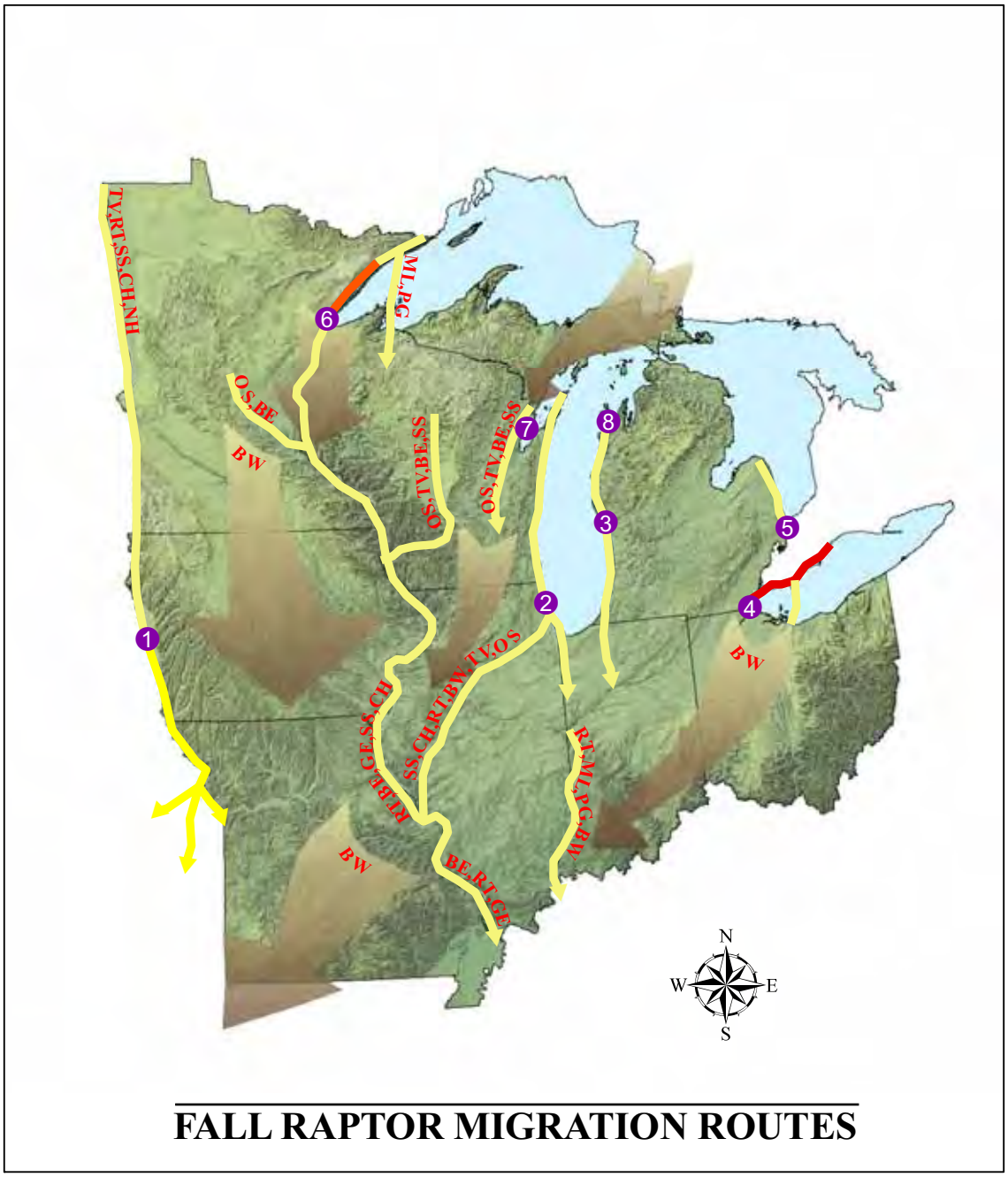
Legend
Number of Birds

- 2,500 - 5,000
- 5,000 - 10,000
- 10,000 - 20,000
- >20,000

Map Created for: Division of Migratory Birds
October, 2006
Fall Migratory Bird Information provided by
USFWS Migratory Bird Biologist Bob Russell

U.S. Fish & Wildlife Service
Region 3 NWRS
Division of Conservation Planning
Twin Cities, Minnesota 55111

Figure 10



FALL RAPTOR MIGRATION ROUTES

SYMBOL	COMMON NAME
AK	American Kestrel
BE	Bald Eagle
BO	Boreal Owl
BW	Broadwing
CH	Cooper's Hawk
GE	Golden Eagle
LEO	Long-eared Owl
ML	Merlin
NG	Northern Goshawk
NH	Northern Harrier
NSWO	Northern Saw-whet Owl
OS	Osprey
PG	Pregrine Falcon
RL	Rough-legged Hawk
RS	Red-shouldered Hawk
RT	Red-tailed Hawk
SEO	Short-eared Owl
SS	Sharp-shinned Hawk
TV	Turkey Vulture

Major Raptor Migration Observation Sites

1. Hitchcock Nature Area (CH,RT,SS,TV,SW,NH)
2. Illinois Dunes State Park (ML,NH,PG,SEO)
3. Muskegon State Park (SS,RL,RT)
4. Lake Erie Metropark (TV,OS,BE,NH,SS,CH,RT, RL,GE,AK,ME,PG)
5. Port Huron (PG,ML)
6. Hawk Ridge, Duluth (TV,OS,BE,NH,SS,BW,NG, RT,RL,AK,ML,PG,BO,NSWO,LEO)
7. Little Suemico (SS,BW,NSWO)
8. Sleeping Bear Dunes NL (RL,RT,SS)

Legend
Number of Birds
- 2,500 - 25,000
- 25,000 - 50,000
- 50,000 - 100,000
- >100,000

Map Created for: Division of Migratory Birds
October, 2006
Fall Migratory Bird Information provided by
USFWS Migratory Bird Biologist Bob Russell

U.S. Fish & Wildlife Service
Region 3 NWRS
Division of Conservation Planning
Twin Cities, Minnesota 55111

Appendix B Scoping Letter and Distribution List

Department of Energy
Washington, DC 20585

July 16th, 2010

TO: Distribution List

SUBJECT: Notice of Scoping – Sauk Valley Community College Wind Energy Project, Dixon, Illinois (Lee County).

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Illinois Department of Commerce and Economic Opportunity (DCEO) for the Sauk Valley Community College (SVCC) Wind Energy Project. SVCC is proposing to install a single 1.5 megawatt (MW) wind turbine along with an associated gravel access road and underground electrical transmission equipment on SVCC property located 0.15 miles directly southwest of the intersection of IL Rt. 2 and Sauk Road, in Dixon, IL (GPS: Lat. 41.821778, Long. -89.595072). The proposed site is at an elevation of 205 feet above sea level, and is comprised of a maintained turf lawn on the north side of the campus; an area with the least obstruction to the free flow of the wind. The specific wind turbine has not been selected; however SVCC has already submitted their preferred turbine heights of 420 or 493 feet above ground level to the Federal Aviation Administration (FAA) for their review and have received a "Determination of No Hazard to Air Navigation." The proposed wind energy project would provide electricity directly to SVCC, enabling the college to reduce the electrical demands and lower the carbon footprint associated with daily operations, as well as provide an educational resource for the college's wind technician program. Pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR Part 1021), DOE is preparing a draft Environmental Assessment (EA) to:

- Identify any adverse environmental effects and potential associated mitigation measures should this proposed action be implemented;
- Evaluate viable alternatives to the proposed action, including a no action alternative;
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- Characterize any irreversible and irretrievable commitments of resources that would be involved should this proposed action be implemented.

The EA will describe and analyze any potential impacts on the environment that would be caused by the project and will identify possible mitigation measures to reduce or

eliminate those impacts. The EA will describe the potentially affected environment and the impacts that may result to:

- Air Quality and Climate;
- Geology/Soils;
- Biological Resources;
- Water Resources;
- Waste Management and Hazardous Materials;
- Cultural and Historical Resources;
- Land Use;
- Noise;
- Infrastructure;
- Transportation and Traffic;
- Aesthetics;
- Human Health and Safety; and
- Socioeconomics and Environmental Justice.

DOE will make this letter available to all interested federal, state and local agencies to provide input on issues to be addressed in the EA. Agencies are invited to identify the issues, within their statutory responsibilities that should be considered in the EA. The general public is also invited to submit comments on the scope of the EA.

No formal public scoping meeting is planned for this project. Figures showing the proposed project area are attached to this letter. This letter, as well as the draft EA, when available, will be posted on the DOE Golden Field Office online reading room: http://www.eere.energy.gov/golden/Reading_Room.aspx.

The DOE Golden Field Office welcomes your input throughout the NEPA process. Please provide any comments on this scoping letter on or before ***July 30th, 2010*** *to:*

John Jediny
NEPA Document Manager
Department of Energy
Energy Efficiency and Renewable Energy
(OIBMS-EE-3) Rm. 5H-095
1000 Independence Avenue
Washington, DC, 20585
John.Jediny@ee.doe.gov

We look forward to hearing from you.

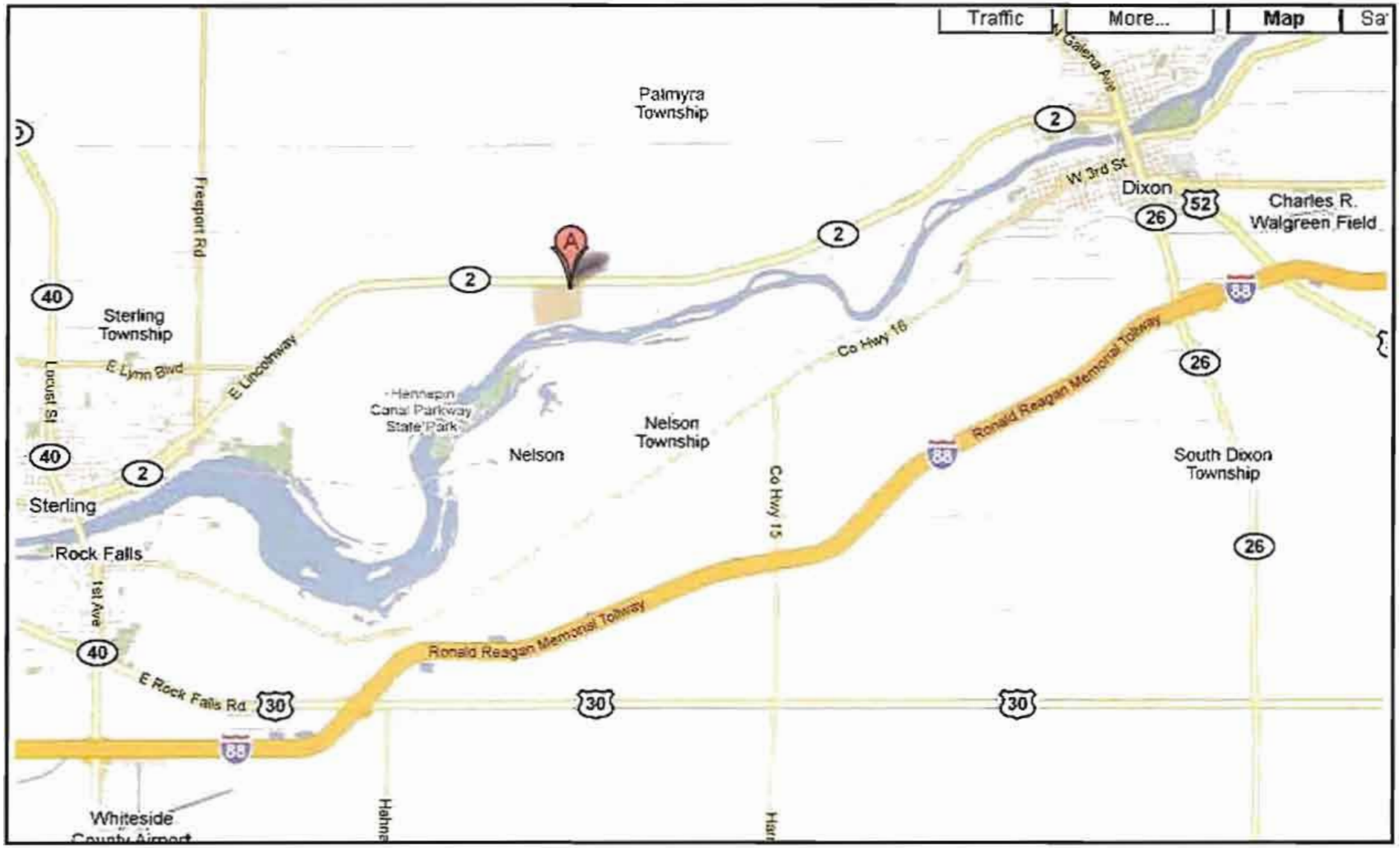
Sincerely,

John Jediny
NEPA Document Manager

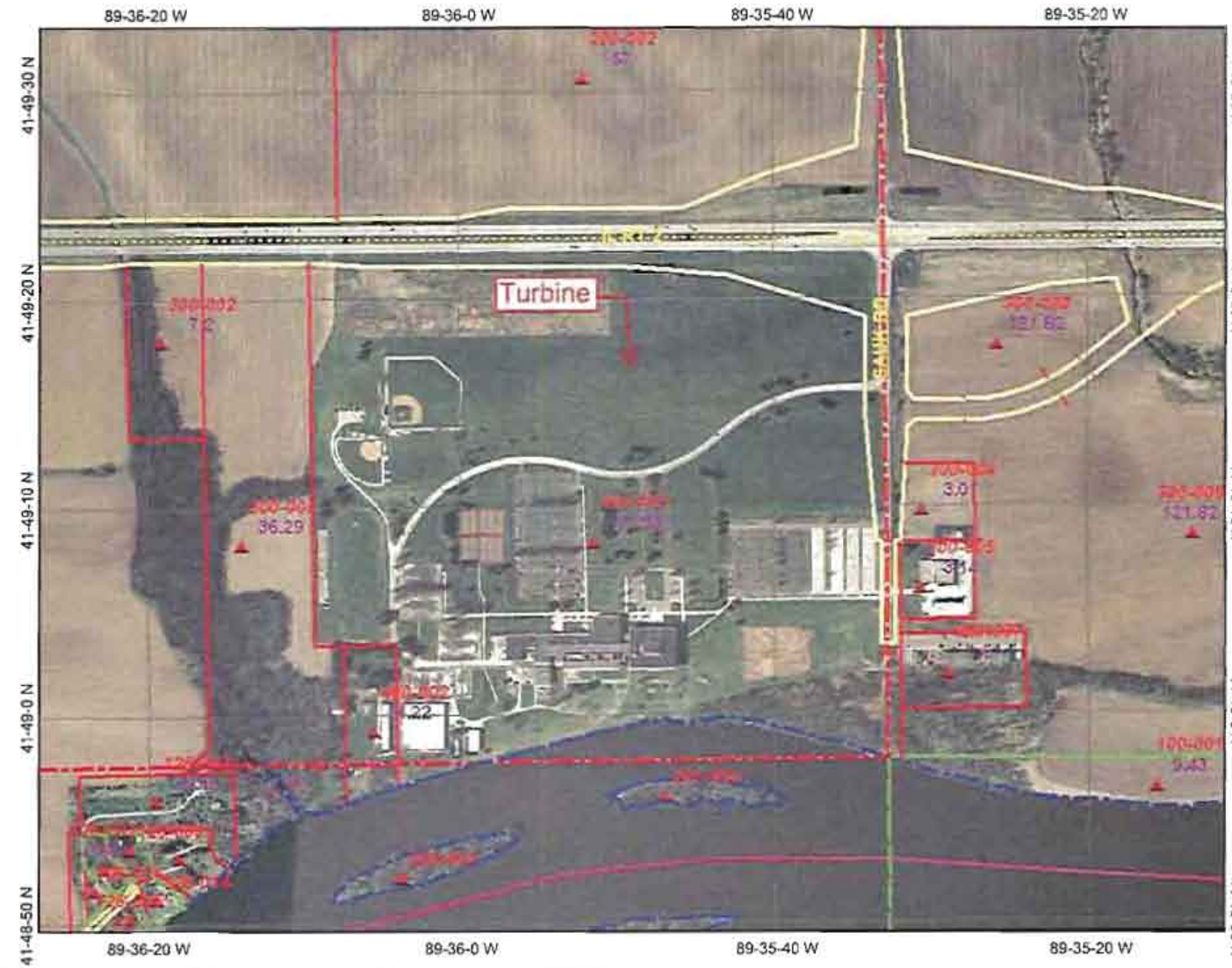
k Valley Community College

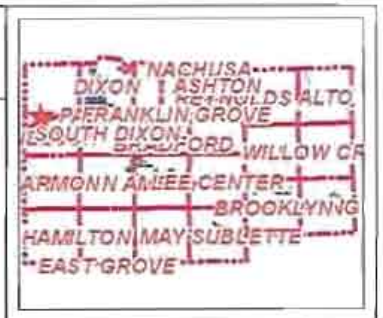
Wind Turbine Project Location

Lee County, Illinois



SVCC





Legend

Parcel Hooks, Dim. Ticks, etc.

Line Type

- Lot Dim Line
- Lot Num Line
- Misc Dim Line
- Parcel Dim Line
- Parcel Owner Hook
- Road Dim Line

Cadastral Layer

Line Type

- Geographic Township Line
- Lot Line
- Misc Line
- Parcel Line
- Political Corporate Line
- Political Township Line
- Railroad Centerline
- Railroad ROW
- Road Centerline
- Road ROW
- Section Line
- Subdivision Line
- Unknown
- Water Line
- PIN Number
- Section Polygons

High Flight Aerials

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

Scale: 1:9,405

Map center: 2451866, 1877378

EA STAKEHOLDER LIST
Sauk Valley Community College Wind Turbine Project
Dixon, IL (Lee County)

Name	Email	Title	Organization	Address 1	City and State	Zip	Phone
Sarah Sheehan			Office of the Governor	100 W. Randolph, 6-100 - James R. Thompson Center	Chicago, IL	60601	
Thomas E. Jennings		Director	Illinois Department of Agriculture	State Fairgrounds, P.O. Box 19281	Springfield, IL	62794-9281	
Jonathan Feipel		Deputy Director	Illinois Department of Commerce and Economic Opportunity	500 East Monroe (Illinois Energy Office)	Springfield, IL	62701-1643	
Manuel Florez		Chairman	Illinois Commerce Commission	527 East Capitol Avenue	Springfield, IL	62701	
Doug Scott		Director	Illinois Environmental Protection Agency	1021 North Grand Ave. East - P.O. Box 19276	Springfield, IL	62794-9276	
Janet Grimes		Director	Illinois Historic Preservation Agency	1 Old State Capitol Plaza	Springfield, IL	62701-1507	
Marc Miller		Director	Illinois Department of Natural Resources	1 Natural Resources Way	Springfield, IL	62702-1271	
Gary Hannig		Secretary, Attn: Barbra Stevens, Environment Section	Illinois Department of Transportation	2300 S. Dirksen Parkway	Springfield, IL	62764	
Mark Pruitt		Executive Director	Illinois Power Agency	100 W. Randolph, 6-100 - James R. Thompson Center	Chicago, IL	60601	
Phil Wallis		Vice President	National Audubon Society	225 Varick Street, 7th floor	New York, NY	10014	
Michelle P. Scott		General Counsel	National Audubon Society	225 Varick Street, 7th floor	New York, NY	10014	
Kim Van Fleet		Biologist National Audubon Society	Important Bird Area Coordinator and Staff	225 Varick Street, 7th floor	New York, NY	10014	
Eric Glitzenstein			Meyer Glitzenstein & Crystal	1601 Connecticut Ave., N.W., Suite 700	Washington, D.C	20009-1056	
William Eubanks			Meyer Glitzenstein & Crystal	1601 Connecticut Ave., N.W., Suite 700	Washington, D.C.	20009-1056	
Mr. David Smith			Winnebago Tribe of Nebraska	PO Box 687	Winnebago, NE	68071	
Stephen Packard	spackard@audubon.org	Director	Audubon of the Chicago Region	1718 Sherman Avenue #210	Evanston, IL	60201	847-328-1250
Mr. Jonathan Buffalo		NAGPRA Rep	Sac & Fox Nation of Mississippi in Iowa	349 Meskawki Road	Tama, IA	52339	
Mr. Kirby Rubidoux		NAGPRA Rep	Sac & Fox Nation of Missouri	305 N. Main St.	Reserve, KS	66465	
Ms. Sandra Massey		NAGPRA Rep	Sac & Fox Nation of OK	Route 2, Box 246	Stroud, OK	70479	
Br. Bill Quackenbush		THPO	Ho Chunk Nation of Wisconsin	W9815 Airport Road	Black River Fall, WI	54615	
Mr. Earl Meshiguad			Potawatomi Hannaville Indian Community	N14911 Hannahville Boulevard Rd.	Wilson, MI	49896	
Mr. Jimmy Finch		THPO	Potawatomi -Citizen Band	1601 Gordon Cooper Dr.	Shawnee, OK	74801	
Mr. Steve Ortiz	steven@hpnation.org		Potawatomi-Prarie Band				
Mr. Philip Shopodock		Chairman, Executive Council	Potawatomi-Forest County Community	PO Box 340	Crandon, WI	54520	
Mr. Thomas Cuddy	thomas.cuddy@faa.gov		Federal Aviation Administration- Office of Environment and Energy	800 Independence Avenue, SW, Room 900	Washington, DC	20591	202-493-4018
Mr. Ken Westlake	westlake.kenneth@epa.gov		EPA Region 5 -- IL, IN, MI, MN, OH, WI - NEPA Implementation Office of Enforcement and Compliance Assurance	77 West Jackson Boulevard, Mail Code E-19J	Chicago, IL	60604-3590	312-886-2910
Dr. James Hartman (Attn: SAIE_ESOH)	james.hartman1@us.army.mil	Assistant Secretary of Army (Installations & Environment) OH, WI Office of Regional Environmental and Government Affairs – North	DOD Region V- IL, IN, MI, MN	5179 Hoadley Rd Aberdeen	Aberdeen Proving Ground, MD	21010-5401	
Cathy O'Connell	cathy.oconnell@us.army.mil	Army Region 5 Regional Environmental Coordinator	Home Engineering Services, LLC Office of Regional Environmental and Government Affairs-Northern APG-EA, MD 21010-5401				
Citizens for Clean Energy, Inc	cce-mt@bresnan.net		Citizens for Clean Energy, Inc.	3417 Fourth Avenue, South	Great Falls, MT	59405	406-453-0725
Mr. Greer Goldman	ggoldman@audubon.org CC: mdaulton@audubon.org	Assistant General Counsel	National Audubon Society- Audubon Public Policy Office	1150 Connecticut Avenue, NW	Washington, DC	20036	202-861-2242 (ext. 3039)

Wind Turbine Grant

First	Last	Organization	Address	City	State	Zip	e-mail
Kim	Ewoldsen	Sauk Valley Area Chamber of Commerce	211 Locust Street	Sterling	IL	61081	kjanssen@saukvalleyareachamber.com
Doug	Wiersema	Rock Falls Chamber of Commerce	601 W. 10th Street	Rock Falls	IL	61071	doug@rockfallschamber.com
John	Thomson	Dixon Area Chamber and Lee County Industria	101 W. 2nd Street	Dixon	IL	61021	dchamber@essex1.com
Heather	Sotelo	Greater Sterling Development Corp	1741 Industrial Drive	Sterling	IL	61081	hsotelo@sterlingdevelopment.org
Sandy	Henrekin	Rock Falls Community Development Corp	309 1st Avenue	Rock Falls	IL	62071	director@rockfallsdevelopment.org
Matt	Lillpop	Whiteside County Farm Bureau	100 E. Knox	Morrison	IL	61270	matt.wcfb@frontiernet.net
Danelle	DeSmith	Lee County Farm Bureau	P. O. Box 198	Amboy	IL	61310	leecfb@comcast.net
Bob	Gibler	Lee County Historical Society	P. O. Box 58	Dixon	IL	61021	lchs@grics.net
Terry	Buckaloo	Whiteside County Historical Society	1005 E. 3rd Street	Sterling	IL	61081	SRFHS@comcast.net
Allan	McCaulley	U of I Extension - Whiteside	100 E. Knox	Morrison	IL	61270	allenmcc@illinois.edu
Joe	Schwamberger	U of I Extension - Lee	280 W. Wasson Rd	Amboy	IL	61310	schwambe@illinois.edu
Tim	Kellor	Natural Area Guardians	1716 W. 4th Street	Sterling	IL	61081	no e-mail address
Thad	Day	Lee County Board	1656 Pump Factory Rd	Dixon	IL	61021	
Larry	Eisenberg	Lee County Board	416 N Jones	Amboy	IL	61310	
Kathy	Hummel	Lee County Board	291 IL Rt 2 #118	Dixon	IL	61021	
Rick	Ketchum	Lee County Board	843 Rockford Rd	Dixon	IL	61021	
John	Ferrone	Lee County Board	1814 Hickory Ln	Dixon	IL	61021	
Marilyn	Shippert	Lee County Board	1527 IL RT 26	Dixon	IL	61021	
Ann	Taylor	Lee County Board	1666 Sterling Rd.	Amboy	IL	61310	
Richard	Binder	Lee County Board	967 Fisk Rd	Compton	IL	61318	
Raymond	Harrison	Lee County Board	1361 Rt 52	Amboy	IL	61310	
Gerald	Leffelman	Lee County Board	P.O. Box 94	Sublette	IL	61367	
John	Nicholson	Lee County Board	P.O. Box 447	Franklin Grove	IL	61031	
Allyn	Buhrow	Lee County Board	1831 Midway Rd	Ashton	IL	61006	
James	Seeberg	Lee County Board	Box 346	Ashton	IL	61006	
Judy	Truckenbrod	Lee County Board	1434 Rt 251	West Brooklyn	IL	61378	
Bernie	Buckley	Lee County Board	1030 Idlewild Dr	Dixon	IL	61021	
Robert	Stevens	Lee County Board	609 E Third St	Dixon	IL	61021	
Isaac	Mercer	Lee County Board	1226 W. 4th St	Dixon	IL	61021	
Michael	Farster	Lee County Board	817 S. Ottawa	Dixon	IL	61021	
Arthur	Tofte	Lee County Board	611 Assembly PL	Dixon	IL	61021	
Gregory	Witzleb	Lee County Board	881 White Oaks Dr	Dixon	IL	61021	
James	Wentling	Lee County Board	911 N Jefferson Ave	Dixon	IL	61021	
Joseph	Patzer	Lee County Board	1943 Phillip Dr	Dixon	IL	61021	
Bill	Palen	Lee County Board	909 N Brinton Ave	Dixon	IL	61021	
Tom	Demmer	Lee County Board	702 B Medinah Ct	Dixon	IL	61021	
Charles	Stoddard	Lee County Board	551 N Ottawa	Dixon	IL	61021	

Marvin	Williams	Lee County Board	611 Apple St.	Dixon	IL	61021
David	Chandler	Lee County Board	1209 Mary Ave	Dixon	IL	61021
Chris	Henkel	County Zoning Officer	112 E. 2nd	Dixon	IL	61021
Jerry	Quinton	County Excecutive Director of Lee County FSA	PO Box 257	Amboy	IL	61310
Aaron	Seim	District Conservatist NRCS	319 S Mason	Amboy	IL	61310
Brenda	Merriman	Resource Conservationist	319 S Mason	Amboy	IL	61310
Kent	Reed	Chairman of Board SWCD	319 S Mason	Amboy	IL	61310
Colleen	Henkel	Lee County Soil and Water	319 S Mason	Amboy	IL	61310
Lindsey	Senn	Educator coordinator	319 S Mason	Amboy	IL	61310
Ron	Conderman	Lee County Zoning Board Chairman	1186 Dutch Rd	Dixon	IL	61021
Craig	Buhrow	Lee County Zoning Board Vice Chairman	2374 Pipeline Rd	West Brooklyn	IL	61378
Tom	Fassler	Lee County Zoning Board	557 Inlet Rd	Sublette	IL	61367
Gene	Bothe	Lee County Zoning Board	1392 Robbins Rd	Franklin Grove	IL	61031
Mike	Pratt	Lee County Zoning Board	1151 Il Rt 38	Dixon	IL	61021
Bruce	Forster	Lee County Zoning Board	1625 Pump Factory	Dixon	IL	61021
John	Fassler	Palmyra Township Board	206 Palmyra Rd	Dixon	IL	61021
Vern	Gottel	Palmyra Township Board	1014 Gregden Shores	Sterling	IL	61081
Joseph	Jacobs	Palmyra Township Board	582 Penrose Rd	Dixon	IL	61021
Andrew	Near	Palmyra Township Board	527 Penrose Rd	Dixon	IL	61021
Eugene	Book	Palmyra Township Planning Commission	1610 Gregden Shores	Sterling	IL	61021
Karl	Kilberg	Palmyra Township Planning Commission	42 Carriage Hill Dr	Sterling	IL	61081
Michael	Leslie	Palmyra Township Planning Commission	1775 Clearview Rd	Dixon	IL	61021
Eugene	Hardiek	Palmyra Township Planning Commission	1916 Sunnydale Rd	Dixon	IL	61021
Mark	Fassler	Palmyra Township Planning Commission	1987 Lenox Rd	Dixon	IL	61021
Ed	Anderson	CGH Medical/SVCC Board Chairman	100 E LeFevre Rd	Sterling	IL	61081
Dr. William	Simpson	SVCC Board	615 N Orange	Morrison	IL	61270
Andrew	Bollman	SVCC Board	587 Walker Rd	Dixon	IL	61021
Joan	Padilla	SVCC Board	1411 E 35th St	Sterling	IL	61081
Robert	Thompson	SVCC Board	P.O. Box 1016	Dixon	IL	61021
Lisa	Wiersema	SVCC Board	26665 Clark Rd	Chadwick	IL	61014
Scott	Stoller	SVCC Board	24231 1200 E St	Walnut	IL	61376
Ole Bly	Pace	Board Attorney	202 E 5th St	Sterling	IL	61081

Appendix C ComEd Environmental Disclosure

The electric industry restructuring law passed in 1997 by the Illinois General Assembly provides many benefits for all customers. In compliance with this law, electric utilities and suppliers provide an Environmental Disclosure Statement for the 12 months ending every quarter.

The information in this statement shows the breakdown of the different sources that generated electricity for ComEd customers and the average amounts of emissions and nuclear waste produced, between January 1, 2009 and December 31, 2009.

In addition to the electricity sources shown on the table and pie chart, ComEd also purchased renewable energy certificates (RECs) in the spring of 2008 and 2009 to fulfill its obligation under the Illinois Renewable Portfolio Standard. RECs represent the beneficial environmental attributes associated with renewable generation resources such as wind, hydroelectric, biomass, and solar. One REC is created for each megawatt hour of energy produced by a renewable generator. In 2008, ComEd procured a total of 796,040 RECs, of which approximately 72 percent were from wind generators located in Illinois and in nearby states. In 2009, ComEd procured a total of 1,564,360 RECs, 75 percent of which were from wind generators located in Illinois.

ComEd Workshop Helps Students Gain Real-World Experience in Energy Efficiency

Students from six Chicago area high schools received real-world experience in helping their municipalities reduce energy costs through an innovative, new state-initiated learning program sponsored by ComEd.

ComEd's "Approach to Energy Auditing" workshop is part of a public-private partnership between the Illinois Department of Commerce and Economic Opportunity and the Illinois State Board of Education. The program, which focuses on science, technology, engineering and math (STEM), provides students with opportunities to gain real-life skills through hands-on research. The goal is to boost academic achievement and improve transition rates to post-secondary education and employment.

With help from ComEd's Energy Efficiency Services department, students conducted energy audits of schools, community buildings and wastewater treatment plants depending on the interests of the schools and municipalities. Students then prepared reports for school and community boards with recommendations that would save energy and improve the environment.

In the Village of Manteno, students discovered operational changes that could reduce energy costs by 27 percent across four village buildings. Genoa-Kingston High School students recommended changes within school buildings that would reduce the lighting energy costs by up to 50 percent.

Commonwealth Edison Company
P.O. Box 805379
Chicago, IL 60680-5379

ComEd.
An Exelon Company

E1-BI-3/10

www.ComEd.com

ComEd.
An Exelon Company

Environmental Disclosure Information

Twelve Months Ending December 31, 2009

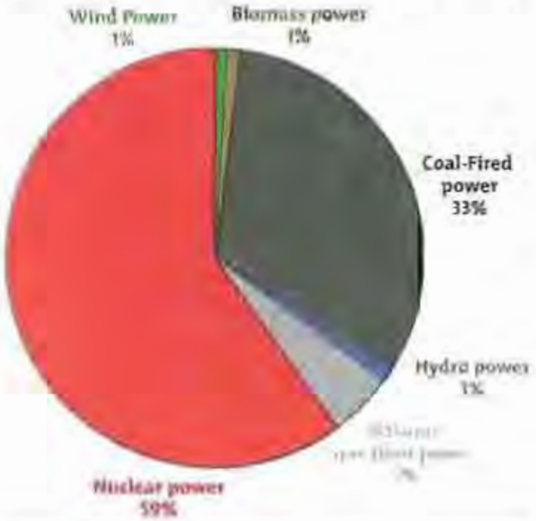
The information contained in the Environmental Disclosure Statement is required by the Electric Service Customer Choice and Rate Relief Law of 1997 and the rules of the Illinois Commerce Commission.

ComEd's Environmental Disclosure Statement

The disclosure of this information is required under Section 16-127 of the Electric Service Customer Choice and Rate Relief Law of 1997 and the rules of the Illinois Commerce Commission, 83 Ill Admn. Code 421.

Sources[1] of Electricity Supplied for the 12 months ending December 31, 2009	Percentage of Total
Biomass power	1%
Coal-fired power	33%
Hydro power	1%
Natural gas-fired power	5%
Nuclear power	59%
Oil-fired power	0%
Solar power	0%
Wind power	1%
Other resources	0%
Unknown resources purchased from other companies	0%
TOTAL	100%

Sources of Electricity Supplied for the 12 months ending December 31, 2009



AVERAGE AMOUNTS OF EMISSIONS[2] and AMOUNT OF NUCLEAR WASTE[3] per 1000 kilowatt-hours (kWh) PRODUCED FROM KNOWN SOURCES for the 12 months ending December 31, 2009	
Carbon dioxide	743.46 lbs.
Nitrogen oxides	1.06 lbs.
Sulfur dioxide	3.54 lbs.
High level nuclear waste	0.006 lbs
Low level nuclear waste	0.0003 cubic feet

[1] These figures constitute the aggregation of information provided by ComEd's wholesale energy suppliers, many of whom have indicated that their source is the "PJM system mix." The PJM system mix is the collective generation produced within the PJM interconnection, which is the regional transmission organization that maintains the safety, reliability, and security of the transmission system and operates an efficient and effective wholesale electric market in 13 states and the District of Columbia. ComEd's electric service territory is within the PJM footprint.

[2] The source for the baseline emissions data for the portion of the emissions that are associated with PJM system mix is PJM Environmental Information Services, Inc. (www.pjm-eis.com) For energy that is sourced from the PJM system mix, emissions rates are calculated using the most current emissions data from the Quarterly PJM System Mix by Fuel Reports. These reports exclude the effects of energy imports, exports, external generation and behind-the-meter generation. Those quarterly reports also exclude the effects of any claims on any specific component(s) of the mix.

[3] Nuclear Waste rates were calculated based on Generation Net for Sale.

Additional information on companies selling electrical power in Illinois may be found at the Illinois Commerce Commission's World Wide Web site www.icc.state.il.us

Appendix F Programmatic Agreement Between the United States Department Of Energy, the Illinois Department Of Commerce and Economic Opportunity and the Illinois Historic Preservation Agency Regarding EECBG, SEP and WAP Undertakings

PROGRAMMATIC AGREEMENT
BETWEEN
THE UNITED STATES DEPARTMENT OF ENERGY, THE ILLINOIS DEPARTMENT OF COMMERCE AND ECONOMIC OPPORTUNITY (ILLINOIS ENERGY OFFICE AND ILLINOIS HOME WEATHERIZATION ASSISTANCE PROGRAM OFFICE)
AND
THE ILLINOIS HISTORIC PRESERVATION AGENCY
REGARDING EECBG, SEP AND WAP UNDERTAKINGS

April 6, 2010

WHEREAS, the United States Department of Energy (DOE) administers the following financial assistance programs: ***the Energy Efficiency and Conservation Block Grant Program*** under the Energy Independence and Securities Act of 2007 (EECBG); ***the State Energy Plan*** under the Energy Policy and Conservation Act of 1975 and the State Energy Efficiency Programs Improvement Act of 1990 (SEP); and ***the Weatherization Assistance Program*** (WAP) for Low-Income Persons under Title IV of the Energy Conservation and Production Act, the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and the American Recovery and Reinvestment Act of 2009 (ARRA); collectively referred to as the "Programs";

WHEREAS, the unprecedented levels of funding available to the Programs, due in large measure to ARRA, has created a large volume of projects requiring expedited historic preservation reviews to ensure the timely obligation of funds, that create new jobs, and improve local and state economies;

WHEREAS, the Illinois Historic Preservation Agency (SHPO) is experiencing unprecedented numbers of requests for historic preservation review of undertakings funded by all Federal Agencies, including undertakings funded by the Programs;

WHEREAS, the Illinois Department of Commerce and Economic Opportunity (Recipient) is receiving financial assistance from DOE to carry out the Programs;

WHEREAS, the projects funded by the Programs are undertakings subject to review under Section 106 of the National Historic Preservation Act, 16 U.S.C 470f (NHPA) and its implementing regulations at 36 CFR part 800 and include rehabilitation, energy efficiency retrofits, renewables, and weatherization (undertakings);

WHEREAS, DOE has determined that these undertakings may adversely affect properties that are listed in or eligible for listing in the National Register of Historic Places (National Register) and subject to the requirements of the National Historic Preservation Act (NHPA);

WHEREAS, in accordance with 36 CFR 800.14(b)(4), the Advisory Council on Historic Preservation (the ACHP) has designated this Agreement as a Prototype Programmatic Agreement (PA), which does not require the participation or signature of the ACHP;

WHEREAS, DOE, the ACHP, and the National Conference of State Historic Preservation Officers (NCSHPO) have determined that the requirements of Section 106 can be more effectively and efficiently fulfilled if a programmatic approach is used to stipulate roles and responsibilities, exempt undertakings from Section 106 review, establish tribal protocols, facilitate identification and evaluation of historic properties, establish treatment and mitigation measures, and streamline the resolution of adverse effects;

WHEREAS, by memorandum dated August 28, 2009 (attached as Appendix C), DOE delegated certain tasks necessary for compliance with Section 106 of the NHPA to grantees and sub-grantees of funding from the Programs (Recipients);

WHEREAS, according to the August 28, 2009 memorandum, the Recipients are authorized, to initiate Section 106 compliance in accordance with 36 CFR 800.2 (c)(4);

WHEREAS, the undertakings covered under this PA are not located on Tribal lands and are primarily smaller scale activities and routine projects, without the potential for adversely affecting historic properties, rather than complex undertakings with a greater potential to adversely affect historic properties, which would require completion of the typical Section 106 review process;

WHEREAS, DOE and the ACHP were guided by the principles set forth in the ACHP's Affordable Housing Policy statement, adopted on November 9, 2006, in negotiating this Programmatic Agreement upon which this PA is based;

NOW, THEREFORE, DOE, the Illinois Department of Commerce and Economic Opportunity (cognizant State Energy Office and Weatherization Assistance Program Office) and the Illinois Historic Preservation Agency agree that the Programs shall be administered in accordance with the following stipulations to satisfy DOE's Section 106 responsibilities for all individual undertakings of the Programs:

STIPULATIONS

DOE, the Recipient, and the SHPO shall ensure that the following stipulations are carried out:

I. Roles and Responsibilities
   A. DOE shall be responsible for providing oversight of the PA, executing PAs with SHPOs, participating in the resolution of disputes between the SHPO and the Recipient, and providing technical assistance and guidance as needed. DOE shall be responsible for government-to-government consultation with Indian tribes, unless the Indian tribe agrees to the delegation of this responsibility to a Recipient.
   B. The Recipient shall be responsible for consulting with consulting parties and conducting Section 106 reviews in a timely manner, preparing documentation for the SHPO and DOE, and maintaining records on undertakings. Undertakings that involve properties greater than fifty (50) years old and are not listed on either Appendices A or B shall be submitted to the SHPO for review in accordance with this agreement.

C. Recipient shall ensure that the provisions of this PA apply to its sub-awards.
D. The Recipient is encouraged to use qualified professionals in conducting their Section 106 requirements.
E. The SHPO shall be responsible for reviewing project documentation and participation in consultation as set forth in this PA.
F. The ACHP shall be responsible for providing technical guidance, participating in dispute resolutions if appropriate, and monitoring the effectiveness of this PA.

II. Tribal Review

A. Execution of this PA presumes that DOE will conduct its government-to-government responsibilities with federal recognized Indian tribes or its Section 106 consultation requirements with Native Hawaiian Organizations (NHO) consistent with Federal laws and regulations. The Recipient shall not substitute for DOE in matters related to potential effects on historic properties of cultural and religious significance to Indian tribes, except with the concurrence of the Indian tribe or NHO.
B. DOE acknowledges that Indian tribes possess special expertise in assessing the National Register eligibility of properties with tribal religious and cultural significance, and requires the Recipient to consult with them, as appropriate, in identifying historic properties listed in or eligible for listing in the Area of Potential Effect (APE) of program areas.
C. If the Recipient notifies DOE that an undertaking may result in an adverse effect on cultural resources with tribal religious and cultural significance, DOE shall notify Indian tribes of individual undertakings that may result in an adverse effect on cultural resources with tribal religious and cultural significance and invite them to participate in consultations. Indian tribes and the Recipient may develop a bi-party agreement that outlines their review procedures for undertakings covered in a PA. Such agreements will be submitted to DOE for review and approval, and a copy sent to the ACHP for its records.

III. State Interagency Agreements

The Recipient may review an undertaking in accordance with the terms of an interagency agreement, in lieu of the other terms of this PA, if:

1) The interagency agreement was in negotiations by the Recipient and SHPO on or before February 5, 2010, and will be executed no later than February 19, 2010;
2) The Recipient and SHPO both agree through execution of this PA that the interagency agreement applies to the undertaking and provides a historic preservation review process that is similar to that provided by the other terms of this PA; and
3) DOE does not object to the use of the interagency agreement to fulfill the requirements of Section 106 of the NHPA for the undertakings.

IV. Exemptions from Section 106 review

A. The Recipient shall not submit to the SHPO undertakings in accordance with Appendices A or B as they do not have the potential to cause effects on historic properties even when historic properties may be present. The Recipient and the SHPO **may agree to modify Appendix A and/or Appendix B,** with advance notification of such modifications to the ACHP and DOE. Recipient will maintain file records with verification that undertakings were determined to be exemptions for a period of three (3) years from project completion and make them available for review if requested by DOE or the ACHP.

B. If a property has been determined to be ineligible for inclusion in the National Register within the last five (5) years from the date the Recipient made its application for DOE financial assistance, then no further review is required under this P A.

C. Recipients of any of the Programs may utilize either Appendix A or Appendix B in identifying exempt undertakings, regardless of whether the Exhibit on which the undertaking relates to another federally funded program.

V. Review Procedures for Non-exempt Undertakings

A. ***For undertakings not exempted under Stipulation III or IV, if the Recipient has an executed Section 106 Agreement per 36 CFR part 800 for Community Development Block Grants (CDBG) with the SHPO*** that 1) is still in effect; 2) covers the same undertakings as the DOE grant programs; and 3) is up to date with reporting to the SHPO, **no separate Section 106 review is needed.**

B. Otherwise, the Recipient shall review the undertaking in accordance with Stipulations VI through X below, or consistent with SHPO approved historic preservation protocols.

VI. Identification and Evaluation

A. The Recipient shall establish the Area of Potential Effect (APE) for all program undertakings defined in the DOE grant agreement for the State.

B. The Recipient shall complete the identification and evaluation of historic properties utilizing existing information including the National Register, state surveys, and county and local surveys. In addition, the Recipient and SHPO may use or develop protocols that are consistent with 36 CFR Section 800.4 for the review of consensus determinations of eligibility.

C. The Recipient shall consult with Indian tribes or NHOs to determine if there are historic properties of religious or cultural significance that were not previously identified or considered in surveys or related Section 106 reviews, as appropriate.

D. Archaeology surveys are required only for new ground disturbing project undertakings and shall be limited in scope subject to the concurrence of Indian tribes or NHOs that may attach religious or cultural significance to historic properties in the project area. Project undertakings requiring more than

minimal ground disturbance shall be forwarded to the SHPO and THPOs or Indian tribes or NHOs concurrently for review.

E. In order to avoid potential delays, prior to initiating undertakings the SHPO may review the Recipient's scopes of work for above ground surveys and archaeology surveys that are deemed necessary to administer the Recipient's Programs and to implement the terms of this PA.

F. The Recipient shall refer disputes regarding determinations of eligibility to DOE for review and referral to the Keeper of the National Register in accordance with 800.4(c)(2).

VII. Treatment of Historic Properties

A. When the Recipient and the SHPO concur that an undertaking is designed and planned in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68, July 12, 1995 *Federal Register)* (Standards), that undertaking will not be subject to further Section 106 review.

B. The Recipient and SHPO will make best efforts to expedite reviews through a finding of "No Adverse Effect with conditions" when the Recipient and the SHPO concur that plans and specifications or scopes of work can be modified to ensure adherence to the Standards. If the undertaking cannot meet the Standards or would otherwise result in an adverse effect to historic properties, the Recipient will proceed in accordance with Stipulation VIII.

VIII. Resolution of Adverse Effects

A. The Recipient shall consult with the SHPO, and Indian tribes or NHOs as appropriate, to resolve adverse effects. The Recipient will notify DOE of the pending consultation, and DOE will participate through its designated representative.

B. The Recipient may use standard stipulations included in Attachment A of this PA, or as negotiated as part of this PA between the SHPO and the Recipient, or if the project warrants, use of an alternate PA due to the complexity of the project activity.

C. Consultation shall be coordinated to be concluded in 45-days or less to avoid the loss of funding. In the event the consultation extends beyond this period, DOE shall formally invite the ACHP to participate in consultation. The ACHP will consult with DOE regarding the issues and the opportunity to negotiate a Memorandum of Agreement (MOA). Within seven (7) days after notification, the ACHP will enter consultation and provide its recommendation for either concluding the Section 106 review through an MOA or Chairman's comment from the ACHP to the Secretary of DOE within 21 days.

D. In the case of an ACHP Chairman comment, DOE may proceed once DOE provides its response to the ACHP.

IX. Emergency Situation Undertakings

A. When an emergency undertaking is required for historic properties associated with the undertakings, the Recipient shall allow SHPO five (5) business days

to respond, if feasible. Emergencies exist when there is a need to eliminate an imminent threat to health and safety of residents as identified by local or County building inspectors, fire department officials, or other local or County officials.

1. The Recipient shall forward documentation to the SHPO for review immediately upon notification that an emergency exists. Documentation should include a) nature of the emergency; b) the address of the historic property involved; c) photographs showing the current condition of the building; and d) the time-frame allowed by local officials to respond to, or correct, the emergency situation.
2. The Recipient shall consider mitigation measures recommended by the SHPO and implement them, if feasible.

X. Public and Consulting Party Involvement

A. The Recipient shall maintain a list of undertakings and shall make the documentation available to the public. The Recipient shall notify the SHPO if its notified of other consulting parties or public interest in any undertakings covered under the terms of the PA.
B. The Recipient, independently or at the recommendation of the SHPO, may invite interested persons to participate as consulting parties in the consultation process for adverse effects in accordance with Stipulations VI, VII, and VIII.

XI. Administrative Coordination

A. The Recipient, in consultation with the SHPO, may develop procedures allowing for the use of local reviews conducted by Certified Local Governments (CLG) when such procedures avoid the duplication of efforts.
B. The Recipient, in consultation with the SHPO, may determine that an undertaking has already been reviewed under an existing Section 106 effect determination or agreement document, then no further Section 106 review under this PAis required.
C. The SHPO shall provide comments to the Recipient within thirty (30) days, unless otherwise agreed upon by the SHPO and the Recipient, for reviews required under the terms of this PA with the exception of emergency undertakings. In the event that the SHPO fails to comment within the established period, the Recipient can assume the SHPO has concurred, and proceed.
D. The Recipient shall advise sub-grantees in writing of the provisions in Section 110 (k) of the Act and will advise the sub-grantees that Section 106 reviews may be compromised when project undertakings are initiated prematurely.
E. The SHPO and the Recipient shall make every effort to expedite Section 106 reviews for a period of less than the 30-day review when consistent with the terms of the DOE grant agreements and the Recipient intends to utilize the services of qualified professionals.
F. For projects that will require either an Environmental Assessment or an Environmental Impact Statement under the National Environmental Policy

Act (NEPA), nothing contained in this PA shall prevent or limit the Recipient and DOE from utilizing the procedures set forth in 36 CFR 800.8 to coordinate and conduct the historic preservation review in conjunction with the NEPA review.

XII. Discoveries

If historic properties are discovered or unanticipated effects on historic properties located within a project's APE after the undertaking has been initiated, the Recipient will implement the following procedures:

A. The Recipient shall immediately cease all operations for the portion of the undertaking with the potential to affect an historic property;
B. The subgrantee shall advise the Recipient of the National Register eligibility of the historic property and the potential of the undertaking to impact its qualifying characteristics and an explanation of the whether the SHPO or Indian tribes and NHOs concur with proposed avoidance, treatment plan or mitigation plan;
C. The Recipient or DOE shall notify Indian tribes or NHOs of any discoveries that have the potential to adversely affect sites or buildings of religious or cultural significance to them. After reviewing such discoveries, the Indian tribes or NHOs can request further consultation on the project by notifying DOE, ACHP, and the SHPO in writing.
D. The Recipient or subgrantee shall implement the avoidance, treatment or mitigation plan and advise the Recipient and DOE, if appropriate, of the satisfactory completion of the approved work. Once the approved work is complete may resume the activities that were halted to address the discovery situation.

XIII. Dispute Resolution

A. Should the SHPO object within the time frames outlined in this PA to any project undertakings, the Recipient shall **consult further with the** SHPO to attempt to remove the basis for the SHPO's objection. In the event that the SHPO's objection is not withdrawn, then the Recipient shall refer the matter to DOE. The Recipient shall forward all documentation relevant to DOE, who will notify and consult with the ACHP.
B. The ACHP will provide its recommendations, if any, within 21 days following receipt of relevant documentation. DOE will take into account the ACHP's recommendations or formal comments in reaching a final decision regarding the dispute.

XIV. Reporting and Monitoring

A. DOE, the ACHP, and the SHPO may monitor any undertakings carried out pursuant to this PA. The ACHP may review undertakings, if requested by DOE. DOE shall be entitled to address and make determinations on overall policy or administrative issues related to the implementation of these Programs.

B. The Recipient shall adhere to DOE's established protocols for ARRA reporting program undertakings.
C. DOE will submit annual reports to ACHP and NCSHPO commencing October 15,2010 summarizing the Programs' undertakings, to include data on number of undertakings, the number of exempt undertakings, and reviews conducted under this PA.

XV. Amendments

DOE, the SHPO, or the Recipient may request that this PA be amended, whereupon DOE and the SHPO, and the ACHP, if involved, will consult to consider such an amendment. Any such amendments shall be developed and executed among DOE, the Recipient, and the SHPO in the same manner as the original P A, and pertain only to this State PA.

XVI. Duration of Agreement

This PA will be valid for three (3) years from the date of execution, as verified with DOE filing the PA with the ACHP.

XVII. Termination of Agreement

DOE, the SHPO, or the Recipient may terminate the PA, provided that the party proposing termination notifies the other signatories and the ACHP in writing explaining the reasons for termination and affording the other signatories at least thirty (30) days to consult and seek alternatives to termination.

Signatories:

Warren Ribley by [illegible] 30 April 2010

Warren Ribley, Director — Date
Illinois Department of Commerce and Economic Opportunity

[illegible] May 5, 2010

Ian Grimes, State Historic Preservation Officer — Date

claire Braido Johnson 5/6/10

UNITED STATES DEPARTMENT OF ENERGY — Date
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
OFFICE OF WEATHERIZATION AND INTERGOVERNMENTAL PROGRAMS

APPENDIX A – WAP UNDERTAKINGS EXEMPT FROM SECTION 106 REVIEW

All undertakings will be done in accordance with applicable local building codes or the International Building Code, where applicable. In accordance with 36 CFR 800.3(a)(l), the following undertakings have been determined to have no potential to cause effects on historic properties:

A. Exterior Work

1) Air sealing of the building shell, including caulking, weather-stripping, and other air infiltration control measures on windows and doors, and installing thresholds in a manner that does not harm or obscure historic windows or trim.
2) Thermal insulation, such as non-toxic fiberglass and foil wrapped, in walls, floors, ceilings, attics, and foundations in a manner that does not harm or damage historic fabric.
3) Blown in wall insulation where no holes are drilled through exterior siding, or where holes have no permanent visible alteration to the structure
4) Removable film on windows (if the film is transparent), solar screens, or window louvers, in a manner that does not harm or obscure historic windows or trim.
5) Reflective roof coating in a manner that closely resembles the historic materials and form, or with materials that restore the original feature based on historic evidence, and in a manner that does not alter the roofline, or where not on a primary roof elevation or visible from the public right-of-way.
6) Storm windows or doors, and wood screen doors in a manner that does not harm or obscure historic windows or trim.
7) In-kind replacement or repair of primary windows, doors and door frames that closely resemble existing substrate and framing
8) Repair of minor roof and wall leaks prior to insulating attics or walls, provided repairs closely resemble existing surface composite

B. Interior Work

Special Note: Undertakings to interior spaces where the work will not be visible from the public right of way; no structural alterations are made; no demolition of walls, ceilings or floors occurs; no drop ceilings are added; or no walls are leveled with furring or moved, should be automatically excluded from **SHPO** review. This work includes:

1. **Energy efficiency work within the building shell:**

   a. Thermal insulation in walls, floors, ceilings, attics, crawl spaces, ducts and foundations
   b. Blown in wall insulation where no decorative plaster is damaged.
   c. Plumbing work, including installation of water heaters
   d. Electrical work, including improving lamp efficiency
   e. Sealing air leaks using weather stripping, door sweeps, and caulk and sealing major air leaks associated with bypasses, ducts, air conditioning units, etc.

f. Repair or replace water heaters
g. Adding adjustable speed drives such as fans on air handling units, cooling tower fans, and pumps
h. Install insulation on water heater tanks and water heating pipes
i. Install solar water heating systems, provided the structure is not visible from the public right of way
j. Install waste heat recovery devices, including desuperheater water heaters, condensing heat exchangers, heat pump and water heating heat recovery systems, and other energy recovery equipment
k. Repair or replace electric motors and motor controls like variable speed drives
l. Incorporate other lighting technologies such as dimmable ballasts, day lighting controls, and occupant controlled dimming

2. Work on heating and cooling systems:

a. Clean, tune, repair or replace heating systems, including furnaces, oilers, heat pumps, vented space heaters, and wood stoves
b. Clean, tune repair or replace cooling systems, including central air conditioners, window air conditioners, heat pumps, and evaporative coolers
c. Install insulation on ducts and heating pipes
d. Conduct other efficiency improvements on heating and cooling systems, including replacing standing pilot lights with electronic ignition devices and installing vent dampers
e. Modify duct and pipe systems so heating and cooling systems operate efficiently and effectively, including adding return ducts, replace diffusers and registers, replace air filters, install thermostatic radiator controls on steam and hot water heating systems
f. Install programmable thermostats, outdoor reset controls, UL listed energy management systems or building automation systems and other HVAC control systems

3. Energy efficiency work affecting the electric base load of the property:

a. Convert incandescent lighting to fluorescent
b. Add reflectors, LED exist signs, efficient HID fixtures, and occupancy (motion) sensors
c. Replace refrigerators and other appliances

4. Health and safety measures

a. Installing fire, smoke or carbon dioxide detectors / alarms
b. Repair or replace vent systems on fossil-fuel-fired heating systems and water heaters to ensure that combustion gasses draft safely to outside
c. Install mechanical ventilation, in a manner not visible from the public right of way, to ensure adequate indoor air quality if house is air-sealed to building tightness limit

APPENDIX B - SEP AND EECBG UNDERTAKINGS EXEMPT FROM SECTION 106 REVIEW

A. Category 1 – No Consultation required

In addition to the undertakings provided in *Exhibit A (WAP Undertakings exempt from Section 106 Review),* DOE and the SHPO have concluded that the following undertakings do not have the potential to cause effects on historic properties per 36 CFR § 800.3(a)(1):

1. ***General efficiency measures not affecting the exterior of the building*:**

    a. Energy audits and feasibility studies
    b. Weatherization of mobile homes and trailers
    c. Caulking and weather-stripping around doors and windows in a manner that does not harm or obscure historic windows or trim.
    d. Water conservation measures -like low flow faucets, toilets, shower heads, urinals - and distribution device controls
    e. Repairing or replacing in kind existing driveways, parking areas, and walkways with materials of similar appearance
    f. Excavating to gain access to existing underground utilities to repair or replace them, provided that the work is performed consistent with previous conditions
    g. Ventilating crawl spaces
    h. Replacement of existing HVAC equipment including pumps, motors, boilers, chillers, cooling towers, air handling units, package units, condensers, compressors, heat exchangers that do not require a change to existing ducting, plumbing, electrical, controls or a new location, or if ducting, plumbing, electrical and controls are on the rear of the structure or not visible from any public right of way.
    i. Adding or replacing existing building controls systems including HVAC control systems and the replacement of building-wide pneumatic controls with digital controls, thermostats, dampers, and other individual sensors like smoke detectors and carbon monoxide detectors (wired or non-wired)
    j. New installation of non-hard wired devices including photo-controls, occupancy sensors, carbon dioxide, thermostats, humidity, light meters and other building control sensors, provided the work conforms with applicable state and local permitting requirements
    k. Adding variable speed drive motors
    l. Insulation of water heater tanks and pipes
    m. Furnace or hot water tank replacement that does not require a visible new supply or venting

2. ***Insulation measures not affecting the exterior of the building*:**

a. Thermal insulation installation in walls, floors and ceilings (excluding spray foam insulation)
b. Duct sealing, insulation, repair or replacement in unoccupied areas
c. Attic insulation with proper ventilation; if under an effective R8 - add additional R-19 up to R-38 (fiberglass bat only)
d. Band joist insulation - R-II to R19 as applicable
e. Water heater tank and pipe insulation

3. ***Electric base load measures not affecting the exterior the building:***

a. Appliance replacement (upgrade to EnergyStar appliances)
b. Compact fluorescent light bulbs
c. Energy efficient light fixtures, including ballasts (Replacement)
d. LED light fixtures and exit signs (Replacement)
e. Upgrade exterior lighting (replacement with metal halide bulbs, LEDs, or others) along with ballasts, sensors and energy storage devices not visible from any public right of way

B. Category 2 - No Consultation Required if SOI Standards are Adhered to and Verified by Qualified Staff, if Applicable

1. Efficiency and repair measures:

a. Painting over previously painted exterior surfaces, provided destructive surface preparation treatments are not used (such as water-blasting, sandblasting and chemical removal)
b. Installation or replacement of downspout extensions, provided that the color of the extensions is historically appropriate for the period and style of the property
c. Repairing or upgrading electrical or plumbing systems and installing mechanical equipment, in a manner that does not permanently change the appearance of the interior or exterior of the building
d. Installation of new HVAC equipment (such as pumps, motors, boilers, chillers, cooling towers, air handling units, package units, condensers, compressors, or heat exchangers) in a manner that does not permanently change the appearance of the building.
e. Integrated shingle-style or thin film solar systems on the rear roof of the structure, behind the parapet or not visible from the public right of way.
f. Solar systems (including photovoltaic and solar thermal) not visible from the public right of way and if ground-mounted can be installed without ground disturbance and if roof-mounted will not require new building reinforcement.
g. Wind system additions to existing wind power facilities that will not require ground disturbance and if building mounted will not require building reinforcement.
h. Lead-based paint abatement in accordance with the Standards and Preservation Brief #37

i. Building cleaning in accordance with the Standards and Preservation Briefs #1, #6, and #10
j. Repairing masonry, including re-pointing and rebuilding chimneys in accordance with the Standards and Preservation Brief # 2
k. New lighting controls including photo-sensors and shading elements if not visible from the public right of way
I. New metering devices in a manner that does not permanently change the appearance of the interior or exterior of the building, or if the addition is on the exterior of the structure and is not visible from the public right of way
m. New water efficient fixtures and fittings in a manner that does not permanently change the appearance of the interior or exterior of the building

2. Installation or repair of roofing, siding and ventilation:

a. White Roofs, Cool Roofs, Green Roofs, Sod or Grass Roofs not visible from the public right-of-way
b. Rainwater catches and/or gray water systems not viewable from the public right of way
c. Repair or replacement of existing exterior siding provided that new siding closely resembles the existing siding in dimension, profile and texture
d. Flat or shallow pitch roof replacement (shallow pitch is defined as a pitch with a rise-to-run ratio equal to or less than 3" to 12") with no part of the surface of the roof visible from the ground
e. Roof repair or replacement with materials that closely resemble the historic materials and form, or with replacement materials that are close to the original in color, texture, composition and form to restore the original feature based on historic evidence, and in a manner that does not alter the roofline
f. Installing vents (such as continuous ridge vents covered with ridge shingles or boards, roof vents, bath and kitchen vents, soffit and frieze board vents or combustion appliance flues) if not located on a primary roof elevation or not visible from the public right-of-way
g. Installing foundation vents, if painted or finished to match the existing foundation material.

3. Windows and doors:

a. Installing storm windows, storm doors or wood screen doors in a manner that does not harm or obscure historic windows, doors or trim
b. Installing insulated exterior replacement doors where the door openings are not altered and are not visible from the public right-of-way
c. Window or glazing treatments that do not change the appearance of the interior or exterior of the building, or if the addition is on the exterior of the structure

APPENDIX C - AUGUST 28, 2009 DELEGATION MEMORANDUM

(next page)

Department of Energy
Washington, DC 20585

August 28, 2009

MEMORANDUM

TO: State Historic Preservation Officers
Tribal Historic Preservation Officers

FROM: Catherine R. Zoi
Assistant Secretary
Energy Efficiency and Renewable Energy

SUBJECT: Memorandum from EERE Regarding Delegation of Authority for Section 106 Review of Undertakings, Assisted by the U. S. Department of Energy, Office of Energy Efficiency and Renewable Energy

The Department of Energy (DOE), through the Office of Energy Efficiency and Renewable Energy (EERE), provides financial assistance to states, U.S. territories, units of local government, and Indian Tribes through the Energy Efficiency and Conservation Block Grant (EECBG) Program, Weatherization Assistance Program (Weatherization), and State Energy Program (SEP). Attached hereto is a one-page summary of the three programs. Additional program information is available at the following links: http://www.eecbg.energy.gov/; http://apps1.eere.energy.gov/wip/weatherization.cfm; http://apps1.eere.energy.gov/state_energy_program/.

Through this memorandum, DOE intends to formalize the role of the States and DOE's award recipients (Applicants) to assist DOE in carrying out its Section 106 compliance responsibilities. In order to streamline DOE's compliance with Section 106 and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), EERE is authorizing its Applicants under the EECBG, Weatherization, and SEP programs to initiate consultation pursuant to 36 CFR § 800.2(c) (4). Effective immediately, EERE Applicants and their authorized representatives may consult with the State Historic Preservation Officers (SHPOs) and Tribal Historic Preservation Officers (THPOs) to initiate the review process established under 36 CFR Part 800 and to carry out some of its steps. Specifically, EERE Applicants are authorized to gather information to identify and evaluate historic properties, and to work with consulting parties to assess effects. EERE retains responsibility to document its findings and determinations in order to appropriately conclude Section 106 review.

EERE also remains responsible for initiating government-to-government consultation with federally recognized Indian Tribes. EERE's responsibility to consult on a government-to-government basis with Indian Tribes as sovereign nations is established through specific authorities and is explicitly recognized in 36 CFR Part 800. Accordingly, EERE may not delegate this responsibility to a non-federal party without

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the agreement of the Tribe to do so. Where no such agreement exists, EERE will initiate tribal consultation.

Authorized Applicants must notify EERE whenever:

- Either the EERE Applicant or the SHPO/THPO believes that the Criteria of Adverse Effect pursuant to 36 CFR § 800.5, apply to the proposal under consideration by EERE;

- There is a disagreement between an Applicant, or its authorized representative, and the SHPO/THPO about the scope of the area of potential effects, identification and evaluation of historic properties and/or the assessment of effects;

- There is an objection from a consulting party or the public regarding their involvement in the review process established by 36 CFR Part 800, Section 106 findings and determinations, or implementation of agreed upon measures; or

- There is the potential for a foreclosure situation or anticipatory demolition as defined under 36 CFR § 800.9(b) and 36 CFR § 800.9(c), respectively.

EERE will participate in the consultation when such circumstances arise.

EERE expects its Applicants that are so authorized, to involve consulting parties in Section 106 findings and determinations and to carry out the exchange of documentation and information in a respectful, consistent and predictable manner. Technical assistance is available to Applicants from EERE regarding the coordination of Section 106 reviews, if needed.

If you have any questions, please contact Dr. F. G. (Skip) Gosling, DOE Federal Preservation Officer/Chief Historian, Office of History and Heritage Resources, (202) 586-5241or skip.gosling@hq.doe.gov or Steven P. Blazek, NEPA Compliance Officer, (303) 275-4723 or steve.blazek@go.doe.gov.

ATTACHMENT A: STANDARD MITIGATION MEASURES FOR ADVERSE EFFECTS

The Recipient and the SHPO may develop and execute an Agreement that includes one or more of the following Standard Mitigation Measures, as may be modified to a particular activity, with the concurrence of both parties, for undertakings determined to have an adverse effect on listed or eligible historic resources. The ACHP will not be a party to these Agreements. However, the Recipient must submit a copy of each signed Agreement to the SHPO, and the ACHP within 30 days after it is signed by the Recipient and the SHPO.

1. Recordation

The Recipient shall ensure that the historic property is recorded prior to its alteration in accordance with methods or standards established in consultation with the SHPO. The SHPO shall identify appropriate archive locations for the deposit of recordation materials and the Recipient shall be responsible for submitting required documentation to identified archive locations. The Recipient and the SHPO may mutually agree to waive the recordation requirement in situations where the integrity of the building has been compromised or other representative samples of a similar historic resources has been previously recorded.

2. Architectural Salvage

The Recipient, in consultation with the SHPO, shall identify significant architectural features for salvage, and appropriate parties to receive the salvaged features. The Recipient shall ensure that any architectural features identified for salvage are salvaged prior to initiation of undertakings and properly stored and curated. When feasible, and determined appropriate in consultation with SHPO, salvaged architectural features shall be reused in other preservation projects.

3. Rehabilitation

The Recipient shall ensure that the treatment of historic properties which the SHPO has determined does not meet the *Standard,* or SHPO approved design guidelines, is carried out in accordance with treatments agreed upon by the Recipient and the SHPO and are incorporated in the final plans and specifications. The final plans and specifications shall be approved by the SHPO prior to initiating the undertaking.

4. New Construction

The Recipient shall ensure that the design of new buildings, or additions, which the SHPO has determined does not meet the *Standards,* or SHPO approved design guidelines, is carried out in accordance with the final plans and specifications reviewed and approved by the SHPO prior to initiating the undertaking.

5. Archaeology

In cases where the undertaking will cause unavoidable adverse effects to National Register eligible archaeological properties, the Recipient shall consult with the SHPO to determine whether data recovery or some other treatment measure is in the public interest. If data recovery is the agreed upon treatment measure, the Recipient shall consult further with the SHPO to develop and implement a data recovery plan for those portions of the historic property that will be adversely affected. The data recovery plan shall:

- be based on firm background data, sound planning, and accepted archaeological methods;
- be consistent with applicable State laws and regulations;
- be accomplished in a thorough, efficient manner, using the most cost effective techniques practicable;
- provide for appropriate curation of archeological materials and records, and
- provide for reporting and interpretation of what has been learned in a format understandable and accessible to the public;
- be consistent with the National Park Service's *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* (at: http://www.nps.gov/history/local-law/arch_stnds_7.htm). and shall take into account the ACHP's publications, *Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites* (1999), ACHP Section 106 *Archaeology Guidance* (at: http://www.achp.gov/archguide/), and any archaeological guidance issued by the SHPO.

Appendix G Zoning and Special Use Permit Meeting Minutes

COUNTY OF LEE PETITION NO: 10-P-1469

APPLICATION FOR: x SPECIAL USE PETITION ____ VARIATION

NAME OF PETITIONER: Sauk Valley Community College

LEGAL DESCRIPTION OF PROPERTY AND PIN: Part of Seq of section 8 Township 21 range 8. 16-07-08-400-003

STREET ADDRESS (OR LANDMARK LOCATION): 173 IL Route #2

WHETHER PETITIONER IS ACTING AS AGENT FOR PRINCIPAL ___YES x NO
If yes, name and address of principal:
NAME OF PRINCIPAL
ADDRESS OF PRINCIPAL

WHETHER PETITIONER IS A CORPORATION ____YES x NO
If yes, the names and addresses of all officers and directors of the corporation and of all stockholders or shareholders owning any interest in excess of 20% of all of the outstanding stock or shares of the corporation must be attached hereto.

WHETHER THE PETITIONER OR THE PRINCIPAL IS AN ENTITY DOING BUSINESS UNDER AN ASSUMED NAME ____YES x NO
If yes, the name and address of all actual owners of the entity must be attached hereto.

WHETHER THE PETITIONER OR PRINCIPAL IS A PARTNERSHIP, JOINT VENTURE, SYNDICATE, OR AN UNINCORPORATED VOLUNTARY ASSOCIATION. ____YES x NO SPECIFY TYPE
If yes, the names and addresses of all partners or members of the partnership, joint venture, syndicate, or unincorporated voluntary association must be attached hereto.

A BRIEF STATEMENT OF THE PROPOSED SPECIAL USE: Requesting Ag - 1 Special Use for the purpose of a wind turbine.

PRESENT ZONING: AG-1

Petitioner acknowledges by his signature hereon that in the event a special use is granted and said special use has not been established (substantially underway) within one year from date of granting thereof, then, without further action by the County Board, the special use or authorization thereof shall be null and void.

6-30-10
Date

Petitioner

Petitioner

PALMYRA TOWNSHIP
PLANNING COMMISSION

SPECIAL MEETING
FOR PETITION #10-P-1469
JULY 31, 2010
TOWN HALL
9:00 A.M.

AGENDA

CHAIR calls Meeting to Order
SECRETARY takes Roll Call
CHAIR introduces PETITION and
HEARING PROCEDURE

HEARING

COMMISSION – addresses COMPREHENSIVE PLAN
COMPATIBILITY with PETITION

- **Identifies FINDINGS OF FACT**
- **APPROVES or DENIES**
  PETITION

ADJOURNMENT of Meeting

Palmyra Township
Planning Commission

July 31, 2010
9:00 a.m.
Special Meeting
Minutes

The Special Meeting of the Palmyra Township Planning Commission was held on Saturday, July 31, 2010 at 9:00 p.m. in the Town Hall. Those present were Chairman Eugene Hardiek, Members: Karl Kilberg, Eugene Book, Mike Leslie, Mark Fassler and Secretary Deb Dillow. Guests present: Supervisor Vern Gottel and Ron Cooper Absent: Jim Bushman

Chairman Hardiek indicated that the reason for this special meeting was for purpose of Special Use Petition #10-P-1469 for the purpose of a wind turbine.

Chairman Hardiek asked the petitioners to be sworn in for testimony. The petitioners presented to the Board the proposed plan to place a wind turbine on the campus of Sauk Valley Community College.

Chairman Hardiek indicated that the Commission will proceed with the Findings of Fact to determine the recommendation and approval or disapproval.

After review of the attached Findings of Fact, the Palmyra Township Planning Commission did the following:

After review we the Commission, find the request for "Special Use" for a wind turbine to be within the realm of consideration for Ag-1 Institutional Use so designated in the comprehensive land use plans.

A motion was made by Mike Leslie and seconded by Karl Kilberg that after full discourse by the petitioner and the Planning Commission that petition #10-P-11469, "Special Use" for the use of a wind turbine be approved. In a roll call vote, all voted aye. Motion carried.

A motion was made by Mike Leslie and seconded by Eugene Book to adjourn the meeting. Meeting adjourned at 10:29 a.m.

Attested

Deb Dillow
Secretary

PALMYRA TOWNSHIP
PLANNING COMMISSION

Petition Number: 10-P-1469

Township: Palmyra

Date: July 31, 2010

LESA:

Current Zoning: AG 1

Requested Zoning: "Special Use"

Proposed Use: Wind Turbine

Finding of Fact

1). *Effect of the proposed use upon the character of the neighborhood.*

a. Visual
b. Noise
c. Flicker

A motion was made by Karl Kilberg and seconded by Mark Fassler to adopt these effects as they relate to the character of the neighborhood. All voted aye. Motion carried.

Voting Yes: **Karl Kilberg, Mark Fassler, Mike Leslie and Eugene Book**
Voting No: **None**

2). *Effect of the proposed use upon traffic conditions.*

a. Increase during construction along with heavier load
b. Distraction of traffic
c. Flicker

A motion was made by Karl Kilberg and seconded by Mike Leslie to adopt these effects as they relate to traffic conditions. All voted aye. Motion carried.

Voting Yes: **Karl Kilberg, Mark Fassler, Mike Leslie and Eugene Book**
Voting No: **None**

3) *Effect of proposed use on public utility facilities.*

a. Sewer
b. Water
c. Gas
d. Electricity – reduced consumption

A motion was made by Mike Leslie and seconded by Karl Kilberg to adopt these effects as they relate to use on public utility facilities. All voted aye. Motion carried.

Voting Yes: **Karl Kilberg, Mark Fassler, Mike Leslie and Eugene Book**
Voting No: **None**

4) *Effect of the proposed use upon public health, public safety, and/or general welfare.*

a. Public Health – noise, flicker
b. General Welfare – reduced electricity, educational use and job creation
c. Public Safety – driver distraction during construction period

A motion was made by Eugene Book and seconded by Mark Fassler to adopt these effects as they relate public health, public safety and/or general welfare. All voted aye. Motion carried.

Voting Yes: **Karl Kilberg, Mark Fassler, Mike Leslie and Eugene Book**
Voting No: **None**

<u>*Recommendation to Lee County</u> **Approve** **Deny**

A motion was made by Mike Leslie and seconded by Karl Kilberg that after full discourse by the petitioner and the planning commission that petition #10-P-1469, "Special Use" for the use of a wind turbine be approved. In a roll call vote, all voted aye. Motion carried.

Additional Reasons/Statements:

A recommendation was made that the special use includes any and all property owned by Sauk Valley Community College south of IL Route #2 (Route 30) and west of Sauk Road. It is recommended that the legal description be updated. All voted aye.

After review we the commission, find the request for "Special Use" for wind turbine to be within the realm of consideration for Ag-1 Institutional Use so designated in the comprehensive land use plans.

No. 6354

Certificate of Publication

State of Illinois SS.

Lee County

SPECIAL USE REQUEST NOTICE
Petition No: 10-P-1469
By Sauk Valley Community College
For:
PIN# 16-07-08-400-009
Property located on part of Sec of section 8 Township 21 range 8
Current Zoning: Ag 1
Special Use Request: Petition is requesting an Ag-1 Special Use for the purpose of a Wind Turbine.
The petition is on file at the Town Hall, 214 Palmyra Road, Dixon, Illinois.
A public hearing on said petition will be held the 31st day of July, 2010 at 9:00a.m. in the Palmyra Township Town Hall, 214 Palmyra Road, Dixon, Illinois.

This is to Certify that a notice, a true copy of which is hereto attached, was published in the Dixon Telegraph, a secular newspaper of general circulation published daily in the City of Dixon, in the County of Lee and State of Illinois, by B.F. Shaw Printing Company, a corporation existing under the laws of said State, once each week for 1 sucessive weeks; that the date of the first paper containing said notice was the 20th day of July , 2010 , and that the date of the last paper containing said notice was the 20th day of July , 2010

And this is to further certify that said newspaper have been regularly published for one year prior to the first publication of said notice therein, and that the person who signs the name of said company to this certificate is as appears by the records of said company, it is duly authorized agent for such purpose

Dated at Dixon, in said county, This 20th day ofJuly , 2010

Dixon Telegraph

Publication Fee $40.95

by: _____
Authorized Agent

Received payment
Dixon Telegraph

by:_____

LEE COUNTY ZONING BOARD OF APPEALS

Ron Conderman, Chairman
Craig Buhrow, Vice Chairman
Mike Pratt, Member
Gene Bothe, Member
Tom Fassler, Member
Bruce Forester, Alternate Member

Chris Henkel, Zoning Officer
Alice Henkel, Clerk

The Lee County Zoning Board of Appeals met on Thursday, August 5, 2010, at 7:00 p.m. in the Old Lee County Courthouse, Dixon, Illinois. Vice Chairman Craig Buhrow called the meeting to order and Clerk Alice Henkel called the roll. The following members were present: Craig Buhrow, Mike Pratt, Gene Bothe, and Alternate Member Bruce Forester. Chairman Ron Conderman and Member Tom Fassler were not present.

Vice Chairman Buhrow asked if there were any changes or corrections to the minutes from the July 2010 meeting. Gene Bothe made a motion to approve the minutes, and Mike Pratt seconded it. All were in favor resulting in a 4-0 vote.

The first order of business was petition no. 10-P-1470, by Matthew Svela, PPN #06-09-02-252-007, located in Franklin Grove Township, requesting to rezone the parcel to R-1, Rural Residential for the purpose of raising horses. The parcel is currently zoned R-2, Rural Residential.

Matthew Svela and Andrea Svela were sworn in on behalf of the petition.

Mr. Svela explained to the Board that he wishes to rezone his parcel of land from R-2, Rural Residential, to R-1, Rural Residential, for the purpose of quartering his horses on the property.

Given the parcel's proximity to the Village of Franklin Grove, Mr. Svela had to present his proposed zoning change to the Franklin Grove Village Board. On June 14, 2010, at the regular meeting of the Franklin Grove Village Board, the board unanimously voted to recommend the approved zoning change. Mr. Henkel presented a letter to the Board, from the Village of Franklin Grove, stating the same.

Mr. Henkel stated that the notification requirements have been satisfied by the petitioner and all receipts have been submitted.

Mr. Henkel explained that the only restriction under R-1, Rural Residential, is that the barn housing the horses can be no less than 300 feet from a neighbor's dwelling. This is not a problem, as the horse barn will be more than 300 feet from their neighbors' dwellings.

Mr. Henkel stated that the Village of Franklin Grove was not in favor of rezoning the parcel to Ag-1, Agriculture, because it does not want any livestock, other than horses, being raised on the property since the parcel is located near the Village's city limits.

Mike Pratt made a motion to approve the petition, and Gene Bothe seconded. All were in favor, resulting in a 4-0 Yes vote.

Vice Chairman Buhrow stated that this matter will go before the Lee County Board on August 17, 2010, at 9:00 a.m. with a recommendation for approval of the petition.

The second order of business was petition no. 10-P-1469, by Sauk Valley Community College, PPN #16-07-08-400-003, located in Palmyra Township, requesting an Ag-1, Special Use in an Ag-1 zone for the purpose of a wind turbine. The parcel is currently zoned Ag-1, Agriculture.

The following were sworn in on behalf of the petition: Thomas Dishno, John Ditto, Steven P. McPherson, Alan Pfeifer, Keith R. Bolin, Scott Stoller, George Mihel, and Andrew Bollman.

Mr. Henkel stated that the notification requirements have been satisfied by the petitioner and all receipts have been submitted.

George Mihel, President of Sauk Valley Community College, stated that the college has plans to install a wind turbine on the college property. He explained that the college is here to serve the public and to create educational opportunities which in turn create jobs.

Mr. Mihel stated that the proposed wind turbine will be an aid to the existing training program and will help offset the school's energy costs.

Mr. Mihel explained that the college first decided to explore using wind energy to power the school in 2007. That same year, the school decided to explore the possibility of creating a wind energy technician program.

In 2008, Mr. Mihel stated that Sauk joined the Illinois Community College Sustainability Network (n/k/a IGEN – Illinois Green Energy Network). The focus of this group is to increase energy efficiency on Illinois Community Campuses and to create and share educational programs for the green economy.

The college offered its first classes in wind energy technology in 2009; and also applied for a grant to partially fund a turbine on the SVCC campus.

Now, in 2010, the college will begin its second class of wind energy students and will be graduating its first class of wind energy students.

Sauk's Wind Energy Program offers a basic certificate and an advanced certificate.

Sauk is a member of the American Wind Energy Association (AWEA) which allows the aligning of course content with the skills defined by AWEA.

With regards to Sauk's Wind Turbine and Energy Program, Mr. Mihel explained that in 2009, the Sauk Foundation provided equipment funding for the technician program; Clipper Windpower made an equipment donation to the program; and the program received a significant turbine grant (contingent upon NEPA approval).

He went on to explain that so far this year, the program has applied for additional funding through Illinois Clean Energy; and was awarded a $226,000 grant for training and certification.

Andrew Bollman, SVCC Board of Trustees, stated that during the construction of the proposed wind turbine, there will be a temporary change in amount of traffic; however, he does not feel the turbine will change the character of the school. Also, he feels that a wind turbine on campus could draw students from around the nation. It will also bring and leave jobs in the community.

Scott Stoller, SVCC Board of Trustees, concurred with Mr. Bollman. He believes it provides an excellent education opportunity for obtaining a certificate in wind energy technology or for preparation for a four-year degree in wind energy technology.

Alan Pfeifer, a member of Sauk's faculty, presented Sauk's reasons for constructing a wind turbine.

Mr. Pfeifer stated that constructing a wind turbine on Sauk's campus would allow the college to lead the district in sustainable energy; to control expenses; and to support college wind programs and college classes.

Mr. Pfeifer explained that the wind energy program at Sauk will provide real-world experience for the energy students. As part of the program, students will be able to climb the turbine several times; inspect turbine parts; monitor turbine function; and provide maintenance for the turbine.

Mr. Pfeifer stated that Sauk intends to integrate the wind turbine into areas of study that are available at Sauk; such as, life sciences, statistical methods, and business practices. It will make students more aware of the energy issues this country is facing.

Sauk has partnered with Clipper Windpower with regards to its wind energy program. Currently, Clipper has donated $300,000 of equipment to the college. The college anticipates the donation of more equipment this fall.

Sauk Valley Community College was the first school to partner with Clipper Windpower. Including Sauk, Clipper currently has 4 U.S. partners (one in Minnesota, one in Texas, and one in Colorado).

Also, Bruce and Joyce Papiech, of FPC, have allowed the college use of some of their equipment.

According to a study done by the Illinois State University economics department reports that there are currently over 1,400 constructions jobs and over 440 permanent jobs for wind technicians in Illinois alone.

Mr. Pfeifer explained that wind energy is the first program in Sauk's renewable energy programming. The school plans to expand its curriculum to include other forms of renewable energy such as geothermal and solar. Sauk is developing and will be approving a multi-craft program to start in the fall of 2011 that will have a basic program for entry into one specific energy program.

Mr. Pfeifer presented the impacts that the wind turbine may have. The character of the neighborhood is currently agricultural. The parcel houses the college, student housing, and a vacant building. The nearest subdivision is just over a half-a-mile away.

Impacts to traffic conditions include an increase of traffic during the time of construction and the possible distraction to drivers during construction and after construction.

The impact to public utility facilities is non-existent. The power generated by the turbine will be carried by existing electric line. Also, there will be no changes to township, county, and/or State roadways.

With regards to public health, public safety, and general welfare, there are been no significant findings.

Other impacts mentioned by Mr. Pfeifer include visual aesthetics, shadow flicker, noise, and future development of Palmyra Township.

Tom Dishno, of Superior Environmental, approached the Board to address the concerns regarding visual aesthetics, shadow flicker and noise. Superior Environmental is a company that provides an independent, 3rd party analysis of the NEPA process.

Mr. Dishno stated that an investigation was done with regards to the turbines' impact on the neighbors. The company also investigated potential problems that may arise concerning the neighbors.

Superior Environmental area of study included everything located within a 1,000 meter radius (a little over 3,000 feet) of the proposed turbine. From this, areas of concern were determined.

To study the issue of sensory impact, or the impact to the visual aesthetics, Superior Environmental took photographs at each area of concern. An image of a wind turbine, depicted to-scale, is superimposed in each photograph to illustrate how the landscape will be changes after a wind turbine is constructed.

Superior Environmental came to the conclusion that there would be no significant concerns with regards to sensory impact.

When studying noise and shadow flicker affects, Superior Environmental used the tallest and noisiest turbine being considered for use by the college. A 420-foot turbine, from bottom to the tip of the blade in the vertical position, was used by the company to arrive at the worst-case scenario.

Shadow flicker is most evident just after sunrise and just before sunset. Superior Environmental determined which areas would experience the most shadow flicker. It then applied extremes, such as the first day of summer and the first day of winter, to arrive at the worst-case scenario projections.

Based off the projection, the areas affected by shadow flicker include farmland and campus. A portion of Illinois Route 2 will also experience a shadow flicker affect.

Ultimately, the findings by Superior Environmental, regarding shadow flicker, yielded no significant concerns.

With regards to noise impact, Superior Environmental performed noise studies at 10 different locations on campus. It was determined that the loudest noise can be found within a 1,000-foot radius of the turbine.

Using the noisiest turbine, the noise projection within the 1,000-foot radius of the turbine yields 35-45 decibels of sound. The standard for an indoor room is 45 decibels. The standard for outside is 55 decibels. The worst-case scenario projection yielded sound within the range set forth by noise pollution board. At times, the noise created by the wind is greater than the noise that would be created by a turbine.

Again, the finding by Superior Environmental, regarding noise, yielded no significant concerns.

The noise study that was performed is available online.

Mr. Pfeifer provided the Board with college's proposed timeline of events. Pending the approval by this Board and the Lee County Board, the college would like to the zoning for the turbine secured by the end of August, 2010.

By October, 2010, the college would like to have the NEPA document approval and final grant approval. Thereafter, the school would like to secure additional funding opportunities; as well as, retain a project manager to help the orderly process and confirm turbine selection.

The installation and commission of the proposed turbine is scheduled to take place by March 31, 2012. As part of its petition, Sauk is requesting to extend the time frame to March 31, 2012, to coincide with its proposed plan for completion.

Vice Chairman Buhrow asked if there were any more questions from the Board members.

Vice Chairman Buhrow wanted to know how far from the highway would the turbine be located. Mr. Pfeifer stated that it would be approximately 800-900 feet from the property line running along the highway.

Vice Chairman Buhrow asked if the school had any other planned used for the area where the turbine would be place. Mr. Pfeifer stated that there were no other plans that would preclude the college from using the land for something other than a wind turbine.

Vice Chairman Buhrow asked what size the turbine would be. Mr. Pfeifer stated that the school is looking into a 1.5 to a 2.5 MW turbine that uses the most American made parts.

The turbine is likely to create slightly more power than the school will use. Sauk is working with Commonwealth Edison to finalize the details.

There were no further questions from the Board. Vice Chairman Buhrow asked if there was anyone present from the visitors with a question and/or comment.

Keith Bolin, of Mainstream Renewable Power and the Bureau County School Board, stated his support of the school's project. As he is a member of the Bureau County School Board, a school district that utilizes wind energy to offset energy expenses, he feels this is a great move for the school financially, as well as for expanding curriculum available.

Vice Chairman Buhrow asked Mr. Bolin what size turbine is used by the Bureau Valley school. Mr. Bolin stated that a 660 Vestis is in use.

Andrew Bollman again addressed the Board, asking that it keep things in perspective, as far as impacts. He feels that the traffic generated by the school creates noise (i.e., a student vehicle with no muffler). Also, he feels that the traffic is mainly going to be affected during the construction phase.

Vice Chairman Buhrow asked if there were anymore questions and/or comments.

Neil Miller, of Bradford Township, was sworn in.

Mr. Miller asked how far from the student parking lot would the turbine be located. Mr. Pfeifer estimated 700-800 feet distance from the turbine to the nearest parking lot. Mr. Miller is concerned about student safety should anything happen to the turbine, such as lightning striking a blade.

Vern Gottel, Palmyra Township Supervisor, was sworn in. Sauk's petition has been presented to the Palmyra Township planning commission, and township board. The petition received unanimous approval from the boards. Mr. Gottel and Palmyra Township feel this is a great location for a wind turbine, as well as a great opportunity for the school to expand its curriculum.

Vice Chairman Buhrow asked Mr. Gottel if the township received any statements of concern from the residents of the subdivision nearest to the proposed turbine. Mr. Gottel stated that one concerned telephone call was received; however, no one appeared at any of the meetings regarding the petition.

Vice Chairman Buhrow asked if Palmyra Township has any concerns about how this turbine may impact future growth of the township. Mr. Gottel stated that there are no concerns, that any concerns are offset by the abundant benefits to the school and community.

Vice Chairman Buhrow closed the hearing. No further testimony was taken.

Vice Chairman Buhrow proceeded with the Findings of Fact:

The first finding of fact is the effect of the proposed use upon the character of the neighborhood.

It was agreed that there would be visual change, change in the noise, and evidence of shadow flicker.

Gene Bothe made a motion to accept these findings of fact, and Bruce Forester seconded this motion. The Board voted Yes, 4 – 0.

Vice Chairman Buhrow proceeded with the second finding of fact by asking the Board to state if there is an effect of the proposed use upon traffic conditions.

It was agreed that there would be distraction to drivers during the construction phase, there would be shadow flicker, and there would be no changes to the roadway after the construction phase.

Mike Pratt made a motion to accept these findings of fact, and Gene Bothe seconded it. The Board voted Yes, 4 – 0.

Vice Chairman Buhrow proceeded with the third finding of fact by asking the Board to state if there is an effect of the proposed use upon public utility facilities.

It was agreed that the amount of public, electric utility used will change.

Mike Pratt made a motion to accept these findings of fact, and Gene Bothe seconded it. The Board voted Yes, 4 – 0.

Vice Chairman Buhrow proceeded with the final finding of fact by asking the Board to state if there is an effect of proposed use upon public health, public safety, and/or general welfare.

It was agreed that the effects would include noise; shadow flicker; change in visual aesthetics; distraction to drivers during the construction phase; distraction to drivers during operation of the turbine; educational benefit; and creation of jobs.

Mike Pratt made a motion to accept these findings of fact, and Gene Bothe seconded it. The Board voted Yes, 4 – 0.

Bruce Forester made a motion to approve the petition, with the time extension to March 31, 2012, and Mike Pratt seconded it. All were in favor, resulting in a 4-0 Yes vote.

There were no additional questions and/or comments by the Board.

On the motion of Mike Pratt, and seconded by Gene Bothe, the meeting was adjourned.

Respectfully submitted,

Alice Henkel

By: _____

SECTION H-15: WIND ENERGY SYSTEMS STANDARDS

Ag-1 Special Use Conditions for Wind Energy Systems:

This special use is intended to provide conditions to allow wind turbines, towers, and related communications, and electrical facilities. All wind power facility equipment shall be in compliance with all applicable state and federal regulatory standards including the Uniform Building Code as adopted by the State of Illinois, the National Electrical Code as adopted by the State of Illinois, FAA requirements, EPA regulations (hazardous waste, construction, storm water; etc), and any other statutory or regulatory requirements.

Facility equipment shall conform to applicable industry standards including the American Wind Energy Association standards for wind turbine design and related standards adopted by the American Standards Institute (ANSI). Applicants shall submit certificates from equipment manufacturers that the equipment is manufactured in compliance with industry standards.

Topographic Map:

1. Petitioner shall provide the Zoning Administrator a topographical map including the project site and the surrounding area.

Setback Requirements:

1. New structures adjacent to wind power facilities shall maintain the same setbacks from those facilities, as those facilities themselves are required to observe hereunder.

2. The setback for the turbines from all existing public roads will be 500 feet or greater, and public utilities will be 1.1 times the height of the turbine with the blade tip at its highest point. Distance shall be measured from the foundation at the base of the turbine. The setback will be followed except in specific instances allowed in the special use permit. New structures built adjacent to wind power facilities shall maintain these same minimum setback requirements.

3. Except as provided herein, the setback distance for turbines shall be set back 1,400 feet or more from any existing or occupied residence, or from the boundary of any lot, which, as of the date of the approval of the special use, is in a platted and recorded subdivision, and shall be setback from a property line 1.1 times the height of the turbine, with the blade tip at its highest point. Distance shall be measured at the time of application for building permit from the foundation at the base of the turbine. A turbine may be placed as near as 600 feet from an occupied residence with the prior written approval of the owner. The setback distance will be followed except in specific instances allowed in the special use permit by the Zoning Board of Appeals.

4. The setback distance for the turbines will be one-half mile from any platted community, which enforces its own government. Distance shall be measured from the foundation at the base of the turbine to the closest Corporate Limit boundary line. (Lee County will reference the most current Official Year Book on file with the Zoning Office).

5. Petitioner shall obtain all required permits from other governmental agencies (such as the Federal Aviation Administration) prior to commencing construction or as otherwise required by the applicable laws and regulations. Copies or evidence of such permits shall be submitted to

the Zoning Office on or before issuance of the first building permit for an individual wind tower. Building Permits shall be obtained from the Lee County Zoning Office for the wind towers.

6. Petitioner will provide a graphic Site Plan Exhibit including the easement boundaries final site location including legal descriptions for each site to the Zoning Administrator for approval before construction begins. The company will furnish the Zoning Administrator with certified "as built" site plans and easement descriptions drawings showing the location of wind turbines, roads, transmission lines and all other improvements.

7. Construction of the wind turbines within Lee County shall commence within 12 months of the date of this Special Use Ordinance. Upon delivery of the "as built" drawings, the surrounding land on each parcel for which construction is complete shall be reverted back to Ag-1 by the Zoning Board of Appeals.

8. All turbines shall be new equipment commercially available; no used, experimental or prototype equipment still in testing shall be approved by the Zoning Officer or the Zoning Board of Appeals.

Noise Standards:

1. Noise levels shall be regulated by the Illinois Pollution Control Agency rules and regulations and applicant shall certify that applicant's facility is in compliance with the IPCA.

Waste Management:

1. Solid Waste. All solid waste, whether generated from supplies, equipment, parts, packaging, or operation or maintenance of the facility, including old parts and equipment, shall be removed from the site in a timely manner consistent with industry standards.

2. Hazardous Waste. All hazardous waste generated by the operation and maintenance of the facility, including but not limited to lubricating materials, shall be handled in a manner consistent with all local, state and federal rules and regulations.

Signage:

1. Signage regulations are to be consistent with ANSI and AWEA standards. Signs warning of high voltage shall be posted at least at the entrances of the facility.

Aesthetics:

The following items are recommended standards to mitigate visual impact:

1. Coatings and Coloring: Non-reflective, unobtrusive color. Black blades are acceptable for mitigation of icing.

2. Turbine Consistency: To the extent feasible, the project shall consist of turbines of similar design and size, including tower height. Further, all turbines shall rotate in the same direction.

3. Lighting: Projects shall utilize minimal lighting. No tower lighting other than normal security lighting shall be permitted except as may be required by the FAA.

4. Intra-project Power and Communication Lines: All power lines used to collect power from individual turbines and all communication lines that are buried should be at a depth consistent with local utility and telecommunication underground lines standards until the same reach the property line or a substation adjacent to the property line. If any overhead transmission line is installed, it shall follow local utility standards for pole height and design.

Public Services:

1. Roads. Any proposed access roads that will be used for construction purposes shall be identified and approved by the Township Road Commissioner and the County Engineer prior to issuance of a building permit.

   Any road damage repairs caused by the transport of the facility's equipment, the installation of same, or the removal of same, must be completed to the satisfaction of the Township Road Commissioner and the County Engineer. The Township Road Commissioner and County Engineer may choose to require either remediation of road repair upon completion of the project or are authorized to collect fees for oversized load permits. Further, a corporate surety bond in an amount to be fixed by the Township Road Commissioner or the County Engineer may be required by the Township Road Commissioner or the County Engineer to insure the township or the county that future repairs are completed to the satisfaction of the unit of local government.

Fire:

1. The following permit standards shall be followed to reduce risk of fire:

   a. Adherence to applicable electrical codes and standards will be followed. Removal of fuel sources, like vegetation from immediately vicinity of electrical gear and connections.

   b. Utilization of twistable cables on turbines will be incorporated.

Dust Control

1. Petitioner will use dust control measures as reasonably required by the county during construction.

Sewer and Water

1. Any facility shall comply with existing septic and well regulations as required by the Lee County Health Department and the State of Illinois Department of Public Health.

Drainage Repair

1. Petitioner will repair waterways, drainage ditches, field tiles, or any other infrastructures damaged during construction and maintenance phases.

Engineer's Certificate

1. The engineer's certificate shall be completed by a structural engineer registered in the state of Illinois and shall certify that the tower and foundation are compatible with and appropriate for the turbine to be installed and that the specific soils at the site can support the apparatus. All commercially installed wind turbines must utilize self-supporting, tubular towers.

Certificate of Contracts

1. Certificate shall verify that power purchase contracts, power transmission contracts, and other legal rights are in place.

Decommissioning Plan

1. Petitioner shall ensure that the facilities are properly decommissioned upon the end of the project life or facility abandonment. Petitioner's obligations with respect to decommissioning shall include removal of all physical material pertaining to the project improvements to a depth of 48" beneath the soil surface, and restoration of the area occupied by the project improvements to as near as practicable to the same condition that existed immediately before construction of such improvements. Prior to issuance of a building permit, Petitioner will provide a bond letter of credit or other security acceptable to the County, for the cost of removing each tower to be constructed under that building permit. When such tower is operational, such security shall be modified to cover the cost of removing all improvements above the foundation and shall not be released during the entire term of the special use until those improvements are removed. Petitioner will provide an affidavit to the Lee County Zoning Board representing that all easements for wind turbines shall contain terms that provide financial assurance, including access to the salvage value of the equipment, for the property owners to ensure that facilities are properly decommissioned within twelve (12) months of expiration or earlier termination of the project.

Additional conditions for Special Use permitting shall include:

1. Petitioners shall obtain necessary recorded access easements and necessary recorded utility easements, copies of which shall be submitted to the Zoning Enforcement Officer.

2. No appurtenances other than those associated with the wind turbine operations shall be connected to any wind tower except in accordance with the Lee County Zoning Ordinance.

3. At the Petitioner's expense, the company will work with local rescue authorities to provide training on assisting with a rescue from a wind turbine or tower.

4. If someone who is not participating in the project experiences "shadow flicker," petitioner will remedy the problem on a case-by-case basis by planting trees or installing awnings or by using some other remedy. If Petitioner receives a verified complaint about shadow flicker visible from within any home owned by someone who is not participating in the project, then Petitioner will program the turbine or turbines causing such shadow flicker to shut down during the brief period of time that such shadow flicker is anticipated to occur.

5. If television or broadcast interference is created by the wind farm, the petitioner will use reasonable efforts to mitigate problems on a case-by-case basis.

6. The special use shall also comply with the Wind Energy System Standards.

7. Petitioner has provided evidence from assessors in areas with existing wind farm projects, as well as other independent economic analysis, showing no adverse impact on property values. Nevertheless, Petitioner agrees to maintain, for the 5 year period after issuance of the first building permit for the wind farm, a home seller protection program, in a form acceptable to the Lee County Administrator, covering loss in value directly attributable, upon the sale of such home, to the wind farm for those houses which (a) are not located within the original area identified in the Petition for Special Use and (b) have an outside wall of the primary residential structure which is located within ¾ mile of a wind tower erected by the Petitioner.

8. If approved by the FAA, the Petitioner shall install aviation light deflectors, currently in use in Canada, on the medium to high intensity FAA strobing red and white large red flashing lights to be used on the wind farm.

9. The Petitioner shall provide information on underground utilities it constructs as part of the Wind Farm to the "One Call System" operated by the Joint Utility Locating Information for Excavators Company, commonly known as JULIE.

10. The Petitioner shall install ice detectors for all wind towers located 750 feet or closer to a public roadway.

11. The Petitioner shall catalogue and annually report to the Lee County Zoning Office all birds discovered injured or killed by the wind towers. The annual report of avian injuries and deaths shall include species, number, and dates when the injured or killed bird was discovered.

12. In the event a dispute arises as to satisfaction of the foregoing conditions to this Special Use Ordinance, such dispute may, at the request of Petitioner, County or the aggrieved party, be resolved pursuant to binding arbitration in accordance with the procedures of the American Arbitration Association by an independent arbitrator acceptable to Petitioner and the County or aggrieved party, as applicable. If Petitioner and the County or the aggrieved party, as applicable, are unable to agree on an arbitrator, then each such party shall choose an independent arbitrator and their respective choices shall then choose an arbitrator. This Condition shall not bind an aggrieved party, other than the County or Petitioner, to submit to arbitration.

STATE OF ILLINOIS
COUNTY OF LEE
TO THE LEE COUNTY BOARD

IN THE MATTER OF THE PETITION OF
Sauk Valley Community College
173 E. Rt. 2, Dixon, IL

PETITION NO. 10-01-ZBA
PETITION for Special Use

Your Petitioner **Sauk Valley Community College** states as follows:

1. The Petitioner owns the real estate legally described as permanent real estate index number: 16-07-08-400-003.
2. The location of the property is legally described as 173 E. Route 2, Dixon, Illinois 61021. Property is located on the north side of Ill. Route 2, one mile east of [illegible] Road. Approximately 137.28 acres.
3. The property is currently zoned: Ag-1 Agriculture.
4. The Petitioner requests that an Ag-1, Special Use for the purpose of a wind turbine.

NULLIFY SPECIAL USES. In any case where a special use has not been established (substantially under way) within one year from date of granting thereof, then without further action by the County Board, the special use or authorization thereof shall be null and void, unless in the opinion of the Zoning Enforcement Officer, circumstances beyond the control of the permittee indicate that establishment of the use has been impossible.

ZONING BOARD OF APPEALS PUBLIC HEARING TO BE HELD: Thursday, August 5, 2010 – 7:00 p.m., 3rd floor, Boardroom, 112 East Second Street, Old Lee County Courthouse, Dixon, Illinois 61021

July 16, 2010

No. 892

892

OLLARS

No. 0351

Certificate of Publication

State of Illinois SS.

Lee County

This is to Certify that a notice, a true copy of which is hereto attached, was published in the Dixon Teiegraph, a secular newspaper of general circulation published daily in the City of Dixon, in the County of Lee and State of Illinois, by B.F. Shaw Printing Company, a corporation existing under the laws of said State, once each week for 1 sucessive weeks; that the date of the first paper containing said notice was the 16th day of July , 2010 , and that the date of the last paper containing said notice was the 16th day of July , 2010

892

NET AMOUNT

81.90

And this is to further certify that said newspaper have been regularly published for one year prior to the first publication of said notice therein, and that the person who signs the name of said company to this certificate is as appears by the records of said company, it is duly authorized agent for such purpose

Dated at Dixon, in said county, This 16th day ofJuly , 2010

Dixon Telegraph

by: _____
Authorized Agent

Publication Fee $81.90

Received payment
Dixon Telegraph

by: _____

MINUTES of the LEE COUNTY BOARD MEETING

AUGUST 17, 2010

BOOK 33 PAGE 115

A MOTION TO APPROVE WAS MADE BY MR. TOFTE, SECONDED BY MR. WILLIAMS. THE ROLL WAS CALLED: THOSE VOTING AYE: HARRISON, KETCHUM, KITZMAN, LEFFELMAN, MERCER, MORONEY, NICHOLSON, PALEN, PATZER, SHIPPERT, STEVENS, TOFTE, TRUCKENBROD, WENTLING, WILLIAMS, WITZLEB, BINDER, BUCKLEY, BUHROW, CHANDLER, DEMMER, EISENBERG, FARSTER AND FERRONE. THOSE VOTING NAY: NONE. MOTION CARRIED.

THERE WERE NO PETITIONS TO GO TO THE ZONING BOARD OR TO THE PLANNING COMMISSION.

TWO PETITIONS CAME FROM THE ZONING BOARD:

ORDINANCE NO 08-10-003

WHEREAS the Lee County Board desires to act upon Petition No 10-P-1469, by Sauk Valley Community College PIN #16-07-08-400-003, located in Palmyra Township, requesting an Ag-1 Special Use in an Ag-1 zone for the purpose of a wind turbine The parcel is currently zoned Ag-1 Agriculture

WHEREAS, the necessary public hearing was held before the Zoning Board of Appeals on the petition described which resulted in recommendation for approval from the Zoning Board of Appeals for said Petition

NOW THEREFORE, BE IT ORDAINED by the Lee County Board that Petition No 10-P-1469 (Sauk Valley Community College) be (approved) denied) by the Lee County Board

PASSED BY THE LEE COUNTY BOARD
THIS 17th DAY OF August, 2010
BY [signature] Vice Chairman
Lee County Board Chairman

ATTEST
[signature]
Lee County Clerk
By Cathy Myers
Deputy

A MOTION WAS MADE BY MR. WITZLEB, SECONDED BY MR. EISENBERG, TO CONCUR WITH ZONING TO APPROVE THIS PETITION. MOTION CARRIED.

Appendix H Shadow Flicker, Noise and Visual Report

Shadow Flicker Investigation
Sauk Valley Community College Wind Project
173 Illinois Route 2
Dixon, Lee County, Illinois 61021

August 24, 2010

Introduction

Shadow flicker is defined as alternating changes in light intensity caused by a moving object (such as a rotating rotor blade) casting shadows on another object. Shadow flicker from wind turbines can occur when moving turbine blades pass in front of the sun, creating alternating changes in light intensity or shadows. These flickering shadows cause an annoyance when cast on nearby residences ("receptors"). The spatial relationship between a wind turbine and a receptor, the location of trees, buildings, and other obstacles, and weather characteristics such as wind speed/direction, and sunshine probability, are key factors related to shadow flicker impacts. Shadow flicker becomes much less noticeable at distances beyond 305 meters (1,000 feet), except at sunrise and sunset when shadows are long.

Methods and Procedures

A shadow flicker study was completed to determine if any nearby occupied dwelling would be adversely affected by shadow flicker from the project. The nearest residence to the proposed location is approximately 850 meters (2,789 feet) northeast of proposed location. The nearest residential area with a zoning "R-1" is located approximately 1,190 meters (3,904 feet) northeast of the proposed location. An apartment complex is located approximately 550 meters (1,805 feet) from the proposed wind turbine location but is outside of the shadow zone.

To identify potential shadow flicker impacts from the proposed SVCC turbine, a program available from the Danish Wind Industry Association was utilized to predict the potential receptors from the proposed wind turbine location (http://www.talentfactory.dk/en/tour/env/shadow/shadowc.htm). Several government sources (USDOI 205; BERR 209) suggest that shadow flicker effects become relatively insignificant beyond 10 rotor diameters (approximately 1,000 meters or 3,281 feet; Figure 2).

The shadow plot for the analysis was not based on any limitations but rather based on the relative shadow influences based on the height of the hub of the wind turbine, diameter of the rotor blades, and the latitude of the proposed location. The maximum height of the hub diameter utilized was 100 meters (325 feet). The maximum rotor diameter utilized was 99 meters (322 feet). The proposed location of the SVCC wind turbine is 41º 49' northern latitude. The declination of the solar shadow is based on seasonal maximums. At this latitude on December 21, the solar declination produces a shadow at 67.17º; on March 20, the solar declination produces a shadow at 90º; on June 21 the solar declination produces a shadow of 112.81º; and on September 20 the solar declination produces a shadow of 90º. These angles were utilized to find the northern and southern axis boundaries of flicker shadow influences.

The calculations produced flicker shadow zone with a maximum east-west dimension of 1,500 meters (4,921 feet) (750 meters [2,461 feet] east or west of the proposed location) and a maximum north-south dimension of 990 meters (3,248 feet) (690 meters [2,264 feet] north and 300 meters [984 feet] south of the proposed location). The shape of the flicker shadow zone was superimposed on a map of the proposed location based on the data produced with these dimensions (Figure 1).

Calculations were performed only if 20% of the sun is covered by rotor blade. Typically, periods when the solar disc is covered less than 20% will not cause significant shadowing. The model does not factor in decreasing shadow intensity with distance from the turbine, but rather assumes that all shadow intensities are equal at varying distances. In reality, shadow intensity

will decrease with increasing distance between turbine and potential receptor. Actual sunshine hours were not utilized but rather an average of the region was applied to the calculations. Wind data was based on the average of the wind turbine feasibility study completed at the proposed SVCC location.

Results

The results of the shadow flicker study indicate that due to the isolated location for the proposed wind turbine, the presence of trees and tree lines, and the rolling terrain of the area, a relatively small number of receptors would be affected by shadow flicker. The nearest residence to the proposed location is approximately 850 meters (2,789 feet) northeast of proposed location. The nearest residential area with a zoning "R-1" is located approximately 1,190 meters (3,904 feet) northeast of the proposed location. Both locations are outside of the shadow zone. A student housing complex is located approximately 550 meters (1,805 feet) from the proposed wind turbine location but is outside of the shadow zone. The North Illinois Surgery Center is located 460 meters (1,509 feet) from the proposed project location and is located on the edge of the shadow zone.

Conclusions

If shadow impacts were to become an annoyance for any receptor(s), as stated in the Special Use Permit Conditions, SVCC would on a case-by-case basis plant trees or install awnings or use another remedy to resolve any shadow flicker effects. Also if SVCC were to receive a verified complaint about shadow flicker visible from within any home owned by someone who is not participating in the project, then the turbine would be shut down during the brief period of time that such shadow flicker is anticipated.

There is some concern that shadow flicker from wind turbines can cause epileptic seizures. Shadow flicker from wind turbines occurs much more slowly than the light "strobing" associated with seizures. The strobe rates necessary to cause seizures in people with photosensitive epilepsy are 3 to 5 flashes per second. Large wind turbine blades are not engineered to rotate at such a high rate (American Wind Energy Association [AWEA] 2009). The rate at which modern three-bladed wind turbines rotate generates blade-passing frequencies of less than 1.75 Hz, below the threshold frequency of 2.5 Hz, indicating that seizures should not be an issue (Burton et al. 2001 in DOI 2005).

The proposed project area does not have any nearby occupied dwelling that would be adversely affected by shadow flicker from the project. If shadow impacts were to become a legitimate annoyance for any receptor, SVCC would assist those receptors to purchase awnings and screening trees. In addition on a case by case basis SVCC would shut down the proposed wind turbine during the brief period of time that such shadow flicker is anticipated. The main receptors potentially affected by shadow flicker would be the traffic on IL Rt. 2, Sauk Road, campus buildings, and the entrance road to the campus. The proposed project would not result in any adverse impacts from shadow flicker.

References

American Wind Energy Association (AWEA). 2009. Wind Turbines and Health. http://www.awea.org/pubs/factsheets/Wind_Turbines_and_Health.pdf.

Business Enterprise and Regulatory Reform (BERR), United Kingdom Department. 2009. *Onshore Wind: Shadow Flicker.* http://www.berr.gov.uk/energy/sources/renewables/planning/onshore-wind/shadow-flicker/page18736.html.

National Research Council (NRC) of the national Academies. 2007. *Environmental Impacts of Wind Energy Projects.* Committee on Environmental Impacts of Wind Energy Projects, Board on Environmental Studies and Toxicology. Division of Earth and Life Sciences. The National Academies Press, Washington, DC.

US Department of Interior (DOI). 2005. *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM – Administered Lands in the Western United States.* Bureau of Land Management.

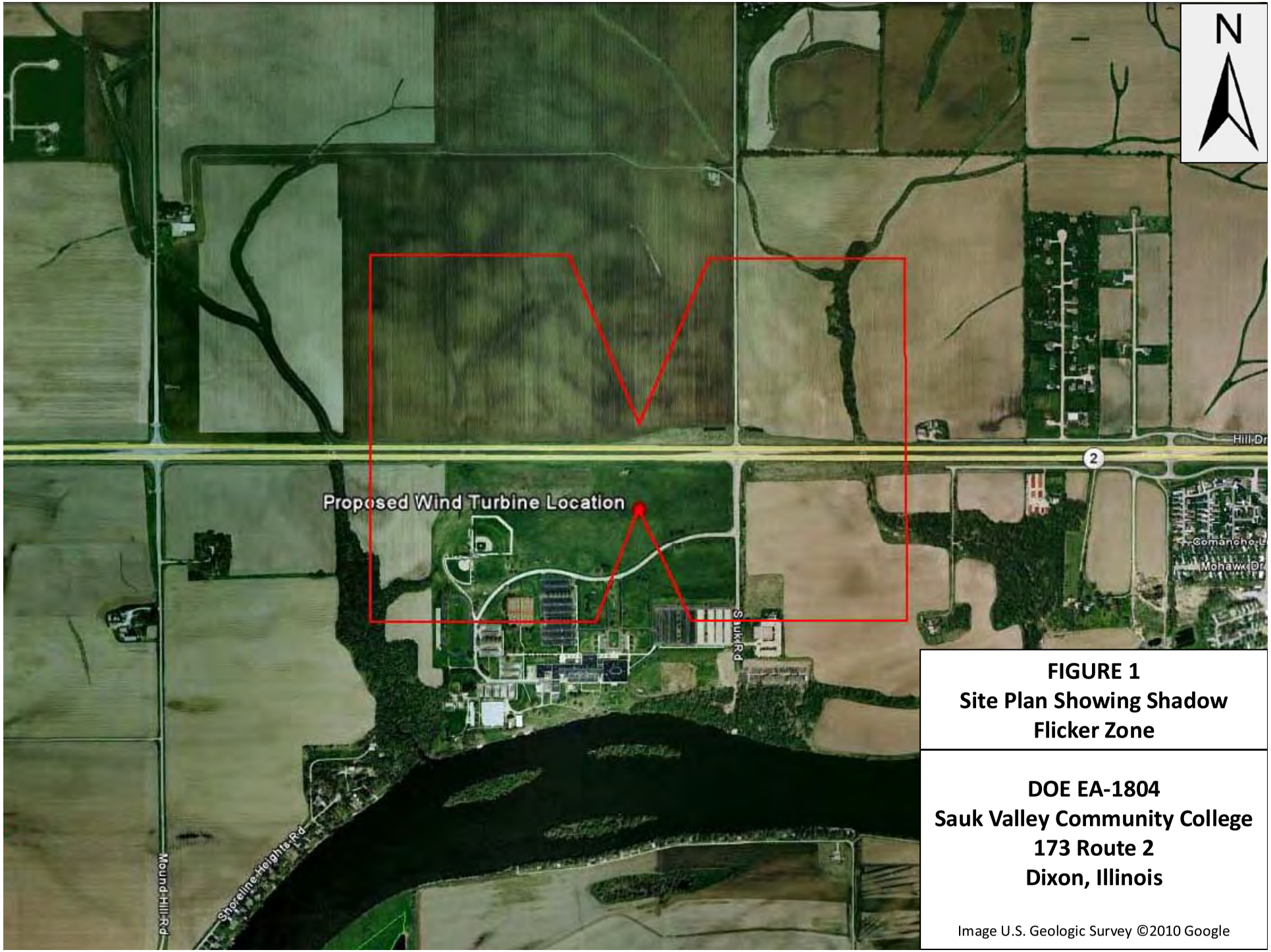

FIGURE 1
Site Plan Showing Shadow Flicker Zone

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

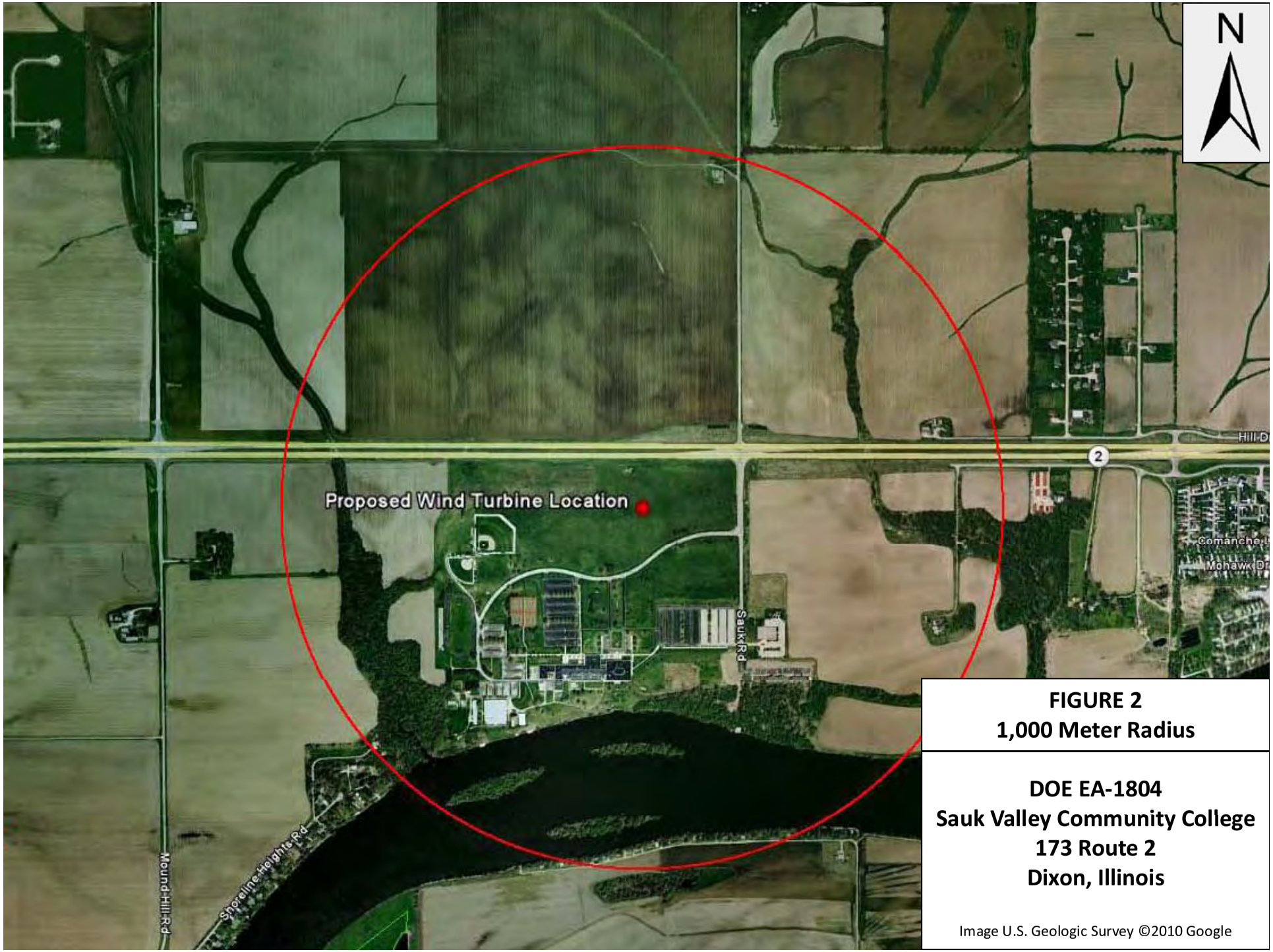

FIGURE 2
1,000 Meter Radius

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

Visual Impact Investigation
Sauk Valley Community College Wind Project
173 Illinois Route 2
Dixon, Lee County, Illinois 61021

August 24, 2010

APPENDIX: C

The existing view of the project area is primarily agricultural with the SVCC facilities to the southwest. The north boundary of the campus is bounded by IL Rt. 2, a four lane highway and beyond by agricultural property. Sauk Road forms the east boundary of the campus and beyond by agricultural property, a commercial property, and a student housing complex located approximately 550 meters (1,805 feet) from the proposed wind turbine location. The Rock River forms the southern boundary of the campus. The campus is bounded on the west by agricultural land and a river front residential subdivision on the southwest corner of the campus, approximately 965 meters (3,166 feet) from the proposed wind turbine location. The nearest residence to the proposed location is approximately 850 meters (2,789 feet) northeast of the proposed location. The nearest residential area with a zoning "R-1" is located approximately 1,190 meters (3,904 feet) northeast of the proposed location. Figure 1 is a Site Plan showing adjacent and nearby properties that were considered in this EA to be potential receptors.

The Proposed Action would affect the viewshed in the project area. The turbine would be a dominant vertical component in the landscape due to its height, but it would not obstruct views in the way that a large building might. Since it is placed in a landscape with other vertical elements (e.g., mature trees, light poles and traffic poles), the visual impact of the turbine is minimized. Installation of the turbine on a landscape that already has vertical features has less of an impact than placing it on a flat landscape with no other vertical development.

The visibility of the proposed wind turbine would vary by location due to existing tree cover. The nearest day-to-day viewers of the proposed turbine will be employees at SVCC, Rock River Hospice, radio station WLLT, Rock Ridge Animal Hospital, future residents of the former Northern Illinois Surgery Center, and the residents of the surrounding area. Users of IL Rt. 2, Sauk Road and SVCC access roads will also have clear views of the proposed turbine. Photographic renderings of the proposed viewshed are also attached.The scale of the turbine relative to distance has been estimated, and is not intended to be an exact rendering of the proposed viewshed.

1 Sauk Commons- 1608 Sauk Road (apartment complex) Visible to wind turbine location.
2 Northern Illinois Surgery Center- 1622 Sauk Road (vacant structure for sale) Visible to wind turbine location.
3 Residence- 239 Frontage Road A tree line interferes with the visibility to the wind turbine location.
4 Residence- 261 Frontage Road- located in the woods Trees interferes with the view of the wind turbine location.
5 Residence and Storage Bin Rentals- 251 & 253 Frontage Road Trees and woods interferes with the view of the wind turbine location.
6 Residence- 265 Frontage Road Trees and woods interferes with the view of the wind turbine location.
7 River Ridge Animal Hospital- Frontage Road Trees and lower elevation interfere with the view of the wind turbine location.
8 River Ridge Subdivision- North side of Illinois Highway 2 A tree line interferes with the view of the wind turbine location.
9 Rock River Valley Hospice- North side of Illinois Highway 2 Some trees interfere with the view of the wind turbine location.
10 WLLT Radio Station (107.7 FM)- North side of Illinois Highway 2 Some trees interfere with the view of the wind turbine location.
11 Residence- North side of Illinois Highway 2 Visible to proposed wind turbine location.
12 Residence and Farm- 1726 Sauk Road Trees interfere with the view of the wind turbine location.
13 Residence and Farm- 1680 Mound Hill Road Trees and hill interfere with the view of the wind turbine location.
14 Residence- Mound Hill Road- appear to be vacant, gated, site located in the woods Trees interfere with the view of the wind turbine location.
15 Residence and Farm- 1621 Mound Hill Road Trees interfere with the view of the wind turbine location.
16 Residences- Shoreline Heights Road River front houses with view of the wind turbine location limited by trees and elevation.

FIGURE 1
Site Plan Showing Potential Receptors

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois

Photo rendering No. 1: Photo taken from near the Sauk Commons apartment complex looking northwest toward the proposed project area.

Photo rendering No. 2: Photo taken from Sauk Road at the southeast corner of the SVCC campus looking northwest toward the project area.

Photo rendering No. 3: Photo taken from IL Rt. 2 near residence #4 (261 Frontage Road) looking west-southwest toward the proposed project area.

Photo rendering No. 4: Photo taken from IL Rt. 2 near residence #5 (215 and 253 Frontage Road) looking west-southwest toward the proposed project area.

Photo rendering No. 5: Photo taken from IL Rt. 2 near residence groups #8 (River Ridge subdivision) looking west-southwest toward the proposed project area.

Photo rendering No. 6: Photo taken from IL Rt. 2 near residence #11 looking west-southwest toward the proposed project area.

Photo rendering No. 7: Photo taken from Sauk Road near residence #12 (1726 Sauk Road) looking south toward the proposed project area.

Photo rendering No. 8: Photo taken from Mound Hill Road near residence #13 (1680 Mound Hill Road) looking southeast toward the proposed project area (turbine not visible due to distance and topography).

Photo rendering No. 9: Photograph showing proposed project area looking southeast toward the SVCC campus.

Noise Investigation

Sauk Valley Community College Wind Project
173 Illinois Route 2
Dixon, Lee County, Illinois 61021

August 24, 2010

Introduction

The standard unit of measure for sound pressure levels is the decibel (db). A decibel is a unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the measured pressure to the reference pressure, which is 20 micropascals (μPa). Typically, environmental and occupational sound pressure levels are measured in decibels on an A-weighted scale (dBA). The A-weighted scale de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear (i.e., using the A-weighting filter adjusts certain frequency ranges (those that humans detect poorly)) (Colby, et al., 2009).

The following information is provided by the U.S. Environmental Protection Agency (EPA) on their website at http://www.epa.gov/history/topics/noise/0.1.htm:

Note: In the past, the environmental Protection Agency (EPA) coordinated all federal noise control activities through its Office of Noise Abatement and Control. However, in 1981, the Administration at that time concluded that noise issues were best handled at the State or local governmental level. As a result, the EPA phased out the office's funding in 1982 as part of a shift in federal noise control policy to transfer the primary responsibility of regulating noise to state and local governments. However, the Noise Control Act of 1972 and the Quiet Communities Act of 1978 were not rescinded by Congress and remain in effect today, although essentially unfunded.

[EPA press release – April 2, 1974]
Noise levels requisite to protect public health and welfare against hearing loss, annoyance, and activity interference were identified today by the Environmental Protection Agency. These noise levels are contained in a new EPA document, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety."

One of the purposes of this document is to provide a basis for state and local governments' judgments in setting standards. In doing so the information contained in this document must be utilized along with other relevant factors. These factors include the balance between costs and benefits associated with setting standards at particular noise levels, the nature of the existing or projected noise problems in any particular area, the local aspirations and the means available to control environmental noise.

The document identifies a 24-hour exposure level of 70 decibels as the level of environmental noise which will prevent and measurable hearing loss over a lifetime. Likewise, levels of 55 decibels outdoors and 45 decibels indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working, and recreation, which are part of the daily human condition.

The levels are not single event, or "peak" levels. Instead, they represent averages of acoustic energy over periods of time such as 8 hours or 24 hours, and over long periods of time such as years. For example, occasional higher noise levels would be consistent with a 24-hour energy average of 70 decibels, so long as a sufficient amount of relative quiet is experienced for the remaining period of time.

Noise levels for various areas are identified according to the use of the area. Levels of 45 decibels are associated with indoor residential areas, hospitals, and schools, whereas 55 decibels is identified for certain outdoor areas where human activity takes place. The level of 70 decibels is identified for all areas in order to prevent hearing loss.

Methods and Procedures

The Sauk Valley Community College project has not yet finalized the decision of the manufacturer or wind turbine to be installed. For the purpose of this EA, the largest model, the Clipper Liberty 2.5 MW specifications with the tallest tower, and the highest sound level was utilized for this analysis. The Clipper Liberty 2.5 MW is a tubular steel monopole, three (3) blade, ground-mounted wind turbine. It has a hub height of 80 meters (262 feet), a rotor diameter of 99 meters (325 feet), with an overall height of 127 meters (417 feet) to the blade tip. According to the specification sheet provided by the manufacturer, it has a Noise Power Level of 106 dBA. SVCC intends to install a single Clipper Liberty 2.5 MW wind turbine in an undeveloped portion of the college campus, between the college buildings and Illinois Highway 2.

The existing noise environment for the proposed wind turbine location is in an undeveloped area near the north boundary of the Sauk Valley Community College campus. The north boundary of the campus is bounded by Illinois Highway 2, a four lane highway. Sauk Road forms the east boundary of the campus and beyond by agricultural property, a commercial property, and an apartment complex located approximately 550 meters (1,805 feet) from the proposed wind turbine location. The Rock River forms the southern boundary of the campus. The campus is bounded on the west by agricultural land and a river front residential subdivision on the southwest corner of the campus (approximately 965 meters [3,166 feet] from the proposed wind turbine location). The nearest residence to the proposed location is approximately 850 meters (2,789 feet) northeast of proposed location. The nearest residential area with zoning "R-1" is located approximately 1,190 meters (3,904 feet) northeast of the proposed location.

On July 14, 2010 a noise investigation was completed on and near the proposed location of the wind turbine. The objective of the noise investigation was to establish the existing background noise levels of the site and surrounding potential receptors prior to operation of a wind turbine. The noise investigation was completed from 10:00am to 2:00pm at 8 locations. The weather was sunny and clear, 88 degrees F. The wind was gusting from the south-southwest from 7 to 15 miles per hour. Five (5) intervals of five (5) minute durations were completed at each lotion. A RS model 33-2055 sound level meter fitted with a windscreen over the microphone was utilized to measure and record the minimum and maximum levels of sound during each interval on an A-weighted scale (dBA).

Figure 1 is a Site Plan showing sound reading locations.

Results

Site						Average
Site #1 Northern Parking Lot						
Minimum	60	67	61	68	62	63.6 dBA
Maximum	84	88	92	80	81	85 dBA
Site #2 Proposed Wind turbine Location						
Minimum	64	62	62	67	64	63.8 dBA
Maximum	90	82	87	89	88	87.2 dBA
Site #3 North of College Sign by IL Rt. 2 (70' from Highway)						
Minimum	68	64	67	68	64	66.2 dBA
Maximum	90	83	89	92	86	88 dBA
Site #4 Adjacent to IL Rt. 2 (10' from Highway)						
Minimum	62	68	64	67	62	64.6 dBA
Maximum	99	91	92	98	94	94.8 dBA
Site #5 Southwest Corner of IL Rt. 2 and Sauk Road						
Minimum	72	64	72	76	78	72.4 dBA
Maximum	98	101	93	103	110	101 dBA
Site #6 North Side of Campus Building						
Minimum	61	68	64	68	68	65.8 dBA
Maximum	75	80	77	78	80	78 dBA
Site #7 Near the Entrance to Sauk Commons (student housing)						
Minimum	50	54	52	56	52	52.8 dBA
Maximum	72	68	70	68	68	69.2 dBA
Site #8 West End of Frontage Road						
Minimum	58	62	56	58	60	58.8 dBA
Maximum	88	84	86	88	82	85.6 dBA

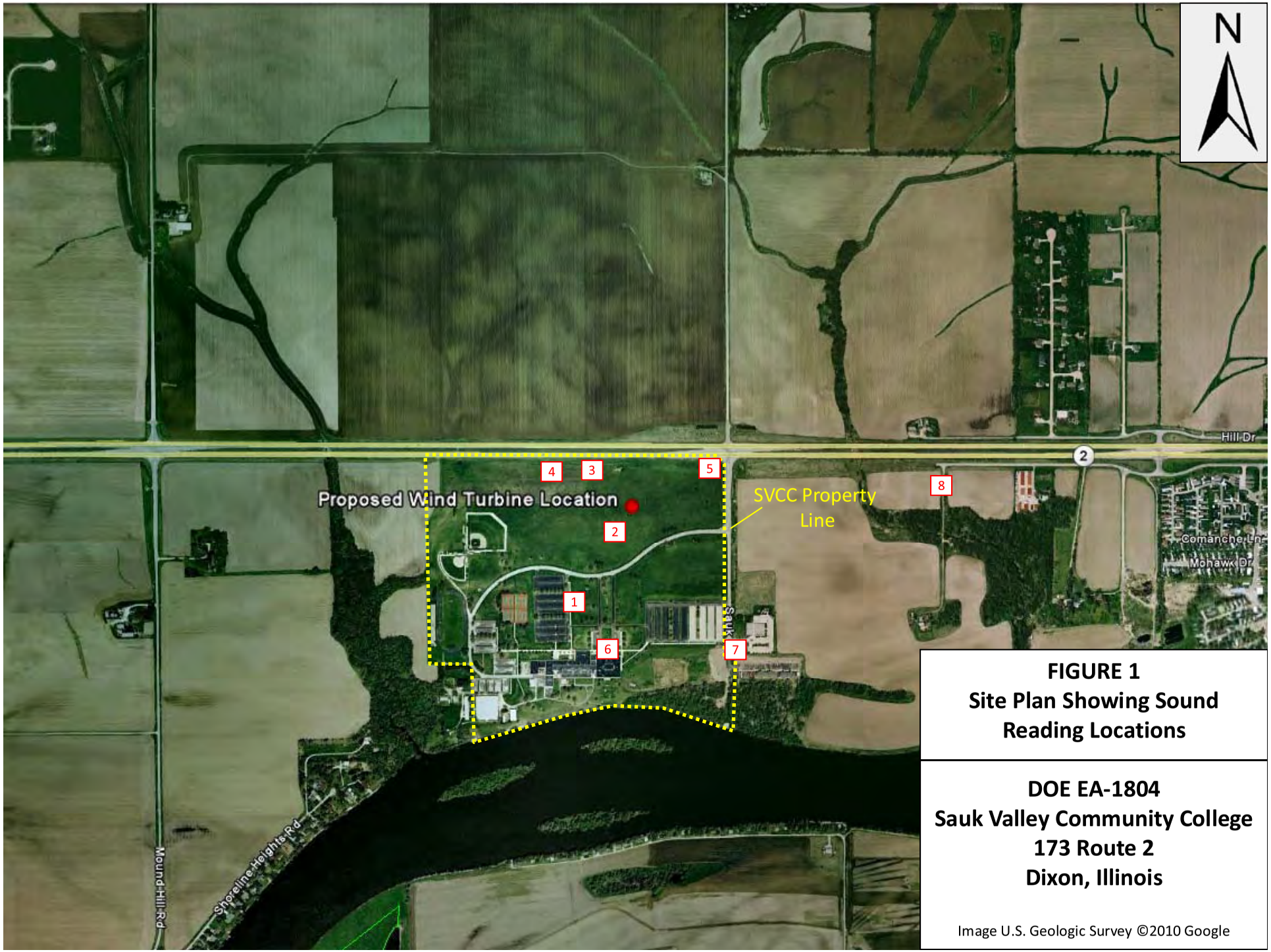

FIGURE 1
Site Plan Showing Sound Reading Locations

DOE EA-1804
Sauk Valley Community College
173 Route 2
Dixon, Illinois