DOE/EA-1777

FINAL ENVIRONMENTAL ASSESSMENT

DOE'S PROPOSED FINANCIAL ASSISTANCE TO OHIO FOR LINCOLN ELECTRIC'S WIND ENERGY PROJECT

EUCLID
CUYAHOGA COUNTY, OHIO

U.S. Department of Energy Golden Field Office
1617 Cole Boulevard
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RESPONSIBLE AGENCY: U.S. Department of Energy (DOE)

TITLE: *Final Environmental Assessment: DOE's Proposed Financial Assistance to Ohio for Lincoln Electric's Wind Energy Project, Euclid, Cuyahoga County, Ohio*

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Abstract: Lincoln Electric proposes to construct and operate a 2.5 MW single turbine wind energy project at Lincoln Electric's World Headquarters facility located at 22800 Saint Clair Avenue, Euclid, Ohio. The wind turbine would provide 2.5 MW of renewable energy to fulfill up to ten percent (10%) of the Lincoln Electric Headquarters' annual electricity demand and help to reduce greenhouse gas emissions. Ohio proposes to provide the project a $1.0 million grant, which would come from a formula grant that Ohio received from DOE pursuant to the Department's State Energy Program. This EA analyzes the potential environmental impacts of the proposed construction and operation of the Lincoln Electric Wind Energy project and the alternative of not implementing this project.

Public Involvement: The public was provided with an opportunity to comment on this EA via email or written correspondence. Details regarding the comment process are located in Section 1.4 of this document. Public comments and responses are included in Appendix E.

ACRONYMS AND ABBREVIATIONS

ARRA	American Recovery and Reinvestment Act of 2009
AWEA	American Wind Energy Association
BMP	Best Management Practice
CNS	Covenant Not to Sue
CO	carbon monoxide
CFR	Code of Federal Regulations
CEQ	Council on Environmental Quality
CLG	Certified Local Government
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
EA	environmental assessment
ECTV	Euclid community television channel
EMF	Electromagnetic fields
EP	Euclid Plant
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
FR	Federal Register
GHG	greenhouse gas
IBA	Important Bird Area
IGBT	Insulated Gate Bipolar Transistor
IPCC	Intergovernmental Panel on Climate Change
KCMIL	Thousand Circular Mil
kip	1,000 pounds-force
kN	kilonewton
LEC	Lincoln Electric Company
MW	Megawatts
NAD	North American Datum
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOACA	Northeast Ohio Areawide Coordinating Agency
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTIA	National Telecommunication and Information Administration
NWI	National Wetlands Inventory
OAI	Ohio Archaeological Inventory
OEPA	Ohio Environmental Protection Agency
OHI	Ohio Historic Inventory
OHPO	Ohio Historic Preservation Office
ODNR	Ohio Department of Natural Resources

ODOD	Ohio Department of Development
ODOW	Ohio Department of Wildlife
ONHP	Ohio Natural Heritage Program
O_3	ozone
Pb	lead
PM	particulate matter
PM_{10}	particulates less than 10 μm in diameter
$PM_{2.5}$	particulates less than 2.5 μm in diameter
RFP	Request for Proposals
SEP	State Energy Program
SO_2	sulfur dioxide
SVOC	Semi-volatile organic compound
Ub	Urban land (soil type)
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
V	Volt
VOC	Volatile organic compound

Note: The vertical lines in the margin of this document indicate substantive changes between the Draft EA and Final EA.

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SUMMARY

Lincoln Electric Company (LEC) is proposing to construct and operate a single 2.5 megawatts (MW) wind turbine energy project at their World Headquarters facility located in Euclid, Ohio, at the southeast corner of East 222nd Street and St. Clair Avenue in an area zoned General Industrial Districts (U-6) by the City of Euclid (*City of Euclid Planning and Zoning Code Chapter 1359.1*). The Ohio Department of Development Energy Resources Division (ODOD) selected this project to receive a $1.0 million grant from the State Energy Office because the wind turbine will serve as a demonstration of wind turbine technology in the State of Ohio. Ohio's State Energy Office grant to LEC would come from money that Ohio received from the U.S. Department of Energy's (DOE) State Energy Program (SEP). The purpose of the DOE's 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.

The turbine model proposed for the LEC site is a Kenersys K100 2.5 MW turbine designed to be mounted on a monopole made of tubular conical steel segments. The turbine/tower would stand 135 meters (443 feet) at its tallest extent. The 2.5MW turbine would provide approximately 10 percent of electricity used by LEC that is currently supplied by First Energy Solutions, which generated approximately 60 percent of its total electricity with fossil fuels in 2009.

LEC assessed the proposed turbine site as well as four other sites located on the LEC property. The site proposed by LEC was chosen for several reasons including access and clearance underneath the turbine for potential ice falls. Through LEC's process with the City of Euclid and through media exchanges, the public was provided with more than 14 opportunities over the past nine months to learn about the project and to provide comments to the City of Euclid.

Based on the analyses described below in section 1.5 and section 3.2, it was concluded that installation of the wind turbine would have no effects on wetlands, floodplains, historic properties, threatened or endangered species, avian species, soils, air quality, water quality, radio and television interference, social and economic conditions, and minority or low-income populations.

The project would impact other resources, as described below.

Land Use – Temporary disturbance during construction and permanent loss of 0.37 acre of land where the foundation would be placed.

Visual impacts – Introduction of a dominant vertical element into the existing viewshed and shadow flicker will be experienced by 17 structures in the project vicinity for more than 30 hours per year.

Noise – There would be temporary noise impacts during the construction phase, however, the project site is within an industrial area where ambient noise levels are high. Noise impacts are not anticipated during operation of the wind turbine.

Human Health and Safety – The tower impact zone, in the event the tower collapses was determined to be a 278 foot radius and ice throw radius was determined to be approximately 150

feet. No residences are located within the 278 foot radius and tower collapse is extremely rare. Potential impacts to human health and safety are not considered significant.

1.0 INTRODUCTION

1.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500 to 1508), and DOE's NEPA implementing regulations (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 about whether to provide different types of financial assistance to states and private entities.

In compliance with these regulations, this Environmental Assessment (EA) examines the potential environmental impacts of the Proposed Action and the No-Action Alternative. When complete, this EA will provide DOE with the information needed to make an informed decision about whether allowing Ohio to use a portion of its SEP funds for the proposed LEC Wind Project may result in significant environmental impacts. Based on the Final EA, DOE has issued a Finding of No Significant Impact (FONSI), which may include applicant-committed measures.

1.1.1 Background

Lincoln Electric Company (LEC) is proposing to construct and operate a single 2.5 MW wind turbine energy project at LEC's World Headquarters facility that would provide approximately ten percent (10%) of its annual electric demand and help to reduce greenhouse gas emissions (See Figures 1 to 4 in Appendix A for project location mapping). The Lincoln Electric Company, an Ohio Company headquartered in Euclid, designs and manufactures materials, equipment and welding solutions for a wide variety of activities, including alternative energy projects. The current estimated project cost is $6.5 million. The Ohio Department of Development Energy Resources Division (ODOD) selected this project to receive a $1.0 million grant from the State Energy Office because the wind turbine will serve as a demonstration of wind turbine technology in the State of Ohio.

Ohio's State Energy Office grant to LEC would come from money that Ohio received from the DOE's SEP. The purpose of the DOE's 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 wide variety of activities related to energy efficiency and renewable energy. *See generally* 42 U.S.C. § 6321 *et seq*. and 10 CFR Part 420. In the *American Recovery and Reinvestment Act of 2009* (Pub. L. 111-5, 123 Stat. 115; Recovery Act; ARRA), Congress appropriated $3.1 billion to DOE's SEP and the State of Ohio received $96,083,000 million pursuant to a Federal statutory formula for distributing these funds.

Ohio informed DOE that it proposes to provide $1.0 million of its SEP funds to the LEC Wind Project. The potential use of Federal SEP funds to assist in the financing of this project constitutes a Federal action subject to review under NEPA. Therefore, DOE has prepared this *Final Environmental Assessment: DOE's Proposed Financial Assistance to Ohio for Lincoln Electric Wind Energy Project, Euclid, Cuyahoga County, Ohio* (DOE/EA-1777) to evaluate the potential environmental impacts of DOE's Proposed Action (that is, financial assistance to LEC

for the proposed wind turbine project from funding provided to the Ohio SEP) and of a No-Action Alternative (not allowing use of SEP funds and assuming, therefore, that the project would not proceed). This EA will inform DOE and the public of the potential environmental consequences of these alternatives and help identify any mitigating measures that DOE should consider if SEP funds are authorized for this project.

1.2 Purpose and Need

1.2.1 DOE's Purpose and Need

DOE's purpose and need is to ensure that SEP funds are used for activities that meet Congress' statutory aims to improve energy efficiency, reduce dependence on imported oil, decrease energy consumption, or promote renewable energy. However, it is not DOE's role to dictate to Ohio how to allocate its funds among these objectives or to prescribe the projects it should pursue.

1.2.2 Ohio's Purpose and Need

Ohio's 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 to preserve and create jobs.

1.3 Ohio's SEP Project Selection Process

The Ohio 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. Ohio has developed a revolving loan program to improve access to capital for energy efficiency and renewable energy projects through a public-private partnership using SEP dollars in tandem with debt or equity investment participation. This low-interest financing is made available for a variety of renewable energy projects and helps to expand the availability of financing based on energy savings, including for smaller commercial entities.

ODOD's SEP program includes five sub-programs:

- Developing Renewable Energy in Ohio
- Making Efficiency Work
- Targeting Industry Efficiency
- Banking on New Energy Financing
- Setting the Stage for Ohio's Carbon Management Strategy

ODOD issued a Request for Proposals (RFP) for the SEP funded Deploying Renewable Energy in Ohio Program and used the following criteria for selection: project readiness; matching capabilities, financing, and cost effectiveness; economic impact for Ohio; 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. A criterion of the SEP grant program is that

funds must be fully obligated by September 30, 2010, and SEP funded projects must be fully operational by March 2012. LEC was one of eight (8) wind energy grant applicants awarded SEP funds by ODOD in 2009. A total of $5,831,000 was awarded to these eight applicants. For this project, DOE is the Federal action agency, while ODOD is the recipient of Federal funding and LEC is the sub recipient of this funding. The project will be implemented on LEC's property.

1.4 Public and Agency Involvement

LEC has been in consultation with the City of Euclid and Cuyahoga County officials concerning the project since the Spring of 2009. Opportunities for public involvement have occurred over the past nine months in an attempt to educate the public about this project and provide an opportunity for public comment. At the City of Euclid Planning and Zoning Commission Meeting held on January 12, 2010, where LEC's request for a required height exemption was considered, no objections to the project were received. This meeting was advertised, open to the public, and abutting property owners to the project were specifically notified and invited. A timeline of public outreach efforts follows:

Various dates from August 18, 2009 to May 11, 2010:

- Euclid Mayor Bill Cervenik's Community presentation on Citywide Development. These are PowerPoint presentations that include slides and a discussion about the proposed Lincoln Electric Wind turbine. Given to various civic groups and homeowners associations (See Attachment D-1a in Appendix D for list of presentations).

November 30, 2009:

- ODOD Press Release (See Attachment D-1b).
- City of Euclid Press Release (See Attachment D-1c).
- City of Euclid Website (See Attachment D-1d).
- Crain's Cleveland Business Article (See Attachment D-1e).

December 1, 2009:

- Cleveland Plain Dealer Article (See Attachment D-1f).
- News Herald Article (See Attachment D-1g).

January 4, 2010:

- Letters sent to abutting property owners notifying them of LEC's request for a required height exemption to install a 443' high, 2.5MW wind turbine located at 22800 St. Clair Avenue that would be considered at the January 12, 2010 City of Euclid Planning and Zoning

Committee meeting (See Attachment D-1h for copy of letter and mailing list and Attachment D-1i for maps of the notified property owners).

January 12, 2010:

- City Of Euclid Planning and Zoning Commission Meeting held where LEC's request for a required height exemption was considered and approved (See Attachment D-1j for the Planning and Zoning Commission Regular Meeting Finished Agenda/Minutes).

Various dates from January 13 to January 20, 2010:

- Broadcast of January 12, 2010 City Of Euclid Planning and Zoning Commission Meeting on Euclid community television channel, ECTV (See Attachment D-1k for the broadcast schedule).

Various dates from January 20 to February 3, 2010:

- The proposed wind turbine project was a topic of discussion on Mayor Cervenik's "Our Town" ECTV program (See Attachment D-1k for the broadcast schedule).

Various dates from January 20 to March 30, 2010:

- City Councilwoman Madeline Scarniench's presentations to various civic groups and homeowners associations concerning the wind turbine project. The wind turbine project is within Ms. Scarniench's City Council Ward (See Attachment D-1l for email from City Councilwoman Madeline Scarniench documenting her public outreach efforts).

May 2010:

- City of Euclid issues Spring/Summer 2010 Newsletter (mailed to all citizens, available on City website: <http://www.cityofeuclid.com/news/35>). This newsletter includes an article concerning the proposed wind turbine (See Attachment D-1m for the excepted article).

In addition, the following agencies and organizations have been contacted by LEC and/or DOE:

- United States Fish and Wildlife Service (USFWS)
- Federal Aviation Administration (FAA)
- United States Department of Commerce – National Telecommunications and Information Administration (NTIA)
- Ohio Historic Preservation Office (OHPO)
- Ohio Department of Natural Resources (ODNR), Division of Wildlife (ODOW)
- Ohio Department of Natural Resources (ODNR), Natural Heritage Program (ONHP)
- Ohio Department of Transportation Office of Aviation
- Ohio Department of Development Energy Resources Division
- City of Euclid Community Services and Economic Development
- Cuyahoga County Department of Development

Draft Environmental Assessment
The Draft EA was open for public comment for 15 days (July 9-24, 2010). A Notice of Availability (NOA) and public comment procedures for the EA were prepared that referenced the public's ability to comment on the proposed project's potential effects on the social, environmental, and economic factors were sent to potential stakeholders and interested parties (i.e., Federal, state, tribal and local agencies, as well as members of the public [hereinafter "public"]). The NOA for the EA clearly identified that the Public would have an opportunity to comment on project's potential effects per the NEPA process. Additionally, DOE conducted its Section 106 Consultation under the National Historic Preservation Act (NHPA) concurrent with its NEPA evaluation for the LEC project. The public was afforded the opportunity to comment on historic resources via the same method for commenting on the EA. All comments related to historic resources received were provided to the Ohio Historic Preservation Office, as were DOE responses. The NOA was published in the *Cleveland Plain Dealer* (See Attachment D-1n in Appendix D), and the City of Euclid website (See Attachment D-1o in Appendix D).

The EA was posted on the Golden Reading Room website, allowing the opportunity to comment on-line via email or via written correspondence to the postal address provided therein. At the conclusion of the 15-day comment period (July 24, 2010), DOE analyzed all submitted comments and questions.

A total of seven comments were received during the comment period. Six of the comments were in support of the project as proposed. The remaining comment was from the USFWS requesting clarification on migratory bird concerns. After consideration and analysis, Section 3.2.2 of this EA was revised to clarify measures taken to protect migratory birds and to address USFWS concerns. Additionally, responses to all comments were written and posted on the website (See Public Comments and Responses in Appendix E). Members of the public whose comments identified contact information received a copy (digital or written) of the response to their comment. Response to public comments preceded the filing of a FONSI for the project.

1.5 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 Action is not expected to have any measurable effects on certain resources, and the description and analyses of these resources are not carried forward into Chapter 3.

Floodplains and Wetlands
Pursuant to 10 CFR Part 1022, DOE reviewed the USFWS National Wetlands Inventory (NWI) maps (See Figure 5 in Appendix A) and Federal Emergency Management Agency (FEMA) floodplain maps (See Figure 6 in Appendix A) and identified no floodplains, wetlands, or surface water sources such as streams or drainage channels located on the proposed project site or that could be affected by the construction and operation of the wind turbine.

Waste Management
Solid wastes that are anticipated to be generated during construction include equipment packaging materials and construction-related material debris. Solid wastes generated during

operation of the turbines would be minimal. Solid wastes that are anticipated to be generated during decommissioning include dismantled equipment and construction-related material debris. Hazardous, regulated non-hazardous, and universal wastes are not anticipated to be generated during construction, operation, or decommissioning. All wastes generated over the life of the proposed project would be handled, collected, transferred, and disposed of in accordance with all applicable Federal, state, and local regulations. Used oil (e.g., spent gear box oil, hydraulic fluid, and gear grease) is not considered a waste because it can be reused and/or recycled. Used oil would be generated during operations of the proposed project. LEC currently has an oil recycling program for used oil from the factory machinery. LEC recycles used oil per internal specification EHS 390 "Procedure for Storage, Handling and Disposal of Waste Water/Used Oils." This specification references Ohio Administrative Code 3745-279-20 through 3745-279-24. All used oil from the wind turbine would be handled, collected, transferred, and reused/recycled in accordance with this existing recycling program, as well as in accordance with applicable Federal, state, and local regulations.

Wild and Scenic Rivers

DOE requested natural heritage information, including the presence of any state or Federal wild and scenic rivers in the project vicinity from the Ohio Natural Heritage Program (ONHP). Their response indicates that no Ohio Scenic Rivers or waterways included in the National Wild and Scenic River System occur in the project vicinity (See Attachment C-1 in Appendix C). The closest Ohio Scenic River is the Chagrin River, located in Lake County (approximately 6.5 miles east of the proposed project site). The proposed project would not impact Federal or state wild and scenic rivers.

Intentional Destructive Acts

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

2.0 PROPOSED ACTIONS AND ALTERNATIVES

2.1 DOE's Proposed Action

DOE's Proposed Action is to allow Ohio to use its SEP funds for a grant to assist in the financing of the LEC Wind Project in order to facilitate Ohio's achievement of the objectives of their SEP.

2.2 Ohio's Proposed Project

The ODOD selected LEC for a $1.0 million grant based on the following criteria: project readiness; match, financing, and cost effectiveness; economic impact for Ohio; project characteristics and potential for innovation; and its ability to: (1) provide emission-free energy; and (2) create jobs during the construction of the project. This project is DOE's Federal action for purposes of NEPA review, while ODOD is the recipient of Federal funding and LEC is the sub recipient of this funding. The project will be implemented on LEC's property in Euclid, Ohio.

The turbine model chosen for the LEC site is a Kenersys K100 2.5 MW turbine with a 100 meter (328 feet) rotor diameter and an 85 meter (278.9 feet) tower height. The turbine has three arms, each 48.7 meters (159.8 feet) long (See Attachment D-2 in Appendix D for turbine specifications [K100 Data Sheet]). Overall, the turbine/tower will stand 135 meters (443 feet) at its tallest extent.

The Kenersys K100 turbine is designed to be mounted on a monopole made up of tubular conical steel segments. This design eliminates the need for guy wires for support of the wind turbine. Guy wires can be a challenge for birds and bats to locate and maneuver around, which can lead to injury or death. The proposed design does not include the use of lattice towers for support either, which have become roosting sites for birds at other wind projects.

Proposed Site
The proposed LEC Wind Energy project would be located at LEC's corporate offices at the southeast corner of East 222nd Street and St. Clair Avenue in an industrial park in the City of Euclid, Cuyahoga County, Ohio (See Figures 1-4 in Appendix A for project location maps). The lot on which the project is proposed is in a U-6 Industrial and Manufacturing zoning district (per the City of Euclid). It is a 34-acre parcel located within a much larger predominantly industrial tract. This project will be specifically located on a site that has been previously disturbed (graded) as a private recreational field owned and maintained by LEC. The ground disturbing activities for this project will be confined to a 10.2-acre portion of the property that is currently used for recreational purposes for LEC employees. The approximate center point of the LEC Wind Turbine is located at Latitude /Longitude 41°35'4.89" N, 81°31'32.81"W [North American Datum (NAD) 1983]. A photolog of the project area is included in Appendix B.

Construction
Site construction would include installation of the turbine, transformer, electrical distribution wiring, necessary access roads and road improvements, crane pads, foundation systems, and fencing (See Figure 2-1 and Attachment D-2a in Appendix D).

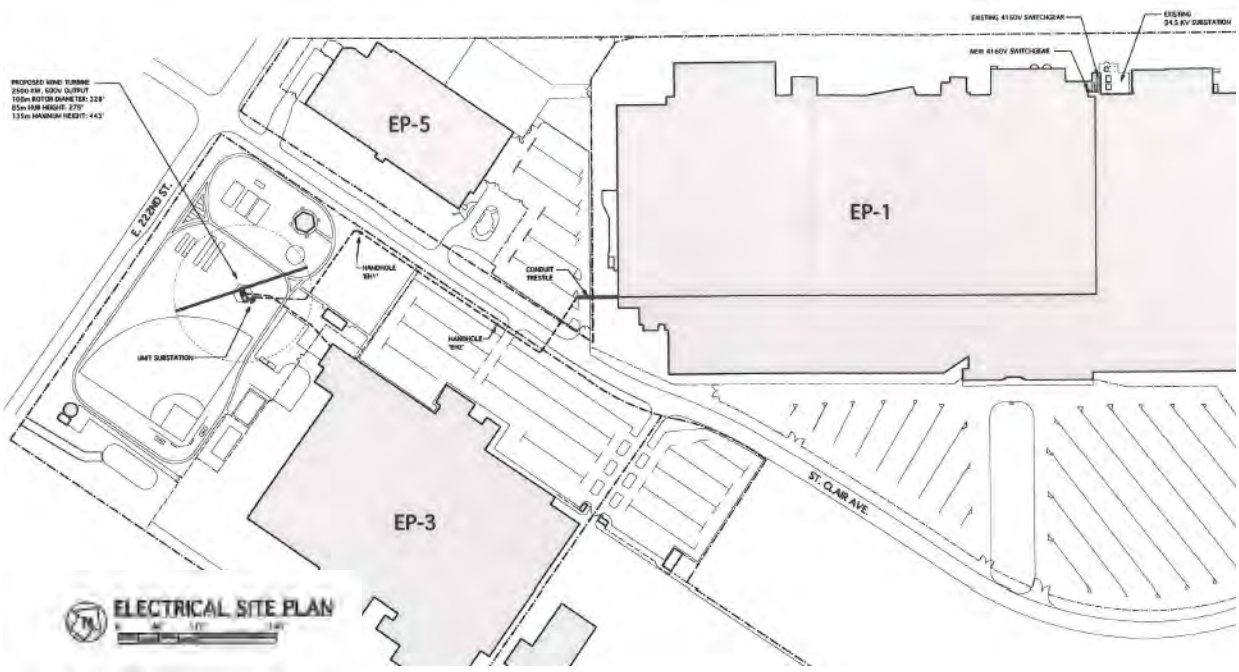

Figure 2-1. LEC Wind Turbine Electrical Site Plan.

The turbine nacelle and blades would be shipped from Europe and arrive at the Port of Cleveland. The nacelle and blades would be transferred to tractor trailers designed for the load. Travel to the Project site is anticipated to be via OH-Route 2 to Interstate 90, utilizing Euclid Avenue (Exit 186) heading west on Euclid Avenue and turning right on Chardon Road, then right onto E 200th Street followed by another a right on to Saint Clair Avenue. Access to the construction site is via the existing access driveway at 22800 Saint Clair Avenue (EP3 Facility – Distribution Center – building directly east of the project site). The tractor trailers are anticipated to continue around the south of Lincoln's EP3 facility on an existing driveway and unload at the west side of the EP3 facility near the turbine site. The tower sections would be fabricated in the Midwestern United States and anticipated to be shipped via tractor trailers taking the same local route to the site. Other construction vehicles are anticipated to access the site from Interstate 90 to the Babbitt Road exit, head south on to Babbitt Road and west onto Saint Clair Avenue to the EP3 facility entrance driveway. All material staging would be at the turbine site on existing concrete truck staging areas and inside the LEC employee recreational area on the baseball field. The LEC recreational area would be closed during construction and staging.

The electrical system of the Kenersys turbine would consist of a full conversion converter system with a synchronous generator, passive rectifier at the generator side and Insulated Gate Bipolar Transistor- (IGBT)-converter to the grid for full power conversion. The generator would never be connected to the grid directly. The output of the turbine would be 600 volts.

The transformer and switch gear cubicle would be situated outside of the tower of the wind turbine at foundation level under outside ambient conditions. The low voltage side of the transformer would be connected to a distribution panel at the tower base inside the tower, by cable connection leading through the foundation of the turbine.

To adequately distribute the power from the turbine to the main manufacturing facility the following would be installed:

(2) 1,200 Feet of 4" underground conduits (2,400 feet total length)
(1) 100 Foot Long Conduit Trestle
(2) 1850 Feet of 4" Rigid Conduit (3700 feet total length)
(6) 3150 Feet of 250 Thousand Circular Mil (KCMIL) Wire (18,900 feet total length)
(2) 3150 Feet of #2/0 Ground Wire (6300 feet total length)
(1) 4160 Volt Switchgear on Concrete Housekeeping pad
(1) 20 Foot Section of Bus Duct to interconnect into Lincoln's existing 4160V Switchgear
(1) Production Meter (See Diagram 1 and Attachment D-2a in Appendix D)

The output of the turbine would be transformed from 600V to 4160V at the Unit Substation located outside the turbine at ground level. From there, two sets of conductors would carry the service to the main manufacturing plant via two underground conduits (1200 feet each), up to a 100 foot long conduit trestle at the west end of the manufacturing facility and into the plant. The underground conduit would transfer to two 4" Rigid Conduits at the base of the trestle and continue on east into the plant for approximately 1,200 feet and then turn north and continue on for 480 feet towards the switchgear room. The conduit will tie into a new 4160 Volt switchgear located at Lincoln's switchgear room. The new switchgear will be tied into Lincoln's existing switchgear with a 20-foot section of bus duct. The output of the turbine would then feed into Lincoln's manufacturing load.

During construction, the crane pad would be 70 feet away from foundation base. The access road would be about 200 feet long. Fencing would be installed around the turbine and transformer and would consist of 250 linear feet (80-foot diameter) of 7-foot-tall chain link fence with three strands of barbed wire on top and a locked access gate.

The foundation would be composed of 500 cubic yards of reinforced concrete. The foundation would require 45 tons of reinforcing steel (See Attachment C-5e - Appendix C).

Construction would be performed in accordance with an approved erosion and sedimentation control plan and in compliance with all other applicable requirements. Construction activities for wind turbine foundations, tower erection, turbine nacelle placement, and blade installation are contingent on temperature and weather conditions. Turbine nacelle and blade installations would be installed during calm wind periods. Foundations would not be installed during cold winter months. These and similar factors would determine the final construction timeline.

The wind turbine installation, including site preparation, erection, and final commissioning, generator installation, and overall systems tie-in and start-up is planned to be completed within approximately twelve (12) months of groundbreaking. During this 12 month period the site would see activity for approximately five months. Two months at the beginning of the 12 month period for excavation and foundation work, and three months at the end of the 12 month period for electrical work, tower erection, turbine & blade installation and startup. The follow is an approximate breakdown of the work activity:

- Excavation (2 weeks)

- Foundation and Reinforcing Work (8 weeks)
- Electrical Distribution, including directional boring for underground conduit, conduit trestle, in-plant conduit installation, and switchgear installation at existing switchgear room (12 weeks)
- Tower erection (1 week)
- Turbine Nacelle and Blade installation (2 weeks)
- Electrical tie-in and interconnection (2 weeks)
- Turbine and system commissioning (2 weeks)
- Site cleanup and recreation facility restoration (1 week)

Construction activities will occur within a 10 acre footprint which is used as open space within the private recreational complex used currently for the benefit of LEC employees. During construction the recreation facility would be closed and secured via existing fencing and locked gates to prevent employees and the public from entering the work zone. The recreation facility would be restored to its previous employee-only recreational usage. The turbine and transformer would be surrounded by 250 linear feet (80-foot diameter) of seven-foot tall chain link fence with three strands of barbed wire on top. The recreation facility is open between April 15 and Oct 15 from Dawn to Dusk. The recreation facility is monitored 24/7 via closed circuit security cameras from a central security control station located in the main manufacturing plant. Security personnel are on site at all times.

Aviation Lighting

Aviation lighting would be in compliance with the FAA [FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13 (Turbines)] to minimize bird and bat impacts. White strobe lights would be used at the minimum number, minimum intensity and minimum number of flashes per minute allowable by the FAA. Solid red or pulsating red warning lights would be avoided. The project has received final approval from the FAA (see Attachment C-2 in Appendix C).

Operations and Maintenance

LEC would operate and maintain the wind energy project according to operating, maintenance, and safety procedures and requirements specifically recommended by the turbine's manufacturer, Kenersys (Kenersys, 2009a, 2009b, and 2009c). All LEC workers will be properly trained for turbine maintenance and safety. Routine maintenance of the turbine would be necessary to maximize performance and identify potential problems or maintenance issues. The turbine would be remotely monitored daily to ensure operations are proceeding efficiently. Any problems would be reported to LEC operations and maintenance personnel, who would perform both routine maintenance and most major repairs. Most servicing would be performed up-tower, without using a crane to remove the turbine from the tower. In addition, all access roads and the pad would be regularly inspected and maintained to minimize erosion.

Decommissioning

The turbine and other infrastructure are expected to have a useful life of at least 20 years. Retrofitting the turbine with upgrades may allow the turbine to produce efficiently for many years after the original useful life. When the project is terminated, the turbine and other infrastructure will be decommissioned and all facilities will be removed to a depth of

approximately 3 feet below grade. The soil surface would be restored as close as possible to its original condition. Underground facilities will either be removed or safely secured and left in place. Salvageable items (including fluids) will be sold, reused, or recycled as appropriate; unsalvageable material will be disposed of at authorized and approved disposal sites. All decommissioning construction activities will be performed in accordance with the manufacturer's guidelines (Kenersys, 2010) as well as all applicable Federal, state, and local regulations.

2.3 Alternatives

2.3.1 DOE Alternatives

Ohio's SEP funds are from a formula grant – the amount is determined pursuant to a formula established in 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. Accordingly, DOE's alternatives to its Proposed Action relating to Ohio's use of its SEP funds are limited to: (1) any alternatives that Ohio is still considering in regards to this project; and (2) prohibiting Ohio from providing a grant to this project. The second alternative is equivalent to the No-Action Alternative described below. Ohio has informed DOE that it is not considering any "project-specific" alternatives for the LEC Wind Project. Additionally, there are no unresolved conflicts concerning alternative uses of available resources associated with the project site that would suggest the need for other alternatives.

2.3.2 No-Action Alternative

Under the No-Action Alternative, DOE would not allow Ohio 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, LEC operations would continue as otherwise planned, but without the proposed wind turbine. Also, unavoidable adverse impacts associated with the proposed project if it were not to be implemented, include:

- long-term loss of approximately 0.37 acre of vegetation resulting from the construction of the tower foundation
- an increase in noise levels during construction and operation
- introduction of another dominant vertical element into the existing viewshed
- shadow flicker impacts for a limited number of residences
- a risk of tower collapse within 278 feet of the tower

2.3.3 Siting Alternatives Considered by LEC

Siting Considerations

LEC considered five sites for the location of the wind turbine at its World Headquarter Campus (Campus) in Euclid, Ohio. All of the potential Campus sites are owned by LEC and are similar for environmental considerations such as wildlife impact avoidance, wetland and stream

avoidance, and compatibility with existing zoning and land uses. Considerations that then became important for LEC's turbine siting within the Campus are the following:

- Ease of access and adequate room for construction and maintenance
- Minimization of disruption to LEC's manufacturing operations
- Minimization of wind turbulence due to adjacent buildings
- Adequate room for a winter ice clear zone

See Figure 7 in Appendix A for turbine location alternatives discussed below.

Original (Preferred and Proposed) Location
The preferred and currently proposed location for the turbine is situated in an open field near the middle of LEC's employee recreation area on the south side of Saint Clair Avenue and east of East 222nd Street (Site O,P on Figure 7, Appendix A). This location would provide the least disruption to LEC's manufacturing operations. Further, this site provides room for blade laydown, erection cranes and construction vehicles.

Alternate Site #1
Alternate Site #1 is also located in the park, but closer to LEC's Euclid Plant 3 (EP3). The site was eliminated from consideration as the height of the building could cause considerable turbulence to the blades.

Alternate Site #2
Alternate Site #2 is located in the east side of the EP3 yard where LEC has tractor-trailer staging for its distribution center located in EP3. This area was eliminated from consideration for two reasons: the tractor-trailer traffic could cause damage to the structure, and falling ice from the stopped blades in the winter would require an additional clear zone around the structure. This additional clear zone would cause the loss of the trailer staging area.

Alternate Site #3
Alternate Site #3 is located in the east parking lot of EP1/2. This site was eliminated from consideration for three reasons: the height of the building could cause considerable turbulence to the blades, vehicle traffic could cause damage to the structure, and falling ice from the stopped blades in the winter would require an additional clear zone around the structure that would result in the loss of employee parking spaces.

Alternate Site #4
Alternate Site #4 is located in the yard behind EP4. The site was eliminated from consideration as the height of the building could cause considerable turbulence to the blades. This site also lacked room for erection cranes and construction vehicles.

2.3.4 Required Agency Permits and Approval Types

Prior to construction, all required Federal, state and local permits and approvals would be obtained. The required permits and approvals are listed in Table 2-1.

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

Agency	Permit Approval / Type
Federal	
Federal Aviation Administration (FAA)	FAA Aeronautical Determination
NTIA	Radio Frequency Transmission Approval
USFWS	Compliance with the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.
State	
Ohio EPA	NPDES
Ohio Historic Preservation Office	Compliance with the National Historic Preservation Act
Ohio Department of Wildlife	Concurrence that the proposed action does not pose a substantial risk to state-protected species, including birds (pursuant to Ohio Revised Code Chapter 1531).
Local	
City of Euclid Planning & Zoning Commission	Height Variance Approval (*City of Euclid Planning and Zoning Code Chapter 1379*)
City of Euclid Community Engineer	Erosion and Sediment Control Plan Approval

2.3.5 Project Proponent-Committed Practices

LEC has committed to the following measures and procedures to minimize or avoid environmental impacts if the Proposed Action is carried forward.

Bird, Bat, and Raptor Avoidance and Minimization Measures
Project coordination occurred with the US Fish & Wildlife Service (USFWS), the Ohio Department of Natural Resources (ODNR) Division of Wildlife (ODOW), and ODNR Natural Heritage Program (ONHP) concerning the project's location and potential impacts on birds, bats, and other wildlife; rare, threatened and endangered species, and other protected natural features. ODOW stated that although the proposed turbine location is relatively close to the Lake Erie shoreline, it is within a highly developed region of the state and lacks suitable breeding or stopover habitat (See Attachment C-3 in Appendix C). Additionally, there are no nests of protected species of raptor (bald eagle, northern harrier, osprey, or peregrine falcon) or observations of Indiana bat (state and Federal endangered species) within five (5) miles of the site. Based on these factors, ODOW issued a letter for the proposed LEC project on March 11, 2010 wherein they determined it is unlikely that this turbine will impact significant numbers of birds or bats (See Attachment C-3 in Appendix C). ODOW's March 11, 2010 letter requested that LEC conduct or arrange access for someone appointed by ODOW to conduct post-construction monitoring in accordance with the "*On-shore bird and bat pre- and post-construction monitoring protocol for commercial wind energy facilities in Ohio*"(protocol) developed by ODOW.

LEC will conduct or arrange access for ODOW to conduct mortality studies as described below. On April 26, 2010, the USFWS issued a letter concurring with ODOW's request for post-construction monitoring and asked to be provided with a copy of any such report. LEC will work with ODOW to ensure the USFWS is copied on all such reports (See Attachment C-4 in Appendix C). The protocol for post-construction mortality surveys is as follows:

- One initial year (1 April to 15 November) of daily mortality searches with an optional second season depending on the first year results.
- The results of the mortality searches would be submitted to ODNR Division of Wildlife and U.S. Fish and Wildlife Service for review.
- Depending on the results of the first year, ODNR Division of Wildlife will determine if post-construction monitoring of mortality in the second year can be waived, reduced (i.e., focused on time periods when higher numbers of fatalities were detected), or continued for a full year.

Health, Safety and Noise

The construction contractor and LEC will prepare a Health and Safety Plan per Occupational Safety and Health Administration (OSHA) requirements, as well as Kenersys guidelines (Kenersys, 2009a, 2009b, and 2009c) before commencing work. Facilities will be secured by fencing and include high-voltage warning signs. All construction activities will occur during normal working hours to avoid noise and other disturbances to surrounding areas. The construction of the proposed wind energy project will comply with all applicable Federal, state, and local requirements.

Flicker Effects

Of the 17 receptors exceeding 30 hours shadowing per year, 3 were indentified as "P" participating (Lincoln-owned buildings), and "N" for non-participating. Of the 17 exceeding 30 hours per year, 14 receptors (residences) may require mitigation action. LEC will install shadow control equipment for the Kenersys turbine. The shadow control equipment will have the ability to decrease shadowing to a certain threshold by curtailing turbine operation. If shadow impacts remain a legitimate annoyance for the receptor(s), LEC would assist those receptors to purchase blinds for windows and screening trees.

Erosion Control

LEC will use Best Management Practices (BMPs) and employ NPDES requirements during construction and operation to protect topsoil and to minimize soil erosion. BMPs will include at a minimum the following: containing excavated material, use of silt fences, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas.

Recycling

Used oil will be generated during operation of the proposed project, and will be handled, collected, transferred, and reused/recycled in accordance with applicable Federal, state, and local regulations. LEC currently has an oil recycling program for used oil from the factory machinery. LEC recycles used oil per internal specification EHS 390 "Procedure for Storage, Handling and Disposal of Waste Water/Used Oils." This specification references Ohio Administrative Code 3745-279-20 through 3745-279-24. All used oil from the wind turbine would be handled, collected, transferred, and reused/recycled in accordance with this existing recycling program, as well as in accordance with applicable Federal, state, and local regulations.

Decommissioning

Upon the reaching of the expected operational life (20 years or longer) of the wind turbine, LEC will decommission the turbine as per the guidelines issued by the manufacturer (Kenersys, 2010) and in accordance with applicable Federal, state, and local standards and regulations.

Cultural Resources

Based on the archaeological study results, encountering archaeological resources during excavation activities is not anticipated. However, if archaeological resources were identified in areas that would be excavated, all ground disturbing activities would be halted and the Ohio Historic Preservation Office would be consulted for resolution.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 No-Action Alternative

If the LEC Wind Energy Project is not implemented, the 10 percent of LEC's electrical power that could be provided by the project would continue to be purchased from First Energy Solutions. That utility generated about 60 percent of its total electricity with fossil fuels in 2009. The remaining 40 percent of generation came from sources that do not directly emit carbon dioxide (renewables and nuclear) [First Energy, 2005; USDOE Energy Information Administration (USDOE EIA), 2010]. Thus, carbon dioxide emissions from electricity generation to serve the LEC facility would be higher under the No-Action alternative and LEC would not meet its objective to reduce its carbon footprint.

Baseline conditions would continue pursuant to current LEC plans. Under the No-Action alternative, there would be no impacts to the area's visual resources, no noise impacts, and no shadow flicker impacts as a result of the project. The small number of jobs created by construction and operation of the wind turbine would not be realized and the local area would forego the economic benefit associated with these new jobs. Additionally, the opportunity to showcase the region's ability to use wind energy would be lost.

3.2 Ohio's Proposed Project

3.2.1 Land Use

The proposed project site is bounded to the north by a four-rail wide CSX rail corridor ("CSX") and an eight-lane divided interstate highway ("I-90"). To the south lies Norfolk Southern Railroad. The land use pattern in the vicinity of the proposed wind energy project is industrial and manufacturing. The City of Euclid (Figure 8 in Appendix A) shows the project area zoned U6 – Industrial and Manufacturing Districts. The wind turbine will be approximately 1,200 feet from the nearest residential zoning to the northwest. Although the area is zoned industrial, there are three houses that have been converted to multi-family units located approximately 330 feet away from the proposed turbine site. Just to the northwest of the proposed project site is a small area zoned U4 – Local Retail of Wholesale Districts. The area immediately surrounding the proposed tower location is currently used as a private recreational area for the benefit of LEC employees.

On January 12, 2010, LEC submitted an application requesting the required height exemption to install a 443-foot high, 2.5 MW wind turbine located at 22800 St. Clair Avenue to the City of Euclid Planning And Zoning Commission. The request for variance was approved on January 12, 2010 (See Attachment D-1j in Appendix D).

3.2.1.1 Direct and Indirect Impacts

Implementation of the proposed project would permanently commit 0.37 acre of previously disturbed and developed land. The turbine foundation will be surrounded by a 7-foot tall chain

link fence with a top 1 foot section with three barbed wires. The fence will be approximately 100-foot diameter (50-foot radius). The fencing will enclose an area of 7,853 square feet or 0.18 acre. The overall use of the general area is and will continue as industrial and manufacturing. The area immediately surrounding the proposed tower location will continue to be used as a private recreational area.

3.2.2 Biological Resources

The *Migratory Bird Treaty Act* (16 U.S.C. 703-7012; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importing migratory birds, their eggs, parts and nests, except when specifically authorized by the Department of the Interior. While MBTA has no provision for allowing unauthorized take, the USFWS recognizes that some migratory birds may be taken during activities such as wind turbine operation even if all reasonable measures to avoid a take have been implemented.

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). In its letter dated April 26, 2010, the USFWS indicated that no bald eagle nests exist within 5 miles of the turbine location and that the project area does not appear to support suitable bald eagle habitat (mature woods, ponds, streams); thus, bald eagles are not likely to regularly occur in the project area (See Attachment C-4 in Appendix C).

DOE requested natural heritage information, including the presence of any important biological resources for the project vicinity from the ONHP. This included information concerning known locations of rare, threatened or endangered species, rare vegetative communities, scenic rivers, and parks, preserves, and wildlife areas. The ONHP response indicates that none of these elements is known to be present in the project vicinity (See Attachment C1 in Appendix C).

LEC contacted ODOW for information concerning the project's potential impacts on wildlife species, especially bats and birds, including protected species of raptor (bald eagle, northern harrier, osprey, or peregrine falcon). ODOW stated that although the proposed turbine location is relatively close to the Lake Erie shoreline (approximately 2.2 miles north), it is within a highly developed region of the state that lacks suitable breeding or stopover habitat and there are no nests of protected species of raptor or observations of Indiana bat (state and Federal endangered species) within five miles of the site (See Attachment C-3 in Appendix C).

LEC and DOE contacted USFWS for information concerning rare, threatened and endangered species (See Attachment C-4 in Appendix C). USFWS responded that there are no Federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the project area. USFWS stated that the proposed project lies within the range of the Indiana bat (*Myotis sodalis*), a Federally listed endangered species. However, USFWS has no record for Indiana bats within 5 miles of the project and does not appear to support suitable habitat for the Indiana bat (hibernacula caves and/or maternity roosting habitat consisting of hardwood forested areas with dead snags used for roosting and nesting). The UFSWS concluded that it does not anticipate any impacts to this species. The project area also lies within the range of the piping plover (*Charadrius melodus*), a Federally listed endangered species. The piping plover inhabits sandy

beaches, lakeshores and dunes. This preferred habitat (i.e., shorelines of the Great Lakes) does not occur within or immediately adjacent to the study area because the project lies approximately 2.2 miles from the Lake Erie shoreline. The USFWS concluded that it does not anticipate any impact on the piping plover or its habitat as a result of the proposed project.

3.2.2.2 Direct and Indirect Impacts

ODOW determined it is unlikely that this turbine will impact significant numbers of birds or bats (See Attachment C-3 in Appendix C). LEC has committed to the ODOW request that LEC conduct or arrange access for someone appointed by ODOW to conduct post-construction monitoring in accordance with the "*On-shore bird and bat pre- and post-construction monitoring protocol for commercial wind energy facilities in Ohio*" developed by ODOW (See Attachment C-3 in Appendix C).

During turbine siting, design and installation of the proposed wind project, LEC gave consideration to the guidelines contained within the USFWS *Interim Guidelines to Avoid and Minimize Wildlife Impacts* (2003). The following is a summary of the applicable recommendations and actions taken by LEC to comply with the guidelines:

1) Pre-development evaluations for wind farm sites by Federal and state wildlife professionals:
   - LEC contacted both the USFWS and the Ohio Department of Wildlife regarding the proposed project, and both agencies provided responses on potential effects to wildlife.

2) Rank site by risk to wildlife:
   - Based on telephones calls and written correspondence received from the ODOW and the USFWS (See Attachment C-3 and C-4 in Appendix C respectively) and the research conducted as part of the EA preparation for the proposed turbine location and its potential to provide habitat to bird, bat and other wildlife species, the proposed site is thought to be a low risk to wildlife.

3) Avoid placement of turbines in documented locations of Federally listed species:
   - No Federally listed species are documented in the area and the site does not provide habitat for any Federally listed species.

4) Avoid locating turbines in known flyways or migratory paths:
   - The proposed project is not located within a known migratory flyway or pathway, and the West Lake Erie Important Bird Area is approximately 1.5 miles north of the proposed turbine location (See website http://www.ohiodnr.com/LinkClick.aspx?fileticket=YWCawZmeP%2bo%3d&tabid=2134.

5) Avoid placement of turbines in bat habitat:
   - The project site is not considered to be suitable bat habitat.

6) Configuration of multiple turbines and managing stormwater to avoid attracting wildlife:
   - The proposed project is a single turbine, so the configurations of multiple turbines was not considered in the analysis or design. The project has included stormwater BMPs in the design and construction plans.

7) Avoid fragmentation of large tracts of habitat:
   - Although the Lake Erie shoreline is approximately 2 miles north, the project does not fragment large tracts of habitat.

8) Minimize roads, fences, and other infrastructure:
   - The proposed project will utilize existing roadways or developed areas for all construction and installation activities.

9) Develop a habitat restoration plan for the site that avoids or minimizes negative impacts on vulnerable wildlife:
   - There are no protected raptor nests within 5 miles of the project and the turbine installation site is on industrial land and surrounded by urban/suburban development; thus, a habitat restoration plan is not necessary.

10) Use tubular supports and avoid external lattice, ladders, platforms, etc., to minimize bird perching and nesting:
   - The turbine is a monopole design with no exterior lattice, ladders, guy wires or platforms.

11) Use minimum lighting required by FAA:
   - Minimum FAA light recommendations will be used in consideration of avian and bat species.

12) Adjust tower height if risk of strike is high:
   - The site is currently an industrial park and wildlife usage is very minimal. Because the site is considered to be low risk to wildlife, the proposed height is not believed to add to the overall risk of strikes to wildlife.

13) Place electric power lines underground:
   - All electric lines are to be placed underground.

Based on the foregoing, the proposed wind turbine is not anticipated to have a significant impact on avian species.

USFWS does not anticipate any direct or indirect impacts on the Indiana bat or other Federally listed species as a result of the proposed project (See Attachment C-4 in Appendix C). Therefore, DOE does not anticipate that the project would affect Federally protected threatened and endangered species or their critical habitat.

3.2.3 Noise

The Kenersys K100-2.5 MW is a tubular steel monopole, three-blade, ground-mounted wind turbine (the "K100"). It has a hub height of 85 meters (279 feet), a rotor diameter of 100 meters (328 feet), with an overall height of 135 meters (443 feet) to the blade tip. According to the specification sheet provided by the manufacturer, it has a Noise Power Level of 106 dBA (See Attachment D-2 in Appendix D (K100 Data Sheet)). LEC intends to install a single K100 wind turbine on an undeveloped portion of its property located near the southeast corner of St. Clair

Avenue and East 222nd Street (See Attachment D-3 in Appendix D (Site Improvement Plan)). The proposed wind turbine would be located in an area zoned U6 - Industrial and Manufacturing, as defined by Euclid, Ohio's Zoning Ordinance (the "Zoning Ordinance") (See Figure 8 in Appendix A (Euclid Zoning Map)).

Sound is a result of fluctuating air pressure. The standard unit for measuring sound pressure levels is the decibel (dB). A decibel (dB) is a unit that describes the amplitude (or difference between extremes) 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 U.S. Environmental Protection Agency (EPA) identifies noise levels necessary to protect public health and welfare against hearing loss, annoyance, and activity interference in its document, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," (April 2, 1974). These noise levels are in terms of "24-hour exposure" levels or an average 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 as long as a sufficient amount of relative quiet is experienced for the remaining period of time.

A 24-hour exposure level of 70 decibels is indicated by EPA as the level of environmental noise at which any measurable hearing loss over a lifetime may be prevented, and levels of 55 decibels outdoors and 45 decibels indoors as preventing activity interference and annoyance to human receptors. These levels of noise are those at which spoken conversation and other daily activities such as sleeping, working and recreation can readily occur.

Noise levels for various areas are also identified according to the use of the area. For example, 24-hour exposure levels of 45 decibels are associated with indoor residential areas, hospitals and schools, whereas 55 decibels is considered appropriate for preventing interference of human activities in certain outdoor areas. The level of 70 decibels is identified for all areas in order to prevent hearing loss.

It should be noted that in 1981, the Federal government concluded that noise issues were best handled at the state or local government level. As a result, the EPA phased out Federal oversight of noise issues to transfer the primary responsibility of regulating noise to state and local governments.

The existing noise environment for the wind turbine location in this heavy manufacturing area is characterized by local tractor trailer traffic, heavy interstate highway traffic, six rails of train traffic, numerous manufacturing facilities, and LEC's manufacturing facility that operates 24 hours a day, 7 days a week. The site is bounded to the north by a four-rail wide railroad CSX and an eight-lane divided I-90. To the south lies Norfolk Southern Railroad. The nearest residential zoning district "U1 - Single Family House District," per the Euclid Zoning Ordinance,

is located over 1,200 feet away from the proposed wind turbine location. This residential district is located on East 218th Street to the northwest of the proposed turbine location. Located between this residential district and the proposed turbine location is the aforementioned CSX railroad, I-90, and two, two-lane interstate marginal access roads, along with a 20-foot high interstate noise barrier wall. In addition, the average background noise level at East 218th Street (located along the marginal) is 67 dBA with an instantaneous level going to 80 dBA when a car drives down the marginal (See Attachment D-4 in Appendix D (Random Noise Survey, prepared by LEC)). Although the proposed turbine site is located within an industrially zoned area, there are two houses that have been converted to multi-family apartments across East 222nd Street approximately 330 feet west of the proposed turbine location.

LEC took three sound readings at each of the areas indicated in the Random Noise Survey during a span of approximately 12 hours in December 2009. The sound readings were recorded between approximately 8 a.m. and 9 a.m., 2 p.m. and 3 p.m., and 8 p.m. and 9 p.m. LEC averaged the readings at each location and noted that there were slightly less sound levels in the evening recordings. LEC used a Greenlee SML-200 Sound Level Meter with a windscreen over the end of the microphone. The unit was set for an A-weighted measurement (dBA). The large, bold dBA readings on the Random Noise Survey indicate the average of the three dBA recordings at a given location, while the smaller text within the box indicates specific occurrences of dBA readings recorded for the same given location (e.g., when a car or truck passed). This average dBA is attributable to the existing noise environment, which is characterized by LEC's manufacturing facility that operate 24 hours a day, 7 days a week, local tractor-trailer traffic, heavy Interstate highway traffic, six rails of train traffic, and numerous manufacturing facilities. As stated above, pursuant to the City of Euclid Zoning Code, the wind turbine site is zoned "U6 - Industrial and Manufacturing" district, but there are two rental apartments approximately 330 feet from the proposed turbine location. Based on the K100 Noise Power Level of 106 dBA, the resulting noise level would be approximately 55 dBA at these rental apartments (U.S. DOE Energy Efficiency & Renewable Energy website, citing Danish Wind Industry Association, Wind Turbine Sound Calculator, 2003). However, the existing background noise level along East 222nd Street, where these properties are located, also averages approximately 55 dBA (See Attachment D-4 in Appendix D).

The City of Euclid Zoning Code, at section 545.13, "Excessive Noise Defined," specifies a maximum decibel level of 70 dB at the property line of property zoned U6. The turbine tower base is 210 feet from the LEC west property line (along E 222nd Street) and 275 feet from the north property line (along St. Clair Avenue). Therefore, measuring from the shortest distance to the property line (210 feet), LEC is in compliance with a sound measurement of 59 dBA (Using USDOE EERE website, referencing Wind Turbine Sound Calculator, 2003, referenced above). (Note: The Euclid Zoning Code specifies dB, and not dBA; however, a measurement of 59 dBA would be considered in compliance based on typical measurement standards. See EPA press release dated April 2, 1974, referenced above, and Table 3-1 cited in Colby *et al.* (2009), referenced herein). As part of the wind turbine siting process, LEC has been working closely with Mr. Paul Beno, City of Euclid. Due to the press of business and time, Mr. Beno had not issued a letter of compliance, but stated that he would provide a letter stating so, if necessary. Mr. Beno has granted LEC permission to proceed with the wind turbine project based on a finding that there would be no visual impact issues. In fact, the City stated in its visual impacts approval letter, "These distances and the predominantly industrial nature of the area show that

this proposed turbine is well situated with regard to general land use planning principals" (See letter from Paul Beno, City of Euclid, to Seth Mason, LEC, dated March 8, 2010, as Attachment C-4a in Appendix C).

As previously stated, the K100 has a Noise Power Level of 106 dBA. The following table shows some sound pressure levels associated with common activities measured in dBA. For comparison, the sound from a wind turbine at distances between 1,000 and 2,000 feet is generally within 40 to 50 dBA (Colby, *et al.*, 2009, referenced herein).

Table 3-1. Typical Sound Pressure Levels Measured in the Environment and Industry.

Noise Source At a Given Distance	A-Weighted Sound Level in Decibels	Qualitative Description
Carrier deck jet operation	140	
	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1000 feet) Shout (0.5 feet)	100	
N.Y. subway station Heavy truck (50 feet)	90	Very annoying Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70 to 80	
	70	Intrusive (Telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	
	10	Just audible

Adapted from Table E, "Assessing and Mitigating Noise Impacts", NY DEC, February 2001.

Table 3-1 is cited in Colby *et al.* (2009), referenced above.

Noise would be temporarily emitted from the project site by construction equipment during the approximately five-month active construction period. However, due to the noise-generating activities from the existing industrial manufacturing facilities, traffic, etc., as described above, the wind turbine project construction noise would not be expected to significantly increase the

overall ambient noise emissions from the site, which ambient noise is shown at various locations on Attachment D-4 in Appendix D.

Sound decreases significantly with distance from the source. For example, sound pressure at 25 feet from a wind turbine hub drops by a factor of 4 at 50 feet, and by a factor of 16 at 100 feet. In the logarithmic scale of decibels, this equates to a drop of approximately 6 dBA for each doubling of the distance from point sound source. At a distance of approximately 350 meters (approximately 1,150 feet), sound from wind turbines is in the range of 35 to 45 dBA, similar to the background noise found in a typical home (Table 3-1, cited in Colby *et al.* (2009), referenced above; See also, AWEA, 2003).

Modern wind turbines have been designed to significantly reduce the noise of mechanical components, so the most audible noise is the sound of the wind interacting with the rotor blades, often resulting in what can be described as a "whooshing" sound. However, modern wind turbines are generally quiet in operation and this sound is anticipated to be less noticeable by humans when compared to sound from road traffic, trains, aircraft, and manufacturing activities for this industrial site.

3.2.3.1 Direct and Indirect Impacts

As previously stated, the K100 has a Noise Power Level of 106 dBA. At a distance of 330 feet, which is the location of the nearest residential rental properties on East 222nd Street, the resulting noise level would be approximately 55 dBA (U.S. DOE Energy Efficiency & Renewable Energy (USDOE EERE) website, citing Danish Wind Industry Association, Wind Turbine Sound Calculator, 2003). However, the existing background noise level along East 222nd Street, where these properties are located, averages approximately 55 dBA (See Attachment D-4 in Appendix D). Therefore, since existing background sound levels generally meet or exceed sounds that would be created by the proposed wind project, noise intrusion from the wind turbine is not expected to contribute to or exceed existing noise conditions at this residential location.

The nearest zoned residential neighborhood is approximately 1,200 feet away, across I-90 (which is blocked by a 20-foot high sound wall) and two major roadways. The combination of the fact that the nearest residential neighborhood is over 1,150 feet away from the wind turbine and the noise levels from I-90 and the major roadways that lie between the turbine and the neighborhood, impacts from noise intrusion from the wind turbine are not anticipated.

3.2.4 Visual Quality

The existing view of the project area is primarily industrial; with the extensive LEC facilities to the northeast through southeast (See Figure 4 in Appendix A). Active railroad tracks (CSX) lie about 660 feet to the north-northwest of the proposed turbine location and an eight-lane Interstate highway (I-90) lies about 230 feet beyond the tracks. Smaller industrial facilities occupy the area west and southwest of the proposed turbine. Another set of active railroad tracks (Norfolk Southern) lies about 1,460 feet southeast of the proposed turbine.

Four other vertical elements occur within 1.4 miles of the proposed turbine location (See Figures 9 and 10 in Appendix A). The two lowest (EP 3 water tower and EP1/2 water tower at 35 feet

and 128 feet high) and nearest features (at 562 and 2,565 feet away, respectively) occur on LEC property. The two highest (City of Euclid radio tower and Nottingham Water Plant radio tower at 299 feet and 350 feet high) are 6,003 and 5,198 feet away respectively. These latter two elements are more comparable to the proposed turbine due to their heights.

To address potential concerns about the aesthetic impacts of the proposed project, LEC commissioned a visual simulation of the proposed turbine from various viewpoints in Euclid and adjacent Cleveland (See Attachment B2 in Appendix B). These viewpoints ranged from less than 0.5 mile to over 1.6 miles from the proposed turbine site and completely surrounded the site. Photos were taken from these viewpoints and an image of a wind turbine was rendered into the photos at the proper scale and location.

Table 3-2 lists existing towers, shows their height, and identifies the approximate distance of each from the proposed Wind Turbine.

Table 3-2. Existing Towers Located in Euclid, Ohio.

Name	Type	Height in Feet	Distance – Feet	Distance – Miles
EP3	Water	35	562	0.106
EP ½	Water	128	2,565	0.486
Nottingham Water Plant	Radio	350	5,198	0.984
City of Euclid Tower	Radio	299	6,003	1.137

The visual character of these towers is illustrated in Attachment C-5f in Appendix C, which includes renderings of the towers showing comparative heights and oblique aerial photographs of the tower sites. Computer simulations depicting how the proposed wind turbine would appear in the view shed were prepared for public site locations around the project area (See Attachment C-5g in Appendix C and Table 3-3). The sites include parking lots of public and parochial schools, churches, a playground, fire station, exposition center, and a state park. Public sites were chosen because they are places were people gather and the introduction of a new element in their view shed would theoretically impact a greater number of people than private properties. Visual simulations at 13 locations were prepared, ranging from a distance of approximately 0.5 mile from the proposed site to almost 2 miles away, near the shore of Lake Erie.

The visual simulations show that the visual impact of the proposed Wind Turbine is not solely determined by distance. The visibility of the proposed Wind Turbine would vary by location due to the existing ridgelines, tree cover and various buildings and structures that would partially or entirely block the view. Unlike the open treeless prairies or deserts of the West, or flat agricultural areas of the Midwest where tall towers may be seen from several miles away, the natural vegetation of northeast Ohio includes many trees, occurring both naturally and as landscape plantings. These trees will effectively screen many potential views of the Wind Turbine. Where trees are lacking, in many cases buildings will potentially serve as visual obstacles to views of the Wind Turbine.

Table 3-3. Public Space Visual Simulation Study

Photo	Location	Distance	Direction	Visible	In APE	Wind Turbine viewshed partially obstructed by	Contains objects of similar height
1	Perry School	6967	West	Yes	No	Building	
2	Roosevelt School	4150	Northwest	No	Yes	Trees	
3	St. Christine's School	2545	North	Yes	Yes		Tree line
4	Euclid High School	4450	North	Yes	Yes		Parking lot lights poles
5	Great Lakes Expo Center	4650	Northeast	Yes	Yes		Parking lot lights poles, water tower
6	Tungsten Playground	6897	East-northeast	No	No	Trees	
7	St. Felicitas Church & School	7062	East	No	No	Trees and ridgeline	
8	Bethlehem Church	4866	East-southeast	No	Yes	Trees	
9	Glenbrook Elementary	4767	South-southeast	No	Yes	Ridgeline	
10	St. Joeseph Convent	6562	South	No	No	Trees and ridgeline	
11	Central Middle School	6805	South-southwest	No	No	Building	
12	Euclid Creek Park/ Fire Station	6526	West-southwest	No	No	Trees	
13	Wildwood State Park	9989	West	No	No	Trees	

One visual simulation taken from over one mile away indicates the Wind Turbine would be visible. Another visual simulation from a location that is less than 1 mile from the project site indicates that tree cover would mask the view of the wind turbine. Other visual simulations indicate that existing ridgelines in the area would mask the Wind Turbine. A visual simulation from a site approximately 0.75 mile (4,150 feet = .78 mile) from the project site indicates that the Wind Turbine could not be seen, while a site a little over 1.25 miles away (6,967 feet = 1.32 miles) indicates that the Wind Turbine would be visible.

In addition, an analysis was conducted to assess the view of the proposed wind tower from several locations using electronic USGS mapping as well as AutoCAD mapping with embedded aerial photographs. In this analysis, a line of site to the top of the tower (elevation 1,083 feet)

from a theoretical 6-foot tall viewer standing just outside each location was calculated. For a site at approximately 1 mile from the proposed tower and beyond, this resulted in angles of the sight line above horizontal of about 3 to 4 degrees, or in other terms, of percentages of slope of the sight line of between 8 and 11 percent (i.e., for every 100 feet of horizontal distance between the site and the tower, the sight line rises between 8 and 11 feet). With the relatively flat angles/slopes at these sites, it is apparent that nearby objects (trees, houses, and other buildings) would provide effective screening of one's view of the proposed wind tower.

The closer one approaches the proposed site, the more noticeable the proposed turbine will become. The nearest day-to-day viewers of the proposed turbine will be employees at the various surrounding businesses, including LEC. Users of I-90 will also have clear views of the proposed turbine.

Shadow Flicker

While it is not possible to quantify the visual impact of a wind energy project due to the subjective nature of aesthetics, visual impacts are sometimes a concern with such projects. Concerns about the visual impacts of wind energy projects generally revolve around aesthetic impacts and shadow flicker impacts associated with the rotating turbine blades. 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 ("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 about 1,000 feet except at sunrise and sunset when shadows are long (Appendix D-5 in Appendix D).

LEC commissioned a study to determine if any nearby occupied dwellings would be adversely affected by shadow flicker from the project. Appendix D includes the shadow flicker analysis (Attachment D-5 in Appendix D). The results from the shadow flicker study indicate that a relatively small number of receptors receive more than 30 hours of shadow flicker per year. These receptors are all located south of I-90. Four receptors are within the 100 hours isoline, 12 receptors are within the 50 hours isoline, and 17 receptors are within the 30 hours isoline. These results are provided below in Table 3-4 and Figures 18 and 19 of Attachment D-5 in Appendix D.

The principal method of mitigation available for shadow flicker effects is to close down the wind turbine at times when the turbine has been predicted or demonstrated to cause shadow flicker effects. A system is available that uses a device to measure the intensity of sunlight occurring at a particular moment, together with the date and time, location of the wind turbine and locations of nearby houses, to calculate whether shadow flicker will occur.

Table 3-4: Shadow Flicker Analysis Results

Receptor	Max shadow hours per day	Max shadow hours per year
N2	2:47	157:05:00
N1	2:48	154:12:00
N37	2:29	135:33:00
N40	2:31	126:08:00
N36	2:15	93:02:00
N39	2:26	88:10:00
N42	2:14	78:59:00
N41	1:51	77:28:00
N35	1:41	76:23:00
N34	1:28	66:38:00
N33	1:19	56:37:00
N130	1:14	51:14:00
P1	2:08	48:18:00
N130	1:08	42:52:00
N32	1:08	34:51:00
P2	1:49	33:02:00
P3	1:19	31:32:00

3.2.4.1 Direct and Indirect Impacts

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., other towers, discussed above), 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.

In general, there are no anticipated visual impacts that would significantly adversely affect nearby residents, users of the project area and surrounding areas, or passersby as a result of the development of this project.

LEC proposes to install shadow control equipment for the Kenersys turbine. This equipment would have the ability to decrease shadowing to a certain threshold by curtailing turbine operation. Of the 17 receptors exceeding 30 hours shadowing per year, 3 were "P" participating (LEC owned) and 14 receptors were "N" non-participating that may require mitigation action. If shadow impacts become a legitimate annoyance for the receptor(s), LEC would assist those receptors to purchase blinds for windows and/or screening trees.

There is some concern in the public 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, and large wind turbine blades are not engineered to rotate at such a high rate [American Wind Energy Association (AWEA), 2009].

3.2.5 Transportation

The project site as well as the entire LEC manufacturing campus is served by the local roads of East 222nd Street and St. Clair Avenue. Access to interstate transportation system is available at the I-90/East 222nd Street/Lakeland Boulevard just northwest of the proposed turbine location. No new access or other roads are necessary for construction and operation of the wind turbine at the proposed location.

Construction equipment will travel to the project site via I-90, Euclid Avenue (Exit 186), Chardon Road, E 200th Street and Saint Clair Avenue. Access from St. Clair Avenue to the construction site is via the existing access driveway at 22800 Saint Clair Avenue (EP3 Facility – Distribution Center – building directly east of the project site).

3.2.5.1 Direct and Indirect Impacts

During the heavy construction phase of the project, which is anticipated to last approximately four months, a temporary increase in vehicular traffic on the local roads identified above surrounding the project site is anticipated. No long-term or permanent impacts to the local transportation systems would occur as a result of this project.

Large pieces of equipment such as the turbine tower, rotor blade, and nacelle would be designated oversized loads and would temporarily slow traffic on the I-90 freeway and East 222nd Street and St. Clair Avenue. Local traffic impacts would be from the Port of Cleveland to the LEC site along I-90 / OH Rt 2. However, these would be short-term impacts only. Estimated time from the Port of Cleveland to LEC is 30 minutes.

3.2.6 Groundwater and Surface Water Resources

Based on the review of existing OEPA/ODNR groundwater resource maps, the proposed project area is not located in an endorsed well head protection area, where certain activities are restricted within an OEPA-designated protection area. Additionally, the proposed project area is not located within any designated Public Water System supply areas (sole source aquifer, community/non community systems, drinking water source protection areas using groundwater/surface water). Groundwater is generally not a source of drinking water in this part of Cuyahoga County. There are no private well-water supplies on or near the project site. The *Groundwater Resources of Cuyahoga County* (Crowell, 1979) indicate that this portion of Cuyahoga County is a very poor groundwater source and would yield less than three gallons of water per minute due to "impermeable deposits, basically clay overlaying shale or shaley sandstone, (that) provide a very poor area for even minimal domestic supplies."

In compliance with the Clean Water Act, the project site was investigated for surface water. No ponds, streams, or wetlands occur in the project vicinity or would be impacted by the project (See Figure 5 in Appendix A for the project-area NWI Map). The nearest surface water body is a wet retention basin on LEC property approximately 800 feet southeast of the proposed wind

turbine location. A dry retention basin occurs just south of the softball field, approximately 435 feet south of the proposed wind turbine location. The nearest stream is Euclid Creek, at 1.14 miles to the southwest, which flows into Lake Erie.

3.2.6.1 Direct and Indirect Impacts

The proposed project would have no adverse affect on any groundwater resources. No runoff or discharges from the proposed project construction area would directly enter Euclid Creek. Since ground-disturbing activity will be less than one acre, an NPDES permit would not be acquired prior to any construction-related earthwork. However, LEC has committed to using sediment and erosion pollution control BMPs in conformance with a plan specific to this project. A third-party engineering firm would provide the Stormwater Pollution Prevention Plan that is in accordance with the ODNR's Rainwater and Land Development Manual (2006). On-site construction personnel will perform weekly inspections of the erosion and sediment control structures and the third party engineering firm would be retained to perform monthly inspections.

3.2.7 Soils

The only soil mapped as occurring at the project site and the surrounding vicinity is Urban land [marked as Ub on Figure 11 in Appendix A, the project-area soil map (Natural Resources Conservation Service, 2010)]. Urban land is described as "areas where more than 80 percent of the surface is covered by asphalt, concrete, buildings, or other manmade surfaces" (Soil Conservation Service, 1980).

3.2.7.1 Direct and Indirect Impacts

Site preparation and project construction would result in soil disturbance. As part of project construction, approximately 0.37 acre of current open space in LEC's private recreational area would be disturbed. Since ground-disturbing activity will be less than one acre, an NPDES Stormwater Program Permit will not be required. However, LEC has committed to using sediment and erosion pollution control BMPs in conformance with a plan specific to this project. A third-party engineering firm would provide the Stormwater Pollution Prevention Plan that is in accordance with the ODNR's Rainwater and Land Development Manual (2006). On-site construction personnel will perform weekly inspections of the erosion and sediment control structures and the third party engineering firm would be retained to perform monthly inspections.

3.2.8 Air Quality and Climate Change

The affected air environment can be characterized in terms of concentrations of the criteria pollutants carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), nitrogen dioxide (NO_2), ozone (O_3) and lead (Pb). The EPA has established National Ambient Air Quality Affected Environment and Environmental Impacts 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 (PM_{10}) and one for particulates with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). According to the Northeast Ohio Areawide Coordinating Agency [NOACA (2010)], Cuyahoga County, Ohio, is in non-

attainment for only $PM_{2.5}$. Cuyahoga County is in attainment for CO, SO_2, PM_{10}, NO_2, O_3, and Pb.

The EPA has found that the "aggregate group of the well-mixed greenhouse gases" constitutes an air pollutant that contributes to climate change. CO_2 is a greenhouse gas and the LEC wind turbine would have an indirect impact on CO_2 emissions from fossil fuel sources.

3.2.8.1 Direct and Indirect Impacts

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

As explained further in Section 4.2, CO_2 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 LEC's carbon footprint by reducing reliance on fossil fuels.

The proposed wind energy project is expected to generate approximately 6,451,000 kilowatt-hours per year, and if the wind energy project is built, approximately 10 percent of electricity used by LEC would be supplied by the project rather than by the current utility, First Energy Solutions. In 2009, the utility generated about 60 percent of its total electricity with fossil fuels, and the remaining 40 percent of electricity generation came from sources that do not directly emit carbon dioxide (renewables and nuclear) (First Energy, 2005; USDOE EIA, 2010). The project's carbon reduction is calculated as follows:

> 59.9% coal × 2.0562 lb of CO_2/kilowatt-hour × 6,451,000 kilowatt-hour/year =
> 7,945,463 lbs of CO_2/year or 3,972 short tons of CO_2/year or 3,604 metric tons of CO_2/year or 3,547 long tons CO_2/year.

Thus, under the proposed action, the wind turbine would reduce LEC's carbon footprint. Under the No-Action Alternative, LEC would not reduce its carbon footprint and the status quo would prevail..

3.2.9 Socioeconomics and Environmental Justice

Executive Order 12898 (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." The racial makeup of the City of Euclid in 2000 was 66.8 percent white with the remainder as minorities, compared to 67.4 for Cuyahoga County as a whole. The median household income in 1999 dollars for a household in the City of Euclid in 2000 was $35,151, compared to $29,168 for the Cuyahoga County as a whole. About 7.1 percent of families and 9.1 percent of individuals were below the poverty level in 2000. This contrasts to comparable figures of 10.3 percent and 13.1 percent for Cuyahoga County as a whole (U.S. Census Bureau).

While its manufacturing plants and offices span the globe, LEC's worldwide headquarters and largest manufacturing facilities reside in Northeast Ohio. The Euclid, Ohio main campus and Mentor, Ohio operations consist of more than 200 acres where present manufacturing facilities command an area of approximately 2,940,000 square feet.

Within its main campus in Euclid, LEC maintains its R&D activities, its senior management offices, its largest manufacturing facility as well as a newly created customer service and distribution center. During the past three years, the campus has been expanded to include a state-of-the-art Machine Robotics Center. This Center has received both No Further Action (NFA) and Covenant Not to Sue (CNS) environmental status from the State of Ohio as part of LEC's acquisition and environmental clean up of an idling neighboring plant.

LEC currently employs approximately 2,200 associates in Euclid and more than 300 associates in Mentor. LEC's Ohio workforce has 23% minority employment and 13% female employment. The company and its employees remit tens of millions of dollars annually in state and local taxes.

3.2.9.1 Direct and Indirect Impacts

The proposed wind project would be located within an industrial/manufacturing area and over 1,200 feet from the nearest residential-zoned area to the northwest. No potential high and adverse impacts to human health or environmental effects have been identified in this EA. Therefore, there would be no disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

3.2.10 Energy Impacts

The proposed wind energy project would have a nameplate capacity of 2.5 megawatts and generate approximately 6,451,000 kilowatt-hours per year, or enough electricity to supply up to 686 homes each year. The wind energy generated from the proposed project would meet approximately 10 percent of LEC's Euclid operations annual electricity needs. If the project did not move forward, it is assumed that the electricity used by LEC at this location would continue to be supplied primarily by fossil-fuel sources, which are finite. The proposed renewable energy project is anticipated to produce a total of 129,020,000 kilowatt-hours of clean electricity for the 20-year design life of the project.

3.2.10.1 Direct and Indirect Impacts

No adverse energy impacts would result from the project. The positive energy impact of the implementation of this project is that approximately 10 percent of electricity used by LEC would be supplied by the project and not by First Energy Solutions. As discussed above, this would reduce carbon emissions by 3,972 short tons of CO_2/year and allow Lincoln Electric to meet its objective to reduce its carbon footprint.

3.2.11 Cultural Resources

DOE conducted a search to identify cultural resources that the proposed wind turbine might affect. As explained in the following subsections, the only potential impacts from the wind

turbine on cultural resources would be noise and visual impacts. DOE finds that noise intrusion from the wind turbine would be inconsequential at historic properties because noise levels from the operation of the turbine would be equal to or less than background sound levels. With respect to visual impacts, parts of the wind turbine would at times be visible from certain historic properties, but the wind turbine would not significantly alter the view from these properties and shadow flicker is not anticipated to affect any of the properties. As a result, both ODOD and DOE found that construction and installation of the proposed wind turbine would have no adverse effect on the character-defining features of any historic properties. Despite this conclusion, DOE sets forth below considerable detail about the historic properties and information demonstrating the limited visibility of the wind turbine from historic properties.

3.2.11.1 Consulting Party Participation

According to "Indian Entities Recognized and Eligible to Receive Services" from the U.S. Bureau of Indian Affairs in 72 FR 13648 dated March 22, 2007, there are no Federally recognized Tribes in the State of Ohio.

There is no Tribal Historic Preservation Officer for the State of Ohio according to the National Association of Tribal Historic Preservation Officers at http://www.nathpo.org. However, DOE has provided the Notice of Availability to 22 tribal representatives that are regularly notified of Federal actions in Cuyahoga County[1]. DOE entered into consultation with the Ohio Historic Preservation Office (OHPO) pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" for the construction of the proposed project. DOE provided information to OHPO concerning the following:

- Consulting party participation beyond agencies—who they are and what their opinions are;
- Justification for the Area of Potential Effect (APE);
- Identification and evaluation of properties not previously identified—that is, not already listed in the NRHP or inventories, and;
- Assessment of effects to any historic properties (including those newly identified) in the APE.

OHPO was informed that consultation with interested parties regarding the potential effects of the project on National Register of Historic Properties (NRHP) listed or eligible properties would take place within the NEPA process discussed above in Section 1.5. Public notification and Section 106 consultation was coordinated as part of this EA. Documentation of DOE Section 106 consultation with OHPO is included in the EA and in Attachment C-5 in the Appendix.

The following agencies and organizations received the Draft EA and cover letter specifically as part of the Section 106 consultation process:

- City of Euclid
- City of Euclid Historic Landmarks Commission
- Euclid Historic Museum and Euclid Historical Society

[1] List used by the U.S. Army Corps of Engineers Buffalo District for their actions occurring ion Cuyahoga County.

- Cleveland Restoration Society
- Urban Design Center of Northeast Ohio
- Cuyahoga County Government
- Cuyahoga County Planning Commission
- First Suburbs Development Council
- Western Reserve Historical Society
- Western Reserve Heritage Association

3.2.11.2 Above-Ground and Archaeological APEs

The archaeological APE for the LEC Wind Turbine project is defined as the 10-acre proposed construction site (Attachment C-5c in Appendix C). The Above-Ground APE for the project is defined as a 1-mile radius from the proposed Wind Turbine location (Attachment C-5d in Appendix C).

Clarification of Archaeological APE
The APE determined for archaeological resources focuses on the zone of direct ground disturbance associated with the construction of the Wind Turbine. Although the installation of the wind turbine will be limited to approximately 0.37 acre, which includes the foundation of the Wind Turbine and clearing around the foundation, the construction site is considered to potentially include the entire 10-acre area. The archaeological APE therefore is considered to be the 10-acre construction site. Current construction plans can be found in Attachment C-5e in Appendix C. The Wind Turbine foundation will be approximately 12 feet below the ground surface (after the removal of the artificial fill).

Clarification of Above-Ground APE
In defining the above-ground APE, both direct and indirect effects were considered. Direct, physical effects would only occur at the construction sites itself; that site is included in the APE. It was determined that that the visual character and the setting of the surrounding area should be considered, especially the presence of existing industrial towers in the view shed, in order to assess the potential indirect, visual effects of the Federal Undertaking. A computer-generated visual simulation of the view shed of the proposed Wind Turbine as it would be viewed from public spaces was analyzed to determine an appropriate APE.

The southeast intersection of East 222nd Street and St. Clair Avenue is located in an area zoned by the City of Euclid as U6 – Industrial and Manufacturing District. Delineation of this industrial district set a national precedent when a landmark Supreme Court decision (*Village of Euclid v. Amber Realty*, 272 U.S. 365 (1926)) upheld the constitutionality of municipal land use zoning. This decision prevented Amber Realty from developing an industrial use south of Euclid Avenue, which continues to define a southern boundary for Euclid's industrial district. Along the northern boundary of this industrial area (Interstate 90 and CSX freight line railroad tracks) 20-foot high concrete slab noise barrier walls are located on both sides of I-90. The south noise barrier wall is visible from the project area. The N&S Railroad, also a freight line, runs though the district and is north of Euclid Avenue.

South of Euclid Avenue the former shoreline of ancient Lake Whittlesey, dating from the retreat of the glaciers that formed the Great Lakes, is currently characterized by steep slopes that rise

several hundred feet in elevation and are heavily wooded. The Euclid Creek runs southeast to northwest from the steep slopes south of Euclid Avenue to Wildwood State Park, located on the shores of Lake Erie. The ancient lake shores and this tributary form numerous ridges in the area.

As previously discussed in Section 3.2.4.1 (Visual Quality) of this EA, visual simulations were performed in order to assess impacts on the visual character of the community and the region's associated landscape from various public space vantage points.

This visual simulation indicates the distances from which the proposed Wind Turbine could be seen range from 2,545 to 6,967 feet. Simulation sight line distances from which the proposed Wind Turbine is not visible range from 6,526 feet to 9,989. The mean distance of the locations from which the Wind Turbine could be seen is 4,238 feet. The mean distance of the locations from which the Wind Turbine could not be seen is 7,258 feet. The average of the two means is 5,748. The mean distance of the computer generated visual simulation viewing sites is 5,864 feet. A mile above-ground APE would be 5,280 feet from the proposed Wind Turbine.

Beyond one mile, the angles/slopes of any sight lines diminish, decreasing the chances of unobstructed views of the Wind Turbine. For example, the NRHP listed Albert J. Henn Mansion that is 11,243 feet (2.1 miles) away from the Wind Turbine site was calculated to have an angle of sight line above horizontal of approximately 2 degrees, which equates to a slope of 4.3 percent. The effect of this flat slope is that 40-foot tall trees occurring within 800 feet of the mansion would screen the view of the Wind Turbine. Given the frequency of urban and street trees within the City of Euclid, it is highly unlikely that a treeless 800-foot stretch would occur that would visually affect many properties.

In summary, the likelihood of a clear, unobstructed vista of the Wind Turbine beyond one mile is extremely small and diminishes rapidly as one travels further away from the site. The varied topography which includes ridgelines, structures consistent with a dense, urban industrial area including tall towers, and the extensive tree canopy found throughout the city, create frequent visual obstacles that block expansive views in the area. A one-mile APE is justified for determining the effects, including visual effects, of the proposed Wind Turbine as it represents a reasonable effort to assess visual effects of the project based on available technology and the existing physical character of the area.

3.2.11.3 Identification of Historic Above-Ground Properties in APE

In correspondence to OHPO dated May 14, 2010, DOE provided information about previously-identified historic properties within the APE. Those properties included NRHP-listed properties in Euclid (2 properties), properties listed in the Ohio Historic Inventory (10 properties) within the APE, and properties within the APE identified by the current City of Euclid Certified Local Government-funded Historic Property Reconnaissance Survey (CLG Survey; 3 properties).

As part of the Section 106 Consultation with OHPO, historic property research was conducted, and included a site inspection of the OHI properties within the APE and evaluation of their eligibility for the NRHP. This information was also utilized to evaluate those properties for NRHP eligibility evaluation.

Ninety properties have been identified by the CLG Survey that will be recommended for further evaluation to determine whether or not they are historic properties eligible for listing in the NRHP. Thirty of these properties are located within the APE for this project. Of these 30, 10 are the previously identified Ohio Historic Inventory (OHI) properties noted above. The results of this identification and evaluation have determined that a total of 5 properties located within the APE are eligible for listing in the NRHP. The following sections describe the CLG Survey methodology and assess the NRHP eligibility of the OHI and CLG Survey properties within the APE. Details of the CLG Survey methodology and detailed findings are located in Attachment C5h in Appendix C.

3.2.11.4 OHI Properties: NRHP Eligibility Assessment

Resources recorded by the OHI with individual OHI forms included ten properties within the APE (Table 3-5). Field and desktop investigation were undertaken to confirm that all ten properties recorded in the OHI forms remained extant. These tasks were performed using photographs taken during a May 2010 field survey and the specific OHI forms, which include "Site Plan with North Arrow," and a map to identify the location of each property. This further verification of extant properties was based on the most up-to-date information and imagery provide by *Google Earth Professional* computer software, which provides GIS-based aerial and street view imagery updated in May 2007.

Table 3-5. OHI Properties Within APE (See Attachment C-5d-2 in Appendix C)

OHI Number	Resource Name	Address
OHI No. CUY-1645-22	Euclid City Hall	585 East 222nd Street
OHI No. CUY-1658-22	North Street School	21129 North Street
OHI No. CUY-1643-22	North Street Elementary School	21103, 21105 North Street
OHI No. CUY-1654-22	Roosevelt School (Noble School)	1551 East 200th Street
OHI No. CUY-1659-22	Nottingham Purification Plant	1300 Chardon Road
OHI No. CUY-1644-22	Ajax Manufacturing Company	1441 Chardon Road
OHI No. CUY-1650-22	A.A. Aiken; George W. Woodworth; C.S. Tracy, House	Euclid Ave. at TRW Drive
OHI No. CUY-1657-22	F. L. Priday Residence	1530 212th Street
OHI No. CUY-1652-22	L. Priday Residence	678 East 222nd Street
OHI No. CUY-1651-22	N/A (Present Name on OHI: 1731 Beverly Hills Drive)	1731 Beverly Hills Drive

Two of the ten properties were found to be no longer extant -- OHI No. CUY-1657-22 and OHI No. CUY-1650-22. A small 1970s multi-unit residential building now occupies the former location of OHI No. CUY-1657-22. A large multi-unit residential building now occupies the former location of OHI No. CUY-1650-22 (the Aiken, Woodworth, Tracy House). OHI No. CUY-1650-22's status was further confirmed by a June 4, 2010 telephone interview with John Williams, President of the Euclid Historical Museum. Investigation suggests a section of the original premises has been developed as an apartment complex and there are no buildings present in the location of the building recorded on OHI No. CUY-1650-22.

The remaining eight OHI properties were evaluated using the original OHI forms and photographs taken during field survey to determine their eligibility for listing in the NRHP through the application of the NRHP Criteria for Evaluation Attachment C-5i in Appendix C. Both the historic context and the period of significance used to conduct this evaluation were drawn from the CLG Survey Report. While all Criteria of the NRHP were considered, given the limits of the information obtained through the methods described above, evaluation was weighted towards Criterion C as that criterion is primarily based upon physical attributes that may be observed through exterior photographs. The eight OHI properties also underwent NRHP evaluation as contributing properties in a historic district and none of the properties found NRHP eligible in this investigation appear to be in a historic district nor is a potential historic district known to be within the APE.

Following is a summary of the findings of each of the above-referenced properties. Complete details regarding the analysis and eligibility as well as the methodology used in the evaluation of each of the properties are located in Attachment C-5h in Appendix C.

OHI No. CUY-1643-22 is a one-and-a-half-story red brick building located at 21103-05 North Street, which according to the OHI form, was constructed in 1870 as a school and is present on an 1874 atlas. The DOE has determined that OHI No. CUY-1643-22 is not eligible for listing in the NRHP.

OHI No. CUY-1644-22 is two-story red brick industrial building located at 1441 Chardon Road. According to the OHI form, the building was constructed in 1924 for the Ajax Manufacturing Company—a Cleveland-based producer of nuts, bolts, and machinery. The DOE has determined that OHI No. CUY-1644-22 is not eligible for listing in the NRHP.

OHI No. CUY-1651-22 is a substantial three-story detached single-family dwelling located at 1731 Beverly Hills Drive. According to the OHI form the building was constructed in 1925 and is Tudor Eclectic in style. The history of residency is not provided. The DOE has determined that OHI No. CUY-1651-22 is not eligible for listing in the NRHP.

OHI No. CUY-1652-22 is a two-story, wood-frame vernacular late Victorian-era single-family detached residential building located at 768 East 222nd Street. According to the OHI form the building was constructed in 1890 and, as of 1914, the dwelling was situated on 38 acres owned by J. Priday. The Priday family owned other land in Euclid. The DOE has determined that OHI No. CUY-1652-22 is not eligible for listing in the NRHP.

OHI No. CUY-1654-22 is a substantial one-story brick school building located at 1551 East 200th Street. According to the OHI form, the building was completed in 1919 with eight classrooms as the Roosevelt School. It has since been enlarged and is now twice its original size and 27 classrooms. Because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1654-22 is eligible for listing in the NRHP.

OHI No. CUY-1658-22 is a one-and-a-half-story red brick building located at 21129 North Street. According to the OHI form, the building was constructed as a public school in 1894 and is purported to be one of the oldest public buildings in Euclid. Because the building maintains

physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1658-22 is eligible for listing in the NRHP.

OHI No. CUY-1659-22 is a large-scale yellow brick industrial building located at 1300 Chardon Road. According to the OHI form, the WPA initiated plans for construction of the plant in the 1930s, but it was not completed until 1951. The building was designed by Havens & Emerson—an Ohio-based architectural-engineering firm. Because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1659-22 is eligible for listing in the NRHP.

3.2.11.5 CLG Survey Properties: NRHP Eligibility Assessment Methodology

The CLG Survey identified 90 properties in the City of Euclid that will be recommended for further evaluation to determine whether or not they are historic properties eligible for listing in the NRHP. Thirty of these properties are located within the APE for this project. URS evaluated these thirty properties to determine whether or not they are historic properties eligible for listing in the NRHP through the use of images of the buildings found on *Google Earth Professional*, supported by analysis by team members with knowledge of the history and architectural history of northeast Ohio. On-site survey of these properties has not been completed.

Table 3-6 identifies the properties in the APE recommended for additional survey by the CLG draft survey report. The last column of this table is DOE's assessment of the property's NRHP eligibility.

Table 3-6. CLG Survey
Proposed List of Properties to Survey in APE

Building Type	Resource Name	Address	NRHP Eligible
Public Building	Fire Station #9	Euclid at E. 221st Street	No
Church	St. Christine Church/School	East 222nd Street	No
Church	St. Paul Church/School	1231 Chardon Road & E. 200th	No
Church	Our Lady of Lourdes Shrine	across from 21351 Euclid	No
Commercial Building	Guy's Pizza	861 East 222nd Street	No
Commercial Building	Paddy's	920-928 East 222nd Street	Yes
Commercial Building	Corner Beverage	923 East 222nd Street	Yes
Commercial Building	DiDonato Funeral Home (formerly Brickman Funeral Home)	21900 Euclid Avenue	No
Industrial Building	Chandler Products	1491 Chardon Road	No
Industrial Building	Sunshine Products	1111 East 200th Street	No
Industrial Building	Glasscote Products	20900 St. Clair	No

Table 3-6. CLG Survey
Proposed List of Properties to Survey in APE

Building Type	Resource Name	Address	NRHP Eligible
Industrial Building	TAPCO	23000 Euclid (23555 Euclid Ave.)	No
Industrial Building	Powdermet, Inc. formerly Textron Airfoil Forgings	24112 Rockwell Drive	No
Residential Building	20th c. residential	23970 Effingham	No
Residential Building	20th c. residential	800 block E. 212th	No
Residential Building	A Sear's House	20701 Naumann	No
Other	Paul Serra Stadium Concession	585 E. 222 St	No
Other	Slovenian Society Home	20713 Recher	No

3.2.11.6 CLG Survey Properties: NRHP Eligibility Assessment

Of the 30 CLG properties located within the APE, 18 were recommended for further analysis and of the 18, only two were determined to be NRHP eligible and are discussed below. Details related to the analysis and evaluation of the other buildings listed in Table 3-6 are located in Attachment C-5h in Appendix C.

The commercial buildings identified as **Paddy's** and **Corner Beverage** (920-928 and 923 East 222nd Street) appear to have high integrity (Attachment C-5j in Appendix C). Common architectural elements include yellow tapestry brick facades, stone lintels and sills, and stone-capped parapets with raised central bay and corner piers. **Paddy's** is actually two connected buildings. The corner building is two stories in height and features a cut-away corner entrance, transom windows, a box oriel side bay, central bay second floor entry capped by a small segmental arch canopy, brick frieze paneling, and recessed second floor window spandrels articulated by corbelling. The smaller attached building has a recessed entry flanked by display windows with transoms. One of the display windows appears to be filled-in and the building's lack of detail suggests a possible 1940s or 1950s construction date.

Corner Beverage, which is located across the street from Paddy's, features a hip roof facade-length canopy covered with curved ceramic roofing tiles. Below this roof/ canopy feature the facade is separated by a pier into two storefronts. One storefront consists of a recessed entry flanked by display windows and the other smaller storefront is an end recessed entry and one adjacent display window. The original display and transom window fenestration pattern appears intact. Piers of the facade have vertical panel outlines appearing to consist of darker header bricks.

NRHP Evaluation
These buildings are considered eligible for NRHP listing as strong representatives of a commercial architecture associated with the streetcar suburban expansion and Euclid's early 20th century development. The CLG Survey Report does not identify them as a historic district.

3.2.11.7 Summary of NRHP Eligibility Findings

Six properties in the Undertaking's APE have been identified as being eligible for listing in the NRHP. Those properties are:

1. Nottingham Purification Plant
2. Euclid City Hall
3. North Street School
4. Roosevelt School
5. Paddy's
6. Corner Beverage

Four of these properties (Nottingham Purification Plant; Euclid City Hall; North Street School, Roosevelt School) were among the previously identified as OHI properties. Two of these properties (Paddy's; Corner Beverage) were identified by the CLG Survey.

3.2.11.8 Direct and Indirect Impacts

Assessing the potential effects of the proposed project on historic properties in the APE included consideration of whether or not historic properties may be directly or indirectly affected by visual, audible, or atmospheric intrusions, shadow effects, vibrations from construction activities, or a change in access or use as a result of changes to the property. The project is located in a dense urban environment whose character will not likely be changed by the project, and there will be no demolition or physical changes to any historic property's appearance or form. Therefore, using criteria consistent with other wind turbine analyses for determining effects, the analysis of impacts to historic resources primarily focused on visual and sound effects.

To be considered adverse, an undertaking's effects must change the character-defining features or elements of a historic property needed to convey its historic association. Of primary concern for this project are NRHP-eligible properties defined in part by features that emphasize each property's historic setting as a way of conveying its historic significance. Because integrity of feeling and association often round out the character of a property's historic setting, a historic property that conveys a sense of time and place is often regarded as possessing significant physical as well as intangible qualities. In order to better understand if the setting of historic properties in the APE might be adversely affected by the project, the results of a noise impact analysis and various visual effect studies were analyzed.

Potential indirect, visual effects of the wind turbine on NRHP-eligible properties have been determined, in part, by the ability of a person to see the proposed tower from the historic property. To aid in this analysis, photographs were taken from the sites toward the proposed tower location. Additional evaluation materials were prepared with which to better understand the potential visual effects of the project by the use of digital mapping and embedded aerial photographs. Lastly, a flicker effect study was carried out for the proposed project.

Noise Impacts Analysis
Potential adverse impacts resulting from noise were analyzed and discounted in Section 3.2.3.1, above. This analysis found that as close as 330 feet from the wind turbine (the nearest residential

location), the resulting noise level would be approximately 55 dB(A). However, the background noise level along East 222nd Street ranges from 55 dB to 78 dB when traffic passes along East 222nd. Therefore, since existing background sound levels exceed sounds that would be created by the proposed wind project, noise intrusion from the wind turbine should be inconsequential in total noise emissions at this residential location. All of the historic properties discussed above are well beyond 330 feet from the wind turbine, thus noise intrusion from the wind turbine should be inconsequential in total noise emissions at any of the historic properties.

Photographic Views from NRHP-eligible Properties to Project Site

The ability of a person to see the wind turbine from NRHP-eligible properties is directly relevant to whether or not there may be the potential for an adverse effect from the proposed Wind Turbine. Photographs taken from the physical location of NRHP-eligible OHI sites towards the location of the proposed wind turbine tower show that a view of the wind turbine tower from these historic sites would likely be blocked (Attachment C-5k in Appendix C).

Theoretically, a person standing on a sidewalk in front of the **North Street School** (OHI No. CUY-1658-22) and facing northeast will have a view that contains numerous telephone poles and utility wires, 2-story residential structures, and a mature tree canopy between the residential structures. From the rear parking lot of the **Roosevelt School** (OHI No. CUY-1654-22) facing southeast, the viewshed is dominated by a grouping of trees. Facing south, from a vantage point next to the south elevation of the **Euclid City Hall** (OHI No. CUY-1645-22) the viewshed contains the new Euclid Library and the 2-story clock tower. Mature trees also occur between Euclid City Hall and the Euclid Library. A photograph depicting the view from the **Nottingham Purification Plant** (OHI No. CUY-1659-22) illustrates the viewshed of 1-2 story industrial buildings, utility poles and a high chain link and barbed wire fence. Some mature tree canopy is evident in the distance.

The remaining NRHP-eligible properties, **Paddy's**, located at 920-928 East 222nd Street and **Corner Beverage** located at 923 East 222nd Street, are in a residential area north of the I-90 and CSX rail corridor. As previously mentioned, 20-foot concrete panel noise barriers are located on both sides of the East 222nd Street stretch of I-90. Attachment C-5g of Appendix C (Visual Simulations of Public Space Views Wind Turbine) contains an illustration of the potential view of the wind turbine from a nearby location (Photo 3 of Attachment B-2_in Appendix B: View Shed of St. Christine's School Parking Lot, Euclid, Ohio. Distance is 2,545 Feet from Proposed Turbine). This photograph shows the wind turbine as visible but at the same height as the adjacent tree canopy. This photograph suggests a viewshed from these NRHP-eligible commercial buildings toward the proposed wind turbine site may include the proposed wind turbine, or the wind turbine tower may be fully or partially masked by mature tree canopy.

Digital Mapping and Embedded Aerial Photograph Visual Analysis

This analysis assessed the view of the proposed wind turbine from the six NRHP-eligible sites in the APE. A theoretical line of site was determined for a six-foot tall viewer standing at each of the sites within the APE. This analysis used electronic USGS mapping and AutoCAD mapping with embedded aerial photographs. The line of site from each location to the wind tower was calculated using the relative elevation difference between each individual site and the proposed wind tower. The resulting calculation found the typical angle of sight, above horizontal, at 3-4 degrees or approximately 8-11 percent slope. For every 100 feet of horizontal distance between

a historic property location and the proposed wind tower, the sight line rises approximately 8-11 feet.

With these relatively flat angles/slopes, it seemed apparent that nearby objects (trees, houses, and other buildings) would provide effective screening of one's view of the proposed wind tower in many cases, as demonstrated in Attachment C-5g in Appendix C. Table 3-7 identifies the height of objects that would screen a person's view of the tower from 4 of the 5 NRHP eligible properties *and* how far away (in feet) the object would be from the viewer to screen the object. Distances used are listed in 50-foot increments from 50 to 500.

Table 3-7. Height[1] and Distance[2] of Objects that Would Screen One's View of the Wind Tower from Potential NRHP-Eligible Sites

	North Street School	**Euclid City Hall**	**Nottingham Purification Plant**	**Roosevelt School**	**Paddy's and Corner Beverage**
	5,193 feet away	**5,144 feet away**	**5,070 feet away**	**4,194 feet away**	**1,664 feet away**
Distance[2] from the viewer (feet):	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**
50	10.1	10.5	10.4	11.5	19.6
100	14.2	14.9	14.7	17.1	33.1
150	18.2	19.4	19.1	22.6	46.7
200	22.3	23.9	23.5	28.1	60.2
250	26.4	28.4	27.9	33.7	73.2
300	30.5	32.8	32.2	39.2	87.3
350	34.6	37.3	36.6	44.7	100.9
400	38.6	41.8	41	50.2	114.4
450	42.7	46.2	45.3	55.8	128
500	46.8	50.7	49.7	61.3	141.5

From the perspective of a 6' tall person looking from just outside the building, view of top of tower is blocked by an object of this height[1] at this distance[2] from the viewer.

As Table 3-7 indicates, a line of 40 foot tall trees that is located 150 feet away from the viewer would screen the wind tower for a 6 foot tall person standing at each historic property location. Those same trees at a distance of 300 feet from the viewer standing at any of the locations would also completely screen the view of the wind tower.

Houses that are 25 feet in height, such as the Cape Code or Minimal Traditional style residences that characterizes much of Euclid, and that are located 200 feet from a historic property, would block the view of the tower from the historic property. Even if the view from an OHI site to the proposed tower did not include total blockage of the wind tower, the partial screening of view would prevent the tower from "dominating" the viewshed.

The theoretical calculations from Table 3-7 were then put to the test using standard aerial photographs and oblique aerial photographs of the project area. Graphics were constructed to

show the results (Attachment C-5l in Appendix C). Mature trees were conservatively estimated to be 40 feet tall. The heights of individual buildings were estimated using oblique aerial photographs. The two-dimensional graphics demonstrate both the direction of view towards the tower, as well as the vertical angle of view to the top of the tower. Trees and buildings were placed in the proper position in the vertical angle of view based on their relative locations with respect to the viewpoint.

A viewer standing just outside the south entrance of Euclid City Hall would find that the view of the tower would be totally blocked by the Euclid Library, 300 feet away. A viewer standing on the north side of North Street School would find their view of the tower screened by the trees of a woodlot beginning about 75 feet northeast of the school. Due to the length of the sightline through this woodlot, it is likely that total screening would occur even in winter conditions. The graphics demonstrate that in the majority of cases, nearby trees, houses, and/or other buildings or structures screen or block the view of the tower from the historic properties in the APE.

Shadow Flicker Effect Analysis

A shadow flicker effect analysis (Flicker Report) was conducted for the proposed wind turbine by the Cleveland-based firm JW Great Lakes Wind, LLC. This analysis is discussed above in Section 3.2.4.1. When the Flicker Report is examined from a cultural resources perspective, the wind turbine is not expected to have a shadow flicker effect on historic properties.

Determination of Effects: Below-Ground Archaeological Resources

A desktop review of available resources was conducted to evaluate the potential for recovering archaeological resources within the APE. This desktop review included utilization of the OHPO on-line mapping system, examination of historic mapping and aerial photography, review of the soil survey data for the area, and a review of the physiographic data for the area.

For previously-recorded archaeological sites on the Ohio Archaeological Inventory (OAI), none were documented within the archaeological below-ground APE. The closest recorded archaeological sites were three historic sites approximately 2.5 miles to the northeast of the APE.

Although no archaeological sites were documented within the below-ground archaeological APE or within the one-mile study buffer, Sanborn mapping, which was suggested by the OHPO, was obtained and examined for the project area. The Sanborn mapping did not have documentation of the area before 1950, but URS did examine the 1950, 1952, 1963, and 1966 maps (Attachment C-5m in Appendix C). On all of these maps there were no structures illustrated in the APE.

A review of the land use for this area, which included examination of aerial photographs, and archival data associated with the history of the area, indicates that the APE has been disturbed by industry development, despite historic maps not indicating the previous presence of a structure. Most recently, the area has been used as a private park for Lincoln Electric employees. This park is most likely the same park listed on the 1952, 1963, and 1966 Sanborn maps. Contractor notes associated with the construction of the park indicate that the first four inches of soil were stripped off to remove vegetation, rocks, and debris. Subsequently, topsoil was imported to fill in the stripped area.

Additional information for the area states that this parcel was owned by Euclid Incorporated from roughly 1946 to the late 1970s (Encyclopedia of Cleveland History 2004). Euclid Incorporated corresponds with the buildings labeled "Euclid Road Machinery Company" on the 1952, 1963, and 1966 Sanborn maps. This company manufactured off-highway, earth-moving, and hauling equipment, and the parcel that the APE is situated on, was used as a proving ground for this equipment. Aerial photography from 1952 and 1961 illustrates this disturbance and it is also visible on the aerial mapping within the *Cuyahoga County Soil Survey* (Soil Conservation Service, 1980) (Attachment C-5n in Appendix C).

The archaeological APE is within the Erie Lake Plain, which is a very low relief ice-age lake basin separated from modern Lake Erie by shoreline cliffs (Brockman 1998). This region marks the former extent of Lake Erie (Lake Whittelsey) as the last Wisconsin-age glacier retreated from Ohio (Ohio History Central 2010). The soil survey for Cuyahoga County indicates that the APE is within Urban land (Ub), which is where 80 percent of the surface is covered by asphalt, concrete, buildings, or manmade surfaces (Soil Conservation Service, 1980:47). Areas contained within this mapping unit include large areas with miscellaneous materials placed in fills (Soil Conservation Service, 1980:47).

The physiographic data of the region, topographic mapping, historic aerial photography, and soil survey data for the area was reviewed by a geomorphologist. That review identifies the APE as being in an area of recessional beach ridges formed when lake levels were receding (approximately 10,000 years ago). Given the setting, it is unlikely that buried cultural deposits (similar to those in a floodplain setting) would be present. In addition, the area appears well-developed which further decreases the chances of deeply buried cultural deposits. It is the opinion of the geomorphologist that the greatest potential for archaeological material would be within the first 12 inches of soil.

In summary, as result of the desktop evidence presented above, the APE has low potential for recovery of archaeological resources. If archaeological resources are identified they most likely would be historic and related to the industrial activity associated with the area. In the event archaeological resources were encountered during excavation, activities would be halted and OHPO would be contacted immediately for consultation and coordination for minimization of potential impacts.

NRHP Effects Determination and OHPO Concurrence
The DOE found that the construction and presence of the proposed Lincoln Electric Wind Turbine at the southeast corner of E. 222nd Street and St Clair Avenue in Euclid, Ohio will have no adverse effect on the character-defining features of above discussed properties listed in or eligible for listing in the NRHP. OHPO concurred with this determination in a letter dated July 8, 2010 (See Attachment C-6 in Appendix C).

3.2.12 Human Health and Safety

Workers can be injured or killed during construction, 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 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 defined to approximate the area around the base of the turbine that would likely receive the tower and turbine if it were to fall. Estimates of blade throw vary, but MacQueen, et al., (1983) estimate the probability of being struck outside this area (i.e., within one blade diameter of the tower base) is about 10 to the -7th/year for a fixed building, and substantially less for people who are mobile.

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. Although a potential safety concern, it is important to note that 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 turbine is to be supplied with ice sensors on the turbine blades. When ice forms the sensors will engage and the turbine will not be permitted to rotate until the ice has melted. This technology is intended to prevent ice throws. Ice that has accumulated on the blades will fall to the foot of the turbine as it melts. To prevent accident or injury from ice that falls as it melts, the turbine requires the area directly underneath to be a clear zone. This was a factor when choosing a site for the turbine. The proposed location provides an adequate clear zone underneath the turbine. However, ice shedding does occur, and remains a potential safety concern. GE has established recommendations to mitigate this risk (GE Energy, 2006). These recommendations include physical and visual warnings such as placing fences and warning signs as appropriate for the protection of site personnel and the public and turbine deactivation, i.e., remotely switching off the turbine when site personnel detect ice accumulation. Another risk mitigation strategy is for site personnel to stay slightly upwind of the turbine during potential ice accumulation conditions (Morgan, et al., 1998).

As part of the EA analysis, potential for blade throw, tower collapse and ice throw was examined. The risk assessment for the Lincoln Electric wind turbine has raised several key design issues which could potentially impact the safety of surrounding environment.

The tower blade throw analysis assesses the impact zone around the tower location in the event of a blade failure. Although they are rare, the impact on the surrounding environment due to blade failure must be assessed. The impact zone for blade throw extends in a 150-foot radius around the wind tower with a maximum impact force of 944kN (approximately 225 kips) (See Figure 12 in Appendix A). Similarly, a tower collapse analysis was conducted to assess the risk to the surrounding area in case the tower becomes compromised and gives way. In the event of wind turbine collapse, the towers tend to buckle or bend prior to collapse, therefore the fall zone does not necessarily include the full height of the structure. The tower impact zone was calculated to extend in a 278-foot radius away from the base of the wind tower (See Figure 12 in Appendix A).

There are two residences located at 1062 and 1054 East 222nd Street that are just outside of the tower collapse radius which could be affected if the tower were to fail. Also, the extension on the east west end of the LEC building complex falls within the potential tower collapse radius.

The proposed tower foundation design as specified by the manufacturer requires modifications to ensure structural safety under site specific conditions at the proposed turbine site. LEC has enlisted the support of structural engineers who work exclusively with wind turbines who proposed recommended modifications to the manufacturer specifications for the foundation design which LEC is in process of implementing. Also, although blade throw and tower collapse are very rare (Klepinger, 2007), the blade and tower impact area should have restricted access with very limited public use. Much of the blade and tower impact area is occupied by a private recreation area for Lincoln employees and their families only. The recreation area is open from dawn until dusk from April 15 until October 15 and the area is monitored 24/7 via closed circuit video cameras by a security guard in the main LEC plant. In addition, the wind turbine will have ice sensors. In the unlikely scenario that ice forms on the blade or turbine between April 15 and October 15, LEC security will close the recreation area.

No residential zoning occurs in the tower impact zone. However, two rental apartment buildings are located across East 222nd Street to the west of the proposed turbine location. These rental apartments are approximately 330 feet from the proposed turbine location, or 52 feet outside of the tower impact zone. Figure 13 in Appendix A shows the wind turbine to be approximately 1,200 feet from the nearest residential zoning to the northwest.

A total of six soil samples were collected on the LEC property at the proposed wind turbine location. The samples were submitted to a laboratory for analysis of the following parameters: Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), and metals. The results revealed that for all locations sampled, concentrations of the analytes were well below the Ohio Voluntary Action Program (VAP) Generic Direct-Contact Soil Standards for Commercial and Industrial Land Use Categories as well as the Ohio VAP Generic Direct-Contact Soil Standards for Construction and Excavation Activities.

Project facilities have the potential for members of the public to attempt to climb towers, open electrical panels or encounter other hazards. Public access to the private recreation area is already restricted by LEC and would continue to be restricted. Moreover, the tower base will be fenced to control access and LEC employs 24-hour security for their entire Euclid facility. In addition, the K100 allows no opportunities for outside climbing of the tower.

The Project would be located approximately 2.13 nautical miles (NM) northwest of the Cuyahoga County Airport (CGF). All structures more than 61 meters (200 feet) tall must have aircraft warning lights in accordance with requirements specified by the FAA (See Attachment C-2 in Appendix C).

The term electromagnetic fields (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 arise from the flow of electricity or current that travels 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). EMF 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 potentially can cause biological responses or even health effects continues to be the subject of research and debate. However, wind turbines are not considered a significant source of EMF exposure since emissions levels around wind farms are low [Ontario Chief Medical Officer of Health (CMOH), 2010].

To determine if a proposed wind turbine installation would cause an obstruction to existing microwave communication links in the vicinity of the wind turbine, LEC commissioned an Electromagnetic Interference Report for the project (See Attachment D-6 in Appendix D).

Because no fuel is used in wind energy projects, there would be no process waste streams generated during operation of the wind turbine that could cause health and safety concerns. Some lubricants are used in wind turbines, including gearbox oil, hydraulic fluid, and gear grease that require periodic replacement. These lubricants would be managed in accordance with Federal and state regulations.

3.2.12.1 Direct and Indirect Impacts

All contractors, subcontractors and their personnel are required to comply with all Federal and state worker safety requirements, specifically all of the applicable requirements of the Occupational Safety Health Administration. Safety procedures specific to the Kenersys turbine will be observed whenever work is being done on the turbine (Kenersys, 2009c).

Since the soil sample collected exhibited concentrations of VOCs, SVOCs, and metals well below Ohio VAP standards, excavation of the soils will pose no risks to contractor health or to the environment in general.

No adverse public security impacts are anticipated due to the project. Members of the general public would be prevented from accessing the wind project area by fencing and LEC plant security. Safety signage would be posted around the tower (where necessary), transformers and other high-voltage facilities would be in conformance with applicable Federal and state regulations. LEC employees would be educated as to security procedures to be observed when they are in the vicinity of the turbine.

Due to the extreme rarity of tower collapse or blade throw and the fact that LEC controls all of the blade impact zone and the vast majority of the tower collapse zone, the risks to public safety due to such occurrences can be mitigated by management of access within these zones. The same access management strategies can mitigate the risks to public safety due to ice throw or shedding conditions, which are in effect only on a very limited temporal basis. Additionally, although the residences along East 222nd Street are approximately 330 feet away from the wind turbine site, they are located outside the ice throw or fall zone areas depicted in Figure 12 of Appendix A.

The turbine will be no closer than 1,200 feet to residentially-zoned areas where EMF will be at background levels. Based on the most current research on EMF, and the distance between any turbine and occupied residences, the turbine will have no impact to public health and safety due to EMF.

The Electromagnetic Interference Report for the project concluded that installation of the turbine would pose no potential conflict with the incumbent microwave paths.

Production of hazardous wastes as a result of operation or maintenance of the wind turbine is not expected.

4.0 CUMULATIVE IMPACTS

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).

4.1 Reasonably Foreseeable Projects

Other proposed wind turbine projects for which ARRA grants have been sought in Ohio, other publicly announced on shore wind turbine projects in the Cleveland area, plus the proposed offshore wind turbine project in Lake Erie were examined in connection with this project with respect to potential cumulative impacts. The following is a list of ARRA SEP-awarded projects:

Kilowatts for Kenston - EA
600KW turbine
17419 Snyder Road, Chagrin Falls, Ohio 44023

Archbold Area Local School Project - EA
500KW turbine
600 Lafayette Street, Archbold, Ohio 43502

Pettisville Local Schools - EA
500KW turbine
232 Summit Street, Pettisville, Ohio 43553

Toledo Joint Apprenticeship and Training Committee - CX 100 KW turbine
803 Lime City Road, Rossford, Ohio, 43460

Green City Growers Wind Development - EA
1.5 MW turbine
Inner City of Cleveland Greenhouse 55th St. and Woodland Ave, Cleveland, Ohio 44104.

Cuyahoga County Agriculture Society – EA
600 KW turbine
Cuyahoga County Fairgrounds, 164 Eastland Road, Middleburg Heights, Ohio 44017

Toledo Wind Electric Generation System at the Collins Park Water Treatment Plant
1.0 MW turbine
600 Collins Park Drive

See Figure 14 in Appendix A for a map showing the locations of these projects. They are all single turbine projects. Of these projects, only the Green City Growers' and Cuyahoga County Agricultural Society projects are in the same county as the LEC project. These other Cuyahoga

County projects are 10 and 23 miles distant from LEC, respectively. The Kenston project is over 17 miles distant, while the closest western Ohio project is over 100 miles distant from LEC.

The only currently operating wind turbines over 100 KW in capacity located in Cuyahoga County are the Great Lakes Science Center Turbine in downtown Cleveland and the Pearl Wind turbine off I-480 in Parma, Ohio.

Cuyahoga County and other lake shore communities, through a non-profit development corporation, are proposing to develop wind turbine projects in Lake Erie. The initial proposed project would be between three to eight turbines of a total capacity of up to 20 MW.

The initial project will be sited near the City of Cleveland Water intake crib off Cleveland Harbor. Future commercial scale projects are anticipated, but sites have not been chosen. One avian risk assessment for the Lake Erie project issued on May 1, 2009, concluded that significant avian impacts were unlikely and a further radar and acoustic study of the Lake Erie project location is now underway. The site of the initial project is about 10 miles from this project site.

None of these projects, when looked at singly, in groups, or altogether, will present significant cumulative impacts to visual or biological resources. Because of the small scale of each individual project and the sufficient distance between projects, therefore cumulative impacts are not anticipated.

4.2 Summary of Cumulative Impacts

Cumulative Greenhouse Gas Impacts
While the scientific understanding of climate change continues to evolve, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report has stated that warming of the Earth's climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases caused by human activities (anthropogenic) (IPCC, 2007). The IPCC'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 may be irreversible (IPCC, 2007).

The release of anthropogenic greenhouse gases and their potential contribution to global warming are inherently cumulative phenomena. It is assumed that this wind energy project would displace fossil fuel electricity currently used by LEC, resulting in a net decrease in emissions of approximately 3,972 short tons (3,547 long tons or 3,604 metric tons) of CO_2 equivalents for each year of operation. The proposed project would neither reduce the concentration of GHGs in the atmosphere nor reduce the annual rate of GHG emissions. Rather, it would marginally decrease the rate at which GHG emissions are increasing every year and contribute to efforts ongoing globally to reduce greenhouse gases and slow climate change.

Visual Resources
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. Because the proposed site is within an already developed area and other vertical, industrial features exist, the visual impact is anticipated to be less than if the turbine were located on a flat, rural landscape. Although there are several wind projects projected to be constructed in the region surrounding the proposed LEC turbine, none of them are located within the likely view shed of one another. The closest proposed turbine, Green City Growers' in downtown Cleveland would be approximately 10 miles away. Therefore, there would not a be a cumulatively significant visual impact from proposed LEC wind turbine

Biological Resources

Most of the reasonably foreseeable single wind turbine projects in the vicinity discussed above have received a letter from ODOW indicating that avian and bat species were not at risk as a result of the turbines individually and 4 of these projects have letters from the USFWS indicating that there are no threatened or endangered species, or bald eagle concerns, but requesting implementation of avoidance measures in the Interim Guidelines to Avoid and Minimize of Impacts Wind Projects (USFWS 2003). All of these letters were issued by the same office and same individuals at these offices over the same time period. Additionally, these are single turbines spread out over more than 100 miles, and the anticipated potential to result in a cumulative impact to avian or bat species is low.

Given the LEC project's urban, industrial setting, there are no other potential cumulative impacts on the environment that are reasonably foreseeable.

5.0 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible and irretrievable commitment of resources is defined as 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 Action would be the labor, materials, and energy expended in clearing the site and constructing the wind turbine. Approximately 0.37 acre of land would be irreversibly committed during the functional life of the project.

6.0 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 of time after the project has been decommissioned, the equipment removed, and the land reclaimed and stabilized. The short-term use of the project area for the Proposed Action would not affect the long-term productivity of the area. If it is decided at some time in the future that the project has reached its useful life, the turbine, tower, and foundation could be decommissioned and removed, and the site reclaimed and revegetated to resemble a similar habitat to the pre-disturbance conditions. The installation of a wind turbine at this site would not preclude using the land for purposes that were suitable prior to this project.

7.0 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts associated with the Proposed Action include:

- long-term loss of approximately 0.37 acre of vegetation resulting from the construction of the tower foundation
- an increase in noise levels during construction and operation
- introduction of another dominant vertical element into the existing viewshed
- shadow flicker impacts for a limited number of residences
- a risk of tower collapse within 278 feet of the tower

These impacts are both temporary, in the case of the construction noise, and long-term in regards to the loss of vegetation, visual and shadow flicker impacts and the risk of tower collapse. Overall, impacts of the Proposed Action on the environment and human health are not considered significant as described in the relevant sections in Chapter 3.

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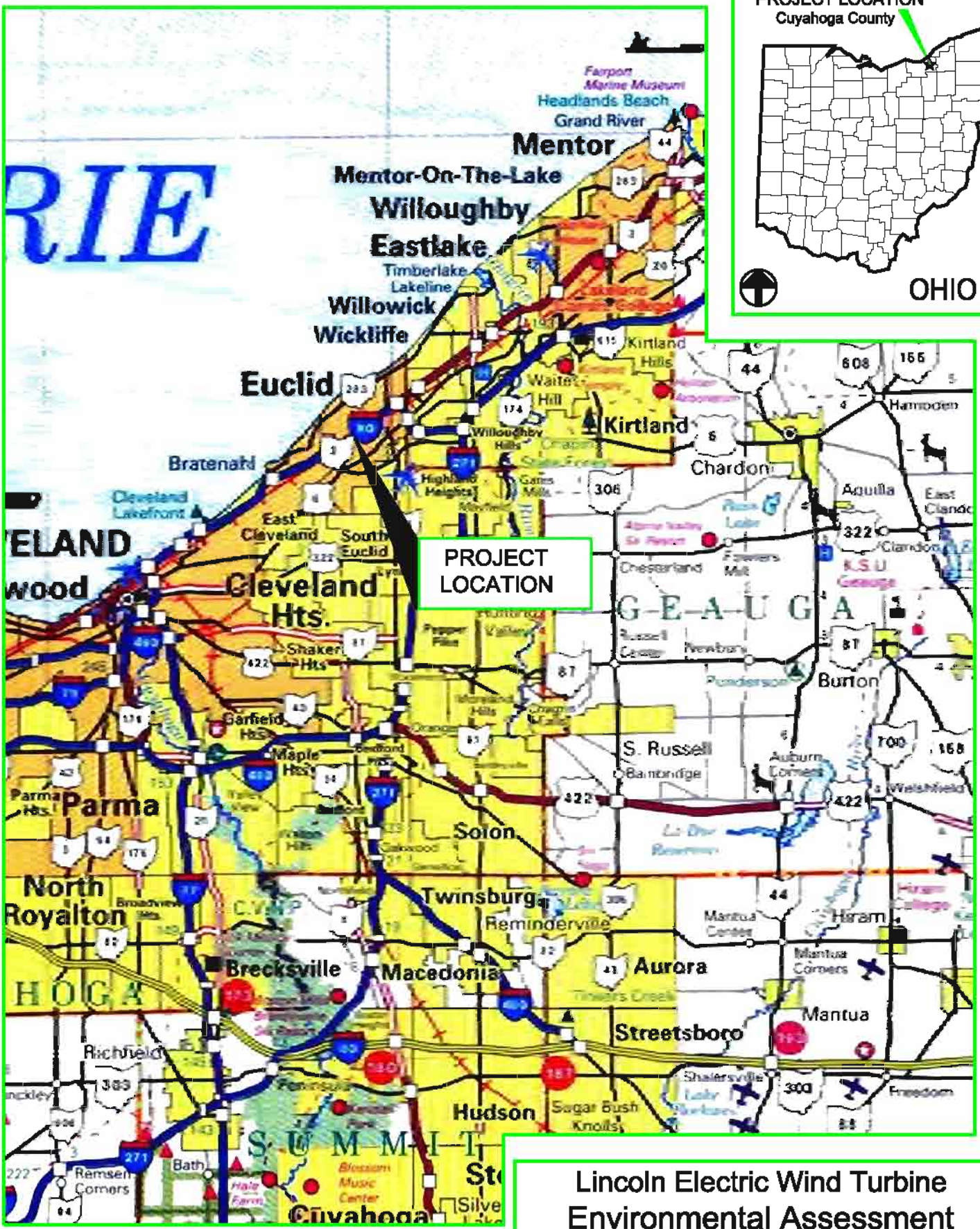
APPENDIX A. FIGURES

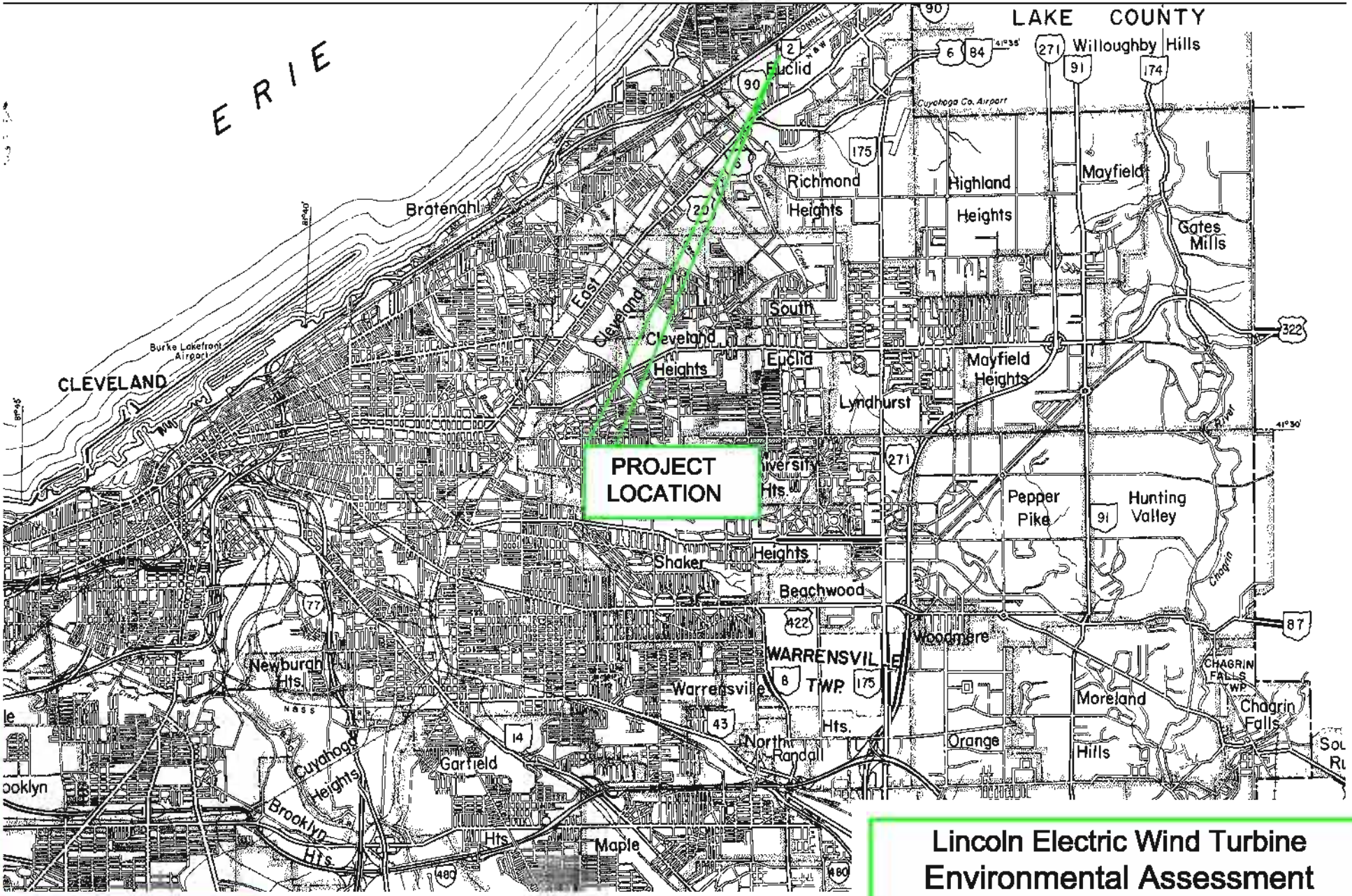


State of Ohio
Transportation Map
2003–04

Lincoln Electric Wind Turbine Environmental Assessment

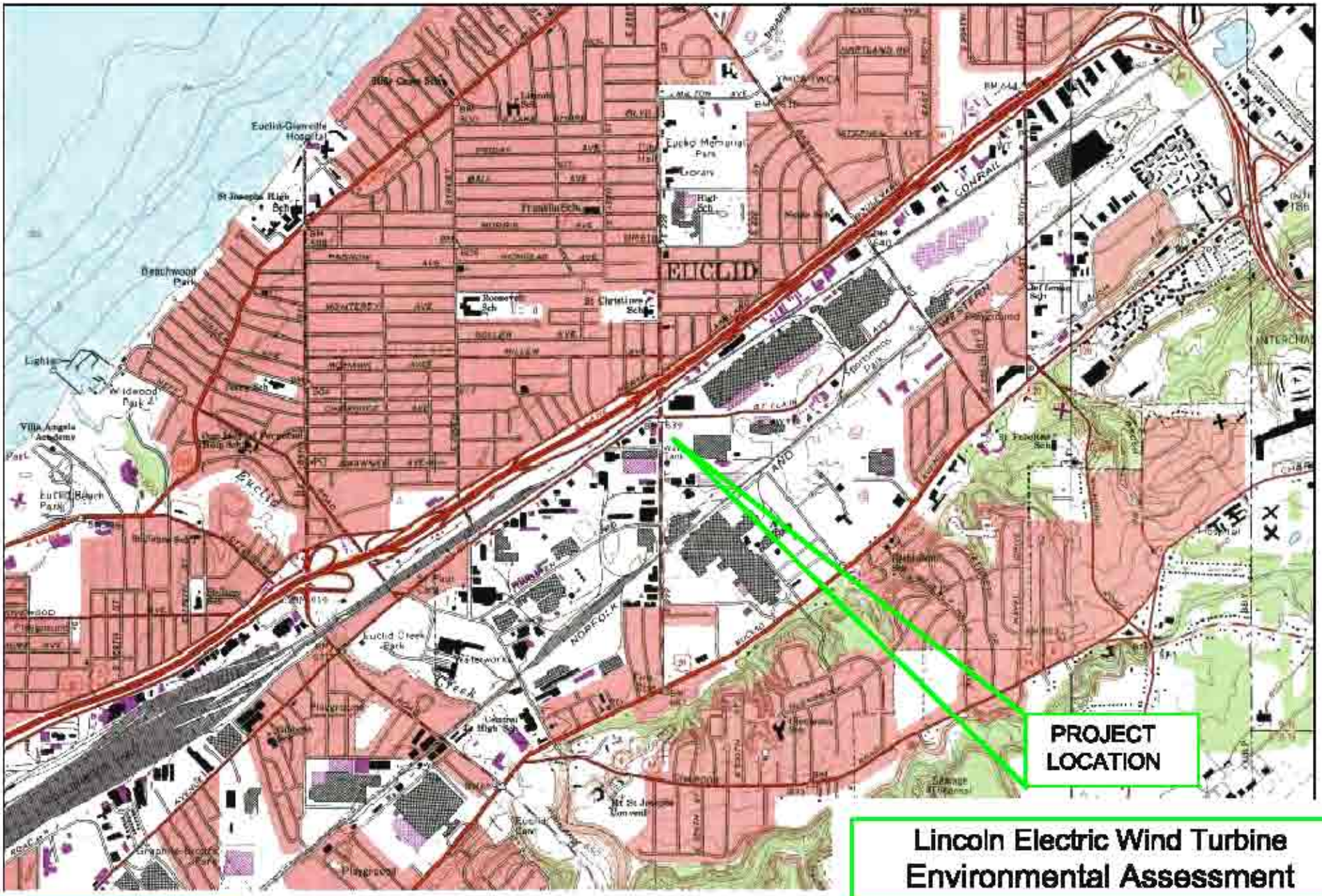
Figure 1. Project Location Map

URS



Lincoln Electric Wind Turbine Environmental Assessment

Figure 2. Project Location on Cuyahoga County Map



East Cleveland, Ohio
USGS Quadrangle

Lincoln Electric Wind Turbine
Environmental Assessment

Figure 3. Project Location on USGS Map

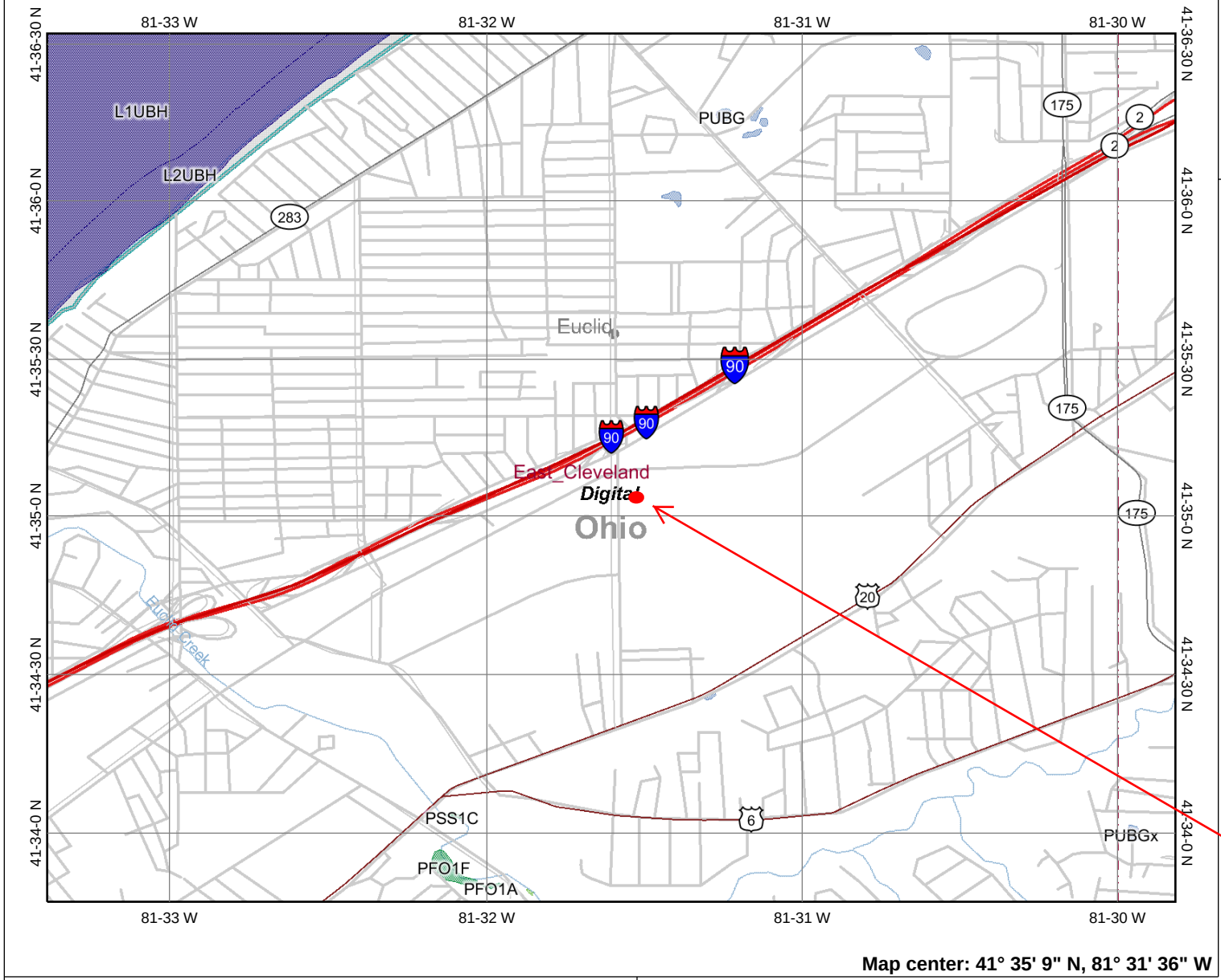
URS

1" = 1000'

Lincoln Electric Wind Turbine Environmental Assessment

Figure 4. Project Location on Aerial Photo

Lincoln Electric NWI Map



Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Project Location

Scale: 1:35,688

Map center: 41° 35' 9" N, 81° 31' 36" W

Figure 5
Project Location on NWI Map

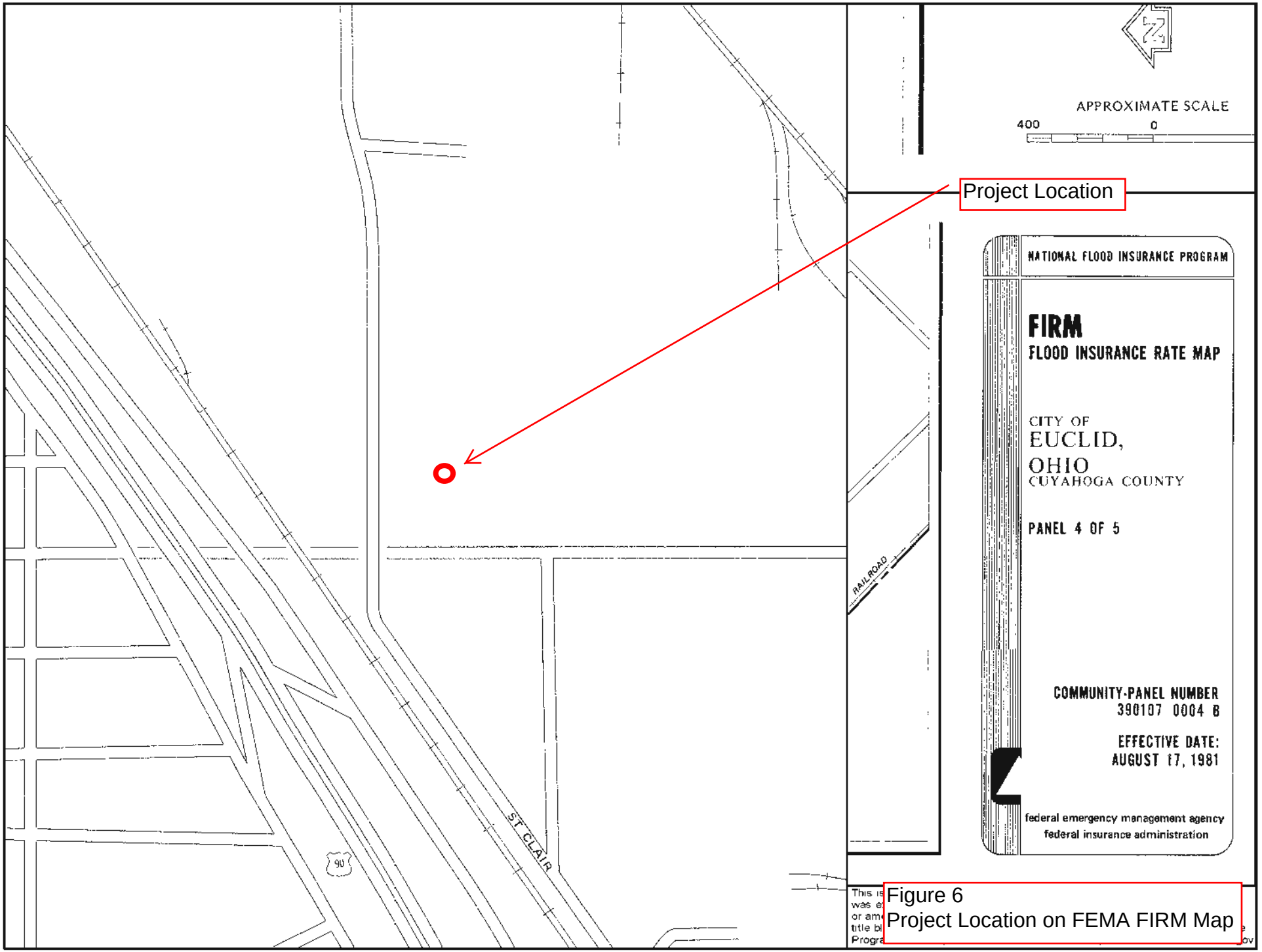


Figure 6
Project Location on FEMA FIRM Map

0 500'
1" = 500'

Legend:

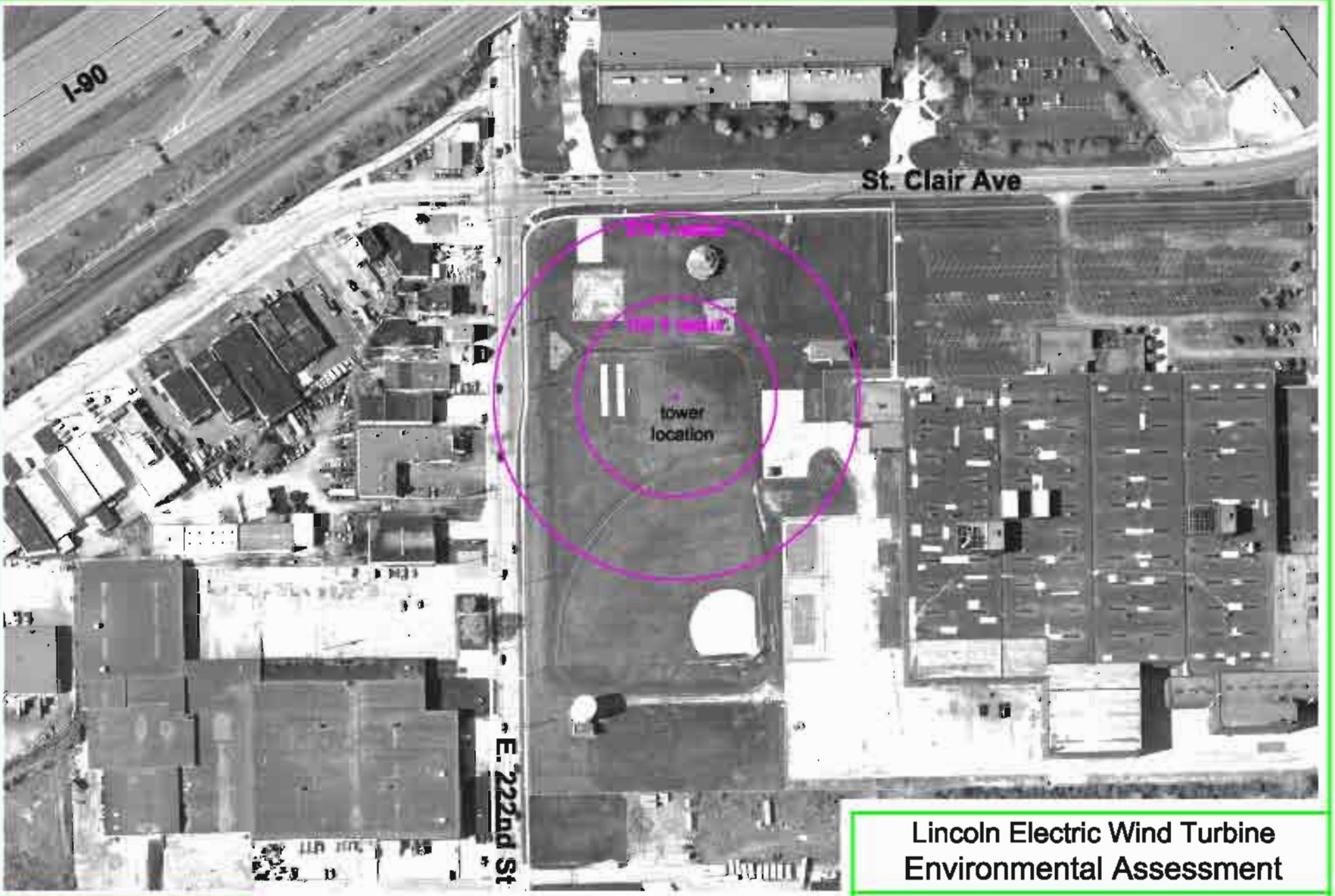
O,P Original, Preferred Turbine Location

1 Numbered Alternative Turbine Location

Lincoln Electric Wind Turbine Environmental Assessment

Figure 7. Alternative Tower Locations Investigated

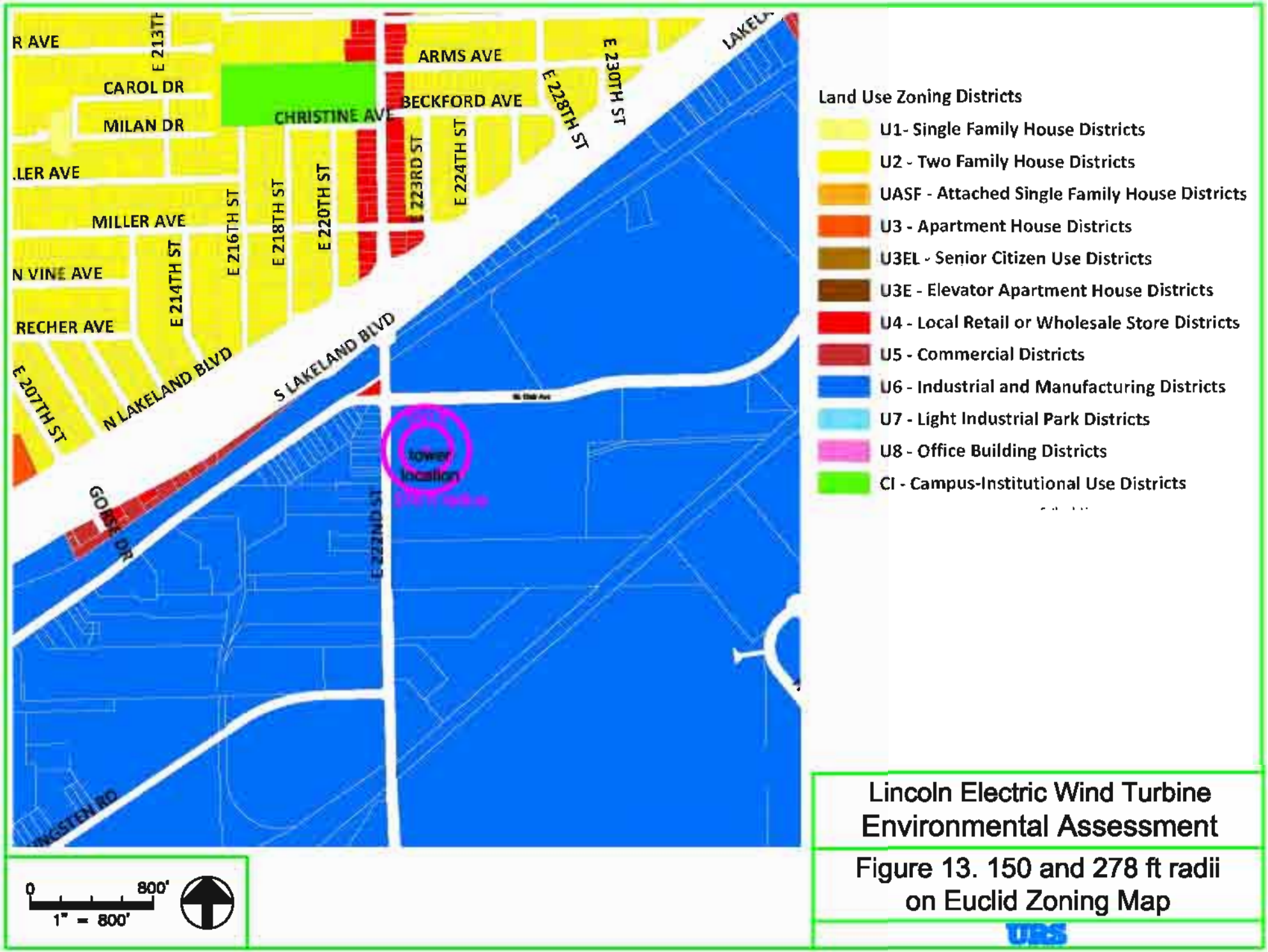
APPENDIX A. FIGURES



Lincoln Electric Wind Turbine
Environmental Assessment

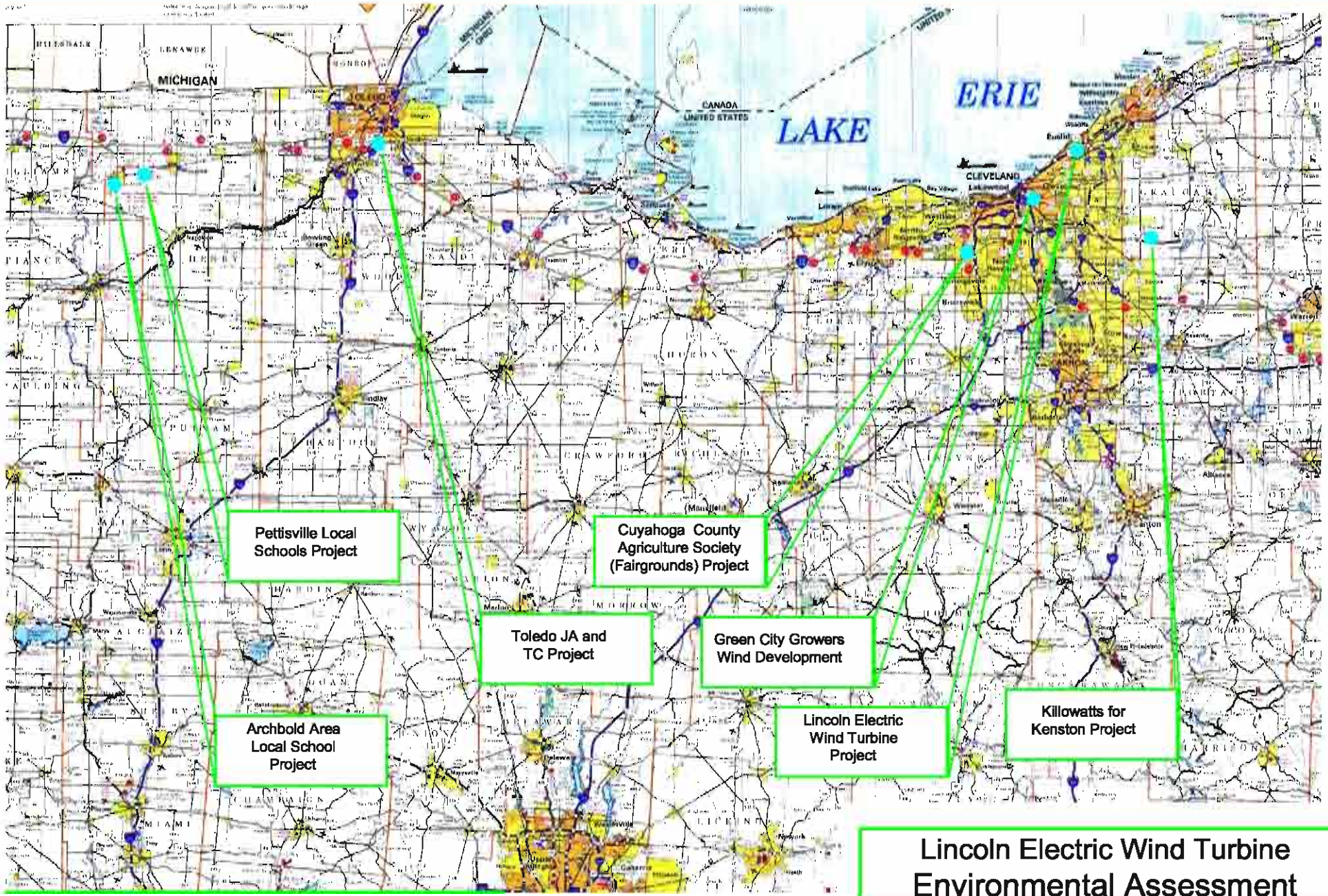
Figure 12. 150-foot and 278-foot radii from tower

URS



Lincoln Electric Wind Turbine
Environmental Assessment

Figure 13. 150 and 278 ft radii on Euclid Zoning Map



0 20 Miles
1" = 20 Miles

State of Ohio
Transportation Map
2003–04

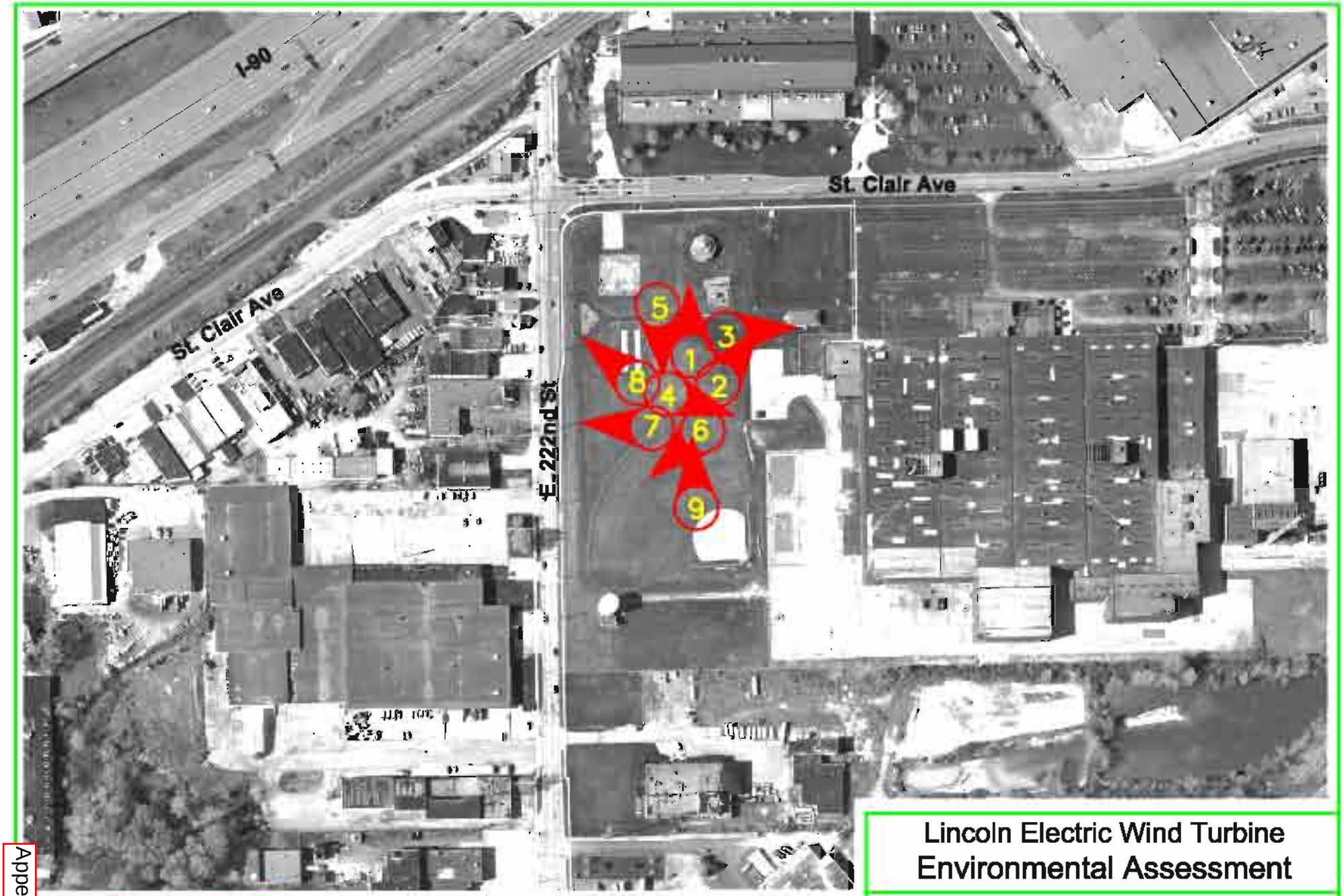
Lincoln Electric Wind Turbine Environmental Assessment

Figure 14. ARRA SEP-awarded Wind Turbine Projects in Ohio

URS

APPENDIX B. PHOTOLOG AND VISUAL SIMULATION

Attachment B-1. Photolog



Appendix B-1-1

0 250'
1" = 250'

Legend:

7 Ground Photopoint and Direction*

*Oblique Aerial Photopoints not shown

Lincoln Electric Wind Turbine Environmental Assessment

Photolog Photopoints

UES

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
Oblique 1	unknown

Description:

Oblique aerial photo, view facing north at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

Photo No.	Date:
Oblique 2	unknown

Description:

Oblique aerial photo, view facing east at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

Photo No.	Date:
Oblique 3	unknown

Description:

Oblique aerial photo, view facing south-southeast at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

Appendix B-1-2

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
Oblique 4	unknown

Description:

Oblique aerial photo, view facing west at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

Photo No.	Date:
Oblique 5	unknown

Description:

Oblique aerial photo, close-up view facing north at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

Photo No.	Date:
Oblique 6	unknown

Description:

Oblique aerial photo, close-up view facing east at the proposed wind turbine location, SE of corner of St. Clair Ave and E 222nd St.

URS

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
1	Feb., 2010

Description:

View facing north from proposed wind turbine location. St. Clair Ave in middle distance.

Photo No.	Date:
2	Feb., 2010

Description:

View facing northeast from proposed wind turbine location. St. Clair Ave to left and in middle distance.

URS

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
3	Feb., 2010

Description:

View facing east from proposed wind turbine location.

Photo No.	Date:
4	Feb., 2010

Description:

View facing southeast from proposed wind turbine location.

URS

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
5	Feb., 2010

Description:

View facing south from proposed wind turbine location. Ballfield fence in middle distance.

Photo No.	Date:
6	Feb., 2010

Description:

View facing southwest from proposed wind turbine location. Ballfield fence to left. E 222nd St in background.

URS

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
7	Feb., 2010

Description:

View facing west from proposed wind turbine location. E 222nd St in background.

Photo No.	Date:
8	Feb., 2010

Description:

View facing northwest from proposed wind turbine location. Corner of St. Clair Ave and E 222nd St in background.

URS

OBLIQUE AERIAL/GROUND PHOTOGRAPHIC LOG

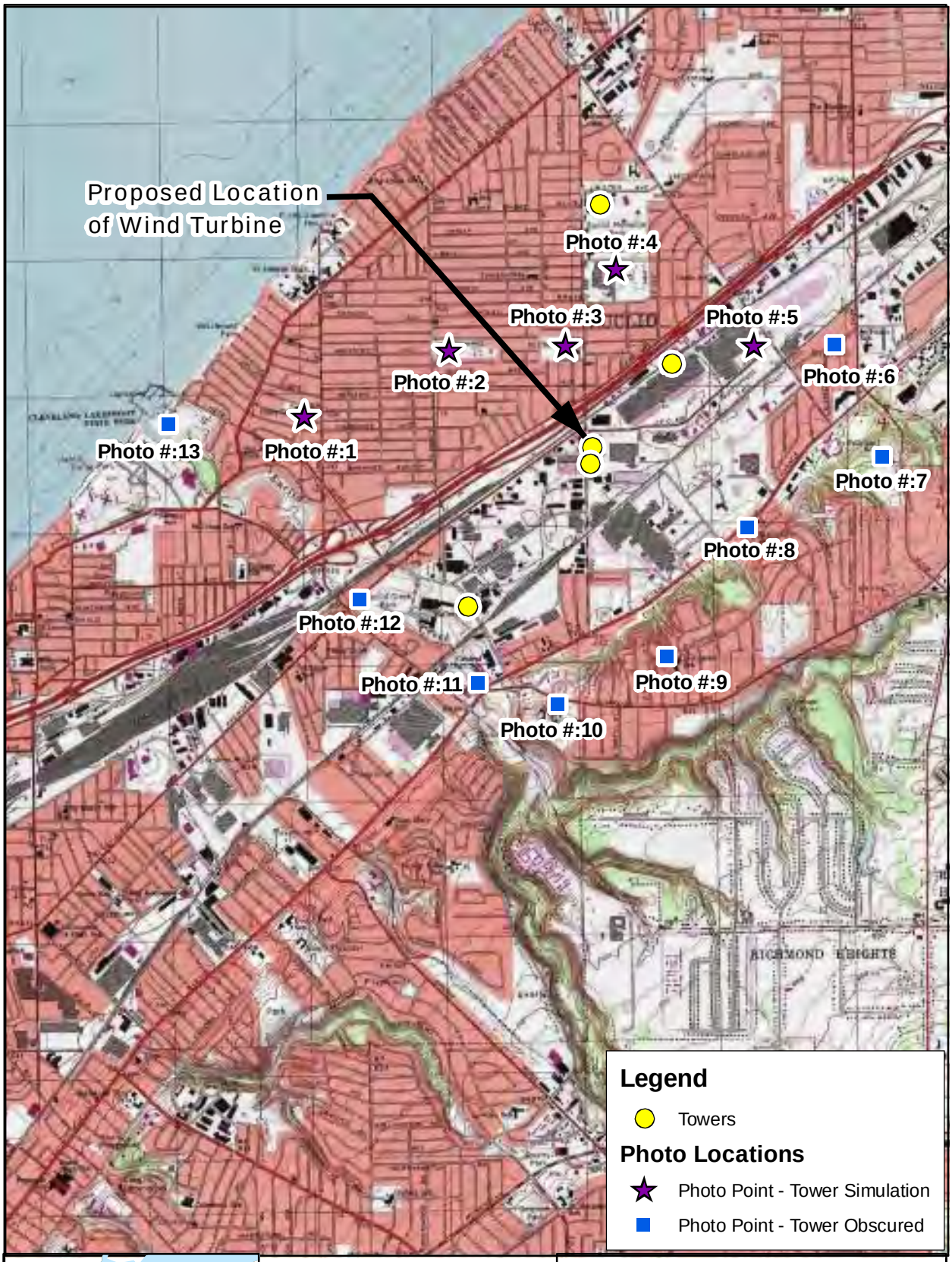
Project Location:	Project:	URS Project No.
City of Euclid, Ohio	LINCOLN ELECTRIC WIND ENERGY PROJECT	13813844

Photo No.	Date:
9	Feb., 2010

Description:

View facing north from just south of proposed wind turbine location. St. Clair Ave in middle distance.

Attachment B2. Visual Simulation



Key Map

Lincoln Electric Wind Turbine

Photo Location Map

0 2000

Scale: 1" = 2000'

4/16/10 KGH

K:\Projects\L\Lincoln Electric\13813844\DWGs\MXDs

Photo No. 1: Photo simulation from view shed of Perry School parking lot, Cleveland, Ohio. Distance is 6,967 ft from proposed turbine.

Photo No. 2: Photo simulation from view shed of Roosevelt School parking lot, Euclid, Ohio. Distance is 4,150 ft from proposed turbine.

Photo No. 3: Photo simulation from view shed of St Christine's School parking lot, Euclid, Ohio. Distance is 2,545 ft from proposed turbine.

Photo No. 4: Photo simulation from view shed of Euclid High School parking lot Euclid, Ohio. Distance is 4,450 ft from proposed turbine.

Photo No. 5: Photo simulation from view shed of Great Lakes Expo Center parking lot, Euclid, Ohio. Distance is 4,650 ft from proposed turbine.

Photo No. 6: View shed from Tungsten Playground at corner of E. 260th & Tungsten Rd, Euclid, Ohio. Proposed tower obscured by trees in center.

Photo No. 7: View shed from St. Felicitas Church & School, Euclid, Ohio.
Proposed tower obscured by pine trees on left.

Photo No. 8: View shed from Bethlehem Church, Euclid, Ohio.
Proposed tower obscured by existing trees in center.

Photo No. 9: View shed from Glenbrook Elementary student entry, Euclid, Ohio.
Proposed tower obscured by existing ridgeline and trees in center.

Photo No. 10: View shed from St. Joseph Convent parking lot, Euclid, Ohio.
Proposed tower obscured by ridgeline & existing trees in center.

Photo No. 11: View shed from Central Middle School student entrance, Euclid, Ohio. Proposed tower obscured by school building.

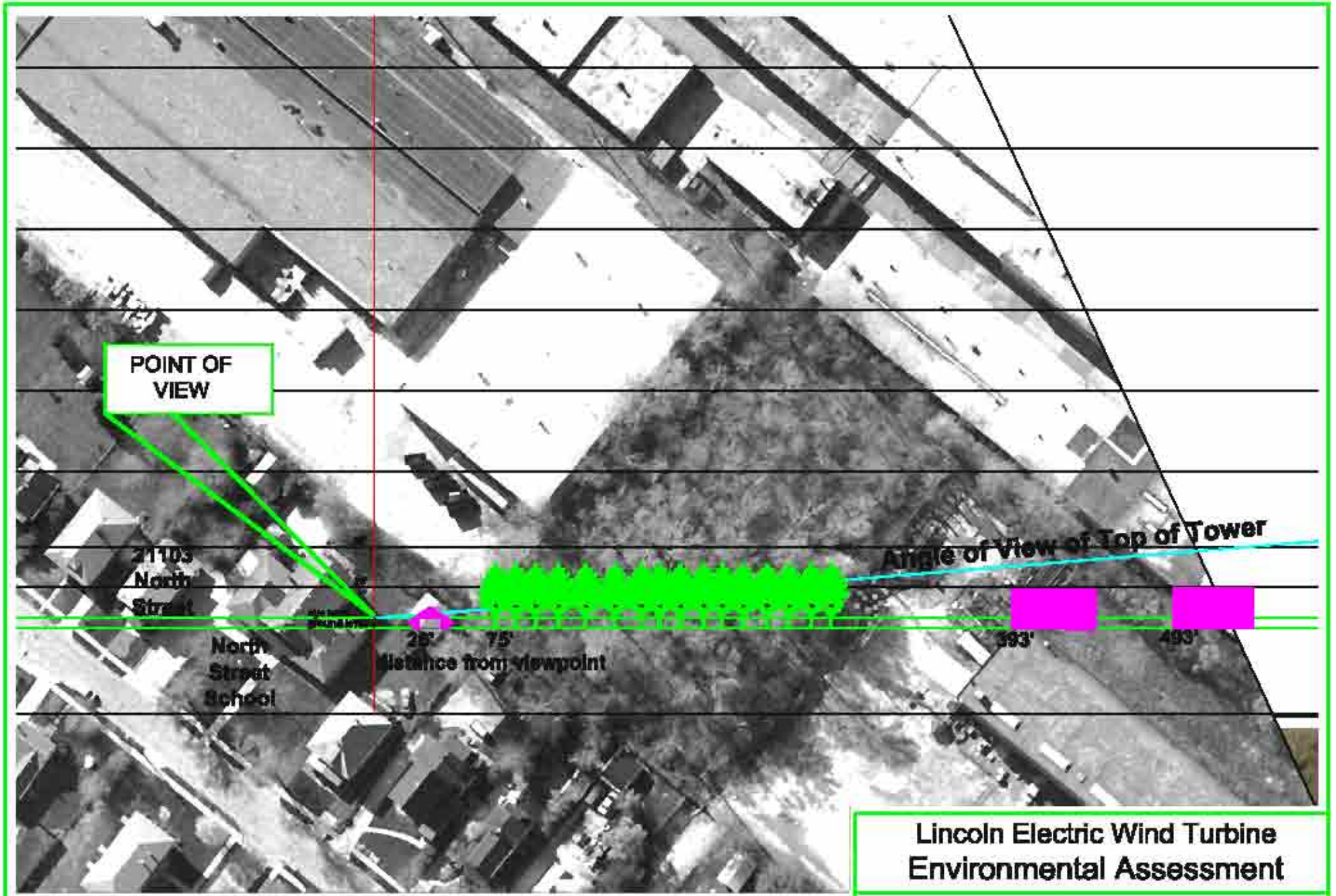
Photo No. 12: View shed from Euclid Creek Park/Fire Station Parking Lot, Euclid, Ohio. Proposed tower obscured by existing trees in front of Fire Station.

Photo No. 13: View shed from Wildwood State Park, Cleveland, Ohio.
Proposed tower obscured by existing trees in center.

APPENDIX C. AGENCY COORDINATION AND APPROVALS

Attachment 12

Attachment C-5l



0 80'
1" = 80'

North Street School
and 21103 North Street,
5,193' away from Tower

Lincoln Electric Wind Turbine
Environmental Assessment

Nearby Objects Blocking
View of Tower

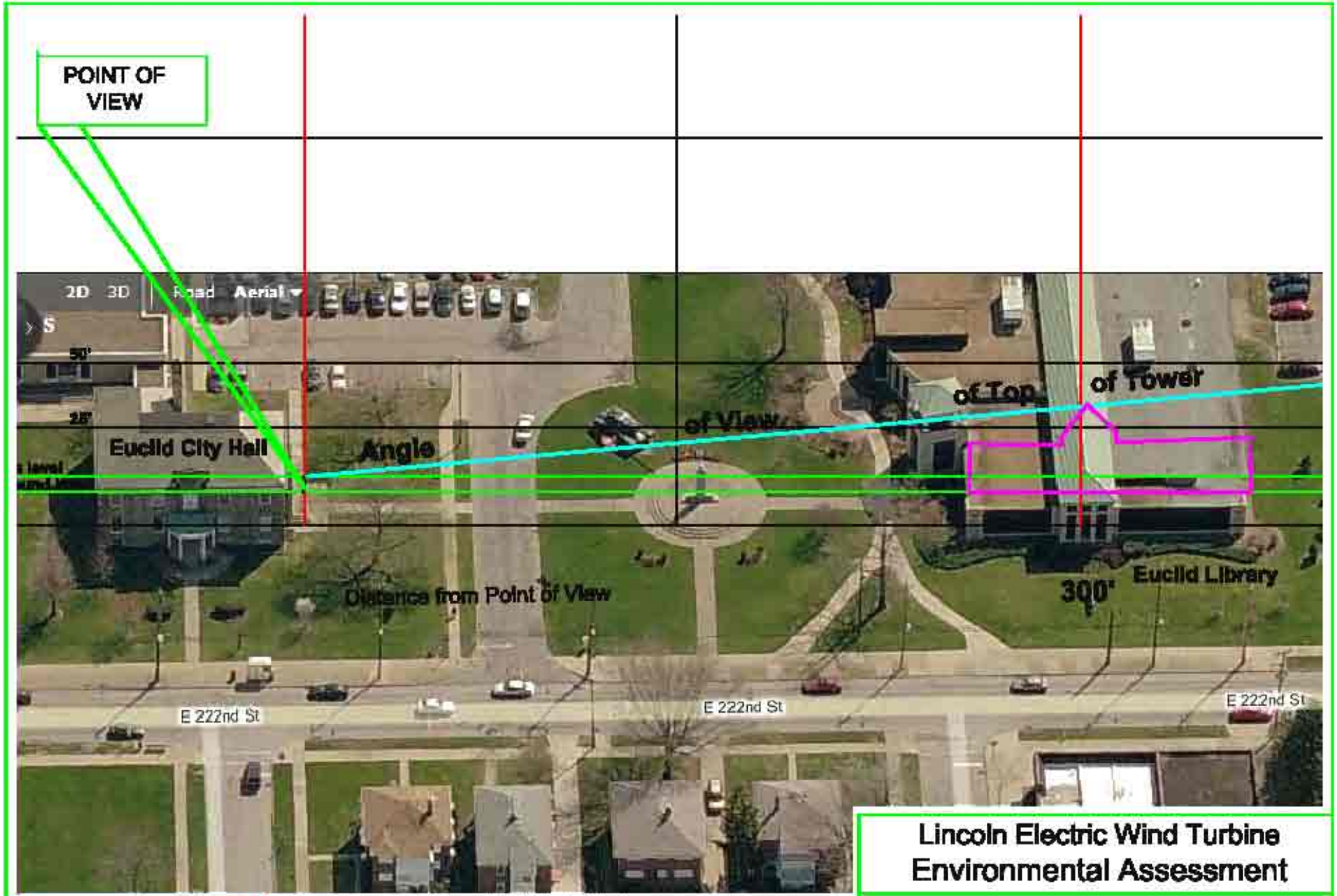
0 20'
1" = 20'

Roosevelt School,
4,194' away from Tower

Lincoln Electric Wind Turbine
Environmental Assessment

Nearby Objects Blocking
View of Tower

UES

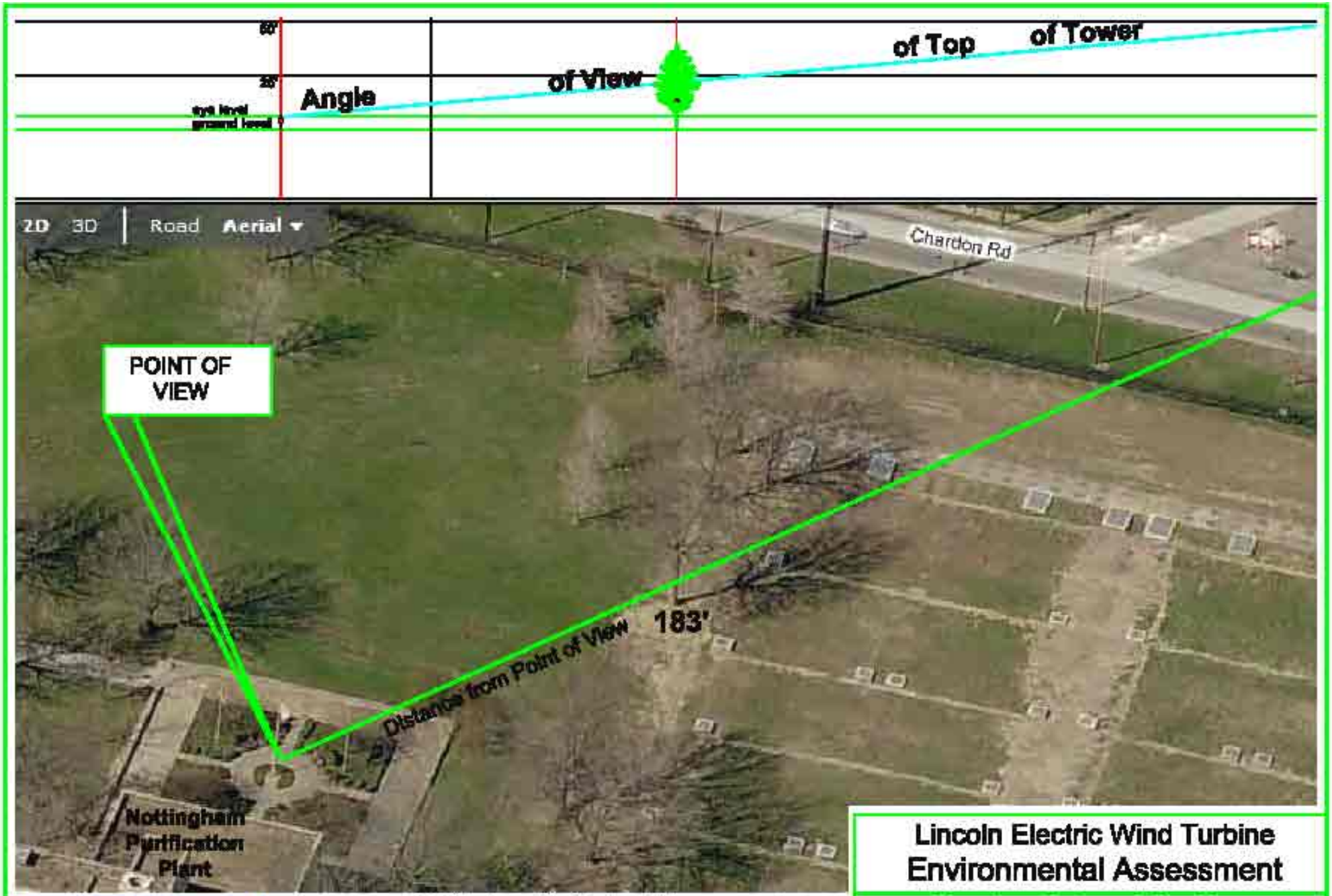


Euclid city Hall,
5,144' away from Tower

0 50'
1" = 50'

Lincoln Electric Wind Turbine Environmental Assessment

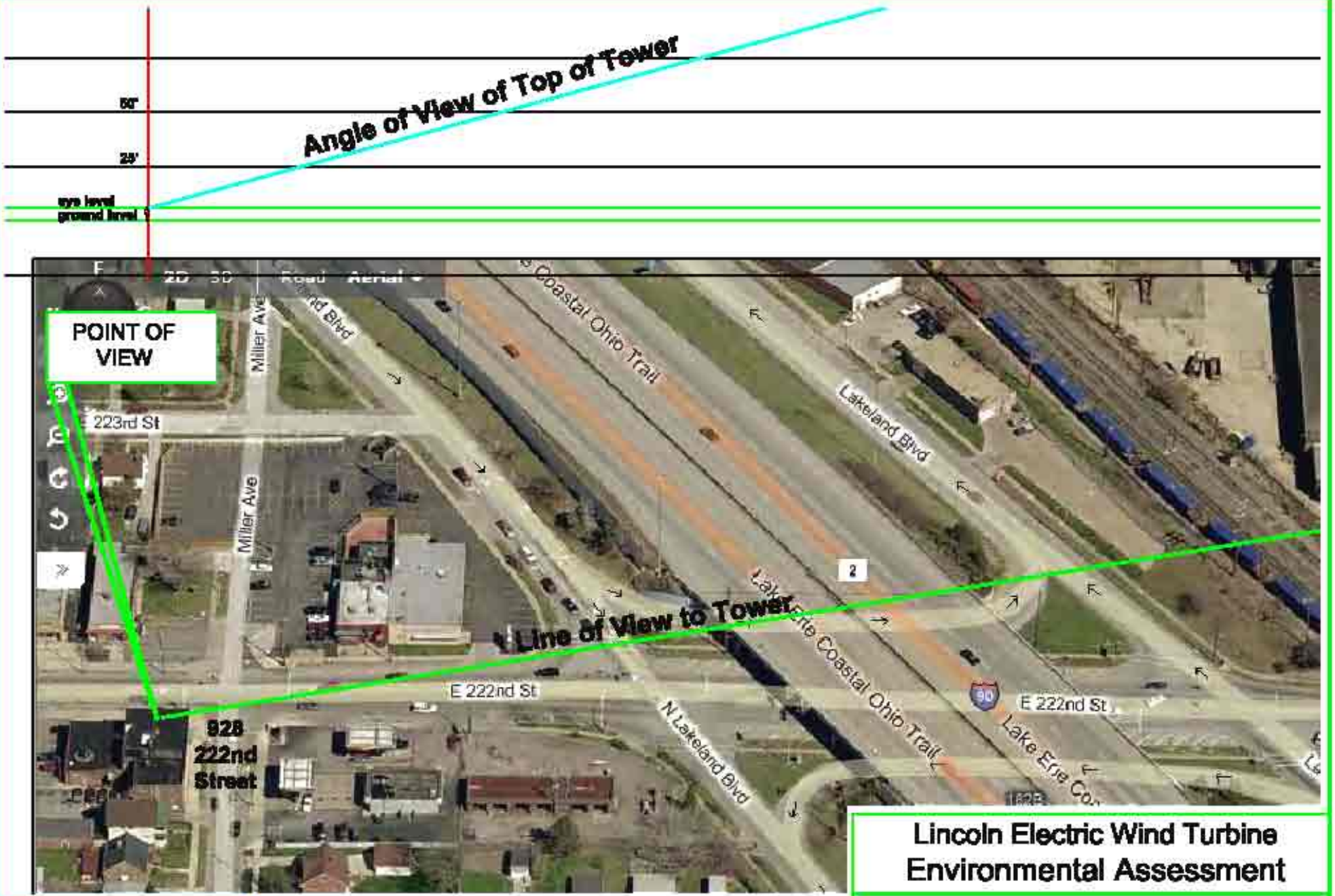
Nearby Objects Blocking View of Tower



Nottingham Purification Plan,
5,070' away from Tower

Lincoln Electric Wind Turbine Environmental Assessment

Nearby Objects Blocking View of Tower



928 222nd Street,
1,664' away from Tower

Lincoln Electric Wind Turbine Environmental Assessment

Nearby Objects Blocking View of Tower

APPENDIX C. AGENCY COORDINATION AND APPROVALS

Attachment 13

Attachment C-5m

Lincoln Electric
22800 St. Clair Avenue
Euclid, OH 44117

Inquiry Number: 2780964.1
May 28, 2010

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

5/28/10

Site Name:
Lincoln Electric
22800 St. Clair Avenue
Euclid, OH 44117

Client Name:
URS Corporation
36 East 7th Street
Cincinnati, OH 45202

EDR Inquiry # 2780964.1

Contact: Aaron Geckle

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by URS Corporation were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Lincoln Electric
Address: 22800 St. Clair Avenue
City, State, Zip: Euclid, OH 44117
Cross Street:
P.O. # 13813844.00000
Project: 13813844.00000
Certification # 344E-48B8-9462

Sanborn® Library search results
Certification # 344E-48B8-9462

Maps Provided:

1966
1963
1952
1950

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

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Sanborn Sheet Thumbnails

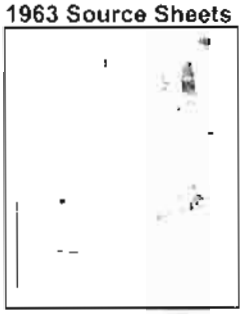
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1966 Source Sheets

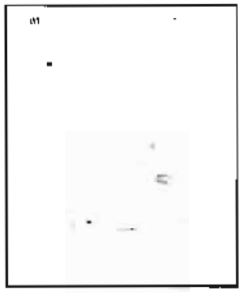
Volume 13B, Sheet 148

Volume 13B, Sheet 155

1963 Source Sheets



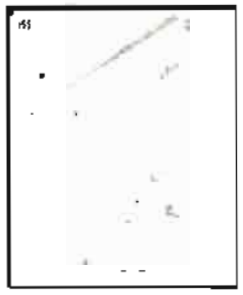
Volume 13B, Sheet 148



Volume 13B, Sheet 155

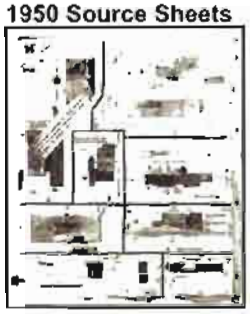
1952 Source Sheets

Volume 13B, Sheet 148



Volume 13B, Sheet 155

1950 Source Sheets

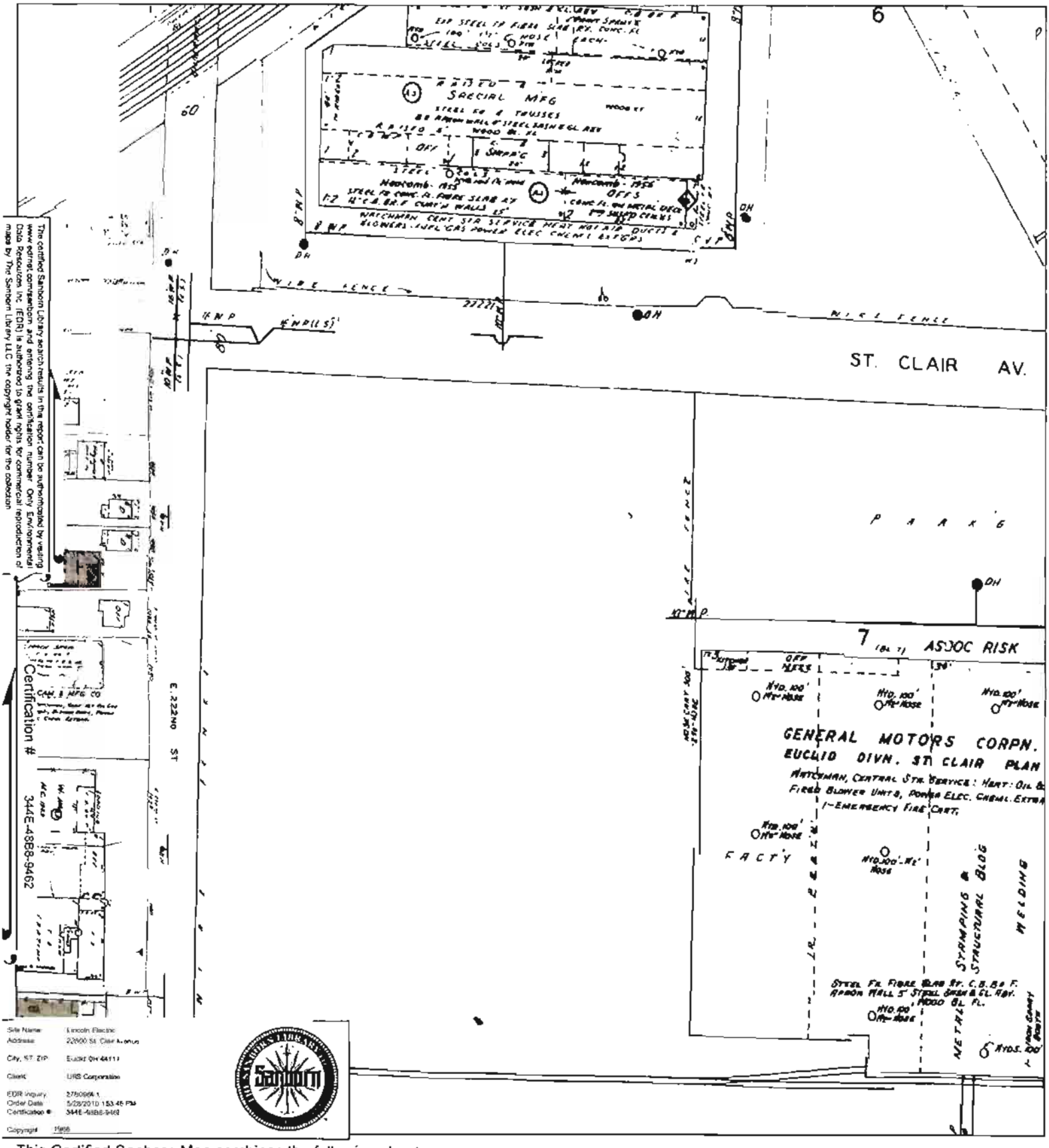


Volume 13A, Sheet 99

Volume 13A, Sheet 100

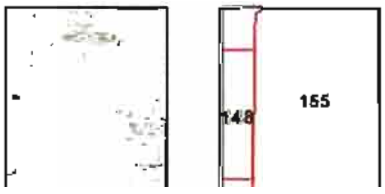
Volume 13A, Sheet 136

1966 Certified Sanborn Map



Site Name:	Lincoln Electric
Address:	22900 St. Clair Avenue
City, ST, ZIP:	Euclid OH 44117
Client:	URS Corporation
EDR Inquiry:	2780964.1
Order Date:	5/28/2010 1:53:45 PM
Certification #:	344E-48B8-9462
Copyright:	1966

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

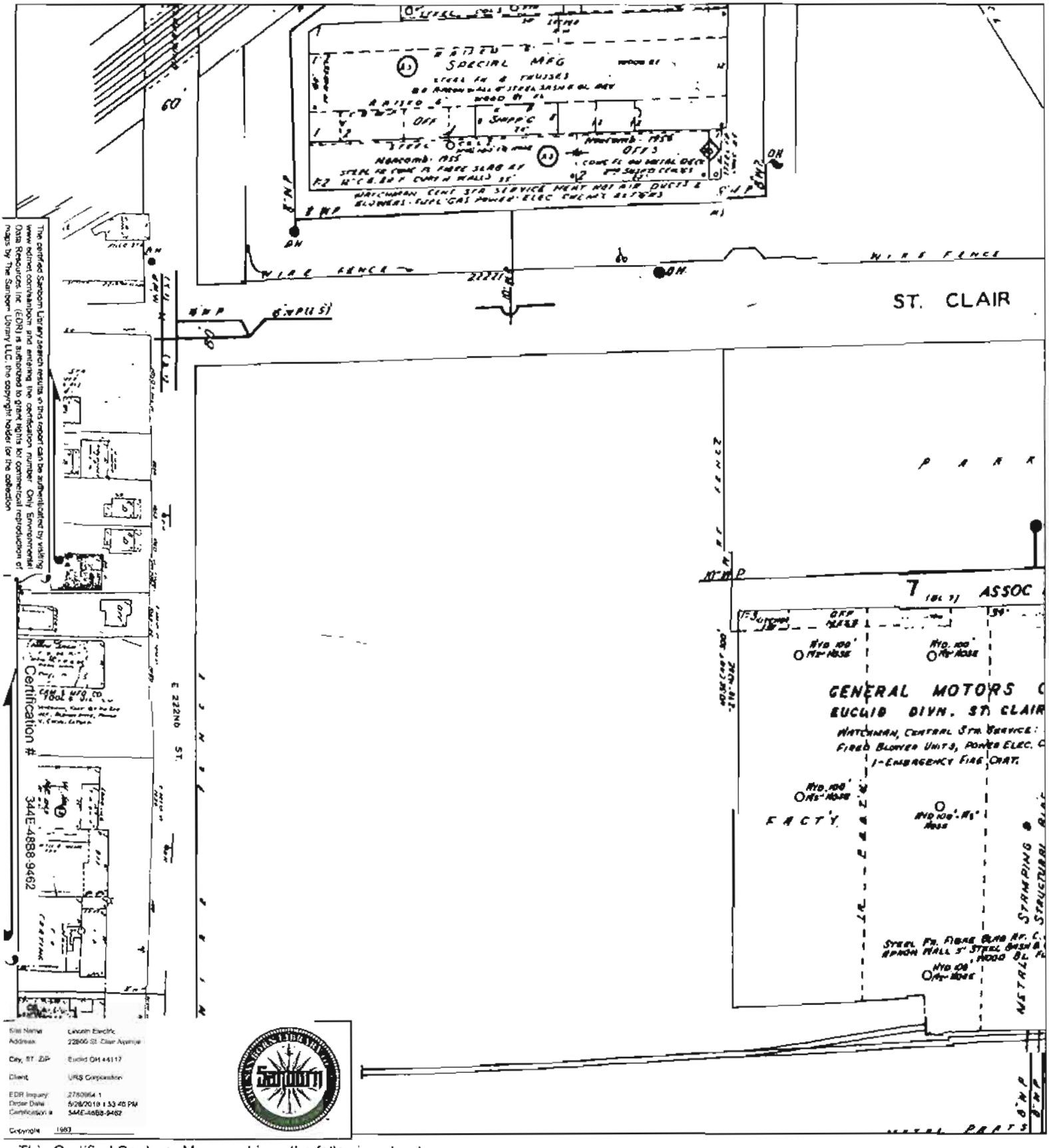


Volume 13B, Sheet 148
Volume 13B, Sheet 155

0 Feet 150 300 600

N

1963 Certified Sanborn Map



Site Name: Lincoln Electric
Address: 22800 St. Clair Avenue
City, ST, ZIP: Euclid OH 44117
Client: URS Corporation
EDR Inquiry: 2780964.1
Order Date: 5/28/2010 1:53:40 PM
Certification #: 344E-4888-9462
Copyright: 1963

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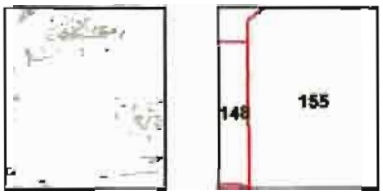

Volume 138, Sheet 148
Volume 138, Sheet 155

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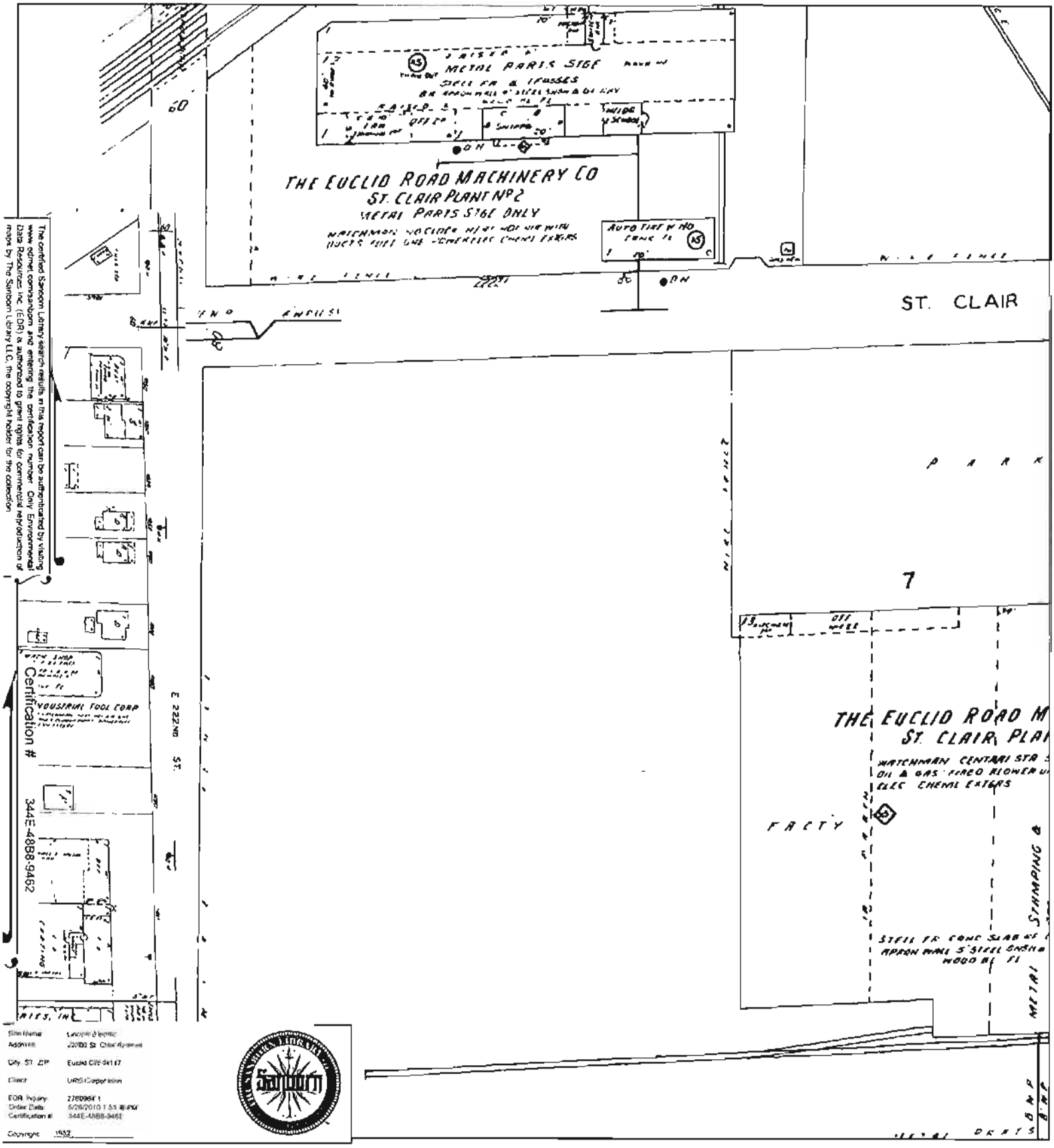
1952 Certified Sanborn Map



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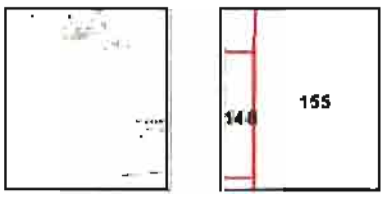

Volume 13B, Sheet 148
Volume 13B, Sheet 155

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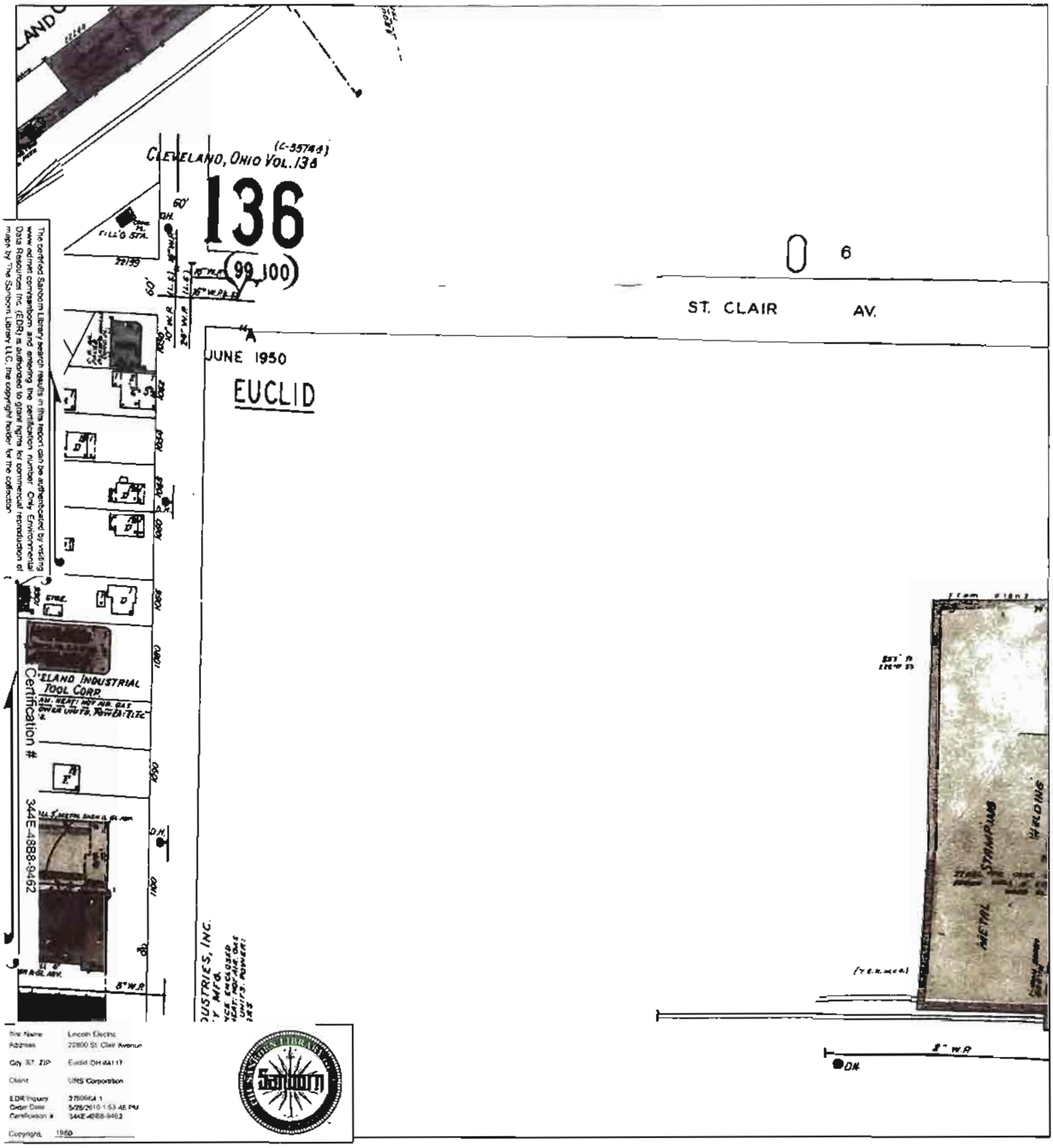
1950 Certified Sanborn Map



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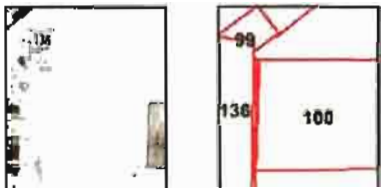


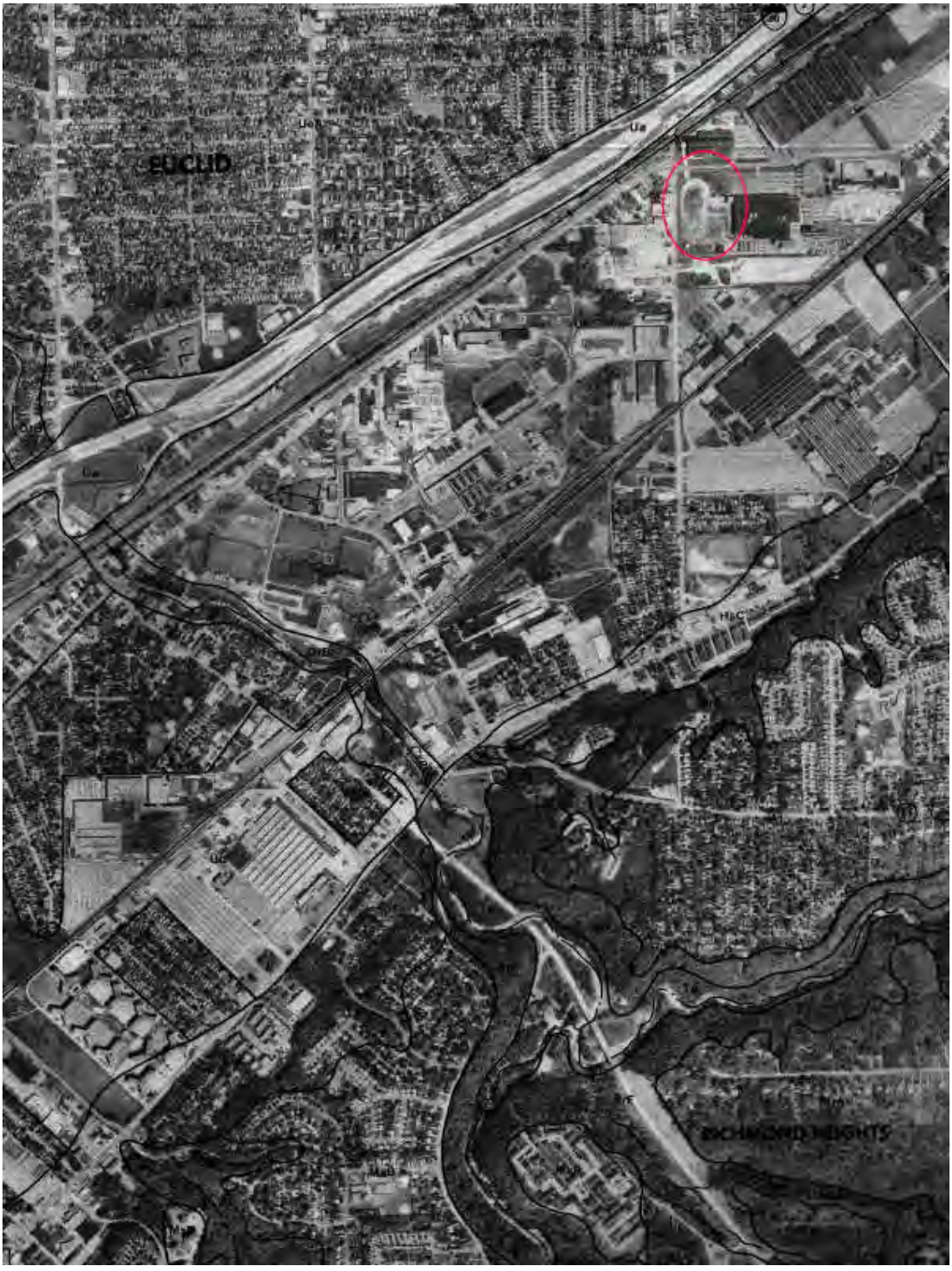
Volume 13A, Sheet 99
Volume 13A, Sheet 100
Volume 13A, Sheet 136

0 Feet 150 300 600

N

Attachment 14

Attachment C-5n



PROJECT	Lincoln Electric Wind Turbine	1961 Aerial Photograph of Archaeological APE	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	USGS Cuyahoga County Soil Survey		**FIGURE NO.** Attachment 13

Principal References Cited

Attachment C-5o

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July 8, 2010

Caroline Mann
Office of Energy Efficiency and Renewable Energy
U. S. Department of Energy
100 Independence Ave. SW
Washington, DC 20585

Dear Ms. Mann:

Re: American Recovery and Reinvestment Act 2009 (ARRA)
Lincoln Electric Wind Turbine Project (PRJ13813844)
East 222nd Street, Euclid, Ohio

This is in response to your correspondence, received on June 18, 2010, regarding construction of a 443-foot-tall 2.5 MW wind turbine at Lincoln Electric's Euclid, Ohio, facility. Our comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

In the interest of expediency, my staff and I decided that the most efficient way to conclude the review of this project was to conduct our own supplemental research and visit the project site and surrounding environment. Through this investment of our time, we were able to compensate for deficiencies in the submission and, thus complete our review.

The information submitted was unfortunately not sufficient to allow us to agree or disagree with your conclusions regarding the area of potential effects (APE), National Register-eligibility of properties in the APE, or effects to those properties. Identification of historic properties apparently relied exclusively on the National Register of Historic Places, the Ohio Historic Inventory, and an on-going Certified Local Government grant-funded survey being conducted by Benjamin D. Rickey and Company on behalf of the City of Euclid. The photographs provided concentrated on these already known properties and many of the few other photos were either unusable because they were too dark or too distant to discern what they show.

Not only did these shortcomings make it difficult for us to concur or disagree with your agency's conclusions, but they inadequately addressed the requirements of the regulations at 36 CFR Part 800, the National Historic Preservation Act, and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. For instance, just a few good, ground-level photos of the environment near the turbine site, including Lincoln Electric's own buildings, with a brief narrative of the history (or lack thereof) of what was depicted would have helped us considerably.

Attachment C-6

OHIO HISTORICAL SOCIETY
Ohio Historic Preservation Office
1982 Velma Avenue, Columbus, Ohio 43211-2497 ph: 614.298.2000 fx: 614.298.2037
www.ohiohistory.org

Based on our own efforts and review of your submission, it is my opinion that the construction of the proposed wind turbine will have no adverse effect on properties listed in or eligible for listing in the National Register. No further coordination with this office is necessary, unless the project changes or archaeological properties are encountered during construction.

In order to facilitate our review of future projects, please use our Project Summary Form. It is designed to avoid unnecessary delays in our reviews caused by requests for additional documentation. We offer training sessions on using the form and how to successfully navigate the Section 106 process. Our next course is on August 17. For more information, please visit our website at ohpo.org.

If you have any questions regarding this matter, please contact Laura Segna or me via email at lsegna@ohiohistory.org or mepstein@ohiohistory.org or phone at 614-298-2000.

Thank you for your cooperation.

Sincerely,

Mark J. Epstein, Department Head
Resource Protection and Review

MJE:ls/me

Xc: James Burns, URS
Tracy Engle, URS
Whitney Fiore, ICF International
James Huth, ODOD
Seth Mason, Lincoln Electric Company
Lisa Patt McDaniel
Greg Payne, ODOD
Jim Sonnhalter, City of Euclid
Jeff Winstel, URS
Peter Yerace, USDOE

(OHPO Project ID 2010-CUY-11607)

APPENDIX C. AGENCY COORDINATION AND APPROVALS

Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR — SEAN D. LOGAN, DIRECTOR

Division of Natural Areas and Preserves
Anthony J. Celebreeze, III, Acting Chief
2045 Morse Rd., Bldg. F-1
Columbus, OH 43229-6693
Phone: (614) 265-6453; Fax: (614) 267-3096

April 20, 2010

Jim Burns
URS Corp.
1375 Euclid Ave., Suite 600
Cleveland, OH 44115

Dear Jim:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has no records of rare or endangered species in the Lincoln Electric Wind Energy project area, including a one mile radius, at 222nd St. and St. Clair Ave. in Euclid, Cuyahoga County, and on the East Cleveland Quad (13813844). We also have no records for Indiana Bat (*Myotis sodalis*, state endangered, federal endangered) capture sites within a five mile radius or hibernacula within a ten mile radius of the project site.

There are no dedicated state nature preserves or scenic rivers at the project site. We are also unaware of any unique ecological sites, geologic features, animal assemblages, state parks, state forests or state wildlife areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas.

Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

Debbie Woischke, Ecological Analyst
Natural Heritage Program

Attachment C-1

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-WTE-933-OE

Issued Date: 07/23/2009

Matthew Krivos
JW Great Lakes Wind
1900 Superior Ave Suite 333
Cleveland, OH 44114

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine Lincoln Electric Turbine
Location:	Euclid, OH
Latitude:	41-35-04.89N NAD 83
Longitude:	81-31-32.81W
Heights:	450 feet above ground level (AGL)
	1083 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure 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, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.

This determination expires on 07/23/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

Attachment C-2

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before August 22, 2009. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division - Room 423, Federal Aviation Administration, 800 Independence Ave., Washington, D.C. 20591.

This determination becomes final on September 01, 2009 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Office of Airspace and Rules via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Michael Blaich, at (404) 305-7081. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-WTE-933-OE.

Signature Control No: 615822-116829523 (DNH -WT)
Kevin P. Haggerty
Manager, Obstruction Evaluation Service

Attachment(s)

Additional Information
Map(s)

Additional information for ASN 2009-WTE-933-OE

The proposed construction would be located approximately 2.13 nautical miles (NM) northwest of the Cuyahoga County Airport (CGF). It would exceed the obstruction standards of Title 14 of the Code of Federal Regulations, Part 77 as follows:

Section 77.23(a)(2) by 4 feet - a height that exceeds 446 feet above ground level within 2.13 NM as applied to CGF.

The proposal was not circularized for public comment because current FAA obstruction evaluation policy exempts from circularization those proposals which exceed the above cited obstruction standard. This is provided the proposal does not lie within an airport traffic pattern. This policy does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

AERONAUTICAL STUDY FOR POSSIBLE INSTRUMENT FLIGHT RULES (IFR) EFFECT DISCLOSED THE FOLLOWING:

> The proposed structure would have no effect on any existing or proposed IFR arrival/departure routes, operations, or procedures.

> The proposed structure would have no effect on any existing or proposed IFR en route routes, operations, or procedures.

> The proposed structure would have no effect on any existing or proposed IFR minimum flight altitudes.

AERONAUTICAL STUDY FOR POSSIBLE VISUAL FLIGHT RULES (VFR) EFFECT DISCLOSED THE FOLLOWING:

> The proposed structure would have no effect on any existing or proposed VFR arrival or departure routes, operations or procedures.

> The proposed structure would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports.

> The proposed structure would not penetrate those altitudes normally considered available to airmen for VFR en route flight.

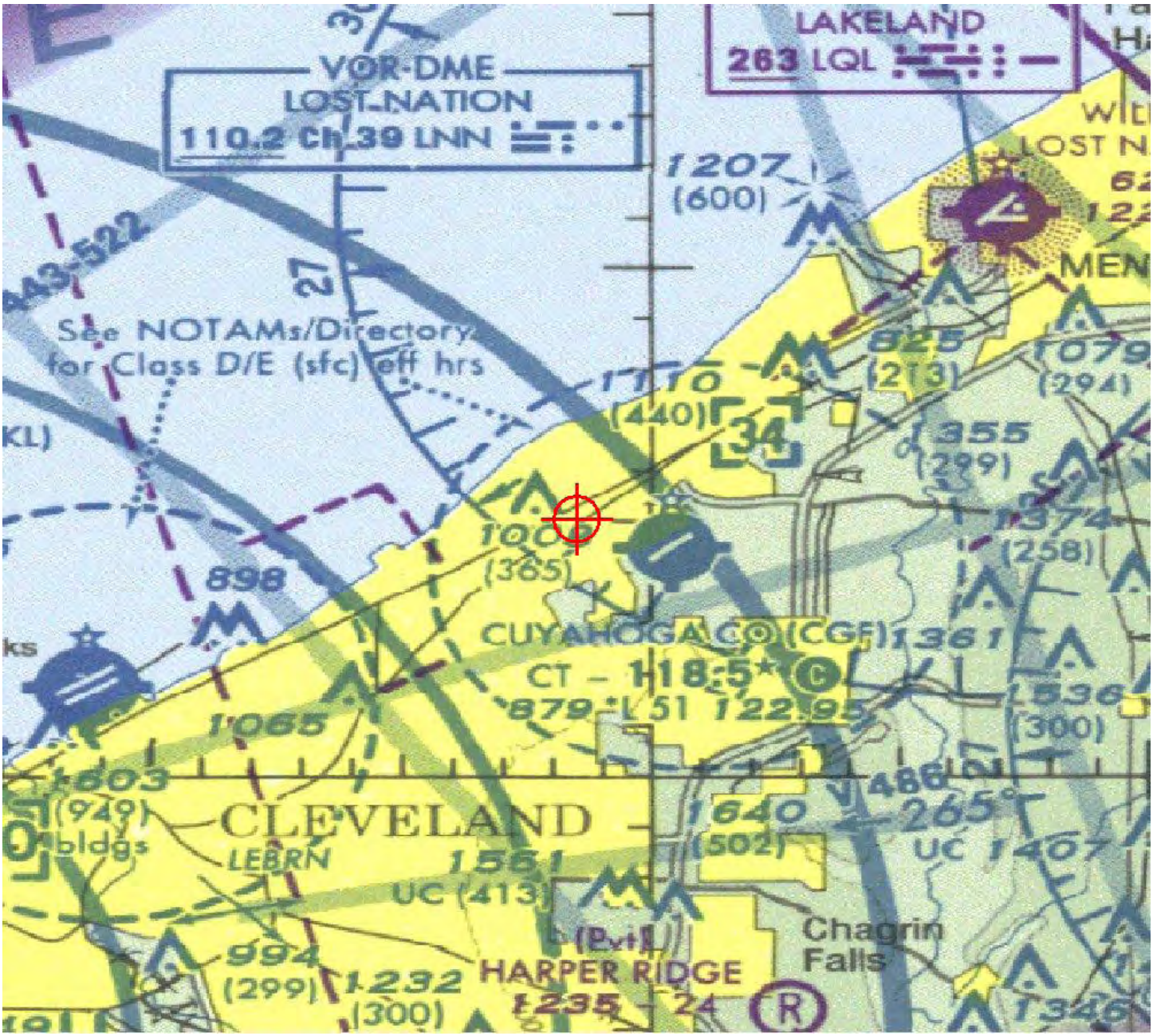
> The proposed structure will be appropriately obstruction marked and lighted to make it more conspicuous to airmen flying in VFR weather conditions at night.

The cumulative impact of the proposed structure, when combined with other existing structures is not considered significant. Study did not disclose any adverse effect on existing or proposed public-use or military airports or navigational facilities. Nor would the proposal affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation.

This determination, issued in accordance with Part 77, concerns the effect of the proposal on the safe and efficient use of the navigable airspace by aircraft and does not relieve the sponsor of any compliance responsibilities relating to laws, ordinances, or regulations of any Federal, state, or local governmental bodies. Determinations, which are issued in accordance with Part 77, do not supersede or override any state, county, or local laws or ordinances.

Sectional Map for ASN 2009-WTE-933-OE



Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR — SEAN D. LOGAN, DIRECTOR

Division of Wildlife
David M. Graham, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

March 11, 2010

To all interested parties,

This is in reference to Lincoln Electrics proposed 2.5 MW wind turbine to be installed at their facility in Euclid, Ohio. After a review of the Lincoln Electric project, the Ohio Department of Natural Resources Division of Wildlife (DOW) has determined that this project will likely not pose a substantial risk to Ohio's wildlife resources. Though this site is relatively close to the Lake Erie shoreline, an area that the DOW has previously identified as higher risk due to the potential accumulation of songbirds during migration, the proposed location is situated within a highly developed region of the state and lacks suitable breeding or stop-over habitat. Additionally, there are no nests of protected species of raptor (bald eagle, northern harrier, osprey, or peregrine falcon) or observations of Indiana bats (state and federal endangered species) within 5-miles of the site. Based upon these factors the DOW has determined it is unlikely that this turbine will impact significant numbers of birds or bats.

If constructed, this turbine would be one of the first turbines located along the Lake Erie shoreline within Ohio. Therefore, the DOW requests that Lincoln Electric conduct or arranges access for someone appointed by the DOW to conduct post-construction monitoring in accordance with the "*On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*" developed by the DOW. Results from this study will be used by the Division to assess what impact this and other turbines sited within close proximity of the Lake Erie shoreline may have on birds and bats.

Attachment C-3

The Division of Wildlife encourages the development of properly sited wind energy projects, and looks forward to working with Lincoln Electric as this project progresses.

Sincerely,

Keith Lott, Wind Energy Wildlife Biologist

Old Woman Creek Nat'l Estuarine Research Reserve and State Nature Preserve
Ohio Division of Wildlife
2514 Cleveland Road East
Huron, OH 44839
Office phone: 419-433-4601
Cell: 419-602-3141
Fax: 419-433-2851

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

April 26, 2010

Mr. Tracy Engle
URS Corporation
1375 Euclid Avenue, Suite 600
Cleveland, Ohio 44115

TAILS# 31420-2010-TA-0548

Dear Mr. Engle:

This is in response to your April 15, 2010 e-mail and conference call requesting our review of the proposed Lincoln Electric Company's proposed wind power project, to be located in the City of Euclid, Cuyahoga County, Ohio. The project involves the installation of a single 2.5 MW wind turbine at the existing facility. The project area is currently composed of a mowed grass area located within the existing industrial facility grounds. The landscape surrounding the project area is extensively developed with little natural habitat nearby. However the project does lie within approximately 2 miles of the Lake Erie shoreline. This project will be funded by an Ohio Department of Development grant which comes from money that Ohio received from the U.S. Department of Energy (DOE) pursuant to DOE's State Energy Program (SEP) under the American Recovery and Reinvestment Act (ARRA).

There are no Federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the project area.

The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making an informed decision regarding wildlife issues, site selection, project design, and compliance with applicable laws.

The Fish and Wildlife Service (Service) supports the development of wind power as an alternative energy source, however, wind power projects can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing within the rotorswept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values, would be preferable and would have relatively lower impacts on wildlife.

WATER RESOURCE COMMENTS:

The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. Streams and wetlands provide valuable habitat for fish and wildlife resources, and the filtering capacity of wetlands helps to improve water quality. Naturally vegetated buffers surrounding

Attachment C-4

these systems are also important in preserving their wildlife-habitat and water quality-enhancement properties. Furthermore, forested riparian systems (wooded areas adjacent to streams) provide important stopover habitat for birds migrating through the region. The proposed activities do not constitute a water-dependent activity, as described in the Section 404(b)(1) guidelines, 40 CFR 230.10. Therefore, practicable alternatives that do not impact aquatic sites are presumed to be available, unless clearly demonstrated otherwise. Therefore, before applying for a Section 404 permit, the client should closely evaluate all project alternatives that do not affect streams or wetlands, and if possible, select an alternative that avoids impacts to the aquatic resource. If water resources will be impacted, the Buffalo District of the Corps of Engineers should be contacted for possible need of a Section 404 permit.

ENDANGERED SPECIES COMMENTS:

The proposed project lies within the range of the **Indiana bat** (*Myotis sodalis*), a Federally-listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stauds of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During the winter Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

1. Dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas.

2. Live trees (such as shagbark hickory and oaks) which have exfoliating bark.

3. Stream corridors, riparian areas, and upland woodlots which provide forage sites.

The Service currently has no records for Indiana bats within 5 miles of the project area, and the immediate project area does not appear to support suitable habitat. A small amount of potentially suitable habitat may exist in the greater project area, however there are no impacts proposed to this area. Therefore, we do not anticipate any impact on this species. However, if the project should be altered such that either the turbine or wiring would impact trees or forested areas, further consultation with this office is requested.

The project lies within the range of the piping plover, a federally listed endangered species. Due to the project type, size, and location, we do not anticipate any impact on this species or its habitat. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new informatiou reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

MIGRATORY BIRD COMMENTS:

The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties 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, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for allowing unauthorized take, the Service recognizes that some birds may be taken during activities such as wind turbine operation even if all reasonable measures to avoid take are implemented. The Service's Office of

Law Enforcement carries out its mission to protect migratory birds not only through investigation and enforcement, but also through fostering relationships with individuals and industries that proactively seek to eliminate their impacts on migratory birds. Although it is not possible under the MBTA to absolve individuals, companies, or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures), the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law, especially when conservation measures have been developed but are not properly implemented.

Bald and golden eagles are included under the Migratory Bird Treaty Act, but are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). No bald eagle nests exist within 5 miles of the project site. Further, the project area does not appear to support suitable bald eagle habitat (mature woods, ponds, streams), therefore it is unlikely that bald eagles would regularly occur in the project area. In general, we recommend using tubular or monopole supports with pointed tops and no guy wires rather than lattice supports for the turbine to minimize bird perching and nesting opportunities. Other recommendations are provided below.

The project lies within the boundary of the Western Lake Erie Important Bird Area, established by Audubon Ohio. Therefore we recommend careful consideration of the below guidelines, designed to protect migratory birds.

Research into the actual causes of bat and bird collisions with wind turbines is limited. To assist Service field staffs in review of wind farm proposals, as well as aid wind energy companies in developing best practices for siting and monitoring of wind farms, the Service published *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (2003). We encourage any company/licensee proposing a new wind farm to consider the following excerpted suggestions from the guidelines in an effort to minimize impacts to migratory birds and bats.

1) Pre-development evaluations of potential wind farm sites to be conducted by a team of Federal and/or State agency wildlife professions with no vested interest in potential sites;

2) Rank potential sites by risk to wildlife;

3) Avoid placing turbines in documented locations of federally-listed species;

4) Avoid locating turbines in known bird flyways or migration pathways, or near areas of high bird concentrations. (i.e., rookeries, leks, State or Federal refuges, staging areas, wetlands, riparian corridors, etc.) Avoid known daily movement flyways and areas with a high incidence of fog, mist or low visibility;

5) Avoid placing turbines near known bat hibernation, breeding, or maternity colonies, in migration corridors, or in flight paths between colonies and feeding areas;

6) Configure turbine arrays to avoid potential avian mortality where feasible. (i.e., group turbines and orient rows of turbines parallel to known bird movements) Implement storm water management practices that do not create attractions for birds, and maintain contiguous habitat for area-sensitive species;

7) Avoid fragmenting large, contiguous tracts of wildlife habitat. Wherever practical, place turbines on lands already disturbed and away from intact healthy native habitats. If not practical, select fragmented or degraded habitats over relatively intact areas;

8) Minimize roads, fences, and other infrastructure. Wherever possible, align collection lines and access roads to minimize disturbance;

9) Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species. (i.e., avoid attracting prey animals used by raptors;

10) Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities. Avoid placing external ladders and platforms on tubular towers to minimize perching/nesting. Avoid use of guy wires for turbine or meteorological tower supports. All existing guy wires should be marked with bird deterrents. (Avian Power Line Interaction Committee 1996);

11) If taller turbines (top of rotor-swept area is greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of lighting specified by the Federal Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and should be of the minimum intensity and frequency of flashes allowable;

12) Adjust tower height to reduce risk of strikes in areas of high risk for wildlife.

13) Wherever feasible, place electric power lines underground or on the surface as insulated, shielded wire to avoid electrocution of birds. Use recommendations of the Avian Power Line Interaction Committee (1996) for any required above-ground lines, transformers, or conductors;

The full text of the guidelines is available at http://www.fws.gov/habitatconservation/wind.pdf. The Service believes that implementing these guidelines may help reduce mortality caused by wind turbines. We encourage you to consider these guidelines in the planning and design of the project. We particularly encourage placement of turbines away from any large wetland, stream corridor, or wooded areas, including the areas mentioned previously, and avoid placing turbines between nearby habitat blocks.

POST CONSTRUCTION MONITORING:

We note that in their March 11, 2010 letter regarding this project, the Ohio Department of Natural Resources (ODNR) recommended post-construction monitoring of this wind turbine due to its proximity to the Lake Erie shoreline, an important area for migrating birds. The Service supports this recommendation. We recommend that the post-construction monitoring protocol be developed in conjunction with ODNR and we would be interested in receiving a copy of the post-construction monitoring report.

Thank you for the opportunity to provide comments on this proposed project. Please contact biologist Megan Seymour at extension 16 in this office if we can be of further assistance.

Sincerely,

Mary Knapp

Mary Knapp, Ph.D.
Supervisor

cc: Mr. Keith Lott, ODNR, Old Woman Creek, 2514 Cleveland Road East, Huron, OH 44839

585 East 222nd Street, Euclid, OH 44123-2099

THE LAKEFRONT CITY OF SUPERIOR SERVICES

www.cityofeuclid.com

March 8, 2010

Mr. Seth Mason, Energy Manager
Lincoln Electric Company
22801 Saint Clair Avenue
Euclid, Ohio 44117

Re: Visual Impacts of Proposed Wind Tower on PPN 647-13-003

Dear Mr. Mason:

The subject lot on which the 2.5MW wind turbine is proposed is in a U-6 Industrial and Manufacturing zoning district. It is a 34 acre parcel located within a much larger predominantly industrial tract which runs from Chardon Road to Babbitt Road, Interstate 90 to Euclid Avenue. Within this general area there are over 762 acres of industrial land. The nearest residential area is to the north, approximately 1,180 feet away and separated by a 20 foot sound barrier. The next nearby residential area to the south is approximately 3,070 feet away. These distances and the predominantly industrial nature of the area show that this proposed turbine is well situated with regard to general land use planning principals.

In addition, there is a general expectation that within an industrial area that various uses and equipment do have impacts and establish an aesthetic which would not be acceptable generally in the non-industrial areas of a community. Therefore, the City of Euclid finds that the 2.5MW wind turbine proposed for permanent parcel number 647-13-003 does not represent a significant negative visual impact.

The proposed turbine is to be located 603 feet from the nearest abutting neighbor, 259 feet from the right-of-way of East 222nd Street, and 284 feet from the right-of-way of St. Clair Avenue. This placement on the lot provides ample distance from nearby commercial and industrial properties to ensure that there will be no negative impact to the neighboring area. In fact, it is anticipated that the Lincoln Electric Wind Turbine will serve as a local landmark for the industrial district.

Further, the Lincoln Electric Company has received a variance from the City of Euclid's height restrictions of the Planning and Zoning Code at a public hearing of the City of Euclid's Planning and Zoning Commission. Public comment was encouraged and neither the Planning and Zoning Commission nor the general public raised any concerns regarding the visual impact of the proposed wind turbine.

If you have any questions or require further comment please feel free to contact me at (216) 289-8180 or pbeno@cityofeuclid.com.

Sincerely,

Paul Beno
Planning & Zoning Commissioner

Attachment C-4a

APPENDIX C. AGENCY COORDINATION AND APPROVALS

Department of Energy
Washington, DC 20585

June 16, 2010

Mr. Mark Epstein
Department Head
Resource Protection and Review
Ohio Historic Preservation Office
1982 Velma Avenue
Columbus, Ohio 43211-2497

RE: American Recovery and Reinvestment Act 2009 (ARRA)
Lincoln Electric Wind Turbine Project (PRJ13813844)
East 222nd Street, Euclid, Ohio

Dear Mr. Epstein:

This letter continues consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" for the construction of the above referenced wind turbine project (the Undertaking) to be funded through a grant from the U.S. Department of Energy (DOE) to the Ohio Department of Development Energy Resources Division (ODOD) State Energy Program funding from the American Reinvestment and Recovery Act of 2009 (ARRA).

We are sending this letter to your attention per your direction to Mr. Greg Payne, ODOD. In response to the Ohio Historic Preservation Office (OHPO) letter dated May 20, 2010, we are providing additional information related to our earlier findings (DOE letter to OHPO, May 14, 20210). This response specifically reflects the refined request for information provided in your e-mail correspondence to Mr. Greg Payne, Energy Public Policy Division, and ODOD, dated June 2, 2010 and provides the information you requested. That e-mail specified that the OHPO required answers to the following questions:

1. Consulting party participation beyond agencies—who they are and what their opinions are;
2. Justification for the Area of Potential Effect (APE);
3. Identification and evaluation of properties not previously identified—that is, not already listed in the NRHP or inventories, and;
4. Assessment of effects to any historic properties (including those newly identified) in the APE

The proposed Undertaking is installation of a 443 foot high 2.5 MW wind turbine at the Lincoln Electric facility in Euclid Ohio (Attachments 1 and 2). A complete

Attachment C-5

description of the proposed Undertaking can be found in our letter of May 14, 2010 to the OHPO.

Consulting Party Participation

Consultation with interested parties regarding the potential effects of the Undertaking on NRHP listed or eligible properties will reflect the scale of the Undertaking, the level of DOE involvement and, as per 36 CFR 800.2, be coordinated with the requirements of the National Environmental Policy Act (NEPA). An Environmental Assessment (EA) of the project is currently being prepared to fulfill compliance with NEPA. Public (i.e. consulting parties, agencies, public and all other stakeholders) notification and Section 106 consultation will be coordinated as part of the EA per the statute:

> Agency officials should ensure that preparation of an environmental assessment (EA) and finding of no significant impact (FONSI) or an EIS and record of decision (ROD) includes appropriate scoping, identification of historic properties, assessment of effects upon them, and consultation leading to resolution of any adverse effects...An agency official may use the process and documentation required for the preparation of an EA/FONSI or an EIS/ROD to comply with section 106 in lieu of the procedures set forth in §§ 800.3 through 800.6 if the agency official has notified in advance the SHPO/THPO and the Council that it intends to do so, et sec. (36 CFR 800.2(3) and 800.2(3)(b)).

Documentation of DOE's Section 106 consultation with OHPO will be included in the EA, which will be open for public comment for 14 days. A Notice of Availability of the EA and public comment procedures for the EA will reference the public's ability to comment on the proposed Undertaking's potential effects on listed and potentially eligible NRHP properties. The NOA for the EA will clearly identify that the Public will have an opportunity to comment on the Undertaking's proposed effects on historic and potentially historic properties per Section 106 as part of the NEPA process. The following agencies and organizations will receive the NOA and draft EA:

- City of Euclid
- City of Euclid Historic Landmarks Commission
- Euclid Historic Museum and Euclid Historical Society
- Cleveland Restoration Society
- Urban Design Center of Northeast Ohio
- Cuyahoga County Government
- Cuyahoga County Planning Commission
- First Suburbs Development Council
- Western Reserve Historical Society
- Western Reserve Heritage Association

and the City of Euclid website newsletter http://www.cityofeuclid.com/uploads/newsletters/current.pdf. The 2010 Spring edition of this newsletter already included a page-long article on the Lincoln Electric Wind Turbine project.

The EA will be posted on DOE's Golden Reading Room website: http://www.eere.energy.gov/golden/Reading_Room.aspx (target date 7/5/2010) which will enable an opportunity for review of the EA and the Section 106 Consultation documentation. Information about the Undertaking on the Golden Reading Room website will include the DOE's Section 106 finding of effects for the project, and the OHPO's comments on the agency finding of effects, pending conclusion of Section 106 consultation. The public will be provided an e-mail address where they can send their comments, along with a postal address for written or printed comments. After the two week public comment period has ended, the DOE will consider and analyze all submitted comments and questions.

Comments and questions that are repetitive or similar in nature will be grouped under one issue heading. Each of these issues will be considered for inclusion in the final EA document. After consideration and analysis, responses will be written and sent to the OHPO and posted on the website. Responses to public comments are anticipated to be completed and posted on the website within 2-3 weeks of the comment closing date and will precede any filing of a Finding of No Significant Impact Statement (FONSI) for the project.

The DOE finds this proposed public participation process to be consistent with 36 CFR 800.2*(d)*. The proposed process is appropriate to the scale of the undertaking, the scope of federal involvement and is coordinated with the requirements of the National Environmental Policy Act (NEPA). Consistent with 36 CFR 800.2*(d)(3)*, DOE is using, to the extent possible, existing agency procedures and mechanisms to fulfill these consultation requirements.

Above-Ground and Archaeological APEs

The archeological APE for the Lincoln Electric Wind Turbine (Wind Turbine) project is defined as the 10-acre proposed construction site (Attachment 3). The Above-Ground APE for the project is defined as a one-mile radius from the proposed Wind Turbine location (Attachment 4).

Clarification of Archeological APE: The APE determined for archaeological resources focuses on the zone of direct ground disturbance associated with the construction of the Wind Turbine. Although the installation of the wind turbine will be limited to approximately 0.37 acres, which includes the Wind Turbine foundation and clearing around the foundation. However, the construction site is considered to potentially include the entire 10-acre area, as site access may be from the south end of the wind turbine installation site and may require removing existing asphalt temporarily (which would be replaced) and the lay down/staging

may include additional areas outside the 0.37-acre wind turbine installation area. The archeological APE therefore is considered to be the 1-acre construction site. Current construction plans can be found in Attachment 5—Construction Drawings, Sheet C02. The Wind Turbine will be approximately 12 feet below the ground surface (after the removal of the artificial fill).

Clarification of Above-Ground APE: In defining the above-ground APE, both direct and indirect effects were considered. Direct, physical effects would only occur at the construction sites itself; that site is included in the APE. It was determined that the visual character and the setting of the surrounding area should be considered, particularly the presence of existing industrial towers in the viewshed, in order to assess the potential indirect, visual effects of the Undertaking. A computer-generated visual simulation of the view shed of the proposed Wind Turbine as it would be viewed from public spaces was analyzed to determine an appropriate APE.

The southeast intersection of East 222nd Street and St. Clair Avenue is located in an area zoned by the City of Euclid as U6 – Industrial and Manufacturing District. Delineation of this industrial district set a national precedent when a landmark Supreme Court decision (Village of Euclid v. Amber Realty) upheld the constitutionality of municipal land use zoning. This decision prevented Amber Reality from developing an industrial use south of Euclid Avenue, which continues to define a southern boundary for Euclid's industrial district. Along the northern boundary of this industrial area (Interstate 90 and CSX freight line railroad tracks) twenty-foot high concrete slab noise barrier walls are located on both sides of I-90. The south noise barrier wall is visible from the project area. The N&S Railroad, also a freight line, runs though the district and is north of Euclid Avenue.

South of Euclid Avenue the former shoreline of ancient Lake Whittlesey, dating from the retreat of the glaciers that formed the Great Lakes, is currently characterized by steep slopes that rise several hundred feet in elevation and are heavily wooded. The Euclid Creek runs southeast to northwest from the steep slopes south of Euclid Avenue to Wildwood State Park, located on the shores of Lake Erie. The ancient lake shores and this tributary form numerous ridges in the area.

There are 4 tall towers in the City of Euclid that are visual representations of the community and region's industrial heritage and associated landscape. Table 1 lists the towers, shows their height, and identifies the approximate distance of each from the proposed Wind Turbine.

Table 1. Existing Towers Located in Euclid, Ohio

Name	Type	Height in Feet	Distance – Feet	Distance – Miles

EP3	Water	35	562	0.106
EP ½	Water	128	2,565	0.486
Nottingham Water Plant	Radio	350	5,198	0.984
City of Euclid Tower	Radio	299	6,003	1.137

The visual character of these towers is illustrated in Attachment 6, which includes renderings of the towers showing comparative heights and oblique aerial photographs of the tower sites.

Computer simulations depicting how the proposed wind turbine would appear in the view shed were prepared for public site locations around the project area (Attachment 7). The sites include parking lots of public and parochial schools, churches, a playground, fire station, exposition center, and a state park. Public sites were chosen because they are places were people gather and the introduction of a new element in their view shed would theoretically impact a greater number of people than private properties. Visual simulations at 13 locations were prepared, ranging from a distance of approximately ½ mile from the proposed site to almost 2 miles away, near the shore of Lake Erie.

Table 2. Public Space Visual Simulation Study

Photo	Location	Distance	Direction	Visible	In APE	Wind Turbine viewshed partially obstructed by	Contains objects of similar height
1	Perry School	6967	West	Yes	No	Building	
2	Roosevelt School	4150	Northwest	No	Yes	Trees	
3	St. Christine's School	2545	North	Yes	Yes		Tree line
4	Euclid High School	4450	North	Yes	Yes		Parking lot lights poles
5	Great Lakes Expo Center	4650	Northeast	Yes	Yes		Parking lot lights poles, water tower
6	Tungsten Playground	6897	East-northeast	No	No	Trees	
7	St. Felicitas Church & School	7062	East	No	No	Trees and ridgeline	
8	Bethlehem Church	4866	East-southeast	No	Yes	Trees	

9	Glenbrook Elementary	4767	South-southeast	No	Yes	Ridgeline	
10	St. Joeseph Convent	6562	South	No	No	Trees and ridgeline	
11	Central Middle School	6805	South-southwest	No	No	Building	
12	Euclid Creek Park/ Fire Station	6526	West-southwest	No	No	Trees	
13	Wildwood State Park	9989	West	No	No	Trees	

The visual simulations show that the presence of the proposed Wind Turbine is not solely determined by distance. The visibility of the proposed Wind Turbine would vary by location due to the existing ridgelines, tree cover and various buildings and structures that would partially or entirely block the view. Unlike the open treeless prairies or deserts of the West, or flat agricultural areas of the Midwest where tall towers may be seen from several miles away, the natural vegetation of northeast Ohio includes many trees, occurring both naturally and as landscape plantings. These trees will effectively screen many potential views of the Wind Turbine. Where trees are lacking, in many cases buildings will potentially serve as visual obstacles to views of the Wind Turbine.

One visual simulation taken from over 1 mile away indicates the Wind Turbine would be visible. Another visual simulation from a location that is less than 1 mile from the project site indicates that tree cover would mask the view of the wind turbine. Other visual simulations indicate that existing ridgelines in the area would mask the Wind Turbine. A visual simulation from a site approximately ¾ of mile (4,150 feet = .78 mile) from the project site indicates that the Wind Turbine could not be seen, while a site a little over 1 ¼ miles away (6,967 feet = 1.32 miles) indicates that the Wind Turbine would be visible.

This visual simulation indicates the distances from which the proposed Wind Turbine could be seen range from 2,545 to 6,967 feet, with one of these locations, Wildwood State Park, located outside the 1-mile APE (Table 2). A total of eight simulation locations were located outside the 1-mile APE with sight line distances ranging from 6,526 feet to 9,989 feet. Wildwood State Park was the only site outside the 1-mile APE from which the wind turbine was visible. The mean distance of the locations from which the Wind Turbine could be seen is 4,238 feet. The mean distance of the locations from which the Wind Turbine could not be seen is 7,258 feet. The average of the two means is 5,748. The mean distance of the computer generated visual simulation viewing sites is 5,864 feet. A mile above-ground APE would be 5,280 feet from the proposed Wind Turbine.

Beyond one mile, the angles/slopes of any sight lines diminish, decreasing the chances of unobstructed views of the Wind Turbine. For example, the NRHP-listed Albert J. Henn Mansion that is 11,243 feet (2.1 miles) away from the Wind

Turbine site was calculated to have an angle of sight line above horizontal of approximately 2 degrees, which equates to a slope of 4.3 percent. The effect of this flat slope is that 40-foot tall trees occurring within 800 feet of the mansion would screen the view of the Wind Turbine. Given the frequency of urban and street trees within the City of Euclid, it is highly unlikely that a treeless 800 foot stretch would occur that would visually affect many properties.

In summary, the likelihood of a clear, unobstructed vista of the Wind Turbine beyond one mile is extremely small and diminishes rapidly as one travels further away from the site. The varied topography which includes ridgelines, structures consistent with a dense, urban industrial area including tall towers, and the extensive tree canopy found throughout the city, create frequent visual obstacles that block expansive views in the area. Of the eight visual simulation locations located over one mile from the proposed wind turbine location, the turbine was only partially visible from Wildwood State Park. A 1-mile APE is justified for determining the effects, including visual effects, of the proposed Wind Turbine as it represents a reasonable effort to assess visual effects of the Undertaking based on available technology and the existing physical character of the area.

Identification of Historic Above-Ground Properties in APE

The DOE's letter of May 14, 2010 to the OHPO provided information about previously-identified historic properties within the APE. Those properties included NRHP-listed properties in Euclid (2 properties), properties listed in the Ohio Historic Inventory (10 properties) within the APE, and properties within the APE identified by the current City of Euclid Certified Local Government-funded Historic Property Reconnaissance Survey (CLG Survey; 3 properties).

In response to the OHPO's request, DOE's contractor, URS Corporation, conducted further research to identify and evaluate properties that have not been previously identified and evaluated for NRHP eligibility within the APE. That research included site inspection of the OHI properties within the APE and evaluation of their eligibility for the NRHP. URS also obtained updated information from the consultants who are conducting the CLG Survey. DOE believes that utilization of the CLG survey, which includes survey and identification of potential historic properties within the APE, fulfills our responsibility to identify potential historic properties not previously-identified within the APE. That information was also utilized to evaluate those properties for NRHP eligibility evaluation.

Ninety properties have been identified by the CLG Survey that will be recommended for further evaluation to determine whether or not they are historic properties eligible for listing in the NRHP. Thirty of these properties are located within the APE for this Undertaking. Of these 30, 10 are the previously-identified OHI properties noted above. The following sections describe the CLG Survey methodology and assess the NRHP eligibility of the OHI and CLG Survey

properties within the APE. The results of this identification and evaluation have determined that a total of 5 properties located within the APE are eligible for listing in the NRHP. Details related to the CLG survey methodology and detailed findings are located in Attachment 8.

OHI Properties: NRHP Eligibility Assessment

Resources recorded by the OHI with individual OHI forms included ten properties within the APE (Table 3). Limited field and desktop investigation was undertaken to confirm that all ten properties recorded in the OHI forms remained extant. These tasks were performed using photographs taken during field survey conducted by URS Corporation in May 2010 and the specific OHI forms, which include "Site Plan with North Arrow," and a map to identify the location of each property. This further verification of extant properties was based on the most up-to-date information and imagery provide by *Google Earth Professional* computer software, which provides GIS-based aerial and street view imagery updated in May 2007.

Table 3. OHI Properties Within APE

OHI Number	Resource Name	Address
OHI No. CUY-1645-22	Euclid City Hall	585 East 222nd Street
OHI No. CUY-1658-22	North Street School	21129 North Street
OHI No. CUY-1643-22	North Street Elementary School	21103, 21105 North Street
OHI No. CUY-1654-22	Roosevelt School (Noble School)	1551 East 200th Street
OHI No. CUY-1659-22	Nottingham Purification Plant	1300 Chardon Road
OHI No. CUY-1644-22	Ajax Manufacturing Company	1441 Chardon Road
OHI No. CUY-1650-22	A.A. Aiken; George W. Woodworth; C.S. Tracy, House	Euclid Ave. at TRW Drive
OHI No. CUY-1657-22	F. L. Priday Residence	1530 212th Street
OHI No. CUY-1652-22	J. Priday Residence	678 East 222nd Street
OHI No. CUY-1651-22	N/A (Present Name on OHI: 1731 Beverly Hills Drive)	1731 Beverly Hills Drive

Two of the eight properties were found to be no longer extant -- OHI No. CUY-1657-22 and OHI No. CUY-1650-22. A small 1970s multi-unit residential building now occupies the former location of OHI No. CUY-1657-22. A large multi-unit residential building(s) occupy the former location of OHI No. 1650-22 (the Aiken, Woodworth, Tracy House).OHI No. CUY-1650-22's status was further confirmed by a telephone interview with John Williams, President of the Euclid Historical Museum. Investigation suggests a section of the original premises has been developed as an apartment complex and there are no buildings present in the location of the building recorded on OHI No. CUY-1650-22.

The remaining 8 OHI properties were evaluated using the original OHI forms and photographs taken during field survey to determine their eligibility for listing in the NRHP through the application of the NRHP Criteria for Evaluation (Attachment 9). Both the historic context and the period of significance used to conduct this evaluation were drawn from the CLG Survey Report. While all Criteria of the NRHP were considered, given the limits of the information obtained through the methods described above, evaluation was weighted towards Criterion C as that criterion is primarily based upon physical attributes that may be observed through exterior photographs. The 8 OHI properties also underwent NRHP evaluation as contributing properties in a historic district and none of the properties found eligible in this report appear to be in a historic district nor is a potential historic district known to be within the APE.

Following is a summary of the findings from the evaluation of each of the above-referenced properties. Complete details regarding the analysis and eligibility as well as the methodology used in the evaluation of each of the properties are located in Attachment 8.

OHI No. CUY-1643-22 is a one-and-a-half-story red brick building located at 21103 and 21105 North Street, which According to the OHI form, was constructed in 1870 as a school and is present on an 1874 atlas. The DOE has determined that OHI No. CUY-1643-22 is not eligible for listing in the NRHP.

OHI No. CUY-1644-22 is two-story red brick industrial building located at 1441 Chardon Road. According to the OHI form, the building was constructed in 1924 for the Ajax Manufacturing Company—a Cleveland-based producer of nuts, bolts, and machinery. DOE has determined that OHI No. CUY-1644-22 is not eligible for listing in the NRHP.

OHI No. CUY-1651-22 is a substantial three-story detached single-family dwelling located at 1731 Beverly Hills Drive. According to the OHI form the building was constructed in 1925 and is Tudor Eclectic in style. The history of residency is not provided. The DOE has determined that OHI No. CUY-1651-22 is not eligible for listing in the NRHP.

OHI No. CUY-1652-22 is a two-story, wood-frame vernacular late Victorian-era single-family detached residential building located at 678 East 222nd Street. According to the OHI form the building was constructed in 1890 and, as of 1914, the dwelling was situated on 38 acres owned by J. Priday. The Priday family owned other land in Euclid. The DOE has determined that OHI No. CUY-1652-22 is not eligible for listing in the NRHP

OHI No. CUY-1654-22 is a substantial one-story brick school building located at 1551 East 200th Street. According to the OHI form, the building was completed in 1919 with eight classrooms as the Roosevelt School. It has since been enlarged

and is now twice its original size and 27 classrooms. Because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1654-22 is eligible for listing in the NRHP.

OHI No. CUY-1658-22 is a one-and-a-half-story red brick building located at 21129 North Street. According to the OHI form, the building was constructed as a public school in 1894 and is purported to be one of the oldest public buildings in Euclid. Because the building no longer maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1658-22 is eligible for listing in the NRHP.

OHI No. CUY-1659-22 is a large-scale yellow brick industrial building located at 1300 Chardon Road. According to the OHI form, the WPA initiated plans for construction of the plant in the 1930s, but it was not completed until 1951. The building was designed by Havens & Emerson—an Ohio-based architectural-engineering firm. Because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1659-22 is eligible for listing in the NRHP.

CLG Survey Properties: NRHP Eligibility Assessment Methodology

The CLG Survey identified 90 properties in the City of Euclid that will be recommended for further evaluation to determine whether or not they are historic properties eligible for listing in the NRHP. Thirty of these properties are located within the APE for this Undertaking. URS evaluated these thirty properties to determine whether or not they are historic properties eligible for listing in the NRHP through the use of images of the buildings found on Google Earth Professional, supported by analysis by team members with knowledge of the history and architectural history of northeast. On-site survey of these properties was not completed by a URS Architectural Historian.

Table 4 identifies the properties in the APE recommended for additional survey by the CLG draft survey report. The last column of this table is DOE's assessment of the property's NRHP eligibility.

Table 4. CLG Survey
Proposed List of Properties to Survey in APE

Building Type	Resource Name	Address	NRHP Eligible
Public Building	Fire Station #9	Euclid at E. 221st Street	No
Church	St. Christine Church/School	East 222nd Street	No

Church	St. Paul Church/School	1231 Chardon Road & E. 200th	No
Church	Our Lady of Lourdes Shrine	across from 21351 Euclid	No
Commercial Building	Guy's Pizza	861 East 222nd Street	No
Commercial Building	Paddy's	920-928 East 222nd Street	Yes
Commercial Building	Corner Beverage	923 East 222nd Street	Yes
Commercial Building	DiDonato Funeral Home (formerly Brickman Funeral Home)	21900 Euclid Avenue	No
Industrial Building	Chandler Products	1491 Chardon Road	No
Industrial Building	Sunshine Products	1111 East 200th Street	No
Industrial Building	Glasscote Products	20900 St. Clair	No
Industrial Building	TAPCO	23000 Euclid (23555 Euclid Ave.)	No
Industrial Building	Powdermet, Inc. formerly Textron Airfoil Forgings	24112 Rockwell Drive	No
Residential Building	20th c. residential	23970 Effingham	No
Residential Building	20th c. residential	800 block E. 212th	No
Residential Building	A Sear's House	20701 Naumann	No
Other	Paul Serra Stadium Concession	585 E. 222 St	No
Other	Slovenian Society Home	20713 Recher	No

CLG Survey Properties: NRHP Eligibility Assessment

Of the 30 CLG Survey properties located within the APE, 18 were recommended for further analysis and of the 18, only 2 were determined to be NRHP eligible and discussed below. Details related to the analysis and evaluation of the other buildings in listed above in Table 4 are located in Attachment 8.

The commercial buildings identified as **Paddy's** and **Corner Beverage** (920-928 and 923 East 222nd Street) appear to have high integrity (Attachment 10). Common architectural elements include yellow tapestry brick facades, stone lintels and sills, and stone-capped parapets with raised central bay and corner piers. **Paddy's** is actually two connected buildings. The corner building is 2 stories in height and features a cut-away corner entrance, transom windows, a box oriel side bay, central bay second floor entry capped by a small segmental arch canopy, brick frieze paneling, and recessed second floor window spandrels articulated by corbelling. The smaller attached building has a recessed entry flanked by display windows with transoms. One of the display windows appears to be filled-in and the building's lack of detail suggests a possible 1940s or 1950s construction date.

Corner Beverage, which is located across the street from Paddy's, features a hip roof facade-length canopy covered with curved ceramic roofing tiles. Below this roof/ canopy feature the facade is separated by a pier into two storefronts. One storefront consists of a recessed entry flanked by display windows and the other smaller storefront is an end recessed entry and one adjacent display window. The original display and transom window fenestration pattern appears intact. Piers of the facade have vertical panel outlines appearing to consist of darker header bricks.

NRHP Evaluation: These buildings are considered eligible for NRHP listing as strong representatives of a commercial architecture associated with the streetcar suburban expansion and Euclid's early 20th century development. The CLG Survey Report does not identify them as a historic district.

Summary of NRHP Eligibility Findings

Six properties in the Undertaking's APE have been identified as being eligible for listing in the NRHP. Those properties are:

1. Nottingham Purification Plant
2. Euclid City Hall
3. North Street School
4. Roosevelt School
5. Paddy's
6. Corner Beverage

Four of these properties (Nottingham Purification Plant; Euclid City Hall; North Street School, Roosevelt School) were among the previously identified as OHI properties and discussed in our May 14, 2010 letter to OHPO. Two of these properties (Paddy's; Corner Beverage) were identified by the CLG Survey.

Assessment of Effects on Historic Properties

Assessing the potential effects of the proposed Undertaking on historic properties in the APE included consideration of whether or not historic properties may be directly or indirectly affected by visual, audible, or atmospheric intrusions, shadow effects, vibrations from construction activities, or a change in access or use as a result of improvements to the property. However, since the Undertaking is located in a dense urban environment whose character will not likely be changed by the Undertaking, and there will be no demolition or physical changes to any historic property's appearance or form, it was determined that the effects analysis would primarily focus on visual and sound effects..

To be considered adverse, an undertaking's effects must change the character-defining features or elements of a historic property needed to convey its historic association. Of primary concern for this project are NRHP-eligible properties defined in part by features that emphasize each property's historic setting as a way of conveying its historic significance. Because integrity of feeling and association often round out the character of a property's historic setting; a historic property that conveys a sense of time and place is often regarded as possessing significant physical as well as intangible qualities. In order to better understand if the setting of historic properties in the APE might be adversely affected by the Undertaking, the results of a noise impact analysis and various visual effect studies were analyzed.

Potential indirect, visual effects of the wind turbine on NRHP–eligible properties have been determined, in part, by the ability of a person to see the proposed tower from the historic property. To aid in this analysis, photographs were taken from the sites toward the proposed tower location. Additional evaluation materials were prepared with which to better understand the potential visual effects of the Undertaking by the use of digital mapping and embedded aerial photographs. Lastly, a flicker effect study was carried out for the proposed project.

Noise Impacts Analysis

Potential adverse impacts resulting from noise were analyzed and discounted for the existing draft of the Environmental Assessment (EA). This analysis describes potential noise impacts as follows:

> At a distance of 330 feet, which is the location of the nearest residential rental properties, the resulting noise level [from the Undertaking will be] approximately 55 dB(A) [U.S. DOE Energy Efficiency & Renewable Energy (USDOE EERE) Website, citing Danish Wind Industry Association, Wind Turbine Sound Calculator, 2003]. However, the background noise level along East 222nd Street, where these properties are located, ranges from 55 dB to 78 dB when traffic passes along East 222nd. ... Therefore, since existing background sound levels substantially exceed sounds that would be created by the proposed wind project, noise intrusion from the wind turbine should be inconsequential in total noise emissions at this residential location.
>
> The nearest zoned residential neighborhood is approximately 1,200 feet away, across I-90 (which is blocked by a 20-foot high sound wall) and two major roadways. The combination of the fact that the nearest residential neighborhood is over 1,150 feet away from the wind turbine and the noise levels from I-90 and the major roadways that lie between the turbine and the neighbor, impacts from noise intrusion from the wind turbine are not anticipated.

This analysis will be included in the EA for the Undertaking.

Photographic Views from NRHP–eligible Properties to Project Site

The ability of a person to see the wind turbine from NRHP-eligible properties is directly relevant to whether or not there may be the potential for an adverse effect from the proposed Wind Turbine. Photographs taken from the physical location of NRHP- eligible OHI sites towards the location of the proposed Wind Turbine show that a view of the Wind Turbine from these historic sites (OHI No. CUY - 1645-22, CUY-1654-22, 1658-22, and CUY-1659-22) would likely be blocked (Attachment 11).

Theoretically, a person standing on a sidewalk in front of the **North Street School** (OHI No. CUY-1658-22) and facing northeast will have a view that contains numerous telephone poles and utility wires, 2-story residential structures, and a mature tree canopy between the residential structures. From the rear parking lot of the **Roosevelt School** (OHI No. CUY-1654-22) facing southeast, the viewshed is dominated by a grouping of trees. Facing south, from a vantage point next to the south elevation of the **Euclid City Hall** (OHI No. CUY-1645-22) the viewshed contains the new Euclid Library and the 2-story clock tower. A mature tree is immediately west of the new Euclid City Hall. A photograph depicting the view from the **Nottingham Purification Plant** (OHI No. CUY-1659-22) illustrates the viewshed of 1-2 story industrial buildings, utility poles and a high chain link and barbed wire fence. Some mature tree canopy is evident in the distance.

The remaining NRHP-eligible properties, **Paddy's**, located at 920-928 East 222nd Street and **Corner Beverage** located at 923 East 222nd Street, are in a residential area north of the I-90 and CSX rail corridor. As previously mentioned, 20-foot concrete panel noise barriers are located on both sides of the East 222nd Street stretch of I-90. Attachment 7 (Visual Simulations of Public Space Views Wind Turbine) contains an illustration of the potential view of the wind turbine from a nearby location (Photo 3: Photo simulation from View Shed of St. Christine's School Parking Lot, Euclid, Ohio. Distance is 2545 Feet from Proposed Turbine). This photograph shows the wind turbine as visible but at the same height as the adjacent tree canopy. This photograph suggests a viewshed from these NRHP-eligible commercial buildings toward the proposed wind turbine site may include the proposed Wind Turbine, or the Wind Turbine may be fully or partially masked by mature tree canopy.

Digital Mapping and Embedded Aerial Photograph Visual Analysis

This analysis assessed the view of the proposed wind turbine from the 6 NRHP-eligible sites in the APE. A theoretical line of site was determined for a six-foot tall viewer standing at each of the sites within the APE. This analysis used electronic USGS mapping and AutoCAD mapping with embedded aerial

photographs. The line of site from each location to the Wind Turbine was calculated using the relative elevation difference between each individual site and the proposed Wind Turbine. The resulting calculation found the typical angle of sight, above horizontal, at 3-4 degrees or approximately 8-11 percent slope. For every 100 feet of horizontal distance between a historic property location and the proposed Wind Turbine, the sight line rises approximately 8-11 feet.

With these relatively flat angles/slopes, it seemed apparent that nearby objects (trees, houses, and other buildings) would provide effective screening of one's view of the proposed Wind Turbine in many cases, as demonstrated in Attachment 7. This table identifies the height of objects that would screen a person's view of the Wind Turbine from 4 of the 5 NRHP eligible properties *and* how far away (in feet) the object would be from the viewer to screen the object. Distances used are listed in 50-foot increments from 50 to 500.

Table 5. Height[1] and Distance[2] of Objects that Would Screen One's View of the Wind Turbine from Potential NRHP-Eligible Sites

	North Street School	**Euclid City Hall**	**Nottingham Purification Plant**	**Roosevelt School**	**Paddy's and Corner Beverage**
	5,193 feet away	**5,144 feet away**	**5,070 feet away**	**4,194 feet away**	**1,664 feet away**
Distance[2] from the viewer (feet):	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**	**Height[1] (feet):**
50	10.1	10.5	10.4	11.5	19.6
100	14.2	14.9	14.7	17.1	33.1
150	18.2	19.4	19.1	22.6	46.7
200	22.3	23.9	23.5	28.1	60.2
250	26.4	28.4	27.9	33.7	73.2
300	30.5	32.8	32.2	39.2	87.3
350	34.6	37.3	36.6	44.7	100.9
400	38.6	41.8	41	50.2	114.4
450	42.7	46.2	45.3	55.8	128
500	46.8	50.7	49.7	61.3	141.5

From the perspective of a 6' tall person looking from just outside the building, view of top of Wind Turbine is blocked by an object of this height[1] at this distance[2] from the viewer.

As Table 5 indicates, a line of 40 foot tall trees that is located 150 feet away from the viewer would screen the Wind Turbine for a 6 foot tall person standing at each historic property location, with the exception of Paddy's. Those same trees at a

distance of 300 feet from the viewer standing at those locations (except Paddy's) locations would also obstruct the view of the Wind Turbine.

Houses that are 25 feet in height, such as the Cape Code or Minimal Traditional style residences that characterizes much of Euclid, and that are located 200 feet from a historic property, would block the view of the Wind Turbine from the historic property. Even if the view from an OHI site to the proposed Wind Turbine did not include total blockage of the Wind Turbine, the partial screening of view would prevent the Wind Turbine from "dominating" the view shed.

The theoretical calculations from Table 5 were then put to the test using standard aerial photographs and oblique aerial photographs of the project area. Graphics were constructed to show the results (Attachment 12). Mature trees were conservatively estimated to be 40 feet tall. The heights of individual buildings were estimated using oblique aerial photographs. The two-dimensional graphics demonstrate both the direction of view towards the Wind Turbine, as well as the vertical angle of view to the top of the Wind Turbine. Trees and buildings were placed in the proper position in the vertical angle of view based on their relative locations with respect to the viewpoint.

A viewer standing just outside the south entrance of Euclid City Hall would find that the view of the Wind Turbine would be totally blocked by the Euclid Library, 300 feet away. A viewer standing on the north side of North Street School would find their view of the Wind Turbine screened by the trees of a woodlot beginning about 75 feet northeast of the school. Due to the length of the sightline through this woodlot, it is likely that total screening would occur even in winter conditions. The graphics demonstrate that in the majority of cases, nearby trees, houses, and/or other buildings or structures screen or block the view of the Wind Turbine from the historic properties in the APE.

Shadow Flicker Effect Analysis

A shadow flicker effect analysis (Flicker Report) was conducted for the proposed wind turbine by the Cleveland-based firm JW Great Lakes Wind, LLC. (Shadow Flicker Analysis for Lincoln Electric Wind Turbine, Cleveland OH, Report to The Lincoln Electric Company, March 2010). Shadow flicker is defined as alternating changes in light intensity caused by a moving object (such as a rotating rotor blades) casting shadow on another object. Shadow flicker from a wind turbine can be caused when moving blades pass in front of the view of the sun, creating alternating changes in light intensity or shadows. Shadow flicker becomes increasingly less noticeable at distances beyond 1000 feet, except at sunrise and sunset when shadows are the longest.

Over 600 light receptors set 1 meter high were placed within 3,281 feet of the proposed site. The distance was based on several government sources that suggest shadow flicker effects become relatively insignificant beyond this distance.

Because the City of Euclid north of I-90 is a relatively dense residential area, the Flicker Report study placed receptors at every second or third house. The Flicker Report justifies this as an appropriate sampling effort given the trees, other buildings, and noise barriers along I-90 that separate the turbine from the neighborhoods north of I-90.

Results from the sensors were used to determine shadow isolines, defined as lines between two variables of equal value. The shadow isolines are given for increments of 10, 30, 50, and 100 hours of shadowing per year, which are industry standard breakdowns. A 30 hour isoline is considered the threshold for significant impact by the Ohio Power Siting Board. The results from the shadow flicker study indicate that 17 receptors receive more than 30 hours of shadow flicker per year. All 17 of these sensors are located in the industrial district south of I-90. The 30 hour isoline is well within the historic property APE. No OHI, NRHP or NRHP potential sites are located within the 30 hour shadow isoline. The wind turbine will therefore have no significant shadow flicker effect on historic properties.

Determination of Effects: Below-Ground Archeological Resources

URS conducted a desktop review of available resources to evaluate the potential for recovering archaeological resources within the APE. This desktop review included utilization of the OHPO on-line mapping system, examination of historic mapping and aerial photography, review of the soil survey data for the area, and a review of the physiographic data for the area.

The OHPO on-line mapping system locates previously recorded, known cultural resources within or near the APE. Study of the on-line mapping system included a review of the Ohio Archaeological Inventory (OAI), OHI, and the NRHP. For previously-recorded archaeological sites on the OAI, none were documented within the archeological below-ground APE. The closest recorded archaeological sites were three historic sites approximately 2.5 miles to the northeast of the APE.

Although no archaeological sites were documented within the below-ground archeological APE or within the one-mile study buffer, the OHI gives some indication that there is a potential for the recovery of historic resources within the APE, especially resources dating from the mid 19th to mid 20th century. URS reviewed historic mapping to determine if any structures had been located within the APE, which would help evaluate the potential for historic archaeological sites. Sanborn mapping, which was suggested by the OHPO, was obtained and examined.

The Sanborn mapping did not have documentation of the area before 1950, but URS examined the 1950, 1952, 1963, and 1966 maps (Attachment 13). On all of

these maps there were no structures illustrated in the APE. However, these maps did indicate the presence of structures adjacent to the APE. The 1950 Sanborn Map illustrates an industrial building directly to the east and some other structures to the west on the opposite side of the road. The 1952 Sanborn map had a portion of the APE listed as "parks" and listed the building to the east and another building to the north as the "Euclid Road Machinery Company." The information identified on the 1952 Sanborn is the same as that found on the 1963 and 1966 Sanborn mapping. URS also looked at plat maps from the 1920s. The 1920 plat map of the area, similar to the Sanborn mapping, did not illustrate structures directly within the APE, but did show two buildings located to the east and north of the APE (GM Hopkins Company 1920).

A review of the land use for this area, which included examination of aerial photographs, and archival data associated with the history of the area, indicates that the APE has been disturbed by industry development, despite historic maps not indicating the previous presence of a structure. Most recently, the area has been used as a private park for Lincoln Electric employees. This park is most likely the same park listed on the 1952, 1963, and 1966 Sanborn maps. Contractor notes associated with the construction of the park indicate that the first four inches of soil were stripped off to remove vegetation, rocks, and debris. Subsequently, topsoil was imported to fill in the stripped area.

Additional information for the area states that this parcel was owned by Euclid Incorporated from roughly 1946 to the late 1970s (Encyclopedia of Cleveland History 2004). Euclid Incorporated corresponds with the buildings labeled "Euclid Road Machinery Company" on the 1952, 1963, and 1966 Sanborn maps. This company manufactured off-highway, earth-moving, and hauling equipment, and the parcel that the APE is situated on, was used as a proving ground for this equipment. Aerial photography from 1952 and 1961 illustrates this disturbance and it is also visible on the aerial mapping within the *Cuyahoga County Soil Survey* (USDA 1980) (Attachment 14).

The archeological APE is within the Erie Lake Plain, which is a very low relief ice-age lake basin separated from modern Lake Erie by shoreline cliffs (Brockman 1998). This region marks the former extent of Lake Erie (Lake Whittelsey) as the last Wisconsin-age glacier retreated from Ohio (Ohio History Central 2010). The soil survey for Cuyahoga County indicates that the APE is within Urban land (Ub), which is where 80 percent of the surface is covered by asphalt, concrete, buildings, or manmade surfaces (USDA 1980:47). Areas contained within this mapping unit include large areas with miscellaneous materials placed in fills (USDA 1980:47).

A URS staff geomorphologist reviewed the physiographic data of the region, topographic mapping, historic aerial photography, and soil survey data for the area. That review identifies the APE as being in an area of recessional beach ridges formed when lake levels were receding (approximately 10,000 years ago).

Given the setting, it is unlikely that buried cultural deposits (similar to those in a floodplain setting) would be present. In addition, the area appears well-developed which further decreases the chances of deeply buried cultural deposits. It is the opinion of the geomorphologist that the greatest potential for archaeological material would be within the first 12 inches of soil.

In summary, as result of the desktop evidence presented above, it is the opinion of URS that the APE has a low potential for recovering archaeological resources. If archaeological resources are identified they most likely would be historic and related to the industrial activity associated with the area.

NRHP Effects Determination

After reviewing additional information and conducting further analysis for the Undertaking in response to OHPO May 20, 2010 letter, the DOE finds that the construction and installation of the proposed Lincoln Electric Wind Turbine at the southeast corner of E. 222nd Street and St Clair Avenue in Euclid, Ohio will have no adverse effect on the character-defining features of properties listed in or eligible for listing in the NRHP.

Six properties in the Undertaking's APE have been identified as being eligible for listing in the NRHP. Those properties are:

1. Nottingham Purification Plant
2. Euclid City Hall
3. North Street School
4. Roosevelt School
5. Paddy's
6. Corner Beverage

These six properties do not have settings that are considered character-defining to the extant that they define the properties' significance or eligibility for NRHP consideration. The two small commercial properties (Paddy's and Corner Beverage) that will likely have a view of Wind Turbine will not be adversely affected by the Wind Tower because a person's ability to see the Wind Turbine from these buildings will not diminish their architectural character or their association with the streetcar era development of Euclid.

Of the six, only the Nottingham Water Purification Plant has a distinctive setting that may be a compelling aspect of its significance. However, its setting also currently includes a 350' foot Radio Tower that compromises its historic setting. In addition, the visual analysis strongly indicates that a view of the proposed Wind Turbine, which is over 5,000 feet away from the water plant, is unlikely – and even then is likely to be obscured.

The DOE requests your concurrence with its determination that the Lincoln Electric Wind Turbine will have *no adverse effect* on NRHP listed or eligible properties.

While the DOE understands that your office has thirty (30) calendar days under 36 CFR Part 800 in which to respond to our determination, we would like to take this opportunity to point out that all projects that involve ARRA funding are on an extremely tight timeframe; literally every day counts in this effort to help rebuild the American economy. To maximize the period for actual site preparation and installation of the wind turbine, I am requesting that you provide comments to us within the next 10 working days after receipt of this consultation package, or even sooner if at all possible.

Should you have any questions about this information, please contact me at [Caroline.Mann@ee.doe.gov] or at 202-287-5380), or contact URS Principal Architectural Historian Jeff Winstel (Jeff_Winstel@urscorp.com; 301-258-6584).

Sincerely,

John Jediny
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
100 Independence Avenue SW
Washington DC 20585

On behalf of:

Caroline Mann
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
100 Independence Avenue SW
Washington DC 20585

JW:jw

attachments

cc: Franco Ruffini, Deputy SHPO, OHPO
Greg Payne, Energy Project Liaison, ODOD
Tracy Engle, URS
Jim Burns, URS
Jeff Winstel, URS
Whitney Fiore, ICF International
Jim Sonnhalter, Manager of Community Projects, City of Euclid

List of Attachments

Attachment #'s = from original letter
Attachment C-5_ = from Ea text

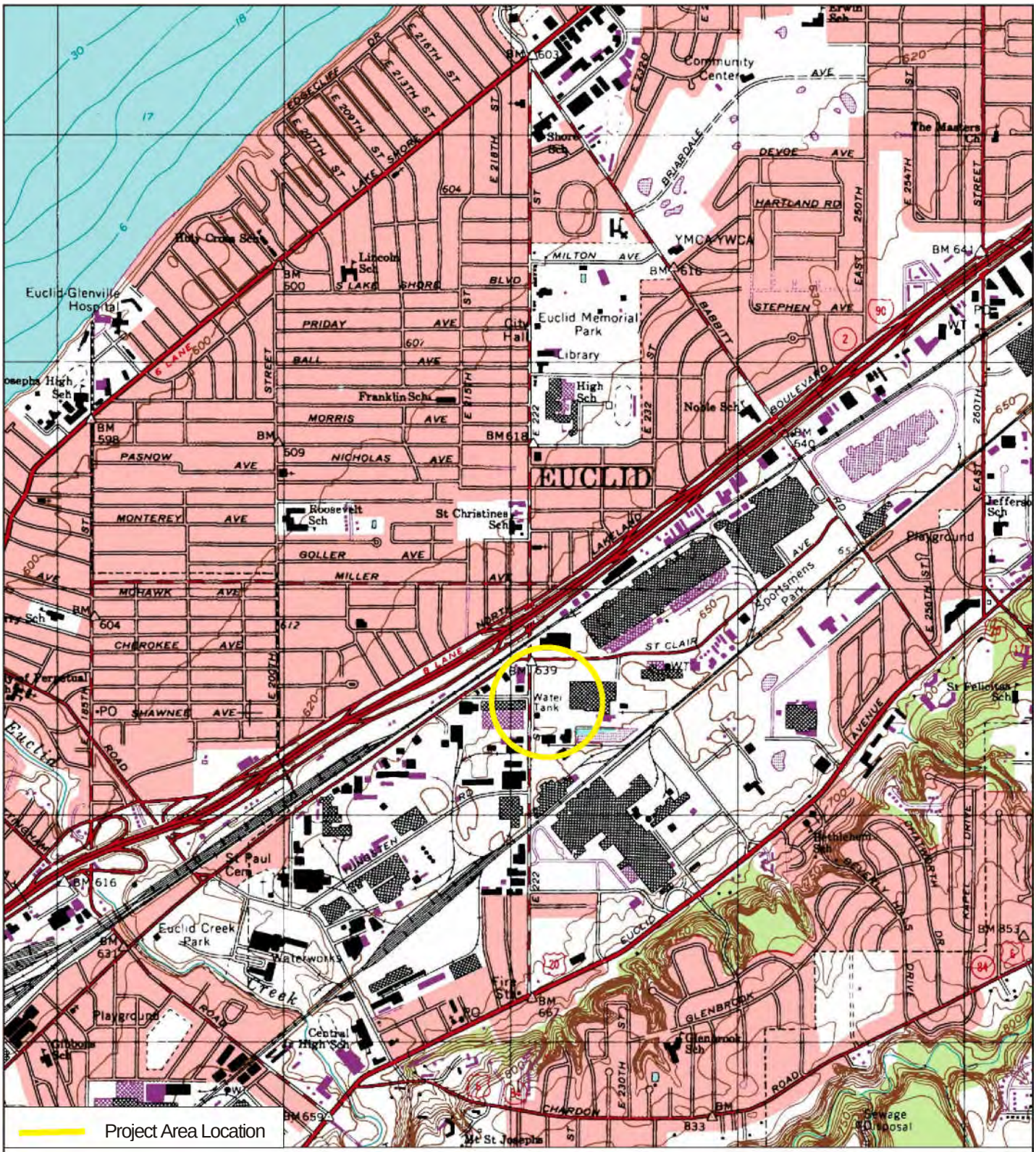
Attachment 1 (C-5a USGS Quadrangle Map Showing Project Location
Attachment 2 (C-5b Aerial View Showing Project Location
Attachment 3 (C-5c) Area of Potential Effect for Archeological Resources
Attachment 4 (C-5d) Area of Potential Effect for Above Ground Historic Properties
Attachment 5 (C-5e) Lincoln Electric Company Plans
- Campus Layout
- Existing Conditions Plan
- Site Improvement Plan

Attachment 6 (C-5f) Existing Towers in Euclid
- Composite of Local Landmarks (towers)
- Oblique Aerial Photos of Local Landmarks (towers)

Attachment 7 (C-5g Visual Simulations of Public Space Views of Wind Turbine
Attachment 8 (C-5h) Methodology, Analysis and Evaluations for the CLG Survey and OHI Properties
Attachment 9 (C-5i) Photo Log for Extant OHI Properties within the One-Mile APE
Attachment 10 (C-5j) istoric Reconnaissance Survey NRHP Eligible Properties within the One-Mile APE
Attachment 11 (C-5k) ıotos of Directional Views of the Proposed Wind Turbine Site from Historic Properties
Attachment 12 (C-5l) earby Objects Blocking View of Wind Turbine
Attachment 13 (C-5m) ınborn Maps for Project Site
Attachment 14 (C-5n) '61 Aerial Photographs of Archeological APE
Attachment 15 (C-5oj) incipal References Cited

Attachment 1

Attachment C-5a



PROJECT	Lincoln Electric Wind Turbine Project
SCALE	1"= 0.38 miles (0.61 kilometers)
SOURCE	USGS East Cleveland, OH (1994) 7.5 minute topographic Quadrangle

USGS Quadrangle Map Showing Project Location

URS

PROJECT NO.	PRJ13813844
FIGURE NO.	Attachment 1

Attachment 2

Attachment C-5b

PROJECT	Lincoln Electric Wind Turbine Project
SCALE	1"= 434 feet (132 meters)
SOURCE	Google Earth Professional

Aerial View Showing Project Location

URS

PROJECT NO.	PRJ13813844
FIGURE NO.	Attachment 2

Attachment 3

Attachment C-5c

PROJECT Lincoln Electric Wind Turbine Project	Area of Potential Effect for Archaeological Resources
SCALE 1"= 434 feet (132 meters)	
SOURCE Google Earth Professional	URS
	PROJECT NO. PRJ13813844
	FIGURE NO. Attachment 3

Attachment 4

Attachment C-5d

0 0.5 1 mile

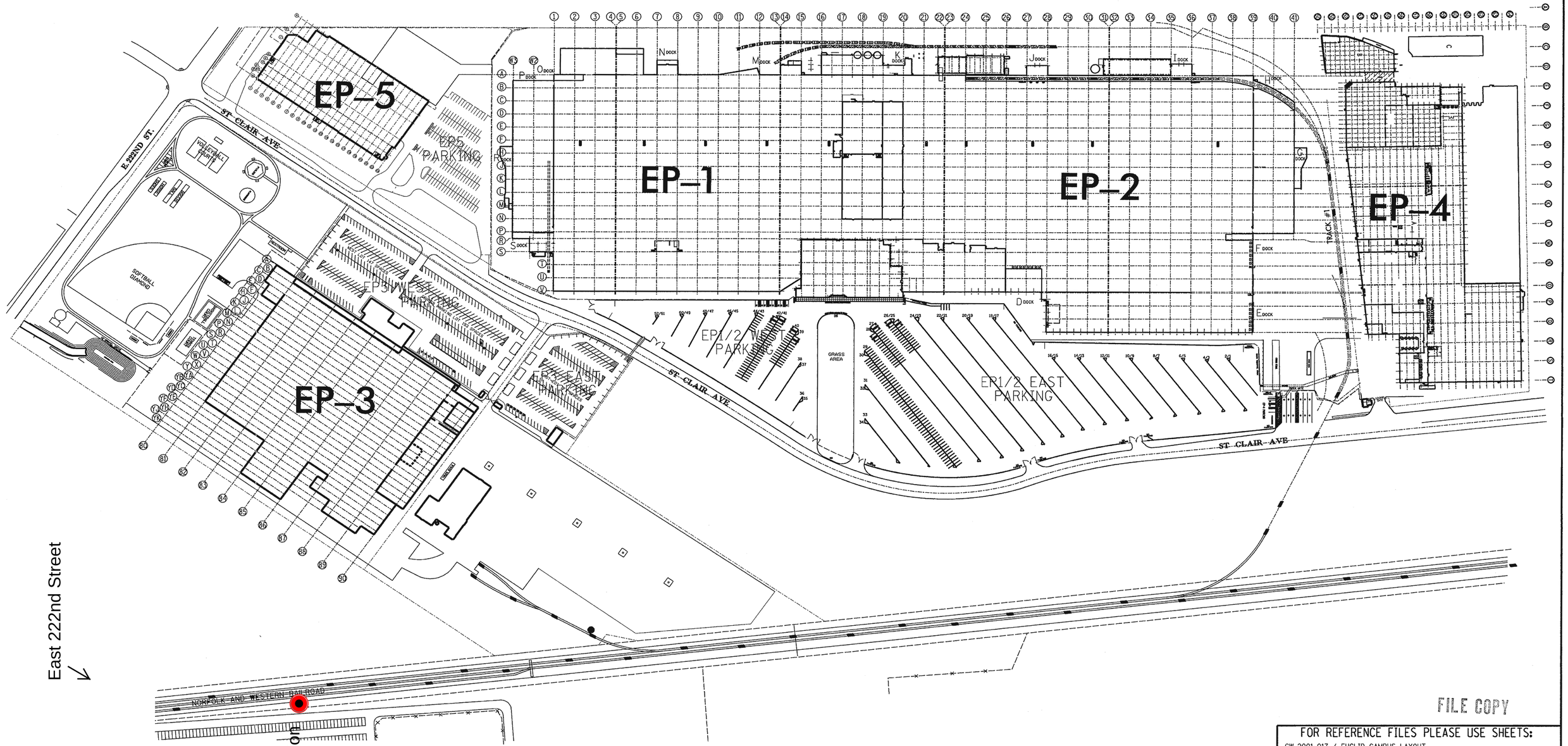
0 0.5 1 kilometer

N

PROJECT Lincoln Electric Wind Turbine Project	Area of Potential Effect for Above Ground Historic Properties
1"= 1527 feet (465 meters)	
Google Earth Professional	URS
	PROJECT NO. PRJ13813844
	FIGURE NO. Attachment 4

Attachment 5

Attachment C-5e



FILE COPY

FOR REFERENCE FILES PLEASE USE SHEETS:

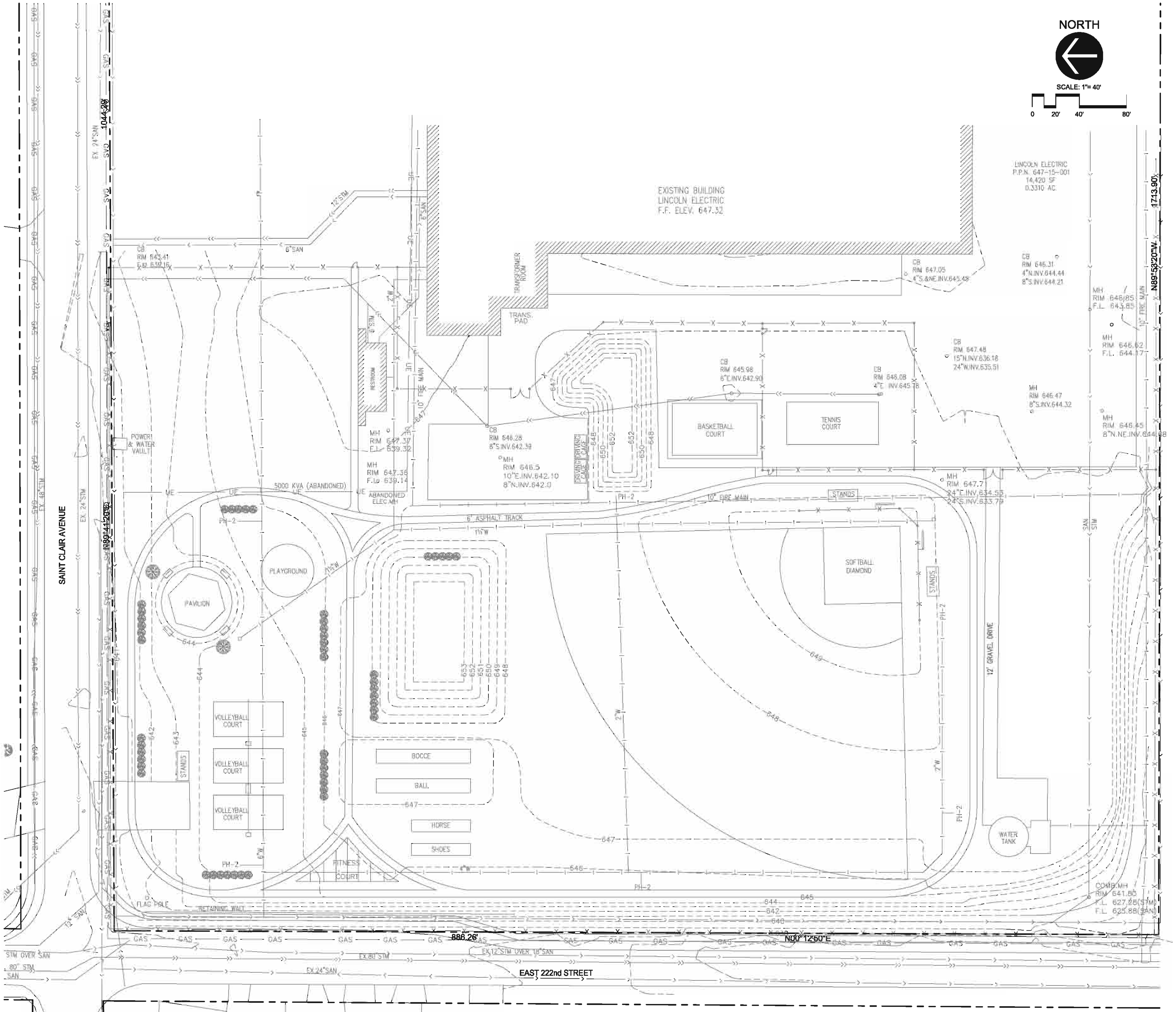
GW-2001-017 / EUCLID CAMPUS LAYOUT
GW-2001-013 / EP-1/2 DEPARTMENTAL LAYOUT & SQUARE FOOTAGE
GW-2001-018 / EP-1/2 BUILDING FOOTPRINT & SITE LAYOUT
GW-2003-035 / EP-3 BUILDING FOOTPRINT & SITE LAYOUT
GW-2003-059 / EP-3 DEPARTMENTAL LAYOUT & SQUARE FOOTAGE
GW-2004-006 / EP-4 BUILDING FOOTPRINT & SITE LAYOUT
GW-2004-024 / EP-4 DEPARTMENTAL LAYOUT & SQUARE FOOTAGE
GW-2505-002 / EP-5 BUILDING FOOTPRINT & SITE LAYOUT
GW-2505-007 / EP-5 DEPARTMENTAL LAYOUT & SQUARE FOOTAGE
GW-1040-058 / MENTOR PLANT FOOTPRINT & SITE LAYOUT
GW-2005-010 / MENTOR PLANT DEPARTMENTAL LAYOUT & SQUARE FOOTAGE

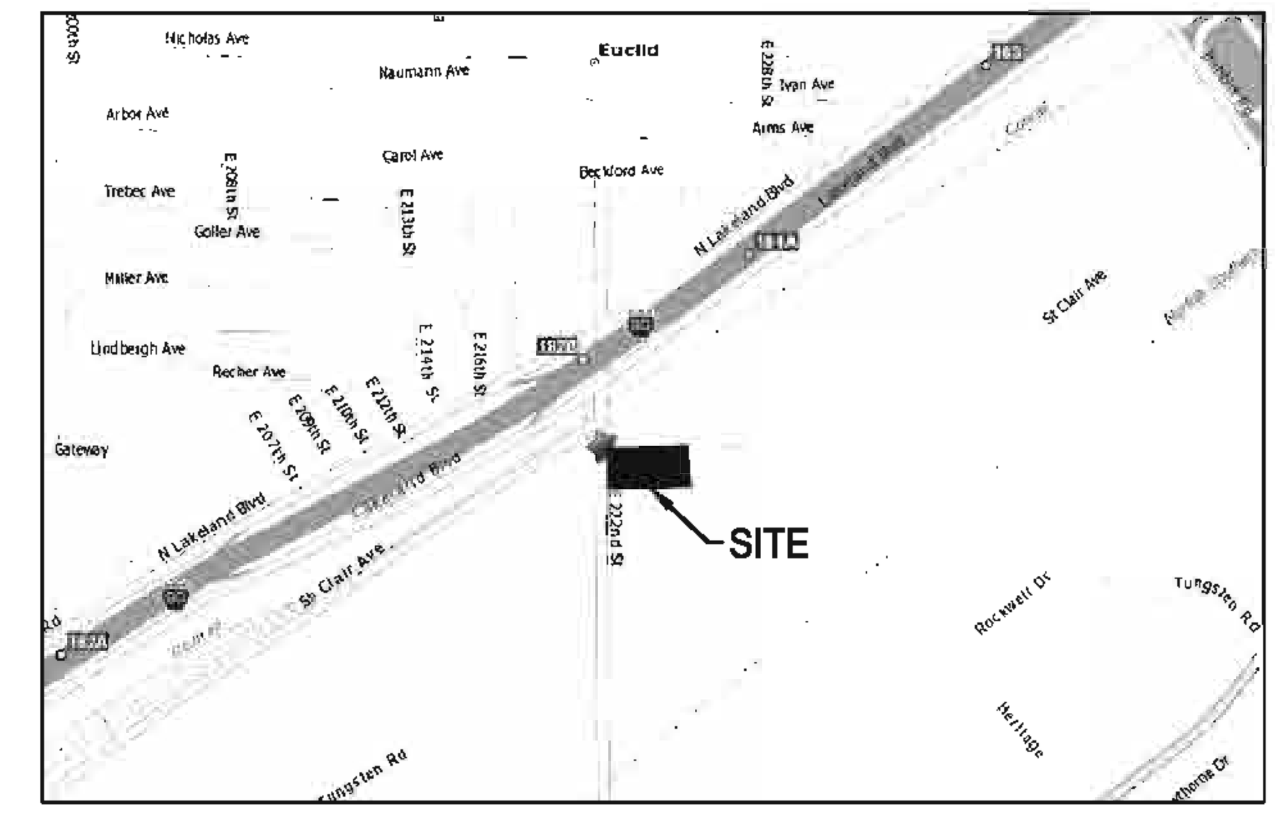
CHG.	BY	DATE	DESCRIPTION
G			
F			
E	BDW	2/07/08	REVISED CAMPUS SITE PLAN
D	BDW	5/31/07	UPDATED ADDED EP-5 SITE PLAN
C	JRS	4/07/04	UPDATED EP-3 SITE PLAN, CHANGE DRAWING SCALE
B	JRS	3/21/01	CORRECTED ENGINE LIFE TEST AREA, UPDATED TITLE BLOCK
A	JRS	8/31/00	ADDED DOCK LOCATION DESIGNATIONS

PART NO.	NAME	REQ.	MATERIAL	SIZE	REMARKS
	SITE				

THE LINCOLN ELECTRIC CO., CLEVELAND, OHIO
LINCOLN ELECTRIC COMPANY
CAMPUS LAYOUT
EP1 & 2, EP-3, EP-4, EP-5 & AUTOMATION

DRAWN	J. SCHMIDT	DATE 4/07/04	SCALE 1"=133.3'
CHK'D	O.K.		
MACH NO.	LOC.	GW- 2001-017	E





LOCATION MAP
N.T.S.

ISSUED FOR CONSTRUCTION

LEGEND

EXISTING		PROPOSED
	SANITARY SEWER	
	STORM SEWER	
	WATER MAIN	
	SANITARY SEWER MANHOLE	
	STORM SEWER MANHOLE	
	CATCH BASIN	
	INLET	
	VALVE IN VAULT	
	FIRE HYDRANT	
	UTILITY POLE	
	STREET LIGHT	
	LIGHT STANDARD	
621.12	SPOT ELEVATION	621.12
621	CONTOUR	621
	SURFACE DRAINAGE	
RIM XXX.XX INV XXX.XX	SANITARY MANHOLE ELEVATION	RIM XXX.XX INV XXX.XX
RIM XXX.XX INV XXX.XX	STORM STRUCTURE ELEVATIONS	RIM XXX.XX INV XXX.XX
	PROPERTY LINE & R.O.W.	
	EASEMENT LINE	
	CHAIN FENCE	
	WOOD FENCE	
UE UT	BURIED UTILITY LINE	UE UT
OE OT	OVERHEAD UTILITY LINE	OE OT

FOR BURIED AND OVERHEAD UTILITIES:
E=ELECTRIC T=TELEPHONE C=COMMUNICATIONS G=GAS

WARNING
CALL BEFORE YOU DIG

BOUNDARY & TOPOGRAPHIC INFORMATION BASED ON SITE PLAN BY GILLS, GUARD & JOHNSON, INC.

DATE: OCTOBER 5, 1995

Y:\2009 Giv\22090034.000_Lincoln Electric_Wind Turbine_Euclid OH\09034C1 Existing conditions.dwg

Larson Engineering Inc
1488 Bond Street, Suite 100
Naperville, Illinois 60563-6503
(P) 630.357.0540 (F) 630.357.0164
ILLINOIS LICENSE NO. 184-001442
LEIL Comm. No. 22090034.000

Client: LINCOLN ELECTRIC

Project Title: LINCOLN ELECTRIC WIND PROJECT
EUCLID, OH

Seal:

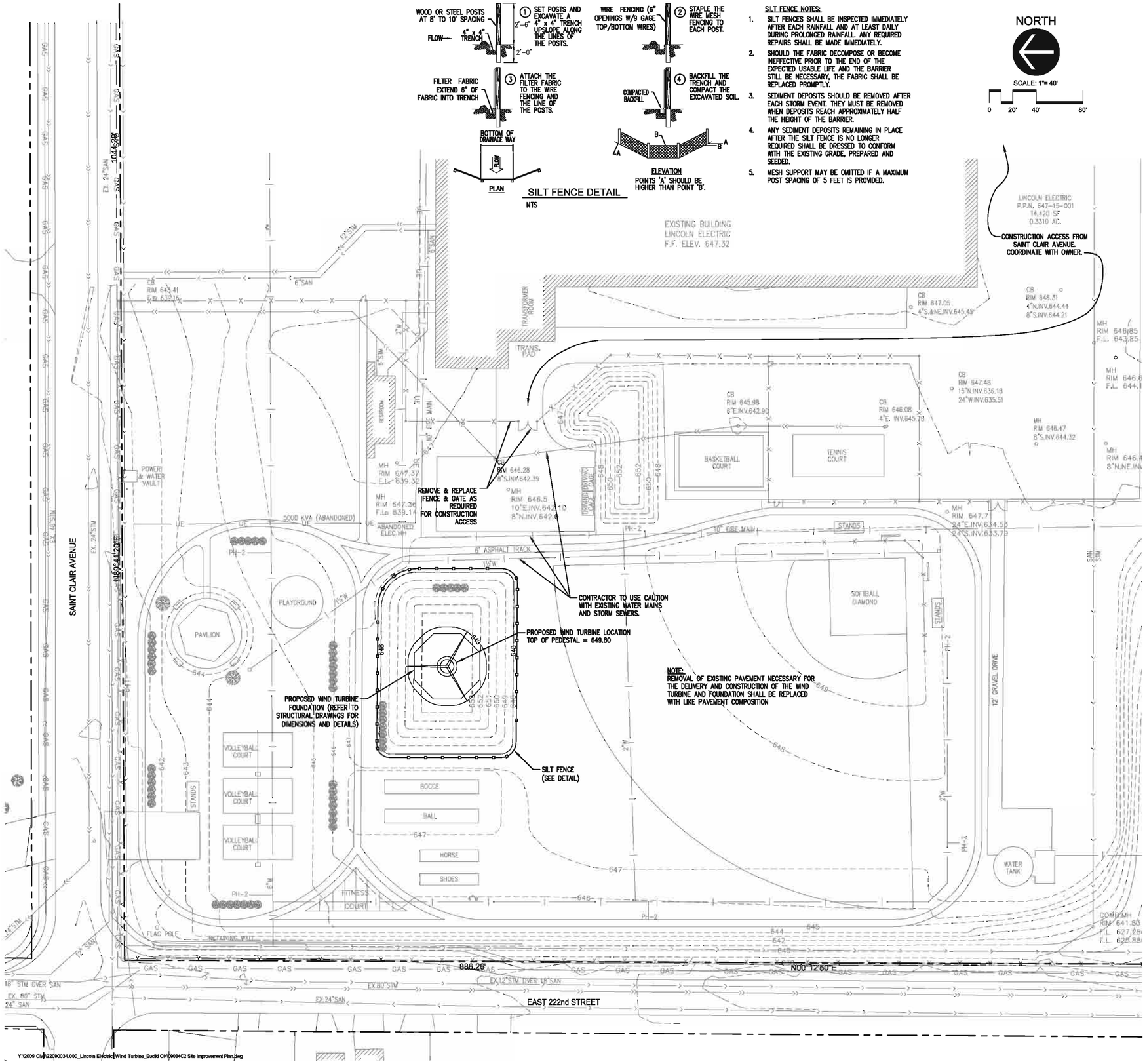
Date: January 26, 2010
Expires: December 31, 2010

Rev.	Date	Description
1	01.26.10	Revised Location

Project #: 22090034.000
Drawn By: JLG
Checked By: BJD
Issue Date: 09.24.09

Sheet Title:
EXISTING CONDITIONS PLAN

C01



Y:\2009 Civil\22090034.000_Lincoln Electric\Wind Turbine_Euclid OH\09034C2 Site Improvement Plan.dwg

GENERAL NOTES

1. ELEVATIONS ARE U.S.G.S. DATUM.
2. DO NOT SCALE DIMENSIONS FOR FOUNDATIONS FROM THESE DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO THE START OF WORK. ANY DISCREPANCIES FOUND SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ENGINEER.
4. THE ACCURACY AND COMPLETE INCLUSION OF THE LOCATIONS OF EXISTING UTILITIES IS NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PRIVATE AND PUBLIC UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, PROJECT OWNER AND UTILITY OWNER, BY THE CONTRACTOR AT HIS OWN EXPENSE.
5. THE CONTRACTOR SHALL CONTACT "OHIO UTILITIES PROTECTION SERVICE" AT (800) 362-2764 TO HAVE CERTAIN UTILITY COMPANIES FIELD LOCATE THEIR INSTALLATIONS. A MINIMUM OF TWO FULL WORKING DAYS NOTICE ARE REQUIRED FOR A FIELD LOCATION.
6. THE CONTRACTOR SHALL EXAMINE THE PLANS AND SPECIFICATIONS, VISIT THE SITE OF THE WORK AND INFORM HIMSELF FULLY WITH THE WORK INVOLVED, GENERAL AND LOCAL CONDITIONS, ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS AND ALL OTHER PERTINENT ITEMS WHICH MAY AFFECT THE COST AND TIME OF COMPLETION OF THIS PROJECT BEFORE SUBMITTING A PROPOSAL. PERMITS AND LICENSES OF A TEMPORARY NATURE NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS, STRUCTURES, POLES, CABLES AND PIPE LINES, BEFORE CONSTRUCTION BEGINS. HE SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE ENGINEER AND OWNER AT HIS OWN EXPENSE.
8. THE CONTRACTOR SHALL RESTORE ANY AREA DISTURBED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL USE. THIS SHALL INCLUDE FINISH GRADING, ESTABLISHMENT OF A VEGETATIVE COVER (SEEDING OR SOD) AND GENERAL CLEANUP. THE CONTRACTOR SHALL NOT EXCAVATE OR DISTURB BEYOND PROPERTY LINE BOUNDARIES, UNLESS OTHERWISE NOTED.
9. ALL WORK PERFORMED SHALL BE DONE BY QUALIFIED CONTRACTORS AND SUBCONTRACTORS FAMILIAR WITH THE TYPE OF WORK TO BE ACCOMPLISHED.
10. ALL SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ", LATEST EDITION..
11. PERMITS AND LICENSES OF A TEMPORARY NATURE NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR SHALL CALL THE ATTENTION OF THE ENGINEER TO ANY MATERIAL OR EQUIPMENT HE DEEMS INADEQUATE AND TO ANY ITEM OF WORK OMITTED.
12. THE CONTRACTOR WILL HAVE IN HIS POSSESSION, ON THE JOB SITE, A COPY OF THE PLANS AND SPECIFICATIONS PRIOR TO BEGINNING WORK.
13. ANY SOIL EROSION CONTROL MEASURES, IN ADDITION TO THOSE OUTLINED IN THESE PLANS AND WHICH ARE DEEMED NECESSARY BY THE CITY ENGINEER SHALL BE IMPLEMENTED IMMEDIATELY BY THE CONTRACTOR.

SITE GRADING NOTES

1. EARTHWORK AND EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", LATEST EDITION.
2. ALL SITE WORK SHALL INCLUDE CLEARING, STRIPPING, AND STOCKPILING OF TOPSOIL, REMOVING UNSUITABLE MATERIALS, THE CONSTRUCTION OF EMBANKMENTS, CONSTRUCTING NON-STRUCTURAL FILLS, AND FINAL SHAPING, AND TRIMMING TO THE LINES, GRADES AND CROSS-SECTION SHOWN ON THE PLANS.
3. UNSUITABLE MATERIAL ENCOUNTERED IN EXCAVATING FOR PAVEMENT SUBGRADES SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO THE LIMITS APPROVED BY THE ENGINEER. UNSUITABLE MATERIAL THAT IS EXCAVATED SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
4. TOPSOIL EXCAVATED SHALL BE STOCKPILED ON THE SITE IN AREAS DESIGNATED BY THE ENGINEER UNTIL SUCH TIME THAT THIS TOPSOIL CAN BE USED FOR FINAL GRADING.
5. CONTRACTOR SHALL LANDSCAPE DISTURBED ROW BY BACKFILLING FROM BACK OF CURB TO ROW LINE WITH A MINIMUM OF 6-INCHES OF TOPSOIL & PLACING SOD. FERTILIZE TOPSOIL WITH NITROGEN, PHOSPHORUS AND POTASSIUM FERTILIZER NUTRIENT.

ISSUED FOR CONSTRUCTION

Larson Engineering Inc
1488 Bond Street, Suite 100
Naperville, Illinois 60563-6503
(P) 630.357.0540 (F) 630.357.0164
ILLINOIS LICENSE NO. 184-001442
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Client: LINCOLN ELECTRIC

Project Title:
LINCOLN ELECTRIC WIND PROJECT
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Seal:

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Rev.	Date	Description
1	01.26.10	Revised Location

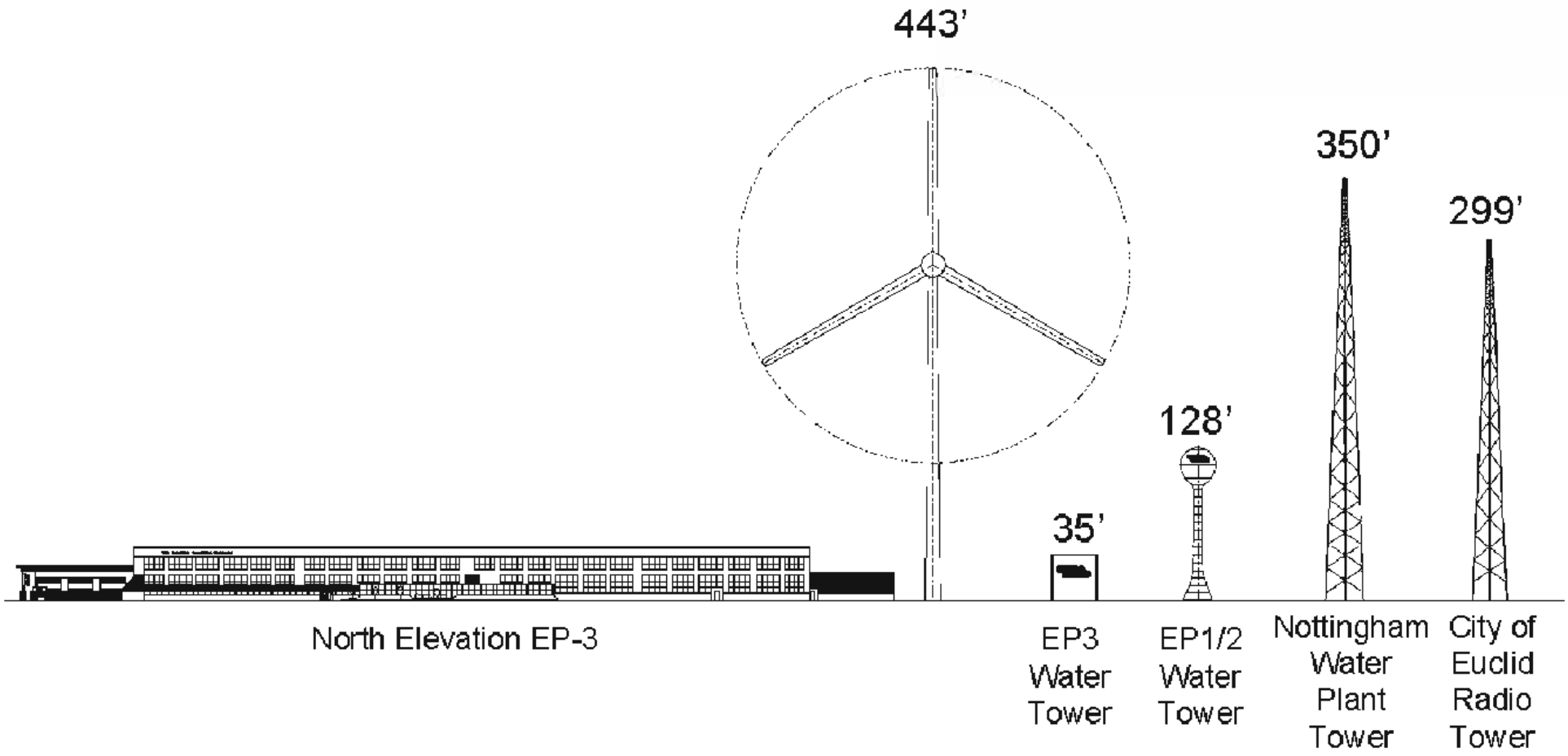
Project #: 22090034.000
Drawn By: JLG
Checked By: BJD
Issue Date: 09.24.09

Sheet Title:
SITE IMPROVEMENT PLAN

C02

Attachment 6

Attachment C-5f



Composite of Local Landmarks

0 130'
1" = 130'
Vertical Scale

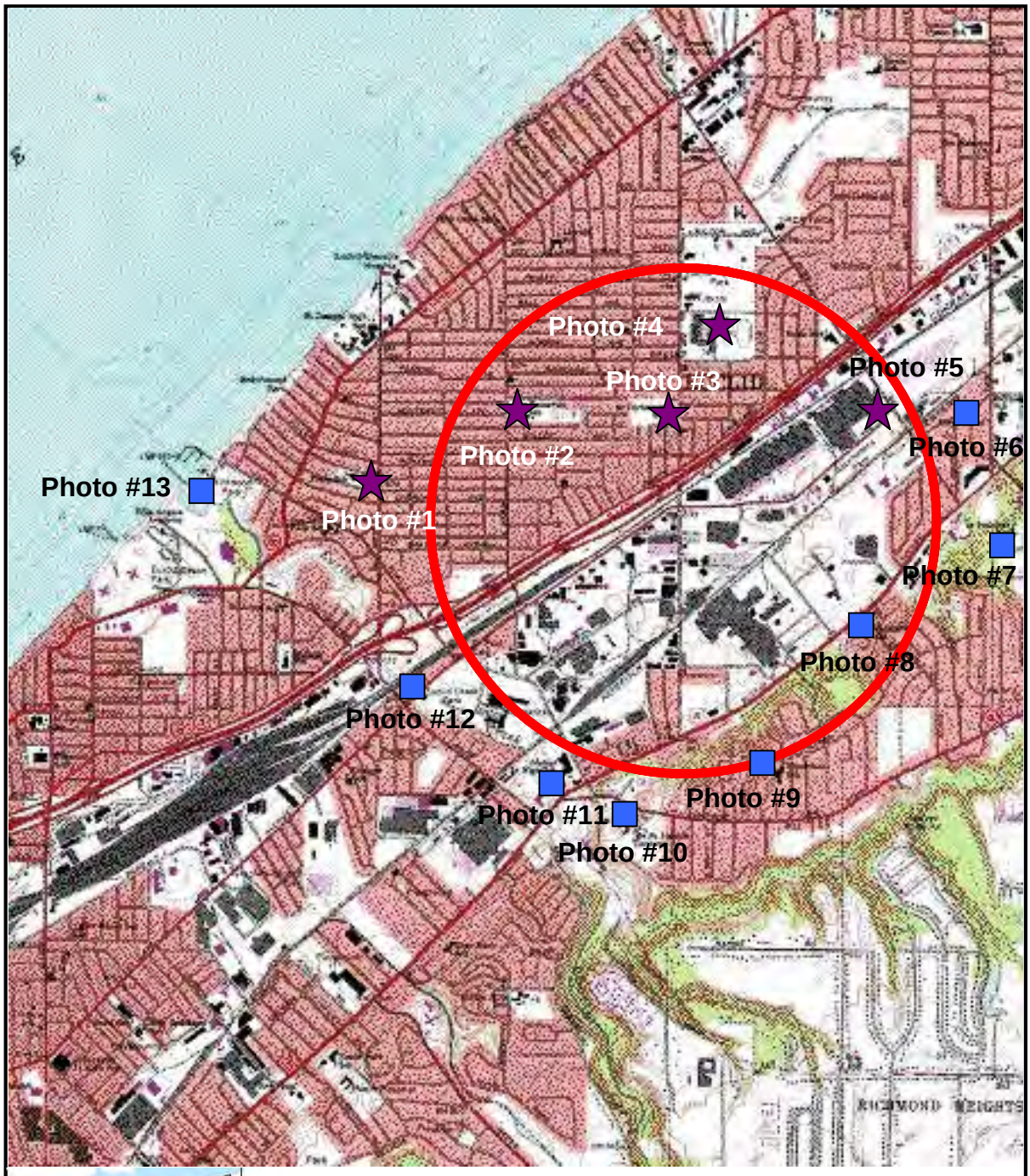
Lincoln Electric Wind Turbine
Environmental Assessment

Figure __. Composite of Local Landmarks

URS

Attachment 7

Attachment C-5g



0 2000

Scale: 1" = 2000'

Cuyahoga County, Ohio

PHOTO LOCATION MAP

Photo Point – Tower Simulation

Photo Point – Tower Obscured

1 Mile Radius

PROJECT	Lincoln Electric Wind Turbine
SCALE	n/a
SOURCE	URS

Visual Simulations of Public Space Views of Wind Turbine

URS

PROJECT NO.	PRJ13813844
FIGURE NO.	Attachment 7

Photo No. 1: Photo Simulation from View Shed of Perry School Parking Lot, Cleveland, Ohio. Distance is 6,967 Feet from Proposed Turbine.

Photo No. 2: Photo Simulation from View Shed of Roosevelt School Parking Lot, Euclid, Ohio. Distance is 4,150 Feet from Proposed Turbine.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 1 and 2

Photo No. 3: Photo Simulation from View Shed of St. Christine's School Parking Lot, Euclid, Ohio. Distance is 2,545 Feet from Proposed Turbine.

Photo No. 4: Photo Simulation from View Shed of Euclid High School Parking Lot, Euclid, Ohio. Distance is 4,450 Feet from Proposed Turbine.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 3 and 4

Photo No. 5: Photo Simulation from View Shed of Great Lakes Expo Center Parking Lot, Euclid, Ohio. Distance is 4,650 Feet from Proposed Turbine.

Photo No. 6: View Shed from Tungsten Playground at Corner of E. 269th & Tungsten Road, Euclid, Ohio. Proposed Tower Obscured by Trees in Center.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 5 and 6

Photo No. 7: View Shed from St. Felicitas Church & School, Euclid, Ohio. Proposed Tower is Obscured by Pine Trees on Left.

Photo No. 8: View Shed from Bethlehem Church, Euclid, Ohio. Proposed Tower is Obscured by Existing Trees in Center.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 7 and 8

Photo No. 9: View Shed from Glenbrook Elementary Student Entry, Euclid, Ohio. Proposed Tower Obscured by Existing Ridgeline and Trees in Center.

Photo No. 10: View Shed from St. Joseph Convent Parking Lot, Euclid, Ohio. Proposed Tower Obscured by Ridgeline & Existing Trees in Center.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 9 and 10

Photo No. 11: View Shed from Central Middle School Student Entrance, Euclid, Ohio. Proposed Tower Obscured by School Building.

Photo No. 12: View Shed from Euclid Creek Park/Fire Station Parking Lot, Euclid, Ohio. Proposed Tower Obscured by Existing Trees in Front of Fire Station.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 11 and 12

Photo No. 13: View Shed from Wildwood State Park, Cleveland, Ohio. Proposed Tower Obscured by Existing Trees in Center.

PROJECT	Lincoln Electric Wind Turbine	Visual Simulations of Public Space Views of Wind Turbine	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS		**PHOTO NO.** 13

35'-high EP3 water tower on Lincoln Electric Company property, 562' (0.106 mi) SSW of proposed wind turbine

128'-high EP1/2 water tower on Lincoln Electric Company property, 2,565' (0.486 mi) NE of proposed wind turbine

299'-high City of Euclid Radio Tower, 6,003' (1.137 mi) N of proposed wind turbine

350'-high Nottingham Water Plant Tower, 5,198' (0.984 mi) SW of proposed wind turbine

0 150'

1" = 150'

Lincoln Electric Wind Turbine
Environmental Assessment

Figure __. Oblique aerial photos of Local Landmarks

URS

Attachment 8

Attachment C-5h

Methodology, Analysis and Evaluations for the CLG Survey and OHI Properties

CLG Survey Methodology

In 2009 the City of Euclid, in partnership with the Euclid Landmarks Commission, applied for and received Certified Local Government-funded Historic Property Reconnaissance Survey (CLG) grant from OHPO to fund qualified consultants to conduct a citywide reconnaissance survey of historic properties. Benjamin D. Rickey & Co. of Columbus, Ohio, whose Principals are, Jeffrey Darbee and Nancy Recchie, each with over 35 years professional historic preservation experience and who meet the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) Professional Qualifications in the areas of Architecture and History, are responsible for all aspects of the project. The current CLG survey is designed to accomplish the following tasks:

- Undertake a Reconnaissance Survey of the entire City of Euclid and prepare 80 to 90 new Ohio Historic Inventory forms;
- Update existing Ohio Historic Inventory (OHI) forms for surveyed properties, and;
- Prepare a Survey Report summarizing the results of the survey and identifying areas for further survey work.

NRHP recommendations are not included in the scope of work for this project due to the reconnaissance nature of the survey.

The time period of 1809 to 1959 is being used for the project, which encompasses development of the area from the early New England extended cultural influences and settlement patterns to mid 20th century post-WWII development. The survey identifies representative property types associated with important themes in the community's history. Historic themes identified are

- Early Township Settlement
- Railroad and Industrial Development
- Interurban and early 20th Century Residential Development
- Automobile Related Suburban Development
- Commercial Development
- Public and Private Institutional Development
- Ethnic Composition of Community

Property Types identified include

- Public Buildings (government and schools)
- Churches

- Commercial Buildings
- Industrial Buildings and Complexes
- Residential (single and multi-family)
- Social Halls
- Recreational Facilities

The consultants coordinated their preliminary investigation with the Euclid Landmarks Commission, requesting the commission members suggest additional property types to help ensure the project benefits from an informed local perspective. The City of Cleveland (also a CLG) and the Cleveland Landmarks Commission provided additional input into the specific properties to be included in the survey.

A windshield survey was conducted throughout the city to identify possible candidates for documentation on OHI i-forms. Notations were added to a city map identifying candidates, historic themes and property types. This methodology allowed for the identification of properties to reflect geographic distribution throughout the city, a wide range of property types, and each of the historic themes.

A preliminary list of candidates for OHI documentation was developed with the Euclid Landmarks Commission. Additional field work for these properties included photography, mapping and additional field notes. Local histories and local historians, notably members of the Euclid Historical Museum and Society the Cleveland Landmarks Commission, were consulted for information on each property. OHI i-forms are being drafted for each property.

The following excerpt from the May 2010 draft survey report provides some historical and geographic context for Euclid's industrial character.

> Euclid had and continues to have an extensive industrial base and some of these industries are located in buildings that date from the early to mid-20th century. The industrial uses are concentrated along and between the railroad lines that run parallel east-west routes through the center of the city. Examples of historic industrial buildings and complexes recorded in this survey are representative of the rich industrial history of the community.

The report goes on to discuss railroad related resources as follows:

> The railroads were very important factors influencing the development of Euclid, however, no historic railroad-related buildings that have maintained integrity could be found. One building was identified but it had been substantially altered and was not included in the survey.

The report concludes with recommendations for future survey work. These recommendations identify the following areas or historic themes:

Lakefront Beach Club Neighborhoods (early 20th century)

Euclid Housing Project (1934 – 1937)
Ethnic Survey

Lakefront Beach Club Neighborhoods are all located outside the APE along Lake Erie approximately 2 miles north of the proposed wind turbine site. The Euclid Housing Project was "located on scattered sites," suggesting no potential for a contiguous historic district. The CLG survey identified one site related to Slovakian ethnic history, and the report noted that several ethnic groups contributed to Euclid's ethnic history. The CLG City of Euclid Reconnaissance Survey Report recommends additional research is needed to identify individual sites, areas or neighborhoods that might be associated with the city's ethnic history. That effort is outside the scope of this consultation.

OHI Properties: Methodology and NRHP Eligibility Assessment

Resources recorded by the OHI with individual OHI forms included ten properties within the APE (Table 1). Limited field and desktop investigation was undertaken to confirm that all ten properties recorded in the OHI forms remained extant. These tasks were performed using photographs taken during field survey conducted by URS Corporation in May 2010 and the specific OHI forms, which include "Site Plan with North Arrow," and a map to identify the location of each property. This further verification of extant properties was based on the most up-to-date information and imagery provide by *Google Earth Professional* computer software, which provides GIS-based aerial and street view imagery updated in May 2007.

Table 1. OHI Properties Within APE

OHI Number	Resource Name	Address
OHI No. CUY-1645-22	Euclid City Hall	585 East 222nd Street
OHI No. CUY-1658-22	North Street School	21129 North Street
OHI No. CUY-1643-22	North Street Elementary School	21103, 21105 North Street
OHI No. CUY-1654-22	Roosevelt School (Noble School)	1551 East 200th Street
OHI No. CUY-1659-22	Nottingham Purification Plant	1300 Chardon Road
OHI No. CUY-1644-22	Ajax Manufacturing Company	1441 Chardon Road
OHI No. CUY-1650-22	A.A. Aiken; George W. Woodworth; C.S. Tracy, House	Euclid Ave. at TRW Drive
OHI No. CUY-1657-22	F. L. Priday Residence	1530 212th Street
OHI No. CUY-1652-22	L. Priday Residence	678 East 222nd Street
OHI No. CUY-1651-22	N/A (Present Name on OHI: 1731 Beverly Hills Drive)	1731 Beverly Hills Drive

Two of the eight properties were found to be no longer extant -- OHI No. CUY-1657-22 and OHI No. CUY-1650-22. A small 1970s multi-unit residential building now occupies the former location of OHI No. CUY-1657-22. A large multi-unit residential building(s) occupy the former location of OHI No. 1650-22 (the Aiken, Woodworth, Tracy

House).OHI No. CUY-1650-22's status was further confirmed by a telephone interview with John Williams, President of the Euclid Historical Museum. Investigation suggests a section of the original premises has been developed as an apartment complex and there are no buildings present in the location of the building recorded on OHI No. CUY-1650-22.

The remaining 8 OHI properties were evaluated using the original OHI forms and photographs taken during field survey to determine their eligibility for listing in the NRHP through the application of the NRHP Criteria for Evaluation (Attachment 8). Both the historic context and the period of significance used to conduct this evaluation were drawn from the CLG Survey Report. While all Criteria of the NRHP were considered, given the limits of the information obtained through the methods described above, evaluation was weighted towards Criterion C as that criterion is primarily based upon physical attributes that may be observed through exterior photographs.

The 8 OHI properties also underwent NRHP evaluation as contributing properties in a historic district. Using the CLG Survey Report, photographs taken during URS's field survey, and through desktop analysis using *Google Earth Professional*, it appears that none of the NRHP eligible properties are contiguous. The CLG Survey Report supports a determination that none of the properties found eligible in this report are part of a NRHP-listed or potential historic district. Properties identified by the CLG Survey Report as contributing resources in a potential historic district are located outside of the APE. Considering the photographs taken during field survey and the desktop analysis using *Google Earth Professional*, none of the properties found eligible in this report appear to be in a historic district nor is a potential historic district known to be within the APE. Therefore, it was determined that additional individual analysis of each property evaluated for this report as a contributing resource in a historic district would not be conducted.

Carrying equal weight with the NRHP Criteria for Evaluation is the property's integrity. If properties were determined to possess historic significance under the NRHP Criteria, they were also evaluated to determine whether or not they retained physical integrity, using NRHP Bulletin 15, How to Apply the National Register Criteria for Evaluation, which defines integrity as the ability of a property to convey its significance. Integrity analysis was based on the photographs taken during field survey.

OHI No. CUY-1643-22 is a one-and-a-half-story red brick building located at 21103 and 21105 North Street. The building is rectangular in plan featuring a projecting wood vestibule and a front-gable roof pierced with wide shed dormers on each side. Other notable features include stone lintels; wood windows on the first floor; replacement windows on the second floor; a rear addition clad in artificial siding; a basement foundation with stone detailing; and Colonial Revival stylistic elements in the design of the vestibule. According to the OHI form, this building was constructed in 1870 as a school and is present on an 1874 atlas. The OHI form also indicates that the building was moved closer to the road to serve as a residence between 1914 and 1920.

If the OHI form is correct about the date of construction, then OHI No. CUY-1643-22 is an early local school, representing the themes of "Railroad and Industrial Development (1850s-1959)" in the City of Euclid's Reconnaissance Survey Report. OHI No. CUY-1643-22 has undergone substantial changes since its construction in the 1870s. These changes include relocation closer to the road; replacement of the original windows; the addition of the Colonial Revival vestibule, which does not appear to be original to the building; the addition of vinyl siding; the addition of the wide shed dormers to the gable roof; and the conversion of the public school building into a residence. Although the interior was not observed for this analysis, it is presumed that changes to the interior of the building in converting it from a school to a residence would be considerable.

NRHP Evaluation: The amalgamation of these changes detracts from the character-defining features essential to the understanding of this building as a school. Integrity of location, design, materials, association, and feeling has been compromised as a result of the physical changes, and the building no longer retains integrity sufficient to represent its historic significance. Because the building no longer maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1643-22 is not eligible for listing in the NRHP. The building is not known to possess historic significance under Criteria A, B, C, or D of the NRHP.

OHI No. CUY-1644-22 is two-story red brick industrial building located at 1441 Chardon Road. The building is irregular in form and has an elevated central bay with a projecting central entrance bearing the company name in a carved decorative panel above the door. Other notable features include a pronounced central bay, monitor with a clerestory; stone coping; and a mix of metal and replacement windows. According to the OHI form, the building was constructed in 1924 for the Ajax Manufacturing Company—a Cleveland-based producer of nuts, bolts, and machinery.

NRHP Evaluation: OHI No. CUY-1644-22 appears both in form and style to be a normative example of industrial buildings of its period of construction in the highly industrialized greater Cleveland area. While this building maintains stylistic details indicative of Art Deco architecture, it does not appear to be a distinctive example of type, period, or manner of construction. The building was constructed for the Ajax Manufacturing Company and, while this business survives as an enterprise, it is not known to be connected to a significant historical event and/or person nor is it a distinct representation of a significant historical movement. The DOE has considered these factors and finds that the building is not known to possess historical significance under Criteria A, B, C, or D. The DOE has determined that OHI No. CUY-1644-22 is not eligible for listing in the NRHP.

OHI No. CUY-1645-22 is a two-story public building located at 585 East 222nd Street. The stone building is rectangular in plan with a high-pitched hip roof, the front slope of which is interrupted by a central parapet and a stone panel bearing the name "Euclid City Hall." Other features include a symmetrical five-bay façade; a fan light above the entrance on the second floor; a one-story semi-circular portico supported by Tuscan columns over the central entry; original multi-light wood windows; a partially-raised, lit

basement; and a prominent molded cornice. A large contemporary public building was constructed north of the city hall building. The two buildings are connected by a one-story hyphen extending from the east (rear) elevation of city hall building. While two buildings are connected, the contemporary building is clearly distinguished from the original block.

According to the OHI form, after a fire destroyed the original city hall in 1929, plans for this replacement building were underway in conjunction with the WPA in 1934. The City of Euclid and the WPA began construction in 1938 and the building was dedicated on June 8, 1938. WPA construction was renowned for its use of stone-masonry construction as exhibited by the city hall building. The use of rough-cut stone was most prevalent in one-room school houses, but was also used in city halls and community buildings. The city hall currently serves as the National Cleveland-Style Polka Hall of Fame, which is operated by the American Slovenian Polka Foundation.

NRHP Evaluation: OHI No. CUY-1645-22, completed in 1938 as a city hall, served as Euclid's primary municipal building from the time of its construction until it was converted to a museum in 1987. The construction of the city hall relates to the city's industrial and residential growth, which prompted the incorporation of Euclid from a village to a "city" in 1930. The DOE has determined that this building is locally significant under Criterion A of the NRHP as it represents broad patterns of American History in Euclid. The property is not known to possess historic significance under Criterion B, C, or D.

The city hall building, itself, has undergone minimal change over time. These changes include the connection of a large contemporary building through a hyphen, which is recessed from the primary façade and is clearly distinguishable from the original block. One set of side doors have been replaced with metal-and-glass versions. Otherwise the building has undergone very little change since its original construction and, therefore, retains integrity of setting, location, materials, design, workmanship, association and feeling. Because the building maintains physical integrity sufficient to convey its historic significance, the DOE has determined that OHI No. CUY-1645-22 is eligible for listing in the NRHP under Criterion A.

OHI No. CUY-1651-22 is a substantial three-story detached single-family dwelling located at 1731 Beverly Hills Drive. Set into a steep hillside, the building is irregular in form and is clad in brick and stucco, with brick quoins. Other notable features include a partially-raised basement; Ionic engaged columns supporting an entablature above the garage door; a conical roof tower; brick voussoirs crowned with sunburst decorations; segmental-arch dormers; and a curved balcony. According to the OHI form the building was constructed in 1925 and is Tudor Eclectic in style. The history of residency is not provided.

NRHP Evaluation: OHI No. CUY-1651-22 is a substantial dwelling with stylistic elements indicative of the Tudor Revival style. While this property represents a 1920s example of the Tudor Revival style in Euclid, the building is not considered an important

example of architectural expression during this period. The greater Cleveland area exhibits numerous buildings of this scale that are similar in both form and style. While this building maintains stylistic details indicative of Tudor Revival construction and architecture, it does not appear to be a distinctive example of a type, period, or manner of construction. The building is not known to be connected to a significant historical event and/or person nor is it a distinct representation of a significant historical movement. In consideration of these factors, the building does not appear to possess historical significance under Criterions A, B, C, or D. Therefore, the DOE has determined that OHI No. CUY-1651-22 is not eligible for listing in the NRHP.

OHI No. CUY-1652-22 is a two-story, wood-frame vernacular late Victorian-era single-family detached residential building located at 678 East 222nd Street. The building is rectangular in plan, featuring an asymmetrical façade; front-gable roof; a one-story front porch with a small gable above the porch entrance; and a central paired window on the second floor. According to the OHI form the building was constructed in 1890 and, as of 1914, the dwelling was situated on 38 acres owned by J. Priday. The Priday family owned other land in Euclid.

OHI No. CUY-1652-22 is related to the Priday family landholdings, which indicate an involvement with the late nineteenth- and early twentieth-century development of Euclid. This relationship is directly related to the historical themes of Interurban and early twentieth-century Residential Development (1890s-1920s) in the City of Euclid's Reconnaissance Survey Report. The DOE has determined that this building is locally significant under Criterion B of the NRHP representing a significant individual and/or family in Euclid contributing to the local community development. The building is an example of a vernacular late Victorian-era dwelling typical of the late-nineteenth and early-twentieth centuries and does not appear to be an important example of architectural expression during this period. The building is not known to possess historic significance under Criterion A, C, or D.

NRHP Evaluation: OHI No. CUY-1652-22 has undergone numerous character-altering physical changes over time. These changes include the replacement of wood and shingle siding with vinyl; the replacement of wood windows; wholesale reconfiguration of the fenestration on at least two elevations; the replacement of wood doors; and the removal of original details in order to evoke the distinctly modern suburban feeling that is found in a new house. These changes compromise four of the seven aspects of integrity: design, materials, workmanship, and feeling. Because the building does not retain integrity sufficient to convey its historic significance, the DOE has determined that OHI No. CUY-1652-22 is not eligible for listing in the NRHP.

OHI No. CUY-1654-22 is a substantial one-story brick school building located at 1551 East 200th Street. Originally rectangular in plan, the building has received two additions and is now u-shaped in plan, retaining a hip roof that is heightened by a nearly two-story central pedimented portico supported on Tuscan columns. Other notable features include a prominent, projecting central section; symmetrically balanced fenestration with a central entrance; a semi-circular light in the pediment of the portico; brick pilasters

flanking the doorway; blind arches; and an octagonal chimney. The building has many of the distinctive traits of a Colonial Revival-style public building constructed in the early twentieth century. According to the OHI form, the building was completed in 1919 with eight classrooms as the Roosevelt School. It has since been enlarged and is now twice its original size and 27 classrooms.

OHI No. CUY-1654-22 represents the late nineteenth and early twentieth-century growth of Euclid as an educational facility of the early twentieth century. This period of growth is directly related to the Interurban and early twentieth-century Residential Development (1890s-1920s) discussed in the City of Euclid's Reconnaissance Survey Report. The DOE has determined that this building is locally significant under Criterion A of the NRHP representing broad patterns of American History in Euclid. The building is not known to possess historic significance under Criterion B, C, or D.

NRHP Evaluation: Although OHI No. CUY-1654-22 has sustained changes such as replacement doors and windows, and additions to the rear of the main block in order to increase student capacity, these changes have not detracted from the character-defining features integral to its representation as a Colonial Revival-style building and as an educational facility. These changes in materials and design have not compromised any of the seven aspects of integrity. The building retains integrity of location, design, setting, materials, workmanship, association, and feeling. Because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1654-22 is eligible for listing in the NRHP under Criterion A.

OHI No. CUY-1658-22 is a one-and-a-half-story red brick building located at 21129 North Street. This building is irregular in plan with a symmetrical façade exhibiting a central gable supported by four columns of a one-story porch at the entrance. Other notable features include projecting eaves supported by decorative brackets; a central square cupola with louvered wood panels; replacement windows; stone lintels and sills; and a basement foundation with stone detailing. The cornice, and the central gable and cupola are features indicative of Italianate buildings of the nineteenth century. According to the OHI form, the building was constructed as a public school in 1894 and is purported to be one of the oldest public buildings in Euclid.

OHI No. CUY-1658-22 is located in what remains of Euclid's early town center, consisting primarily of nineteenth- and early twentieth-century residential buildings and other more contemporary mixed-use infill. The building was the community's primary educational building during the late nineteenth and early twentieth centuries. This period of growth is directly related to key historical themes identified in the City of Euclid's Reconnaissance Survey Report: Interurban and early twentieth-century Residential Development (1890s-1920s). The DOE has determined that this property is eligible for listing in the NRHP. It is locally significant under NRHP Criterion A, representing broad patterns of American History in Euclid. The building also maintains representative features of the Italianate style of architecture including the cornice, and the central gable and cupola, and as such is locally significant under Criterion C of the NRHP as it has the

distinctive characteristics of a type, period, and method of construction. The building is not known to possess historic significance under Criterion B or D.

NRHP Evaluation: While the building has sustained changes such as replacement doors and windows and minor changes to the fenestration, these changes have not significantly compromised its integrity: the building is still able to convey its historic significance under Criteria A and C. Therefore, because the building maintains physical integrity sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1658-22 is eligible for listing in the NRHP under Criterion A and C.

OHI No. CUY-1659-22 is a large-scale yellow brick industrial building located at 1300 Chardon Road. The building is of a substantial massing with multiple tiers and a central tower, all of which are stepped back from the ground-level elevation. Other notable features of the building include a flat roof; string courses and black coping; large lettering over the entrance spelling out "Nottingham Filtration Plant" and raised decorative stone panels individually within the façade. According to the OHI form, the WPA initiated plans for construction of the plant in the 1930s, but it was not completed until 1951. The building was designed by Havens & Emerson—an Ohio-based architectural-engineering firm.

Within a larger context OHI No. CUY-1659-22 represents the development of a water purification plant in connection with the WPA in Euclid and the city's most recent period of growth and development, which ended in 1959. The DOE has determined that this building is locally significant under Criterion A of the NRHP representing broad patterns of American history in Euclid. The building is the central and largest building of the Nottingham Filtration Plant—one of three wastewater plants that provided treatment for Cleveland and several suburbs in the mid-twentieth century. Because the design of the building commenced in the 1930s and actual construction was not completed until the 1950s, the building represents elements of the Art Deco and/or Art Moderne styles indicative of construction and design between 1920 and 1940 in what has been called the modernistic period.

Stylistic elements of the modernistic period include the smooth yellow brick, the stepped levels and vertically projected tower, the flat roof with coping at the roof line, the asymmetrical fenestration, and the Art Deco lettering above the entrance. The DOE has determined that this building is locally significant under Criterion C of the NRHP as it has the distinctive characteristics of a type, period, and method of construction. The building is not known to possess historic significance under Criterion B or D.

NRHP Evaluation: Although OHI No. CUY-1659-22 has sustained changes such as replacement doors and windows, these changes have not detracted from the primary character-defining features integral to its representation of historic significance. These changes in materials have not significantly compromised any of the seven aspects of integrity. Therefore, the building retains integrity of location, design, setting, materials, workmanship, association, and feeling. Because the building maintains physical integrity

sufficient for listing in the NRHP, the DOE has determined that OHI No. CUY-1659-22 is eligible for listing in the NRHP under Criteria A and C.

The commercial buildings identified as **Paddy's** and **Corner Beverage** (920-928 and 923 East 222nd Street) appear to have high integrity (Attachment 9). Common architectural elements include yellow tapestry brick facades, stone lintels and sills, and stone-capped parapets with raised central bay and corner piers. **Paddy's** is actually two connected buildings. The corner building is 2 stories in height and features a cut-away corner entrance, transom windows, a box oriel side bay, central bay second floor entry capped by a small segmental arch canopy, brick frieze paneling, and recessed second floor window spandrels articulated by corbelling. The smaller attached building has a recessed entry flanked by display windows with transoms. One of the display windows appears to be filled-in and the building's lack of detail suggests a possible 1940s or 1950s construction date.

Corner Beverage, which is located across the street from Paddy's, features a hip roof facade-length canopy covered with curved ceramic roofing tiles. Below this roof/ canopy feature the facade is separated by a pier into two storefronts. One storefront consists of a recessed entry flanked by display windows and the other smaller storefront is an end recessed entry and one adjacent display window. The original display and transom window fenestration pattern appears intact. Piers of the facade have vertical panel outlines appearing to consist of darker header bricks.

NRHP Evaluation: These buildings are considered eligible for NRHP listing as strong representatives of a commercial architecture associated with the streetcar suburban expansion and Euclid's early 20th century development. The CLG Survey Report does not identify them as a historic district.

Table 2. CLG Survey
Proposed List of Properties to Survey in APE

Building Type	Resource Name	Address	NRHP Eligible
Public Building	Fire Station #9	Euclid at E. 221st Street	No
Church	St. Christine Church/School	East 222nd Street	No
Church	St. Paul Church/School	1231 Chardon Road & E. 200th	No
Church	Our Lady of Lourdes Shrine	across from 21351 Euclid	No
Commercial Building	Guy's Pizza	861 East 222nd Street	No
Commercial Building	Paddy's	920-928 East 222nd Street	Yes

Commercial Building	Corner Beverage	923 East 222nd Street	Yes
Commercial Building	DiDonato Funeral Home (formerly Brickman Funeral Home)	21900 Euclid Avenue	No
Industrial Building	Chandler Products	1491 Chardon Road	No
Industrial Building	Sunshine Products	1111 East 200th Street	No
Industrial Building	Glasscote Products	20900 St. Clair	No
Industrial Building	TAPCO	23000 Euclid (23555 Euclid Ave.)	No
Industrial Building	Powdermet, Inc. formerly Textron Airfoil Forgings	24112 Rockwell Drive	No
Residential Building	20th c. residential	23970 Effingham	No
Residential Building	20th c. residential	800 block E. 212th	No
Residential Building	A Sear's House	20701 Naumann	No
Other	Paul Serra Stadium Concession	585 E. 222 St	No
Other	Slovenian Society Home	20713 Recher	No

Several of the buildings identified in Table 2 are 1-2 story brick rectangular massed structures that evidence a generic utilitarian appearance with some basic International style influenced elements. These buildings also appear to have replacement windows – many appearing to be anodized bronze frame with thermal glass that was intended to be an energy-saving change to buildings in the 1970s and 1980s. Buildings in Table 4 that fit this description include the Fire Station #9, The Slovenian Society Home, and Sunshine Products.

TAPCO, Chandler Products, Powdermet and Glasscote are large, sprawling manufacturing complexes that have minimal stylistic references. The dominant physical characteristic of each of these buildings is their mass and scale; they represent more of an aggregation of buildings over time than planned complexes.

TAPCO is a large manufacturing complex with office headquarters paralleling Euclid Avenue and rear production areas or assembly lines running perpendicular behind the second office block. The office buildings are yellow brick International style 2-4 story buildings. The projecting central bay of the front office block is clad in masonry panels that frame a vault type monumental window that appears to consist of dark square glass panels.

Chandler Products appears to have a small Modernist architectural style element. A small section of the facade (presumably the office portion) is faced with pebbled cement panels attached to thin metal posts, creating a modernist curtain wall in front of what may be a smoke glass wall. This Modernist feature is dwarfed by the remaining masonry

structure and does not represent a significant example of modernist architecture for the area.

Powdermet is 2-4 story brick International style industrial complex that has a more compact or contained plan as opposed to a linear footprint. The evident horizontal bands of windows are an International Style architectural element. The building has several vertical metal panel additions and two major facades. The northern facade appears to be of later construction and is dominated by rows of vertical dark glass panels, which compromises the building's ability to be considered a significant example of International style architecture.

Glasscote is a multiple-building industrial structure with a long rectangular massing. Most of the elevations appear to be vertical metal panels – some very rusted. The west elevation appears to be an early 20th century section of the building. The stepped down stone- capped parapet, the tripartite windows, and the vertical stone decorative element in the core block end piers show a Craftsman stylistic influence. This does not appear to have been a principal facade as the elevation contains two large truck bays. In addition the windows appear to have been replaced or filled in. The building appears to have been abandoned or is now vacant as evidenced by the dead scrub vegetation and numerous abandoned cars and shipping containers in spaces adjacent to the building.

NRHP Evaluation: These seven buildings have various architectural stylistic associations and various degrees of historic integrity. None of these buildings represent an uncommon style in the urban areas of northeast Ohio, including Euclid, Ohio. These buildings are not known to have significant associations with important events or pattern of events, person(s) of historic significance, represent important architectural styles, types, or methods of construction and are not known to possess the potential to provide new information. These buildings are not considered eligible for NRHP listing under Criteria A, B, C or D.

Of the religious structures identified in the table, **St. Paul Church and School** are not found at this address. It should be noted that the list of properties to survey was assembled with the help of volunteers and is still in draft form. **St. Christine Church and School** are not considered architecturally significant. The **St. Christian School** is a two-story brick rectangular brick building with replacement windows. St. Christian Church is a large gambrel roofed building with an oversized octagonal stain glass window and a synthetic masonry front appendage that appears to date from the 1980s.

Our Lady of Lourdes Shrine, while dating from the 1920s according to their website, has many structures that appear to have been constructed in the 1960s or 70s – in addition to numerous statues, a landscaped Stations of the Cross, and a grotto replicating the famous site in Lourdes, France. Based on the available information, the shrine does not seem to merit the design standards for consideration under Criterion Consideration G: Religious Properties. The site appears to contain numerous buildings that were constructed to meet specific changing needs of visiting worshipers and the religious order

of Sisters who live at the Shrine. The Shrine complex does not reflect an overall consistent design aesthetic.

NRHP Evaluation: These religious buildings are not considered eligible for NRHP listing under Criteria A, B, C or D. These buildings are not known to have significant association with important events or pattern of events, person(s) of historic significance, represent important architectural styles, types, or methods of construction and are not known to possess the potential to provide new information.

Residential properties on the survey list include **1491 Chardon**, which is identified as a late 19th century residence. This is the same address as **Chandler Products** previously mentioned above, which is not a residential property. This is likely to be a survey error. The property identified as a **Sears House** at 20701 Naumann Street appears to be an aluminum-sided Minimal Traditional, post-dating the Bungalow or Craftsman architectural style associated with this line of mail-order houses.

The 800 block of E. 212th Street is described in the survey report as being characterized by repeating brick Cape Cod houses. These houses appear to be Minimal Traditional, rather than Cape Cod in that they have side cross gables on the facades. Although the repetition of the building type appears intact, these houses were built throughout Euclid, northeast Ohio and the many areas of America experiencing post WWII population growth and residential development – and represent a common "starter home" for returning GI's and their young families.

NRHP Evaluation: These residential buildings are not considered eligible for NRHP listing under Criteria A, B, C or D. These buildings are not known to have significant association with important events or pattern of events, person(s) of historic significance, represent important architectural styles, types, or methods of construction and are not known to possess the potential to provide new information.

The **Paul Serra Stadium Concession Building** is not visible from the road. There is a small building adjacent to one of the baseball fields that are part of the municipal complex, which includes the NRHP-eligible, WPA-constructed city hall. We believe this to be the Paul Serra Stadium Concession building. The concession stand is potentially more eligible for local landmark zoning designation as opposed to being eligible for listing in the NRHP, as its name suggests that its significance is commemorative in nature.

NRHP Evaluation: This building is not considered eligible for NRHP listing under Criteria A, B, C or D. The building is not known to have significant association with important events or pattern of events, person(s) of historic significance, represent important architectural styles, types, or methods of construction and is not known to possess the potential to provide new information.

Commercial buildings identified by the CLG Survey are predominantly yellow brick, 1-2 story, early 20th century corner-store buildings. **Guy's Pizza**, although evidencing a

Mediterranean Revival stylistic influence with its ceramic tile shed roof, has replacement windows – most notably a large single pane display window in the front first floor elevation. **DiDonato Funeral Home** appears to have been a Dutch Colonial residence that has been altered with mid 20th century, Neo-Colonial, 2 story columned porch and box shaped side addition capped by Colonial style cross-brace roof railing.

NRHP Evaluation: These two commercial buildings are not considered eligible for NRHP listing under Criteria A, B, C or D. These buildings are not known to have significant association with important events or pattern of events, person(s) of historic significance, represent important architectural styles, types, or methods of construction and are not known to possess the potential to provide new information.

The commercial buildings identified as **Paddy's** and **Corner Beverage** (920-928 and 923 East 222nd Street) appear to have high integrity (Attachment 9). Common architectural elements include yellow tapestry brick facades, stone lintels and sills, and stone-capped parapets with raised central bay and corner piers. Paddy's is actually two connected buildings. The corner building is 2 stories in height and features a cut-away corner entrance, transom windows, a box oriel side bay, central bay second floor entry capped by a small segmental arch canopy, brick frieze paneling, and recessed second floor window spandrels articulated by corbelling. The smaller attached building has a recessed entry flanked by display windows with transoms. One of the display windows appears to be filled-in and the building's lack of detail suggests a possible 1940s or 1950s construction date.

Corner Beverage, which is located across the street from Paddy's, features a hip roof facade-length canopy covered with curved ceramic roofing tiles. Below this roof/ canopy feature the facade is separated by a pier into two storefronts. One storefront consists of a recessed entry flanked by display windows and the other smaller storefront is an end recessed entry and one adjacent display window. The original display and transom window fenestration pattern appears intact. Piers of the facade have vertical panel outlines appearing to consist of darker header bricks.

NRHP Evaluation: These buildings are considered eligible for NRHP listing as strong representatives of a commercial architecture associated with the streetcar suburban expansion and Euclid's early 20th century development. The CLG Survey Report does not identify them as a historic district.

Attachment 9

Attachment C-5i

North Street School, CUY-01652-22, Southwest Elevation

North Street School, CUY-01652-22, Northeast Elevation

PROJECT Lincoln Electric Wind Turbine		Photo Log for Extant OHI Properties within the One-Mile APE	
SCALE n/a		URS	**PROJECT NO.** PRJ13813844
SOURCE URS Field Survey, May 2010			**FIGURE NO.** Attachment 8

Ajax Manufacturing Co., CUY-01652-22, South Elevation

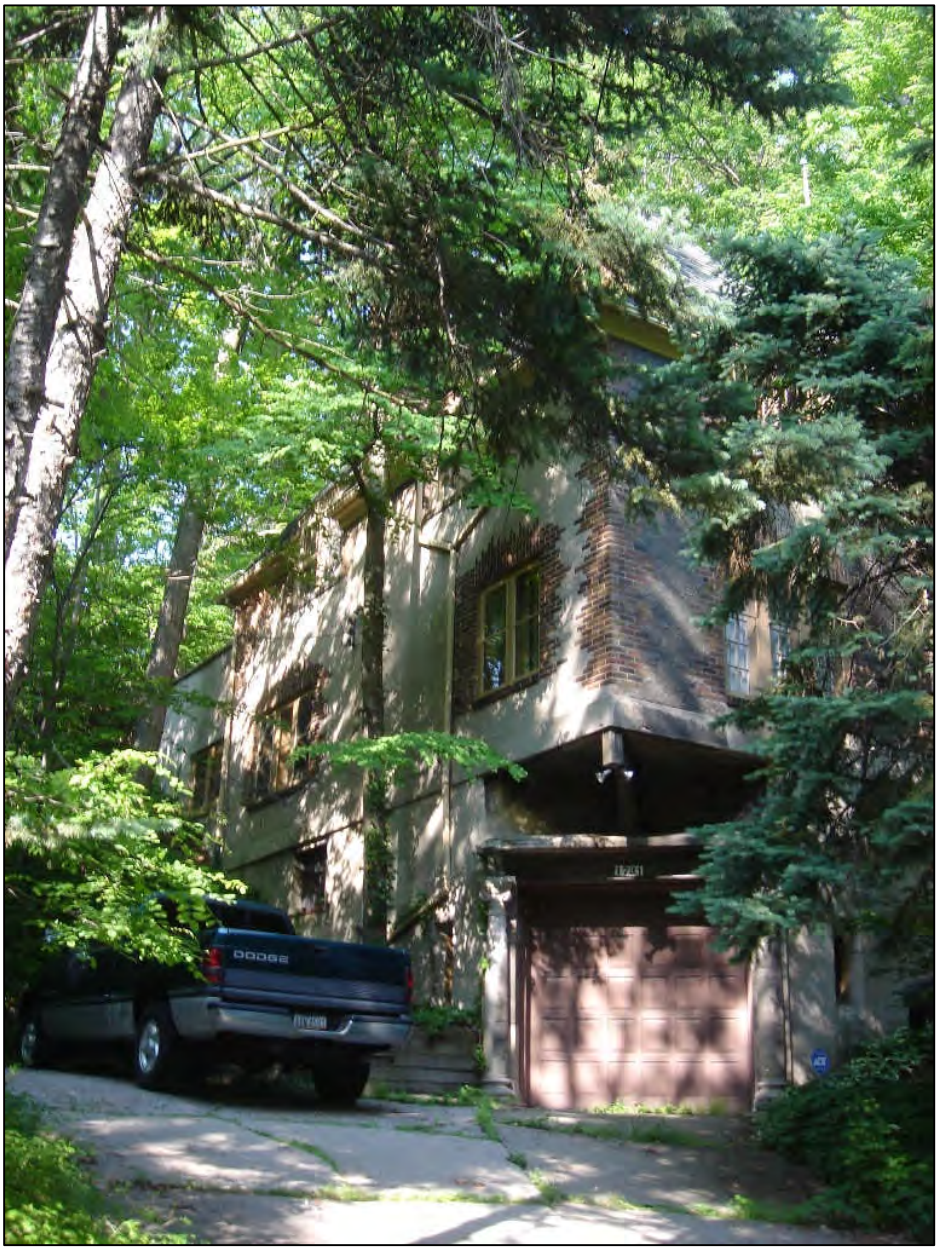
Ajax Manufacturing Co., CUY-01652-22, West Elevation

PROJECT Lincoln Electric Wind Turbine	Photo Log for Extant OHI Properties within the One-Mile APE		
SCALE n/a			
SOURCE URS Field Survey, May 2010	URS	**PROJECT NO.** PRJ13813844	
		FIGURE NO. Attachment 8	

Euclid City Hall, CUY-01652-22, West Elevation

Euclid City Hall, CUY-01652-22, West Elevation (Contemporary Building/Hyphen)

PROJECT	Lincoln Electric Wind Turbine	Photo Log for Extant OHI Properties within the One-Mile APE	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS Field Survey, May 2010		**FIGURE NO.** Attachment 8



1731 Beverly Hills Drive, CUY-01651-22, Southwest Elevation

PROJECT Lincoln Electric Wind Turbine		Photo Log for Extant OHI Properties within the One-Mile APE	
SCALE n/a		URS	**PROJECT NO.** PRJ13813844
SOURCE URS Field Survey, May 2010			**FIGURE NO.** Attachment 8

J. Priday, CUY-01652-22, West Elevation

J. Priday, CUY-01652-22, South Elevation

PROJECT Lincoln Electric Wind Turbine	Photo Log for Extant OHI Properties within the One-Mile APE		
SCALE n/a		**PROJECT NO.** PRJ13813844	
SOURCE URS Field Survey, May 2010	URS	**FIGURE NO.** Attachment 8	

Roosevelt School, CUY-01654-22, South Elevation

Roosevelt School, CUY-01654-22, East Elevation

PROJECT Lincoln Electric Wind Turbine	Photo Log for Extant OHI Properties within the One-Mile APE		
SCALE n/a		**PROJECT NO.** PRJ13813844	
SOURCE URS Field Survey, May 2010	URS	**FIGURE NO.** Attachment 8	

Euclid High School, CUY-01658-22, South Elevation

Euclid High School, CUY-01658-22, Northwest Elevation

PROJECT Lincoln Electric Wind Turbine		Photo Log for Extant OHI Properties within the One-Mile APE	
SCALE n/a		URS	**PROJECT NO.** PRJ13813844
SOURCE URS Field Survey, May 2010			**FIGURE NO.** Attachment 8

Nottingham Filtration Plant, CUY-01659-22, South Elevation

Nottingham Filtration Plant, CUY-01659-22, Southeast Elevation

PROJECT Lincoln Electric Wind Turbine	Photo Log for Extant OHI Properties within the One-Mile APE		
SCALE n/a			
SOURCE URS Field Survey, May 2010	URS	**PROJECT NO.** PRJ13813844	
		FIGURE NO. Attachment 8	

Attachment 10

Attachment C-5j

Corner Beverage, 923 East 222nd Street, East Elevation

Paddy's, 920-928 East 222nd Street, Northwest Elevation

PROJECT	Lincoln Electric Wind Turbine	Historic Reconnaissance Survey NRHP Eligible Properties within the One-Mile APE	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	Google Earth Professional, 2007		**FIGURE NO.** Attachment 9

Attachment 11

Attachment C-5k

Looking toward the Project Location from CUY-0164522

Looking toward the Project Location from CUY-0165922

PROJECT	Lincoln Electric Wind Turbine	Photos of Directional Views of the Proposed Tower Site from Historic Properties	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS Field Survey, May 2010		**FIGURE NO.** Attachment 11

Looking toward the Project Location from CUY-0165422

Looking toward the Project Location from CUY-0165822

PROJECT	Lincoln Electric Wind Turbine	Photos of Directional Views of the Proposed Tower Site from Historic Properties	
SCALE	n/a	URS	**PROJECT NO.** PRJ13813844
SOURCE	URS Field Survey, May 2010		**FIGURE NO.** Attachment 11

APPENDIX D. ANALYSIS & SUPPORTING DOCUMENTATION

Attachment D-1. Public Involvement

Mayor Bill Cervenik
Community Presentations on Citywide Development*

DATE		Group/Organization		Attendees
Tuesday	5/11/2010	Euclid Hospital Volunteer Banquet		150
Tuesday	4/27/2010	East Beverly Hills Homeowners Association		40
Tuesday	4/6/2010	Arbor Goller Homeowners Association		40
Thursday	3/18/2010	Euclid Democratic Club		60
Monday	2/1/2010	State of the City	(to AARP)	200
Monday	2/1/2010	State of the City	(to Council)	30
Tuesday	2/23/2010	State of the City	(to Rotary Club)	40
Thursday	2/25/2010	State of the City	(to Chamber)	150
Thursday	1/28/2010	Lakeland Quarry Homeowners		40
Sunday	11/1/2009	Holy Cross Genesis Group		80
Thursday	9/10/2009	Fullerwood Homeowners		50
Tuesday	8/18/2009	East 246/248 Homeowners		50
			Total Estimated Attendees	930

*Note: Power Point presentation includes slides and a discussion about the proposed Lincoln Electric wind turbine.

Attachment D-1a

Cleveland, Ohio -- Governor Ted Strickland today announced that 25 Ohio projects will receive more than $13 million in grant awards funded through the *American Recovery and Reinvestment Act's* State Energy Program.

"We are shaping Ohio's future by strengthening our advanced energy economy today. Supporting the growing wind and solar industries creates jobs, creates energy and reduces costs for hard-working Ohioans," Strickland said. "These Recovery Act-funded projects take the state another vital step toward our goal of making Ohio a world center for advanced energy."

US Representatives Betty Sutton and Marcia Fudge, Ohio Department of Development Director Lisa Patt-McDaniel, the governor's energy advisor Mark Shanahan, and other community leaders and elected officials joined the governor and Lincoln Electric Chairman and CEO John Stropki for today's announcement in Cleveland. Lincoln Electric will receive a $1 million grant for its wind turbine installation project.

These renewable energy awards are the first to be awarded from Ohio's $96 million State Energy Program, which was accepted by the U.S. Department of Energy on June 26th.

"We are excited to have this opportunity under Ohio's energy program to demonstrate the value of wind energy by investing in our own installation," Stropki said. "This project is a continuation of other Lincoln EHS programs and green initiatives currently under way in our manufacturing operations to improve our costs and protect our environment. Not only will the wind project provide long-term benefits by reducing our energy costs, it will also showcase the unique benefits that Lincoln products and welding solutions provide to wind tower manufacturers to improve their quality and lower their costs."

Public and private entities will use the funds to install wind electric, solar electric and solar thermal technologies at businesses, schools, parks and other public locations throughout Ohio.
"Ohio is an impact state for advanced energy job creation potential," Patt-McDaniel said. "Our state's manufacturing strengths, logistics capabilities, skilled workforce, and competitive business environment make Ohio a major competitor in the growth of our nation's new energy economy."

Proposals for *Deploying Renewable Energy: Wind and Solar* component of the program were accepted beginning August 25, 2009. Projects submitted were selected through a competitive review process based on several criteria: project readiness and ability to be completed within 12 months, a matching investment of at least 50 percent, and direct economic impacts to create and retain jobs in Ohio.

Governor Strickland acknowledged that these awards would not have been possible without the support of members of Ohio's Congressional delegation and President Barack Obama for the *American Recovery and Reinvestment Act.*

"The Wind and Solar Awards afford Cuyahoga County and the State of Ohio an opportunity to create jobs in a burgeoning field. By investing in energy, we will promote an industry of endless possibilities, create sustainable jobs, and retrain workers to enter this expanding 'green' workforce," said Representative Fudge (OH-11).

"Today's announcement of $1 million for the solar energy project that will be installed in Akron Metro's facility is great news," Representative Sutton said. "It is projected that these solar panels could save up to 33 percent in energy costs. The projects announced today will strengthen Ohio's advanced and renewable energy sectors, facilitate job creation and retention, and reduce energy costs along with greenhouse gas emissions."

Awarded projects meet the federal goals of the Recovery Act's State Energy Program to accelerate renewable energy development in Ohio by creating or preserving jobs and reduce energy usage and greenhouse gas emissions.

"Expanding the use of wind and solar energy across Ohio will create jobs in an expanding global market, positioning Ohio for growth for years to come," Shanahan said. "Recovery Act resources are helping Ohio communities make their own renewable energy while accelerating market-driven job creation in our state."

A list of award recipients follows below:

Attachment D-1b

ND PROJECTS

- **Archbold Area Local Schools** (Fulton County) - $750,000 to install a 500 kW wind turbine and integrate the technology as a teaching tool in the classroom.
- **Cuyahoga County Board of Commissioners** (Cuyahoga County) - $1 million to install a 600 kW wind turbine at the Cuyahoga County Fairgrounds in conjunction with a career and new energy training center.

- **Green City Growers Cooperative** (Cuyahoga County) - $1 million to install a 1.5 MW wind turbine to power a 5.35 acre greenhouse and a 40,000 square-foot facility that will process fresh produce for Northeast Ohio.
- **Huron-Wind LLC and City of Huron** (Erie County) - $280,500 to install a 100 kW wind turbine.
- **Kenston Local School District** (Geauga County) - $630,500 to install a 600 kW wind turbine and integrate the technology as a teaching tool in the classroom.
- **Lincoln Electric Company** (Cuyahoga County) - $1 million to install a 2.5 MW wind turbine at its manufacturing facility.
- **Pettisville Local Schools** (Fulton County) - $750,000 to install a 500 kW wind turbine and integrate the technology as a teaching tool in the classroom.
- **Toledo Electric Joint Apprentice and Training Committee** (Lucas County) - $420,000 to install a 100 kW wind turbine to serve as a training tool for 1,000 apprentices.

SOLAR ELECTRIC PROJECTS

- **Affinity Building Systems, Inc** (Montgomery County) - $292,684 to install a 105 kW solar photovoltaic system.
- **City of Cincinnati, Duke Energy Convention Center** (Hamilton County) - $252,937 to install a 93 kW photovoltaic array rooftop system at the Duke Energy Convention Center.
- **City of Cincinnati Parks** (Hamilton County) - $451,418 to install a total of 170 kW solar photovoltaic systems at 13 sites in the park system.
- **Forest City Residential Management Inc., Midtown Towers** (Cuyahoga County) - $1 million to install a 350 kW solar photovoltaic rooftop system on three of The Midtown Towers' residential building complexes.
- **Greater Cincinnati Water Works** (Hamilton County) - $775,655 to install a 280 kW photovoltaic solar array rooftop system.
- **Hull & Associates Inc, Bedford Office** (Cuyahoga County) - $266,254 to install a 93 kW solar photovoltaic system at its office building in Northeast Ohio.
- **Hull & Associates Inc, PNA Solar Project** (Wood County) - $680,782 to install a 250 kW solar array project on Pilkington North America, Inc's (PNA) Plant 21 site.
- **IGS Energy** (Franklin County) - $261,089 to install a 93 kW solar photovoltaic system on their corporate office building.
- **Jewish Community Federation of Cleveland** (Cuyahoga County) - $217,479 to install a 76 kW solar photovoltaic rooftop system at an office building built to LEED certification.
- **METRO Regional Transit Authority** (Summit County) - $1 million to install a 488 kW solar photovoltaic rooftop system located on its central bus barn.
- **Ohio Department of Mental Health (ODMH), Summit Facility** (Hamilton County) - $652,932 to install a 232.65 kW solar photovoltaic rooftop system.
- **Solar Vision LLC, Athens City Community Center** (Athens County) - $631,637 to install a 220 kW photovoltaic solar array system on four carport structures in the parking lot of the Athens City Community Center.
- **Solar Vision LLC, Bexley Police** (Franklin County) - $335,328 to install a 117 kW photovoltaic array system on four new carport structures in the parking lot.
- **Toledo Museum of Art** (Lucas County) - $282,264 to install a 100 kW solar rooftop system.
- **Toledo Zoo** (Lucas County) - $306,837 to install a 103 kW solar system.

SOLAR THERMAL PROJECTS

- **Great Lakes Brewing Company** (Cuyahoga County) - $190,082 to install two hot water heating systems.
- **Parkway Local Schools** (Mercer County) - $16,080 to install a solar thermal system.

For more information about the State Energy Program and project details, please visit: http://www.development.ohio.gov/recovery/StateEnergyProgram.htm.

585 East 222nd Street, Euclid, OH 44123-2099

www.cityofeuclid.com

November 30, 2009

For Immediate Release

Contact:
Mayor Bill Cervenik
City of Euclid
216 289-2751
bcervenik@cityofeuclid.com

Lincoln Electric Awarded $1M State Energy Grant

Demonstration Wind Turbine Project to be Built at the Euclid, Ohio World Headquarters Campus

Euclid, November 30 , 2009: The City of Euclid's Going Green initiative took another major step forward with the State Energy Program grant award announcement today by Governor Ted Strickland at the Lincoln Electric Company. Lincoln was awarded a $1M grant funded through the American Recovery and Reinvestment Act's State Energy Program.

The renewable energy grant award, one of the first from Ohio's $96 million State Energy Program, will help to fund the construction of a 2.5 megawatt Kenersys wind turbine on the Lincoln campus in Euclid, Ohio. The turbine will be one of the largest constructed in the State of Ohio to date.

Lincoln's exciting project will serve as a demonstration of wind turbine technology and will complement the company's business strategy to pursue manufacturing opportunities in the wind industry. According to Mayor Bill Cervenik, "Lincoln officials indicated that the turbine would also generate about 10% of their annual electric demand and help to reduce greenhouse gas emissions."

Mayor Bill Cervenik addressed local, State and Federal officials at Lincoln Electric's world headquarters in Euclid, Ohio where the award announcement was made. "The City of Euclid recognizes the importance of renewable energy to the future of our local economy and to the future of the economy our state.

Attachment D-1c

Governor Strickland has demonstrated strong support of renewable energy for the State of Ohio as evidenced by today's grant awards" explained Cervenik.

The City of Euclid assisted Lincoln with the grant application process. With support from State Representative Kenny Yuko, in a cooperative effort with the State of Ohio, Cuyahoga County Department of Development, and the Great Lakes Wind Task Force, Lincoln successfully secured the grant.

According to Economic Development Director, Frank Pietravoia, "Already in place is the Automation Division of Lincoln Electric and its Wind Tower Welding Solutions program, which provides welding services and products for wind tower construction providing evidence of the potential impact on our local economy."

Lincoln is not alone. The City of Euclid is also Going Green. In a unique partnership with the Euclid Public Library one of the largest solar panel installations undertaken by such a partnership in the state of Ohio will be installed to help meet the electrical needs of City Hall and the library.

A number of other Euclid based companies are also actively exploring wind and solar installations for their own energy needs, as well as opportunities to grow their own business by manufacturing related components. Euclid has a long history of a strong manufacturing base with the area workforce and expertise to succeed in the evolving renewable energy manufacturing sector.

Bluestone Business Park, an over 80-acre development under construction just to the east of the Lincoln campus, provides a prime opportunity to attract renewable energy manufacturers to Euclid and Northeast Ohio. Fogg Building Methods, the park developer, is committed to a "green" industrial park. The State of Ohio and Cuyahoga County played a critical role in making the Park possible through a nearly $5M Job Ready Sites grant and a $1M Brownfield loan.

For further information contact:
Frank Pietravoia, Director
City of Euclid
Department of Community Services & Economic Development
216 289-8160
fpietravoia@cityofeuclid.com

Attachment D-1d

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Lincoln Electric Awarded $1M State Energy Grant

lincoln turbine press release 11-30-09.pdf

November 30, 2009

For Immediate Release

Lincoln Electric Awarded $1M State Energy Grant
Demonstration Wind Turbine Project to be Built
at the Euclid, Ohio World Headquarters Campus

Euclid, November 30 , 2009: The City of Euclid's Going Green initiative took another major step forward with the State Energy Program grant award announcement today by Governor Ted Strickland at the Lincoln Electric Company. Lincoln was awarded a $1M grant funded through the American Recovery and Reinvestment Act's State Energy Program.

The renewable energy grant award, one of the first from Ohio's $96 million State Energy Program will help to fund the construction of a 2.5 megawatt Kenersys wind turbine on the Lincoln campus in Euclid, Ohio. The turbine will be one of the largest constructed in the State of Ohio to date.

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State of Ohio announces $13 million in fed money for advanced energy projects

By JAY MILLER

2:56 pm, November 30, 2009

Gov. Ted Strickland came to Cleveland today to announce $13 million of advanced energy projects statewide financed with federal stimulus money.

Nine of the 25 projects are in Northeast Ohio. They include a wind turbine at Lincoln Electric Co. in Euclid and solar panels for the Akron Metro Regional Transit Authority.

At a news conference this afternoon at Lincoln Electric, Gov. Strickland said this is the first wave of $96 million from the state energy program. The projects will use either wind turbines or solar power to generate electricity or heat at their locations.

The governor said he believes the state's strong manufacturing base and skilled work force can make Ohio a pre-eminent state for advanced energy development.

"We believe we have the capacity to be the supplier of advanced energy in the world," the governor said.

The Northeast Ohio projects include wind turbines at the Cuyahoga County Fairgrounds in Middleburg Heights; Green City Growers Cooperative, a new greenhouse facility in Cleveland; Kenston Local School District; and Lincoln Electric.

Solar voltaic systems will be installed at the Midtown Towers residential complex operated by Forest City Residential Management Inc. in Parma; Hull & Associates Inc.'s office building in Bedford; the Jewish Community Federation's new headquarters in Beachwood, and Metro Transit in Akron.

In addition, a solar water-heating system will be installed at Great Lakes Brewing Co. in Cleveland.

Attachment D-1e

BUSINESS

Stimulus money will power 10 NE Ohio energy projects

JOHN FUNK
Plain Dealer Reporter

Ohio is plowing more than $13 million in federal stimulus money into 25 wind and solar power projects across the state, including 10 in Northeast Ohio.

The money for the "shovel-ready" projects is the first installment of the $96 million Ohio has received for energy-related projects over two years. Gov. Ted Strickland announced the first recipients Monday at Lincoln Electric Co.'s global headquarters in Euclid. Lincoln, which employs more than 3,000 people in Ohio, was among the companies receiving grants.

The governor stressed that the projects would create jobs and help establish the state as a manufacturer of renewable energy technologies.

"These projects will create energy, create jobs and reduce greenhouse gases," he said. "And these projects will take us another vital step forward as we work to make Ohio a world center for advanced energy."

Hundreds of Ohio companies already manufacture components for wind turbine projects, records at the Ohio Department of Development show, and the largest U.S. solar company, First Solar, is near Toledo.

In an interview after the presentations, Strickland described the grants as "a demonstration project."

"What we need to do is focus on the larger picture," he said. "Ohio is beautifully positioned right now to become a supplier of the world's needs, and that is especially true when it comes to energy needs, whether solar, wind, biomass, clean coal technologies or whether it's nuclear power.

"We are talking about future jobs. We are concerned about jobs right now. And we are starting to see *some* jobs created," he said. "Ohio's supply chain is right now supplying component parts, but we are at the embryonic stage."

SEE ENERGY | C2

Attachment D-1f

ENERGY

FROM C1

Wind, solar projects receiving funds

Lincoln Electric is receiving a $1 million grant award toward a $5.1 million project to erect a 2.5-megawatt (2.5 million watts) utility-scale turbine on its campus.

The giant turbine, which will weigh 300,000 pounds, will sit on a tower nearly 300 feet tall. Construction is planned to start in the spring, with completion in July.

"This is not a toy. This is a real project," said Lincoln's chairman and chief executive officer, John Stropki.

The turbine will generate about 10 percent of Lincoln Electric's power needs, or enough electricity for 450 homes, he said.

"This project will be an important part of our future," Stropki said.

"The project shows the importance of engineering and what it can do in terms of clean energy as well as cost-effective energy, and the creative nature of being able to take a risk like this and demonstrate to the world that these kind of projects can work.

"And it shows what can happen when you have cooperation between business and government to work together for a common cause, which not only creates but preserves jobs."

About 80 people attended the grant announcement and then toured the automation center, where workers demonstrated huge welding equipment that manufacturers of towers for wind turbines use to build the structures.

To reach this Plain Dealer reporter: jfunk@plaind.com, 216-999-4138

Attachment D-1g

Tuesday, December 1, 2009

Area projects getting more state stimulus greenbacks

Cassandra Shofar
CShofar@News-Herald.com

They're a bit behind, but it's a good behind, Kenston Schools Superintendent Bob Lee said.

Installation of the school district's 138-foot, 600-kilowatt wind turbine may have been pushed back a bit, but the delay allows the district to use some more grant money recently released from the state.

Gov. Ted Strickland announced Monday that 25 Ohio projects would receive more than $13 million in grant awards funded through the American Recovery and Reinvestment Act's State Energy Program.

Kenston Schools received $630,500 of that, and Lincoln Electric received $1 million.

"We are ecstatic about the award, and it is such a great addition to the funding of the project, (which will) actually start making money from day one," Lee said, adding that many projects have unanticipated costs associated with them as well as some setbacks.

The roughly $600,000 project has about $550,000 being paid for by grant money, Lee has said. That total will now include the recent ARRA award, which the district applied for in September.

"We continue to explore the options that are available to us for the length of the blades and the tower height," he said, adding the project, which previously was set to be installed in December, will mostly likely be installed sometime in midwinter.

Originally, the district put out bids for a 185-foot wind turbine. However, the model it wanted wasn't

See Greenbacks, Page A4

Greenbacks

From Page A1

available, so the school board settled on the 138-foot tower instead, saving the district $123,500. However, an extension to the tower may be an option, Lee said.

Another alteration included having the turbine reconditioned in Europe because it was purchased from Germany and needed to be rewired to fit American power standards.

The high school's electric bill is about $240,000 per year, Lee has said.

The turbine will help power about 40 percent of the electrical needs for the district's high school, saving an estimated $100,000 to $120,000 annually at the current rates, he added.

"We are shaping Ohio's future by strengthening our advanced energy economy today. Supporting the growing wind and solar industries creates jobs, creates energy and reduces costs for hard-working Ohioans," Strickland said in a statement.

"These Recovery Act-funded projects take the state another vital step toward our goal of making Ohio a world center for advanced energy."

The State Energy program will provide Lincoln Electric with a $1 million grant for a wind-turbine installation project at its Euclid headquarters.

"We are excited to have this opportunity under Ohio's energy program to demonstrate the value of wind energy by investing in our own installation," Lincoln Chairman and Chief Executive Officer John Stropki said.

"Not only will the wind project provide long-term benefits by reducing our energy costs, it also will showcase the unique benefits that Lincoln products and welding solutions provide to wind tower manufacturers to improve their quality and lower their costs."

Staff Writer Brandon C. Baker contributed to this article.

Abutting Property Notifications for Lincoln Wind Turbine

Name	Parcel #	Physical Address	City	State	Zip	Notification Address	City	State	Zip
EGR Holdings, LLC	647-16-001	1151 E. 222 St.	Euclid	OH	44117	2625 Snowberry Ln.	Cleveland	OH	44124
PPG Industries Ohio, Inc	647-13-002	23000 St. Clair Ave.	Euclid	OH	44117	1 PPG Pl.	Pittsburgh	PA	15272
Tonino & Carmelina Difiore	647-13-001	23520 St. Clair Ave.	Euclid	OH	44117	16973 Hunting Meadows Dr.	Strongsville	OH	44136
M M & R, Inc.	647-10-003	23750 St. Clair Ave.	Euclid	OH	44117	23530 St. Clair Ave.	Euclid	OH	44117
Joseph & Zdravko Grman	646-16-001	22199 St. Clair Ave.	Euclid	OH	44117	22199 St. Clair Ave.	Euclid	OH	44117
Andy & Kristen Ludvik	646-16-027	1054 E. 222 St.	Euclid	OH	44117	1054 E. 222 St.	Euclid	OH	44117
Joseph R. Tillery	646-16-026	1058 E. 222 St.	Euclid	OH	44117	164 E. 191 St.	Euclid	OH	44119
Standard Properties, LTD	646-16-025	1060 E. 222 St.	Euclid	OH	44117	50 E. 213 St.	Euclid	OH	44123
Standard Properties, LTD	646-16-024	1062 E. 222 St.	Euclid	OH	44117	50 E. 213 St.	Euclid	OH	44123
Janko & Katica Novosel	646-16-023	1066 E. 222 St.	Euclid	OH	44117	38500 Florence Dr.	Willoughby Hills	OH	44094
G M & R Associates	646-16-021	1080 E. 222 St.	Euclid	OH	44117	1080 E. 222 St.	Euclid	OH	44117
Walter & Bernice Shippe	646-16-020	E. 222 St.	Euclid	OH	44117	35721 W. Island Dr.	Eastlake	OH	44095
Walter & Bernice Shippe	646-16-018	1084 E. 222 St.	Euclid	OH	44117	35721 W. Island Dr.	Eastlake	OH	44095
Euclid Corridor Industrial	646-11-001	1100 E. 222 St.	Euclid	OH	44117	400 Lazelle Rd. #4	Columbus	OH	43240
40 Properties Mgmt, LTD	647-17-003	1233 E. 222 St.	Euclid	OH	44117	1233 E. 222 St.	Euclid	OH	44117
40 Properties Mgmt, LTD	647-17-004	1247 E. 222 St.	Euclid	OH	44117	1233 E. 222 St.	Euclid	OH	44117
Wedge Properties, LLC	647-17-002	1245 E. 222 St.	Euclid	OH	44117	PO Box 241368	Cleveland	OH	44124
H.C. Stark, Inc	646-14-001	1250 E. 222 St.	Euclid	OH	44117	45 Industrial Pl.	Newton Highlands	MA	2461
Steel Warehouse LLC	646-13-002	1220 E. 222 St.	Euclid	OH	44117	2722 W. Tucker Dr.	South Bend	IN	46619
1160 Properties, LLC	646-13-003	1160 E. 222 St.	Euclid	OH	44117	1160 E. 222 St.	Euclid	OH	44117
Continental Products Co	646-13-001	1150 E. 222 St.	Euclid	OH	44117	1150 E. 222 St.	Euclid	OH	44117
Leonard Lowe	646-13-004	1148 E. 222 St.	Euclid	OH	44117	1148 E. 222 St.	Euclid	OH	44117
Leonard Lowe	646-13-007	E. 222 St. Rear	Euclid	OH	44117	1148 E. 222 St.	Euclid	OH	44117
7273 Millewr Properties, LLC	646-16-002	1050 E. 222 St.	Euclid	OH	44117	1050 E. 222 St.	Euclid	OH	44117
Michael G. Miller	646-16-002	1050 E. 222 St.	Euclid	OH	44117	7819 Curberry Ct.	Mentor	OH	44060

Attachment D-1h

The Lincoln Electric Company 22801 Saint Clair Ave. Euclid, OH 44117 ATTN: Seth Mason	The Lincoln Electric Company 22801 Saint Clair Ave. Euclid, OH 44117 ATTN: Jennifer Ansberry	EGR HOLDINGS LLC 2625 SNOWBERRY LN CLEVELAND OH 44124
PPG INDUSTRIES OHIO INC 1 PPG PL PITTSBURGH PA 15272-0001	TONINO & CARMELINA DIFIORE 16973 HUNTING MEADOWS DR STRONGSVILLE OH 44136	M M & R INC 23530 SAINT CLAIR AVE EUCLID OH 44117
Joseph & Zdravko Grman 22199 St. Clair Ave. Euclid, OH 44117	1054 E. 222 St. Euclid, OH 44117	Joseph R Tillery 164 E. 191 St. Euclid, OH 44119
Standard Properties LTD 50 E. 213 St. Euclid, OH 44123	JANKO & KATICA NOVOSEL 38500 FLORENCE DR WILLOUGHBY HILLS OH 44094	G M & R ASSOCIATES 1080 E 222ND ST EUCLID OH 44117
WALTER & BERNICE SHIPPE 35721 W ISLAND DR EASTLAKE OH 44095	EUCLID CORRIDOR INDUSTRIAL/MALL 400 LAZELLE RD #4 COLUMBUS OH 43240	40 Properties Management LTD 1233 E. 222 St. Euclid, OH 44117
Wedge Properties LLC PO Box 241368 Cleveland, OH 44124	H.C. Stark Inc. 45 Industrial Pl Newton Highlands, MA 02461	H.C. Stark Inc. 1250 E. 222 St. Euclid, OH 44123
Steel Warehouse Cleveland LLC 2722 W. Tucker Dr. South Bend, IN 46619	Steel Warehouse LLC 1220 E. 222 St. Euclid, OH 44132	1160 Properties LLC 1160 E. 222 St. Euclid, OH 44117
Continental Products Co. 1150 E. 222 St. Euclid, OH 44117	Leonard Lowe 1148 E. 222 St. Euclid, OH 44117	7273 Millewr Properties LLC 1050 E. 222 St. Euclid, OH 44117
Michael G. Miller 7819 Curberry Court Mentor, OH 44060		

585 East 222nd Street, Euclid, OH 44123-2099

www.cityofeuclid.com

Date: January 4, 2010

RE: 2010-VAR-01
PP# 647-13-003
22800 SAINT CLAIR AVENUE
VARIANCE

To Whom It May Concern:

Mr. Seth Mason, representative of The Lincoln Electric Company has submitted an application requesting the required height exemption to install a 443' high, 2.5MW wind turbine located at 22800 St. Clair Ave.

The City of Euclid Planning & Zoning Commission will hold a regular meeting to hear this request on Tuesday, January 12th, 2010 at 7:00 PM in the Euclid City Hall Council Chambers.

As you are an abutting/adjoining property owner, please plan on attending this meeting if you would care to ask any questions or voice any opinions in regard to this request.

Sincerely,

Brandon Hughes
Secretary
Planning & Zoning Commission
216-289-8164

Lincoln Electric Turbine Site and Vicinity

Attachment D-1i

64701005
LINCOLN ELECTRIC CO

64704002
THE LINCOLN ELECTRIC COMPANY

64616001
GRMAN, JOSEPH 50%

64616002
7273 MILLEWR PROPERTIES, LLC

64713002
PPG INDUSTRIES OHIO, INC

64616026
TILLERY, JOSEPH R.

64616021
G.M & R Associates

64713003
THE LINCOLN ELECTRIC CO

64611001
EUCLID CORRIDOR INDUSTRIAL

64716001
EGR HOLDINGS LLC

64613004
LOWE, LEONARD A.

64613001
CONTINENTAL PRODUCTS CO, THE

64717001
40 PROPERTIES MANAGEMENT, LTD

64613003
1160 PROPERTIES, LLC

64717003
40 PROPERTIES MGMT, LTD

64613002
STEEL WAREHOUSE LLC

64717002
WEDGE PROPERTIES LLC

64717004
40 PROPERTIES MANAGEMENT LTD.

64614001
H.C. Starck, Inc.

Zoom in of E. 222nd St and St. Clair Ave.

64704002
THE LINCOLN ELECTRIC COMPANY

64616001
GRMAN, JOSEPH 50%

64616002
7273 MILLEWR PROPERTIES, LLC

64616027
LUDVIK, ANDY I & KRISTEN L

64616026
TILLERY, JOSEPH R.

64616025
STANDARD PROPERTIES LTD

64616024
STANDARD PROPERTIES, LTD

64713003
THE LINCOLN ELECTRIC CO

64616023
NOVOSEL, JANKO & KATICA

64616021
G.M & R Associates

64611001
EUCLID CORRIDOR INDUSTRIAL

City of Euclid
Planning and Zoning
Case No. 2010-VAR-01
Abutting Property Notifications

EUCLID
THE LAKEFRONT CITY OF SUPERIOR SERVICES

CHRISTINE AVE
E 216TH ST
E 210TH ST
E 220TH ST
E 222ND ST
E 224TH ST
E 230TH ST
MILLER AVE
LAKELAND BLVD
N LAKELAND BLVD
S LAKELAND BLVD
RAMP
SAINT CLAIR AVE
ROCKWELL DR
HERITAGE DR
UNNAMED STREET
TUNGSTEN RD
COULTER AVE
EUCLID AVE
SHERWOOD BLVD
GREENWOOD RD

647-01-006
647-04-002
647-10-003
647-10-004
647-10-005
647-13-004
647-13-001
647-13-002
647-13-003
647-16-001
647-17-001
647-17-002
647-17-003
647-17-004
646-16-001
646-16-002
646-16-027
646-16-026
646-16-025
646-16-024
646-16-023
646-16-021
646-16-018
646-16-020
646-11-001
646-13-004
646-13-001
646-13-003
646-13-005
646-13-002
646-14-001

Proposed Site (22800 Saint Clair Ave.)
Notified Properties
Parcels Listed With Notified Properties
Lincoln Electric Properties
Parcel Boundaries

0 250 500 1,000 1,500 2,000 Feet

Created By: City of Euclid, CS&ED
Date Created: 04/12/2010
Data Sources: City of Euclid
Cuyahoga County Auditor's Office
Datum: NAD 83

THE PLANNING AND ZONING COMMISSION
OF THE CITY OF EUCLID, REGULAR MEETING
FINISHED AGENDA / MINUTES

The Planning & Zoning Commission of the City of Euclid, Ohio held a regular meeting on Tuesday January 12th, 2010 in the Euclid City Hall Council Chambers. The meeting was called to order at 7:00 PM by the Chairperson, Mr. John Monroe.

PLEDGE OF ALLEGIANCE:

ROLL CALL OF MEMBERS:

MEMBERS PRESENT:
Mr. John Monroe
Mr. Howard Drake
Ms. Marsha Curtis
Mr. Willie Brown
Ms. Laura Gorshe

MEMBERS ABSENT:

OTHERS PRESENT:
Mr. Mike Brown, Law Advisor
Mr. Brandon Hughes, Secretary Planning & Zoning
Mr. Paul Beno, Zoning Commissioner
Mr. Frank Pietravoia, Director of Community Services and Economic Development
Mr. Bill Cervenik, Mayor

ELECTION OF OFFICERS

Mayor Cervenik swore in Commissioners Willie Brown and Laura Gorshe.

Mr. Drake nominated Mr. Monroe as Chairman of the Planning and Zoning Commission.

Seconded by Mr. Brown.

Roll Call: Yes – Unanimous

APPROVED (5-0)

Ms. Curtis nominated Mr. Drake as Vice-Chairman of the Planning and Zoning Commission.

Seconded by Mr. Brown.

Roll Call: Yes – Unanimous

APPROVED (5-0)

Mr. Drake nominated Mr. Hughes as Secretary of the Planning and Zoning Commission.

Seconded by Mr. Brown.

Roll Call: Yes – Unanimous

APPROVED (5-0)

APPROVAL OF MINUTES

APPROVED AS SUBMITTED

Regular meeting of 12/8/09

COMMUNICATIONS:

OLD BUSINESS:

NEW BUSINESS:

The Lincoln Electric Company
22801 Saint Clair Ave.
Euclid, OH 44117

RE: 2010-VAR-01
PP# 647-13-003
22800 SAINT CLAIR AVENUE
VARIANCE

Mr. Seth Mason, representative of The Lincoln Electric Company has submitted an application requesting the required height exemption to install a 443' high, 2.5MW wind turbine located at 22800 St. Clair Ave. One motion is required.

1. A motion to approve a height district exception from 80 feet maximum height for buildings to 443 feet as similar to exempted structures listed in section1379.02 (a) for PP# 647-13-003.

P & Z 1379.02(a)

Mayor Cervenik welcomed the representatives from Lincoln Electric Co. and Kenersys. Mayor Cervenik thanked the State of Ohio and the Wind Task Force and stated Lincoln Electric Co. received a $1 million grant from the state. Mayor Cervenik stated he fully supports this project and urged a positive consideration from the Commission.

Mr. Seth Mason, as well as two other representatives from Lincoln Electric Co. and two representatives from Kenersys were present to discuss this case with the Planning and Zoning Commission. Mr. Mason stated he is the energy manager for Lincoln Electric Co. He is requesting a variance to install a 2.5 MW wind turbine at Lincoln's headquarters. The turbine will be supplied by Kenersys. The cost of the turbine is approximately $5.3 million and Lincoln has received a grant from the state of Ohio in the amount of $1.3 million. The turbine will be operational by October, 2010. This turbine will bring national recognition for renewable energy. The turbine will be 280' high at the hub and 443' at the top of the blade radius. It will provide 10% of Lincoln's electrical needs.

Mr. Mason stated Lincoln welds the towers for wind turbines and Lincoln would like to have an example to display at their world headquarters.

Mr. Beno stated the lot for the proposed location of the turbine is zoned U-6 (Industrial and Manufacturing), it is 34 acres and located within a 762 acre industrial tract. This turbine will not set a negative impact to residences or other businesses in the area. This turbine would not be acceptable in other areas of the city but is appropriate here. All the steps have been taken to ensure the safety of the turbine system. Documents will be reviewed additionally for permitting. The proposed turbine is similar to uses exempted from the height regulation such as wireless towers, water tanks, chimneys, etc. Staff recommends approval.

Director Pietravoia stated the Development Department has been working with Lincoln and Kenersys for a long time. Our community is on the leading edge of renewable energy efforts. Lincoln, combined with other projects supports Euclid's "Going Green" initiative. This turbine will set the stage for other renewable energy projects. Lincoln has the capacity and expertise to do this project. City staff has reviewed the proposal and concluded it will benefit Lincoln, our City and the region. Director Pietravoia urged the Planning and Zoning Commission to give positive consideration to this proposal.

Mr. Drake asked how noisy the turbine would be. Mr. Mason stated it would be 160db at the hub, but only 59db at ground level. The intersection of E. 222 St. and St. Clair Ave. is 80 - 90db. Noise at the base of the tower will be relatively quiet.

Mr. Drake asked about possible shadow flicker effect. Mr. Mason stated it is possible, but there are sensors that will read the sun's intensity. The turbine can be shut down if it produces shadow flicker effect.

Mr. Drake asked about ice build up. Mr. Mason stated the turbine will have ice sensors, and will not be permitted to run if there is ice on the blades. Ice will not build up on the blades if the unit is running.

Mr. Drake stated the City is planning a lakefront development and suggested to have some type of renewable energy there. Director Pietravoia stated JJR recommended the city look at turbines in the marina development.

Mr. Drake asked how far away the turbine will be able to be seen. Mr. Mason stated it would be able to be seen from a few miles away. Mr. Drake asked if there will be any lighting on the turbine. Mr. Mason stated the FAA mandates two red flashing lights at night and two white lights flashing during the daylight.

Mr. Drake asked the Kenersys representative if they have a U.S. plant yet. The representative from Kenersys stated they do not, but they are working on building one somewhere in the U.S. Mr. Drake stated Euclid has a brand new industrial park being built and the City would be happy to help Kenersys in building a plant there.

Mr. Brown was concerned about safety and asked what possible safety concerns are. Mr. Mason stated ice throw is a concern, but this unit will not have it due to the ice sensors and the machine won't be permitted to run if there is ice on the blades. Mr. Mason stated Lincoln looked at all the safety concerns involved with this project. This turbine is a 4^{th} generation design. It can withstand 133 MPH wind gusts. The foundation is designed to the turbine. Lincoln performed boring samples and the foundation will be tailored to the soil that exists on site.

Ms. Curtis stated she is very excited about this project and asked if this turbine will be the tallest in the country. Mr. Mason stated it will be consistent with the tallest. On land, currently in the U.S., this is as big as they get.

Ms. Gorshe asked if this unit is computer driven. Mr. Mason stated the operation has a programmable logic controller. The programming listens to sensors and decides the pitch of the blades, output of the generator, which way to face, etc. There are many command and control decisions the unit makes. This is a cutting edge machine.

Mr. Monroe stated by granting this variance, he is concerned we are setting a precedent. Mr. Monroe asked Mr. Beno if any similar request would have to come before the Planning and Zoning Commission. Mr. Beno stated any permit application would have the same review.

Mr. Monroe asked Mr. Mason what the distance is between the ground and the blade in its lowest position. Mr. Mason stated 114'. There is no clearance issue with the bottom of the blade. Mr. Monroe asked if the blade speed is regulated. Mr. Mason stated it is; there are sensors that watch the speed 100% of the time. IF

the speed is exceeded the unit will shut down.

Ms. Scarniench, Ward 2 Councilperson stated this project is awesome. This will be a landmark for Euclid. Ms. Scarniench stated she is very excited and very glad Lincoln is here and that Euclid is their home.

Mr. David Carlson, Euclid Chamber of Commerce Chairman stated Euclid is going green. This sends a message to the country.

A motion was made by Ms. Curtis to approve a height district exception from 80 feet maximum height for buildings to 443 feet as similar to exempted structures listed in section1379.02 (a) for PP# 647-13-003.

Seconded by Mr. Drake.

Roll Call: Yes – Unanimous

APPROVED (5-0)

_____

Ruth Pisor
22261 Harms Rd.
Euclid, OH 44143

RE: 2010-APL-01
2010-VAR-02
PP# 650-21-002
22261 HARMS ROAD
VIOLATION APPEAL AND VARIANCES

Ms. Ruth Pisor has submitted an application to appeal residential violation case # 2009-00000854 regarding wire and mesh fence ground hazard as well as request the required variances to permit a 7' tall mesh fence to remain in use at 22261 Harms Rd. Four motions are required.

1. A motion to grant the appeal for residential violation case # 2009-00000854 regarding wire and mesh fence ground hazard for PP# 650-21-002.

   P & Z 1301.07(a)

2. A motion to approve a 1' height variance on rear yard fences from 6' to 7'.

   P & Z 1387.01

3. A motion to approve a fence type variance on front yard fences from wood split rail to plastic mesh.

4. A motion to approve a 4’ height variance on front yard fences from 3’ to 7’.

P & Z 1387.02

Mr. and Mrs. Pisor were present to discuss this case with the Planning and Zoning Commission. Ms. Pisor stated she has a deer problem in the area. She has been in this house for 20 years. Ms. Pisor stated the deer come right through her yard and eat her trees, plants and shrubs. Ms. Pisor has installed a heavy duty, plastic, mesh netting to keep the deer out. Ms. Pisor stated she has made the mesh fence safe and nice looking.

Mr. Beno stated city staff visited the site. There were concerns with the original fence with the wire system and metal poles. The new fence material does address the safety concerns. The first motion should not be required because the applicant has changed the fence material. Mr. Beno stated this is a large property situated at the top of a large valley. It does not merit a hardship for the height variance. Staff recommends denial of this variance request.

Mr. Brown asked Ms. Pisor how it was determined that 7’ is the height the fence should be. Ms. Pisor stated 7’ is the height that deer won’t jump over. Ms. Pisor stated this plastic mesh is the best solution and that she does not want to install a solid wood fence.

Ms. Curtis asked if fencing off the plants, or garden would work. Ms. Pisor stated she has tried and the deer still get in. Ms. Curtis asked Ms. Pisor if she had any letters of support from her neighbors. Ms. Pisor stated she did not.

Ms. Gorshe asked what the pile of rebar was in the back yard. Ms. Pisor stated it was left from the previous owner. Ms. Gorshe suggested liquid deer repellant. She also stated other animals can burrow in under the staples.

Mr. Drake stated the main issue is the rear yard fence height. Mr. Drake asked if it’s possible to reduce the fence height to 6’. Ms. Pisor stated no, the deer will jump over it. Mr. Drake stated he does not believe the additional foot will make a difference.

Mr. Monroe stated it doesn’t sound like the height variance will be granted. Ms. Pisor stated she will reduce the height of the rear yard fence to 6’.

A motion was made by Mr. Drake to approve a fence type variance on front yard fences from wood split rail to plastic mesh.

Seconded by Mr. Brown.

Roll Call: Gorshe – No
Curtis – No
Brown – Yes
Drake – Yes
Monroe – No

DENIED (3-2)

An amended motion was made by Mr. Drake to approve a 3' height variance on front yard fences from 3' to 6'.

Seconded by Ms. Curtis.

Roll Call: Gorshe – Yes
Brown – No
Drake – Yes
Curtis – Yes
Monroe – No

APPROVED (3-2)

Mr. Monroe stated the requested variances have not been approved. The applicant will have to bring the fence into compliance with the code. No front yard mesh fence is permitted.

Mr. Monroe asked Mr. Beno if there will be any further action on the violation. Mr. Beno stated as long as the applicant brings the mesh fence into compliance, they will not be prosecuted.

_____

David Phillips
1541 E. 204 St.
Euclid, OH 44117

RE: 2010-VAR-03
PP# 646-28-031
1541 E. 204 STREET
FENCE VARIANCE

Mr. David Phillips has submitted an application requesting the required variances to permit a 6' high fence to remain in use in the side yard located at 1541 E. 204 St. Fences may not exceed 4' in height when located in a side yard between dwelling units. Application is result of residential violation case # 2009-00000077. One motion is required.

1. A motion to approve a 2' height variance on side yard fences from 4' to 6'.

Mr. David Phillips was present to discuss this case with the Planning and Zoning Commission. Mr. Phillips stated he erected the fence in 2007 under permit. A post hole and final inspections were completed by the City and approved. In 2009 a second fence was installed under permit and approved. Mr. Phillips is asking for a variance for 1 panel 6' in height to remain in use between the dwellings. Mr. Phillips stated there will be a financial hardship for him to correct this.

Mr. Beno stated a fence is installed in front of the rear line of the house by one panel. Mr. Beno stated 4' in height is permitted between the dwellings. There should be a unique situation or hardship to approve the variance. Staff recommends denial of this request.

Mr. Brown asked Mr. Beno if it's possible to approve a final fence inspection in error. Mr. Beno stated an error was made somewhere. The inspector probably approved the fence in error.

Mr. Beno stated this is a case where the violation notice was complaint driven.

Mr. Jerome Ross of 1535 E. 204 St. stated the fence is in the center of both of our driveways. It is hard to get into the driveway.

Gary and Carroll Baldridge of 1543 E. 204 St. stated we've had problems with the fence. Mr. Phillips accused us of breaking his gate. Mr. Ross has been harassed about lights, rocks, property line disputes and the driveway. Ms. Baldridge stated Mr. Phillips damaged their driveway and stole their grill and set a portion of their home on fire.

Mr. Monroe stated it sounds like there are a number of neighbor disputes going on. Mr. Monroe asked the Baldridges if they are opposed to this request. Ms. Baldridge stated she was.

Mr. David Gilliham, Ward 1 Councilperson stated this incident is a neighbor dispute that hasn't been resolved. Any resident attempting to follow the rules is a disincentive for a complaint driven violation. Both neighbors have tried to make improvements to their home. This fence does not impede anyone's driveway or add blight to the neighborhood.

Ms. Gorshe stated she visited the site and witnessed Mr. Ross trying to maneuver his truck around the fence. Ms. Gorshe stated she witnessed ingress and egress problems with the neighboring fence.

Mr. Drake asked Mr. Phillips if he was willing to reduce the height of the fence to 4' in the side yard. Mr. Phillips stated he was not. Mr. Drake stated if it's voted down, the applicant will be required to reduce or remove the non-conforming panel.

The discussion shifted to reducing the length of the non-conforming fence panel. Mr. Monroe clarified that the applicant wishes to reduce the length of the non-conforming fence panel to clear the driveway drain. This would still need a height variance, only would be less of a distance into the side yard.

Mr. Drake stated if the Commission is to consider this change; it would need to be written as 2' of 6' tall fence panel in the side yard between dwellings. The change would be to approve a height variance from 4' to 6' for a distance of 2' into the side yard.

A motion was made by Mr. Drake to approve a 2' height variance on side yard fences from 4' to 6' in the side yard for a distance of 2'.

Seconded by Mr. Brown.

Roll Call: Yes – Unanimous

APPROVED (5-0)

_____

City of Euclid
585 E. 222 St.
Euclid, OH 44123

RE: 2010-DMC-01
PP# 650-36-001, 002 and 003
24690-24720 EUCLID AVENUE
REZONING

Mr. Paul Beno, Zoning Commissioner has submitted an application on behalf of the City of Euclid to rezone parcels 650-36-001, 650-36-002, and 650-36-003 from U-3 (Apartment House) to U-4 (Local Retail). The U-4 (Local Retail) use district is the appropriate zoning classification for the aforementioned parcels. One motion is required.

1. A motion to allow a zoning change from U-3 (Apartment House) to U-4 (Local Retail) Use District for PP# 650-36-001, 650-36-002 and 650-36-003.

P & Z 1343.01 (a)

NOTE: Approval by Council is required.

Mr. Beno stated there is a property within the City that has been developed as a small retail building that extends into a three parcel multi-family district. The history of the property since 1989 has been treated as if it were zoned U-4 (Local Retail). It is time to bring it into compliance and zone all the parcels U-4 (Local Retail).

Mr. Monroe asked if the building crosses three property lines. Mr. Beno stated it does. The property owner would be in favor of such a rezoning because it makes the zoning consistent with the use of the property. Mr. Beno stated it is hard to market a property with non-conforming zoning.

A motion was made by Mr. Brown to allow a zoning change from U-3 (Apartment House) to U-4 (Local Retail) Use District for PP# 650-36-001, 650-36-002 and 650-36-003.

Seconded by Ms. Curtis.

Roll Call: Yes – Unanimous

APPROVED TO COUNCIL (5-0)

_____

Draft Ordinance: An ordinance repealing current Section 1377.01(e) of the Planning and Zone Code of the Codified Ordinances for the City of Euclid and enacting a replacement section to alter the required conditions of home occupations.

Mr. Beno stated the number and variety of home occupations has grown and issues need to be addressed. The proposed ordinance eliminates the specific list of permitted home occupations and makes the standards more clear as to what is permitted. It also regulates vehicles that are accessory to the home occupation. We want to limit the exterior impacts of a home occupation. No outdoor storage is permitted. The language is clearer in terms of employees, number of people permitted at the property, etc. This will make the code more enforceable.

Mr. Brown was concerned about only allowing 1 non-resident employee to be involved with the home occupation and suggested changing the language to read no more than two non-resident employees are permitted to be involved with the home occupation.

Commissioners Curtis, Drake and Gorshe all agreed with changing the language to allow not more than two non-resident employees to be involved with the home occupation.

Mr. Monroe stated he agrees with only allowing one non-resident employee. This is a matter of right, and a variance can always be applied for.

A motion was made by Mr. Brown to amend the proposed language in section 1377.01 (e)(2) to read no more than two non-resident employees be permitted to be involved with the home occupation.

Seconded by Ms. Curtis.

Roll Call: Yes – Unanimous

APPROVED (5-0)

Draft Ordinance: An emergency ordinance amending Sections 1359.05 and 1389.05 of the City of Euclid Codified Ordinances, which state that buffer requirements are mandatory for all locations where a use in a U-4, U-5 or U-6 District abuts a residential district, and that all locations not complying with this requirement will be considered a nuisance that is detrimental to the public welfare and the aesthetics of the community.

Mr. Beno stated non-conforming rights, or being "grandfathered in" applies to everything in the code. The only thing courts have upheld where the "grandfathering in" does not apply is where the issue constitutes a nuisance. We have fencing regulations that require a fence between a commercial parking area and abutting residential area. We have businesses that have never installed a fence between their business and the abutting residential. It does not seem reasonable to continue these non-conforming rights forever. A commercial business without a fence between it and the abutting residential property should be considered a nuisance.

Mr. Monroe asked if this would apply to existing businesses. Mr. Beno stated it would.

Mr. Monroe stated there is no sunset period and asked if this would go into effect as of Council approval. Mr. Beno stated it would; it's a basic requirement.

Mr. Brown stated he understands that non-conforming rights cannot go on forever, but he would be in favor of some sort of time frame or sunset period.

Mr. Beno stated the code changed in 1971 and stated 40 years is too long.

Mr. Monroe stated he is uncomfortable in retroactively applying this.

Mr. Beno stated the Commission should hold off on voting on this until Law Director Frey can share the research with the Commission.

A motion was made by Mr. Monroe to table this request.

Seconded by Mr. Brown.

Roll Call: Yes – Unanimous

TABLED (5-0)

MATTERS OF CONCERN:

PUBLIC PARTICIPATION:

INFORMAL COMMENTS OF COMMISSION MEMBERS:

Mr. Monroe asked that a site plan be included for all violation appeals on fences.

Director Pietravoia stated the neighbor of case # 2010-VAR-03 presented information that was not shared during the meeting that may have affected the decision made. The matter may be coming back before the Commission.

Mr. Monroe stated if the case is being recalled due to additional evidence, notices need to be sent out.

ADJOURNMENT: 10:05 P.M.

_____

SECRETARY

_____

CHAIRPERSON

THE TAPED PUBLIC RECORD OF THIS MEETING IS ON FILE AT EUCLID CITY HALL AND MAY BE REVIEWED UPON REQUEST.

From:	Pietravoia, Frank
To:	Pietravoia, Frank
Subject:	FW: Public Meetings and other Public Info RE Lincoln Electric Wind Turbine
Date:	Friday, May 07, 2010 5:50:32 PM

From: Pietravoia, Frank
Sent: Friday, May 07, 2010 5:49 PM
To: Pietravoia, Frank
Subject: FW: P & Z meeting about Lincoln

Documentation of public airing of information regarding the proposed Lincoln Electric Wind Turbine is show below from the Mayor's Executive Assistant who is responsible for the community television channel, ECTV, as well as the City Newsletter and other public relations matters.

From: Mayernik, Lisa
Sent: Monday, April 26, 2010 12:48 PM
To: Pietravoia, Frank
Subject: FW: P & Z meeting about Lincoln

Frank
The Mayor is comprising a list of the meetings were he spoke about the turbine project.

The P & Z meeting agenda and televising airing schedule were promoted on our website and ECTV the week the show aired.

The Planning & Zoning meeting of Jan. 12, 2010 aired Jan. 13th through Jan. 20th at the following times.

1/13 12:00 p.m. & 9:00 p.m.
1/14 1:00 p.m. & 10:00 p.m.
1/15 2:00 p.m. & 11:00 p.m.
1/16 3:00 p.m.
1/17 12:00 a.m. & 4:00 p.m.
1/18 1:00 a.m. & 5:00 p.m.
1/19 2:00 a.m.
1/20 3:00 a.m.

The meeting lasted 2:58:19, and was preempted on Tuesday Jan. 19th at 6:00 p.m. for a City Council Meeting (Jan. 18th was MLK Day). I show no notes to the playback log that would indicate any problems with playback.

The proposed turbine project was a topic of discussion on the Mayor's "Our Town" ECTV program. The Our Town program aired a total of 27 times on the following dates;

Jan. 20th 1:00p.m. & 10:00 p.m.;
Jan. 21st 2:00p.m. & 11:00 p.m.;
Jan 22nd 3:00p.m.;
Jan 23rd 12:00 a.m. & 4:00 p.m.;
Jan. 24th 1:00 a.m. & 5:00 p.m.;
Jan. 25th 2:00 a.m. & 6:00 p.m.

Attachment D-1k

Jan. 26th 3:00 a.m. & 7:00 p.m.
Jan. 27th 4:00 a.m. 10:00 a.m.
Jan. 28th 11:00 a.m. & 8:00 p.m.
Jan. 29th 12:00 p.m. & 9:00 p.m.
Jan. 30th 1:00 p.m. & 10:00 p.m.
Jan. 31st 2:00 p.m. 11:00 p.m.
Feb. 1st 3:00 p.m.
Feb. 2nd 12:00 a.m. & 4:00 p.m.
Feb. 3rd 1:00 a.m.

In mid May, all households and businesses within the City will be mailed the "Euclid Update Newsletter." A featured article in this newsletter will be on the Lincoln Electric proposed turbine project.

The Library also makes this meeting available via a download on their website. Rebecca told me to date, the meeting was downloaded 7 times.

Lisa Mayernik
Assistant to the Mayor
City of Euclid
585 East 222 Street
Euclid, Ohio 44123
216-289-2786
216-289-2766 - Fax
Lmayernik@cityofeuclid.com

From: Scarniench, Madeline
Sent: Wednesday, May 12, 2010 11:20 AM
To: Pietravoia, Frank,
Subject: wind summary

Hi Frank

I just finished going through my calendar as far as the meetings I have attended and spoke about the Lincoln Wind Turbine Project. No one held meetings in December so it wasn't until January & February that I spoke about the project.

Jan. 20 I spoke to the Heritage Park Association. There were approximately 15 in attendance.

Jan 20 I also spoke at the Friends of Sherwood Forest. There were about 40 at this meeting.

Jan 21 I spoke at the Chardon Hill Association meeting. There were about 50 people at this meeting.

On Saturday Jan. 23rd I helped man the Euclid exhibit at the Home & Flower Show and spoke with over 100 people about the project.

Jan 28 was the Lakeland Quarry Association meeting. I spoke to about 25 people.

Feb.14th I helped man our exhibit at the Sports Show. I spoke to about 75 people about the project.

Feb. 25th was another Lakeland Quarry Meeting at which I spoke about the project a second time. There were about 20 in attendance.

On March 4th I spoke at the Weed & Seed Steering Committee meeting. There were about 15 at this meeting.

March 14 I helped man our exhibit at the Home & Patio Show where I spoke to about 50 residents.

March 16/17 was the 2nd time I discussed the project with Heritage Park & then with Friends of Sherwood Forest. Between the 2 meetings there were about 50 residents.

March 30 was the 1st meeting of the year for the East Beverly Hills Association. There were about 50 residents that heard about the project for the 1st time.

Unfortunately I am not good with saving my newsletters that I send out so I could not attach it here. But in case I find it I will forward it on to you.

Madeline

Attachment D-1l

Going Green In Euclid

Lincoln Electric, City, Library & Others Pursue Renewable Energy Projects

The City of Euclid's **Going Green** initiative is taking another step forward with a $1 million grant to The Lincoln Electric Company from the State of Ohio and the U.S. Dept. of Energy for the proposed construction of a demonstration wind turbine at the company's Euclid, Ohio, World Headquarters. This grant is one in a series intended to fund renewable projects made possible as part of the American Recovery and Reinvestment Act of 2009.

The renewable energy grant awarded in November of 2009, one of the first from Ohio's $96 million State Energy Program, will help to fund the construction of a 2.5 megawatt Kenersys wind turbine. This turbine will be one of the largest constructed in the State of Ohio.

Lincoln's exciting project will serve as a demonstration of wind turbine technology and is complementary to the company's business strategy of pursuing manufacturing opportunities in the wind industry. According to Mayor Bill Cervenik, "Lincoln officials indicated that the turbine would also generate about 10% of their annual electric demand and help to reduce greenhouse gas emissions."

Mayor Bill Cervenik addressed local, state and federal officials at Lincoln Electric's world headquarters in Euclid, where the award announcement was made. "The City of Euclid recognizes the importance of renewable energy to the future of our local economy and to the future of the economy of our state." The Mayor also acknowledged that, "Governor Strickland has demonstrated strong support of renewable energy for the State of Ohio as evidenced by these grant awards."

The City of Euclid assisted Lincoln with the grant application process. With support from State Representative Kenny Yuko, and in a cooperative effort with the State of Ohio, the Cuyahoga County Department of Development, and the Great Lakes Wind Task Force, Lincoln successfully secured the grant.

According to Economic Development Director, Frank Pietravoia, "Already in place is the Automation Division of Lincoln Electric and its Wind Tower Welding Solutions program, which provide welding services and products for wind tower construction providing evidence of the potential impact on our local economy."

Conceptual artist rendering of proposed wind turbine: this project is partially funded by the ARRA of 2009

Lincoln is not alone. The City of Euclid is also **Going Green.** In a unique partnership with the Euclid Public Library, solar panels will be installed to help meet the electrical needs of both City Hall and the Library.

A number of Euclid-based companies are exploring ways in which wind turbines and solar panels can be utilized to meet their own energy needs, while others are seeking to expand their business by manufacturing components that are essential to these new technologies. The City of Euclid has consistently maintained a strong manufacturing base with the skill and expertise necessary to succeed in the evolving advanced energy sector.

Bluestone Business Park provides a prime opportunity to attract renewable energy manufacturers to Euclid and Northeast Ohio. Fogg Building Methods, the park developer, is committed to creating a "green" industrial park. The State of Ohio and Cuyahoga County played a critical role in making the Park possible through a nearly $5M Job Ready Sites grant and a $1M Brownfield loan.

The City is also pursuing grant funds through the Fund for Our Economic Future Efficient Gov Now Grant Program in a partnership with the First Suburbs Development Council. The fund request is to support the establishment of a Solar Special Improvement District. The State of Ohio recently passed legislation to allow such districts to be formed. Property owners within the district would be able to fund the installation of a solar panel system on their rooftop through a self-assessment on their property tax bill. The District would provide attractive financing rates over a twenty year period. The initial program will be geared to commercial and industrial property owners. For more information about this upcoming program contact the City of Euclid Department of Economic Development at 289-8158.

Attachment D-1m

Legal Notices

Cuyahoga Metropolitan Housing Authority
PUBLIC HEARING
Amendments to the CMHA Annual Plan for 2010
Thursday, August 26, 2010 @ 4:00 pm
CMHA Board Room
1441 West 25th Street
Cleveland, Ohio

The Cuyahoga Metropolitan Housing Authority (CMHA) is announcing a Public Hearing on August 26, 2010 to consider amendments to the CMHA 2010 Public Housing Agency (PHA) Plan that was approved by the U.S. Department of Housing and Urban Development (HUD) on March 8, 2010. In accordance with HUD regulations, CMHA is seeking public comments for the following proposed amendments to the FY2010 PHA Plan:

1. Demolition/Disposition plan – CMHA needs to submit a demolition plan for the house that exploded at 17723 Federal Drive and a disposition plan for the sale of the vacant lot.
2. Demolition plan – CMHA needs to submit a demolition plan for two scattered site houses at 7307 Ivy and 2070 West 104th Street that are beyond repair and need to be demolished.
3. Admissions preferences – the CMHA Housing Choice Voucher program plans on adding a local preference for Cuyahoga County residents and employees. Applicant families who reside or work in Cuyahoga County at the time of the next lottery will be assigned 10 preference points when the next waiting list is established.

These Annual Plan amendments

Legal Notices

HEARING OF OBJECTIONS

Notice is hereby given that on the 16th day of August, 2007 the Board of County Commissioners of Cuyahoga County, Ohio duly adopted a resolution by unanimous vote finding that public convenience and welfare require the improvement of the below listed project and that the County Engineer of Cuyahoga County, Ohio, has prepared surveys, plans, profiles, cross-sections, estimate of cost and specifications for the improvement and that the same are on file in the Office of the Clerk of the Board of County Commissioners, Room 435, County Administration Building, 1219 Ontario Street, Cleveland, Ohio 44113, for the inspection of persons interested therein.

Rehabilitation of Old Mill Road Bridge No. 162 over the Chagrin River in the Village of Gates Mills

Notice is also given that objections to said improvement will be heard by said Board of County Commissioners, in its offices, Room 451, County Administration Building, 1219 Ontario Street, Cleveland, Ohio 44113 on the 22nd day of July, 2010, at 10:30 a.m., local time.

BOARD OF COUNTY COMMISSIONERS
Jimmy Dimora
Timothy F. Hagan
Peter Lawson Jones
Jeanne M. Schmotzer,
Clerk of the Board
p.d.jul.2,9,2010 2483906

INVITATION TO BID

SEALED PROPOSALS for the following project for the Cleveland Heights-University Heights City School District, Cuyahoga County, Ohio

Project # 010C-023-001
Wiley Middle School Parking Lot Expansion

WILL BE RECEIVED at the Office of the Director of Business Services of the Cleveland Heights - University Heights City School District at the Board of Education Building, 2155 Miramar Boulevard, University Heights, Ohio 44118-3397, UNTIL 2:00 P.M. Local Time, Thursday, July 22, 2010.

And will be publicly opened, read, and tabulated immediately thereafter.

Bids will be received for:
Trade of Contract
PARKING LOT EXPANSION CONTRACT
BASE BID Contract Cost Estimate $ 125,000.00

No bid shall be considered unless submitted using forms furnished with the Construction Documents. The Construction Documents (Project Manual and Plans) will be available SE Blueprint at www.plancycle.com at the bidders expense. The contract documents may be reviewed for bidding purposes, without charge, during business hours at the following locations:

The Builder's Exchange
9555 Rockside Rd., Suite 300
Valley View, Ohio 44125
Phone: 216-393-6300 / 866-907-6300
Fax: 216-393-6304 / 866-907-6304

Subcontractors Association of Northeast Ohio
76 East North St.
Akron, Ohio 44304
Phone: 330-762-9951
Fax: 330-762-9960

Construction News Corporation
7261 Engle Road Suite 304
Middleburg Heights, Ohio 44130
Phone: 800-969-4700/ 440-826-4700
Fax: 800-229-4626

A Pre-Bid Conference will be held at 2:00 P.M. Local Time on Thursday, July 15, 2010 at the Board of Education offices, 2155 Miramar Boulevard, University Heights, Ohio 44118. Project requirements will be reviewed followed by a tour of the areas affected by this project at Wiley Middle School.

Each bid shall be accompanied by a bond executed by a surety company authorized to do business in Ohio, or by a certified check on a solvent bank, payable to the Cleveland Heights-University Heights City School District in a sum equal to ten percent (10%) of the amount of the bid. The certified check or bond will be held as a guarantee that if the proposed bid is accepted the

Legal Notices

Heights City School District for the term of the contract.

Each bid shall contain the full name of every person and company interested in the same and must be sealed in an envelope and endorsed with the identification of the appropriate contract.

All bids shall remain valid and open for acceptance for a period of, at least, sixty (60) days after the opening.

The Cleveland Heights -University Heights City School District reserves the right to waive informalities, to accept or reject any and all or parts of any and all bids, and to award a contract pursuant to Section 9.312 of the Ohio Revised Code.

By Order of the Board of Education
Cleveland Heights-University Heights City School District
Pre-Bid Conference: July 15, 2010
Bid Opening: July 22, 2010
p.d.jul.9,16,2010 2488850

INVITATION TO BID

S.J. Louis Construction, Inc. is soliciting subcontract and material bids for the Walworth Run Interceptor Realignment Bids Due Thu 07/29/2010 @ 2:00 PM Qualified DBE/MBE & WBE firms are encouraged to submit bids in response to this invitation.

We would like prices for trucking/hauling, MOT, Cured in Place Concrete, aggregates, restoration, curb and gutter, sidewalk, fencing, Asphalt paving Concrete paving and CLSM Controlled Low Strength Material services and supplies.

Plans and specifications are available @ Northeast Ohio Regional Sewer District (216) 641-6000 or thru SJ Louis's online plan room. All bids should be submitted to S.J. Louis Construction, Inc., P.O Box 459, Rockville, Minnesota 56369. Phone (320) 253-9291 Fax (320) 253-3533.
p.d.jul.6,9,2010 2487230

LEGAL NOTICE

Sealed bids will be received by the Service Director at 11:00 a.m. local time on the 26th of July, 2010 for Bid No. 18-10 for of MOTOR OIL & LUBRICANT in the City of Parma in accordance with specifications on file with the Service Director. Proposals for bids must be submitted on a form available in the office of the Service Director, City Hall, 6611 Ridge Road, Parma, Ohio and each proposal must state the full name and address of each person, firm or corporation interested in the bid submitted.

Bids must be submitted in a sealed envelope and clearly marked with the bid invitation number, opening date, and Item being bid. In the event that several invitations are being bid simultaneously, each bid must be submitted in a separate envelope. Bids must be delivered directly to the office of the Purchasing Director, on the basement level of Parma City Hall, 6611 Ridge Road, Parma, Ohio 44129, prior to 11:00 a.m. local time on the day of the bid opening.

Each bid must be accompanied by a certified check on a solvent bank in an amount of I0% of the bid, or a 100% bid bond, the same being payable to the City of Parma as a guaranty that if the bid is accepted, a contract will be entered into a surety bond satisfactory to said municipality in an amount equal to 100% of the total bid will be furnished. All bonds must have full name and mailing address for the company acting as surety, full name, mailing address and telephone number of the office, business, or agency actually issuing the bond and name mailing address and telephone number of an agent in the State of Ohio authorized to accept service of process for claims on the bonds. The deposit of the successful bidder will be retained until the contract is properly executed and delivered. Deposits of all unsuccessful bidders will be returned immediately following award.

All contractors and

Legal Notices

LIQUIDATION NOTICE TO CREDITORS OF ST. PAUL CROATIAN FEDERAL CREDIT UNION

The National Credit Union Administration Board placed the St. Paul Croatian Federal Credit Union, Charter No. 5049, 34900 Lakeshore Blvd., Eastlake, OH 44095, into involuntary liquidation pursuant to its authority under Section 207 (a) (1) (A) of the Federal Credit Union Act.

All creditors having any claim or demand against St. Paul Croatian Federal Credit Union must submit their claim or demand in writing, together with proof, by August 8, 2010. All such claims or demands must be sent to the following address:

National Credit Union Administration
Liquidating Agent for the St. Paul Croatian Federal Credit Union
4807 Spicewood Springs Road, Suite 5100
Austin, Texas 78759
Tel. No. (512) 231-7900

Claims or demands filed after August 8, 2010, may be barred due to untimely submission.
p.d.may10,jun.9jul.920102455217

NOTICE OF AVAILABILITY

The U.S. Department of Energy (DOE) has prepared a draft Environmental Assessment (EA) to analyze and describe the potential environmental impacts associated with:

DOE's Proposed Financial Assistance to Ohio for Lincoln Electric's Wind Energy Project Euclid, Cuyahoga County, Ohio - DOE/EA 1777

DOE's Golden Field Office has prepared an EA in accordance with the National Environmental Policy Act (NEPA). The EA also provides documentation of DOE's Section 106 consultation with Ohio Historic Preservation Office and interested parties can comment on the proposed Undertaking's potential effects on listed and potentially eligible National Historic Preservation Act properties. The Lincoln Electric Company is proposing to use American Reinvestment and Recovery Act funds from DOE for the purchase and installation of a 2.5 MW wind turbine in an industrial park in Euclid, OH.

The draft EA is available for review on the DOE Golden Field Office website:
http://www.eere.energy.gov/golden/Reading_Room.aspx.

Public comments on the results of the environmental impacts of implementing the proposed action will be accepted until July 24, 2010. Please mail comments to the DOE Headquarters, c/o Caroline Mann, 1000 Independence Ave., SW, Washington, DC 20585, or send them by email to caroline.mann@ee.doe.gov.
p.d.jul,9,2010 2488704

Notice of Initiation of the Section 106 Process: Public Participation

Clearwire Wireless Broadband is proposing the redevelopment of an existing and construction of a new telecommunications facility at the following addresses in Cuyahoga County.

Collocation at 2300 Overlook Road, Cleveland Heights

120' monopole within a 50' x 50' fenced compound at 691 Richmond Road, Richmond Heights

The proposed developments will include the installation of associated equipment cabinets. Members of the public interested in submitting comments on the possible effects this proposed project may have on historic properties included in or eligible for inclusion in the National Register of Historic Places may send their comments to Carol Sullivan, RESCOM Environmental Corp., P.O. Box 6225, Traverse City, MI 49696 or call 1 231 947 4454.

Attachment D-1n

NOTICE TO BIDDERS/ LEGAL ADVERTISEMENT

SEALED BIDS WILL BE RECEIVED until 10:00 A.M., THURSDAY AUGUST 5, 2010, by the Public Service Director of the City of Strongsville, at the Strongsville Municipal Offices (Service Center), 16099 Foltz Parkway, Strongsville, Ohio 44149, for the following contract FURNISHING OF SOLID WASTE RECYCLABLE

Legal Notices

Strongsville Municipal Offices (Service Center).

Each bid must contain the full name of each person or company interested in the same and shall be accompanied by a bid bond issued by a responsible surety licensed to do business in the State of Ohio, in an amount equal to ten percent (10%) of the estimated FIRST ANNUAL BID PRICE or a certified check in such amount submitted on a solvent bank in the State of Ohio payable to the City of Strongsville, as a guarantee that if such bid is accepted, a contract pursuant thereto will be entered into.

Bidders must use the printed bidding forms available as aforesaid, as none other will be accepted.

A Bidder/Contractor will be deemed committed to the Department of Labor's goals and timetables for the Cleveland, Ohio area as specified in the Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity (Executive Order 112460 by submitting a properly signed bid.

Each bidder must ensure that all employees and applicants for employment are not discriminated against because of their race, creed, color, gender, religion, national origin, or disability.

The bidder to whom a contract is awarded is also required to furnish to the City of Strongsville an annual performance bond in an amount equal to one hundred percent (100%) of the amount of the first year's estimated contract price, and renewed annually for the total amount of each successive year's annual contract price, but in any event no less than $2,000,000.00 annually.

The City reserves the right within its sole discretion to award a contract for all services to the lowest and best bidder, to reject any or all bids, to waive any informalities, minor defects, or irregularities in the bids received, and to request additional information including but not limited to prior experience and/or equipment of the bidder. Furthermore, the City within its sole discretion, can award two separate contracts, one for collection services and one for operation of the transfer station and disposal of solid waste, if it is in the best interest of the City and to the benefit of the public health, safety and welfare.

Bids for the contract shall be sealed and endorsed with the title for the bid as follows:

"BID FOR FURNISHING OF SOLID WASTE, RECYCLABLE AND YARD WASTE COLLECTION SERVICES; AND THE OPERATION AND MAINTENANCE OF THE STRONGSVILLE TRANSFER STATION AND THE RECEIPT, TRANSPORT AND DISPOSAL OF SOLID WASTE OF THE CITY OF STRONGSVILLE"

THE CITY OF STRONGSVILLE IS AN EQUAL OPPORTUNITY EMPLOYER.

By authority of the Council of the City of Strongsville, pursuant to Resolution No. 2010-100.

By order of the Council of the City of Strongsville, Ohio
Leslie Seefried, MMC,
Clerk of Council
Thomas P. Perciak, Mayor

*PLEASE NOTE: Notice to Bidders and Instructions to Bidders have been substantially modified since those issued when this matter was last bid approximately ten years ago. Now the City is going to bid for one (1) combined contract (Parts I, II and III of the Agreement) in order to cover both services, namely, collection of waste, and operation of the City's Transfer Station and transport/disposal of waste."
p.d.jul.9,16,2010 2488949

[illegible]E TO BID

SEPARATE BIDS WILL BE RECEIVED BY ROBERT C. DOWNEY, CITY MANAGER OF CLEVELAND HEIGHTS, OHIO, at his office in City Hall, 40 Severance Circle, Cleveland Heights, until 12:00 o'clock Noon, Daylight Saving Time in Ohio, on Friday, July 23, 2010, for the PURCHASE OF ONE HIGH COMPACTION FRONT LOADING REFUSE COLLECTION TRUCK in accordance with Instructions to Bidders, Specifications and Proposal-

About the City of Euclid

City Departments

Resident Information

Seniors

Recreation

Photo Gallery

Citizen Response

Report a Problem, Request Information or Request Service.

Submit your request here

Quick Links:

Calendar
News
Email News
Forms & Permits
FAQs
Contact

Home > Announcements

NOTICE OF AVAILABILITY

NOTICE OF AVAILABILITY

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DOE's Proposed Financial Assistance to Ohio for Lincoln Electric's Wind Energy Project
Euclid, Cuyahoga County, Ohio - DOE/EA 1777

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The draft EA is available for review on the DOE Golden Field Office website:
http://www.eere.energy.gov/golden/Reading_Room.aspx.

Public comments on the results of the environmental impacts of implementing the proposed action will be accepted until July 24, 2010. Please mail comments to the DOE Headquarters, c/o Caroline Mann, 1000 Independence Ave., SW, Washington, DC 20585, or send them by email to caroline.mann@ee.doe.gov.

Attachment D-1o

KENERSYS | KALYANI

KENERSYS EUROPE GmbH
Hafenplatz 4
48155 Münster · Germany

Phone: +49 251 210 99 0
Fax: +49 251 210 99 200
E-Mail: info@kenersys.com

K100 2.5 MW

MAIN DATA

Rotor diameter:	100 m
Installed power:	2500 kW
Power control:	pitch control
Operational mode:	variable speed
Presumed design Life[1]:	20 years
IEC Type Class:	II
Turbulence Class:	a
Certification:	acc. IEC 61400, ED. 3
Ambient Operation Temperature:	+40°C/-20°C

[1] Relates to main components only and excludes any components that are subject to normal wear and tear.

ROTOR

Swept area:	7854 m²
Number of blades:	3
Blade length:	48.7 m
Blade material:	GFRP
Tilt Angle:	5°
Cone angle:	2°
Rated speed:	14.1 rpm

GENERATOR-CONVERTER SYSTEM

Electrical system:	full conversion, electrically excited synchronous generator
Protection class:	IP 54
Converter voltage out:	600 V
Frequency:	50 / 60 Hz
Rated power:	2500 kW
Rated speed:	1650 rpm

PITCH SYSTEMS

Pitch bearing:	ball bearing slewing ring, externally geared
Pitch drives:	AC motors, angular gearboxes

OPERATION DATA

Noise power level[2]:	106 dB(A)
Cut in wind speed:	3 m/s (60 s average)
Cut out wind speed:	25 m/s (10 min average)

[2] based on directive IEC 61400-11

DRIVE TRAIN

Principle:	3-point-support
Main bearing:	2-rows spherical roller
Gearbox type:	planetary / spur comb.
Rated torque:	approx. 1850 kNm

TOWER

Height:	85 m (IEC IIa / DIBt WZ3) and 100 m (IEC IIIa / DIBt WZ2) hub height. Other hub heights on request.
Type:	tubular conical steel segments
Material:	S235 / S355 construction steel
Access:	internal climbing system

YAW SYSTEM

Type:	active wind orientation
Yaw drives:	4 motors with planetary gearboxes
Yaw brake:	hydraulic callipers with brake disk

WEIGHT / MASSES

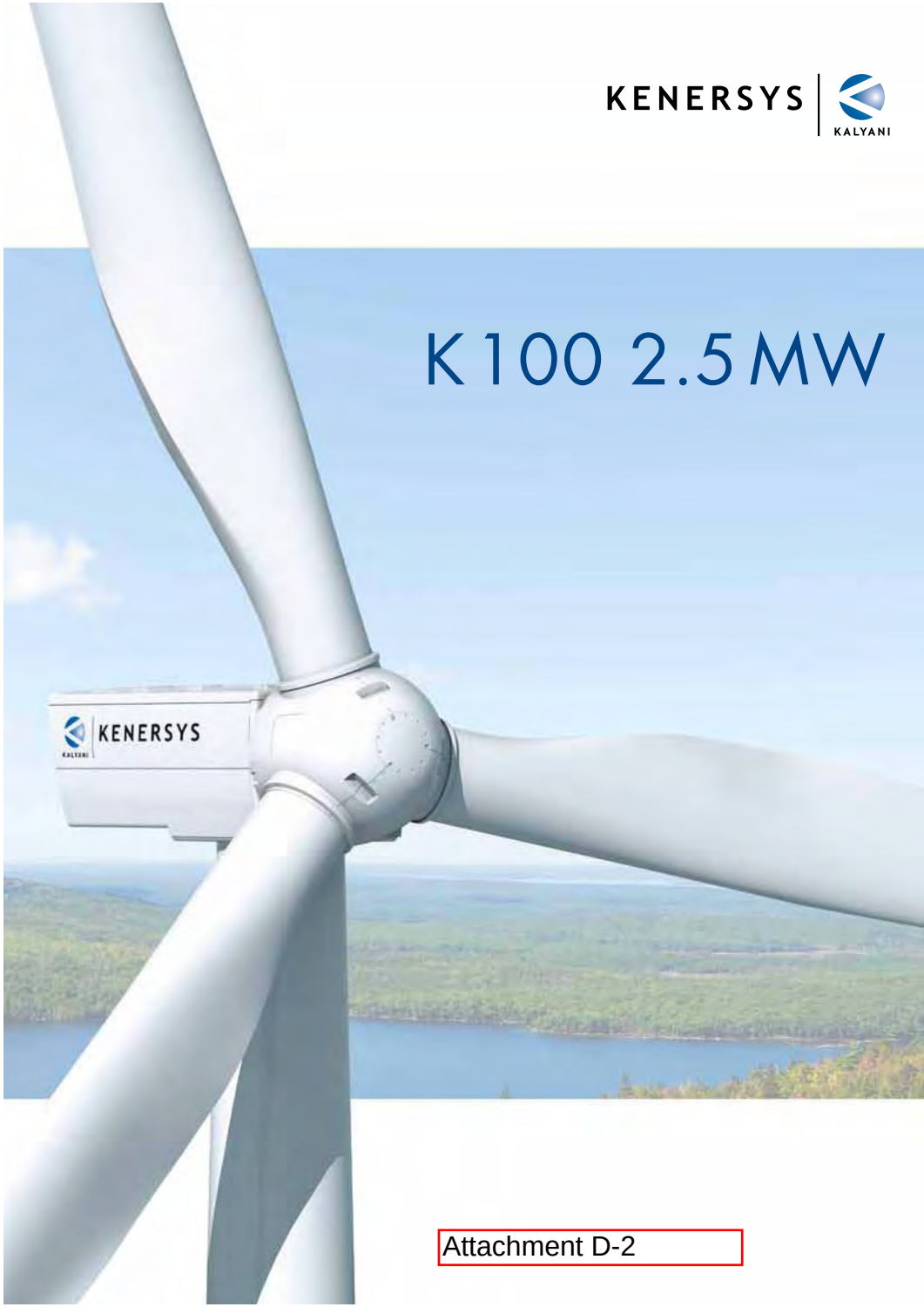
Rotor incl. hub:	approx. 55000 kg
Nacelle:	approx. 86000 kg
Tower:	depending on hub height
Foundation:	depending on soil condition, flat or pile foundation

POWER CURVE

given for air density of 1.225 kg/m³ and based on the directive IEC 61400-12-1

V-WIND (m/s)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
P (kW)	0	7	106	250	462	756	1137	1585	1999	2300	2429	2465	2497	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500

www.kenersys.com



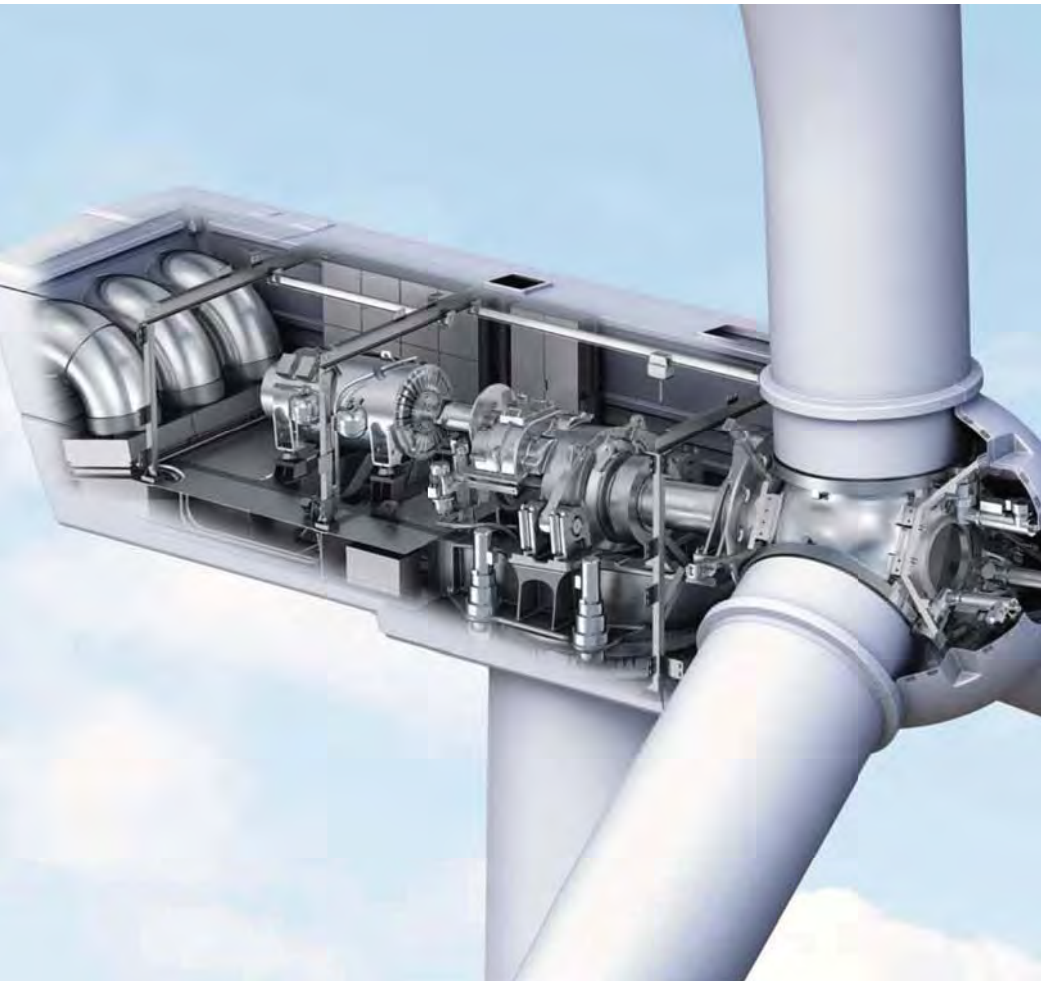
KENERSYS | KALYANI

K100 2.5 MW

Attachment D-2

KENERSYS | KALYANI

K100 2.5 MW



The K100 2.5 MW wind turbine generator is a variable speed, pitch regulated machine with a distributed drive train. The electrical concept is based on a full conversion system with an electrically excited synchronous generator. Matured component design with demonstrated reliability will be the basis for a proven and economic design with high availability for sustainable investment.

Best possible component reliability which is crucial for the stable operation of wind turbine generator system is the integral element of the design of this new wind turbine platform.

COMPONENTS

Rotor

The machine is equipped with an upwind orientated rotor. The rotor blades will be made of glass fibre reinforced plastics (GFRP).

Power regulation will be realised by a full-span pitch system based on AC-technology with 3 independent drives for high system safety.

Drive train

The mechanical drive train is realized in proven 3-point arrangement (distributed drive train). The main bearing is a double row spherical roller bearing, taking the entire rotor thrust. The gearbox is a multiple stage system with planetary stages and one conventional spur gear stage.

An oil filtering and an efficient cooling system provide proper oil conditioning under operation. The system can optionally be equipped with a condition monitoring system for monitoring of main bearing, gearbox and generator condition.

A brake on the high speed side off the gearbox is used only below a rotational speed of 500 rpm, in order to bring the rotor to a complete stop if needed.

Electrical system

An electrically excited synchronous generator is combined with a full size IGBT-converter.

The converter system will be based in the tower bottom to allow easy access by the service personnel.

The generator as well as the converter is water-cooled allowing a high ambient operation temperature environment.

The transformer location will be based on local requirements, also in the tower base or alternatively in an additional transformer housing close to the foundation.

Nacelle and yaw system

Active yawing is realised via a ball bearing slewing ring with outside gearing that is fixed to the main frame and the tower top flange. Four yaw drives, consisting of high transmission planetary stages with AC-drives and motor brakes, are used for the alignment of the nacelle to the main wind direction.

This system is combined with a brake disc and hydraulically activated callipers for handling the torque on the machine head due to sudden change in wind direction.

Tower and foundation

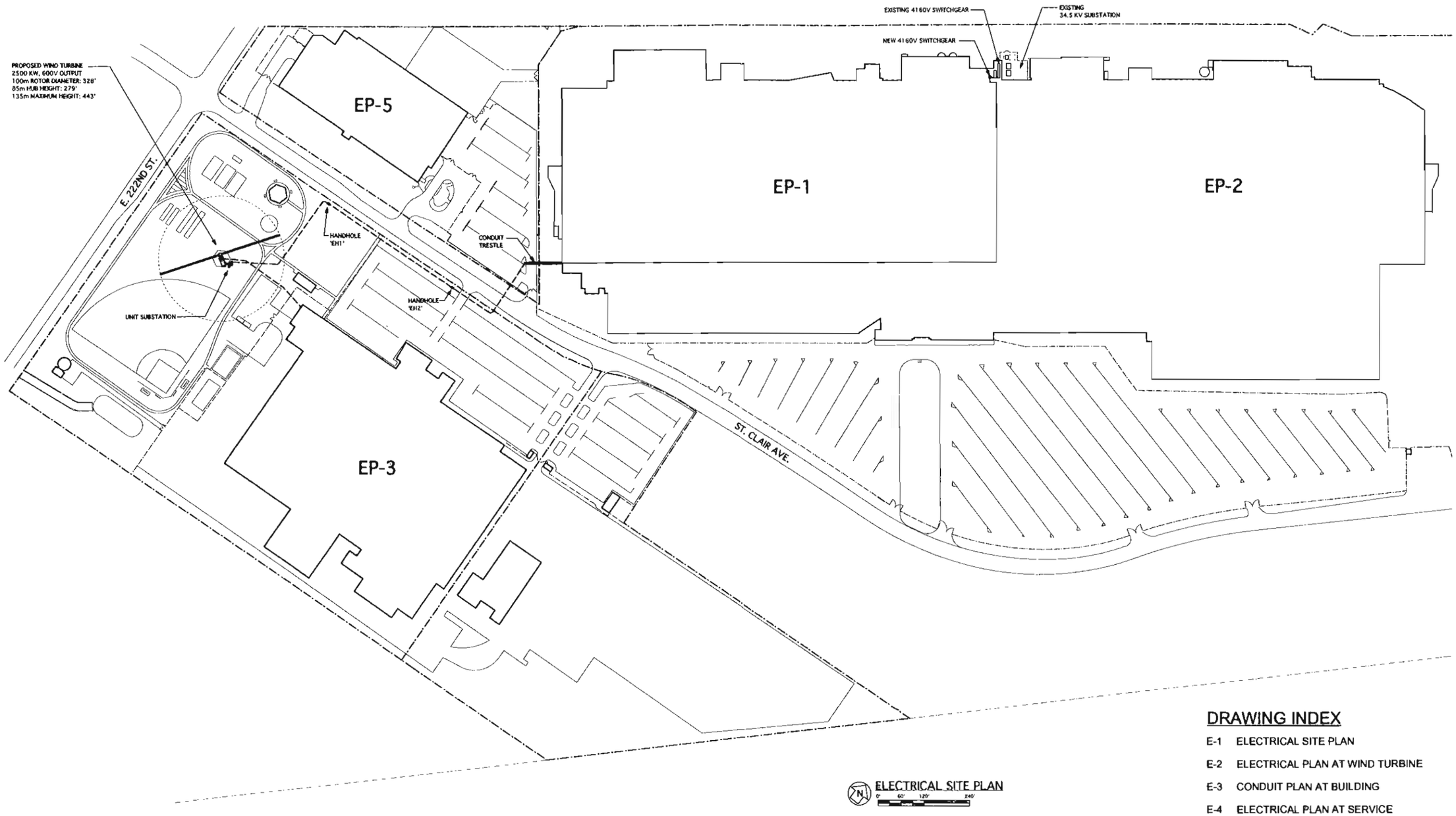
The machine will be available with different hub heights. Standard towers will be available for 85 m and 100 m hub height.

The foundation will be designed as flat and pile foundation depending on site-specific soil conditions. The tower connection will be realized by means of a foundation ring, embedded in reinforced concrete connecting the tower through an L-Flange.

ABOUT KENERSYS

KENERSYS was founded as RSB Consult in 2003 as a design & consulting company for leading wind power and component manufacturers. As a wind turbine manufacturer today our considerable experience is based upon more than 400 accumulated years of expert knowledge of our engineers at the KENERSYS CENTER OF INNOVATION in Münster, Germany.

The technological competency ensures quality and reliability for our customers and provides KENERSYS with a sound basis for expanding its position in the wind turbine market.



ELECTRICAL SITE PLAN

0' 60' 120' 240'

DRAWING INDEX

E-1 ELECTRICAL SITE PLAN
E-2 ELECTRICAL PLAN AT WIND TURBINE
E-3 CONDUIT PLAN AT BUILDING
E-4 ELECTRICAL PLAN AT SERVICE
E-5 INTERCONNECTION RISER DIAGRAM
E-6 ONE-LINE DIAGRAM
E-7 ELECTRICAL SPECIFICATIONS

ISSUED FOR INTERCONNECT APPLICATION
NOT FOR CONSTRUCTION

STATE OF OHIO
JAMES F. DINOVO
41925
REGISTERED
PROFESSIONAL ENGINEER

ISSUE	DESCRIPTION	DATE
1	PRELIMINARY	5/14/10
2	INTERCONNECTION APPLICATION	6/30/10

WIND TURBINE INSTALLATION

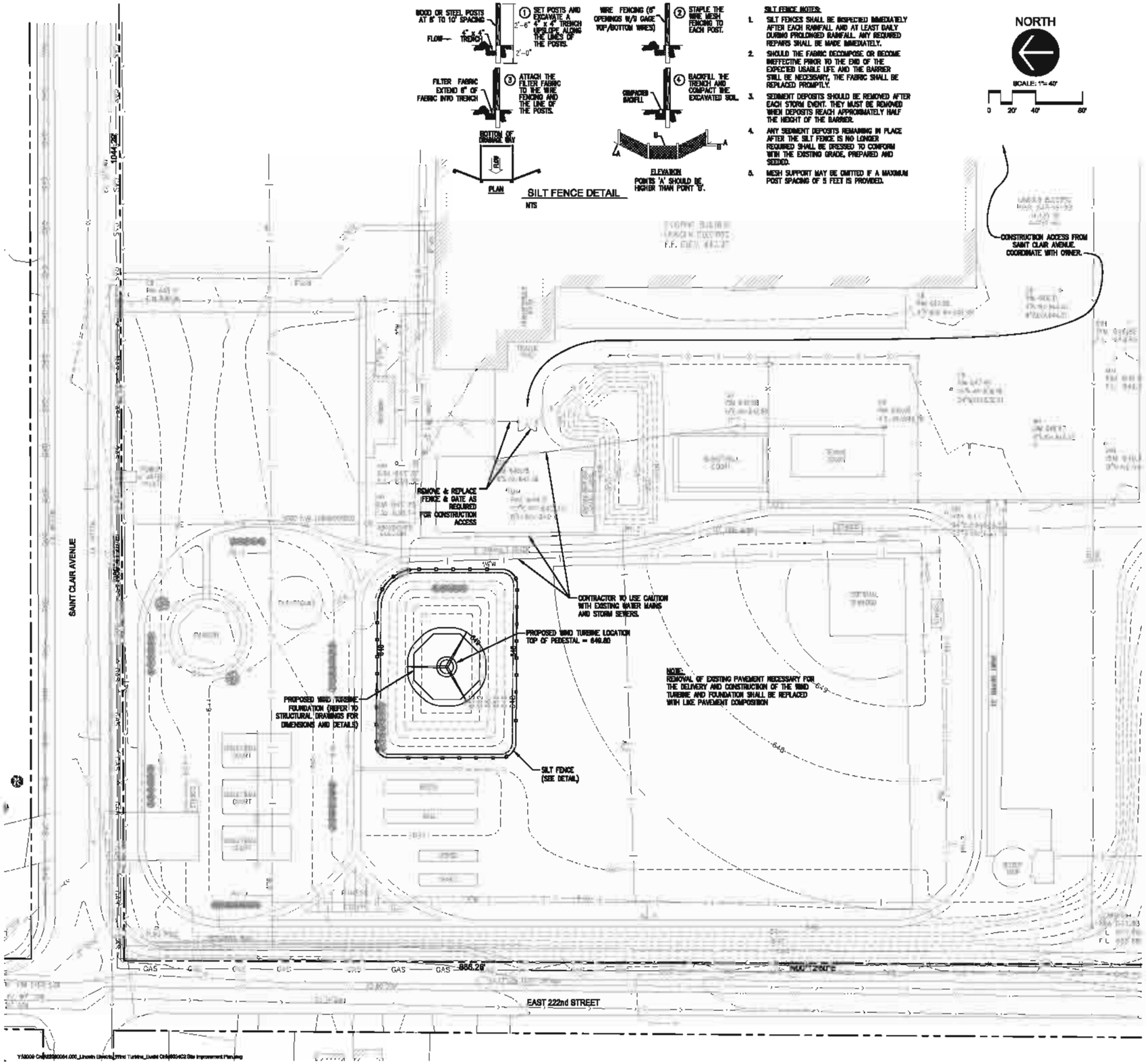
THE LINCOLN ELECTRIC CO.

22800 ST. CLAIR AVE. • EUCLID, OHIO 44117

ENGINEERED PROCESS SYSTEMS

P.O. BOX 471 • HURON, OHIO 44839
PHONE: (419) 433-7048 • FAX: (419) 433-6872

DRAWING NUMBER
E-1



SILT FENCE DETAIL
NTS

SILT FENCE NOTES:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.
5. MESH SUPPORT MAY BE OMITTED IF A MAXIMUM POST SPACING OF 5 FEET IS PROVIDED.

GENERAL NOTES

1. ELEVATIONS ARE U.S.G.S. DATUM.
2. DO NOT SCALE DIMENSIONS FOR FOUNDATIONS FROM THESE DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO THE START OF WORK. ANY DISCREPANCIES FOUND SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ENGINEER.
4. THE ACCURACY AND COMPLETE INCLUSION OF THE LOCATIONS OF EXISTING UTILITIES IS NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PRIVATE AND PUBLIC UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, PROJECT OWNER AND UTILITY OWNER, BY THE CONTRACTOR AT HIS OWN EXPENSE.
5. THE CONTRACTOR SHALL CONTACT "OHIO UTILITIES PROTECTION SERVICE" AT (800) 362-2764 TO HAVE CERTAIN UTILITY COMPANIES FIELD LOCATE THEIR INSTALLATIONS. A MINIMUM OF TWO FULL WORKING DAYS NOTICE ARE REQUIRED FOR A FIELD LOCATION.
6. THE CONTRACTOR SHALL EXAMINE THE PLANS AND SPECIFICATIONS, VISIT THE SITE OF THE WORK AND INFORM HIMSELF FULLY WITH THE WORK INVOLVED, GENERAL AND LOCAL CONDITIONS, ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS AND ALL OTHER PERTINENT ITEMS WHICH MAY AFFECT THE COST AND TIME OF COMPLETION OF THIS PROJECT BEFORE SUBMITTING A PROPOSAL. PERMITS AND LICENSES OF A TEMPORARY NATURE NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS, STRUCTURES, POLES, CABLES AND PIPE LINES, BEFORE CONSTRUCTION BEGINS. HE SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE ENGINEER AND OWNER AT HIS OWN EXPENSE.
8. THE CONTRACTOR SHALL RESTORE ANY AREA DISTURBED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL USE. THIS SHALL INCLUDE FINISH GRADING, ESTABLISHMENT OF A VEGETATIVE COVER (SEEDING OR SOD) AND GENERAL CLEANUP. THE CONTRACTOR SHALL NOT EXCAVATE OR DISTURB BEYOND PROPERTY LINE BOUNDARIES, UNLESS OTHERWISE NOTED.
9. ALL WORK PERFORMED SHALL BE DONE BY QUALIFIED CONTRACTORS AND SUBCONTRACTORS FAMILIAR WITH THE TYPE OF WORK TO BE ACCOMPLISHED.
10. ALL SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ", LATEST EDITION.
11. PERMITS AND LICENSES OF A TEMPORARY NATURE NECESSARY FOR THE PROSECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR SHALL CALL THE ATTENTION OF THE ENGINEER TO ANY MATERIAL OR EQUIPMENT HE DEEMS INADEQUATE AND TO ANY ITEM OF WORK OMITTED.
12. THE CONTRACTOR WILL HAVE IN HIS POSSESSION, ON THE JOB SITE, A COPY OF THE PLANS AND SPECIFICATIONS PRIOR TO BEGINNING WORK.
13. ANY SOIL EROSION CONTROL MEASURES, IN ADDITION TO THOSE OUTLINED IN THESE PLANS AND WHICH ARE DEEMED NECESSARY BY THE CITY ENGINEER SHALL BE IMPLEMENTED IMMEDIATELY BY THE CONTRACTOR.

SITE GRADING NOTES

1. EARTHWORK AND EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", LATEST EDITION.
2. ALL SITE WORK SHALL INCLUDE CLEARING, STRIPPING, AND STOCKPILING OF TOPSOIL, REMOVING UNSUITABLE MATERIALS, THE CONSTRUCTION OF EMBANKMENTS, CONSTRUCTING NON-STRUCTURAL FILLS, AND FINAL SHAPING, AND TRIMMING TO THE LINES, GRADES AND CROSS-SECTION SHOWN ON THE PLANS.
3. UNSUITABLE MATERIAL ENCOUNTERED IN EXCAVATING FOR PAVEMENT SUBGRADES SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO THE LIMITS APPROVED BY THE ENGINEER. UNSUITABLE MATERIAL THAT IS EXCAVATED SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
4. TOPSOIL EXCAVATED SHALL BE STOCKPILED ON THE SITE IN AREAS DESIGNATED BY THE ENGINEER UNTIL SUCH TIME THAT THIS TOPSOIL CAN BE USED FOR FINAL GRADING.
5. CONTRACTOR SHALL LANDSCAPE DISTURBED ROW BY BACKFILLING FROM BACK OF CURB TO ROW LINE WITH A MINIMUM OF 6-INCHES OF TOPSOIL & PLACING SOD. FERTILIZE TOPSOIL WITH NITROGEN, PHOSPHORUS AND POTASSIUM FERTILIZER NUTRIENT.

ISSUED FOR CONSTRUCTION

Larson Engineering Inc
1486 Bond Street, Suite 100
Naperville, Illinois 60563-8503
(P) 630.357.0540 (F) 630.357.0164
ILLINOIS LICENSE NO: 184.001442
EIN: Comm. No. 2269003.000

Client:
LINCOLN ELECTRIC

Project Title:
LINCOLN ELECTRIC
WIND PROJECT
EUCLID, OH

Seal:

Date: January 28, 2010
Expires: December 31, 2010

Rev.	Date	Description
1	01.28.10	Revised Location

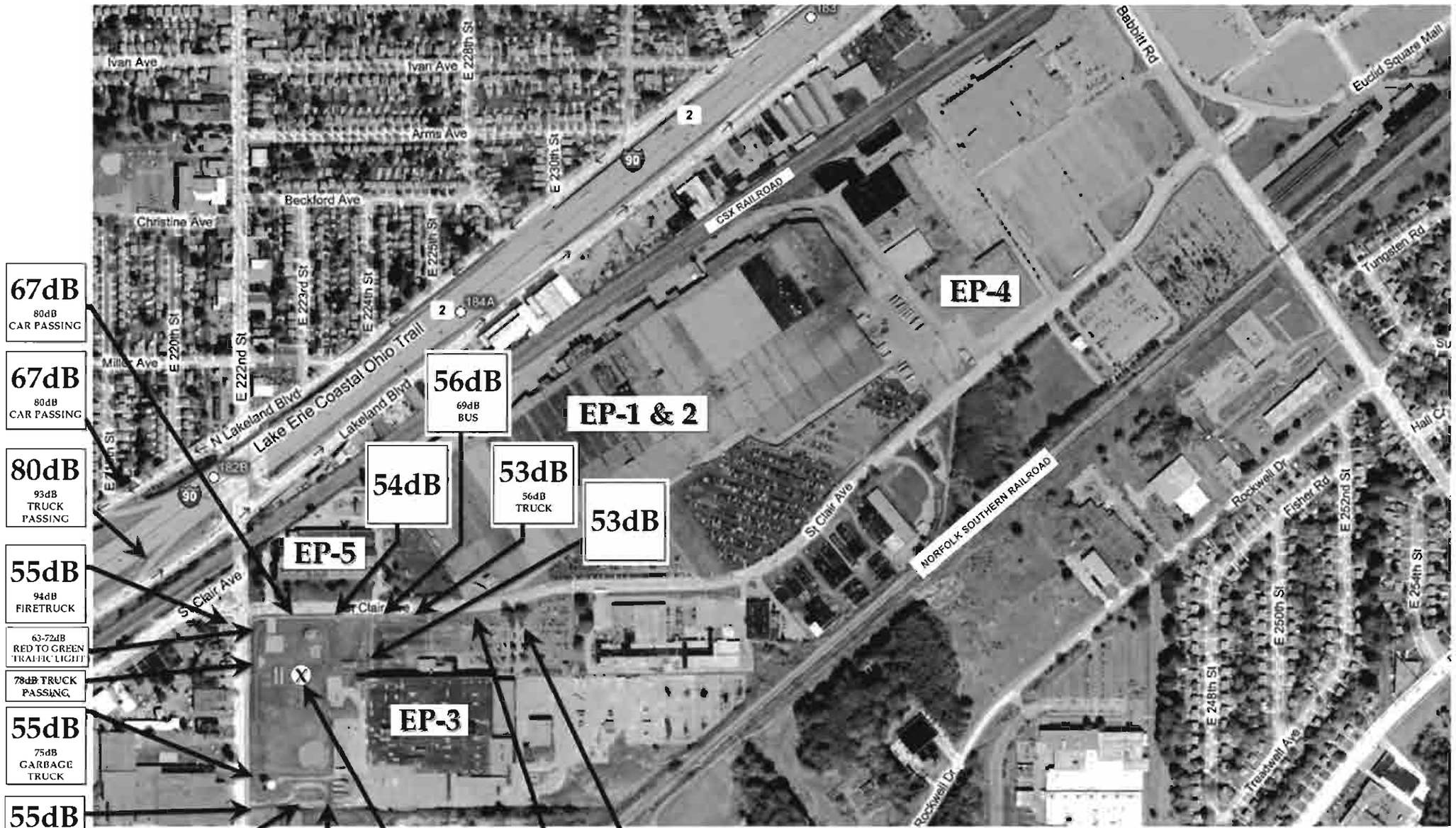
Project #: 22080034.000
Drawn By: JLG
Checked By: BJD
Issue Date: 09.24.09

Sheet Title:
SITE IMPROVEMENT PLAN

C02

SOUND READINGS BY:
D.STERIO
S.MASON

X= TURBINE LOCATION



CHG.	BY	DATE	DESCRIPTION
G			
F			
E			
D			
C			
B			
A	BDW	1/12/10	NEW

PART NO.	NAME	REQ.	MATERIAL	SIZE	REMARKS
	SITE				

THE LINCOLN ELECTRIC CO., CLEVELAND, OHIO

LINCOLN ELECTRIC CO.
EUCLID AREA CAMPUS
RANDOM NOISE SURVEY

DRAWN	B.WILLIAMS	DATE 1/12/10	SCALE N/A
CHK'D	D.K.		
MACH NO.	LOC.	GW- 3048-019	A

Shadow Flicker Analysis for the Lincoln Electric Wind Turbine, Cleveland, OH

Report to:
Seth Mason
Dave Sterio
The Lincoln Electric Company
22801 St. Clair Ave.
Cleveland, OH 44117

Report by:
Peter K. Endres
Jörn Parplies
JW Great Lakes Wind, LLC
juwi GmbH
1900 Superior Avenue, Suite 333
Cleveland, OH 44114

March 2010

Attachment D-5

I. Summary

juwi conducted a shadow flicker analysis for the proposed Lincoln Electric wind turbine at their company headquarters in Cleveland, OH. Lincoln is located in an industrial area of eastern Cleveland surrounding primarily by industry and commercial buildings. The results from the shadow flicker study indicate that a relatively small number of receptors receive more than 30 hours of shadow flicker per year. These receptors are all located south of the Interstate 90. Four receptors are within the 100 hours isoline, 12 receptors are within the 50 hours isoline, and 17 receptors are within the 30 hours isoline. Of the 17 receptors exceeding 30 hours shadowing per year, three are participating Lincoln properties and 14 are non-participating. The 14 non-participating receptors can be considered the more significant receptors that may require further study post-construction and possibly mitigation action.

II. Background:

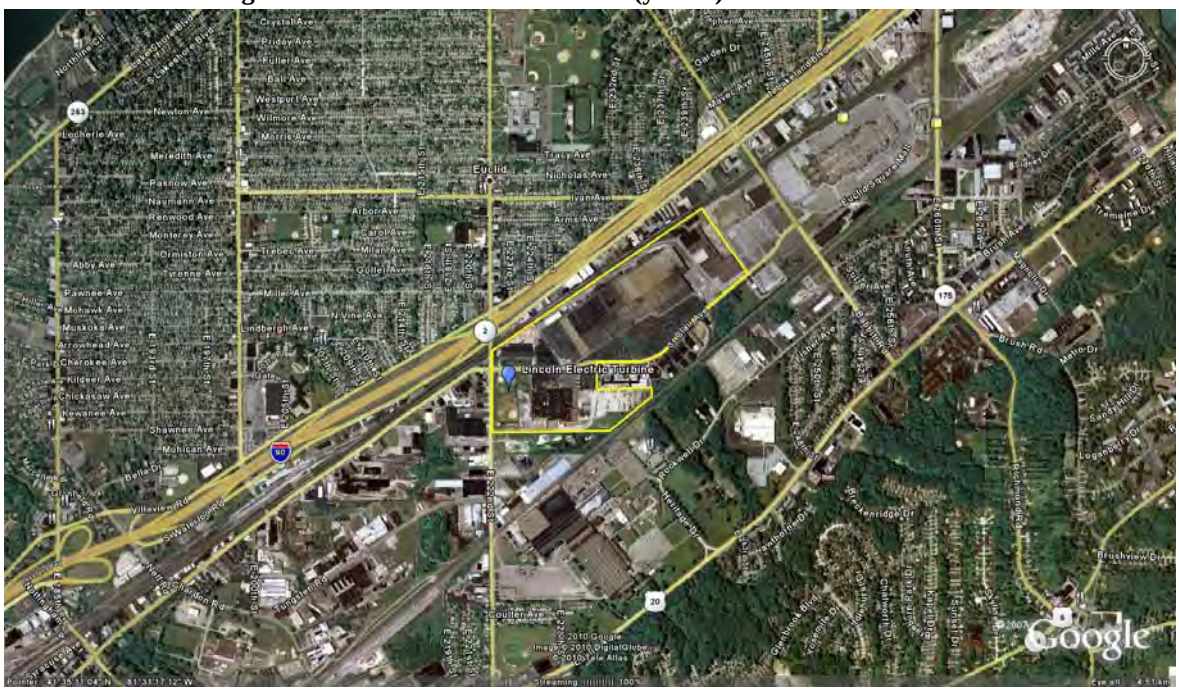
In February 2010 Lincoln Electric ("Lincoln") contracted with juwi/JW Great Lakes Wind, LLC ("juwi") to perform a shadow flicker analysis for their proposed wind turbine project at its company headquarters site in Cleveland, OH. Lincoln is proposing to install a single 2.5 MW wind turbine to generate electricity for consumption onsite. Lincoln is the world leader in the design, development and manufacture of arc welding products, robotic welding systems, plasma and oxyfuel cutting equipment. juwi is a Cleveland-based developer of utility-scale wind energy projects and is active across the Great Lakes, Great Plains, and Upper Midwest states.

juwi understands that the turbine model currently planned for the Lincoln site is a Kenersys K100 2.5 MW turbine with a 100 meter rotor diameter and an 85 meter tower height. Site information is provided in Table 1 and Figure 1 below.

Table 1: Site information

Coordinates	Structure height
41°35'4.89" N 81°31'32.81"W (NAD 1983)	450 feet AGL 1083 feet AMSL

Figure 1: Aerial view of Lincoln site (yellow) and turbine location



III.Shadow Flicker:

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 ("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 about 1,000 ft, except at sunrise and sunset when shadows are long (NRC 2007).

IV. Lincoln Site

Lincoln is located in an industrial area of Cleveland. There are several buildings on site that house Lincoln employees. Immediate neighbors are primarily other industrial and commercial buildings. There are two rented apartment buildings immediately to the west of the proposed turbine location on East 222nd St. Significant residential neighborhoods are located north, across Interstate 90 / Route 2, and separated by trees and large highway noise barriers. Other residences are located to the east and south, separated from the Lincoln site by buildings and trees.

The Figures below illustrate views from the proposed turbine location and surroundings.

Figure 2: Aerial overview of turbine site and surroundings. Lincoln Electric property outlined in yellow. Locations of photos 1 and 2 depict locations from which enclosed photos were taken.

Figure 3: Turbine location looking north at Lincoln-owned building

Figure 4: Turbine location looking northeast at Lincoln-owned buildings

Figure 5: Turbine location looking east at Lincoln-owned building. Note absence of windows.

Figure 6: Turbine location looking southeast at Lincoln-owned building. Note absence of windows.

Figure 7: Turbine location looking south at Lincoln-owned property (ballfield)

Figure 8: Turbine location looking southwest

Figure 9: Turbine location looking west. Two rental properties are seen to the right in photo.

Figure10: Turbine location looking northwest

Figure 11: Turbine location shown by stake, looking north

Figure 12: Photo Location 1 Looking south in direction of turbine location

Figure 13: Photo Location 1 looking toward turbine, highway noise barrier ~20+ feet tall

Figure 14: Photo Location 1 example of trees and residences

Figure 15: Photo Location 1 looking toward turbine, noise barrier ~20+ feet tall

Figure 16: Photo Location 1, example residences

Figure 17: Photo Location 2 looking southwest in direction of turbine. Note noise barriers and trees.

V. Study and Results

To identify potential shadow flicker impacts from the Lincoln turbine, juwi utilized WindPRO, an industry standard software package. A large sampling of residences within 1,000 m (3,281 ft) of the proposed turbine were included in the analysis. Several government sources (USDOI 2005; BERR 2009) suggest that shadow flicker effects become relatively insignificant beyond 10 rotor

diameters (approximately 1,000 m or 3,281 ft). Because of the large number of residences within 1,000 m north of Interstate 90, juwi utilized a sampling effort whereby every second or third home was listed as a receptor (see Figure 18). Given the trees, other buildings, and noise barrier separating the turbine from that neighborhood, a sampling effort is appropriate for this study. Receptors were also categorized as "P" for participating (Lincoln-owned buildings), and "N" for non-participating. For a list of receptors included in the analysis, refer to the WindPRO output and calculations attached to this report.

The shadow flicker model was run in WindPRO using a realistic scenario with several settings. A maximum distance for influence was set at 1,000 m. As mentioned earlier, several government sources suggest that shadow flicker effects become relatively insignificant beyond 10 rotor diameters, in this case 1,000 meters. 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 receptor. Actual sunshine hours were used for modeling to support a "realistic scenario" approach. Sunshine data are from the Burke Lakefront ASOS weather station located approximately 15 km (9.5 miles) southwest of the project area. The calculations also accounted for realistic operational hours for the turbines. Wind data are based on a wind statistic from the Cleveland Crib offshore measuring station. While these data should not be used to model energy production for Lincoln's turbine, they are accurate enough for a realistic understanding of operational hours.

The defined height for receptors was set at 1 meter. While some buildings may be taller, shadow is also received at the lowest windows. Furthermore, shadowing is less using greater receptor heights, so the analysis can be viewed as conservative in this respect. The shadow isolines on the maps are given for 10, 30, 50 and 100 hours per year, which is a standard breakdown of shadowing results. The 30 hours isoline is thicker as it represents the threshold by which the Ohio Power Siting Board and authorities in other countries (i.e. Germany) determine significant impact and whether mitigation is appropriate.

The results from the shadow flicker study indicate that a relatively small number of receptors receive more than 30 hours of shadow flicker per year. These receptors are all located south of the Interstate 90. Four receptors are within the 100 hours isoline, 12 receptors are within the 50 hours isoline, and 17 receptors are within the 30 hours isoline. These results are provided below in Table 2, and Figures 18 and 19.

Table 2: WindPRO shadow results

Receptor	Max shadow hours per day	Max shadow hours per year
N2	2:47	157:05:00
N1	2:48	154:12:00
N37	2:29	135:33:00
N40	2:31	126:08:00
N36	2:15	93:02:00
N39	2:26	88:10:00
N42	2:14	78:59:00
N41	1:51	77:28:00
N35	1:41	76:23:00
N34	1:28	66:38:00
N33	1:19	56:37:00
N130	1:14	51:14:00
P1	2:08	48:18:00
N130	1:08	42:52:00
N32	1:08	34:51:00
P2	1:49	33:02:00
P3	1:19	31:32:00

Of the 17 receptors exceeding 30 hours shadowing per year, three are participating Lincoln properties and 14 are non-participating. The 14 non-participating receptors can be considered the more significant receptors that may require further study post-construction and possibly mitigation action. If shadow impacts become a legitimate annoyance for receptor(s), juwi suggests that Lincoln discuss mitigation techniques with the affected receptor(s), including but not limited to purchasing blinds for windows. juwi also understands that Lincoln has elected shadow control equipment for the Kenersys turbine. The shadow control will have the ability to decrease shadowing to a certain threshold by curtailing turbine operation.

Figure 18: Shadow flicker isoline map

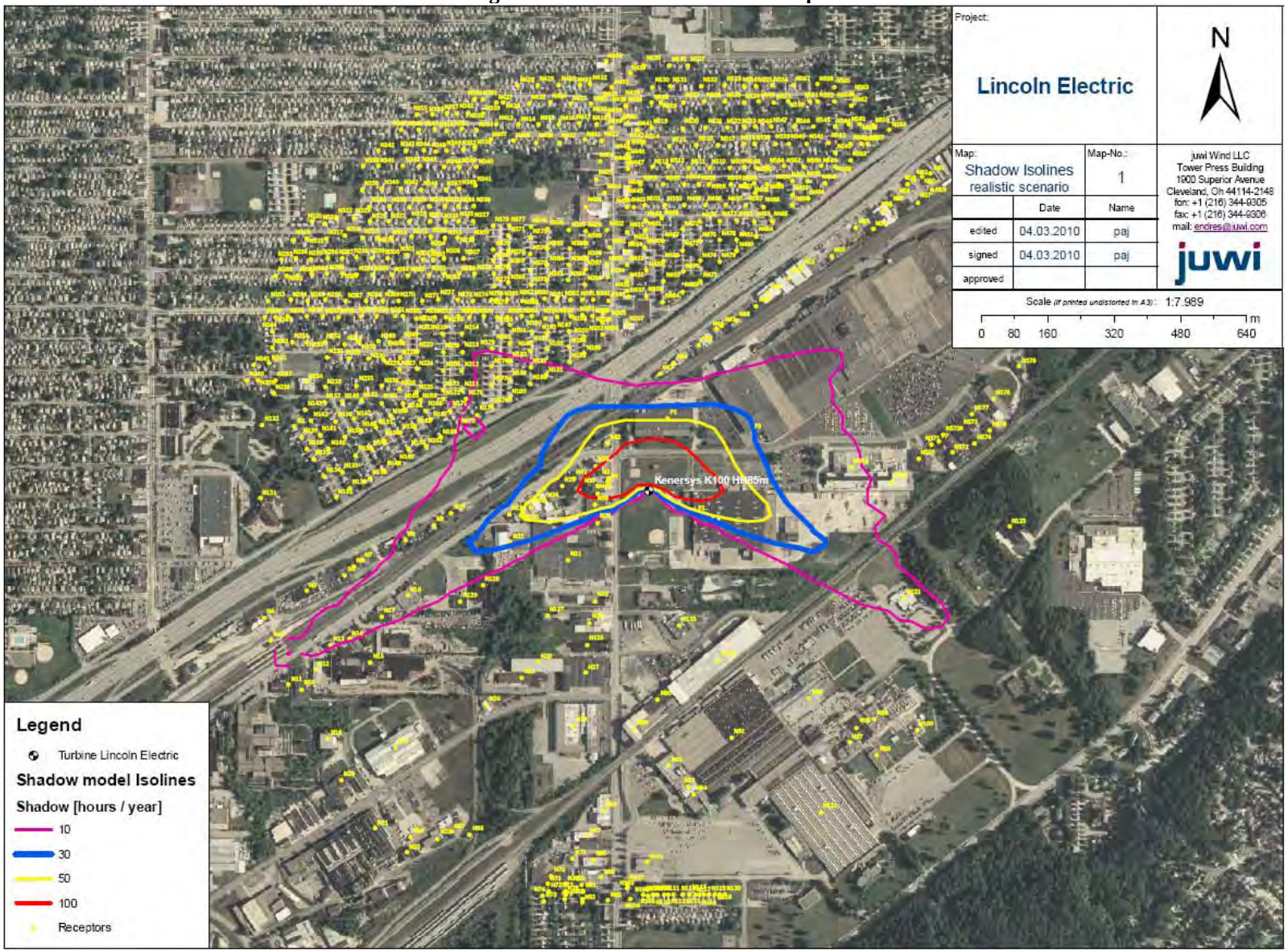
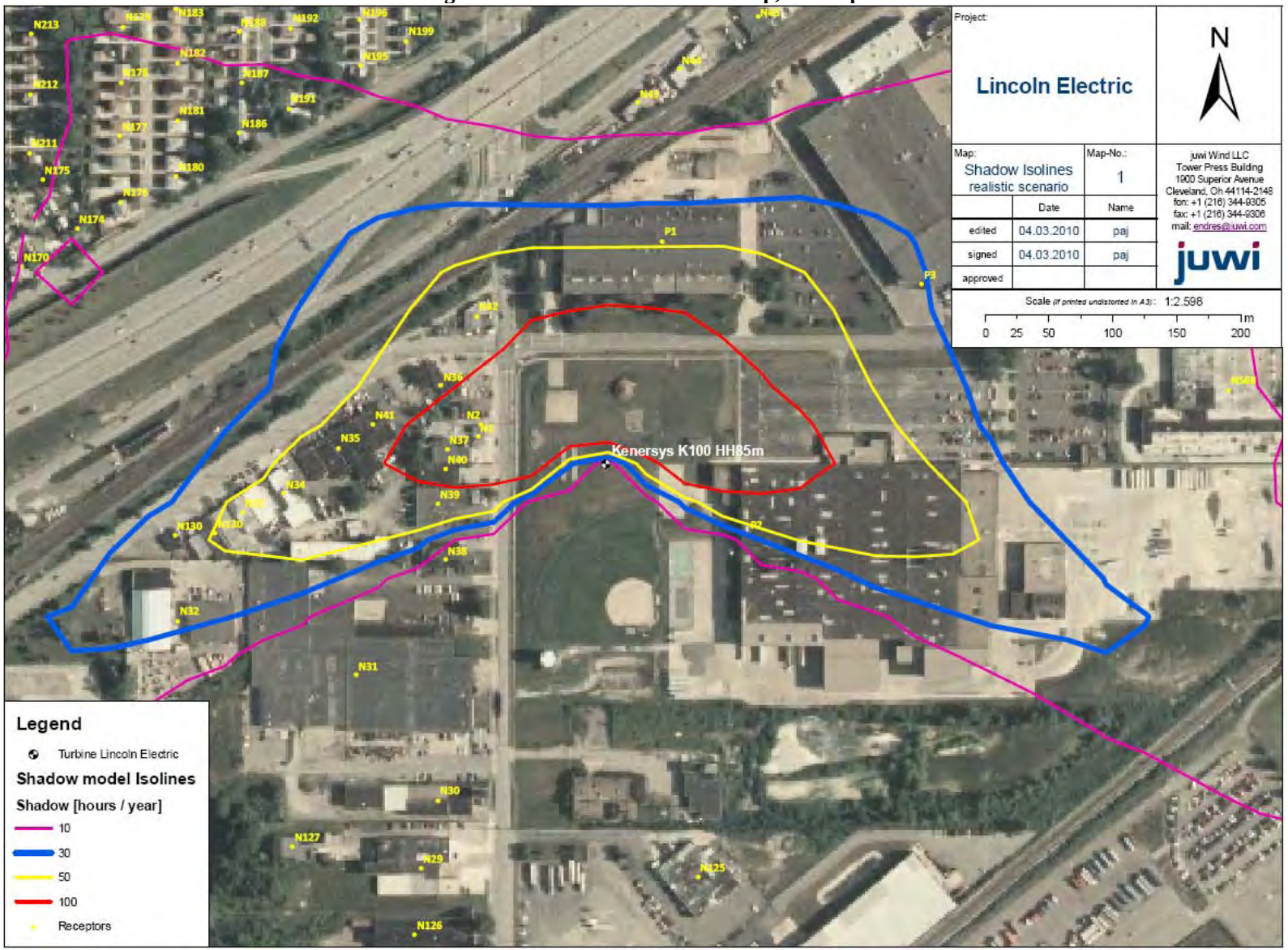


Figure 19: Shadow flicker isoline map, close-up



REFERENCES

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.

Wind Power GeoPlanner™

Licensed Microwave Report

Single Turbine Site in Cuyahoga County, OH

Prepared on Behalf of
The Lincoln Electric Company

February 23, 2010

COMSEARCH
A CommScope Company

Attachment D-6

Project Information

Client Name: The Lincoln Electric Company

Phone Number: 216-383-8875

County: Cuyahoga

State: Ohio

Number of turbines: 1

Turbine Location: 41º 35' 4.89" N, 81º 31' 32.81" W

Purpose

The purpose of this analysis is to determine if a proposed wind turbine installation will cause an obstruction to existing microwave communication links in the vicinity of the wind turbine.

Methodology

The obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed paths from 0.9 - 23 GHz[1]. First, we determined all microwave paths that intersect the area of interest[2]. The area of interest was defined by the client and encompasses the planned turbine location. Next, for each microwave path that intersected the project area, we calculated a Worst Case Fresnel Zone (WCFZ). The calculated WCFZ radius, giving the linear path an area or swath, buffers each microwave path in the project area and provides a visual determination of whether the turbine can be installed as planned without creating an obstruction. See Table 1 for a summary of paths and WCFZ distances. In general, this is the area where the planned wind turbines should be avoided. A depiction of the WCFZ overlaid on topographic basemaps can be found in Figure 1 on the next page.

Path ID	Callsign 1	Callsign 2	Band	Licensee	WCFZ (m)
1	KQF92	WCR61	6.7 GHz	FELHC, Inc.	14.19
2	WQU52	WGX943	6.7 GHz	East Ohio Gas Company	13.94

Table 1: Microwave Paths that Intersect the Area of Interest

Analysis Results

For this project, one turbine was considered in the analysis, with a blade diameter of 100 meters and hub height of 85 meters. The edge of the closest microwave path's WCFZ is 85 meters

[1] Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

[2] We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.

from the planned wind turbine installation. Due to this separation distance, the turbine poses no potential conflict with the incumbent microwave paths.

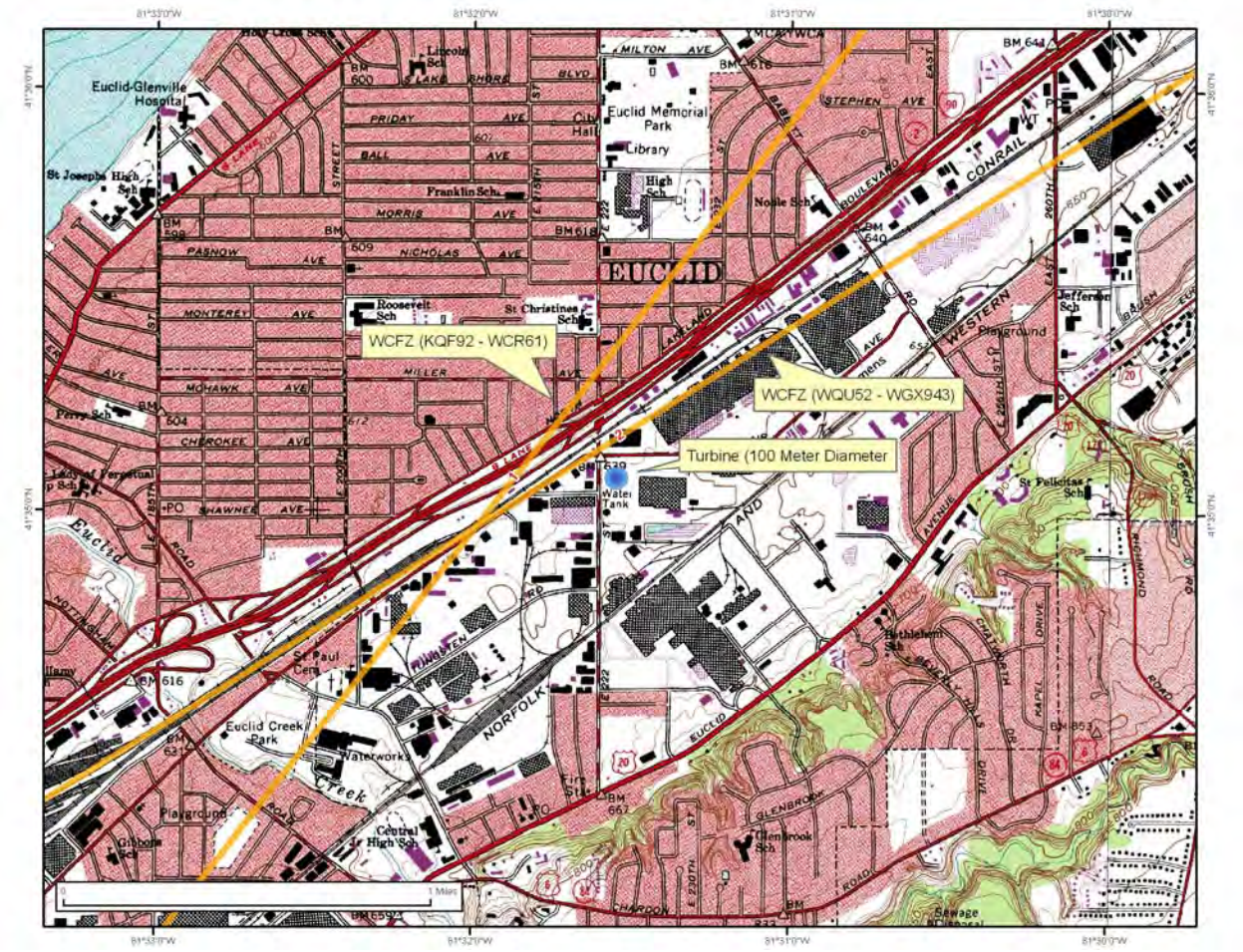


Figure 1: Microwave Paths with WCFZ

Contact Us

For questions or information regarding this report, contact:

Contact person:	Denise Finney
Title:	Account Manager
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5650
Fax:	703-726-5595
Email:	dfinney@comsearch.com
Web site:	www.comsearch.com

APPENDIX E. DRAFT EA COMMENTS AND RESPONSES

Lincoln Electric Draft Environmental Assessment
Comments and Responses

Number	Commenter	Comment Summary	Response
1.	Euclid Historical Society	Concurs with determination that the proposed Project would not have an adverse affect on any historical properties and states support of project	Thank you for your comment.
2.	Cuyahoga County Board of Commissioners	Supports installation of 2.5 MW turbine at Lincoln's Headquarters for both renewable energy benefits and economic development purposes	Thank you for your comment
3.	Euclid Landmarks Commission	Concurs with determination that no above or below ground historic or cultural resources would be affected by the proposed Project and state	Thank you for your comment

		support of project	
4.	Mayor Cervinick, City of Euclid	Letter of support for 2.5 MW turbine at its proposed location to promote renewable energy use and economic development	Thank you for your comment
5.	State of Ohio US Representative Marcia Fudge	Letter in support or the proposed Project and its potential to provide renewable energy in Ohio	Thank you for your comment
6.	U.S. Fish and Wildlife Service, Columbus Ohio Field Office	Comment indicated several items: A. Draft EA did not discuss the consideration given to project in accordance with USFWS *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (2003) to protect migratory birds; B. That the DOE coordinate with Region 3 USFWS; C. Draft EA makes	A. The following text will be added to Section 3.2.2.2 Biological Resources Section of the EA: During turbine siting, design and installation of the proposed wind project, LEC gave consideration to the guidelines contained within the USFWS *Interim Guidelines to Avoid and Minimize Wildlife Impacts* (2003). Following is a summary of the applicable recommendations and actions taken by LEC to comply with the recommendations: 1) pre-development evaluations for wind farm sites by federal/state wildlife professionals: ▪ LEC contacted both the USFWS and the Ohio Department of Wildlife regarding the proposed Project and both agencies provided responses on potential effects to wildlife. 2) rank site by risk to wildlife: ▪ Based on telephones calls and written correspondence received from the ODOW and the USFWS (See Attachment C-3 and C-4 in Appendix C

		inaccurate statement re: impacts to migratory birds (***follow-up comment sent from USFWS on July 29, 2010 retracting statement that project site was in West lake Erie Important Bird Area***)	respectively) and the research conducted as part of the EA preparation for the proposed turbine location and its potential to provide habitat to bird, bat and other wildlife species, the proposed site is thought to be a low risk to wildlife. 3) avoid placement of turbines in documented locations of federally listed species. ▪ No federally listed species are documented in the area and the site does not provide habitat for any federally listed species. 4) avoid locating turbines in known flyways or migratory paths. ▪ The proposed Project is not located within in a known migratory flyway or pathway and the West Lake Erie Important Bird Area is approximately 1.5. miles north of the proposed turbine location (See website: (http://www.ohiodnr.com/LinkClick.aspx?fileticket=YWCawZmeP%2bo%3d&tabid=2134).. 5) avoid placement of turbines in bat habitat: ▪ The project site is not considered to be suitable bat habitat 6) configuration of multiple turbines and managing stormwater to avoid attracting wildlife: ▪ The proposed Project is a single turbine, so the configurations of multiple turbines was not considered in the analysis or design. The project has included stormwater BMPs in the design and construction plans. 7) avoid fragmentation of large tracts of habitat: ▪ Although the Lake Erie shoreline is approximately 2 miles north, the project does not fragment large tracts of habitat 8) minimize roads, fences, and other infrastructure: ▪ The proposed Project will utilize existing roadways or developed areas for all construction and installation activities. 9) develop a Habitat Restoration Plan for site that avoids or minimizes negative impacts on vulnerable wildlife: ▪ There are no protected raptor nests within 5 miles of the project and the turbine installation site is on industrial land and surrounded by urban/suburban development; thus, a habitat restoration plan is not necessary. 10) use tubular supports and avoid external lattice, ladders, platforms etc to minimize bird perching/nesting:

			▪ The turbine is a monopole design with no exterior lattice, ladders, guy wires or platforms. 11) use minimum lighting required by FAA: ▪ Minimum FAA light recommendations will be used in consideration of avian and bat species. 12) adjust tower height if risk of strike is high: ▪ The site is currently an industrial park and wildlife usage is very minimal. Because the site is considered to be low risk to wildlife, the proposed height is not believed to add to the existing overall risk of strikes to wildlife. 13) place electric power lines underground: ▪ All electric lines are to be placed underground. B. The Lincoln Electric project was included in the submission DOE made to Region 3 with all proposed wind turbine projects in June 2010. LEC has committed to conduct post-construction monitoring from April 1 to November 15 of the first year of operation with an optional additional year depending on first year results. Any standardized post-construction monitoring protocols that result from that ongoing consultation would be reviewed and if determined appropriate and applicable and if time allows, would be implemented as part of Lincoln Electric's post-construction monitoring. C. This statement will be revised to say that "the USFWS does not anticipate any direct or indirect impacts on the Indiana bat or other federally listed species." We also added that DOE concurred with this finding. An additional and separate statement will be added that based on the analysis contained in the EA, significant impacts to avian species are not anticipated as a result of the proposed project.
7.	State of Ohio Representative Kenny Yuko	Letter of support for installation of wind turbine as	Thank you for your comment

		being a green project and promoting economic development	

Euclid Historical Society

21129 North Street
Euclid, Ohio 44117

DOE Headquarters
c/o Caroline Mann
1000 Independence Ave, SW
Washington, DC 20585

July 21, 2010

To Whom It May Concern,

Re: Lincoln Electric Proposed Wind Tower on PPN 647-13-003

Members of the Board of Trustees of the Euclid Historical Society have reviewed the submitted Draft of the Environmental Assessment of the Lincoln Electric Wind Energy Project. We concur with the assessment, that there will be no detrimental environmental impact on any historic structures or sites in the area.

The views from any historic sites in the area will not be significantly altered by the wind turbine, and there are no below ground archeological features within the construction zone that would be adversely affected.

The Euclid Historical Society therefore supports the implementation of the 2.5 MW Wind Turbine on Permanent Parcel 647-13-003.

Sincerely,

John Williams

John Williams, President
Euclid Historical Society

HistoricalSociety\WindTurbineLetr

COMMISSIONERS
Jimmy Dimora
Timothy F. Hagan
Peter Lawson Jones

July 22, 2010

Ms. Caroline Mann
United States Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Re: Public Comment on the Lincoln Electric Wind Energy Project
Euclid, Ohio (Cuyahoga County) - DOE/EA 1777

Dear Ms. Mann:

The Board of Cuyahoga County Commissioners and the citizens we serve strongly support the Lincoln Electric Wind Energy project, which is to be sited at the company's world headquarters in the City of Euclid, Ohio.

The project offers a significant opportunity to install clean, renewable energy technology and promote economic development for the city, county and region. As just such a technology, wind energy will play an important role in America's efforts to achieve energy independence as well as economic growth and recovery. Once fully exploited, the benefits of wind energy will include cleaner air, reduced green house gases, diversified energy resources and thousands of new jobs.

The Lincoln Electric wind turbine project embodies cutting-edge, sustainable, renewable technologies that will both help the company showcase its wind tower welding capabilities and generate clean electricity. The Lincoln Electric turbine installation will demonstrate the benefits of wind energy to the community and, hopefully, encourage turbine manufacturers to locate in Greater Cleveland and create new jobs.

Cuyahoga County is committed to promoting wind and advanced energy to revitalize our economy, improve air quality and encourage sustainable economic development. The county seeks to build on its research and manufacturing strengths to develop new wind energy technologies and produce component parts for wind turbines. The Lincoln Electric project presents a singular opportunity to fulfill this commitment.

Thus, we fully support Lincoln Electric's efforts to generate clean renewable electricity and, in fact, are already working with the company to install the 2.5 MW wind turbine. The County is proud to partner with a major corporate citizen that is willing to assume a leadership role and take bold steps to make clean, renewable energy a reality.

Sincerely,

Peter Lawson Jones
President

Timothy F. Hagan
Vice President

Jimmy Dimora
Commissioner

585 East 222nd Street, Euclid, OH 44123-2099

www.cityofeuclid.com

VIA EMAIL: CAROLINE.MANN@EE.DOE.GOV

July 20, 2010

DOE Headquarters
c/o Caroline Mann
1000 Independence Avenue SW
Washington, DC 20585

Re: American Recovery and Reinvestment Act 2009 (ARRA)
Lincoln Electric Wind Turbine Project (PRJ13813844)
East 222nd Street, Euclid, Ohio

Dear Ms. Mann:

The subject lot on which the 2.5 MW wind turbine is proposed is in a U-6 Industrial and Manufacturing zoning district.

There is a general expectation that within an industrial area that various uses and equipment may have impacts and establish an aesthetic which would not be acceptable generally in the non-industrial areas of a community.

In this case, a review of the Environmental Assessment of the Lincoln Electric Proposal indicates that:

1) There are no above ground historic sites affected by the view of the proposed tower.
2) There is no below ground archeological site within the construction area of the tower.
3) The tower will not present a significant detriment to the viewed landscape from the CLG historic inventory sites.

The Euclid Landmarks Commission concurs that the proposed 2.5 MW Lincoln Electric Wind Turbine Project does not represent a significant impact on local historic structures; the Commission therefore fully supports the implementation of this project.

Sincerely,

Roger A. Kelly, Chair
Euclid Landmarks Commission

585 East 222nd Street, Euclid, OH 44123-2099

www.cityofeuclid.com

Bill Cervenik, Mayor
Phone: 216/289-2751
Fax: 216/289-2766

July 21, 2010

DOE Headquarters
c/o Caroline Mann
1000 Independence Avenue, SW
Washington, DC 20585

Re: DOE's Proposed Financial Assistance to Ohio for Lincoln Electric's Wind Energy Project
Euclid, Cuyahoga County, Ohio – DOE/EA 1777

The City of Euclid, Ohio is proud to be in full support of the Lincoln Electric planned 2.5 MW wind turbine to be erected at their world headquarters site in Euclid, Ohio. This project not only represents a unique opportunity for The Lincoln Electric Company and the Wind Tower Welding Solutions sector of the company, but also a unique opportunity for the City of Euclid. It is anticipated to spur job growth, strengthen our region's advanced energy business sector and to help promote clean energy.

The Lincoln Electric Company is the City of Euclid's largest employer. Its Euclid based employees contribute significantly to the economy of the City. Reducing the company's carbon footprint, increasing their energy efficiency, strengthening their balance sheet and promoting a new business sector for our City's largest employer are of vital importance to our community.

The location of the project on the Lincoln campus also presents the advantage of a large available site in an otherwise built out community. This allows the construction of a utility scale wind turbine in an industrial urban setting on one of few sites located in the City where such a scale is feasible. This turbine will be seen from one of our region's most travelled routes, Interstate 90, and as such will do much to promote the use of wind power for our region.

This project also complements with the City of Euclid's efforts to promote energy efficiency, alternative energy, environmental stewardship and the expansion of the advanced energy business sector within our industrial belt. The City's own *'Going Green!'* initiative will be bolstered by this project. The planned installation of photovoltaic solar systems on both Euclid City Hall and the Euclid Public Library, as well as the promotion of Property-Assessed Clean Energy (PACE) to our commercial property owners; ecological restoration on our waterfront, brownfield remediation and the advancement of an 80-acre business park with a minimum LEED Silver designation will all be complemented by this project.

The local review and approval of this project has been and will continue to be an open and transparent process. The City has included information regarding this project in newsletters, community meetings, formal public meetings, public notices and on the local government channel and City website. From the

City's perspective, this project will become a local landmark that will help define our City and our region as a forward thinking, environmentally conscious and innovative community.

Again, the City of Euclid fully supports the planned construction of a 2.5 MW wind turbine on the proposed site of The Lincoln Electric Company's world headquarters. If you have any questions or concerns please feel free to contact me at bcervenik@cityofeuclid.com or at (216) 289-2751.

Sincerely,

Bill Cervenik
Mayor

c: File

MARCIA L. FUDGE
11TH DISTRICT, OHIO

COMMITTEES:
SCIENCE AND TECHNOLOGY
RESEARCH AND SCIENCE EDUCATION SUBCOMMITTEE
VICE CHAIR
SPACE AND AERONAUTICS SUBCOMMITTEE

EDUCATION AND LABOR
HEALTH EMPLOYMENT LABOR AND PENSIONS (HELP) SUBCOMMITTEE
HIGHER EDUCATION, LIFELONG LEARNING AND COMPETITIVENESS SUBCOMMITTEE

E:MAIL VIA WEBSITE:
http://fudge.house.gov

Congress of the United States
House of Representatives
Washington, DC 20515

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4834 RICHMOND ROAD
SUITE 150
WARRENSVILLE HEIGHTS, OH 44128
(216) 522–4900
(216) 522–4908 FAX

July 24, 2010

Ms. Caroline Mann
DOE Headquarters
1000 Independence Ave. SW
Washington, DC 20585

Dear Ms. Mann,

I write in support of the Lincoln Electric 2.5 MW wind turbine project at the company's world headquarters facility in the City of Euclid, Ohio. The project represents a significant opportunity to install clean renewable energy technology and promote economic development Northeast Ohio region.

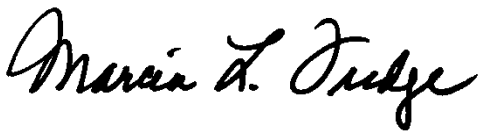
Wind energy is a clean renewable technology that plays an important role in America's energy independence and economic growth and recovery. When full exploited, benefits of wind energy will include cleaner air, reduced green house gases, diversified energy resources, and thousands of new jobs.

The Lincoln Electric wind turbine project embodies cutting-edge, clean, renewable technologies that will help Lincoln Electric highlight its wind tower welding capabilities and generate clean electricity. The Lincoln Electric turbine installation will demonstrate the benefits of wind energy to the community and, hopefully, encourage turbine manufacturers to locate in Greater Cleveland and create new jobs.

As a Member of the House Committee on Science and Technology, I am committed to promoting wind and advanced energy to revitalize our economy, improve air quality and encourage sustainable economic development. I believe that Northeast Ohio has the ability to build on its research institutions and manufacturing base to develop new wind energy technologies and produce component parts for wind turbines.

The Lincoln Electric project is an opportunity to fulfill this commitment. I am proud to be able to support Lincoln Electric's proposal, both as a advocate for wind energy and as the Representative of Ohio's Eleventh Congressional District.

Sincerely,



Marcia L. Fudge
Member of Congress

Megan Seymour/R3/FWS/DOI

08/3/2010 11:47 AM

To Megan_Seymour@fws.gov

cc caroline.mann@ee.doe.gov
Jeff Gosse/R3/FWS/DOI@FWS,
Tracy_Engle@URSCorp.com,
Keith.Lott@dnr.state.oh.us

SubjectDraft EA for the Lincoln Electric

Wind Energy Project

Dear Ms. Mann,
I wanted to update my e-mail below and inform you of an error. I incorrectly identified that the proposed project was located within an Important Bird Area. This statement was included in our letter dated April 26, 2010 and I included that statement below, however that is not correct. The project area is NOT within an Important Bird Area. It is however, within approximately 2.2 miles of Lake Erie, which is an area of concern relative to migratory birds. I apologize for the error--please let me know if you have questions or would like to discuss further.
Sincerely,
Megan

Megan Seymour
Wildlife Biologist
U.S. Fish & Wildlife Service
4625 Morse Rd.
Suite 104
Columbus, OH 43230
(614) 416-8993 ext. 16
(614) 416-8994 fax
Megan Seymour/R3/FWS/DOI

Megan Seymour/R3/FWS/DOI

07/23/2010 10:57 AM

Tocaroline.mann@ee.doe.gov

ccJeff Gosse/R3/FWS/DOI@FWS,
Tracy_Engle@URSCorp.com,
Keith.Lott@dnr.state.oh.us

SubjectDraft EA for the Lincoln Electric

Wind Energy Project

Dear Ms. Mann,
I have reviewed the Draft EA for the Lincoln Electric Wind Energy Project, as noticed below. This project involves the installation of a single 2.5 MW turbine in Euclid, Cuyahoga County, Ohio. The project area is industrial in nature and will involve impacts to a maintained grass area. The U.S. Fish and Wildlife Service (Service) submits the following comments on the Draft EA:

1. The Service provided a letter in response to your initial request for information on this project on April 26, 2010 (included as Appendix C-4). In this letter we detail our position regarding migratory birds, and outline specific actions that can be taken to avoid and minimize potential impacts to migratory birds, particularly because the project is located within approximately 2.2 miles of Lake Erie and is located within the boundaries of an Audubon- designated Important Bird Area. No mention of migratory birds or measures to protect migratory birds was included in your Draft EA. Section 3-2 of the Draft EA states that "USFWS does not anticipate any direct or indirect impacts on the Indiana bat or and other avian or wildlife species as a result of the proposed project." This statement is not accurate relative to migratory birds. The Service's letter recommended "Careful consideration of the guidelines below to protect migratory birds..." and provided a list of relevant guidelines. The EA should address the Service's comments regarding migratory birds, and should indicate which of the recommended guidelines are being implemented to protect migratory birds.

2. We note and appreciate your commitment to implement post-construction monitoring to document any impacts to birds and/or bats from operation of the proposed turbine. The Service's Region 3 Wind Power lead Jeff Gosse has been in contact with DOE's NEPA coordinator in Colorado about programmatically addressing potential impacts to birds and/or bats from small/single wind turbine projects. This may include development of a standardized post-construction monitoring protocol for these types of projects. We encourage you to consider using this approach on this project, by implementing a standardized post-construction monitoring protocol. Further coordination with DOE's NEPA coordinator in Colorado and our Region 3 office is recommended.

Thank you for the opportunity to review this document. If you have any questions or concerns please contact me.
Sincerely,
Megan Seymour
Wildlife Biologist
U.S. Fish & Wildlife Service
4625 Morse Rd.
Suite 104
Columbus, OH 43230
(614) 416-8993 ext. 16
(614) 416-8994 fax

Marge_Gudat@URSCorp.com

Marge_Gudat@URSCorp.com

07/09/2010 08:05 AM

ToMegan_Seymour@fws.gov, Greg.Payne@development.ohio.gov, Nadeane.Howard@development.ohio.gov, James.Huth@development.ohio.gov, Patty.Huddle@development.ohio.gov, pwallis@audubon.org, mpscott@audubon.org, kvanfleet@audubon.org, ohio@audubon.org, eglitzenstein@meyerglitz.com, beubanks@meyerglitz.com, tom.winston@epa.state.oh.us, Keith.Lott@dnr.state.oh.us, Tony.Logan@dnr.state.oh.us, Dave.Scott@dnr.state.oh.us, stuart.siegfried@puc.state.oh.us, Mark.shanahan@apda.state.oh.us, edavison@ntia.doc.gov, mike.blaich@faa.gov, jmilling@dot.state.oh.us, tom.maves@development.ohio.gov, cfrey@cityofeuclid.com, fpietravoia@cityofeuclid.com, pbeno@cityofeuclid.com, gzucca@cuyahogacounty.us

ccJim_Burns@URSCorp.com, Tracy_Engle@URSCorp.com

SubjectNotice of Availability

(See attached file: NOTICE OF AVAILABILITY.doc)

James F. Burns, PWS, URS Certified Project Manager
Senior Environmental Scientist
URS Corporation
Architects, Engineers, and Planners
1375 Euclid Avenue, Suite 600
Cleveland OH 44115
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Cell: 216-272-5330
Email: Jim_Burns@urscorp.com

(See attached file: NOTICE OF AVAILABILITY.doc)

Kenny Yuko
State Representative

7th House District
Parts of Cuyahoga County

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Committees

Commerce and Labor - Chair

Faith Based Initiatives

Health

Local Government/ Public Administration

Transportation

Special Committees

Unemployment Compensation Advisory Council

Labor Management Government Advisory Council

July 23, 2010

DOE Headquarters
c/o Caroline Mann
1000 Independence Avenue, SW
Washington, DC 20585

Re: Proposed financial assistance for Lincoln Electric's Wind Energy Project in Euclid, OH – DOE/EA 1777

I am writing to express my excitement about a potential project in my House district. Recently the Lincoln Electric Company, working in concert with the City of Euclid, embarked on the journey of bringing wind energy to Northeastern Ohio.

As you know, wind energy is an important piece of the green energy trend that has been sweeping the Nation. Euclid has demonstrated its commitment to reducing its carbon footprint by enacting the *Going Green!* initiative. This initiative includes installing solar panels on City Hall and the Public Library, as well as advocating for the ecologically sensitive restoration of their waterfront and remediation of brownfields within the city limits.

Now Lincoln Electric is preparing to erect a 2.5 MW wind turbine at its world headquarters here in Euclid. The wind turbine project would not only complement the city's dedication to environmental stewardship, but would also contribute significantly to the economy. I can't tell you how much this would do for the City of Euclid and all of Northeastern Ohio. Simply put, it would mean jobs, tax revenues and hope that we are pulling out of the economic downturn that has had such a devastating effect on my community.

I enthusiastically support this project because I believe it has the capacity to change the lives of many hardworking Ohioans and it gives Euclid the opportunity to define itself as a front runner in the alternative energy sector.

Sincerely,

Representative Kenny Yuko
7th Ohio House District