



SPECIAL USE PERMIT APPLICATION

Hickory Wind Project

LaSalle County, Illinois

FEBRUARY 6, 2023

PREPARED FOR:



PREPARED BY:

Westwood

Special Use Permit Application

Hickory Wind Project

LaSalle County, Illinois

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1.0 Introduction

1.1 Project Summary

Hickory Wind LLC (Applicant or Hickory) is proposing an 80 megawatt (MW) wind power facility in LaSalle County, Illinois (**Exhibit 1**). The Hickory Wind Project (Project) will consist of up to 13 turbines, from among the 17 potential turbine locations identified, ranging from 6.2 and 7.2 MW nameplate capacity each, a Project Substation, an O&M facility, 34.5 kilovolt (kV) underground electrical collection lines, crane paths, access roads, one meteorological tower, and one or more temporary laydown yards (**Exhibit 2**).

The Project is anticipated to be placed in service by October 2025.

1.2 Applicant Information

Hickory Wind LLC is a wholly owned subsidiary of the UKA Group. The UKA Group is a leading international wind and solar energy developer across the United States, Germany and Europe. Founded in 1999, UKA Group has more than 60 wind and solar power plants connected to the grid, and an international project pipeline of four gigawatts. UKA employs more than 700 people worldwide and has been facilitating renewable energy for decades, working to slow climate change and protect the planet for future generations.

In 2017, UKA opened its North American headquarters in Stuart, Florida, in 2021 an office in Peru, Illinois, and in 2022 an office in Austin, Texas. Our expert team is focused on developing and acquiring utility scale wind and solar energy projects throughout the United States. Working closely with leading wind turbine manufacturers and local partners, we develop projects that successfully position themselves amid tough competition. UKA's expertise is in the design of renewable energy projects tailored to the characteristics of the site in view of environmental and planning requirements. We are a reliable and financially strong partner for the planning, financing, implementation, and management of renewable energy projects.

1.3 Contact Information

Hickory Wind LLC is the Applicant and owner of the Project. Project contact information is provided below:

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Senior Project Manager
UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996
(561) 264-8674
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1.4 Project Purpose

The purpose of the Project is to facilitate economic opportunities for local residents and to promote the supply of wind energy in support of Illinois' statutory goal of increasing energy production from renewable energy sources while adhering to required structural regulations to enhance safety. The Project Area was selected due to a strong wind resource; the availability of flat, open land; and proximity to existing transmission infrastructure.

1.5 Special Use Permit Application Overview

The Project will be built on land that is zoned as A-1 Agricultural District (LaSalle County, 2022a) and is not considered a permitted use pursuant to Section 7.1-3 (Permitted Uses) of the LaSalle County Zoning Ordinance (Ordinance). Therefore, the Project is considered a special use and requires the submission of a Special Use Application (**Appendix A**).

The Applicant is applying for a Special Use Permit (SUP) and all other approvals and authorizations required to construct, install, operate, and maintain the Project. This document, along with the Special Use Application, constitutes the entire application that will be submitted for the Project. This document has been organized to incorporate the information requested by the applicable sections in the Ordinance (LaSalle County, 2022b). Specifically, Chapter 7, Section 7.1-4, Subpart RR, governing Wind Power Facilities and Substation, and Chapter 14, Section 14.10 (Special Uses) and Section 14.12 (Public Hearing). A checklist showing this Application's compliance with the filing requirements outlined in the Ordinance is included in **Table 1**.

Table 1: SUP Application Key to Ordinance Requirements

| Ordinance Reference | Requirement | Location in Application |
|---------------------|--------------------------------------|-------------------------|
| Chapter 7 | | |
| 7.1-4 | Special Uses | -- |
| 7.1-4(RR) | Wind Power Facilities and Substation | -- |
| 7.1-4(RR)(1) | Description of Project | 2.0 |
| 7.1-4(RR)(2) | Site Plan | 3.0 |
| 7.1-4(RR)(2)(a) | Setback Requirements | 3.1 |
| 7.1-4(RR)(2)(b) | Noise Standards | 3.2 |
| 7.1-4(RR)(2)(c) | Waste Management | 3.3 |
| 7.1-4(RR)(2)(d) | Signage | 3.4 |
| 7.1-4(RR)(2)(e) | Aesthetics | 3.5 |
| 7.1-4(RR)(2)(f) | Public Services | 3.6 |
| 7.1-4(RR)(2)(g) | Fire | 3.7 |

Table 1: SUP Application Key to Ordinance Requirements

| Ordinance Reference | Requirement | Location in Application |
|--|---|--------------------------------|
| 7.1-4(RR)(2)(h) | Sewer and Water | 3.8 |
| 7.1-4(RR)(2)(i) | Topographic Map | 3.9 |
| 7.1-4(RR)(2)(j) | Engineer's Certificate | 3.10 |
| 7.1-4(RR)(2)(k) | Certificate of Contracts | 3.11 |
| 7.1-4(RR)(2)(l) | Decommissioning Plan | 3.12 |
| 7.1-4(RR) | Conditions for Special Use | 3.13 |
| Chapter 14 – Administration and Enforcement | | |
| 14.10-5 | Standards for Special Uses | 4.0 |
| 14.10-5(A)(1) | Impair an adequate supply of light and air to adjacent property | 4.1 |
| 14.10-5(A)(2) | Increase the hazard from fire or other dangers to said property | 4.2 |
| 14.10-5(A)(3) | Diminish the value of land and buildings in the vicinity of the proposed Special Use | 4.3 |
| 14.10-5(A)(4) | Unduly increase traffic congestion in the public streets and highways | 4.4 |
| 14.10-5(A)(5) | Increase the potential for flood damages to adjacent property | 4.5 |
| 14.10-5(A)(6) | Incur additional public expense for fire protection, rescue or relief | 4.6 |
| 14.10-5(A)(7) | Otherwise impair the public health, safety, comfort, morals or general welfare of the inhabitants of LaSalle County nor will it otherwise create a nuisance | 4.7 |
| 14.12 | Public Hearings | 5.0 |

2.0 Project Description

7.1-4(RR)(1): This shall include a legal description for the planned location of the tower and/or substation, the location of property lines of adjoining property owners (in the case of leased property, the location of property lines of property owners adjoining the landlord's property), the number and capacity of turbines, height and diameter of turbine rotors, turbine color, and rotor direction. All turbines shall be new equipment; no used, experimental or prototype equipment shall be approved by the Director, County Land Use Department. All turbines to be installed shall be equipped with a redundant braking system. This includes both aerodynamic over-speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode, whereby they are engaged in case of load loss on the generator. Stall regulation shall not be considered a sufficient braking system for over-speed protection.

2.1 Project Area Location

The Project Area is in southwestern LaSalle County. The Project Area is near the villages of Cedar Point and Tonica in Eden Township, the city of Oglesby in LaSalle Township, and a portion of Peru Township. The Project Area is generally west of US Interstate 39 and south of the Illinois River. **Table 2** identifies the location by township, range, and section.

Table 2: Project Area Location

| Township Name | Township Number | Range Number | Section(s) |
|------------------|-----------------|--------------|--------------------|
| Eden Township | 32N | 1E | 2-11, 14-23, 26-35 |
| Peru Township | 33N | 1E | 31-33 |
| LaSalle Township | 33N | 1E | 34 |

2.2 Landowners and Parcel Status

Of the total Project Area, approximately 5,024.4 acres include 97 participating parcels, parcels with neighbor agreements, parcels under negotiation, and one parcel owned by the Applicant. The agreements include the option to purchase 167 acres of land for the construction and operation of the O&M facility, Project Substation, and Switchyard. The turbines are proposed to be located on up to 13 parcels within the Project Area. There are currently 44 parcels with wind leases (2,471.7 acres), 9 parcels with easements (799.0 acres), 23 parcels under negotiation (848.9 acres), 3 parcels with neighbor agreements (6.0 acres), one parcel with a laydown yard easement (15.7 acres), one parcel that is owned by the Applicant (72.4 acres), and 16 parcels with combined wind lease, easements, and neighbor agreements (810.7 acres). **Table 3** identifies all parcels, their status, and acreage. **Exhibit 3** shows the participating landowners within the Project Area.

Table 3: Participating Parcels and Parcels Under Negotiation

| Number | Parcel ID | Primary Owner Name | Status | Acres |
|--------|---------------|------------------------|-------------------|-------|
| 1 | 17-31-201-000 | CARUSBROOKE FARMS INC | Under Negotiation | 21.3 |
| 2 | 17-31-202-000 | CARUS FREDERICK L ETAL | Under Negotiation | 25.8 |
| 3 | 17-31-203-000 | CARUSBROOKE FARMS INC | Under Negotiation | 14.3 |
| 4 | 17-31-204-000 | CARUS FREDERICK L ETAL | Under Negotiation | 18.8 |
| 5 | 17-31-406-000 | CARUS FREDERICK L ETAL | Under Negotiation | 79.4 |
| 6 | 17-32-101-000 | CARUSBROOKE FARMS INC | Under Negotiation | 28.1 |
| 7 | 17-32-102-000 | CARUSBROOKE FARMS INC | Under Negotiation | 13.6 |
| 8 | 17-32-103-000 | CARUSBROOKE FARMS INC | Under Negotiation | 21.1 |
| 9 | 17-32-104-000 | CARUS FREDERICK L ETAL | Under Negotiation | 20.8 |
| 10 | 17-32-105-000 | CARUSBROOKE FARMS INC | Under Negotiation | 77.8 |
| 11 | 17-32-200-000 | ERNAT MARTIN ETAL | Easement | 86.3 |
| 12 | 17-32-201-000 | ERNAT MARTIN ETAL | Easement | 82.3 |
| 13 | 17-32-300-000 | CARUS FREDERICK L ETAL | Under Negotiation | 41.3 |

Table 3: Participating Parcels and Parcels Under Negotiation

| Number | Parcel ID | Primary Owner Name | Status | Acres |
|--------|---------------|------------------------------|------------------------------|-------|
| 14 | 17-32-301-000 | CARUS FREDERICK L ETAL | Under Negotiation | 22.1 |
| 15 | 17-32-302-000 | CARUSBROOKE FARMS INC | Under Negotiation | 21.0 |
| 16 | 17-32-303-000 | CARUSBROOKE FARMS INC | Under Negotiation | 76.3 |
| 17 | 17-32-400-000 | ERNAT MARTIN ETAL | Under negotiation | 81.0 |
| 18 | 17-32-401-000 | CARUSBROOKE FARMS INC | Under Negotiation | 81.1 |
| 19 | 17-33-103-000 | ERNAT MARTIN ETAL | Easement | 78.2 |
| 20 | 17-33-300-000 | ERNAT MARTIN ETAL | Easement | 3.5 |
| 21 | 17-33-300-000 | ERNAT MARTIN ETAL | Easement | 293.1 |
| 22 | 17-33-301-000 | MUDGE JEFFREY-LINDA | Wind Lease; Easement | 39.2 |
| 23 | 17-33-402-000 | MUDGE JEFFREY-LINDA | Wind Lease; Easement | 33.7 |
| 24 | 25-02-103-000 | BROVELLI SHIRLEY J | Easement | 34.9 |
| 25 | 25-02-300-000 | SIENSA DONALD | Wind Lease | 71.9 |
| 26 | 25-03-101-000 | LAVENS CHARLES / ARLEN | Wind Lease | 52.9 |
| 27 | 25-03-102-000 | LAVENS CHARLES / ARLEN | Wind Lease | 50.9 |
| 28 | 25-03-103-000 | LAVENS CHARLES / ARLEN | Wind Lease | 40.7 |
| 29 | 25-03-104-000 | SENICA JAMES/DARLENE T | Wind Lease | 40.6 |
| 30 | 25-03-209-000 | BROVELLI SHIRLEY J | Easement | 179.3 |
| 31 | 25-04-101-000 | WILLIAMS PAUL L | Under Negotiation | 51.2 |
| 32 | 25-04-103-000 | MUDGE JEFFREY J/MCKEE | Wind Lease; Easement | 4.7 |
| 33 | 25-04-106-000 | MUDGE JEFFREY J/MCKEE | Wind Lease; Easement | 117.1 |
| 34 | 25-04-202-000 | LAVENS CHARLES / ARLEN | Wind Lease | 21.0 |
| 35 | 25-04-217-000 | DITTLE KRISTINA A | Easement | 40.2 |
| 36 | 25-04-303-000 | WILLIAMS PAUL L | Under Negotiation | 1.0 |
| 37 | 25-04-320-000 | WILLIAMS PAUL L | Under Negotiation | 0.1 |
| 38 | 25-04-400-000 | LADZINSKI STEPHAN J / | Wind Lease | 40.3 |
| 39 | 25-04-412-000 | LADZINSKI STEPHAN J / | Wind Lease | 30.7 |
| 40 | 25-04-413-000 | LAVENS CHARLES / ARLEN | Wind Lease | 51.1 |
| 41 | 25-05-100-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 93.6 |
| 42 | 25-05-105-000 | HOPKINS ARCHIBALD W / JUDITH | Wind Lease | 44.0 |
| 43 | 25-05-208-000 | MUDGE JEFFREY J/ MCKEE | Wind Lease; Easement | 5.1 |
| 44 | 25-05-217-000 | HOPKINS ARCHIBALD W / JUDITH | Wind Lease | 43.8 |
| 45 | 25-05-220-000 | MUDGE JEFFREY J/ MCKEE | Wind Lease; Easement | 46.5 |
| 46 | 25-05-301-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 122.9 |
| 47 | 25-05-302-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 40.8 |
| 48 | 25-06-202-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 45.8 |
| 49 | 25-06-203-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 5.1 |
| 50 | 25-06-205-000 | LASALLE STATE BANK | Under Negotiation | 38.3 |
| 51 | 25-06-400-000 | ALLEMAN JAMES M TTEE | Easement; Neighbor Agreement | 81.7 |
| 52 | 25-08-302-000 | WHITAKER LLC | Wind Lease | 153.7 |
| 53 | 25-08-303-000 | WHITAKER SIDNEY ETAL | Wind Lease | 3.1 |

Table 3: Participating Parcels and Parcels Under Negotiation

| Number | Parcel ID | Primary Owner Name | Status | Acres |
|--------|---------------|-------------------------|------------------------------|-------|
| 54 | 25-08-403-000 | ZELLMER JOAN | Wind Lease | 5.8 |
| 55 | 25-08-405-000 | ZELLMER JOAN | Wind Lease | 19.1 |
| 56 | 25-08-406-000 | GOSKUSKY THOMAS J/JOHN | Easement; Neighbor Agreement | 27.5 |
| 57 | 25-09-113-002 | JOLIET FIREWORKS LLC | Easement; Neighbor Agreement | 1.2 |
| 59 | 25-09-302-000 | PRAGOVICH ANTHONY F TR | Wind Lease | 77.9 |
| 60 | 25-09-400-000 | SINDER CARL J / MARK S | Wind Lease | 40.2 |
| 61 | 25-09-402-000 | DONOVAN MAJORIE | Wind Lease | 40.0 |
| 62 | 25-09-404-000 | HODGE DORIS M | Easement; Neighbor Agreement | 82.1 |
| 63 | 25-10-302-000 | THEISINGER EARLE H | Wind Lease | 166.9 |
| 64 | 25-10-404-000 | WALGENBACH NEIL/GARY/R | Wind Lease | 16.3 |
| 65 | 25-10-407-000 | BASSETT JEFFREY | Wind Lease | 39.7 |
| 66 | 25-10-409-000 | MILNER KATHLEEN A TTEE | Under Negotiation | 28.3 |
| 67 | 25-11-100-000 | SENICA JAMES/DARLENE T | Wind Lease | 28.3 |
| 68 | 25-11-101-000 | BASSETT JEFFREY C | Lay down yard easement | 15.7 |
| 69 | 25-11-102-000 | SENICA JAMES/DARLENE T | Wind Lease | 38.5 |
| 70 | 25-11-303-000 | IL VALLEY CELLULAR RSA2 | Under Negotiation | 6.2 |
| 71 | 25-11-307-000 | UKA | Owned | 72.4 |
| 72 | 25-14-103-000 | SHEINBERG RICHARD B/SA | Easement; Neighbor Agreement | 60.5 |
| 73 | 25-15-200-000 | HOLLOWAY DOROTHY ETAL | Wind Lease | 162.3 |
| 74 | 25-15-401-000 | GOODWIN RAYMOND A | Wind Lease | 80.9 |
| 75 | 25-16-100-000 | JOHNSON JAMES G / CHRI | Wind Lease | 81.7 |
| 76 | 25-16-101-000 | ZIMMERMAN CAROL B ETAL | Wind Lease | 81.6 |
| 77 | 25-16-200-000 | ZIMMERMAN CAROL B ETAL | Wind Lease | 41.3 |
| 78 | 25-16-202-000 | JOHNSON JAMES G / CHRI | Wind Lease | 41.4 |
| 79 | 25-16-302-000 | ZIMMERMAN CAROL B ETAL | Wind Lease | 13.6 |
| 80 | 25-16-402-000 | ZIMMERMAN CAROL B ETAL | Wind Lease | 27.4 |
| 81 | 25-17-102-000 | CURRIE FAMILY FARM PAR | Wind Lease | 5.0 |
| 82 | 25-17-102-000 | CURRIE FAMILY FARM PAR | Wind Lease | 9.8 |
| 83 | 25-17-102-000 | CURRIE FAMILY FARM PAR | Wind Lease | 53.0 |
| 84 | 25-17-103-000 | CURRIE FAMILY FARM PAR | Wind Lease | 14.6 |
| 85 | 25-17-200-000 | JOHNSON ROBERT W. | Wind Lease | 78.1 |
| 86 | 25-17-202-000 | BASSETT MARY ELLEN ETA | Wind Lease | 80.8 |
| 87 | 25-17-403-000 | IMMEL WILLIAM H | Neighbor Agreement | 2.1 |
| 88 | 25-17-406-000 | IMMEL KATHY M TRUST | Neighbor Agreement | 1.9 |
| 89 | 25-20-101-000 | OLSON, JASON | Neighbor Agreement | 2.0 |
| 90 | 25-22-204-000 | ALLEMAN JEFFREY | Under negotiation | 80.0 |
| 91 | 25-22-206-000 | ALLEMAN WENDELL/BARBAR | Wind Lease | 65.5 |
| 92 | 25-22-207-000 | MILOTA STEVEN JON / JU | Wind Lease | 9.6 |
| 93 | 25-22-304-000 | ERNAT MARTIN JR / MART | Wind Lease | 157.4 |
| 94 | 25-22-401-000 | SNYDER CYNTHIA | Wind Lease | 79.1 |

Table 3: Participating Parcels and Parcels Under Negotiation

| Number | Parcel ID | Primary Owner Name | Status | Acres |
|--------------|---------------|------------------------|------------------------------|----------------|
| 95 | 25-22-402-000 | SNYDER CYNTHIA | Wind Lease | 80.5 |
| 96 | 25-23-103-000 | CHALUS ROBERT G/ CICI | Easement; Neighbor Agreement | 4.4 |
| 97 | 25-23-104-000 | APPLEGATE CALVIN P/IRM | Wind Lease | 137.8 |
| 98 | 25-23-211-000 | APPLEGATE CALVIN/IRMA | Wind Lease | 52.9 |
| TOTAL | | | | 5,024.4 |

2.3 Adjacent Landowners

There are 186 parcels with property lines adjoining the participating parcels, easement parcels, parcels under negotiations, neighbor agreements, laydown yard, parcel owned by the Applicant and parcels with combined wind lease, easements, and neighbor agreements, including parcels across streets and diagonal as shown on **Exhibit 4**. A list of adjacent landowners in LaSalle County are provided in **Appendix B**.

2.4 Wind Turbines and Facilities

While the Applicant expects that the final layout will remain substantially similar to the preliminary site layout shown on **Exhibit 2**, due to ongoing technological innovations in the wind industry, continuing detailed engineering and survey work, public feedback, and communications during the permitting process, the precise location of these features within the Project boundary is subject to change. While the layout is subject to change, all Project components will be located within the Project Area that has been studied for environmental, cultural, engineering, and visual impacts, and will be subject to the various constraints and setbacks within the Project Area boundary. A detailed description of the Project components is provided below and are shown on **Exhibit 2**.

2.4.1 Wind Turbine Characteristics

The Applicant is proposing to install up to 13 wind turbines, from among the 17 potential turbine locations identified, ranging in size up to 7.2 MW nameplate capacity each. UKA is currently considering the Nordex N163 and the Siemens Gamesa SG170 wind turbine models. Turbine characteristics are provided in **Table 4** and manufacturer specification sheets are provided in **Appendix C**.

Table 4: Representative Turbine Characteristics

| Characteristic | Nordex N163 and Siemens Gamesa SG170 |
|--------------------------------|--|
| Number of Turbine Locations | 17 |
| Number of Turbines | Up to 13 |
| Rated Power | 6.2 to 7.2 MW per turbine |
| Hub Height | Up to 118 meters (387 feet) |
| Rotor Diameter | Up to 170 meters (558 feet) |
| Rotor Blade Length | Up to 85 meters (279 feet) |
| Total Height | Up to 200 meters (656 feet) |
| Survival Temperature | -40 °C to +50 °C (-40 °F to +122 °F) |
| Cut-in-Wind Speed (m/s) | 3 (typical) |
| Cut-out Wind Speed (m/s) | 26 (typical) |
| Brake Type | Main aerodynamic brake (pitch) with a holding disk brake |
| Rotor Direction/Blade Rotation | Clockwise |

The proposed wind turbines will operate automatically and self-start when wind speeds reach the designed cut-in speed (see **Table 5**). The turbines shut down automatically once the maximum operational limit is exceeded. When there is no wind, the turbines remain in idle mode. All turbines will be new equipment and will not be used, experimental, or prototype equipment. The surfaces of the towers and other wind turbine components will be painted in a uniform non-reflective, nonobtrusive color and finish (e.g., white or off-white) for visual continuity and blending into the natural landscape. No brand names, logos, or advertising will be placed on a turbine, with the exception of manufacturer or operator labels.

A control panel inside the base of each turbine tower houses communication and electronic circuitry. Each turbine is equipped with a wind speed and a direction sensor that communicates to the turbine's control system to signal when sufficient winds are present for operation. An automated Supervisory Control and Data Acquisition (SCADA) system located at the Project Substation provides local and remote supervision and control of key aspects of the Project's performance and equipment.

Access to the turbine is through a lockable steel door at the base of the tower. Platforms inside the tower are accessed by a ladder or lift and include attachments for a fall arresting safety system to facilitate access to the interior and exterior of the nacelle.

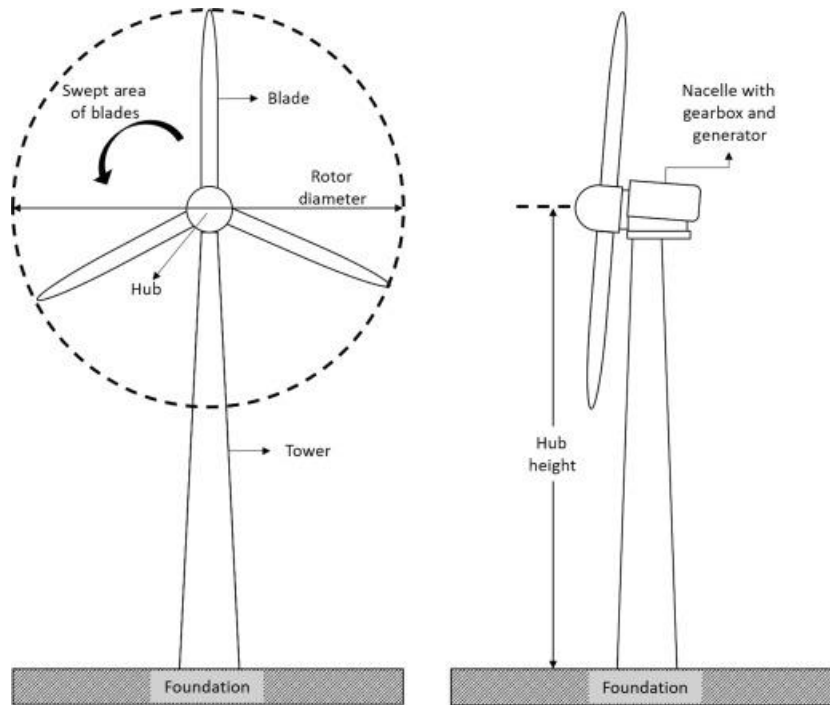


Figure 1: Typical Commercial Wind Turbine

Depending on the cut-out cause, different brake programs are triggered. In event of external causes, such as excessive wind speeds or below operating temperatures, the wind turbine is gently braked by means of rotor blade adjustment. All turbines will be equipped with a main brake and a holding brake. Other built-in safety functions are used to stop drives safely for maintenance work.

All turbines will be in compliance with all applicable state and federal regulatory standards including the Uniform Building Code as adopted by the State of Illinois, the National Electrical Code as adopted by the State of Illinois, FAA requirements, EPA regulations, and any other statutory or regulatory requirements.

2.4.2 Wind Turbine Locations

Fourteen of the identified wind turbine locations are on agricultural land and field edges. Three additional identified potential turbine locations are within wooded or partially wooded areas. A list of proposed turbine locations is provided in **Table 5**.

Table 5: Turbine Locations

| Turbine ID | Latitude | Longitude |
|-------------------|-----------------|------------------|
| T1 | 41.274735 | -89.104583 |
| T2 | 41.254530 | -89.138656 |
| T3 | 41.246045 | -89.137088 |
| T4 | 41.245921 | -89.129595 |
| T5 | 41.245855 | -89.121449 |
| T6 | 41.247625 | -89.115051 |
| T7 | 41.255364 | -89.107418 |
| T8 | 41.253388 | -89.100928 |
| T9 | 41.246741 | -89.093607 |
| T10 | 41.231557 | -89.082421 |
| T11 | 41.226056 | -89.102089 |
| T12 | 41.225082 | -89.091615 |
| T13 | 42.275142 | -89.122423 |
| A1 | 41.292332 | -89.141012 |
| A2 | 41.289917 | -89.147603 |
| A3 | 41.283368 | -89.145154 |
| A4 | 41.283651 | -89.120787 |

2.4.3 Project Substation and Interconnection

The Project Substation and Switchyard (a utility substation) are where the electricity collected from the wind turbines interface with the electrical grid to become deliverable power. Both substations will be located on the east side of County Road 16 (Ted Lambert Road), about 0.75 mile south of County Road 63. Each substation will occupy about 3 acres in the northern portion of the Project Area (**Exhibit 2**). The final location of the substations will be determined as engineering design progresses.

The Project substation will consist of switch gear, metering equipment, transformers, electrical control and communications systems, and other high voltage equipment needed to “step-up” the electricity generated by the Project from 34.5 kV to 138 kV. Inside the Project Substation, the main power transformer (MPT) will increase the voltage to the transmission line voltage of 138 kV. Transformers within the Project substation will be designed to National Electrical Manufacturer Association (NEMA) standards. The Project Substation will connect to the Switchyard via a short generation tie (gen-tie) line. The Switchyard will then connect to the

existing Oglesby to Crescent Ridge 138 kV transmission line owned by Commonwealth Edison via aboveground in-and-out tap lines supported by monopoles. The Switchyard is the point of interconnection (POI) that connects the Project to the transmission grid.

The Project Substation and gen-tie line will be constructed and operated by UKA. The Switchyard and in-and-out tap lines will be constructed and owned by the Commonwealth Edison Company and permitted separately.

All facilities associated with the Project Substation and Switchyard will be confined to land that is under lease or owned in fee for Project facilities. A portion of the Project Substation area will be fenced. The Project Substation will be equipped with exterior building lighting, which will be down-shielded. UKA will develop specific landscaping for the Project Substation as final designs are completed. The Project Substation would be located at least 0.25 mile from the nearest participating landowner residence.

2.4.4 Electrical Collection System

The Project will use an underground electrical collection system consisting of 34.5 kV lines. The proposed collection lines are shown on **Exhibit 2**. The electrical collection lines will deliver power from the turbines to the Project Substation.

The Applicant anticipates the electrical collection lines will be buried a minimum of 60 inches underground where they cross cropland and pastureland categorized as prime farmland, and a minimum of 36 inches where they cross pastureland not categorized as prime farmland and where they cross wooded/brushy land. These depths are consistent with the Project Agricultural Impact Mitigation Agreement (AIMA) in **Appendix D**. The collection lines will be installed via the open trench construction method unless site specific conditions warrant another construction or installation method or location.

The Project's electrical system will be designed by a professional, experienced, and qualified electrical system design firm. The Project will comply with applicable state construction and electrical codes and the National Electrical Code (NEC). The collection system will be designed to meet National Electric Safety Code (NESC), NEC, ANSI, NEMA, and Occupational Safety and Health Administration standards.

2.4.5 O&M Facility

The Applicant plans to construct an O&M facility that includes a building and parking lot. The O&M facility will provide office and storage facilities for Project operations and maintenance activities. The O&M facility will be within the Project Area and will occupy approximately five acres of land under Project control. The proposed O&M facility layout is shown on **Exhibit 2** and provided in **Appendix E**.

2.4.6 Crane Paths

Construction cranes will move from turbine to turbine along identified crane paths. These temporary crane paths will be approximately 40 to 60 feet wide depending on the size of the crane being used. It is generally not necessary to place base material to a specific depth, and cranes typically walk across the existing ground surface. Surface grading may be necessary to create a level path or for crossing upland drainage ditches or swales. Geotextile fabric, culverts, rip-rap, and timber mats may be used where necessary to facilitate these types of crossings. Crane walks will follow access roads and electrical collection routes when possible. All disturbed areas will be restored to pre-construction conditions following crane movements by removing construction materials, decompacting soils, shaping the ground surface to preconstruction elevations, seeding disturbed slopes, installing erosion control blankets on disturbed slopes greater than 3:1, and removing erosion control measures once final stabilization has occurred.

2.4.7 Access Roads

The Applicant will construct permanent low-profile access roads within the site to provide adequate access to each turbine and to the Project substation. The final location of access roads will be determined based on civil, structural, environmental, and operational factors, as well as considering the input of landowners and LaSalle County. The access roads will be all-weather gravel during construction and approximately 16 to 20 feet wide once the Project is operational.

To facilitate equipment delivery during construction, additional temporary, gravel access roads will be installed on either side of the proposed permanent access road locations if necessary. Temporary access roads will be approximately 20 feet wide and will be reduced to 16 feet following construction.

All access roads will be constructed in agricultural land. **Table 6** provides the anticipated location of each access road and the road surface characteristics.

Table 6: Project Access Roads

| Turbine ID | Access Road Entrance Name | Access Entrance Road Surface and Condition¹ |
|-------------------|----------------------------------|---|
| T1 | E 350 th Road | Paved, rural, pavement appears stressed |
| T2 | N 2209 th Road | Paved, single lane, pavement appears stressed |
| T3 | E 2 nd Road | Paved, single lane, pavement appears worn |
| T4 | E 2 nd Road | Paved, single lane, pavement appears worn |
| T5 | E 2 nd Road | Paved, single lane, pavement appears worn |
| T6 | N 22 nd Road | Paved, single lane, pavement appears stressed |
| T7 | E 275 th Road | Paved, rural, pavement appears stressed |
| T8 | E 350 th Road | Paved, rural, pavement appears stressed |

Table 6: Project Access Roads

| Turbine ID | Access Road Entrance Name | Access Entrance Road Surface and Condition¹ |
|--|----------------------------------|---|
| T9 | N 22 nd Road | Paved, single lane, pavement appears stressed |
| T10 | E 4 th Road | Paved, rural, pavement appears stressed |
| T11 | E 4 th Road | Paved, rural, pavement appears stressed |
| T12 | E 4 th Road | Paved, rural, pavement appears stressed |
| T13 | County Road 16 | Paved, rural, pavement appears worn and stressed |
| A1 | County Road 16 | Paved, rural, pavement appears worn and stressed |
| A2 | N 2451 st Road | Paved, rural, pavement appears worn and stressed |
| A3 | N 2451 st Road | Paved, rural, pavement appears worn and stressed |
| A4 | County Road 16 | Paved, rural, pavement appears worn and stressed |
| ¹ Road conditions were determined based on publicly available aerial imagery from 2020. | | |

Additionally, the rights-of-way along County Road 54 are proposed to be used to connect the southern portion of the Project to the northern portion. See Section 3.6 (Public Services and Roads) for additional information on proposed access roads, road use, and haul routes.

2.4.8 Temporary Laydown Area

The Project will require a temporary laydown area during construction to serve as parking lots and for staging to receive deliveries and prepare Project components for installation. The laydown area may also house temporary offices and other Project facilities. The laydown area will consist of a gravel pad with a layer of geotextile fabric placed in between the gravel and the native soil on the site to increase the ease of site restoration. The laydown area will be approximately ten acres and constructed on agricultural land and sited to avoid sensitive resources. The laydown area would be temporarily cleared, graded, and restored after Project construction is complete in coordination with the landowner. The laydown area is shown on **Exhibit 2** and on the Site Plan Layout in **Appendix E**.

2.4.9 Meteorological Towers

The Applicant has installed one meteorological tower (met tower) for wind resource measurement. The met tower is 160 meters tall and located in the southwestern portion of the Project Area (see **Exhibit 2**).

2.5 Environmental Analysis

The Applicant applied to the LaSalle County Soil and Water Conservation District (SWCD) for a Natural Resource Information (NRI) report (**Appendix F**). The intent of this report is to present

the most current natural resource information available in a readily understandable manner. It contains a description of the present site conditions, the present resources, and the potential impacts that the proposed change may have on the site and its resources. The report will include the following information:

- Parcel Location
- Site specific information on nearby Ag Areas, Cultural Resources Information, Drainage and Runoff
- Watershed Characteristics
- Location of parcel on the Flood Insurance Rate Map. The FEMA map would indicate if the property location is in a floodplain.
- Location of the parcel on the Illinois State Geological Survey. This map would indicate the topography of the site.
- Location of Wetlands on the parcel. Wetlands are identified by the U.S. Department of Fish & Wildlife Service.
- Woodlands situated on the property.
- Geological information of the parcel.
- Soils found on the parcel. Soils are derived from the Soil Survey of LaSalle County. Information on the soils, Building Site Development Limitations, and Limitations for Sanitary Facilities is also taken from the Soil Survey of LaSalle County.
- Threatened and Endangered Species information.
- Land Evaluation and Site Assessment System (LESA) Report.
- Information regarding stormwater management and water quality impact, soil erosion and sediment control.

A response from the SWCD is pending.

2.5.1 Land Use and Zoning

2.5.1.1 Land Use

According to the LaSalle County Zoning Map, existing land use in the Project Area outside of incorporated areas is Agriculture (A-1) (LaSalle County, 2020). LaSalle County land use adjacent to the Project Area and vicinity primarily consists of Agriculture (A-1), Agriculture Conservation (A-C), Rural Residence (R-R), Single Family Residence (R-2), and General Business (B-2).

Agricultural activities are the predominant land use within the Project Area. Within participating parcels, the Project will permanently impact only approximately 14.0 acres (0.3%) of agricultural land from turbines, access roads, substations, and the met tower. Temporary impacts will be restored after Project construction is complete. Collector lines will be buried, and access roads will generally be at-grade to allow farm equipment to easily pass across.

On agricultural properties, topsoil will be separated from subsoil during grading activities. After construction is complete, disturbed areas will be restored by decompacting soils as required in the AIMA (see **Appendix D**).

Temporary construction impacts will be restored after construction is complete in accordance with Illinois General National Pollutant Discharge Elimination System (NPDES) Permit ILR10, Part IV.D.2.b with respect to stabilization. Stabilization practices may include, but are not limited to, temporary and permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation.

The construction and operation of the Project will support the continued use of the Project Area and surrounding land for agricultural purposes by providing substantial additional revenues to the host landowners while only minimally impacting their agricultural activities. This is accomplished by harnessing the wind energy in the air space above the ground, while occupying only a small footprint on the agricultural lands below. Each turbine represents approximately 0.04 acre (for a total of 0.5 acre) thereby only affecting less than 0.02% of the total participating parcels (excluding parcels under negotiation) in the Project Area.

2.5.1.2 Land Cover

Table 7 summarizes the land use types within the Project Area. Most of the agricultural land in the Project Area is subject to row-crop agriculture, such as corn and soybeans (USDA, 2021). Developed land within the Project Area is generally comprised of village of Cedar Point infrastructure and various public roads—namely State Route 71, County Highway 54, U.S. Highway 51, and County Highway 65. The smaller areas (4.1 acres) of grass/pasture lands within the Project Area are adjacent to the forested areas (5.7 acres) in the northern and southeastern portions of the Project Area. Cover types are shown on **Exhibit 5**.

Table 7: Land Cover

| Land Cover Type | Acres within Project Area | Percent of Project Area |
|-------------------------------------|---------------------------|-------------------------|
| Corn | 7,581.9 | 42.5 |
| Soybeans | 7,091.3 | 39.8 |
| Winter Wheat | 54.5 | 0.3 |
| Double Crop (Winter Wheat/Soybeans) | 2.4 | 0.01 |
| Alfalfa | 77.4 | 0.4 |
| Other Hay/Non-Alfalfa | 31.6 | 0.2 |
| Sod/Grass Seed | 0.2 | 0.001 |
| Fallow/Idle Cropland | 1.1 | 0.01 |
| Apples | 0.2 | 0.001 |
| Open Water | 11.6 | 0.1 |
| Developed | 1,209.8 | 6.8 |
| Barren | 5.3 | 0.03 |

Table 7: Land Cover

| Land Cover Type | Acres within Project Area | Percent of Project Area |
|------------------------|----------------------------------|--------------------------------|
| Deciduous Forest | 997.9 | 5.6 |
| Evergreen Forest | 1.8 | 0.01 |
| Mixed Forest | 14.2 | 0.1 |
| Shrubland | 0.4 | 0.002 |
| Grass/Pasture | 734.1 | 4.1 |
| Woody Wetlands | 9.3 | 0.1 |
| Herbaceous Wetlands | 8.0 | 0.04 |
| Total | 17,833 | 100.0 |

2.5.1.3 Zoning

Based on the LaSalle County Zoning Viewer (LaSalle County, 2022c), the Project Area is predominantly zoned Agriculture (A-1), except for approximately six (6) acres that are zoned General Business (B-2) and two (2) acres that are zoned Rural Residence (R-R). Project Area zoning is shown on **Exhibit 6**.

2.5.2 Public and Managed Lands

The Illinois and Michigan Canal National Heritage Corridor, which is operated by the National Park Service, is located in the northern portion of the Project Area. There is also a federal conservation easement approximately one mile north of the Project (National Conservation Easement Database, 2022). The Mt. Palatine Cemetery Prairie Nature Preserve is approximately 0.6 mile to the southwest (U.S. Geological Survey, 2022) (**Exhibit 7**). Inside a 1.5-mile buffer there are five (5) local parks and recreation areas, including Mt. Palatine Cemetery Prairie Nature Preserve, Tonica Old Park, Tonica New Park, Cerri Memorial Park, and South Bluff Country Club (Google Earth, 2022).

The IDNR EcoCAT review identified several areas from the Illinois Natural Areas Inventory (INAI) within Project vicinity. The INAI sites included: Illinois Valley College Geological Area, Lasalle026, Mt. Palatine Cemetery Prairie, and the Mt. Palatine Cemetery Prairie Nature Preserve. See Section 2.5.8.1 for more information on the information only EcoCAT report.

A search of the IDNR Public Hunting Areas Map identified no state hunting areas with the Project Area (IDNR, 2022a). Further, no state parks were identified within one mile of the Project Area (IDNR, 2022b). The nearest state park, Matthiessen State Park, is located approximately 2.3 miles northeast of the Project.

According to the Illinois Department of Transportation, the Illinois River Road is a scenic byway that runs through the northern portion of the Project Area near Cedar Point (IDOT, 2022).

2.5.3 Soils and Productivity

Soil characteristics within the Project Area were assessed using the USDA Soil Survey Geographic Database (SSURGO) (Soil Survey Staff, 2019). The SSURGO database is a digital version of the original county soil surveys developed by the NRCS for use with GIS. Soils within the Project Area are shown on **Exhibit 8** along with a table that provides soil characteristics including soil name, land capability class, farmland classification, acreages, and percentages of each soil unit (**Appendix G**).

2.5.3.1 Prime farmland

Prime farmland is defined by the USDA in the United States Code of Federal Regulations (CFR) 7CFR657.5. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pasture, woodland, or other lands). Land that is built-up land or water is not considered prime farmland.

About 89% of the County's soil is designated as prime farmland (IDOA, 2022). The Project Area includes 15,960.8 acres (89.5%) of prime farmland, including 9,559.9 acres of prime farmland, 6,216.3. acres of prime farmland if drained, and 184.6 acres of prime farmland if protected from flooding. **Table 8** below provides a summary of the prime farmland within the Project Area.

2.5.3.2 Farmland of Statewide Importance

Soils of statewide importance are defined by 7CFR657.5 as land, in addition to prime and unique farmland, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. The Project Area includes 1,303.2 acres (7.3%) of soils classified as Farmland of Statewide Importance. **Table 8** below provides a summary of the farmland of statewide importance within the Project Area.

Table 8: Farmland Classifications within Project Area

| Farmland Classification | Acreage | Percent of Development Area |
|---|-----------------|-----------------------------|
| Prime Farmland | 9,559.9 | 53.6% |
| Prime Farmland if Drained | 6,198.1 | 34.8% |
| Prime Farmland if Drained and Protected from Flooding or Not Frequently Flooded | 18.2 | 0.1% |
| Prime Farmland if Protected from Flooding | 184.6 | 1.0% |
| Farmland of Statewide Importance | 1,303.2 | 7.3% |
| Not Prime Farmland | 569.0 | 3.0% |
| TOTAL | 17,833.0 | 100% |
| <i>Note: The totals shown in this table may not equal the sum of addends due to rounding.</i> | | |

2.5.3.3 Land Capability Classification

Land capability classification generally shows the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, land farming activities that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, woodland, or engineering purposes. Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use (Soil Survey Staff, 2019). The classes are defined in **Table 9**.

Table 9: Land Capability Classifications

| Soil Classification | Description |
|----------------------------|---|
| Class 1 | Few limitations that restrict their use. |
| Class 2 | Moderate limitations that reduce the choice of plants or that require moderate conservation practices. |
| Class 3 | Severe limitations that reduce the choice of plants or that require special conservation practices, or both. |
| Class 4 | Very severe limitations that reduce the choice of plants or that require very careful management, or both. |
| Class 5 | Subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. |
| Class 6 | Severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. |
| Class 7 | Very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat. |
| Class 8 | Limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes. |

Table 10 describes the land capability by classification for the Project Area. Class 2 is the predominant classification. Land capability classes are shown on **Exhibit 9**.

Table 10: Land Capability Classifications within Project Area

| Land Capability Classification¹ | Acreage | Percent of Project Area |
|---|-----------------|--------------------------------|
| Class 1 | 8168.0 | 13.6 |
| Class 2 | 7509.3 | 82.9 |
| Class 3 | 1513.4 | 2.5 |
| Class 4 | 233 | 0.4 |
| Class 6 | 289.7 | 0.5 |
| Class 7 | 80.3 | 0.1 |
| Class 8 | 39.3 | 0.1 |
| Total | 17,833.0 | 100% |
| ¹ There are no Class 5 soils in the Project Area. <i>Note: The totals shown in this table may not equal the sum of addends due to rounding.</i> | | |

2.5.3.4 Soil Productivity

Soil productivity is one of the key factors in determining the value of Illinois farmland. Often a farm will be described as an A, B or C class farm. This determination is based on the soil productivity index (PI) number. Class A soils will have soil PI numbers between 133-147, Class B between 117-132, and Class C between 100-116. Soil ratings equal to or below 99 are not considered prime agricultural land (University of Illinois, 2022). Higher PIs typically are associated with higher corn and soybean yields (Schnitkey, 2017). According to the 2017 Census of Agriculture, the top crops in LaSalle County are corn for grain and soybeans for beans. According to the Optimal Productivity Index map, the soil productivity index for the Project Area ranges from 107-126 and 127-147 (NRCS, 2009).

According to the LaSalle County Ag Area Map, there are no designated Ag Areas within the Project Area. The development of Ag Areas is intended for those areas that are strictly agricultural in nature and where landowners and county officials have an interest in preserving the land for farming (LaSalle County, 2022d).

2.5.4 Water Resources

Surface water resources for the Project area were identified by reviewing National Wetlands Inventory Data, the National Hydrography Dataset of waterbodies and watercourses, and the IDNR Public Waters Data. Named surface waters located within the Project Area include Cedar Creek and Bailey Creek. There are no designated rivers in the Project Area or within a one mile buffer. The nearest designated river is the Middle Fork - Vermillion River, which is part of the National Wild and Scenic River System (Interagency Wild and Scenic Rivers Coordinating Council, 2022), about 1.3 miles east of the Project Area. The Project will not affect the Vermillion River.

NWI data mapped 64 wetlands within the Project Area (USFWS, 2018). These features are mostly classified as riverine or freshwater emergent wetlands. The other wetland types within the Project Area are freshwater forested/shrub and freshwater ponds.

NHD data mapped 48 flowlines and 12 waterbodies within the Project Area (USGS, 2004). The mapped flowline features include Cedar Creek, which flows through the central portion of the Project Area, and Bailey Creek, which flows through the southeast portion of the Project Area.

IDNR public waters data mapped no public watercourses or waterbodies within the Project Area. The Illinois River which is located about one mile north of the Project Area is classified as a public watercourse.

2.5.4.1 Desktop Identified Wetlands and Waterways

A desktop wetland delineation was completed using publicly available resources such as NWI, NHD, SSURGO2 soils information and LiDAR Contours. As the site is largely agricultural, multiple years of historical aerial imagery from the years 2000-2021 were also utilized to map potential seasonal features in the cropped portions of the Project Area. Particular scrutiny was utilized in areas mapped on public datasets and/or low-lying areas with soils classified as hydric or predominantly hydric, which have a higher chance of being wetland. This desktop delineation was completed in anticipation of field wetland and waterway delineations which will be conducted in Spring 2023. A total of 187 wetlands were identified that encompass 840 acres. Wetland types identified include freshwater forested/shrub, freshwater emergent, freshwater pond, and riverine wetlands. Surface water features are shown on **Exhibit 10**.

Hickory made significant efforts to avoid and minimize impacts to desktop identified wetlands and waterways during the initial design phase. A field delineation of wetlands and waterways will be conducted in spring 2023 when final engineering and design have been completed. The Applicant expects to have less than 0.1 acre of permanent impact.

2.5.4.2 Impaired Waters

Illinois Pollution Control Board (IPCB) indicated that Bailey Creek (Assessment Unit ID: IL_DSA-02) is listed as impaired for aquatic life due to low oxygen levels. Bailey Creek is in the southeast portion of the Project Area. The Illinois River (Assessment Unit ID: IL_D-16) is listed as impaired for fish and shellfish consumption due to elevated levels of mercury and polychlorinated biphenyls. The Illinois River is located about one mile north of the Project Area.

2.5.4.3 Floodplains

According to FEMA Flood Insurance Rate Map (FIRM), the majority of the Project Area is located outside of the 100-year floodplain. The Illinois River is designated as a Regulated Floodway (Zone AE). No 100-year floodplains are mapped within the Project Area. FEMA Flood data is available and shown on **Exhibit 10**.

2.5.5 Archaeological, Cultural, and Historical Resources

In September 2021 as a preliminary review of cultural resources in the Project Area, Westwood examined the Illinois Inventory of Archaeological Sites (IIAS) maintained by the Illinois State Historic Preservation Office (SHPO). An initial inventory of archaeological sites and historic structures was compiled. Mapping of previous surveys was also examined. Additionally, the National Register of Historic Places (NRHP) database was reviewed. The entire Project Area was examined, as well as a ¼-mile buffer.

Within the ¼-mile Project buffer, based on review of available data in the IIAS database, there are:

- 75 archaeological sites (25 inside the Project)
- 9 Architectural historic resources (1 inside the Project)
- 1 Cemetery (inside the Project)
- 10 previous cultural resource investigations (10 inside or intersecting the Project)

Seventy of the 75 documented archaeological sites within ¼ mile (and 21 of the 25 inside the Project) are associated with a 1985-1992 survey along the Interstate Highway 39 corridor.

Sites in the area are largely prehistoric or multicomponent in age and consist of lithic debris scatters and open campsites. Historic sites are mostly associated with farmsteads. None of the resources inside the Project Area have been recommended as eligible for listing in the NRHP. Site 11LS211, also the sole documented cemetery, is a Native American burial site, which, if remaining, would likely be eligible if assessed. A search of modern aerial maps along with historic plats (1893–1957) in the IIAS database suggests the potential for numerous historic resources in the Project Area (e.g., trash scatters, foundations).

The IIAS database identifies that approximately 16% of the Project Area overlays high site probability areas adjacent to the Illinois River and Cedar and Bailey Creeks. This, along with numerous known adjacent sites, suggests the possibility for prehistoric archaeological sites (e.g., lithic scatters) to be encountered in the Project. The Illinois Archaeological Predictive Model (IAPM) shows similar coverage of high probability locations near the Illinois River valley and Bailey Creek's drainage area, but much less along Cedar Creek.

No NRHP listed properties or historic districts are present within the Project Area buffer.

Previous surveys within ¼-mile have been carried out for transportation, mining, utilities, and land developments. Of the nine previous surveys within the Project Area, only one has taken place since 2000. This survey covered less than one acre of the Project Area.

Should the current Project be deemed a federal undertaking (requiring a federal permit, license, or approval; being located on federally owned or managed land; or receiving federal financial assistance), the scope of required cultural resource investigations would be determined by the functioning lead federal agency in cooperation with the SHPO and pertinent Tribal Historic Preservation Offices (THPO) as defined in both Section 101 of the National Environmental Policy Act of 1969 (NEPA) and Section 106 of the National Historic Preservation Act of 1966 (as amended) (NHPA).

Should the proposed Project be located on land owned or managed by the State of Illinois or a subdivision of the State, the scope of required cultural resource investigations would be determined by the SHPO. It is possible other state or local permits may also require coordination and review by the SHPO.

Should federal involvement require environmental review of the Project, the lead federal agency would be responsible for defining the scope of cultural resources investigations within the defined Area of Potential Effect (APE) to assess the potential impact on cultural resources.

2.5.6 Erosion Control and Stormwater Pollution Prevention

The Illinois Environmental Protection Agency (IEPA) administers the NPDES permit program in Illinois and regulates construction activities that disturb more than one acre of land. As part of its NPDES permit application process, a Stormwater Pollution Prevention Plan (SWPPP) is required to identify erosion and sedimentation control measures to prevent adverse water quality impacts to streams and wetlands during and after construction. Before the commencement of construction on the Project, the Applicant will file a notice of intent (NOI) and accompanying SWPPP for a General Permit to Discharge Storm Water Construction Site Activities.

2.5.7 General Wildlife

Wildlife species likely to occur within the Project area include those typically found in agriculture-dominated landscapes. Mammal species that may occur within the Project area include white-tailed deer (*Odocoileus virginianus*), small mammals such as mouse [Family Muridae] and vole [Family Cricetidae] species, raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*) (iNaturalist no date).

Bird species that may occur within agricultural areas of the Project area include the ring-necked pheasant (*Phasianus colchicus*), blackbird [Family Icteridae] species, other small perching birds such as Mourning Dove (*Zenaidura macroura*), and common raptors such as the Red-tailed Hawk (*Buteo jamaicensis*). Common birds that may occur in riparian forests and forest edges in the Project Area include Northern Cardinal (*Cardinalis cardinalis*), White-breasted Nuthatch (*Sitta carolinensis*) and Downy Woodpecker (*Dryobates pubescens*). After crops are harvested, the fields may offer short term foraging areas for common birds including the Canada Goose (*Branta canadensis*) and Wild Turkey (*Meleagris gallopavo*) (iNaturalist no date).

According to a year-long avian use study conducted by Stantec (2022), 1,954 birds from 68 species were observed. The most-observed species of birds (each totaling more than 10 percent of all observations) included European Starling (*Sturnus vulgaris*) and Red-winged Blackbird (*Agelaius phoeniceus*) for small birds and American Crow (*Corvus brachyrhynchos*), Turkey Vulture (*Cathartes aura*), Canada goose, and Red-tailed Hawk for large birds. No federal threatened or endangered species of birds were observed. One state endangered bird, Northern Harrier (*Circus hudsonius*), was observed on 19 occasions, indicating that this species may be nesting in the Project Area.

Reptile and amphibian species that may occur within the Project Area include the common garter snake (*Thamnophis sirtalis*), northern leopard frog (*Lithobates pipiens*), and American toad (*Anaxyrus americanus*) (iNaturalist no date).

2.5.8 State and Federal Protected Species

2.5.8.1 State Protected Species

A data request of the Illinois Ecological Compliance Assessment Tool (EcoCAT) was submitted and received on December 28, 2022 and assigned Project Number 2308318. Four species are listed as potentially occurring in or near the Project Area. These species and their listing status are provided in **Appendix H** and listed in **Table 11**.

Table 11: IDNR Identified Species

| Common Name | Scientific Name | State Status |
|--------------------------------|-------------------------------|--------------|
| Indiana Bat | <i>Myotis sodalis</i> | Endangered |
| Northern Long-eared Bat (NLEB) | <i>Myotis septentrionalis</i> | Threatened |
| Gray Bat | <i>Myotis grisescens</i> | Endangered |
| Gray Wolf | <i>Canis lupus</i> | Endangered |

2.5.8.1.1 Indiana Bat and Northern Long-eared Bat

Indiana Bat and Northern Long-eared Bat are described in the next section below.

2.5.8.1.2 Gray Bat

The gray bat is a cave bat that uses caves and mines year-round. In Illinois, it occupies different caves or mines in the summer for breeding from the winter for overwintering. Illinois summer range includes the southernmost edge of the state. Winter range covers the west-central position of the state. This places LaSalle County out of range for the species. Gray bats forage for flying insects over bodies of water (IDNR 2022c).

Though the Illinois River provides suitable foraging habitat, the gray bat is not known to occupy LaSalle County, though transient occurrences may be possible. No documentation could be found of the species utilizing the nearby Pecumsaugan Creek-Blackball Mines Nature Preserve. The likelihood of occurrence is low.

2.5.8.1.3 Gray Wolf

The gray wolf is a rare visitor to the state of Illinois from neighboring states of Michigan, Wisconsin, and Minnesota, all of which have established breeding populations. All recorded individuals observed in Illinois have been young wolves presumably dispersing from their natal pack. Breeding, however, has not been confirmed in the state. Illinois is within the historic range of the gray wolf, but the species has been extirpated from the state since the mid-1800s. The species is protected by the state from all forms of hunting, depredation, and harassment, regardless of the reason (IDNR 2022d).

Migrating into Illinois from neighboring states to the north, wolves are likely to travel along the forested corridors of major rivers, though wolves may be seen in any part of the state (IDNR 2022d). The Illinois River to the immediate north of the Project would be a possible movement corridor for wolves.

However, because gray wolf is so rarely seen in the state and because there are currently no established packs in the state, the likelihood of occurrence is low.

2.5.8.2 Federally Protected Species

Westwood conducted an Information for Planning and Consultation (IPaC) coordination with the U.S. Fish and Wildlife Service (USFWS) (2022a). The IPaC report dated December 2, 2022 indicated the potential presence of three wildlife species and two plants, as shown in **Table 12**. Results also indicate the Project Area contains critical habitat for the Indiana Bat. Bald Eagles were also reviewed for potential occurrence.

Table 12: USFWS Identified Species

| Common Name | Scientific Name | Federal Status |
|--------------------------------|-------------------------------|----------------|
| Indiana Bat | <i>Myotis sodalis</i> | Endangered |
| Northern Long-eared Bat (NLEB) | <i>Myotis septentrionalis</i> | Endangered |
| Decurrent False Aster | <i>Boltonia decurrens</i> | Threatened |
| Eastern Prairie Fringed Orchid | <i>Platanthera leucophaea</i> | Endangered |
| Monarch Butterfly | <i>Danaus plexippus</i> | Candidate |

2.5.8.2.1 Indiana Bat and Northern Long-eared Bat

Indiana bats and Northern long-eared bats (NLEB) have somewhat similar habitat requirements. According to the USFWS (no date-a, no date-b), suitable hibernacula habitat for NLEB and Indiana bat includes caves and mines. In the summer, NLEBs and Indiana bats roost underneath bark and in crevices of trees; males and non-reproductive females may also roost in caves and mines.

LaSalle County has the largest concentration of wintering NLEB in the state and has known Indiana bat hibernaculum (IDNR, 2022b, Loeb and Winters, 2013). Additionally, all lands in LaSalle County are designated as USFWS Final Critical Habitat for the Indiana Bat (USFWS, 2022b).

Pecumsaugan Creek-Blackball Mines Nature Preserve located approximately 4.5 miles northeast of the Project Area, hosts one of the largest bat hibernacula in Illinois, covering five species including the Indiana bat (IDNR, 2022b). Given the presence of forested tracts and mapped watercourses within the Project Area, the adjacent Illinois River, and the close proximity to the

Pecumsaugan Creek-Blackball Mines Nature Preserve, there appears to be potentially suitable habitat for NLEB and Indiana bat.

As a result, Hickory hired Stantec Consulting Services (“Stantec”) to perform bat acoustic surveys from June 1 – October 30, 2021. The acoustic data files were analyzed by Stantec using the bat acoustic call identification software Kaleidoscope Pro 4.2. This software identifies all bat calls to species to the extent possible and assigns a “p-value” to each call which indicates the probable correctness of the call identification. A bat call with a p-value over 0.05 indicates a call signature that falls outside of the parameters for a positive species identification. These calls may be disregarded as potential misidentification by the software due to a variety of reasons. Calls with a p-value less than 0.05 are considered reliable positive identifications of the species.

A total of 2,627 bat calls representing seven species were detected by the Kaleidoscope Pro analysis software, as summarized in **Table 13**. No Indiana bat or NLEB bat calls were identified by the software.

Table 13: Summary of Bat Call Analysis from Kaleidoscope Pro Software

| Species ¹ | Big Brown Bat | Eastern Red Bat | Hoary Bat | Silver Haired Bat | Little Brown Bat | Northern Long-eared Bat | Indiana Bat | Evening Bat | Tri-colored Bat | No Species ID |
|---|---------------|-----------------|-----------|-------------------|------------------|-------------------------|-------------|-------------|-----------------|---------------|
| Total # Calls | 148 | 188 | 714 | 812 | 9 | 0 | 0 | 91 | 30 | 635 |
| Percent of Total Activity | 5.6 | 7.2 | 27.2 | 30.9 | 0.3 | 0.0 | 0.0 | 3.5 | 2.1 | 24.2 |
| ¹ big brown bat (<i>Eptesicus fuscus</i>), eastern red bat (<i>Lasiurus borealis</i>), hoary bat (<i>Lasiurus cinereus</i>), silver-haired bat (<i>Lasionycteris noctivagans</i>), little brown bat (<i>Myotis lucifugus</i>), Indiana bat (<i>Myotis sodalis</i>), northern long-eared bat (<i>Myotis septentrionalis</i>), evening bat (<i>Nycticeius humeralis</i>), tri-colored bat (<i>Perimyotis subflavus</i>). | | | | | | | | | | |

2.5.8.2.2 Decurrent False Aster

Decurrent false aster occurs in moist, sandy floodplains and prairie wetlands along the Illinois River (USFWS, 2020). The Project Area’s location is adjacent to the Illinois River, and small areas suitable habitat could be present within the Project Area. Therefore, the likelihood of occurrence is considered low to moderate.

2.5.8.2.3 Eastern Prairie Fringed Orchid

Eastern prairie fringed orchids occur in a variety of habitats from roadside ditches and mesic prairies to wetlands, in full, direct sunlight with little to no woody encroachment, (USFWS, 2021). Within the Project Area, small tracts of grassland and roadside ditches could potentially provide suitable habitat for eastern prairie fringed orchids. Therefore, the likelihood of occurrence is considered low to moderate.

2.5.8.2.4 Monarch Butterfly

Monarch butterflies lay their eggs on milkweed species (*Asclepias sp.*) during the breeding season (USFWS, 2022c). Milkweed species can be found in a variety of habitats, including wetlands, roadside ditches, and grasslands (Florida Museum of Natural History, 2014). Given the field edges, roadside ditches, and other habitats within the Project Area that could potentially support milkweed species, there is a high likelihood of occurrence of the monarch butterfly. However, due to its status as a candidate species, it is not currently afforded any regulatory protections.

2.5.8.2.5 Bald and Golden Eagles

Although Bald Eagles are no longer protected under the federal ESA, they are protected under the BGEPA and MBTA. Given the Project location adjacent to the Illinois River and the presence of forested stands, Bald Eagles may use the Project Area for foraging, nesting or stopover habitat. As such, the probability of occurrence is considered high.

Eagle Use Surveys were conducted by Stantec (2022) at Hickory Wind from November 2020 to October 2022. A total of 12 survey points were located within the current project boundary. Standard methodologies for eagle surveys per the Eagle Conservation Plan Guidance (USFWS, 2013) were used. Thirty-four Bald Eagles were observed over the two-year survey. No Golden Eagles were observed at any time. The highest eagle activity was observed in the northwestern corner of the Project Area and eagle activity was overall higher in the northern third of the Project Area. Presumably eagle activity is higher in closer proximity to the Illinois River as a food source. The highest eagle activity levels were observed in October and November and in May. These activity levels would align with fall migration and breeding season activity.

In response to the EcoCAT submission on December 28, 2022, the IDNR sent a letter, dated January 19, 2023, that identified four state and federally listed species (see Table 11), four natural areas, a state park, and a cemetery that may be in the vicinity of the Project Area (see **Appendix H**). The IDNR recommends the county consider the following:

1. An incidental take permit for the listed bat species due to proximity of the Blackball mine.
2. Wind turbine curtailment at wind speeds of 6.9 meters per second from sunset to sunrise during the fall migratory period (between August 1st and November 1st) and during the spring emergence period (between March 15th and April 15th) to minimize the risk of striking birds and bats, and to minimize mortality. Wind turbines should be feathered (minimal rotations) during these curtailment events.¹

¹ If data from this hibernacula site can be provided that indicates migratory and emergence dates differ from what is stated, the Department may alter recommended curtailment dates. Future data or technologies, as it pertains to wind turbine collision risk for bats or birds, may pose opportunities for new curtailment regimes to be discussed between the wind energy facility and the Department through the operational life of this facility.

3. A minimum of 3 to 5 years of post-construction mortality monitoring to quantify bird and bat mortality with annual reporting to the IDNR
4. 300 foot setback from any perennial streams with a non-forested riparian zone, including three different unnamed tributaries of Cedar Creek, and Bailey Creek.
5. 1,000 foot setback from any forested areas five acres or larger or forested riparian zones, including two contiguous forests, and forest near Cedar Creek.
6. One mile setback from Mt. Palatine Cemetery Prairie Nature Preserve.
7. One linear mile setback from the west boundary of Matthiessen State Park.
8. 1,000 linear foot setback from the LaSalle026 Natural Areas Inventory Site.
9. Use of fully shielded light fixtures and warm white LEDs at the appropriate lumens.
10. Use of wildlife-friendly plastic-free erosion control blanket.

An updated EcoCAT was submitted to the IDNR on January 24, 2023 to reflect the additional turbine locations. A response from the IDNR is pending. The Applicant will prepare a written response to the IDNR recommendations and forward them to the county prior to the hearing. The Applicant will coordinate with the county throughout the development, construction, and operations of the Project to address the IDNR recommendations.

2.5.9 Noise

Westwood Professional Services, Inc. (Westwood) completed a noise assessment for the Project based on an initial layout of 17 turbine locations. Noise analysis was completed for two turbine types, Nordex and Siemens Gamesa (**Appendix I**). While there will only be 13 turbines installed, noise was modeled for all 17 potential turbine locations. The noise impact assessment was completed as required by the Illinois Pollution Control Board (IPCB).² The noise sensitive receptors in the Project vicinity include 420 residences. Existing noise sources include I-39 to the east, IL-251 to the northeast, and IL-71 running east to west through the middle of the Project Area.

Westwood used CADNA-A (noise modeling software in compliance with ISO 9613-2) to calculate daytime and nighttime noise at all noise sensitive receptors within 2 kilometers (km) of the Project infrastructure. The proposed Project turbines were modeled as point sources, with noise source data taken from manufacturer cut sheets. The turbines used in the CADNA-A models included Nordex N163 and Siemens Gamesa SG170. The models assumed the turbines to be operating at the loudest noise emission levels, which, in combination with the other parameters, ensures a “worst case” scenario.

² The State of Illinois’s relevant sound regulation is Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*. This regulation regulates sound levels according to the land use where the sound is produced and where the sound is received.

2.5.10 Nordex N163 Wind Turbine

The maximum sound level from the Project expected at a noise sensitive receptor is 48 dBA. County and State regulations include octave band noise limits and discrete tone limits set by the IPCB. Project levels do not exceed the limits set forth in the Illinois Administrative Code. Minimal noise impacts are expected from Project operation.

The noise assessment concluded that, utilizing the daytime and nighttime operating modes listed in **Table 13**, all 420 receptors are modeled at or below the octave band noise level limits set forth in Illinois Administrative Code. Additionally, no discrete tones were determined to exist. **Table 13** below lists the necessary modes for each turbine.

Table 13: Daytime and Nighttime Nordex N163 Turbine Modes

| Turbine ID | Daytime Mode¹ | Nighttime Mode¹ |
|--|---------------------------------|-----------------------------------|
| 1 | Mode 0 with STE | Mode 0 with STE |
| 2 | Mode 0 with STE | Mode 0 with STE |
| 3 | Mode 0 with STE | Mode 2 with STE |
| 4 | Mode 0 with STE | Mode 2 with STE |
| 5 | Mode 0 with STE | Mode 0 with STE |
| 6 | Mode 0 with STE | Mode 0 with STE |
| 7 | Mode 0 with STE | Mode 0 with STE |
| 8 | Mode 0 with STE | Mode 0 with STE |
| 9 | Mode 0 with STE | Mode 0 with STE |
| 10 | Mode 0 with STE | Mode 1 with STE |
| 11 | Mode 0 with STE | Mode 0 with STE |
| 12 | Mode 0 with STE | Mode 0 with STE |
| 13 | Mode 0 with STE | Mode 0 with STE |
| Alt 1 | Mode 0 with STE | Mode 0 with STE |
| Alt 2 | Mode 0 with STE | Mode 0 with STE |
| Alt 3 | Mode 0 without STE | Mode 0 without STE |
| Alt 4 | Mode 0 without STE | Mode 0 without STE |
| ¹ To meet the nighttime limits and eliminate exceedances, it was determined that serrated trailing edges (STE) and/or noise reduced modes are necessary at some turbines. | | |

With the above daytime and nighttime operating modes implemented, minimal impacts are anticipated to nearby noise sensitive receptors. Detailed noise data and contour maps can be found in tables and appendices located within **Appendix I**.

2.5.11 Siemens Gamesa SG170 Wind Turbine

Note that octave band noise data at 31.5 Hz was not available to Westwood at the time of this analysis, and as such our compliance analysis excludes that band. Additionally, one-third octave

band data has not yet been provided; one-third octave band data is necessary to complete discrete tone analysis. The analysis herein should be considered preliminary, upon receipt of full noise data including third-octave band sound power levels and the 31.5 octave band sound levels we will update and complete our analysis accordingly.

The maximum sound level from the Project expected at a noise sensitive receptor is 46 dBA. County and State regulations include octave band noise limits and discrete tone limits set by the IPCB. Project levels do not exceed the octave band limits set forth in the Illinois Administrative Code. Minimal noise impacts are expected from Project operation.

The noise assessment concluded that, utilizing the daytime and nighttime operating modes listed in **Table 14**, all 420 receptors are modeled at or below the octave band noise level limits set forth in Illinois Administrative Code. **Table 14** below lists the necessary modes for each turbine.

Table 14: Daytime and Nighttime Siemens SG170 Turbine Modes

| Turbine ID | Daytime Mode¹ | Nighttime Mode¹ |
|---|---------------------------------|-----------------------------------|
| 1 | AM0 | AM0 |
| 2 | AM0 | N1 |
| 3 | AM0 | N1 |
| 4 | AM0 | N1 |
| 5 | AM0 | N1 |
| 6 | AM0 | N2 |
| 7 | AM0 | N1 |
| 8 | AM0 | AM0 |
| 9 | AM0 | N1 |
| 10 | AM0 | AM0 |
| 11 | AM0 | AM0 |
| 12 | AM0 | N2 |
| 13 | AM0 | AM0 |
| Alt 1 | AM0 | AM0 |
| Alt 2 | AM0 | AM0 |
| Alt 3 | AM0 | AM0 |
| Alt 4 | AM0 | AM0 |
| ¹ To meet the nighttime limits and eliminate exceedances, it was determined that noise reduced modes are necessary at some turbines. | | |

With the above daytime and nighttime operating modes implemented, minimal impacts are anticipated to nearby noise sensitive receptors. Detailed noise data and contour maps can be found in the tables and appendices located within **Appendix I**.

2.5.12 Shadow Flicker

Shadow flicker from wind turbines occurs when rotating wind turbine blades move between the sun and the observer. Shadow flicker is generally experienced in areas near wind turbines where the distance between the observer and wind turbine blade is short enough that sunlight has not been significantly diffused by the atmosphere. When the blades rotate, this shadow creates a pulsating effect, known as shadow flicker. If the blade's shadow is passing over the window of a building, it will have the effect of increasing and decreasing the light intensity in the room at a low frequency in the range of 0.4 to 0.78 Hertz (Hz), hence the term "flicker." This flickering effect can also be experienced outdoors, but the effect is typically less intense, and becomes less intense when farther from the wind turbine causing the flicker. This flickering effect is most noticeable within approximately 1,000 meters of the turbine and becomes more and more diffused as the distance increases.

Westwood conducted a shadow flicker impact analysis using windPRO software to model shadow flicker for the Project area (**Appendix J**). Based on the shadow flicker calculations, a Project-wide realistic shadow flicker map was produced and an evaluation of the shadow flicker at area residential dwellings was performed. Reductions based on turbine operational time, turbine operational direction, and sunshine probabilities were used to calculate a realistic number of hours of shadow flicker to be expected at each shadow receptor. No obstacles were used, so that shadow flicker reductions due to interference from trees and structures were not included, meaning that the "realistic" estimates are still conservative.

Neither the State of Illinois nor LaSalle County requires limits on shadow flicker, however, the IPCB states that any post-construction shadow flicker analysis should not exceed the shadow flicker modeling study results. The results from this analysis may be used for comparison with any future post-construction analysis to determine compliance. The generally accepted industry-standard limit is 30 cumulative hours per year per residence. The number of non-participating occupied residences registering more than 30 hours per year of shadow flicker from the Hickory Wind Project is 13, with a maximum exposure modeled at 68 hours and 37 minutes.

2.5.13 Nordex N163 Wind Turbine

Shadow flicker modeling was completed using the Nordex N163 turbine model with a 163 m rotor against 420 participating and nonparticipating residential dwellings (receptors). The shadow receptors used in this analysis were configured as greenhouse-mode receptors representing a 1 m x 1 m window located 1 m above ground level. This represents more of a "worst-case" scenario since it assumes that all windows are always in direct line of sight with the turbines and the sun.

The shadow flicker impact assessment for the identified receptors was calculated with reductions due to turbine operational direction and sunshine probabilities. Based on the provided turbine array presented in this Application, 407 of the shadow receptor locations modeled are expected to experience less than 30 hours/year of flickering. Thirteen (13) receptors are expected to register above 30 hours/year with the maximum exposure modeled at 68 hours and 37 minutes.

Table 15 summarizes the number of participating and non-participating receptors that experience realistic shadow flicker.

Table 15: Distribution of Realistic Nordex Shadow Flicker Hours Modeled at Occupied Structures

| Realistic Shadow Flicker (hrs/year) | # Receptors |
|--|--------------------|
| 0 | 223 |
| 0 to 5 | 73 |
| 5 to 10 | 79 |
| 10 to 15 | 8 |
| 15 to 20 | 10 |
| 20 to 25 | 6 |
| 25 to 30 | 8 |
| 30+ | 13 |

2.5.14 Shadow Flicker Mitigation for Nordex N163

Hickory will attempt to obtain agreements with the 13 participating landowners who are projected to exceed the 30 hours/year of shadow flicker. If Hickory is not able to obtain agreements, then Hickory would implement a program to curtail shadow flicker on the turbines, so they do not exceed the 30 hours/year of shadow flicker.

2.5.15 Siemens Gamesa GS170 Wind Turbine

Shadow flicker modeling was completed using the Siemens Gamesa SG170 turbine model with a 170 m rotor against 420 participating and nonparticipating residential dwellings (receptors). The shadow receptors used in this analysis were also configured as greenhouse-mode receptors.

The shadow flicker impact assessment for the identified receptors was calculated with reductions due to turbine operational direction and sunshine probabilities. Based on the provided turbine array presented in this Application, 401 receptors are expected to experience no more than 30 hours of shadow flicker per year, with 103 of those receptors modeled at no hours per year. Nineteen (19) receptors are expected to register above 30 hours/year with the maximum exposure modeled at 73 hours and 16 minutes.

Table 16 summarizes the number of participating and non-participating receptors that experience realistic shadow flicker.

**Table 16: Distribution of Realistic Siemens Gamesa Shadow Flicker Hours
Modeled at Occupied Structures**

| Realistic Shadow Flicker (hrs/year) | # Receptors |
|--|--------------------|
| 0 | 103 |
| 0 to 5 | 186 |
| 5 to 10 | 79 |
| 10 to 15 | 15 |
| 15 to 20 | 8 |
| 20 to 25 | 7 |
| 25 to 30 | 3 |
| 30+ | 19 |

2.5.16 Shadow Flicker Mitigation for Siemens Gamesa SG170

Hickory will attempt to obtain agreements with the 19 participating landowners who are projected to exceed the 30 hours/year of shadow flicker. If Hickory is not able to obtain agreements, then Hickory would implement a program to curtail shadow flicker on the turbines, so they do not exceed the 30 hours/year of shadow flicker.

2.5.17 Communications Infrastructure

Hickory contracted with Comsearch to assess potential interference with mobile phone communications, AM/FM radio broadcasts, internet, off-air television, the commercial doppler radar network, land mobile and emergency services, and microwave paths and Fresnel zones. The Comsearch reports are in **Appendix K**.

2.5.17.1 Microwave Networks

Microwave bands that may be affected by wind generating facilities operate over a wide frequency range (900 MHz – 23 GHz). A microwave study was conducted to determine the potential impact of the Project on licensed, proposed, and applied non-federal government microwave systems. The microwave study identified eight microwave paths that intersect the Project Area.

The Fresnel Zones and Consultation Zones for these microwave paths were calculated and mapped (see Figure 3 in the Comsearch Study). After completing a cross sectional analysis, Comsearch determined that only turbine (T-1) intersected the Fresnel Zone of one microwave path. Comsearch recommended moving the turbine at least 85 meters (279 feet). In response to the recommendation, Hickory moved T-1 approximately 435 feet northwest. As a result, very little, if any, obstruction to the identified microwave paths should occur when the wind turbines are installed. The Microwave Study is in **Appendix K**.

2.5.17.2 Land Mobile and Public Safety Facilities

Comsearch conducted an assessment of the emergency services in proximity to the Project Area to identify potential impacts from the proposed Project. The following first-responder registered frequencies were evaluated: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Industrial and business land mobile radio (LMR) systems and commercial E-911 operators within the Project Area were also identified.

Land mobile and emergency services data were derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. Comsearch identified site-based licenses and regional area-wide licenses designated for public safety use.

Two fixed land mobile sites were identified within the Project Area. The closest land mobile site is about 0.9 mile (1.4 kilometers) northeast of T-2. In addition to the two fixed-site licenses, 519 land mobile licenses defined by center point and radius were found to intersect the Project Area.

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the Project Area. The Project Area is located in Public Safety Region 13, which contains all of the counties in Illinois, except the greater Chicago metro area. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, two licenses were found for LaSalle County. These area-wide licenses are designated for mobile use only.

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Six mobile phone carriers were identified in LaSalle County (AT&T, DISH Network, MTCO Communications, T-Mobile, US Cellular, and Verizon).

First responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications are typically unaffected by the presence of wind turbines, and no impacts are anticipated to these services from the Project. Each of these networks is designed to operate reliably in a non-line-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells. Furthermore, the frequencies of operation for these services have characteristics that allow the signal to propagate through wind turbines. As a result, very little, if any, change in their coverage should occur when the wind turbines are installed. The Land Mobile & Emergency Services Report is in **Appendix K**.

2.5.17.3 Television Broadcast Facilities

An Off-Air TV Analysis was conducted by Comsearch to identify off-air stations whose service could be affected by the Project. All off-air stations within 150 kilometers (93 miles), which is within the distance most likely to provide off-air coverage within the Project vicinity. Comsearch

identified nine full-power digital stations with potential to have their reception disrupted in and around the Project Area. The areas primarily affected would include TV service locations within 10 kilometers (6 miles) of the turbines that have clear line-of-sight (LOS) to a proposed wind turbine but not to the respective station. After the wind turbines are installed, communities and homes in these locations may have degraded reception of these stations. This is due to multipath interference caused by signal scattering as TV signals are reflected by the rotating wind turbine blades and mast. While TV signals are reflected by wind turbines, which can cause multipath interference to the TV receiver, modern digital TV receivers have undergone significant improvements to mitigate the effects of signal scattering.

Hickory recognizes that some impacts to TV service within the Project Area may occur, but these impacts are likely to be minimal based on the findings of the Off-Air TV Analysis. The Applicant is committed to operating the facility in a manner that does not adversely impact television reception. Should issues arise following construction of the project, Hickory will work with the affected residents in a timely manner to determine the cause of the interference and establish acceptable reception. Cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbines. The Off-Air TV Analysis is provided in **Appendix K**.

2.5.17.4 AM and FM Facilities

Comsearch analyzed AM radio broadcast stations whose service could potentially be affected by the proposed Project. Seven AM stations were identified within approximately 30 kilometers, or 18.6 miles, of the Project Area, with the closest station being 3.3 kilometers (2 miles) north of the nearest turbine (T-1).

Comsearch analyzed FM radio broadcast stations whose service could potentially be affected by the proposed Project. Nineteen database records were identified within approximately 30 kilometers (18.6 miles) of the Project Area. All the stations are currently licensed and operating. Comsearch determined the closest FM station is WSOG, operating about 3.2 kilometers (2 miles) from the nearest turbine (A-1). Comsearch concluded the Project will not impact the licensed and operating AM and FM broadcast stations and no mitigation is required. The AM and FM Radio Report is provided in **Appendix K**.

2.5.17.5 NTIA Review

In addition to microwave and beam path evaluations, Westwood submitted a request for the National Telecommunications and Information Administration (NTIA). The NTIA provided the plans for the Project to the Interdepartmental Radio Advisor Committee (IRAC). The review process provides a 45-day period for agencies within IRAC to comment on the proposed project in regard to potential impacts the project may have on various radio communications. Members of IRAC include the Air Force, Army, Federal Aviation Administration, Dept. of Homeland Security, National Aeronautics and Space Administration, Dept. of State, and Dept. of Transportation among others. The request was submitted on December 12, 2022.

Since the initial request, the Project has been redesigned to include five additional potential turbine locations, from which up to 13 turbine sites will be selected for construction. An updated request was submitted to the NTIA on February 3, 2023 and the response will be provided to the County. See **Appendix K** for NTIA correspondence.

3.0 Site Plan

7.1-4(RR)(2). The site plan shall detail the planned locations of the project area boundaries (i.e., the property lines if the site is owned by the developer or the leased property lines if the site is leased), the turbines, roads, transformers, power lines, communication lines, interconnection points with transmission lines, and other ancillary facilities or structures, and must detail compliance with the following:

Section 7.1-4(RR)(2) of the Ordinance specifies that a site plan should be provided as part of the application and include the following items: location of project area boundary and property lines, wind turbines, roads, transformers, power lines, communication lines, interconnection points with transmission lines, and other ancillary facilities or structures. The site plan also includes existing structures, proposed structures, and setbacks. To avoid visual clutter on the Site Plan Layout, all applicable setbacks are shown as Developable Areas and includes setbacks from residences, property lines, public road rights-of-way, and other structures. The Site Plan Layout is provided in **Appendix E**.

3.1 Setback Requirements

7.1-4(RR)(2)(a). Distance shall be measured from the foundation at the base of the tower. A waiver of the setback requirement may be granted for little used public roads. A waiver of the setback requirement may be granted for a residence or structure of no less than 1.25 times the turbine height upon written consent of the property owner. A waiver of the setback requirement may also be granted for the property line of an adjoining property owner upon written consent of the property owner participating in the particular wind power facility being developed and who agrees to the waiver.

As shown in **Table 17**, the Project as proposed meets the county setback requirements. The Applicant does not anticipate requesting waivers from the county for the Project.

Table 17: Setbacks

| Object | County Setback Requirement | Proposed Project Setbacks |
|----------------------------------|----------------------------|---------------------------------|
| Residence | 1,200 feet | Minimum 1,200 feet |
| Property Line | 1.25 times its height | 1.25 times its height; 820 feet |
| Public Roads (from right-of-way) | 1.50 times its height | 1.50 times its height; 984 feet |
| Other Structures | 1.50 times its height | 1.50 times its height; 984 feet |

3.2 Noise Standards

7.1-4(RR)(2)(b). Noise levels shall be regulated by the Illinois Pollution Control Agency rules and regulations and applicant shall certify that applicant's facility is in compliance with said rules and regulations.

See Section 2.5.9 for a summary of the Noise assessment and **Appendix I** for the report.

3.3 Waste Management

3.3.1 Solid Waste

7.1-4(RR)(2)(c). Solid Waste. All solid waste, whether generated from supplies, equipment, parts, packaging, or operation of maintenance of the facility, including old parts and equipment, shall be removed from the site immediately and disposed of in an appropriate manner.

3.3.2 Hazardous Waste

7.1-4(RR)(2)(c). Hazardous Waste. All hazardous waste generated by the operation and maintenance of the facility, including but not limited to lubricating materials, shall be removed consistent with all local, state and federal rules and regulations.

The wind turbines use synthetic oil as a lubricant in the gearboxes and hydraulic fluid for the blade pitch actuators. Minimal amounts of hydraulic oil, lube oil, grease, antifreeze, and cleaning solvents will be used on the site to construct the wind turbines, and within equipment such as cranes, dump trucks, and graders. Materials will be transported, handled, and disposed of by trained and qualified personnel using established procedures, proper equipment, and in accordance with manufacturer's instructions. Other waste generated during construction will be disposed of regularly and properly.

In accordance with Ordinance Section 7.1-4(RR)(2)(c) the Applicant understands all hazardous waste generated by the operation and maintenance of the facility, including but not limited to lubricating materials, will be removed consistent with all local, state, and federal rules and regulations.

3.3.3 Other Hazardous Waste

A search for known environmental hazards and conditions was completed for this Project using the United States Environmental Protection Agency (USEPA) MyEnvironment (USEPA, 2022) and the Illinois Environmental Protection Agency (IEPA) Document Explorer (IEPA, 2022) online mapping programs. **Table 18** summarizes the sites within the Project Area.

Table 18: Recorded Facilities within the Project Area

| Site Name | Site ID | Source | Facility/Site Type |
|------------------------------------|--------------|--------|------------------------------------|
| LaSalle County Farm Supply | 110018354724 | USEPA | Stationary Source of Air Pollution |
| Frederick Farm | 110070361855 | USEPA | Stationary Source of Air Pollution |
| LaSalle County Farm Supply Company | 110018049333 | USEPA | Stationary Source of Air Pollution |
| Westclox | 110006403061 | USEPA | Hazardous Waste Generator |
| Ace Auto Salvage North Property | 110015336368 | USEPA | Brownfield |
| Fender Menders | 110018109508 | USEPA | Hazardous Waste Generator |
| Zellmer Truck Lines, Inc. | 170001569862 | IEPA | Leaking Underground Storage Tank |
| Winn Marcus | 0118035003 | IEPA | No documents |
| Fender Menders | 0990855020 | IEPA | No documents |
| Thompson | 0990700007 | IEPA | No documents |
| Limosa LLC Property | 0998095006 | IEPA | No documents |
| ComEd Streator TSS-61 | 0994905070 | IEPA | No documents |
| Osenkarski | 0990050001 | IEPA | No documents |
| McCarthy Improvement Center | 099809AAE | IEPA | Air Permit |
| LaSalle County Farm Supply Co | 099809AAA | IEPA | Air Permit |
| Frederick Farm | 099809AAJ | IEPA | Air Permit, Exempt |
| A&B Garage | 0110455017 | IEPA | No documents |
| Alleman Jr, Roy | 0998095003 | IEPA | No documents |
| McClains Valley Ford | 0111005041 | IEPA | No documents |
| Welbers Barry | 0118095010 | IEPA | No documents |

Project facilities will not impact listed sites within the Project Area.

3.4 Signage

7.1-4(RR)(2)(d). Signage regulations are to be consistent with ANSI and AWEA standards. Signs warning of high voltage shall be posted at the base of all pad mounted transformers and at substations.

Hickory and its contractors will use temporary and permanent warning signs during construction and operation of the Project to prevent unauthorized access to equipment and spaces. Signage will be consistent with ANSI and AWEA standards. The Owner's company name and/or logo, phone number, and the name of the emergency contact person will be placed upon that sign.

Additional signs will be placed on the tower at the height of five feet warning of electrical shock or high voltage, harm from revolving machinery, and the hazard of falling ice. The sign will be

mounted adjacent to the turbine door as specified and will include the Project name and a contact phone number.

Other external electrical equipment will be clearly marked with appropriate warning signs. Temporarily signage used during construction of the Project will be removed upon commercial operation.

3.5 Aesthetics

7.1-4RR(2)(e). The following items are recommended standards to mitigate visual impacts:

3.5.1 Coating and Coloring

7.1-4RR(2)(e)(i). Non-reflective, unobtrusive color. Black blades are acceptable for mitigation of icing.

All towers and blades will be painted a nonreflective, unobtrusive white color that mitigates the visual impact of the structure.

3.5.2 Signage

7.1-4RR(2)(e)(ii). Including anything in the tower or nacelle, shall comply with other county ordinances pertaining to signage.

Reasonably visible warning signs concerning voltage will be placed at the bases of all pad mounted transformers and substations.

3.5.3 Turbine Consistency

7.1-4RR(2)(e)(iii). To the extent feasible, the project shall consist of turbines of similar design and size, including tower height. Further, all turbines shall rotate in the same direction. Turbines shall also be consistent in color and direction with nearby facilities.

The Applicant will not permit advertisements to be placed on towers or blades. As shown in **Table 4**, all turbines will be of similar design and size and will rotate in the same clockwise direction. Turbines will also be consistent in color (nonreflective, unobtrusive white color).

3.5.4 Lighting

7.1-4RR(2)(e)(iv). Projects shall utilize minimal lighting. No tower lighting other than normal security lighting shall be permitted except as may be required by the FAA.

The FAA requires synchronized red lights from the project turbines since they are taller than 500 feet. Lighting on other support buildings and structures will be downward facing to reduce glare.

The Applicant submitted information for 12 turbine locations to the FAA for review on June 23, 2022. The FAA is currently conducting an aeronautical study for the 12 turbine locations at an elevation of 656 feet. The Applicant also plans to adhere to the FAA's requirements for marking and lighting turbines and will e-file FAA Form 7460-2 Notice of Actual Construction or Alteration for each turbine within five days after construction reaches its greatest height as required by the FAA Aeronautical Studies.

3.5.5 Intra-Project Power and Communication Lines

7.1-4RR(2)(e)(v). All power lines used to collect power from individual turbines and all communication lines shall reach the property line or a substation adjacent to the property line. All such lines must remain underground, until reaching the substation and/or grid lines.

As required by Section 7.1-4RR(2)(e)(v) of the Ordinance, all electrical collection lines used to collect power from individual turbines and all communication lines will remain underground until reaching the Project Substation.

3.6 Public Services and Roads

7.1-4(RR)(2)(f). Any proposed access roads that will be used for construction purposes shall be identified and approved by the Township Road Commissioner and the County Engineer prior to the granting of the Special Use permit. Any road damage repairs caused by the transport of the facility's equipment, the installation of same, or the removal of same, must be completed to the satisfaction of the Township Road Commissioner and the County Engineer. The Township Road Commissioner and County Engineer may choose to require either remediation of road repair upon completion of the project or are authorized to collect fees for oversized load permits. Further, a corporate surety bond, or other comparable security such as escrow fund or letter of credit, in an amount to be fixed by the Township Road Commissioner or the County Engineer may be required by the Township Road Commissioner or the County Engineer to ensure the township or the county that future repairs are completed to the satisfaction of the unit of local government.

In accordance with Section 7.1-4(RR)(2)(f) of the Ordinance, the Applicant has identified the roads to be used for the purpose of transporting and delivering Project components (**Exhibit 11**). The Applicant understands that approval by the Township Road Commissioner and the County Engineer is needed prior to granting the SUP.

The Project may require widening of some public road intersections to facilitate turbine delivery. When it becomes necessary to improve a public road during the Project, the Applicant will enter into Road Use Agreement(s) with the local road authority to comply with applicable regulations. Any road damage caused by transport of the Project's equipment will be repaired in coordination with the LaSalle County Highway Department and County Engineer. The Applicant will enter into road use agreements with townships where necessary. The Applicant will coordinate with the Village of Cedar Point to permit design underground collection lines in the right-of-way along County Road 54.

Overweight and oversize permits from relevant governing agencies will be acquired prior to Project construction. The equipment supplier and construction contractor will obtain overweight and oversize permits from the Illinois Department of Transportation, LaSalle County, and any townships that have this requirement.

Any road damage caused by transport of the Project's components will be repaired in coordination with the LaSalle County Highway Department and County Engineer. The Applicant understands a corporate surety bond, or other comparable security such as escrow fund or letter of credit, in an amount to be fixed by the Township Road Commissioner or the County Engineer may be required by the Township Road Commissioner or the County Engineer to ensure the township or the county that future repairs are completed to the satisfaction of the unit of local government.

3.7 Fire

7.1-4(RR)(2)(g). The following permit standards shall be followed to reduce risk of fire:

7.1-4(RR)(2)(g(i). Adherence to applicable electrical codes and standards.

7.1-4(RR)(2)(g(ii). Removal of fuel sources, like vegetation, from immediate vicinity of electrical gear and connections.

7.1-4(RR)(2)(g(iii). Utilization of twistable cables on turbines.

Construction of the Project will adhere to all applicable electrical codes and standards. Fuel sources located in the immediate vicinity of electrical gear and connections will be removed. Because internal turbine cables are manufacturer specific, the use of twistable cables on turbines is not known at this time.

3.8 Sewer and Water

7.1-4(RR)(2)(h). Any facility shall comply with existing septic and well regulations as required by the LaSalle County Health Department and the State of Illinois Department of Public Health.

Sanitary sewer and water systems will only be required for the O&M building. The source of water and sanitary sewer (or septic) for the O&M building will be identified when the final engineering plans are complete, and the location is selected. Hickory will work with the applicable regulatory agencies to obtain all necessary permits to construct sewer and water facilities, and will comply with septic and well regulations as required by the LaSalle County Health Department and the State of Illinois Department of Public Health.

During the construction and decommissioning phases for the Project, sanitary wastewater will be collected in portable facilities and periodically removed by a licensed hauler and disposed of to an Illinois permitted municipal wastewater treatment facility.

3.9 Topographic Map

7.1-4(RR)(2)(i). The topographic map shall include the project site and the surrounding area.

A topographic map showing the Project location and surrounding area is provided on **Exhibit 12**.

3.10 Engineer's Certificate

7.1-4(RR)(2)(j). The engineer's certificate shall be completed by a structural engineer registered in the State of Illinois and shall certify that the tower and foundation are compatible with the appropriate for the turbine to be installed and that the specific soils at the site can support the apparatus. All commercially installed wind turbines must utilize self-supporting, tubular towers. Smaller co-generators of 40 kilowatts or less, however, may use lattice construction towers, but must meet all other standards contained in this subsection RR.

All towers and foundations installed as part of the Project will be certified by a professional engineer. Following approval of the SUP, and during the final implementation stage of the Project, a professional engineer shall certify, as part of the building permit application, that foundations and towers were designed within accepted professional standards, given the local soil and climate conditions.

3.11 Certificate of Contracts

7.1-4(RR)(2)(k). Certificate shall detail power purchase contracts and power transmission contracts, or documentation that the power will be utilized on-site.

The Applicant will obtain and provide the county with all required certificate of contracts prior to operations.

3.12 Decommissioning Plan

7.1-4(RR)(2)(l). Decommissioning Plan.

Westwood completed a Decommissioning Plan in accordance with 7.1-4(RR)(2)(l) of the Zoning Ordinance and the Illinois Department of Agriculture's 2022 AIMA. Where the requirements of the Zoning Ordinance and AIMA differ, the more conservative guideline has been used.

Decommissioning of the wind farm will be initiated if the Facility is abandoned or has reached the end of the project life. The expected lifespan of the Project is 30 years. It is anticipated that the decommissioning activities for the project can be completed in 6 months.

Decommissioning will include the removal and transportation of all turbine components from the Facility site. Decommissioning will also include the removal of electrical components,

foundations, and any other associated facilities in the manner described in the Plan, unless otherwise agreed upon by Applicant and the applicable landowner(s). All dismantling, removal, recycling, and disposal of materials generated during decommissioning will comply with rules, regulations, and prevailing Federal, State, and local laws at the time decommissioning is initiated and will use approved local or regional disposal or recycling sites as available. Recyclable materials will be recycled to the furthest extent practicable. Non-recyclable materials will be disposed of in accordance with State and Federal law.

During decommissioning, erosion, and sediment control BMPs will be implemented to minimize potential for erosion of site soils and sedimentation of surface waters and waters of the State. Because decommissioning will entail disturbance of more than one acre of soil, the Applicant will prepare a SWPPP and obtain coverage under the state-specific National Pollutant Discharge Elimination System (NPDES) permit prior to initiating soil disturbing activities. Potential BMPs to be implemented during decommissioning activities are described below and will be subject to refinement in the SWPPP. The decommissioning team will review the permitting requirements at the time of decommissioning and obtain any other necessary permits.

Areas formerly used for agriculture shall be re-tilled to a farmable condition. In areas not to be used for crops, the topsoil will then be revegetated using seed mixes approved by the local Farm Service Agency, Soil and Water Conservation District, Natural Resource Conservation Service, or other state agency. The selected seed mix must be suitable for the site's annual precipitation and elevation. Temporary erosion protection such as nurse crop (annual grass to aid in establishment of permanent species), mulch, hydromulch, or erosion control blanket will be applied in accordance with the requirements of the project SWPPP until permanent vegetation has been established. The Decommissioning Plan is included in **Appendix L**.

3.13 Conditions for Special Use Permit

7.1-4RR: All Special Use permits issued under this subsection shall be conditioned on the following:

- i. Each applicant, or successor in interest, shall have applicant's facility inspected annually by qualified wind power professionals, approved by the Zoning Director, and shall submit a certificate from said professionals reciting the annual maintenance done on the facility and stating that the facility is in good working condition and not a hazard to the public. Failure to submit such annual certificate shall be grounds for revocation of the Special Use permit by the Zoning Director.*

The Applicant confirms.

- ii. Obtaining necessary access easements and necessary utility easements, copies of which shall be submitted to the Zoning Director.*

The Applicant confirms.

iii. No appurtenances shall be connected to any wind tower except in accordance with the LaSalle County Zoning Ordinance.

The Applicant confirms.

4.0 Standards for Special Use Permit

14.10-5. The following section lists the standards to be considered by the Zoning Board of Appeals in making their recommendation to the County Board regarding the approval or denial of SUP Applications, along with a response indicating how the Project and application have met each standard.

To grant a Special Use Permit, the County considers the standards outlined below. As described below, and as supplemented by the information contained within this Application the Project satisfies each of these standards.

- *Impair an adequate supply of light and air to adjacent property;*
- *Increase the hazard from fire or other dangers to said property;*
- *Diminish the value of land and buildings in the vicinity of the proposed Special Use;*
- *Unduly increase traffic congestion in the public streets and highways;*
- *Increase the potential for flood damages to adjacent property;*
- *Incur additional public expense for fire protection, rescue or relief; or*
- *Otherwise impair the public health, safety, comfort, morals or general welfare of the inhabitants of LaSalle County nor will it otherwise create a nuisance.*

The Project will not impair the supply of light or air on adjacent properties and will not increase the risk of fire or other dangers to properties within and adjacent to Project infrastructure. As discussed in Section 2.4, turbines will be in compliance with all applicable state and federal regulatory standards including the Uniform Building Code as adopted by the State of Illinois, the National Electrical Code as adopted by the State of Illinois, FAA requirements, EPA regulations, and any other statutory or regulatory requirements. The Project is not expected to substantially diminish property values within the vicinity. The Applicant will demonstrate through its property valuation expert that the value of residential properties located near wind energy turbines in LaSalle County and other similar counties in Illinois has not been diminished as a result of wind energy projects. The Applicant has contracted with CohnReznick to prepare a real estate property value impact report and will provide the report to the county when completed.

A traffic increase will likely occur twice a day during the work week (Monday through Friday) when construction workers are traveling to and from the Project. Construction delivery traffic will mostly occur daily during daylight hours. Traffic congestion will be minimal, and any traffic congestion will be managed, minimized, or mitigated. To the extent site conditions allow, delivery trucks will be offloaded at the laydown yard nearest to the point of use or trucked directly to the

point of use and temporarily staged to minimize double handling or adding to the amount of trucking. Signage will be installed to guide trucks to the appropriate roads after reviewing with local officials. Trucks will not be allowed to stage or block public roads. If trucks cannot exit the road in a timely fashion, they will be directed to a designated staging area. Major component deliveries will be required to stagger delivery times and dates, so the site teams are not overwhelmed with a surge of trucks at one time.

The Project is specifically designed to promote the public health, safety, comfort, and general welfare. It provides a domestic source of renewable electric generation that does not pollute the air or water, is not subject to the price volatility of fossil fuels and is not subject to the potential volatility inherent in reliance on foreign-controlled energy sources. Electricity is essential to all American life and the wind farm will help assure that electricity is readily available at a reasonable cost while protecting the environment. Cultivating electricity from the wind produces no carbon, sulfur, nitrogen, or mercury emissions and generates no radioactive waste. In addition, no water resources are required for wind-generated electricity.

The locations of wind turbines and related facilities have been carefully chosen to ensure compatibility with the environment and existing land uses in the area. Hickory its affiliates have engaged noted experts in the fields of mechanical and electrical engineering, environmental preservation, wildlife, noise, wetlands, real estate, and microwave broadcast/telecommunications, among others, to ensure that the Project will comply all applicable federal, state, and local laws and will provide benefits to the community and the environment. Hickory Wind has commissioned dozens of studies to ensure that the Project is compatible with this location and will not risk the local community, land, or wildlife. At the same time, the Project provides significant direct economic benefits to property owners, job holders and to the governmental entities that support the public health, safety and welfare including without limitation the Counties, Townships, Schools, police and fire departments. As indicated in this Application, the Project, from design to construction to operation and maintenance and even decommissioning, has been extensively planned to ensure the benefits to the community without being detrimental to or endangering the public health, safety, morals, comfort ,or general welfare.

5.0 Public Hearing

The Applicant understands the Zoning Board of Appeals will schedule a public hearing or meeting upon receipt of a properly completed Application. The hearing will be commenced no later than 60 days and will be concluded no later than 120 days following submission of the Application unless the agenda is completely committed during this time. The hearing notice will be provided to the Applicant, the Township Supervisor and Clerk of every township where the Project is located, all contiguous neighbors and all municipalities within 1.5 miles of the Project Area not less than 15 days prior to the hearing. A draft list of entities within the Project Area and within 1.5 miles of the Project Area is provided in **Appendix M**. Mailing labels will be created upon approval of this Application.

6.0 References Cited

- Aitken, J. 2022. Latest Proposed Wind Farm In La Salle County Moving Forward. Available online at: https://www.starvedrock.media/wlpo/latest-proposed-wind-farm-in-la-salle-county-moving-forward/article_fbe21ef8-odd6-11ed-8760-07f55cbe7feb.html
- Florida Museum of Natural History. 2014. Monarch Butterflies: Northern Great Plains. <https://www.floridamuseum.ufl.edu/wp-content/uploads/sites/37/2017/03/Monarch-Butterflies-Northern-Great-Plains-brochure.pdf>
- Google Earth. 2022. Parks/Recreation Areas.
- Illinois Department of Agriculture. 2022. Facts About Illinois Agriculture. Available online at: <https://www2.illinois.gov/sites/agr/About/Pages/Facts-About-Illinois-Agriculture.aspx>
- Illinois Department of Natural Resources. 2022a. Illinois Public Hunting Areas Map. Available online at: <https://www2.illinois.gov/dnr/hunting/Pages/PHAMap.aspx>.
- Illinois Department of Natural Resources. 2022b. Park Locations in Northwestern Illinois. Available online at: <https://www2.illinois.gov/dnr/Parks/Pages/Northwestern.aspx>.
- Illinois Department of Natural Resources. 2022c. Gray bat. <https://www2.illinois.gov/dnr/education/Pages/WAWMGrayBat.aspx>
- Illinois Department of Natural Resources. 2022d. Rare Visitors to Illinois: Cougar, Wolf, and Black Bear. <https://www.wildlifeillinois.org/sightings/large-carnivores/>
- Illinois Department of Transportation. 2022. Scenic Byways. Available online at: <https://idot.illinois.gov/travel-information/tourism/scenic-byways/index>.
- Illinois Environmental Protection Agency (IEPA). 2022 IEPA Document Explorer. Geographic Search. Available online at: <https://external.epa.illinois.gov/DocumentExplorer/>
- iNaturalist. no date. Explore: LaSalle County, Illinois Observations. Web application. https://www.inaturalist.org/observations?place_id=107075&view=species
- Interagency Wild and Scenic Rivers Coordinating Council. 2022. National Wild and Scenic Rivers System. Available online at: <https://www.rivers.gov/illinois.php>
- LaSalle County. 2020. LaSalle County Zoning Map 2020. Available online at: <https://lasallecountyil.gov/wp-content/uploads/2021/05/2020-Zoning-Map.pdf>.
- LaSalle County. 2022a. LaSalle County GIS Hub. Zoning Districts. Available online at: <https://gis-lasallecoil.opendata.arcgis.com/>.
- LaSalle County. 2022b. LaSalle County Zoning Ordinance. Ordinance #22-53 amended May 12, 2022. Available online at: <https://lasallecountyil.gov/wp-content/uploads/2022/05/2022-revision-LaSalle-County-Zoning-Ordinance.pdf>.
- LaSalle County. 2022c. LaSalle County Zoning Viewer. Available online at: <https://lasallecoil.maps.arcgis.com/apps/webappviewer/index.html?id=99c9ec24cd1140d28acofed3f93f94c>.

- LaSalle County. 2022d. LaSalle County Ag Areas Map. Available online at: <https://lasallemountyil.gov/ag-areas/>
- Loeb, S.C. and E.A. Winters. 2013. Indiana bat summer maternity distribution: effect of current and future climates. *Ecology and Evolution* 3:103-114.
- National Conservation Easement Database. 2022. NCED Mapping Application. Available online at: <https://site.tplgis.org/NCED/interactivemap/>.
- Natural Resources Conservation Service. 2009. Illinois Suite of Maps. Available at: <https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/illinois/illinois-suite-of-maps#productivity>
- Schnitkey, G. 2017. "Determining the Average Cash Rent Based on Productivity Index." *farmdoc daily* (7):205, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign. Available at: <https://farmdocdaily.illinois.edu/2017/11/determining-average-cash-rent-productivity-index.html>
- Soil Survey Staff, NRCS, USDA. 2019. Web Soil Survey for LaSalle County, Illinois. Version 8, September 16, 2019. Available online at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>
- Stantec Consulting Services, Inc. 2022. Avian Use Surveys, Hickory Wind Farm, LaSalle County, Illinois. December 1, 2022. Prepared for UKA North America, LLC.
- Stantec Consulting Services, Inc. 2022. Bat Acoustic Analysis - 2021 Summary, Granville Wind Farm, LaSalle County, Illinois. February 7, 2022 memo to Denis Onwualu, UKA North America, LLC, Stuart, Florida.
- University of Illinois. 2022. Soil Productivity Index Ratings for Illinois Soils. Available online at: <http://soilproductivity.nres.illinois.edu/>
- U.S. Department of Agriculture, National Agricultural Statistics Service. 2021. CropScape – Cropland Data Layer. Available online at: <https://nassgeodata.gmu.edu/CropScape/>.
- U.S. Environmental Protection Agency (USEPA). 2022. MyEnvironment. Available online at: <https://enviro.epa.gov/myenvironment/>
- U.S. Fish and Wildlife Service. no date-a. Northern long-eared bat. <https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>
- U.S. Fish and Wildlife Service. no date-b. Indiana Bat. <https://www.fws.gov/species/indiana-bat-myotis-sodalis>
- U.S. Fish & Wildlife Service. 2013. Eagle Conservation Plan Guidance. Module 1 - Land-based Wind Energy. Version 2. Division of Migratory Bird Management. Available at: <https://www.fws.gov/guidance/sites/guidance/files/documents/eagleconservationplanguuidance.pdf>
- U.S. Fish and Wildlife Service. 2018. National Wetlands Inventory. Available at: <https://data.nal.usda.gov/dataset/national-wetlands-inventory>

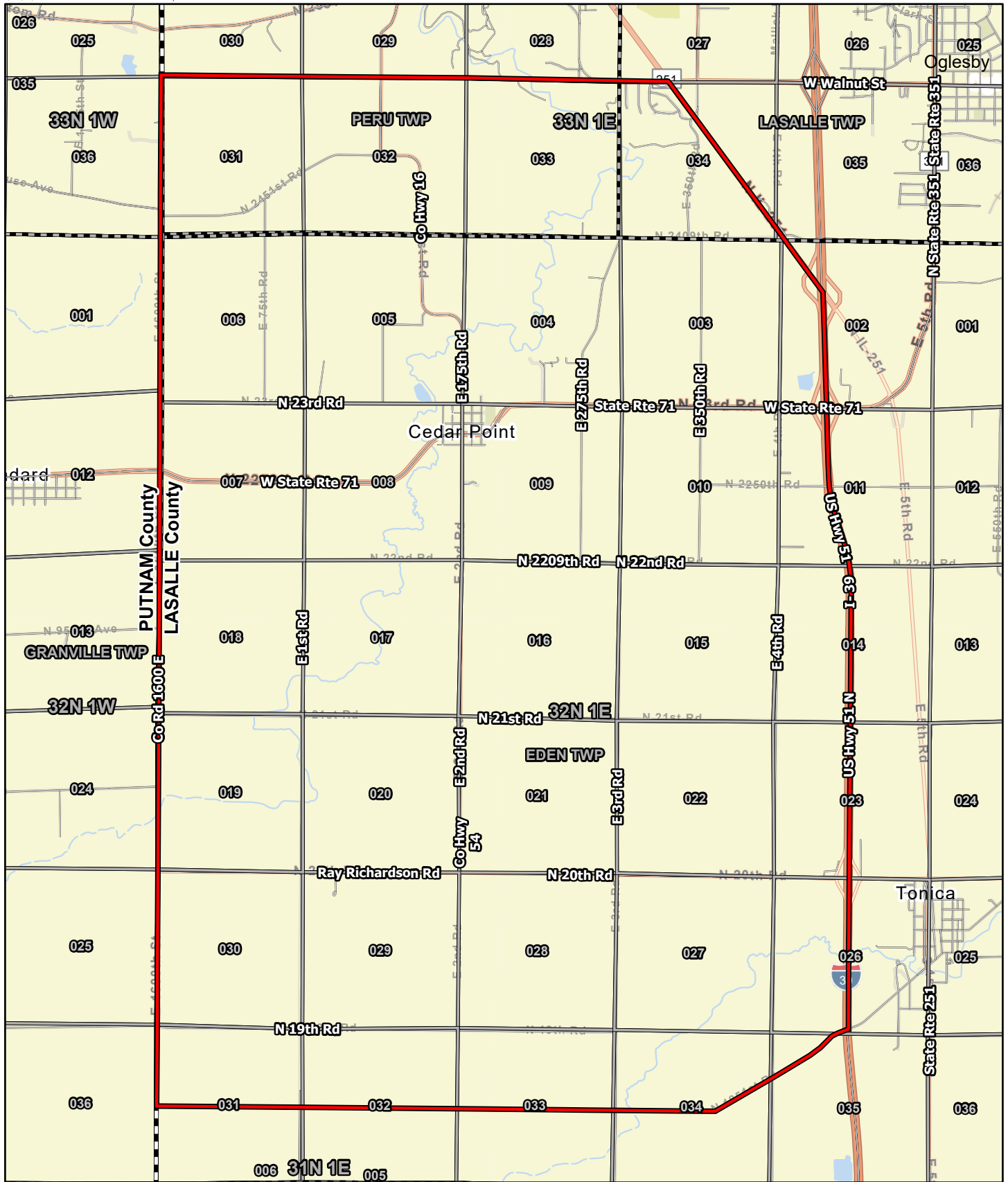
- U.S. Fish and Wildlife Service. 2020. Decurrent false aster (*Boltonia decurrens*).
<https://ecos.fws.gov/ecp/species/7705>
- US. Fish and Wildlife Service. 2021. Eastern Prairie Fringed Orchid (*Platanthera leucophaea*).
<https://ecos.fws.gov/ecp/species/601>
- US. Fish and Wildlife Service. 2022a. Information for Planning and Consultation for Hickory Wind Project. Accessed December 2022.
- US. Fish and Wildlife Service. 2022b. Critical Habitat for Threatened & Endangered Species. Web map. Last modified December 2, 2022.
<https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>.
- U.S. Fish and Wildlife Service. 2022c. Monarch Butterfly (*Danaus plexippus*).
<https://ecos.fws.gov/ecp/species/9743>
- U.S. Geological Survey. 2004. National Hydrography Dataset. Available online at:
<https://www.usgs.gov/national-hydrography/access-national-hydrography-products>
- U.S. Geological Survey. 2022. PAD-US 3.0 Download data by State Geodatabase. Available online at: <https://www.sciencebase.gov/catalog/item/622262ded34ee0c6b38b6bd3>.

Exhibits

Hickory Wind Project

LaSalle County, Illinois

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Data Source(s): Westwood (2023); ESRI WMS World Streets Basemap (Accessed 2022), U.S. Census Bureau (2022).

Legend

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

- Project Area
- County Boundary
- Township Boundary

- Section Boundary
- Road

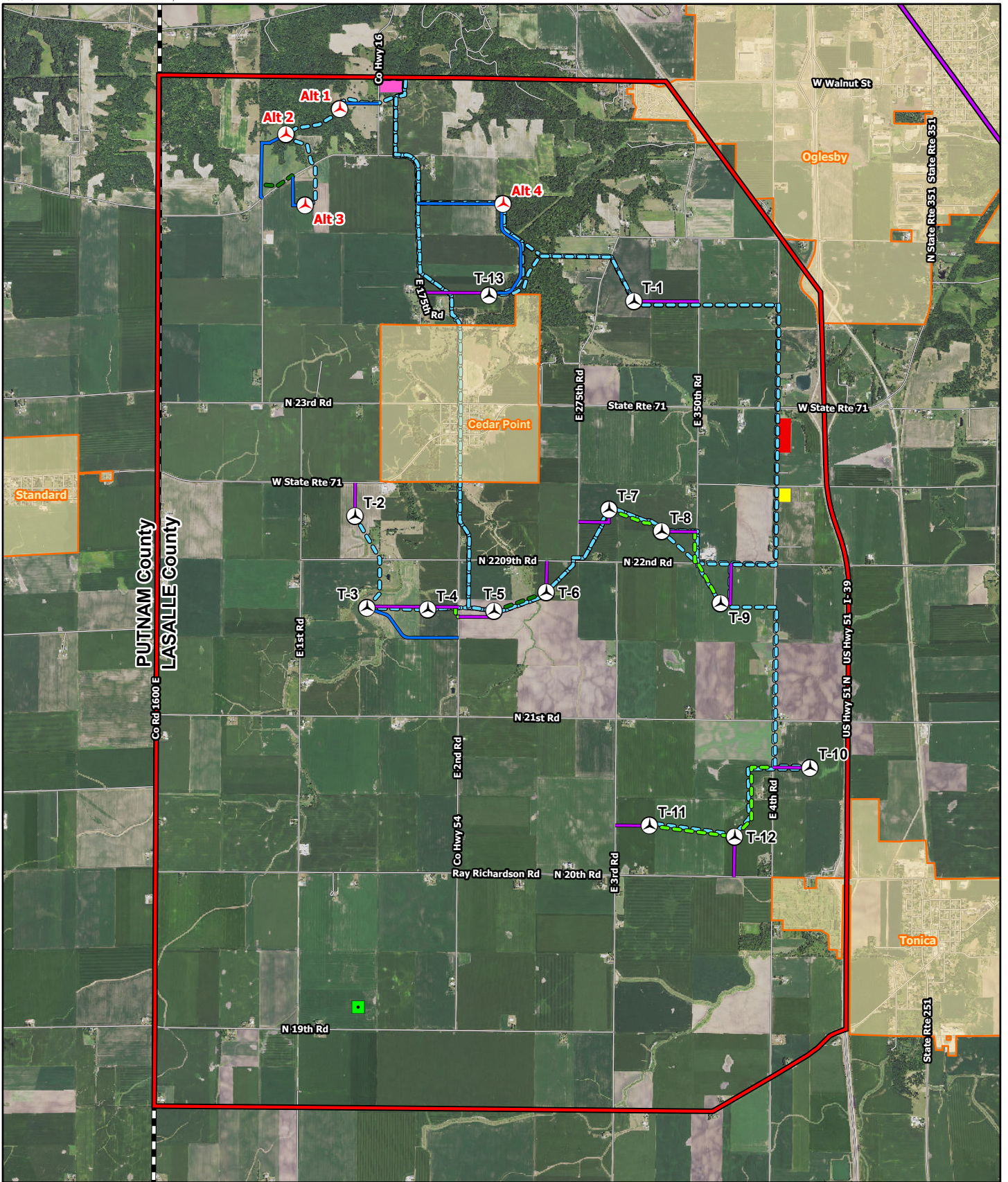


Hickory Wind Farm Project

LaSalle County, Illinois

Project Location

EXHIBIT 1



Data Source(s): Westwood (2023); ESRI WMS World Streets Basemap (Accessed 2022), U.S. Census Bureau (2022).

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- | | | |
|--------------------|-------------------------|------------------------|
| Project Area | Collection Line | Crane Path - Alternate |
| County Boundary | Access Road - Primary | Proposed Substation |
| Municipal Boundary | Access Road - Alternate | O&M Facility |
| Primary Turbine | Crane Path - Primary | Laydown Yard |
| Alternate Turbine | | Road |
| MET Tower | | |

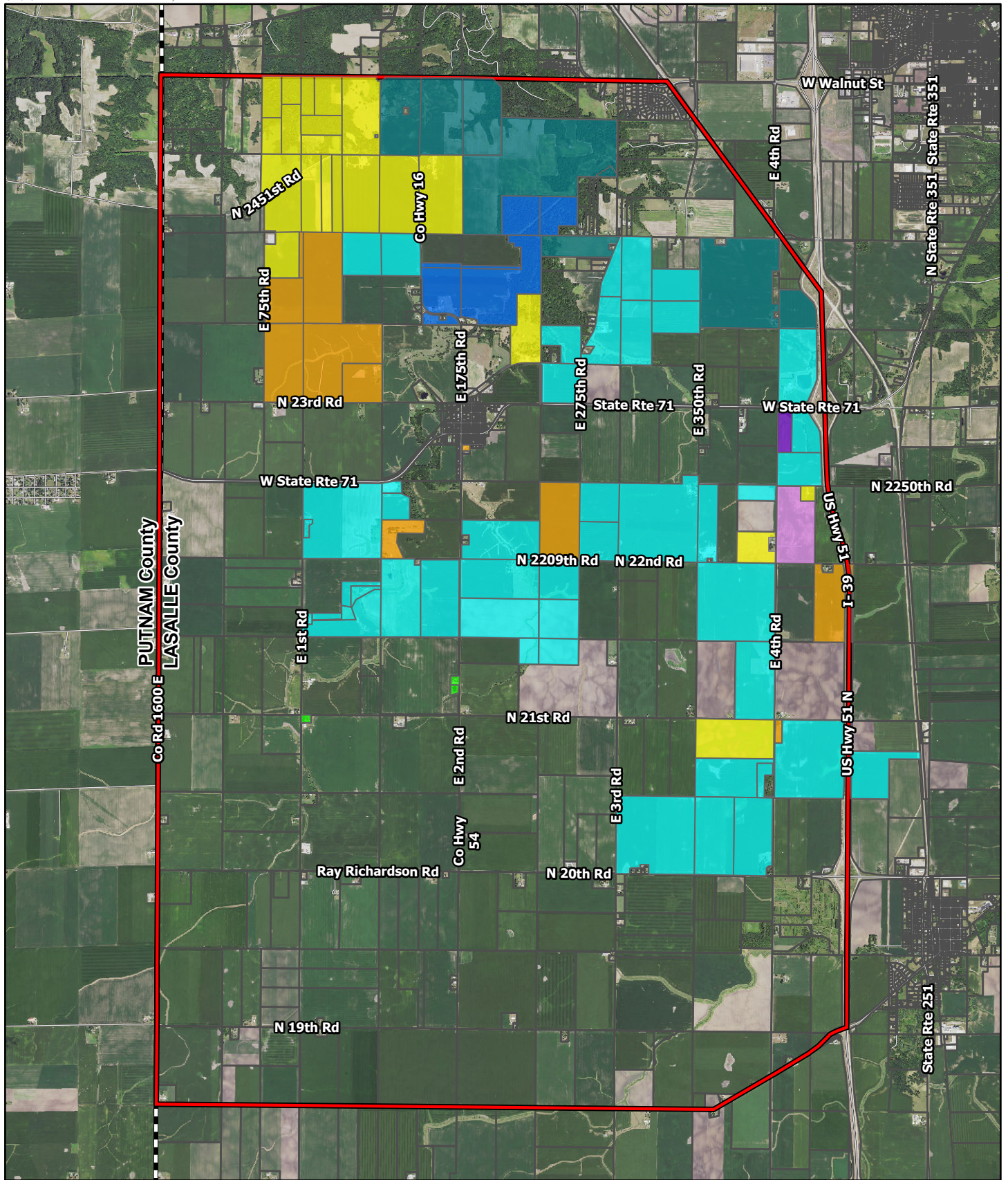
Hickory Wind Farm Project

LaSalle County, Illinois

Preliminary
Site Layout



EXHIBIT 2



Data Source(s): Westwood (2023); ESRI WMS World Streets Basemap (Accessed 2022), U.S. Census Bureau (2022).

Legend

- | | |
|------------------------------|----------------------|
| Project Area | Neighbor Agreement |
| County Boundary | Owned |
| Easement | Under Negotiation |
| Easement; Neighbor Agreement | Wind Lease |
| Lay down yard easement | Wind Lease; Easement |

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

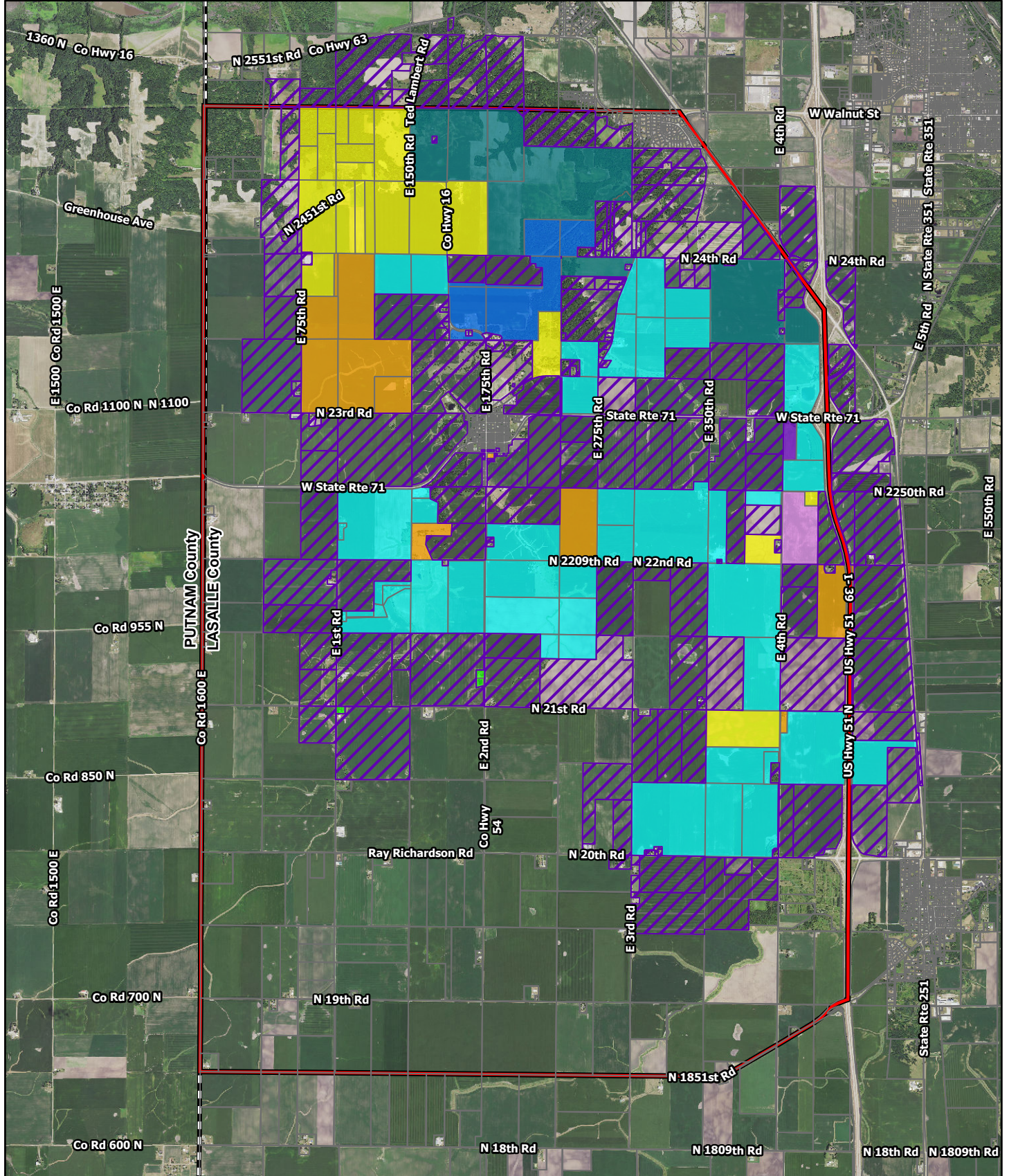
Hickory Wind Farm Project

LaSalle County, Illinois

Landowners and
Parcel Status



EXHIBIT 3



Data Source(s): Westwood (2023); NAIP (2019), Acres Land Parcel website (2022), LaSalle County GIS (2022), U.S. Census Bureau (2022).

Legend

- Project Area
- County Boundary
- Easement
- Easement; Neighbor Agreement

- Lay down yard easement
- Neighbor Agreement
- Owned
- Under Negotiation

- Wind Lease
- Wind Lease; Easement
- Adjacent Parcel

0 4,800 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

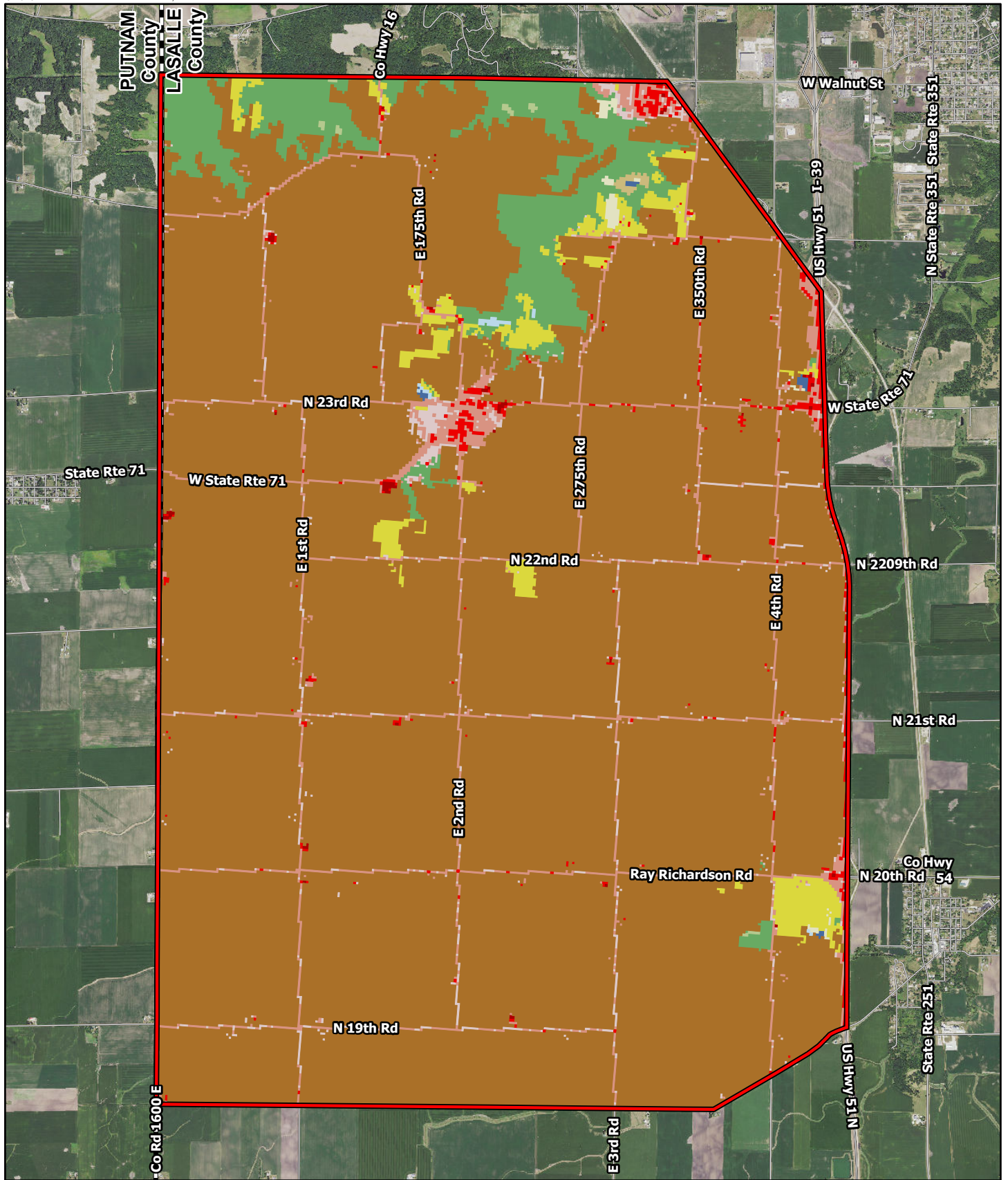
Hickory Wind Farm Project

LaSalle County, Illinois

Adjacent
Landowners



EXHIBIT 4



Data Source(s): Westwood (2023); NAIP (2019),
NLCD (2019), U.S. Census Bureau (2022).

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- County Boundary
- Road

NLCD Land Classification

- Cultivated Crops

- Deciduous Forest
- Developed, High Intensity
- Developed, Low Intensity

- Developed, Medium Intensity
- Developed, Open Space
- Grassland/Herbaceous
- Mixed Forest

- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

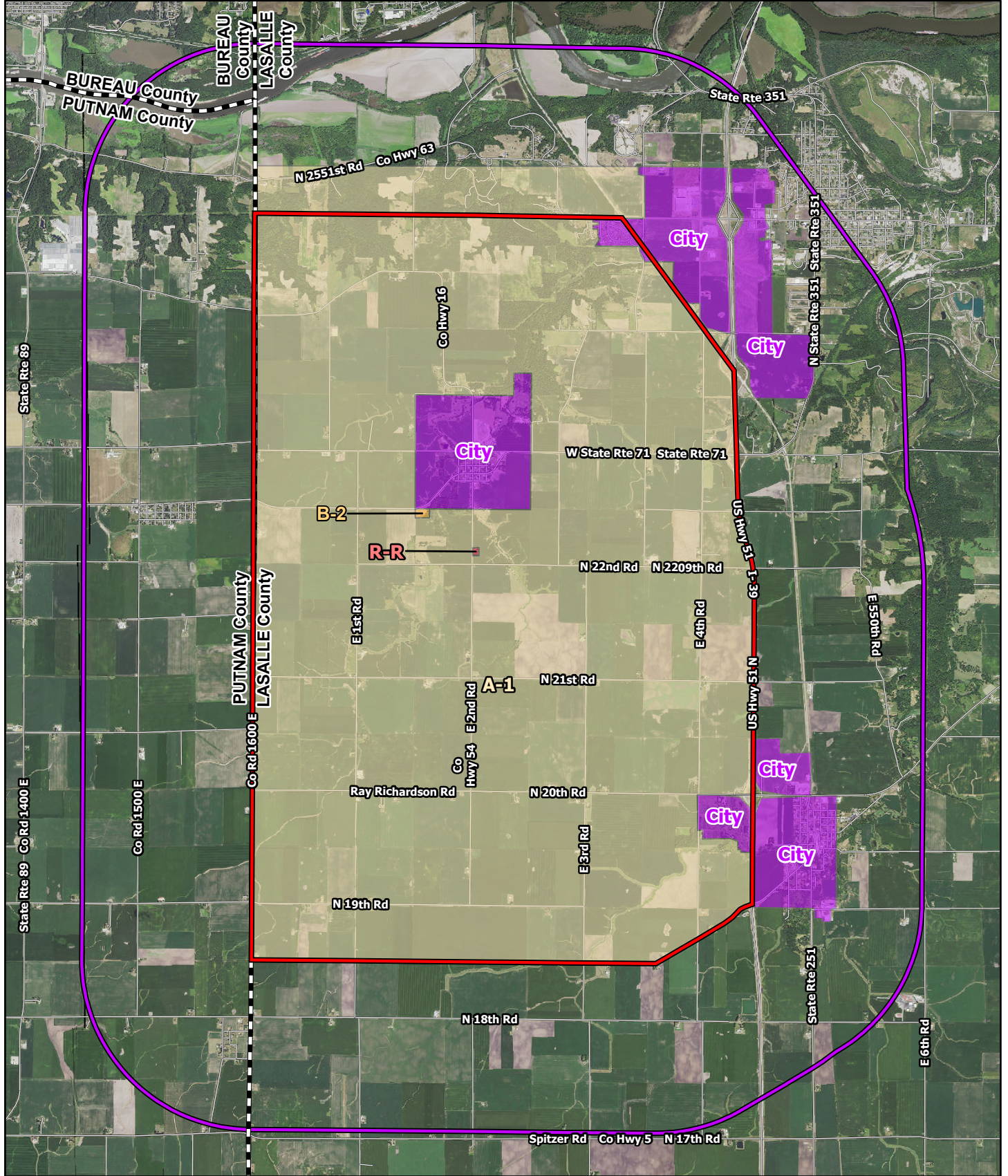
Hickory Wind Farm Project

LaSalle County, Illinois

Land Cover



EXHIBIT 5



Data Source(s): Westwood (2023); NAIP (2019), LaSalle County (2022), U.S. Census Bureau (2022).

0 6,200 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- 1.5 Mile Buffer
- County Boundary
- A-1
- B-2
- City
- R-R
- Road

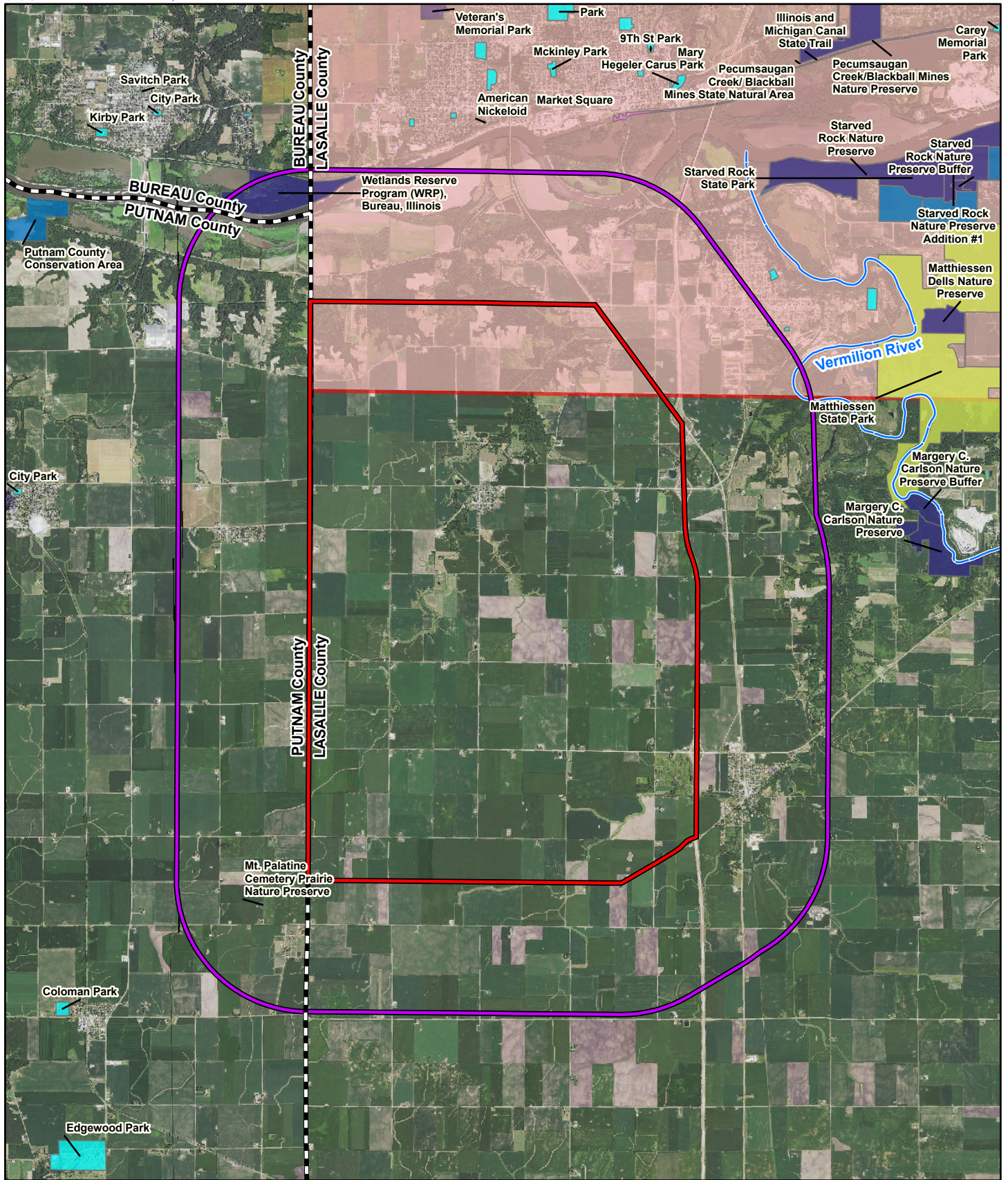
Hickory Wind Farm Project

LaSalle County, Illinois



Current Zoning

EXHIBIT 6



Data Source(s): Westwood (2023); NAIP (2019), PADUS (2022); U.S. Census Bureau (2022).

0 8,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- 1.5 Mile Buffer
- County Boundary
- Conservation Easement
- Local Park

- Local Recreation Area
- State Conservation Area
- State Park
- Unknown

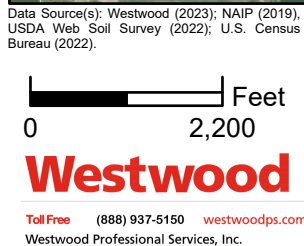
- Illinois and Michigan Canal National Heritage Corridor
- NHD Flowline
- Road




Hickory Wind Farm Project

LaSalle County, Illinois

Public and
Managed Lands

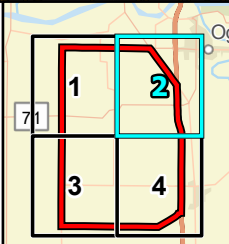
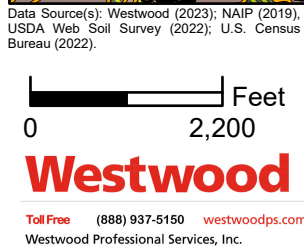




 Project Area
 County Boundary
 Soil Unit Boundary

Soils Map Book

EXHIBIT 8: Page 1



 Project Area

 County Boundary

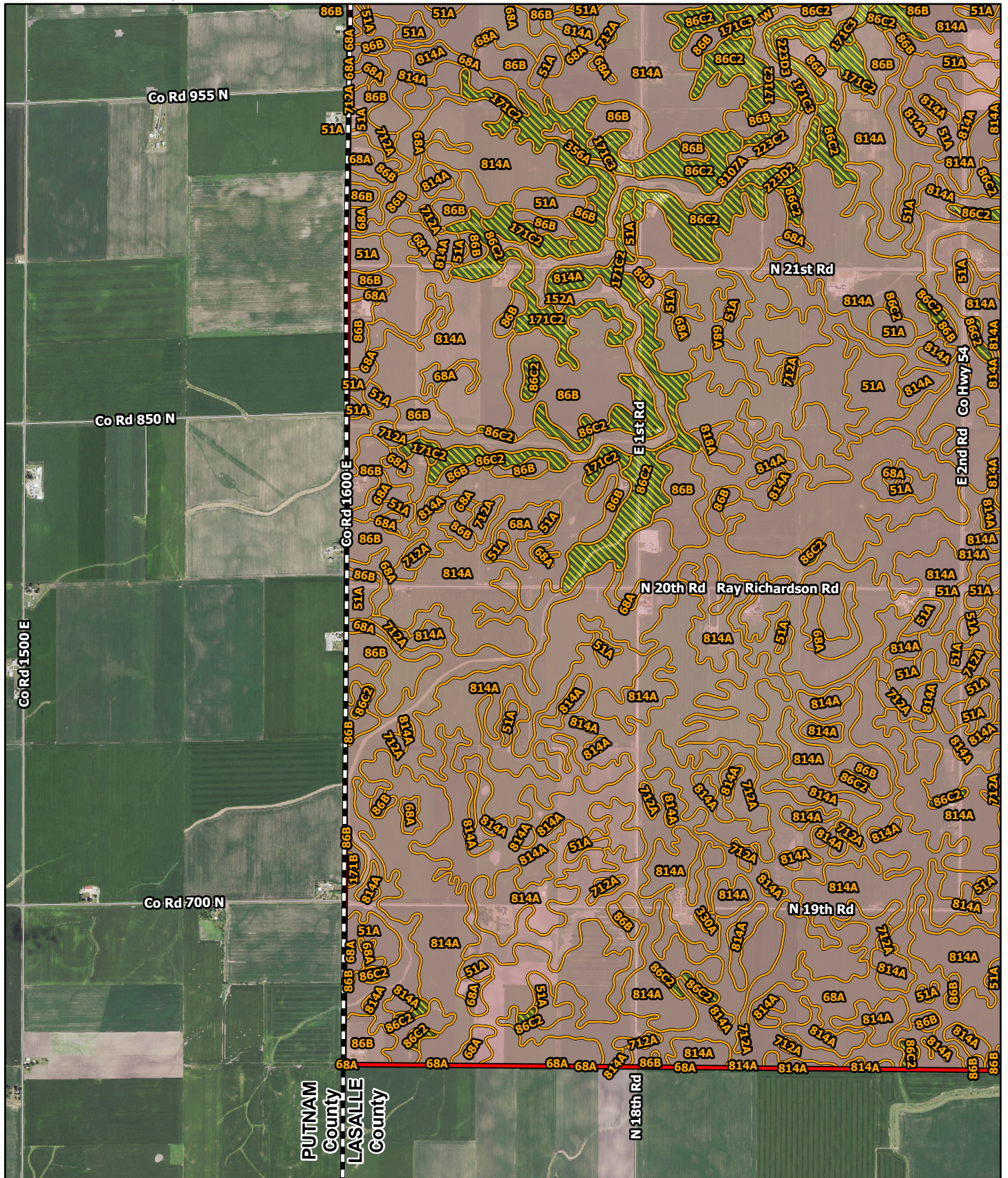
 Soil Unit Boundary

LaSalle County, Illinois

Soils Map Book

EXHIBIT 8: Page 2



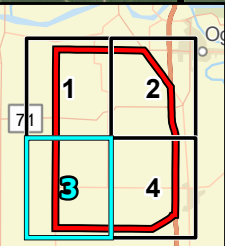


Data Source(s): Westwood (2023); NAIP (2019), USDA Web Soil Survey (2022); U.S. Census Bureau (2022).

0 2,200 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- County Boundary
- Soil Unit Boundary

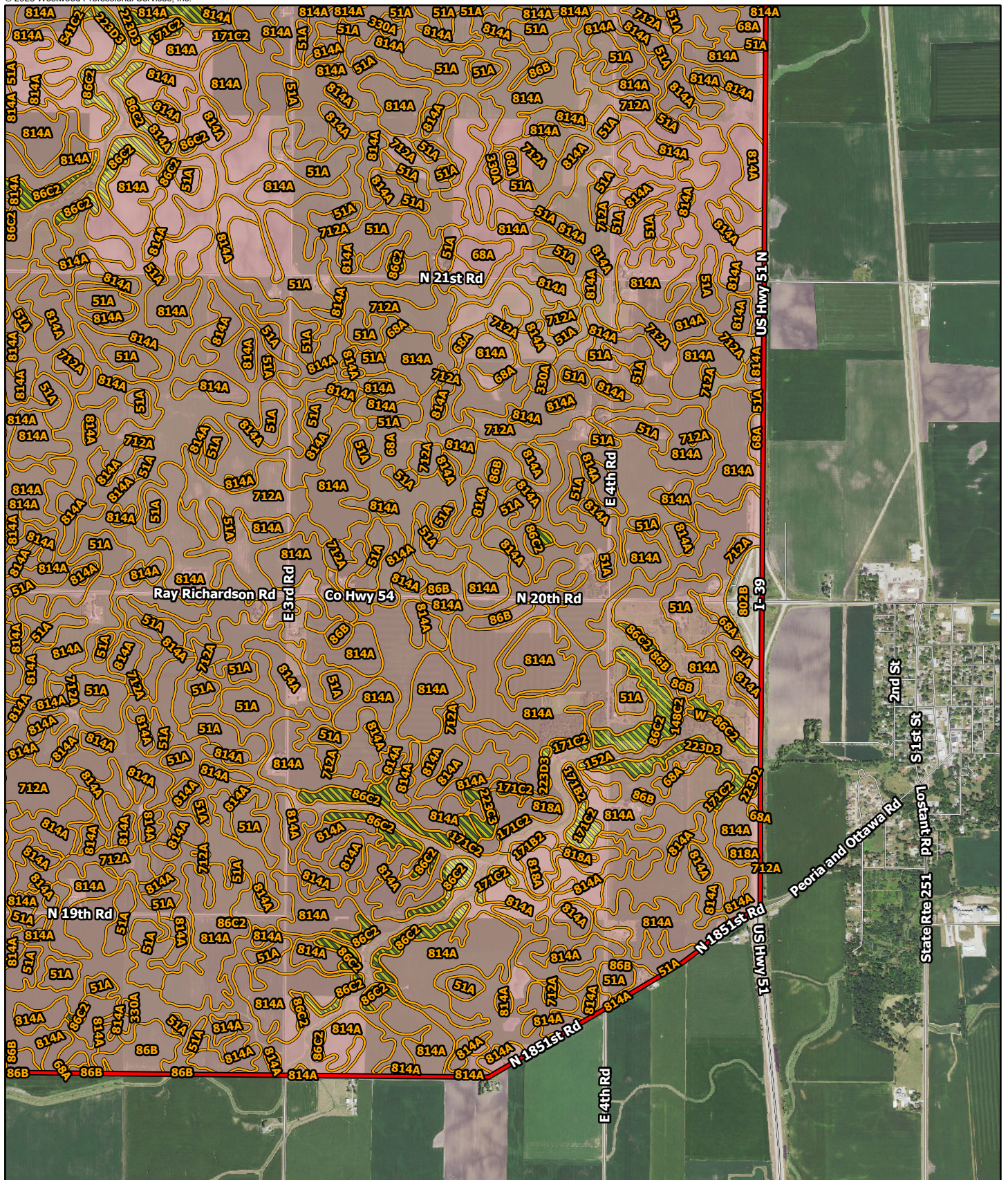
- Farmland of statewide importance
- Prime Farmland
- Road

Hickory Wind Farm Project

LaSalle County, Illinois

Soils Map Book



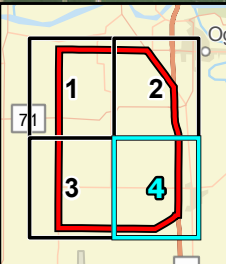


Data Source(s): Westwood (2023); NAIP (2019), USDA Web Soil Survey (2022); U.S. Census Bureau (2022).

0 2,200 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- County Boundary
- Soil Unit Boundary

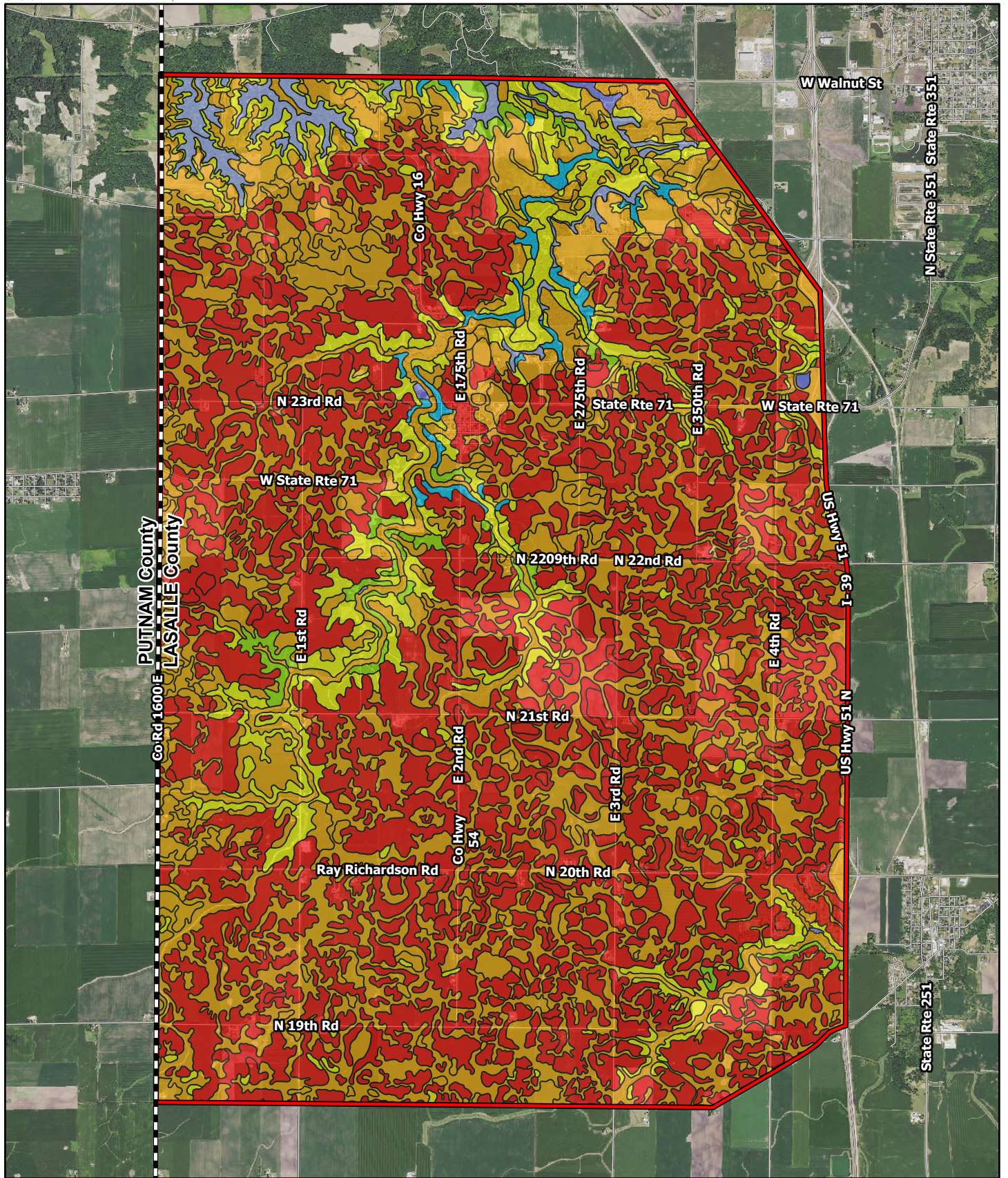
- Farmland of statewide importance
- Prime Farmland
- Road

Hickory Wind Farm Project

LaSalle County, Illinois

Soils Map Book





Data Source(s): Westwood (2023); NAIP (2019), USDA Web Soil Survey (2022); U.S. Census Bureau (2022).

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- County Boundary
- Road
- Soil Unit Boundary

Non-Irrigated Capability Class

- 1
- 2
- 3

- 4
- 6
- 7
- 8

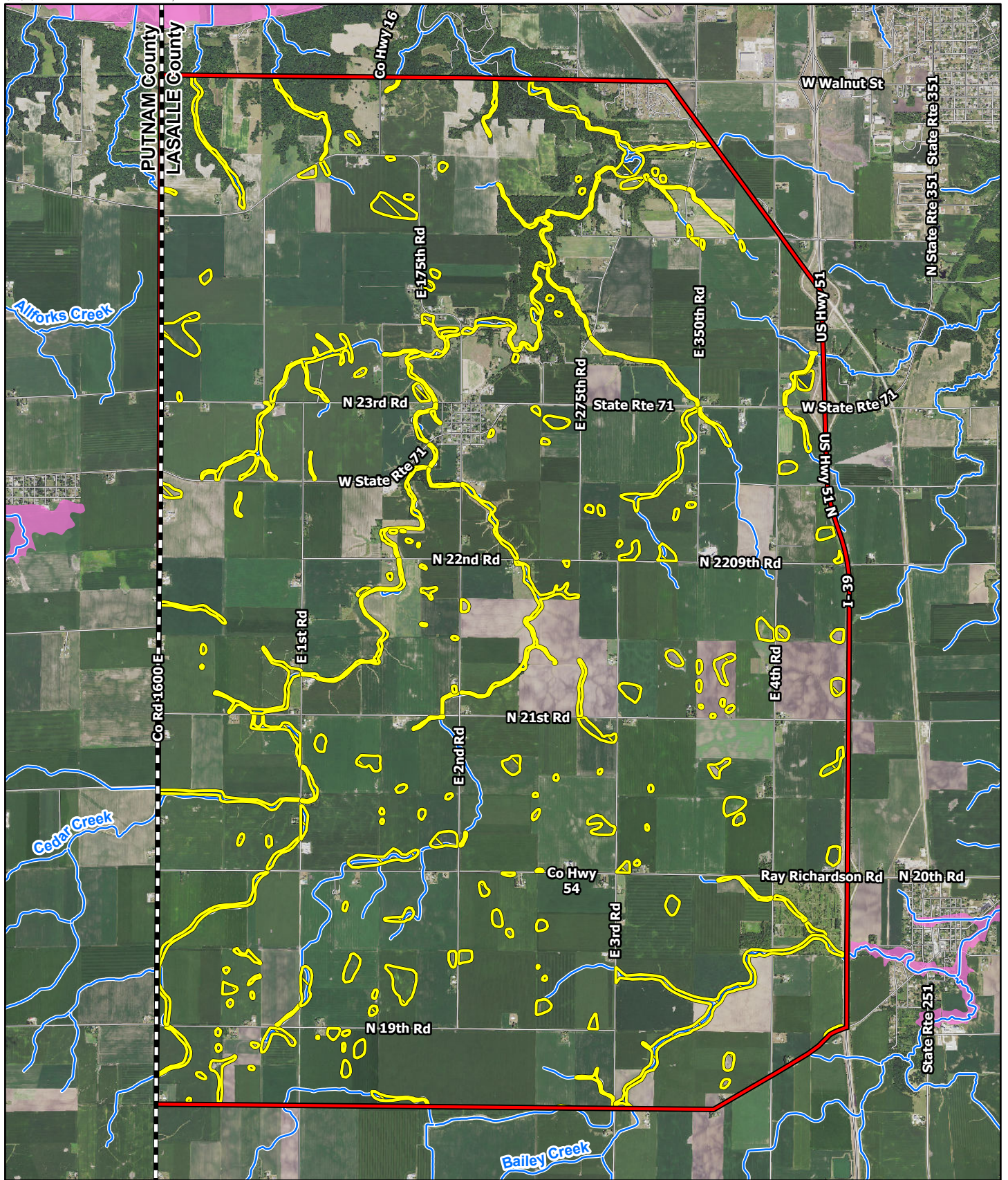


Hickory Wind Farm Project

LaSalle County, Illinois

Non-Irrigated
Capability Classification

EXHIBIT 9



Data Source(s): Westwood (2023); NAIP (2019), NHD (2022), FEMA (2022); U.S. Census Bureau (2022).

Legend

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

- Project Area
- County Boundary
- Desktop Wetland

- 100 Year Floodplain
- NHD Flowline
- Road

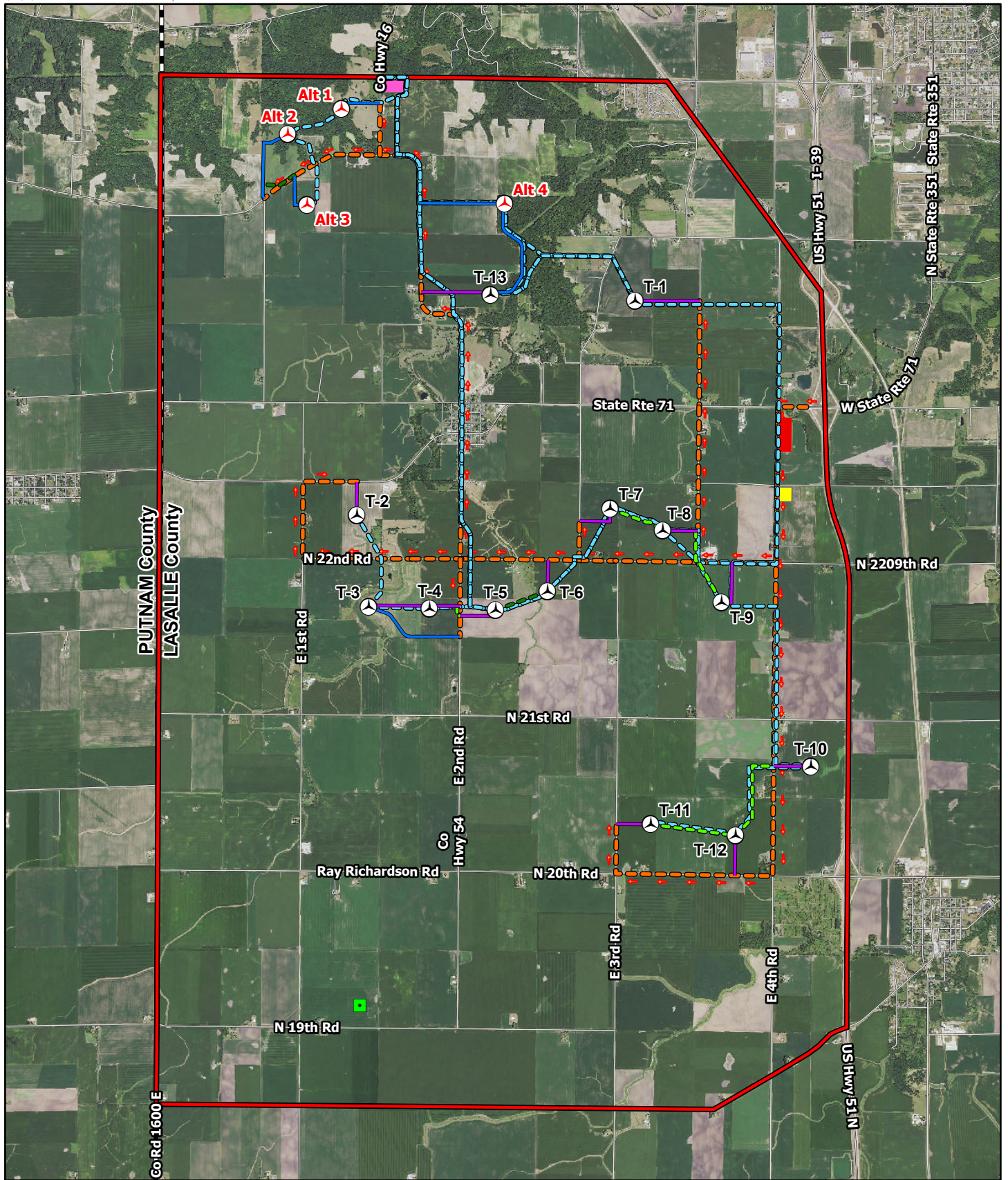


Hickory Wind Farm Project

LaSalle County, Illinois

Surface
Water Resources

EXHIBIT 10



Data Source(s): Westwood (2023); NAIP (2019); U.S. Census Bureau (2022).

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

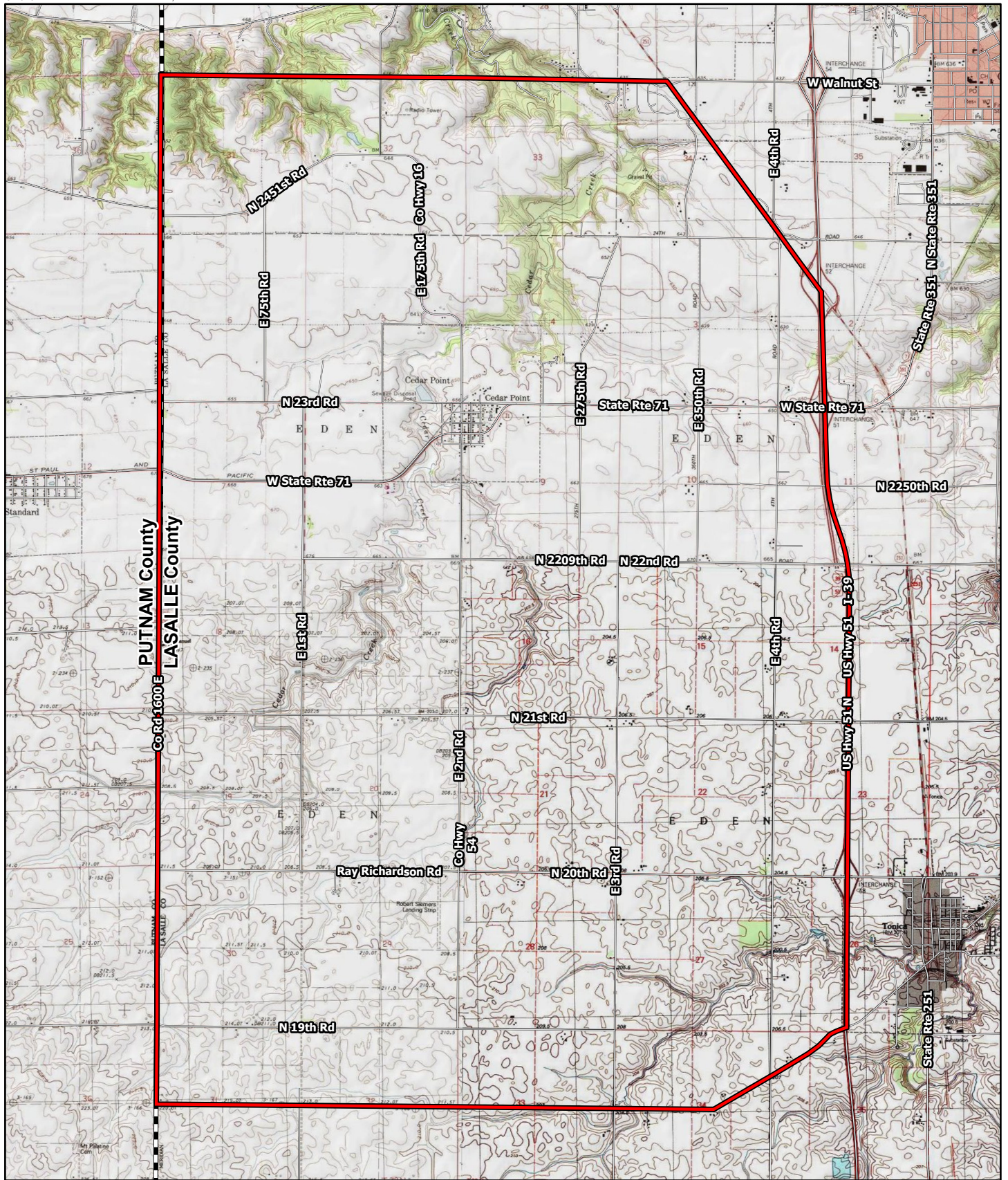
- Project Area
- County Boundary
- Primary Turbine
- Alternate Turbine
- MET Tower
- Collection Line
- Access Road - Primary
- Access Road - Alternate
- Crane Path - Primary
- Crane Path - Alternate
- Proposed Substation
- O&M Facility
- Delivery Flow
- Haul Route
- Road

Hickory Wind Farm Project

LaSalle County, Illinois

Haul Routes & Access Roads





Data Source(s): Westwood (2023); ESRI WMS
USGS Topography Basemap (Accessed 2022),
U.S. Census Bureau (2022).

Legend

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

- Project Area
- County Boundary
- Road

Hickory Wind Farm Project

LaSalle County, Illinois



Topographic Map

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Appendix A

Special Use Application Form

Hickory Wind Project
LaSalle County, Illinois

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LaSalle County
Land Use Department
119 W Madison St., Room 107, Ottawa, IL 61350

T. 815.434.8666
F. 815.433.9303
E. landuse@lasallecounty.org

ZONING SPECIAL USE APPLICATION

Date of Application: 1/16/2023

For Office Use
Application # _____
Application Fee: _____
\$300.00 for first 2 acres
\$100.00 for each additional acre
* Publications, EcoCAT, and NR/LESA costs
are the responsibility of the applicant and
must be paid prior to the County Board vote.

Contact Information:

Property Owner Name(s): _____ Property Address: _____

Applicant's Name if Different: Hickory Wind LLC Address: 1002 SE Monterey Commons Blvd., Suite 300, Stuart, FL 34996

Phone Number: (561) 264 - 8670 Cell Number: (561) 631 - 5464 Email: denis.onwualu@uka-group.com

Township: _____ Property Pin Number(s): _____

Agent/Attorney Name: Denis Onwualu Agent/Attorney Firm: UKA North America LLC

Agent/Attorney Phone Number: (561) 264 - 8670 Email: denis.onwualu@uka-group.com

Has any other Governmental Body denied a Zoning Change for this property? ☐ Yes ☒ No
If Yes, Please Explain: _____

Current Zoning of Property: ☒ A-1 Agriculture ☐ I-1 Industrial
☐ A-C Conservation ☐ R-2 Single Family Residential
☐ B-1 Local Business ☐ R-3 General Residence
☐ B-2 General Business ☐ R-R Rural Residence

Requested Special Use for Property: Wind power facilities and substation

Ordinance Reference for Special Use: 7.1-4(RR)

Current Zoning and Land Uses of Adjoining Property:

| | Zoning (Zoning Map Designation) | Land Use (Current Use of Property) |
|-------|------------------------------------|--|
| | (A-1, R-R, B-2, etc.) | (Farm, Single Family House, Factory, etc.) |
| North | A-1, R-R, B-2 | Farm; Single Family; Ag Business |
| South | A-1, R-R, B-2 | Farm; Single Family; Ag Business |
| East | A-1, R-R, B-2 | Farm; Single Family; Ag Business |
| West | A-1, R-R, B-2 | Farm; Single Family; Ag Business |

Natural Resource Inventory-Land Evaluation and Site Assessment

In accordance with Section 14.5 of the LaSalle County Zoning Ordinance: "The Zoning Board of Appeals shall utilize the LESA system when deciding on issues of the conversion of agricultural uses to nonagricultural uses through requests for a Zoning Amendment or Special Use."

The Land Evaluation and Site Assessment scores must be prepared by the LaSalle County Soil and Water Conservation District.
Applications for the development of the Land Evaluation and Site Assessment can be made at 1691 North 31st Road, Ottawa.
The LaSalle County SWCD can be reached at 815-433-0551.

Ecological Compliance Assessment Tool

And in accordance with the Illinois Endangered Species Protection Act [520 ILCS 10/11(b)], the Illinois Natural Areas Preservation Act [525 ILCS 30/17], and the Interagency Wetland Policy Act of 1989 [20 ILCS 830] as set forth in procedures under Title 17 Ill. Admin. Code Part 1075 and Part 1090, these laws require state agencies and units of local governments to consider the potential adverse effects of proposed actions on Illinois endangered and threatened species and sites listed on the Illinois Natural Areas Inventory. A \$500.00 fee may be charged to the petitioner if an EcoCAT evaluation is required for the proposed land use change)

Zoning Special Use

Application # _____

Please provide a narrative explaining the reasoning and justification for the Special Use (*this may be attached*). The narrative should focus on the existing uses and zoning classification of the property and the general area surrounding the parcel. Discussion of the special use and its general suitability to the current zoning designation and the future development vision of the area should also be addressed. Please be prepared to discuss these and other related concepts at the public hearing. For a complete list of factors considered by the Zoning Board of Appeals, refer to Section 14.10-5 of the LaSalle County Zoning Ordinance.

See Special Use Permit Application package.

Attachments and Certifications

All required attachments and certifications must accompany the application before a zoning official can certify the application to be complete. Such attachments and certifications required:

- ☒ Copy of recorded deed
- ☒ Narrative describing and justifying proposed use
- ☒ Application/filing fee
- ☐ Plat of survey developed by professional engineer or land surveyor
- ☐ Site plan showing existing structures, proposed structures, and setbacks
- ☒ Notarized completed application package (if not owner/applicant, notarized letter of authorization is required from owner)
- ☒ List of adjoining property owner names and addresses
- ☐ Trust Disclosure (*applicable only if in a trust*)
- ☐ Signage Application (*if applicable*)
- ☐ Parking lot layout (*if applicable*)
- ☐ Floodplain Map (*if applicable*)
- ☐ Natural Resource Inventory (*if applicable*)
- ☐ Land Evaluation and Site Assessment (*if applicable*)
- ☒ EcoCAT (*if applicable*)

Notification of the Petition (*For office use*)

All adjoining property owners will be notified of this petition by certified mail. When applicable, notification will also be sent to the following entities:

- ___ School Districts Effected
- ___ Adjoining Property Owners
- ___ Municipal Review Authority (1.5 mile)
- ___ Township Review Authority (Supervisor, Clerk, and/or Planning Commission)
- ___ Fire Protection District
- ___ Road Jurisdiction (State, County, Township)
- ___ LaSalle County Health Department
- ___ LaSalle County Soil and Water Conservation District

Notarization of Completed Application Authenticity


I, We consent that all of the above statements and the statements contained in any paper or plans submitted herewith are true to the best of my/our knowledge and belief.

I, We consent to the entry in or upon the premises described in this application by any authorized official of LaSalle County for the purposes of completing any reviews or for the reports deemed necessary by the submittal of this application or for the purpose of posting, maintaining, or removing such notices as may be required by law.

I, We have read and are familiar with the *LaSalle County Comprehensive Plan* and that the petitioners have read Section 14 of the *LaSalle County Zoning Ordinance* and are familiar with each of the criteria for a special use permit and understand that all applicable criteria must be met for approval of the petition.

I, We understand that I, We will provide the names and addresses of all adjacent owners of the said property to the LaSalle County Land Use Department and allow the LaSalle County Land Use Department to notify all required stakeholders, adjacent landowners, and the press announcing the public hearing. This ad must be in the local newspaper 15 days prior to the scheduled public hearing. I, We understand that the LaSalle County Land Use Department will post required signage for the property in question at least 15 days prior to the public hearing. I/We understand that all the costs associated with the hosting of the public meeting will be paid on or before the date in which the LaSalle County Board will take action on this petition (mailing costs, notification to newspaper, meeting room expenses, court reporter, and any other costs needed to hold such a hearing).

Owner and/or agent/attorney printed Names and signatures:

| Name (Printed) | Signature |
|------------------|--|
| 1. Daniel Dubois |  |
| 2. _____ | _____ |
| 3. _____ | _____ |
| 4. _____ | _____ |

Dated at _____, Illinois, this day of _____

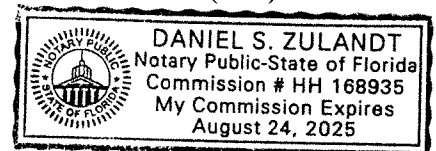
State of ~~Illinois~~ FLORIDA
County of ~~LaSalle~~ MARTIN


I, Daniel S. Zulandt, a Notary Public in and for the County and State of aforesaid, do hereby certify that Daniel Dubois, personally known to me is (are) the person(s) who executed the foregoing instrument bearing on the date of January 16, 2023, and appeared before me this day in person and acknowledged that he/she (they) signed sealed, and delivered the same instrument for the uses and purposes therein set forth.

Given under my hand and Notary Seal this 16th day of January, 2023.

(Seal)

My commission expires August 24, 2025.

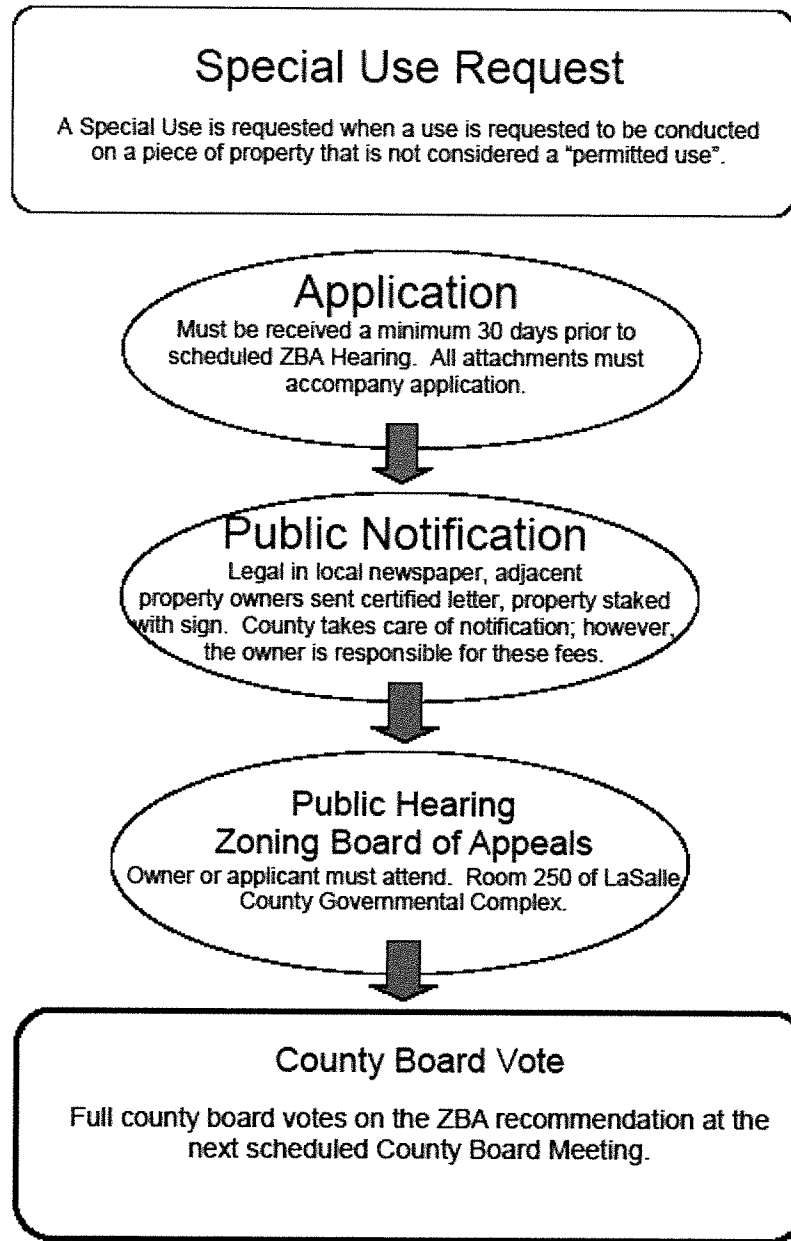



Signature of Notary

The LaSalle County Land Use Department certifies this application package is complete and capable of being forwarded to the LaSalle County Zoning Board of Appeals.

LaSalle County Zoning Officer

Date



Sec. 14.10-10 Time Limit for Special Use

Special Uses granted hereunder shall be transferable and shall run with the fee ownership of the land unless otherwise specified by the terms of the Special Use. No ordinance of the County Board granting a Special Use shall be valid for more than two (2) years from the date of such ordinance approval unless the building permit and the erection or alteration of the building is started or the use is commenced within such time period. Application may be made for an extension of the time period to commence the authorized Special Use. Extensions in the Special Use schedule for one (1) year periods may be recommended by the Zoning Board of Appeals and granted by the County Board. If the County Board so stipulates when acting favorably on a Special Use application, the Zoning Board of Appeals may be delegated the authority of granting extensions in the building schedule for periods of time not to exceed a total of one (1) year each.

Appendix B

List of Adjacent Landowners

Hickory Wind Project

LaSalle County, Illinois

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UKA North America, LLC
LaSalle County Special Use Application
Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|---|-------|
| 1 | NA | NA | 0.3 |
| 2 | NA | NA | 1.6 |
| 3 | 17-28-307-000 | BENNETT, RAYMOND & RACCAH, D | 80.4 |
| 4 | 17-29-302-000 | CARUS FREDERICK L | 9.8 |
| 5 | 17-29-303-000 | CARUS FREDERICK L | 10.1 |
| 6 | 17-29-313-000 | CARUS CYNTHIA E/FREDERICK L | 124.1 |
| 7 | 17-29-403-000 | HENKEL, WILLIAM C / NANCY C TTEE | 52.9 |
| 8 | 17-29-404-000 | BENNETT, RAYMOND & RACCAH, D | 78.3 |
| 9 | 17-30-401-000 | CARUSBROOKE FARMS INC | 20.2 |
| 10 | 17-30-411-000 | CORCORAN DONALD/EVELYN | 25.2 |
| 11 | 17-31-200-000 | CORCORAN DONALD-EVELYN | 40.1 |
| 12 | 17-31-402-000 | ERNAT MARTIN ETAL | 3.6 |
| 13 | 17-31-404-000 | ERNAT MARTIN ETAL | 78.5 |
| 14 | 17-31-407-000 | AMEREN ILLINOIS CO | 0.4 |
| 15 | 17-32-106-000 | CARUSBROOKE FARMS INC / ATTN. TAX DEPT. - IL14242-B | 0.2 |
| 16 | 17-32-202-000 | NEXSTAR BROADCASTING GROUP | 1.0 |
| 17 | 17-33-101-000 | BENNETT, RAYMOND & RACCAH, D | 78.4 |
| 18 | 17-33-102-000 | BENNETT, RAYMOND & RACCAH, D | 1.0 |
| 19 | 17-33-207-000 | JCS ENTERPRISES LLC | 27.1 |
| 20 | 17-33-401-000 | PATTON, JUDITH A ETAL | 29.4 |
| 21 | 17-33-401-000 | PATTON, JUDITH A ETAL | 0.1 |
| 22 | 17-33-404-000 | THOMPSON, LARRY PAUL/DENISE M | 13.0 |
| 23 | 17-33-405-000 | THOMPSON, DONALD/DONNA | 5.2 |
| 24 | 17-33-407-000 | THOMPSON, LARRY | 5.9 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|----------------------------------|-------|
| 25 | 17-33-408-000 | DUTKIEWICZ, DANIEL/ CONNIE | 6.0 |
| 26 | 17-33-409-000 | GRAY, EARL/CHRISTINA | 5.0 |
| 27 | 17-33-410-000 | THOMPSON, LARRY PAUL/DENISE | 1.2 |
| 28 | 18-34-109-000 | PAPPAS, PAMELA JO TRUSTEE | 39.6 |
| 29 | 18-34-110-000 | PAPPAS, PAMELA JO TRUSTEE | 39.7 |
| 30 | 18-34-300-000 | MURPHY, ONLYN/ NORINNE | 5.1 |
| 31 | 18-34-304-000 | ROSE, HARRY J-LINDA | 5.2 |
| 32 | 18-34-305-000 | HALM, LOIS ETAL | 106.5 |
| 33 | 18-34-307-000 | PATTON, JUDITH A ETAL | 0.5 |
| 34 | 18-34-308-000 | PATTON, JUDITH A ETAL | 0.5 |
| 35 | 18-34-309-000 | STREATOR COMPANY LLC | 75.3 |
| 36 | 18-34-406-000 | MOSBACH, ROBERT-EILEEN | 36.4 |
| 37 | 18-35-309-000 | TREGONING KURT C-HOLLY E | 1.2 |
| 38 | 18-35-309-000 | TREGONING KURT C-HOLLY E | 1.2 |
| 39 | 18-35-310-000 | SENICA WILLIAM B TTEE | 75.5 |
| 40 | 18-35-310-000 | SENICA WILLIAM B TTEE | 75.5 |
| 41 | 25-02-110-000 | BROVELLI, SHIRLEY J TTEE | 5.8 |
| 42 | 25-02-111-000 | BROVELLI, SHIRLEY J TTEE | 15.0 |
| 43 | 25-02-113-000 | FIRST MIDWEST TRUST CO | 46.3 |
| 44 | 25-02-114-000 | TREGONING KURT/HOLLY | 10.6 |
| 45 | 25-02-306-000 | GREGORICH JOHN/KOONTZ JOYCE | 48.1 |
| 46 | 25-02-307-000 | KOONTZ JOYCE A/GREGORICH JOHN | 2.1 |
| 47 | 25-03-108-000 | WENZEL, CAROLE LYNETTE | 13.3 |
| 48 | 25-03-110-000 | TOUCHETTE, IDA / DOUGLAS LYNN JR | 13.8 |
| 49 | 25-03-114-000 | WALGENBACH, THOMAS L / TAMMIE L | 8.4 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|--------------------------------------|-------|
| 50 | 25-03-201-000 | BROVELLI, SHIRLEY J TTEE | 0.8 |
| 51 | 25-03-206-000 | TRUMPINSKI, KATHY/BOBBY | 0.9 |
| 52 | 25-03-208-000 | BROVELLI, DAVID/KELLY | 5.0 |
| 53 | 25-03-210-000 | MARENDA, RYAN/LAURA | 2.1 |
| 54 | 25-03-300-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 80.4 |
| 55 | 25-03-301-000 | SAUTER, JAMES A | 41.1 |
| 56 | 25-03-402-000 | SAUTER, JAMES A | 40.1 |
| 57 | 25-03-403-000 | SAUTER, JAMES A | 41.4 |
| 58 | 25-03-404-000 | BRUCH, THOMAS J | 39.5 |
| 59 | 25-04-104-000 | CEDAR POINT FARMS & DEVELOPMNT | 45.8 |
| 60 | 25-04-107-000 | LORENTZEN, LEE/KAROLYN | 3.3 |
| 61 | 25-04-200-004 | HARTY, LUKE / AMANDA | 5.0 |
| 62 | 25-04-200-005 | BACHMAN, CLAUDIA | 2.5 |
| 63 | 25-04-200-006 | DOOLEY, PATRICK M / VAGASKY, TRICIA | 2.5 |
| 64 | 25-04-203-002 | SCHMITT DEAN J | 0.9 |
| 65 | 25-04-207-000 | SCHMITT, DEAN J | 0.9 |
| 66 | 25-04-214-000 | PIZZAMIGLIO, NORMAN | 14.5 |
| 67 | 25-04-215-000 | EDEN TWP CEMETARY | 1.0 |
| 68 | 25-04-216-000 | LADZINSKI, STEPHAN J / KAREN S TRUST | 82.0 |
| 69 | 25-04-218-000 | DITTLE, KRISTINA A | 1.0 |
| 70 | 25-04-312-000 | LORENTZEN, LEE/KAROLYN | 2.5 |
| 71 | 25-04-318-000 | WILLIAMS JOHNATHAN | 1.9 |
| 72 | 25-04-319-000 | HOLLY CHAS A-VELMA H | 47.9 |
| 73 | 25-04-322-000 | ZEMAN, JAMES / JEANNE E PIRAINO- | 4.0 |
| 74 | 25-04-324-000 | CEDAR POINT PROPERTY TRUST | 64.6 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|--|-------|
| 75 | 25-04-401-000 | BELLINO, JOHN P TTEE | 41.3 |
| 76 | 25-04-405-000 | ALLEMAN, RICHARD D-D | 2.0 |
| 77 | 25-04-406-000 | LAVENS, CHARLES A / ARLENE I CO-TTEE ETAL | 2.9 |
| 78 | 25-04-407-000 | MILLER, JASON / CROOK, KIMBERLY AUTUMN | 1.8 |
| 79 | 25-04-408-000 | BROZOVICH, MARY M | 0.9 |
| 80 | 25-04-414-000 | GROSENBACH, SCOTT/SUZANNE | 1.9 |
| 81 | 25-04-415-000 | BIDASIO, JOSEPH DOMINICK / DAWN MARIE TTEE | 4.5 |
| 82 | 25-04-416-000 | ALLEMAN, RICHARD/DIANE | 3.4 |
| 83 | 25-05-106-000 | TONDI, RONNIE J / CAROL F | 50.3 |
| 84 | 25-05-204-000 | TONDI RONNIE J / CAROL | 1.2 |
| 85 | 25-05-206-000 | CEDAR POINT FARMS & DEVELOPMNT | 30.9 |
| 86 | 25-05-209-000 | MC KEE LARRY/MARTHA | 0.5 |
| 87 | 25-05-210-000 | MUDGE JEFFREY-LINDA | 0.6 |
| 88 | 25-05-218-000 | TONDI MARK J | 1.3 |
| 89 | 25-05-221-000 | TONDI, RONNIE J/CAROL F | 42.9 |
| 90 | 25-05-222-000 | TONDI GREGORY/CHRISTINE | 5.0 |
| 91 | 25-05-400-000 | PIANO, FRANCIS / THOMAS | 153.5 |
| 92 | 25-06-201-000 | ERNAT MARTIN ETAL | 47.3 |
| 93 | 25-06-204-000 | BOERS BEVERLY J TTEE / BRIAN | 46.0 |
| 94 | 25-06-206-000 | AMEREN ILLINOIS CO | 3.5 |
| 95 | 25-06-401-000 | BRUCH FARMLAND HOLDING COMPANY LLC | 126.3 |
| 96 | 25-06-402-000 | GARNER, DONALD/PEGGY | 4.2 |
| 97 | 25-07-201-000 | GEHM JOHN JR ETAL | 39.1 |
| 98 | 25-07-203-000 | GEHM, ANDREW | 2.0 |
| 99 | 25-07-205-000 | MORA, SAUL LOPEZ / RANGEL, JUANA ESCOBEDO | 2.7 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|-------------------------------------|-------|
| 100 | 25-07-206-000 | JUDGE, SAMANTHA L | 2.0 |
| 101 | 25-07-207-000 | HENSON, ROBERTA TTEE | 36.8 |
| 102 | 25-07-402-000 | WARRICK, MARGARET S | 77.9 |
| 103 | 25-08-102-000 | MORFOOT, MARIANNE MARTENS ETAL | 161.9 |
| 104 | 25-08-200-000 | HODGE, DORIS M | 82.6 |
| 105 | 25-08-209-010 | KASPERSKI JACOB | 0.2 |
| 106 | 25-08-210-000 | HODGE, DORIS | 41.6 |
| 107 | 25-08-210-016 | HINES JOSEPH J/ TAMMY J | 0.1 |
| 108 | 25-08-210-018 | EVANS KENNETH & MARGARET | 0.3 |
| 109 | 25-08-210-019 | SPRINGER STEVEN J | 0.1 |
| 110 | 25-08-404-000 | ZELLMER, JOAN | 55.5 |
| 111 | 25-08-407-000 | SUPAN, MICHAEL R / LINDA L TTEE | 54.0 |
| 112 | 25-09-110-005 | MURDOCK ALBERT N / SHARON K | 0.2 |
| 113 | 25-09-110-010 | MAHAR MICHAEL W / LUCILLE | 0.2 |
| 114 | 25-09-111-011 | RUTGENS STEVEN K | 0.3 |
| 115 | 25-09-113-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 69.6 |
| 116 | 25-09-113-003 | VILLAGE OF CEDAR POINT | 0.6 |
| 117 | 25-09-114-001 | RIGBY, JEFFREY S / KELLETT, KOREE L | 0.2 |
| 118 | 25-09-115-000 | HOLLY, BARBARA TTEE | 46.2 |
| 119 | 25-09-200-000 | FIRST MIDWEST BANK TRUSTEE | 79.7 |
| 120 | 25-09-201-000 | BELLINO JOHN TTEE / VERDONE ROSE | 28.8 |
| 121 | 25-09-202-000 | MILLER, ELEANOR | 51.6 |
| 122 | 25-09-300-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 81.1 |
| 123 | 25-09-300-001 | STRADER, RICHARD L JR | 1.0 |
| 124 | 25-09-300-002 | STRADER, BETTY GENE | 1.0 |

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Appendix B: List of Adjacent Landowners for the Hickory Wind Project

| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|--|-------|
| 125 | 25-10-100-000 | FIRST MIDWEST BANK TRUSTEE | 75.9 |
| 126 | 25-10-101-000 | FIRST MIDWEST BANK TRUSTEE | 80.0 |
| 127 | 25-10-202-000 | SAUTER, JAMES A | 40.9 |
| 128 | 25-10-211-000 | SAUTER, JAMES A | 66.1 |
| 129 | 25-10-213-000 | SAUTER, JAMES A | 33.5 |
| 130 | 25-10-403-000 | BASSETT, MARY ELLEN | 0.6 |
| 131 | 25-10-405-000 | MILNER, ALLAN / KATHLEEN | 31.6 |
| 132 | 25-10-408-000 | LAMBERT, LEANN M | 40.3 |
| 133 | 25-10-410-000 | BELLINO, SUSAN J TTEE | 2.5 |
| 134 | 25-11-207-000 | LADZINSKI, STEPHAN J/ KAREN S CO-TTEES | 31.8 |
| 135 | 25-11-211-000 | RENKOSIK CAROL M | 86.0 |
| 136 | 25-11-300-000 | RENKOSIK, CAROL M TTEE | 65.7 |
| 137 | 25-11-409-000 | BARTOLT RAYMOND L / RAELEEN M | 100.7 |
| 138 | 25-14-102-000 | THOMPSON, MARK A/CHRISTINE J | 2.6 |
| 139 | 25-14-104-000 | HOLLY, BARBARA TTEE | 23.8 |
| 140 | 25-14-105-000 | YEATER, BERNICE TTEE | 54.8 |
| 141 | 25-14-201-000 | JAEGLE ERNEST W FAMILY TRUST | 116.3 |
| 142 | 25-14-301-000 | MILLER, BENJAMIN, MARVIN & MARION | 143.2 |
| 143 | 25-14-302-000 | ERNAT, BERNARD | 2.2 |
| 144 | 25-14-401-000 | ERNAT, BERNARD/ PATRICIA | 129.7 |
| 145 | 25-15-100-000 | PLOCH, ROGER / CAROLYN | 20.4 |
| 146 | 25-15-101-000 | WALTER, LINDA K TTEE | 82.1 |
| 147 | 25-15-307-000 | KELLY, ZACHARY / VANESSA | 3.2 |
| 148 | 25-15-308-000 | SMITH, NANCY L TTEE | 77.8 |
| 149 | 25-15-400-000 | ERNAT, BERNARD T / PATRICIA A | 80.6 |

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| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|-------------------------------|-------|
| 150 | 25-16-201-000 | PLOCH, CHRISTOPHER / AMY | 80.2 |
| 151 | 25-16-300-000 | HICKORY GROVE LLC | 40.5 |
| 152 | 25-16-301-000 | FREDERICK, JULIA TRUST | 81.2 |
| 153 | 25-16-404-000 | LAMBERT, EDWARD R | 155.3 |
| 154 | 25-17-100-000 | DIPPEL, MARTIN & LANGE, ALICE | 80.2 |
| 155 | 25-17-203-000 | RUNDLE, RICHARD | 1.0 |
| 156 | 25-17-300-000 | OLSON, ROBERT J / KAREN N | 122.1 |
| 157 | 25-17-301-000 | HICKORY GROVE LLC | 20.2 |
| 158 | 25-17-405-000 | HICKORY GROVE LLC | 155.7 |
| 159 | 25-18-201-000 | OLSON, ROBERT J / KAREN N | 60.8 |
| 160 | 25-18-207-000 | SHERMAN, WILLIAM E JR | 97.0 |
| 161 | 25-18-403-000 | GARNER, PEGGY | 40.2 |
| 162 | 25-18-404-000 | ERJAVSEK, LARRY | 40.3 |
| 163 | 25-19-200-000 | OLSON, FRIEDA | 40.6 |
| 164 | 25-20-102-000 | OLSON FRIEDA | 159.9 |
| 165 | 25-21-405-000 | SHERMAN, WILLIAM E III | 69.8 |
| 166 | 25-21-407-000 | SHERMAN, WILLIAM E JR | 30.6 |
| 167 | 25-22-102-000 | WALTER, JOHN E / ANNA C TTEE | 53.2 |
| 168 | 25-22-103-000 | WALTER, LAWRENCE TRUST | 53.4 |
| 169 | 25-22-104-000 | WALTER, ROGER W TTEE | 53.1 |
| 170 | 25-22-202-000 | HENAK, JANET M | 5.1 |
| 171 | 25-22-300-002 | ALLEMAN RUSSELL JR HEIRS ETAL | 0.8 |
| 172 | 25-22-300-003 | LUTZ, TIMOTHY A | 1.6 |
| 173 | 25-22-306-000 | ALLEMAN, RICHARD C ETAL | 1.1 |
| 174 | 25-22-307-000 | ALLEMAN GLADYS | 0.3 |

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| COUNT | PARCEL ID | OWNER | ACRES |
|-------|---------------|-----------------------------------|---------|
| 175 | 25-22-403-000 | FORD, ROSAURA | 1.6 |
| 176 | 25-23-207-000 | LAIBLE, FLOISE R / VYRL LYNN TTEE | 50.0 |
| 177 | 25-23-208-000 | MICHELI ROBERT ETAL TTEE | 4.4 |
| 178 | 25-23-210-000 | SHIVE REVOCABLE TRUST | 54.0 |
| 179 | 25-23-306-000 | WALTER, CLARENCE E TTEE | 32.1 |
| 180 | 25-23-307-000 | WALTER, CLARENCE W TTEE | 99.7 |
| 181 | 25-23-400-000 | MIGLIORINI, RONALD R TTEE | 71.0 |
| 182 | 25-27-104-000 | GINGERICH, GARY L / BETH A | 6.6 |
| 183 | 25-27-105-000 | SHERMAN, WILLIAM III / BETH | 71.8 |
| 184 | 25-27-109-000 | SHERMAN, WILLIAM E III | 206.6 |
| 185 | 25-27-210-000 | SHERMAN, WILLIAM E III | 14.0 |
| 186 | 25-28-203-000 | FLEMING, MICHAEL | 9.4 |
| TOTAL | | | 6,803.1 |

Appendix C

Turbine Specifications

Hickory Wind Project

LaSalle County, Illinois

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General documentation

Technical description

Delta4000 - N163/6.X

Rev. 03 / 2022-02-21

| | |
|-----------------|-------------------------|
| Document no.: | 2014649EN |
| Status: | Released |
| Language: | EN-English |
| Classification: | Nordex Internal Purpose |

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<http://www.nordex-online.com>

Validity

| Turbine generation | Product series | Product |
|--------------------|----------------|----------|
| Delta | Delta4000 | N163/6.X |

| | | |
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1. Structure

The Nordex N163/6.X wind turbine (WT) is a speed-variable wind turbine with a rotor diameter of 163 m and a nominal power of 7000 kW, which can be adapted dependent on location. The wind turbine is designed for class S in accordance with IEC 61400-1 or wind zone S in accordance with DIBt 2012 and is available in 50 Hz and 60 Hz variants.

A Nordex N163/6.X wind turbine consists of the following main components:

- Rotor with rotor hub, three rotor blades and the pitch system
- Nacelle with rotor shaft and bearing, gear, generator, Yaw system, medium voltage transformer and converter
- Tubular steel tower or hybrid tower with medium-voltage switchgear.

1.1 Tower

The wind turbine N163/6.X can be erected on a steel tower or on a hybrid tower. The tubular steel tower consists of several conical or cylindrical sections. This tower is bolted to the anchor cage embedded in the foundation. The bottom part of the hybrid tower consists of a concrete tower and the top part of a tubular steel tower with two sections.

A service lift, the vertical ladder with fall protection system as well as resting and working platforms inside the tower allow for a weather-protected ascent to the nacelle.

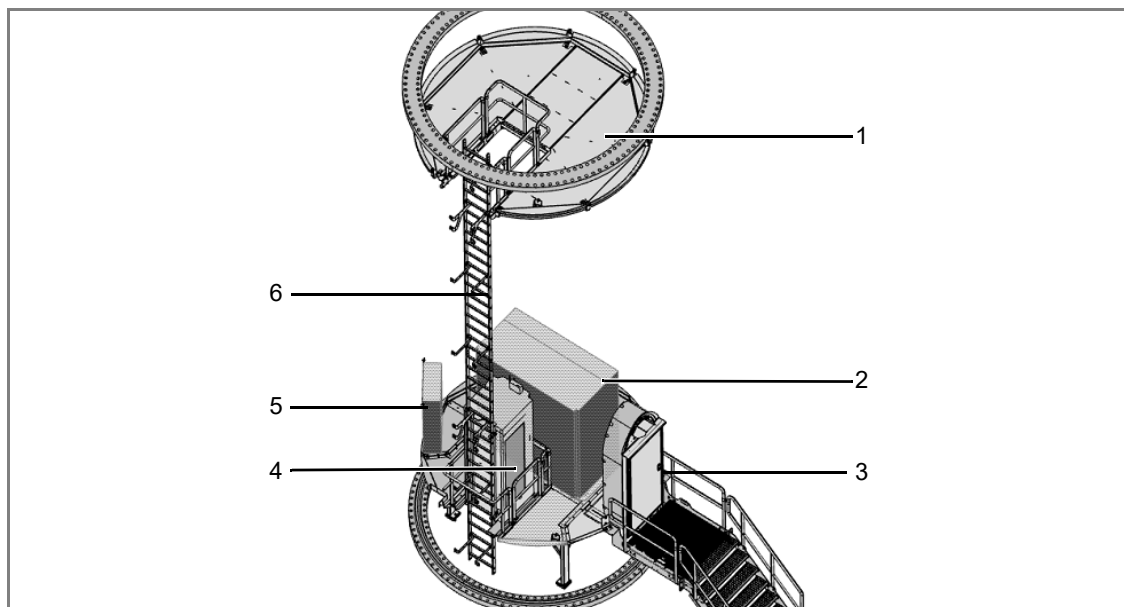


Fig. 1: Overview of installations in the bottom section of the steel tube tower

- | | |
|-------------------|----------------------|
| 1 Flange platform | 4 Tower service lift |
| 2 MV switchgear | 5 Control cabinet |
| 3 Tower access | 6 Ladder path |

The foundation structure of all towers depends on the soil conditions at the intended location.

1.2 Rotor

The rotor consists of the rotor hub with three slewing bearings, the pitch system for blade adjustment and three rotor blades.

The **rotor hub** consists of a base element with support system and spinner. The base element consists of a stiff cast structure, on which the pitch bearings and the rotor blades are assembled. The rotor hub is covered with the spinner which enables the direct access from the nacelle into the rotor hub.

The **rotor blades** are made from high quality fiber glass- and carbon-fiber reinforced plastic. The rotor blade is tested statically and dynamically in accordance with the guidelines IEC 61400-23 and DNVGL-ST-0376.

The **pitch system** serves to adjust the pitch angle of the rotor blades set by the control system. For each individual rotor blade the pitch system comprises an electromechanical drive with rotary current motor, planetary gear and drive pinion, as well as a control unit with frequency converter and emergency power supply. Power supply and signal transfer are realized through a slip ring in the nacelle.

1.3 Nacelle

The nacelle contains essential mechanical and electric components of the wind turbine.

The **rotor shaft** transmits the rotary motion of the rotor to the gearbox and is mounted in the **rotor bearing** in the nacelle. A rotor lock is integrated in the rotor bearing housing, with which the rotor can be reliably locked in place mechanically.

With the mechanical **rotor brake** the rotor is locked during maintenance work. For this, a sufficient oil pressure is generated by the hydraulic pump.

The **gearbox** increases the rotor speed until it reaches the speed required for the generator. The bearings and gears are continuously lubricated with oil. A combination filter element with coarse, fine and ultrafine filter retains solid particles. The control system monitors the contamination of the filter element. The gear oil used for lubrication also cools the gearbox. The temperatures of the gearbox bearings and the oil are continuously monitored. If the optimum operating temperature is not yet reached, a thermal bypass directs the gear oil directly back to the gearbox. Only when the gear oil temperature reaches a predetermined value is the transmission oil cooled by an oil / water cooler, which is located directly on the gearbox. As a result, the gear oil temperature is kept in a narrow temperature range during operation.

The **coupling** acts as force-transmitting connection between the gearbox and the generator.

The **generator** is a 6-pole doubly-fed induction machine. The generator has a built-on air-water heat exchanger and is connected to the cooling circuit.

The **converter** connects the electrical grid to the generator which means the generator can be operated with variable rotational speeds.

The **transformer** converts the low voltage of the generator-converter system into medium voltage of the wind farm grid. The transformer is cooled by the connection to the cooling circuit.

In the **switch cabinet**, all electrical components required for the control and supply of the turbine are located.

The cooling water is re-cooled by a **passive cooler** on the nacelle roof.

The **yaw drives** optimally rotate the nacelle into the wind. The yaw drives are located on the machine frame in the nacelle. A yaw drive consists of an electric

motor, multi-stage planetary gear, and a drive pinion. The drive pinions mesh with the external teeth of the yaw bearing. In the aligned position the nacelle is held with the yaw drives.

All nacelle assemblies are protected against wind and weather conditions by means of a **nacelle housing**.

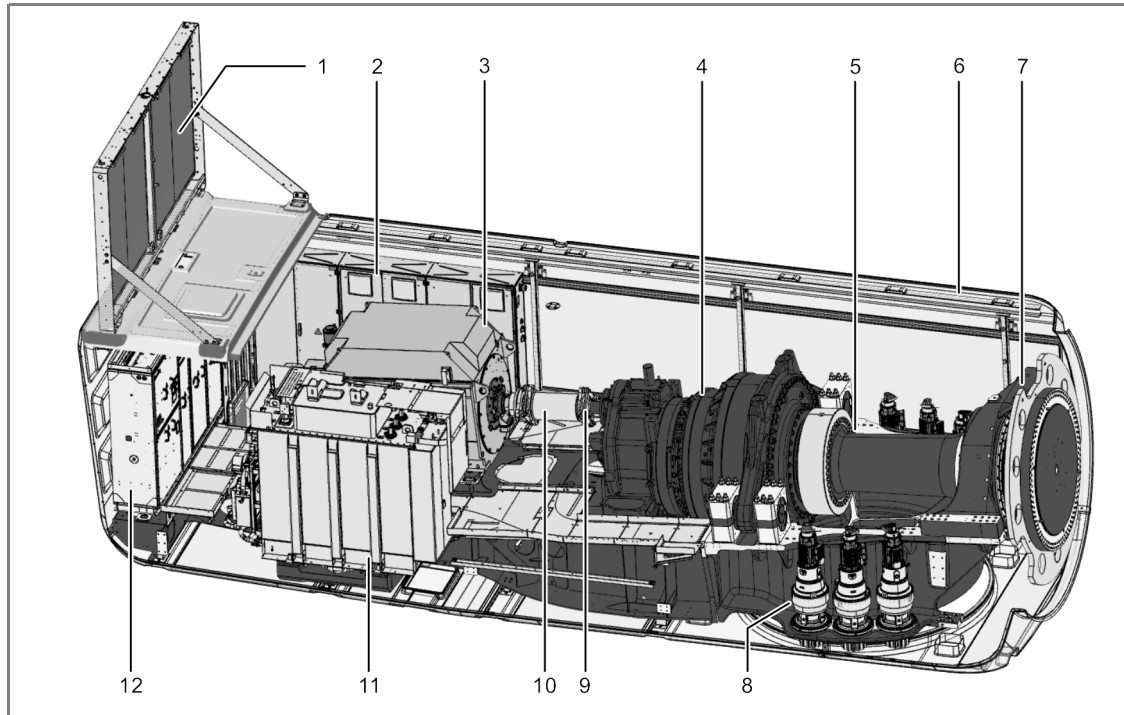


Abb. 2: Schematic diagram of the nacelle

- | | |
|-------------------|-----------------|
| 1 Passive cooler | 7 Rotor bearing |
| 2 Switch cabinet | 8 Yaw drives |
| 3 Generator | 9 Rotor brake |
| 4 Gearbox | 10 Coupling |
| 5 Rotor shaft | 11 Transformer |
| 6 Nacelle housing | 12 Converter |

1.4 Auxiliary systems

1.4.1 Automatic lubrication system

Generator bearing, gearing of the pitch bearings, rotor bearing and gearing of the yaw bearing are each equipped with an **automatic lubrication system**.

1.4.2 Heaters

Gearbox, generator, cooling circuit and all relevant switch cabinets are equipped with **heaters**.

1.4.3 E-chain hoist and crossbeam

An electric **chain hoist** is installed in the nacelle which is used for lifting tools, components and other work materials from the ground into the nacelle.

A crossbeam including a sliding trolley is prepared for the use of a manual chain hoist to move the materials within the nacelle.

1.4.4 Cooling system

Two separate cooling circuits ensure cooling of the large components. Converter and gearbox are cooled in one cooling circuit and generator and transformer in the other. Both cooling circuits are connected to passive coolers on the nacelle roof, in which the water is recooled.

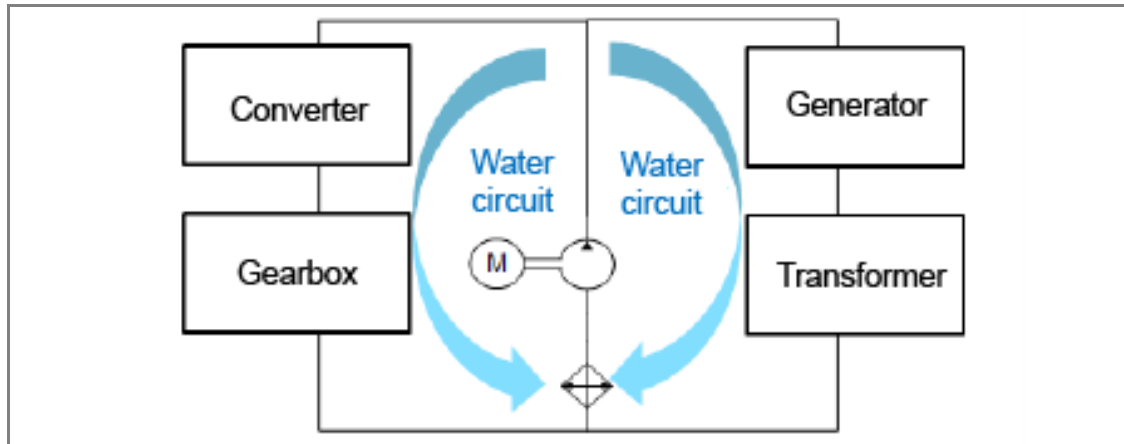


Abb. 3: Schematic representation of the cooling circuit

2. Control and electrical system

The WT operates automatically. A programmable logic controller (PLC) continuously monitors the operating parameters using various sensors, compares the actual values with the corresponding setpoints and issues the required control signals to the WT components. The operating parameters are specified by Nordex and are adapted to the individual location. The controller is located in a control cabinet in the tower base.

When there is no wind the WT remains in idle mode. Only various auxiliary systems are operational or activated as required: e.g., heaters, gear lubrication or PLC, which monitors the data from the wind measuring system. All other systems are switched off and do not use any energy. The rotor idles. When the cut-in wind speed is reached, the WT changes to the "ready for operation" condition. Now all systems are tested, the nacelle turns into the wind and the rotor blades turn into the wind. When a certain speed is reached, the generator is connected to the grid and the WT produces electrical energy.

At low wind speeds the WT operates at part load. The rotor blade remain turned into wind to the maximum extent. The power produced by the WT depends on the wind speed.

When the nominal wind speed is reached, the WT switches over to the nominal load range. If the wind speed continues to increase, the speed control changes the rotor blade angle so that the rotor speed and thus the power output of the WT remain constant.

The yaw system ensures that the nacelle is always optimally aligned to the wind. To this end two separate wind measuring systems on the nacelle measure the wind direction. Only one wind measuring system is used for the control system, while the second system monitors the first and takes over in case the first system fails. If the wind direction measured deviates too much from the nacelle alignment, the nacelle is yawed into the wind.


The wind energy absorbed from the rotor is converted into electrical energy using a doubly-fed induction machine with slip ring rotor. Its stator is connected directly, and the rotor via a specially controlled frequency converter, to the MV transformer which connects the turbine to the grid. Only part of the power needs to be routed via the converter, permitting low electrical system losses.

2.1 Safety systems

Nordex wind turbines are equipped with technical equipment and devices that protect people and systems and ensure permanent operation. The entire turbine is designed in accordance with the Machinery Directive 2006/42/EC and certified as per IEC 61400.

Safety-relevant parameters in the system control are monitored continuously. Here, the sensor data of the safe sensors are transmitted via a safe bus system to the safe controller for evaluation. If specified parameters are exceeded, the system is stopped via actuators and set to a safe state.

Depending on the cut-out cause, different brake programs are triggered. In event of external causes, such as excessive wind speeds or below operating temperatures, the wind turbine is gently braked by means of rotor blade adjustment. Other safety functions are used to stop drives safely for maintenance work.

| | | |
|---|-----------------------|-----------------------------------|
|  | Technical description | 2014649EN Rev. 03 / 2022-02-21 |
|---|-----------------------|-----------------------------------|

2.2 Lightning/overvoltage protection, electromagnetic compatibility (EMC)

The lightning/surge protection of the wind turbine is based on the EMC-compliant lightning protection zone concept, which comprises the implementation of internal and external lightning/surge protection measures under consideration of the standard IEC 61400-24. The wind turbine is designed according to lightning protection class I.

The wind turbine with the electrical equipment, consumers, the measurement, control, protection, information and telecommunication technology meets the EMC requirements according to IEC 61400-1.

2.3 Medium-voltage system

The medium voltage components are used to connect a WT to the wind farm medium-voltage grid or the local grid operator. The tower base contains the **MV switchgear**. It consists of a transformer field with circuit breakers and at least one ring cable field as default and up to three ring cable fields as an option (dependent on the wind farm configuration). The transformer panel consists of a vacuum circuit breaker and the disconnecter with ground switch. The ring cable panel consist of a switch disconnecter with a ground switch. The entire MV switchgear is assembled on a support/adaptor frame.

Further characteristics of the MV switchgear:

- Routine tests of each switchgear in compliance with IEC 62271-200
- Type tested, SF6 insulation
- Internal switchgear for self-contained electrical systems (min. IP2X)
- SF6 tank: metal-clad, metal-enclosed (min. IP65), independent of environmental influences
- Switch positions shown "On - Off - Grounded"
- Test terminal strip for secondary test
- Low-maintenance in accordance with class E2 (IEC 62271-100)

The system protection of the MV switchgear is achieved by the following items:

- Improved personal safety and system protection in case of arcing by type testing in compliance with IEC 62271-200
- Protection device supplied with converter current and stabilized for inrush current as DMT protection relay (independent maximum current protection)
- Actuating openings for switchgear are interlocked to preclude operation of more than one simultaneously, and can be locked as an option
- Corrosion protection of the switchgear cells through hot-dip galvanization and painted surfaces
- Pressure relief by pressure absorber duct in case of arcing. Alternatively, for the USA, an arc suppressor can be installed in the tank and in the cable connection compartment.

Transformer and **converter** are located in the nacelle. The transformer has been specified in accordance with IEC 60076-16.

The steel components at the transformer are dimensioned for corrosion protection class C3 (H).

Additional protection measures:

- Grounded tank (Ester transformer)
- Overtemperature protection with temperature sensor and relay
- Hermetic protection (leakage) and overpressure protection for ester transformer

2.4 Low-voltage grid types

The **950 V low voltage grid** is the primary wind turbine low voltage energy system. It is insulated from the ground as an IT grid and three phase AC network. The elements of the electrical operating and measuring devices of this network are grounded directly or via separate protective equipotential bonding cables. A central insulation monitor has been installed as another protective measure for personal and turbine safety in the 950-V-IT system.

The **400 V/230 V low voltage grid** is the auxiliary wind turbine low voltage system. It has its neutral point grounded directly in the supplying grid transformers as a TN system and three-phase system. The equipment grounding conductor PE and the neutral conductor are available separately. The bodies of electrical equipment and consumers, including the additional protective equipotential bonding, are connected directly, through protective earthing conductor connections, straight to the neutral points of the supply grid transformers.

2.5 Auxiliary power of the wind turbine

The auxiliary low voltage required by the wind turbine in stand-by mode and feed-in mode is requested by the following consumers:

- System control including main converter control
- 400 V/230 V auxiliary power of the main converter
- 230 V AC UPS supply including 24 V DC supply
- Yaw system
- Pitch system
- Auxiliary drives such as pumps, fans and lubrication units
- Heating and lighting
- Auxiliary systems such as service lift, obstacle lights

Long-term measurements show that the average annual base load of the low-voltage auxiliary power plant in WT feed-in operation is approx. 15 kW in the average 10 min mean value and the maximum 10-min average value can reach up to 25 kW/32kVA. These values are already included in the power curves.

For locations with an average annual wind speed of 6.5 m/s approx. 10 MWh auxiliary consumption arise, however, this value is greatly dependent on location.

Auxiliary consumption is defines as the energy consumption of the WT from the grid for a period during which the WT does not supply current to the grid.

3. Options

Various options are available upon request as additional equipment for Nordex wind turbines.

The option of optional equipment must be coordinated with Nordex in advance.

4. Technical data

4.1 Technical design

| Technical design | |
|---|---|
| Survival temperature | -40 °C to +50 °C |
| Operating temperature range of the Normal Climate Version | -20 °C to +40 °C ¹⁾ |
| Operating temperature range of the Cold Climate Version | -30 °C to +40 °C ¹⁾ |
| Stop | Standard: -20 °C, restart at -18 °C CCV: -30 °C, restart at -28 °C |
| Max. height above MSL | 2000 m ¹⁾ |
| Certificate | In accordance with IEC 61400-22 and DIBt 2012 |
| Type | 3-blade rotor with horizontal axis, up-wind turbine |
| Output control | Active single blade adjustment |
| Nominal power | up to 7000 kW ¹⁾ |
| Rated power at wind speed (at an air density of 1.225 kg/m ³) | Approx. 13.5 m/s |
| Operating speed range of the rotor | 6.0 min ⁻¹ to 11.6 min ⁻¹ |
| Nominal speed | approx. 10.0 min ⁻¹ |
| Cut-in wind speed | 3 m/s |
| Cut-out wind speed | 26 m/s ²⁾ |
| Cut-back-in wind speed | 25.5 m/s ²⁾ |
| Calculated service life | ≥ 25 years |

¹⁾ Nominal output is achieved depending on the power factor and the installation altitude up to defined temperature ranges.

²⁾ Depending on the project, the cut-out wind speed can be decreased to safeguard the structural stability.

4.2 Towers

| Towers | TS118-03 | TS138 | TS148-01 | TS159-01 | TCS164 |
|----------------|----------------------|---------|----------|----------|-----------------|
| Hub height* | 118.0 m | 138.0 m | 148.0 m | 158.5 m | 164.0 m |
| Tower type | Tubular steel tower | | | | Hybrid tower |
| Wind class | IEC S DIBt S | IEC S | IEC S | IEC S | IEC S DIBt S |
| Surface finish | Color system coating | | | | ** |

* Includes foundation height above ground level

** Steel section: Color system coating; Concrete part: Fair-faced concrete

4.3 Rotor and rotor blades

| Rotor | |
|-------------------------------|----------------------|
| Rotor diameter | 163.0 m |
| Swept area | 20867 m ² |
| Nominal power/area | 326 W/m ² |
| Rotor shaft inclination angle | 5 ° |
| Blade cone angle | 5.5 ° |

| Rotor blade | |
|--------------|---|
| Material | fiber glass and carbon fiber reinforced plastic |
| Total length | 79.7 m |

| Rotor hub | |
|--------------------------------|--------------------------------|
| Material of the rotor hub body | Casting |
| Material spinner | glass-fiber reinforced plastic |

4.4 Nacelle

| Nacelle | |
|-------------------|--------------------------------|
| Support structure | welded steel structure |
| Cladding | glass-fiber reinforced plastic |
| Machine frame | Casting |
| Generator frame | welded steel construction |

4.4.1 Rotor shaft

| Rotor shaft/rotor bearing | |
|---------------------------|------------------------------------|
| Type | Forged hollow shaft |
| Material | 42CrMo4 or 34CrNiMo6 |
| Bearing type | Spherical roller bearing |
| Lubrication | Regularly using lubricating grease |

4.4.2 Brake and gearbox

| Mechanical brake | |
|--------------------------|------------------------------|
| Type | Actively actuated disk brake |
| Location | On the high-speed shaft |
| Number of brake calipers | 1 |
| Brake pad material | Organic pad material |

| Gearbox | |
|--|--|
| Type | Multi-stage planetary gear + spur gear stage |
| Gear ratio | 50 Hz: $i = 122.4$ 60 Hz: $i = 146.9$ |
| Lubrication | Forced-feed lubrication |
| Oil quantity including cooling circuit | max. 800 l |
| Oil type | VG 320 |
| Max. oil temperature | Approx. 77 °C |
| Oil change | Change, if required |

4.4.3 E-chain hoist and crossbeam

| E-chain hoist and lifting beam | |
|------------------------------------|---|
| Electrical chain hoist max load | Min. 850 kg |
| Crossbeam max load | Sliding trolley to accommodate a manual chain hoist 1000 kg |

4.5 Electrical system

| Electrical system * | |
|---|---|
| Nominal power P_{nG} | 7000 |
| Nominal voltage | 3 x AC 950 V \pm 10 % (specific to grid code) |
| Nominal current during full reactive current feed-in I_{nG} at S_{nG} | 4727 A |
| Nominal apparent power S_{nG} at P_{nG} | 7778 kVA |
| Frequency | 50 and 60 Hz |

*) All data are maximum values. The values may deviate depending on the rated voltage, rated apparent power and WT active power.

4.5.1 Transformer

| Transformer* | 50 Hz | 60 Hz |
|--|---|---------|
| Total weight | approx. 10 t | |
| Insulation medium | Ester | |
| Rated voltage OV, U_r | 950 V | |
| Maximum rated voltage OS, dependent on MV grid, U_r | 20 kV/30 kV/34 kV | |
| Taps, overvoltage side | 20 kV and 30 kV: + 4 x 2.5 % 34 kV: + 4 x 0.5 kV | |
| Grid voltage OS | 20; 20.5; 21; 21.5; 22 kV 30; 30.75; 31.5; 32.25; 33 kV 34; 34.5; 35; 35.5; 36 kV | |
| Rated frequency, f_r | 50 Hz | 60 Hz |
| Vector group | Dy5 | |
| Installation altitude (above MSL) | Up to 2000 m | |
| Rated apparent power, S_r | 7800 kVA | |
| Impedance voltage, U_z | 9 % \pm 10 % tolerance | |
| Minimum peak efficiency index, η , (EU) 2019/1783, 548/2014 | 99.590% | – |
| Inrush current | $\leq 5.5 \times I_N$ (peak value) | |
| Power loss ¹⁾ | | |
| No-load losses | 3050 W | 4300 W |
| Short circuit losses | 80000 W | 80700 W |

*) The values are, if not specified otherwise, maximum values. The values may deviate depending on the rated voltage, rated apparent power and WT active power.

¹⁾ Guide values

4.5.2 Medium-voltage switchgear

| Medium-voltage switchgear | |
|--------------------------------------|--|
| Rated voltage (dependent on MV grid) | 24; 36; 38 or 40.5 kV |
| Rated current | 50 Hz: 630 A 60 Hz: 600 A |
| Rated short-circuit duration | 1 s |
| Rated short circuit current | 24 kV: 16 kA (20 kA optional) 36/38/40.5 kV: 20 kA (25 kA optional) |

| Medium-voltage switchgear | |
|--|---|
| Minimum/maximum ambient temperature during operation | NCV: -25 °C to +40 °C |
| | CCV: -30 °C to +40 °C |
| Connection type | External cone type C according to EN 50181 USA: External cone type E according to IEEE 386 |
| Circuit breaker | |
| Number of switching cycles with rated current | E2 |
| Number of switching cycles with short-circuit breaking current | E2 |
| Number of mechanical switching cycles | M1 |
| Switching of capacitive currents | Min. C1 - low |
| Switch disconnector | |
| Number of switching cycles with rated current | E3 |
| Number of switching cycles with short-circuit breaking current | E3 |
| Number of mechanical switching cycles | M1 |
| Disconnecter | |
| Number of mechanical switching cycles | M0 |
| Ground switch | |
| Switching number with rated short-circuit inrush current | E2 |
| Number of mechanical switching cycles | ≥ 1000 |

4.5.3 Generator

| Generator | |
|----------------------|--|
| Type | 6-pole doubly-fed induction machine |
| Degree of protection | IP 54 (slip ring box IP 23) |
| Nominal voltage | 950 V |
| Frequency | 50 and 60 Hz |
| Speed range | 50 Hz: 650 to 1500 min ⁻¹ 60 Hz: 780 to 1800 min ⁻¹ |
| Poles | 6 |
| Weight | approx. 13.5 t |

4.6 Cooling system

| Cooling system | |
|--------------------|--|
| Gearbox | |
| Type | Oil circuit with oil/water heat exchanger and thermal bypass |
| Filters | Coarse filter 50 µm / fine filter 10 µm / ultrafine filter <5 µm |
| Generator | |
| Type | Water circuit with water/air heat exchanger and thermal bypass |
| Coolant | Water/glycol-based coolant |
| Converter | |
| Type | Water circuit with water/air heat exchanger and thermal bypass |
| Coolant | Water/glycol-based coolant |
| Transformer | |
| Coolant | Water/glycol-based coolant |
| Cooling circuit | Ester circuit with ester/water heat exchanger |

4.7 Pitch system

| Pitch system | |
|-----------------------------|--|
| Pitch bearing | Double-row four-point contact bearing |
| Gearing/raceway lubrication | Regular lubrication with grease |
| Drive | Electric motors incl. spring-loaded brake and multi-stage planetary gear |
| Emergency power supply | Batteries |

4.8 Yaw system

| Yaw system | |
|-----------------------------|---|
| Yaw bearing | Double-row four-point contact bearing |
| Gearing/raceway lubrication | Regular lubrication with grease |
| Drive | Electric motors incl. spring-loaded brake and four-stage planetary gear |
| Number of drives | 5-6 |
| Yaw speed | Approx. 0.4 °/s |

4.9 Corrosion protection

| Corrosion protection* | Inside | Outside |
|---------------------------------|----------------------|----------------------|
| Nacelle | C3 | C4 |
| Hub, including material spinner | C3 | C4 |
| Tower | C3 | C4 |
| Steel sections | Color system coating | Color system coating |
| Concrete components | Fair-faced concrete | Fair-faced concrete |

* Categories of corrosion protection according to ISO 12944-2

4.10 Automation systems

| Automation system | |
|----------------------|---------------------------|
| Field bus system | Profinet |
| Safe fieldbus system | Profisafe via Profinet |
| Turbine control | Profinet system control |
| Safety control | Integrated safety control |



Siemens Gamesa 5.X Reaching new heights



Siemens Gamesa technology with benchmark performance and proven reliability

Siemens Gamesa next-generation solutions conceived to deliver an outstanding value proposition for our customers

Imagine how the future becomes present to take wind energy to the next level

At Siemens Gamesa, we strive to anticipate opportunities in an increasingly discerning market. Our wind technology expertise, backed by more than 40 years of experience and 127.5 GW installed throughout the world, equips us with the right tools for imagining the future, making it present and taking wind energy to the next level.

We know what this means: technological leadership, solid track record, commitment to excellence, passion for what we do. And we deliver it now to our customers. This is how the new Siemens Gamesa 5.X onshore platform is born.

Siemens Gamesa 5.X is a new generation of turbines that takes Siemens Gamesa to new heights:

- In performance, cost-efficiency and reliability.
- In power output and rotor size to offer the most competitive LCoE.
- In technology, built upon Siemens Gamesa know-how and expertise.
- In versatility, with a modular, flexible design that facilitates logistics, construction and service.
- In site adaptability, to configure the optimal solution for each project.
- In value for our customers.



Proven technology

The new Siemens Gamesa 5.X onshore platform has its roots in Siemens Gamesa technology, synonymous with innovation, know-how and reliability accredited through experience. Siemens Gamesa 5.X incorporates proven technologies, minimizing risk and guaranteeing reliability for its products models. These include a doubly-fed generator and partial converter combination, a compact drive train design with a three-stage gearbox, and the use of components widely validated on the other Siemens Gamesa platforms. The result is a wind turbine design that gives optimum performance and LCoE.

Benchmark in power output and rotor size

Siemens Gamesa 5.X goes one step further to become the new generation platform that combines a flexible power rating from 5.6 MW to 7.0 MW with two of the largest rotor diameters in the market, 155 and 170 meters, resulting in maximum performance in high-, medium- and low-wind conditions.

SG 6.6-155, SG 6.6-170 and SG 7.0-170 turbines mean greater AEP per wind turbine and optimized CAPEX for the project. This is also due to their versatility, with a modular, flexible design for maximum ease of logistics, construction and O&M, as well as reducing the OPEX, which results in a lower Cost of Energy for projects.

Unique, tailored solutions

Siemens Gamesa 5.X considers profitability to be a key factor in generating value for our customers. Contributing factors to profitability include:

- Configuring flexible, personalized power modes fully tailored to the needs of each site.
- An extensive catalog of towers with multiple available technologies and the additional capability to create specific project designs.

- The use of advanced control strategies that enable intelligent load reduction and a greater applicability for the Siemens Gamesa 5.X platform in different wind conditions.
- A modular, optimized structure for local transport and construction conditions.
- A maintainability-oriented design with advanced diagnostics and remote operation solutions, as well as the possibility of replacing large turbine components without requiring a main crane.
- Optional product solutions to cover all types of market requirements.

Technical specifications

| | SG 6.6-155 | SG 6.6-170 | SG 7.0-170 |
|-----------------------|--|--|-------------------------|
| General details | | | |
| Rated power | 6.6 MW | | 7.0 MW |
| IEC class | IIB (25 years lifetime) IIA (20 years lifetime) IA (25 years lifetime) | S/IIIB (25 years lifetime) IIIA (20 years lifetime) | IIA (25 years lifetime) |
| Flexible power rating | 5.6 MW-6.6 MW | 6.0 MW-6.6 MW | Up to 7.0 MW |
| Control | Pitch and variable speed | | |
| Rotor | | | |
| Diameter | 155 m | 170 m | |
| Swept area | 18,869 m ² | 22,697 m ² | |
| Tower | | | |
| Height | 90, 102.5, 107.5, 122.5, 165 and site-specific | 100, 110.5, 115, 135, 145, 150, 155, 165 and site-specific | TBD |
| Technology | | | |
| Type | Geared | | |
| First prototype | | | |
| Date | 2021 | | TBD |



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11/2022

Appendix D

Agricultural Impact Mitigation Agreement (AIMA)

Hickory Wind Project

LaSalle County, Illinois

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AGRICULTURAL IMPACT MITIGATION AGREEMENT
between
Hickory Wind LLC
and the
ILLINOIS DEPARTMENT OF AGRICULTURE
Pertaining to the Construction of a Commercial Wind Energy Facility
in
LaSalle County, Illinois

The following standards and policies are required by the Illinois Department of Agriculture (IDOA) to help preserve the integrity of any agricultural land that is impacted by the Construction and Deconstruction of a wind energy facility in accordance with the Renewable Energy Facilities Agricultural Impact Mitigation Act (Act), Public Act 100-0598. They were developed with the cooperation of agricultural agencies, organizations, Landowners, Tenants, drainage contractors, and wind energy companies to comprise this Agricultural Impact Mitigation Agreement (AIMA). This AIMA is made and entered into between the Commercial Wind Energy Facility Owner and the IDOA.

Hickory Wind, LLC, an Delaware limited liability company authorized to transact business in Illinois, hereafter referred to as "Commercial Wind Energy Facility Owner or Facility Owner", plans to develop an approximately 80 MW Commercial Wind Energy Facility or "Facility" in LaSalle County, which will consist of approximately 12 turbines, access roads, an underground collection line, a switchyard, a substation, and an operation and maintenance building site.

If construction does not commence within four years after this AIMA has been fully executed, this AIMA will be revised, with the Facility Owner's input, to reflect the IDOA's most current Wind Farm Construction and Deconstruction Standards and Policies. This AIMA, and any updated AIMA, will be filed with the LaSalle County Board by the Facility Owner.

This AIMA is applicable to Construction and Deconstruction activities occurring partially or wholly on privately owned agricultural land.

Conditions of the AIMA

The actions set forth in this AIMA shall be implemented in accordance with the conditions listed below:

- A. All Construction or Deconstruction activities may be subject to County or other local requirements. However, the specifications outlined in this AIMA shall be the minimum standards applied to all Construction or Deconstruction activities.
- B. Except for Section 21(B-F), all actions set forth in this AIMA are subject to modification through negotiation by Landowners and a representative of the Facility Owner, provided such changes are negotiated in advance of any respective Construction or Deconstruction activities.
- C. The Facility Owner may negotiate with Landowners to carry out the mitigative actions that Landowners wish to perform themselves. In such instances, the Facility Owner will offer Landowners the area commercial rate for their machinery and labor costs.
- D. All mitigative actions will extend to associated future Construction, maintenance, repairs, and Deconstruction of the Commercial Wind Energy Facility.

- E. The Facility Owner will exercise Best Efforts to determine all Landowners and Tenants affected by the Construction and Deconstruction of a Facility. The Facility Owner shall keep the Landowners and Tenants informed of the project's status, meetings, and other factors that may have an impact upon their farming operations.
- F. The Facility Owner agrees to include a statement of its adherence to this AIMA in any environmental assessment and/or environmental impact statement that may be prepared in connection with the Project.
- G. Execution of this AIMA shall be made a condition of any Conditional/Special Use Permit. A copy of this AIMA shall be mailed to each Landowner. Within 30 days of execution of this AIMA, the Facility Owner shall provide postage and mailing labels to the IDOA for mailing to all Landowners. If the Facility Owner becomes aware that a Landowner was not included on the list of Landowners to which a copy of this AIMA was mailed, the Facility Owner shall notify the Department and provide postage and a mailing label as soon as possible.

In the case of a new Underlying Agreement with a Landowner, the Facility Owner shall incorporate this AIMA into such Underlying Agreement.
- H. The Facility Owner will implement all mitigative actions to the extent that they do not conflict with the requirements of any applicable federal, state and local rules and regulations and other permits and approvals that are obtained by the Facility Owner for the Project.
- I. If any mitigative action(s) is held to be unenforceable, no other provision shall be affected by that holding, and the remainder of the mitigative actions shall be interpreted as if they did not contain the unenforceable provision.
- J. No later than 45 days prior to the Construction and/or Deconstruction of a Commercial Wind Energy Facility, the Facility Owner will provide the Landowner(s) with a toll-free number the Landowner can call to alert the Facility Owner should the Landowner(s) have questions or concerns with the work which is being done or has been carried out on his/her property.
- K. If the Facility is sold or transferred, the Facility Owner assuming ownership of the facility shall provide notice of such sale or transfer within ninety (90) days to the County and to Landowners, and the existing Financial Assurance requirements, plus the other terms of this AIMA, shall apply to the new Facility Owner.
- L. After construction, the Facility Owner will provide the IDOA with "as built" drawings (strip maps) showing the location of all tile lines damaged in the construction of the Wind Farm. The drawings and GPS tile lines repair coordinates will be provided on a county-by-county basis for distribution by the IDOA to the respective local Soil and Water Conservation District (SWCD) for the purpose of assisting Landowners with future drainage needs.
- M. In addition, after all construction is complete, all affected Landowners will receive a copy of the tile repairs location map with GPS coordinates identified as the electric cable crosses their property.
- N. The Facility Owner shall comply with all local, state and federal laws and regulations, specifically including the worker protection standards to protect workers from pesticide exposure.

Definitions

| | |
|--|--|
| Abandonment - | Occurs when Deconstruction has not been completed within 18 months after the wind energy facility reaches the end of its Useful Life. |
| Aboveground Cable - | Electrical power lines installed above grade to be utilized for conveyance of power from the Wind Turbine(s) to the Wind Facility substation. |
| Agricultural Impact Mitigation Agreement (AIMA) - | The Agreement between the Commercial Wind Energy Facility Owner and the Illinois Department of Agriculture described herein. |
| Agricultural Land - | Land used for Cropland, hayland, pasture land, managed woodlands, truck gardens, farmsteads, commercial ag-related facilities, feedlots, livestock confinement systems, land on which farm buildings are located, and land in government set-aside programs used for purposes as set forth above. |
| Best Efforts - | Diligent, good faith, and commercially reasonable efforts to achieve a given objective or obligation. |
| Commercial Operation Date - | The calendar date on which the Commercial Wind Energy Facility produces power for commercial sale, not including test power. Within ten (10) calendar days of the Commercial Operation Date, the Commercial Wind Energy Facility Owner shall notify the County and the Department of the Commercial Operation Date in writing. |
| Commercial Wind Energy Facility (Facility) - | A wind energy conversion facility of equal or greater than 500 kilowatts in total nameplate generating capacity. "Commercial Wind Energy Facility" includes a wind energy conversion facility seeking an extension of a permit to construct granted by a county or municipality before the effective date of this Act. "Commercial Wind Energy Facility" does not include a wind energy conversion facility: (1) that has submitted a complete permit application to a county or municipality and for which the hearing on the completed application has commenced on the date provided in the public hearing notice, which must be before the effective date of this Act; (2) for which a permit to construct has been issued before the effective date of this Act; or (3) that was constructed before the effective date of this Act. |
| Commercial Wind Energy Facility Owner (Facility Owner) - | A commercial enterprise that owns or operates a Wind Energy Facility of equal to or greater than 500 kilowatts in total nameplate capacity. |
| County - | The County where the Commercial Wind Energy Facility is located. |

| | |
|-----------------------|---|
| Construction - | The installation, preparation for installation and/or repair of a Commercial Wind Energy Facility. |
| Cropland - | Land used for growing row crops, small grains, or hay; includes land which was formerly used as cropland, but is currently in a government set-aside program and pastureland comprised of Prime Farmland. |
| Deconstruction - | The removal of a Commercial Wind Energy Facility from the property of a Landowner and the restoration of that property as provided in the Agricultural Impact Mitigation Agreement. The terms "Deconstruction" and "Decommissioning" have the same meaning and, therefore, may be interchanged with each other. |
| Deconstruction Plan - | <p>A plan prepared by a Professional Engineer, at the Commercial Wind Energy Facility Owner expense, that includes:</p> <ol style="list-style-type: none">(1) the estimated Deconstruction cost per turbine, in current dollars at the time of filing, for the Commercial Wind Energy Facility, taking into account, among other things:<ol style="list-style-type: none">i the number of Wind Turbines and related Commercial Wind Energy Facilities involved,ii the original Construction costs of the Commercial Wind Energy Facilities,iii the size and capacity of the Wind Turbines,iv the salvage value of the Commercial Wind Energy Facilities,v the Construction method and techniques for the Wind Turbines and other Commercial Wind Energy Facilities, and(2) a comprehensive detailed description of how the Commercial Wind Energy Facility Owner plans to pay for the Deconstruction of the Commercial Wind Energy Facility. |
| Department - | The Illinois Department of Agriculture (IDOA). |
| Financial Assurance - | A reclamation bond or other commercially available financial assurance that is acceptable to the County, with the County as primary beneficiary and the Landowners as secondary beneficiaries. |
| Landowner - | Any person with an ownership interest in property that is used for agricultural purposes and that is party to an Underlying Agreement. |
| Prime Farmland - | Agricultural Land comprised of soils that are defined by the USDA Natural Resources Conservation Service (NRCS) as being "prime" soils (generally considered the most productive soils with the least input of nutrients and management). |

| | |
|--|---|
| Professional Engineer - | An engineer licensed to practice engineering in the State of Illinois, and who is determined to be qualified to perform the work described herein by mutual agreement of the County and the Commercial Wind Energy Facility Owner. |
| Soil and Water Conservation District - (SWCD) | A local unit of government that provides technical and financial assistance to eligible landowners for the conservation of soil and water resources. |
| Tenant - | Any person lawfully residing or leasing/renting land that is subject to an Underlying Agreement. |
| Topsoil - | The uppermost layer of the soil that has the darkest color or the highest content of organic matter; more specifically, it is defined as the "A" horizon. |
| Underlying Agreement - | The written agreement with a Landowner(s) including, but not limited to, an easement, option, lease, or license under the terms of which another person has constructed, constructs, or intends to construct a Commercial Wind Energy Facility on the property of the Landowner. |
| Underground Cable - | Electrical power lines installed below grade to be utilized for conveyance of power from the Wind Turbine(s) to the Wind Facility substation. |
| USDA Natural Resources Conservation Service (NRCS) - | NRCS provides America's farmers with financial and technical assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations too. |
| Useful Life - | A Commercial Wind Energy Facility will be presumed to have no remaining Useful Life if: (1) no electricity is generated for a continuous period of twelve (12) months and (2) the Commercial Wind Energy Facility Owner fails, for a period of 6 consecutive months, to pay the Landowner amounts owed in accordance with the Underlying Agreement. |
| Wind Turbine - | A wind energy conversion unit equal to or greater than 500 kilowatts in total nameplate generating capacity. |

Construction and Deconstruction Requirements

1. Support Structures

- A. On Agricultural Land, only single pole support structures will be used for overland transmission not located adjacent to the Commercial Wind Energy Facility substation.
- B. Where the electric line is adjacent and parallel to highway and/or railroad right-of-way, but on privately owned property, the support structures will be placed as close as reasonably practicable and allowable by the applicable County Engineer or other applicable authorities to the highway or railroad right-of-way. The only exceptions may be at jogs or weaves on the highway alignment or along highways or railroads where transmission and distribution lines are already present.
- C. The highest priority will be given to locating the electric line parallel and adjacent to highway and/or railroad right-of-way. When this is not possible, Best Efforts will be expended to place all support poles in such a manner so as to minimize their placement on Cropland (i.e., longer than normal spans will be utilized when traversing Cropland).

2. Aboveground Facilities

Locations for Facilities shall be selected in a manner so as to be as unobtrusive as reasonably possible to ongoing agricultural activities occurring on the land that contains the facilities. The Facility Owner's compliance with applicable local, county, state, and federal statutes, rules, regulations, and ordinances, and its securing any variations or waivers to such statutes, rules, regulations, and ordinances in accordance with applicable law, in selecting such locations shall constitute compliance with this provision.

3. Guy Wires and Anchors

- A. Best Efforts will be made to place guy wires and their anchors out of cropland, pastureland and hayland, placing them instead along existing utilization lines and on land not used for row crops, pasture or hay. Where this is not feasible, Best Efforts will be made to minimize guy wire impact on Cropland.
- B. All guy wires will be shielded with highly visible guards.

4. Underground Cabling Depth

- A. Underground electrical cables will be buried with:
 - 1. a minimum of 5 feet of top cover where it crosses Cropland.
 - 2. a minimum of 5 feet of top cover where it crosses pasture land or other Agricultural Land comprised of soils that are classified by the USDA as being prime soils.
 - 3. a minimum of 3 feet of top cover where it crosses pasture land and other Agricultural Land not comprised of prime soils.
 - 4. a minimum of 3 feet of top cover where it crosses wooded/brushy land.

- B. Notwithstanding the foregoing, in those areas where (i) rock in its natural formation and/or (ii) a continuous strata of gravel exceeding 200 feet in length are encountered, the minimum top cover will be 30 inches.

5. Topsoil Removal and Replacement

- A. Any excavation shall be performed in a manner to preserve topsoil. Best Efforts will be made to store the topsoil near the excavation site in such a manner that it will not become intermixed with subsoil materials.
- B. Best Efforts will be made to store all disturbed subsoil material near the excavation site and separate from the topsoil.
- C. When backfilling an excavation site, the stockpiled subsoil material will be placed back into the excavation site before replacing the topsoil.
- D. Refer to Item No. 7.A. through 7.D for procedures pertaining to rock removal from the subsoil and topsoil.
- E. Refer to Items No. 8.A. through 8.D. for procedures pertaining to the alleviation of compaction of the topsoil.
- F. Best Efforts will be performed to place the topsoil in a manner so that after settling occurs, the topsoil's original depth and contour (with an allowance for settling) will be restored as close as reasonably practicable. The same shall apply where excavations are made for road, stream, drainage ditch, or other crossings. In no instance will the topsoil materials be used for any other purpose unless agreed to otherwise by the Landowner.
- G. Excess subsoil material resulting from wind turbine foundation excavation shall be removed from Landowner's property, unless otherwise agreed to by Landowner.
- H. Topsoil stripping or separation is not required for the excavation of narrow trenches, those 24 inches wide or less.

6. Repair of Damaged Tile Lines

If underground drainage tile is damaged by Construction or Deconstruction, it will be repaired in a manner that assures the tile line's proper operation at the point of repair. The following shall apply to the tile line repair:

- A. The Facility Owner will work with the Landowner to identify the tile lines traversing the property included within the Underlying Agreement which will be crossed or disturbed by the construction of the Facility. All tile lines identified in this manner will be shown on the Construction and Deconstruction Plans and staked or flagged in the locations where expected crossing or disturbance is anticipated prior to Construction or Deconstruction to alert Construction and Deconstruction crews to the possible need for tile line repairs.
- B. Tile lines that are damaged, cut, or removed shall be staked or flagged with stakes or flags placed in such a manner they will remain visible until the permanent repairs are completed. In addition, the location of damaged drain tile lines will be recorded using Global Positioning Systems (GPS) technology.

- C. If water is flowing through any damaged tile line, the Facility Owner shall utilize Best Efforts to immediately and temporarily repair the tile line until such time that the Facility Owner can make permanent repairs. If the tile lines are dry and water is not flowing, temporary repairs are not required if the permanent repairs can be made by the Facility Owner within 14 days (weather and soil conditions permitting) of the time damage occurred; however, the exposed tile lines will be screened or otherwise protected to prevent the entry of foreign materials or animals into the tile lines.
- D. Where tile lines are severed by an excavation trench, repairs shall be made using the IDOA Drain Tile Repairs, Figures 1 and 2.

If there is any dispute between the Landowner and the Facility Owner on the method of permanent tile line repair, the appropriate Soil and Water Conservation District's opinion shall be considered by the Facility Owner and the Landowner.
- E. To the extent practicable, there will be a minimum of one foot of separation between the tile line and the Underground Cable whether the Underground Cable passes over or under the tile line. If the tile line was damaged as part of the excavation for installation of the Underground Cable, the Underground Cable will be installed with a minimum one foot clearance below or over the tile line to be repaired or otherwise to the extent practicable.
- F. The original tile line alignment and gradient shall be maintained. A laser transit shall be used to ensure the proper gradient is maintained. A laser operated tiling machine shall be used to install or replace tiling segments of 100 linear feet or more.
- G. During Construction stage, all permanent tile line repairs must be made within fourteen (14) days of identification or notification of the damage, weather and soil conditions permitting. At other times, such repairs must be made at a time mutually agreed upon by the Facility Owner and the Landowner.
- H. Following Construction and/or Deconstruction activities, the Facility Owner will utilize best practices to restore the drainage in the area to the condition it was before the commencement of the Construction/Deconstruction activities. If the Facility Owner cannot agree upon a reasonable method to complete this restoration, the Facility Owner may – but is not required to – implement the recommendations of the appropriate County SWCD and such implementation would resolve the dispute.
- I. Following completion of the work, the Facility Owner will be responsible for correcting or paying for the correction of all tile line repairs that fail due to Construction and/or Deconstruction, provided any such failure was identified by Landowner within twenty-four (24) months after Construction or Deconstruction. The Facility Owner will not be responsible for tile line repairs that the Facility Owner pays the Landowner to perform. Facility Owner shall use Best Efforts to utilize a local drain tile repair company.

7. Rock Removal

The following rock removal procedures only pertain to rocks found in the uppermost 42 inches of soil, the common freeze zone in Illinois, which emerged on Landowner property as a result of Construction and/or Deconstruction.

- A. Before replacing any Topsoil, Best Efforts will be taken to remove all rocks greater than 3 inches in any dimension from the surface of exposed subsoil which were brought to the site as a result of Construction and/or Deconstruction.

- B. As topsoil is replaced, all rocks greater than 3 inches in any dimension will be removed from the topsoil which emerged at the site as a result of Construction and/or Deconstruction activities.
- C. If trenching, blasting, or boring operations are required through rocky terrain, precautions will be taken to minimize the potential for oversized rocks to become interspersed with adjacent soil material.
- D. Rocks and soil containing rocks removed from the subsoil areas, topsoil, or from any excavations, will be hauled off the Landowner's premises or disposed of on the Landowner's premises at a location that is mutually acceptable to the Landowner and the Facility Owner.

8. Compaction and Rutting

- A. Unless the Landowner opts to do the restoration work, after the topsoil has been replaced, all areas that were traversed by vehicles and Construction and/or Deconstruction equipment will be ripped at least 18 inches deep, and all pasture and woodland will be ripped at least 12 inches deep to the extent practicable. The existence of tile lines or underground utilities may necessitate less depth. The disturbed area will then be disked. Decompaction shall be conducted according to the guidelines provided in Appendices A and B.
- B. To the extent practicable, all ripping and disking will be done at a time when the soil is dry enough for normal tillage operations to occur on land adjacent to the right-of-way.
- C. The Facility Owner will restore all rutted land to a condition as close as possible to its original condition.
- D. If there is any dispute between the Landowner and the Facility Owner as to what areas need to be ripped/disked or the depth at which compacted areas should be ripped/disked, the appropriate County SWCD's opinion shall be considered by the Facility Owner and the Landowner.

9. Construction During Wet Weather

Except as provided below, construction activities are not allowed on farmland where normal farming operations, such as plowing, disking, planting or harvesting, cannot take place due to excessively wet soils. Wet weather conditions are to be determined on a field by field basis and not for the project as a whole.

- A. Construction activities on prepared surfaces, surfaces where topsoil and subsoil have been removed, heavily compacted in preparation, or otherwise stabilized (e.g. through cement mixing) may occur at the discretion of the Facility Owner in wet weather conditions.
- B. Construction activities on unprepared surfaces will be done only when work will not result in rutting which results in a mixing of subsoil and topsoil. Determination as to the potential of subsoil and topsoil mixing will be in consultation with the underlying Landowner, or, if approved by the Landowner, his/her designated Tenant.

10. Land Leveling

- A. Following the completion of Construction and/or Deconstruction of a Commercial Wind Energy Facility, the Facility Owner will utilize Best Efforts to restore the disturbed area to its original pre-construction elevation and contour should uneven settling occur or surface drainage problems develop as a result of said activity.
- B. If, within twenty-four (24) months after Construction or Deconstruction, uneven settling occurs or surface drainage problems develop as a result of the Construction or Deconstruction of a Facility, the Facility Owner will provide such land leveling services within 45 days of a Landowner's written notice, weather and soil conditions permitting.
- C. If there is any dispute between the Landowner and the Facility Owner as to what areas need additional land leveling beyond that which is done at the time of Construction, the Facility Owner may – but is not required to – implement the recommendations of the appropriate SWCD and such implementation will resolve the dispute.

11. Prevention of Soil Erosion

- A. The Facility Owner will work with Landowners to prevent excessive erosion on land that has been disturbed by Construction or Deconstruction of a Commercial Wind Energy Facility. Consultation with the local SWCD by the Facility Owner will take place to determine the appropriate methods to be implemented to control erosion. This is not a requirement, however, if the land is bare Cropland that the Landowner intends to leave bare until the next crop is planted.
- B. If the Landowner and Facility Owner cannot agree upon a reasonable method to control erosion on the Landowner's right-of-way, the Facility Owner may – but is not required to – implement the recommendations of the appropriate SWCD and such implementation will resolve the dispute.

12. Repair of Damaged Soil Conservation Practices

Consultation with the local SWCD by the Facility Owner will be carried out to determine if there are soil conservation practices (such as terraces, grassed waterways, etc.) that will be damaged by the Construction and/or Deconstruction of a Commercial Wind Energy Facility. Those conservation practices will be restored to their preconstruction condition as close as reasonably practicable in accordance with USDA Natural Resources Conservation Service technical standards. All repair costs shall be borne by the Facility Owner.

13. Damages to Private Property

The Facility Owner will reasonably compensate Landowners for damages caused by the Facility Owner. Damage to Cropland will be reimbursed to the Landowner as prescribed in the applicable Underlying Agreement.

14. Clearing of Trees and Brush

- A. If trees are to be removed for the Construction or Deconstruction of a Commercial Wind Energy Facility, the Facility Owner will consult with the Landowner to determine if there are trees of commercial or other value to the Landowner.

- B. If there are trees of commercial or other value to the Landowner, the Facility Owner will allow the Landowner the right to retain ownership of the trees to be removed with the disposition of the removed trees to be negotiated prior to the commencement of land clearing.
- C. Unless otherwise restricted by federal, state or local regulations, the Facility Owner will follow the Landowner's desires regarding the removal and disposal of trees, brush, and stumps of no value to the Landowner by burning, burial, etc., or complete removal from any affected property.

15. Interference with Irrigation Systems

- A. If the Construction or Deconstruction of a Commercial Wind Energy Facility interrupts an operational (or soon to be operational) spray irrigation system, the Facility Owner will establish with the Landowner an acceptable amount of time the irrigation system may be out of service.
- B. If, as a result of Construction or Deconstruction of a Facility, an irrigation system interruption results in crop damages, the Landowner will be compensated for all such crop damages per the applicable Underlying Agreement.
- C. If it is feasible and mutually acceptable to the Facility Owner and the Landowner, temporary measures will be implemented to allow an irrigation system to continue to operate across land on which a Facility is also being Constructed or Deconstructed.

16. Access Roads

- A. To the extent practicable, access roads will be designed to not impede surface drainage and will be built to minimize soil erosion on or near the access roads.
- B. Access roads may be left intact through mutual agreement of the Landowner and the Facility Owner unless otherwise restricted by federal, state, or local regulations after the Useful Life.
- C. If the access roads are removed, Best Efforts will be expended to assure that the land shall be restored to equivalent condition(s) as existed prior to their construction, or as otherwise agreed to by the Facility Owner and the Landowner. All access roads that are removed shall be ripped to a depth of 18 inches. All ripping will be done consistent with Items 8.A. through 8.D.

17. Weed Control

- A. The Facility Owner will provide for weed control in a manner that prevents the spread of weeds onto agricultural land affected by Construction or Deconstruction. Spraying will be done by a pesticide applicator that is appropriately licensed for doing such work in the State of Illinois.
- B. The Facility Owner will be responsible for reimbursing all reasonable costs incurred by owners of agricultural land affected by Construction or Deconstruction where it has been determined that weeds have spread from land impacted by the Facility. Reimbursement is contingent upon written notice to the Facility Owner and failure to respond within forty-five (45) days after notice is received.

18. Pumping of Water from Open Excavations

- A. In the event it becomes necessary to pump water from open excavations, the Facility Owner will pump the water in a manner that will avoid damaging agricultural land affected by Construction or Deconstruction. Such damages include, but are not limited to: inundation of crops for more than 24 hours, deposition of sediment in ditches and other water courses, and the deposition of subsoil sediment and gravel in fields and pastures.
- B. If it is impossible to avoid water-related damages as described in Item 18.A. above, the Facility Owner will compensate the Landowner for damages to crops as prescribed in the applicable Underlying Agreement.
- C. All pumping of water shall comply with existing drainage laws, local ordinances relating to such activities and any other applicable laws, specifically including the Clean Water Act.

19. Advance Notice of Access to Private Property

- A. The Facility Owner will provide the Landowner or Tenant with a minimum of 48 hours prior notice before accessing his/her property for the purpose of Construction or Deconstruction of a Commercial Wind Energy Facility.
- B. Prior notice shall consist of either: (i) a personal contact, telephone contact or email contact, whereby the Landowner or tenant is informed of the Facility Owner's intent to access the land; or (ii) the Facility Owner mails or hand delivers to the Landowner or tenant's home a dated, written notice of the Facility Owner's intent. Such written or hand delivered notice shall include a toll-free number at which agents of the Facility Owner can be reached. The Landowner or tenant need not acknowledge receipt of the written notice before the Facility Owner can enter the Landowner's property.

20. Indemnification

The Commercial Wind Energy Facility Owner will indemnify all Landowners, their heirs, successors, legal representatives, and assigns from and against all claims, injuries, suits, damages, costs, losses, and reasonable expenses resulting from or arising out of Construction and/or Deconstruction, including damage to such Commercial Wind Energy Facility or any of its appurtenances, except where claims, injuries, suits, damages, costs, losses, and expenses are caused by the negligence or intentional acts, or willful omissions of such Landowners, and/or the Landowners heirs, successors, legal representatives, and assigns. In such circumstances, the Landowners, and the Landowners' heirs, successors, legal representatives, and assigns will indemnify the Facility Owner, its heirs, successors, legal representatives, and assigns from and against said claims, injuries, suits, damages, costs, losses, and reasonable expenses including but not limited to attorneys' fees and costs.

21. Deconstruction of Commercial Wind Energy Facilities and Financial Assurance

- A. Deconstruction of a Facility shall include the removal/disposition of the following equipment/facilities utilized for operation of the Facility and located on Landowner property:
 - 1. Wind Turbine towers and blades;

2. Wind Turbine generators;
 3. Wind Turbine foundations (to depth of 5 feet);
 4. Transformers;
 5. Collection/interconnection substation (components, cable, and steel foundations), provided, however, that electrical collection cables at a depth of 5 feet or greater may be left in place;
 6. Overhead collection system;
 7. Operations/maintenance buildings, spare parts buildings and substation/switching gear buildings unless otherwise agreed to by the Landowner;
 8. Access Road(s) (unless Landowner requests in writing that the access road is to remain);
 9. Operation/maintenance yard/staging area unless otherwise agreed to by the Landowner; and
 10. Debris and litter generated by Deconstruction and Deconstruction crews.
- B. The Facility Owner shall, at its expense, complete Deconstruction of a Commercial Wind Energy Facility within eighteen (18) months after the end of the Useful Life of the Facility.
- C. During the County permit process, the Facility Owner shall file with the County, a Deconstruction Plan. A second Deconstruction Plan shall be filed with the County on or before the end of the tenth year of the Commercial Operation Date.
- D. The Facility Owner shall provide the County with Financial Assurance to cover the estimated costs of Deconstruction of the Commercial Wind Energy Facility. Provision of this Financial Assurance shall be phased in over the first 11 years of the Project's operation as follows:
1. On or before the first anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover ten (10) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan provided during the county permit process.
 2. On or before the sixth anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover fifty (50) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan provided during the county permit process.
 3. On or before the eleventh anniversary of the Commercial Operation Date, the Facility Owner shall provide the County with Financial Assurance to cover one hundred (100) percent of the estimated costs of Deconstruction of the Facility as determined in the Deconstruction Plan provided during the tenth year of the Commercial Operation Date.

The Financial Assurance shall not release the surety from liability until the Financial Assurance is replaced. The salvage value of the Facility may only be used to reduce the estimated costs of Deconstruction in the Deconstruction Plan if the County agrees that all interests in the salvage value are subordinate or have been subordinated to that of the County if Abandonment occurs.

- E. The County may – but is not required to – reevaluate the estimated costs of Deconstruction of any Commercial Wind Energy Facility after the tenth anniversary, and every five years thereafter, of the Commercial Operation Date which reevaluation must be performed by an independent third party Professional Engineer licensed in the State of Illinois. The County shall provide the Facility Owner with a copy of any reevaluation report. Based on any reevaluation, the County may require changes in the level of Financial Assurance used to calculate the phased coverages described in Section 21 D. required from the Facility Owner. The Facility Owner shall be responsible for the cost of any reevaluation by a third party Professional Engineer.
- F. Upon Abandonment, the County may take all appropriate actions for Deconstruction, including drawing upon the Financial Assurance. In the event the County declines to take any action for Deconstruction, the Landowners may draw upon the Financial Assurance.

Concurrence of the Parties to this AIMA

The Illinois Department of Agriculture and Hickory Wind, LLC concur that this AIMA is the complete AIMA governing the mitigation of agricultural impacts that may result from the construction of the wind farm project in LaSalle County within the State of Illinois.

The effective date of this AIMA commences on the date of execution.

**STATE OF ILLINOIS
DEPARTMENT OF AGRICULTURE**

 3

By Jerry Costello II, Director



By John Teefey, General Counsel

801 E. Sangamon Avenue, 62702
State Fairgrounds, POB 19281
Springfield IL 62794-9281

1/19, 2023

HICKORY WIND, LLC
a Delaware **limited liability company**



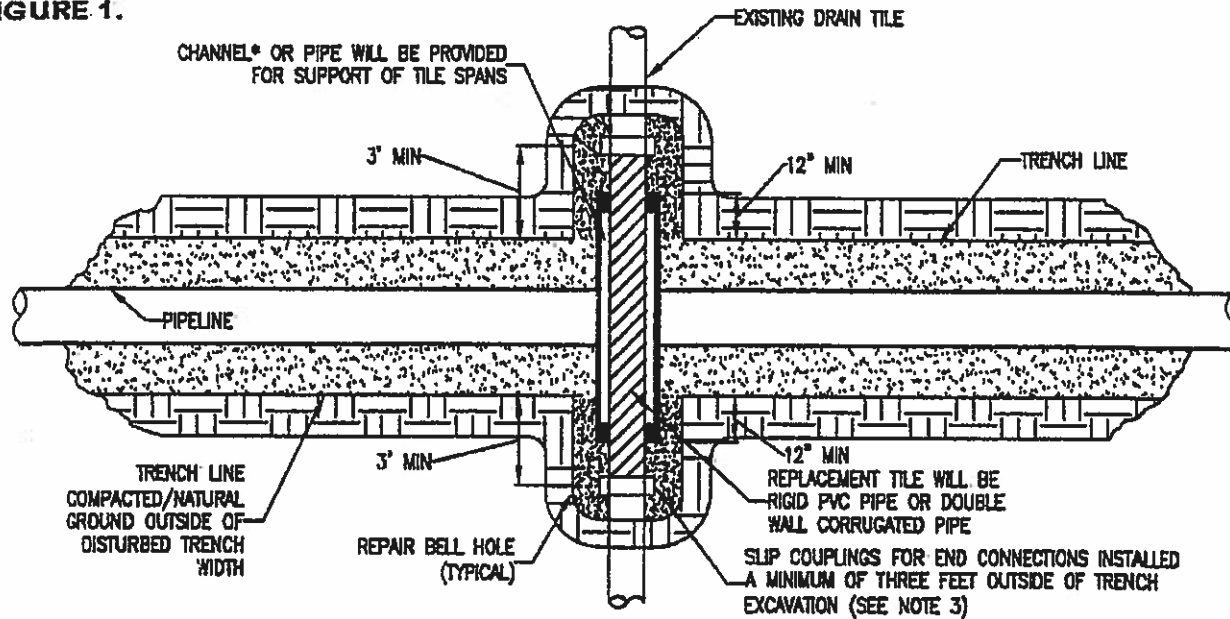
By Daniel DuBois, Managing Director

1002 SE Monterey Commons Blvd., Suite 300

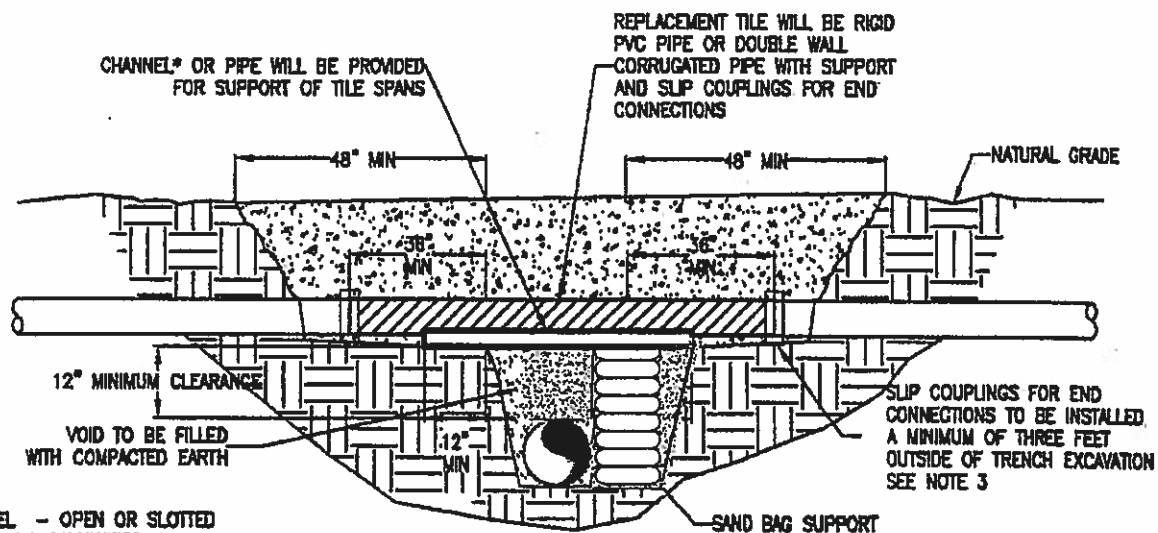
Stuart, Florida 34996

January 16, 2023

FIGURE 1.



PLAN
N.T.S.



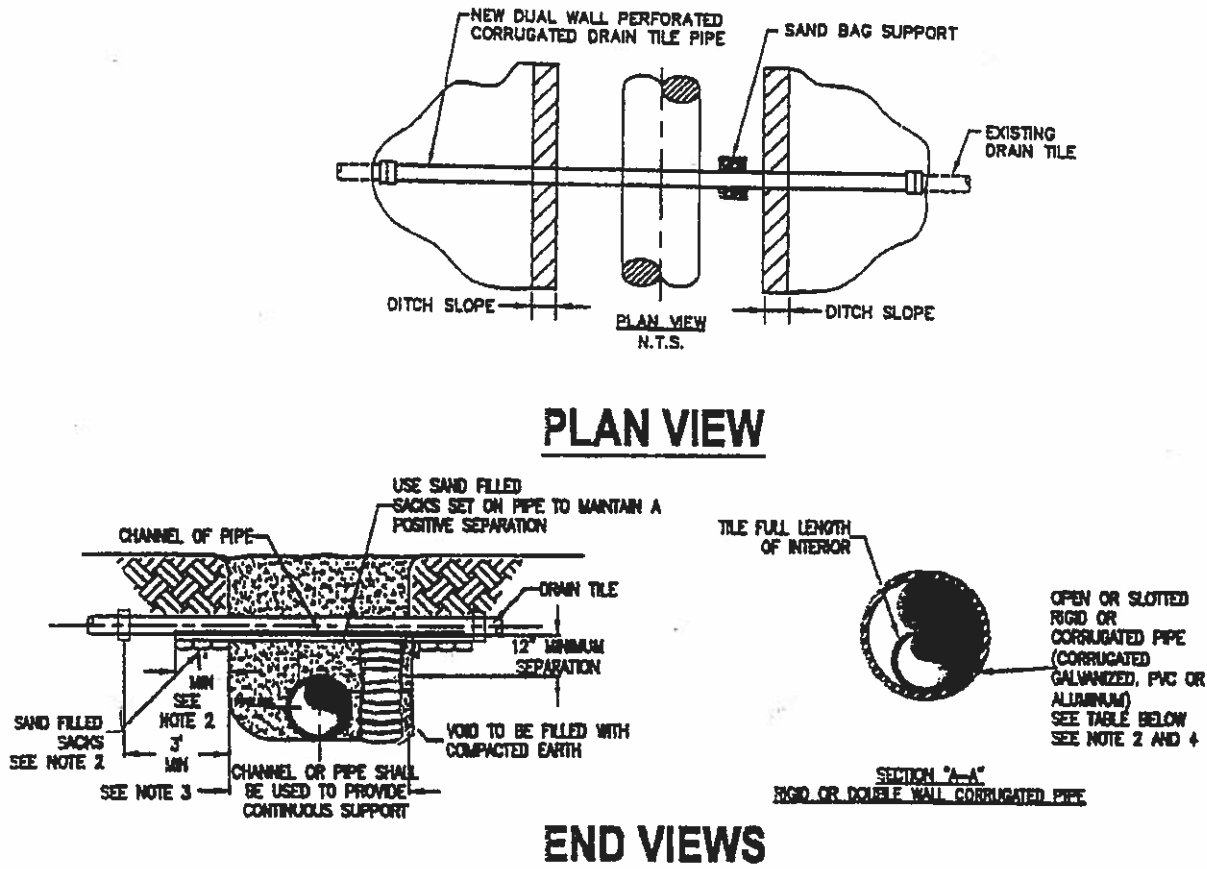
CROSS SECTION
N.T.S.

NOTE:

1. IMMEDIATELY REPAIR TILE IF WATER IS FLOWING THROUGH TILE AT TIME OF TRENCHING. IF NO WATER IS FLOWING AND TEMPORARY REPAIR IS DELAYED, OR NOT MADE BY THE END OF THE WORK DAY, A SCREEN OR APPROPRIATE 'NIGHT CAP' SHALL BE PLACED ON OPEN ENDS OF TILE TO PREVENT ENTRAPMENT OF ANIMALS ETC.
2. CHANNEL OR PIPE (OPEN OR SLOTTED) MADE OF CORRUGATED GALVANIZED PIPE, PVC OR ALUMINUM WILL BE USED FOR SUPPORT OF DRAIN TILE SPANS.
3. INDUSTRY STANDARDS SHALL BE FOLLOWED TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES.

TEMPORARY DRAIN TILE REPAIR

FIGURE 2.



| MINIMUM SUPPORT TABLE | | | |
|-----------------------|-----------------|-----------|----------|
| TILE SIZE | CHANNEL SIZE | PIPE SIZE | |
| 3" | 4" @ 5.4 #/ft | 4" | STD. WT. |
| 4"-5" | 5" @ 8.7 #/ft | 6" | STD. WT. |
| 6"-9" | 7" @ 9.8 #/ft | 8"-10" | STD. WT. |
| 10" | 10" @ 15.3 #/ft | 12" | STD. WT. |

NOTE:

1. TILE REPAIR AND REPLACEMENT SHALL MAINTAIN ORIGINAL ALIGNMENT GRADIENT AND WATER FLOW TO THE GREATEST EXTENT POSSIBLE. IF THE TILE NEEDS TO BE RELOCATED, THE INSTALLATION ANGLE MAY VARY DUE TO SITE SPECIFIC CONDITIONS AND LANDOWNER RECOMMENDATIONS.
2. 1'-0" MINIMUM LENGTH OF CHANNEL OR RIGID PIPE (OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE) SHALL BE SUPPORTED BY UNDISTURBED SOIL, OR IF CROSSING IS NOT AT RIGHT ANGLES TO PIPELINE, EQUIVALENT LENGTH PERPENDICULAR TO TRENCH. SHIM WITH SAND BAGS TO UNDISTURBED SOIL FOR SUPPORT AND DRAINAGE GRADIENT MAINTENANCE (TYPICAL BOTH SIDES).
3. DRAIN TILES WILL BE PERMANENTLY CONNECTED TO EXISTING DRAIN TILES A MINIMUM OF THREE FEET OUTSIDE OF EXCAVATED TRENCH LINE USING INDUSTRY STANDARDS TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES INCLUDING SLIP COUPLINGS.
4. DIAMETER OF RIGID PIPE SHALL BE OF ADEQUATE SIZE TO ALLOW FOR THE INSTALLATION OF THE TILE FOR THE FULL LENGTH OF THE RIGID PIPE.
5. OTHER METHODS OF SUPPORTING DRAIN TILE MAY BE USED IF ALTERNATE PROPOSED IS EQUIVALENT IN STRENGTH TO THE CHANNEL/PIPE SECTIONS SHOWN AND IF APPROVED BY COMPANY REPRESENTATIVES AND LANDOWNER IN ADVANCE. SITE SPECIFIC ALTERNATE SUPPORT SYSTEM TO BE DEVELOPED BY COMPANY REPRESENTATIVES AND FURNISHED TO CONTRACTOR FOR SPANS IN EXCESS OF 20', TILE GREATER THEN 10" DIAMETER, AND FOR "HEADER" SYSTEMS.
6. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.
7. PRIOR TO REPAIRING TILE, CONTRACTOR SHALL PROBE LATERALLY INTO THE EXISTING TILE TO FULL WIDTH OF THE RIGHTS OF WAY TO DETERMINE IF ADDITIONAL DAMAGE HAS OCCURRED. ALL DAMAGED/DISTURBED TILE SHALL BE REPAIRED AS NEAR AS PRACTICABLE TO ITS ORIGINAL OR BETTER CONDITION.

PERMANENT DRAIN TILE REPAIR

Appendix A.

Guidelines for Conducting Proper and Successful Decompaction

1. Decompaction is required when all three conditions apply.
 - A. the area has been trafficked or traversed by vehicles or construction equipment, and
 - B. the soil penetrometer readings are 300 psi or greater, and
 - C. The soil strength (psi) in the right-of-way area is greater than that of the non-trafficked area.
2. An Environmental and/or Agricultural Inspector (AI), with experience and training in the proper identification of compacted soil and operation methods of deep decompaction tools is required to observe the daily operation of the ripper/subsoiler to ensure the conditions are appropriate for decompaction efforts and that the proper equipment is utilized and that equipment is set-up and operated correctly.
3. To achieve the most effective shatter of the compacted soil the following guidelines have been established:
 - A. Conduct ripping when the soil is dry. Follow the "Soil Plasticity Test Procedures" detailed in Appendix B to determine if soil conditions are adequately dry to conduct decompaction efforts.
 - B. Deep ripping shall be conducted using a ripper or subsoiling tool with a shank length of no less than 18 inches and a shank spacing of approximately the same measurement as the shank length.
 - C. Use a ripper with a knife length of no less than 2 inches more than the desired depth of decompaction.
 - D. To best promote revegetation and restore crop production, a total depth of 30 or more inches of soil (topsoil plus subsoil) is required.
 - E. The minimum depths of decompaction stated above in 3.D. are required where possible. A safe distance from sub-surface structures (tile drains, pipelines, buried utilities, bedrock, etc.) must be maintained at all times. Where such structures exist, a lesser depth of decompaction will be required to prevent damage to equipment and the structures as well as to maintain a safe work environment. The allowable decompaction depth in these instances will be determined on a site by site basis.
 - F. When the knives are in the soil to the desired depth, the tongue of the ripper should be parallel to the surface of the ground.
 - G. Select a tractor that has enough horsepower to pull the ripper at a speed of 1.5 to 2 mph and whose footprint is of equal or lesser width than the ripper. Tracked equipment is preferred and typically required to achieve this criteria.
 - H. The ripper shanks should not create ruts, channels, or mixing of the sub-soil with topsoil. A speed of 1.5 to 2 mph is recommended to minimize the risk of rutting and soil mixing. The ideal operating speed can vary with soil characteristics, tractor and ripping tool used. An excessive travel speed will often increase mixing of soil horizons.
 - I. When the equipment is set up and operated correctly, the ripper should create a wave across the surface of the ground as it lifts and drops the soil.

- J. Make one ripping pass through the compacted area. Using a penetrometer, the AI will measure the PSI between the ripped knife tracks to determine if the single ripping pass was successful. Additional passes should only be used where needed as they may reduce the effectiveness of the ripping by recompacting the soil shattered in the previous pass.
- K. If the first pass does not successfully decompact the soil, additional passes will be needed. Should multiple passes of the ripper be needed to achieve decompaction between the knives tracks of the ripping tool, the subsequent passes should be positioned so the knife tracks from the previous pass are split by the second pass. If three or more passes have been made and sufficient decompaction has not yet been achieved the AI may choose to halt further decompaction efforts in that area until conditions improve or better methods are determined.
- L. Following ripping, all stone and rock three or more inches in size which has been lifted to the surface shall be collected and removed from agricultural areas.
- M. After ripping has been conducted, do not allow unnecessary traffic on the ripped area.
- N. In agricultural lands and croplands that will not be replanted to vegetation by the Company, recommend to landowners to plant a cover crop (cereal rye, clover, alfalfa, tillage radish, turnips, etc.) following decompaction. Reduced compaction created by the ripper pass will not remain over time without subsequent root penetration. Root penetration into the shattered soil is necessary to establish permanent stabilized channels to conduct air and water into the soil profile. Two good sources for landowner cover crop education are <http://www.mccc.msu.edu/CCinfo/cropbycrop.html> and <http://mcccdev.anr.msu.edu/>. For local expertise, consult with your county's Soil and Water Conservation District /USDA Natural Resource Conservation Service (NRCS) office for cover crop selection and compliance with NRCS planting deadlines.

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Appendix B.

Soil Plasticity Test Procedures

The Agricultural Inspector will test the consistency of the surface soil to a depth of approximately 4 to 8 inches using the Field Plasticity Test procedure developed from the *Annual Book of ASTM Standards, Plastic Limit of Soils* (ASTM D-4318).

1. Pull a soil plug from the area to be tilled, moved, or trafficked to a depth of 4-8 inches.
2. Roll a portion of the sample between the palms of the hands to form a wire with a diameter of one-eighth inch.
3. The soil consistency is:
 - A. Tillable (able to be worked) if the soil wire breaks into segments not exceeding $\frac{3}{8}$ of an inch in length.
 - B. Plastic (not tillable) if the segments are longer than $\frac{3}{8}$ of an inch before breaking.
4. This Procedure is to be used to aid in determining when soil conditions are dry enough for construction activities to proceed.
5. Once the soil consistency has been determined to be of adequate dryness, the plasticity test is not required again until the next precipitation event.

Appendix E

Site Plan Layout and O&M Facility Layout

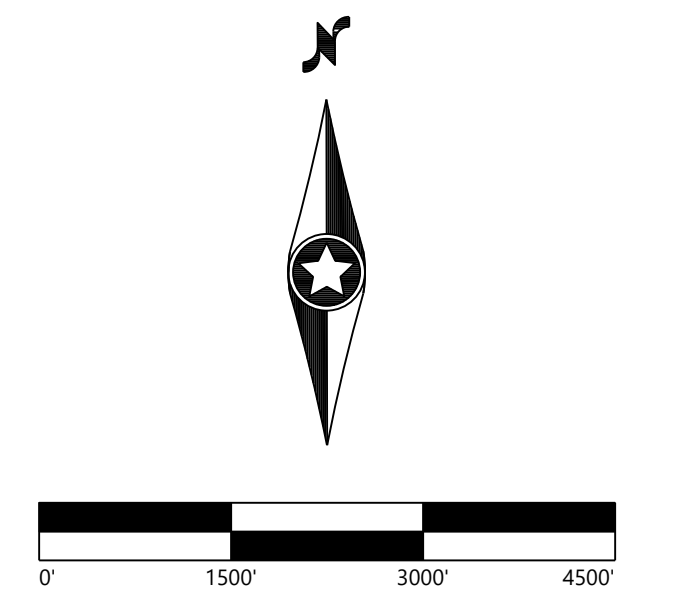
Hickory Wind Project

LaSalle County, Illinois

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1002 SE Monterey Commons Blvd.
Stuart, FL 34996

| REVISIONS: | | |
|------------|------------|-------------------|
| # | DATE | COMMENT |
| A | 12/21/2022 | ISSUED FOR PERMIT |
| B | 01/16/2023 | ISSUED FOR PERMIT |
| C | 01/26/2023 | ISSUED FOR PERMIT |
| | | |
| | | |
| | | |



Hickory Wind Project

LaSalle County, IL

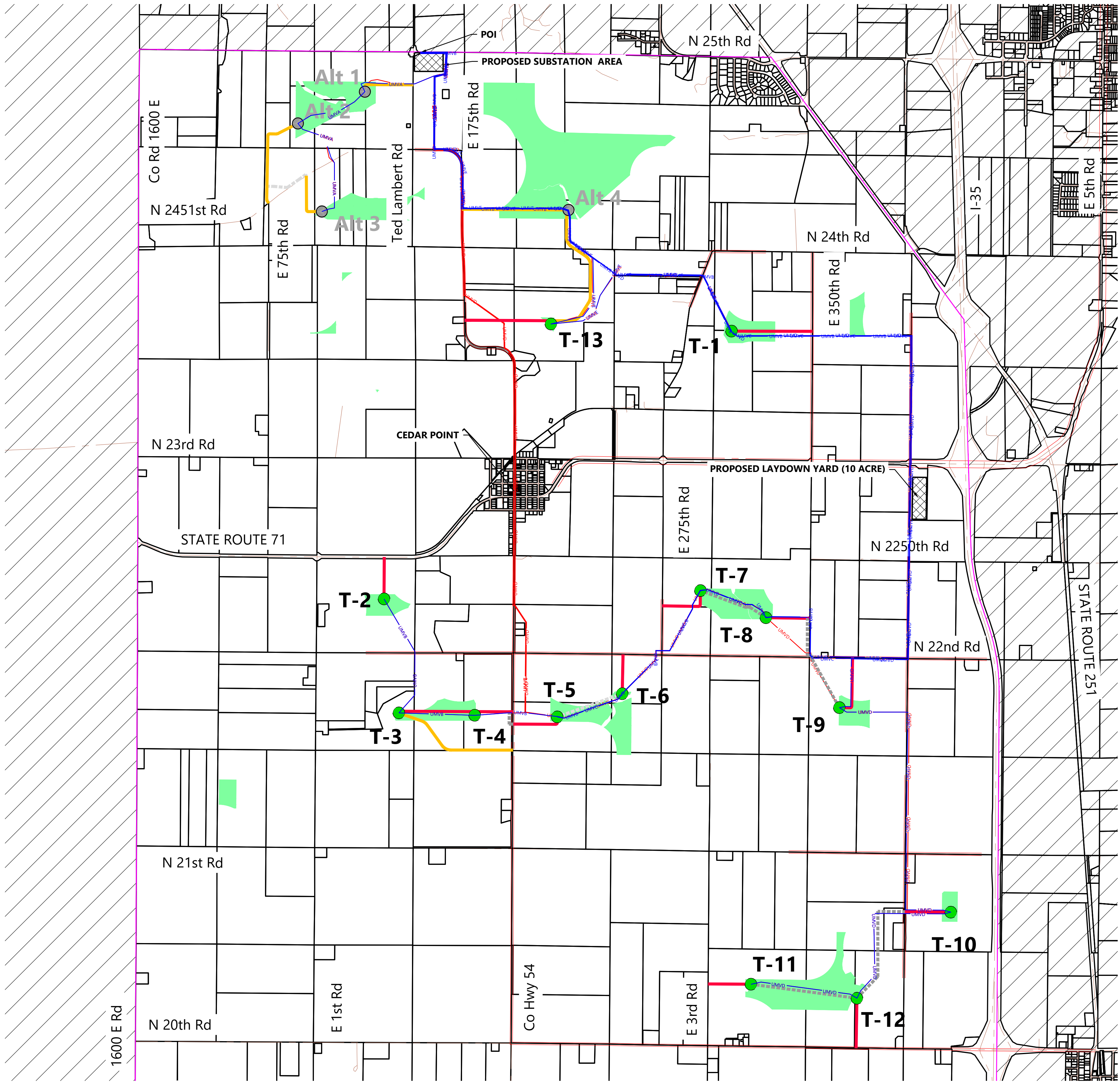
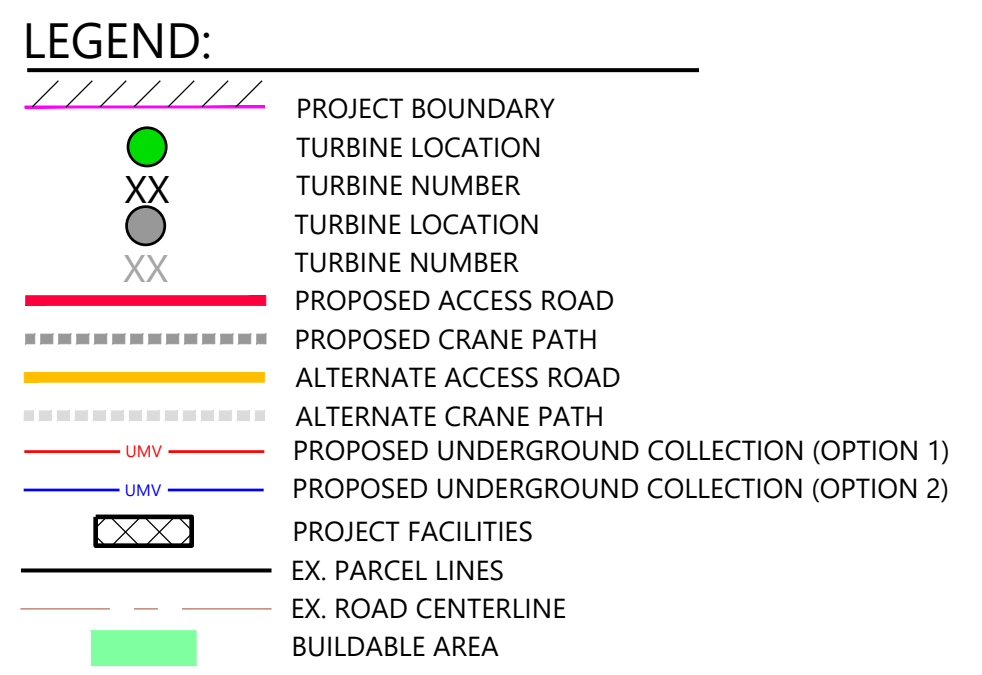
Overall Site Plan

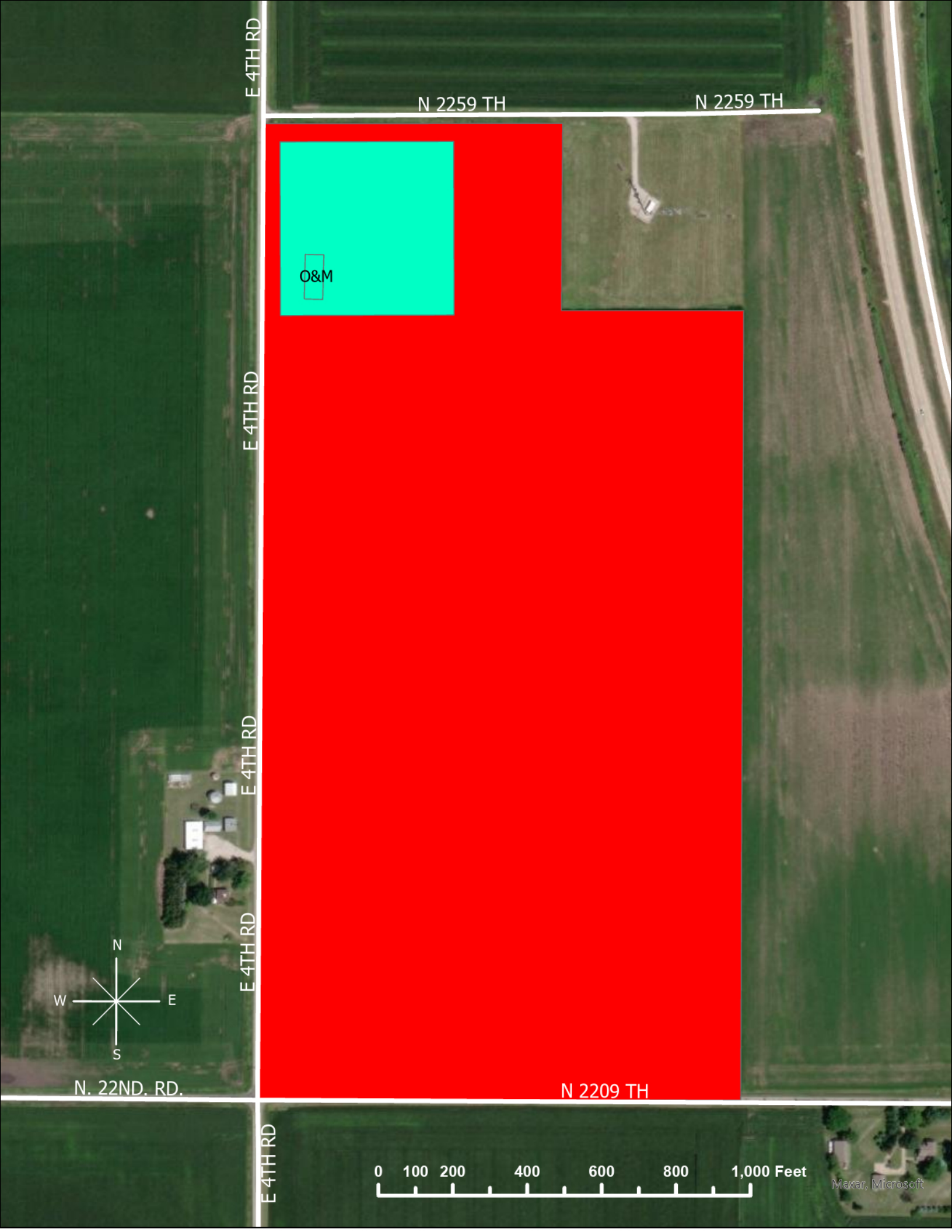
NOT FOR CONSTRUCTION

DATE: 01/26/2023

SHEET: C100

REV:





E 4TH RD

N 2259 TH

N 2259 TH

O&M

E 4TH RD

E 4TH RD

E 4TH RD



N. 22ND. RD.

N 2209 TH

E 4TH RD

0 100 200 400 600 800 1,000 Feet

Maxar, Microsoft

Appendix F

NRI Report Application

Hickory Wind Project

LaSalle County, Illinois

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Natural Resource Information Report Application

LaSalle County Soil and Water Conservation District

1691 North 31st Rd., Ottawa, IL 61350

Phone: (815) 433-0551 Ext. 3

For Office Use Only

File #: _____ - _____ Received: _____ 20 _____
Fee: \$ _____ (Please make check payable to **LaSalle County SWCD**)

NRI Fee: Full Report: \$350.00 for up to 5 acres and \$20.00 for each additional acre or portion thereof.

Letter: \$100.00 Staff will determine whether a letter or a full report will be necessary.

Wind Turbine: \$150.00 per turbine

The NRI report will not be started until the fee and plat of survey are received by the LCSWCD office.

Please Print

Petitioner's Name: _____ **Phone:** (____) ____ - ____

Address: _____

Contact Person: _____ **Phone:** (____) ____ - ____

Address: _____

| Parcel Index Number | Township & Range Or Name | Section | Acres |
|---------------------|-----------------------------|---------|-------|
| 1) _____ | _____ | _____ | _____ |
| 2) _____ | _____ | _____ | _____ |

Total Parcel Size: _____

Current Zoning: _____ Requested Zoning: _____

Current Use of Site: _____ Proposed Use: _____

Proposed Water Supply: _____ Private Well _____ Community Water

Proposed Wastewater Treatment: _____ Septic System _____ Sanitary Sewer _____ Other

Proposed Stormwater Plans: _____ Ditches/Swails _____ Wet Detention Basin

_____ Dry Detention Basin _____ Storm Sewer

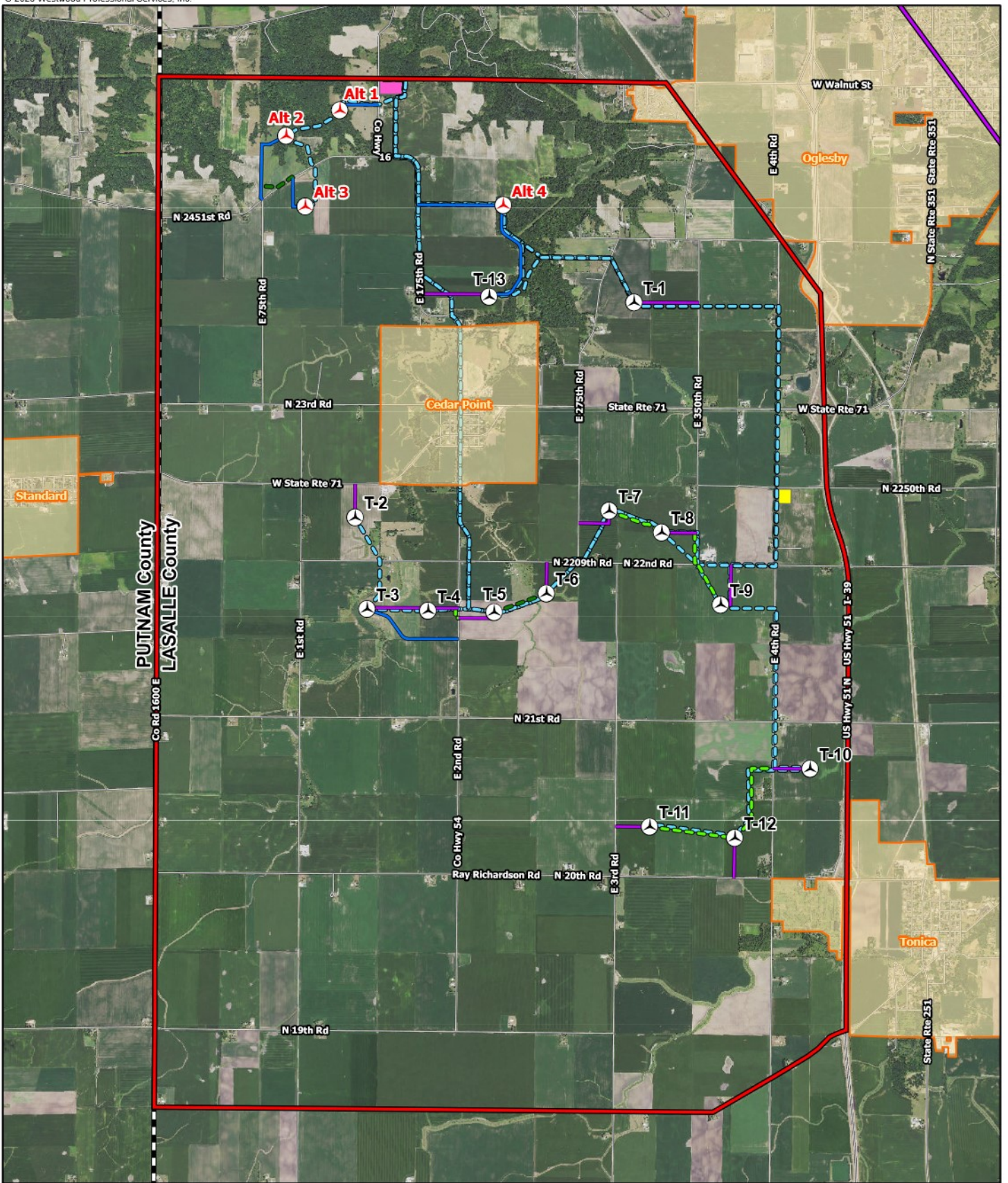
_____ No Detention Facilities

LaSalle County SWCD has 20 working days to complete the NRI after **both** the **Plat of Survey** and **NRI Fee** are received.

It is to be understood by the applicant that filling out this application gives a district representative the right to conduct an onsite investigation of the parcel(s) described above. Furthermore, this report becomes subject to the Freedom of Information Act after approval by the LaSalle County SWCD Board of Directors at their regularly scheduled meeting. Board meetings are scheduled for the first Monday of each month with exception of October and May when there are NO meetings.

Contact Person or Petitioner's Signature:  _____ **Date:** 1-16-23

| Turbines | | | PIN | Name |
|----------|---------------|---------------|--------------------|---|
| ID | LAT | LONG | LaSalle County PIN | Landowner Name |
| Alt 1 | 41°17'32.40"N | 89° 8'27.65"W | 17-32-101-000 | Carusbrooke Farms Inc |
| Alt 2 | 41°17'23.71"N | 89° 8'51.38"W | 17-31-202-000 | Carus Frederick L Etal |
| Alt 3 | 41°17'0.13"N | 89° 8'42.56"W | 17-32-300-000 | Carus Frederick L Etal |
| Alt 4 | 41°17'1.15"N | 89° 7'14.84"W | 17-33-301-000 | Mudge Jeffrey-Linda |
| 1 | 41°16'29.04"N | 89° 6'16.50"W | 25-03-101-000 | Charles and Arlene Lavens Co-Ttees Etal |
| 2 | 41°15'16.34"N | 89° 8'19.18"W | 25-08-302-000 | Whitaker LLC |
| 3 | 41°14'45.79"N | 89° 8'13.54"W | 25-17-102-000 | Currie Family Farm Partnership |
| 4 | 41°14'45.34"N | 89° 7'46.56"W | 25-17-200-000 | Robert W. Johnson |
| 5 | 41°14'45.10"N | 89° 7'17.24"W | 25-16-101-000 | Carol B. Zimmerman Etal |
| 6 | 41°14'51.48"N | 89° 6'54.21"W | 25-16-202-000 | James G. and Christene A. Johnson |
| 7 | 41°15'19.34"N | 89° 6'26.73"W | 25-09-400-000 | Carl J. Sinder and Mark S. Ttee |
| 8 | 41°15'12.22"N | 89° 6'3.36"W | 25-10-302-000 | Earle H. Theisinger |
| 9 | 41°14'48.27"N | 89° 5'36.99"W | 25-15-200-000 | Dorothy Holloway Etal |
| 10 | 41°13'53.63"N | 89° 4'56.74"W | 25-23-104-000 | Calvin P. and Irma Applegate |
| 11 | 41°13'33.83"N | 89° 6'7.54"W | 25-22-304-000 | Martin Ernat Jr. and Martin Ernat III |
| 12 | 41°13'30.32"N | 89° 5'29.83"W | 25-22-401-000 | Heirs of Roy Alleman Junior |
| 13 | 41°16'31.41"N | 89° 7'12.35"W | 25-04-106-000 | Jeffrey J. Mudge and Martha A. Mckee |



Data Source(s): Westwood (2023); ESRI WMS World Streets Basemap (Accessed 2022), U.S. Census Bureau (2022).

0 4,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- | | | |
|--------------------|-------------------------|------------------------|
| Project Area | Collection Line | Crane Path - Alternate |
| County Boundary | Access Road - Primary | Proposed Substation |
| Municipal Boundary | Access Road - Alternate | O&M Facility |
| Primary Turbine | Crane Path - Primary | Road |
| Alternate Turbine | | |
| MET Tower | | |

Hickory Wind Farm Project

LaSalle County, Illinois



Preliminary
Site Layout

EXHIBIT 2

LESA FORM STATUS FOR TURBINE HOST SITES

| | | LESA Sent | Strategy | LESA Received | Plan Today |
|------|-----------------------|------------------------|-------------------|---------------|------------|
| T-1 | Lavens | Called 1/25 | Coming in to sign | Signed 2/2 | |
| T-2 | Whitaker, Sid | Called 1/25 | Coming in to sign | Signed 1/30 | |
| T-3 | Currie Family Farm | Called & emailed 1/25 | Emailing back | Rcvd 1/25 | |
| T-4 | Johnson, Robert | Called 1/25 | Coming in to sign | Signed 1/30 | |
| T-5 | Zimmerman/Gray | Called 1/25 | Coming in to sign | Signed 1/30 | |
| T-6 | Johnson, James | Called 1/25 | Coming in to sign | Signed 1/30 | |
| T-7 | Sinder, Carl | Called 1/25 FedEx 1/27 | Fed Ex back | Rcvd 2/3 | |
| T-8 | Theisinger, John | Steve called | Steve | Signed 1/30 | |
| T-9 | Theisinger/Holloway | Steve called | Steve | Signed 1/30 | |
| T-10 | Applegate, Steve | Called 1/25 | Coming in to sign | Rcvd 2/1 | |
| T-11 | Ernat, Marty III | Called 1/24 met 1/24 | Signed at mtg | Signed 1/24 | |
| T-12 | Snyder, Cindy | Called 1/25 | Coming in to sign | Signed 2/2 | |
| T-13 | Mudge/McKee | Delivered 1/26 | Bringing in | Signed 1/30 | |
| A-1 | Carul, Fred & Cynthia | Steve met 1/24 | Signed at mtg | Signed 1/24 | |
| A-2 | Carul, Fred & Cynthia | Steve met 1/24 | Signed at mtg | Signed 1/24 | |
| A-3 | Carul, Fred & Cynthia | Steve met 1/24 | Signed at mtg | Signed 1/24 | |
| A-4 | Mudge, Jeff & Linda | Delivered 1/26 | Bringing in | Signed 1/30 | |

Appendix G

Soil Characteristics Table

Hickory Wind Project

LaSalle County, Illinois

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UKA North America, LLC
LaSalle County Special Use Application
Appendix G: Soil Characteristics Table for the Hickory Wind Project

| Map Unit ID | Soil Name | Land Capability Class ¹ | Farmland Classification | Acres in Project Area | Percent of Project Area |
|-------------|---|------------------------------------|----------------------------------|-----------------------|-------------------------|
| 23B | Blount silt loam, Lake Michigan Lobe, 2 to 4 percent slopes | 2e | All areas are prime farmland | 64.0 | 0.4% |
| 51A | Muscataune silt loam, 0 to 2 percent slopes | 1 | All areas are prime farmland | 985.3 | 5.5% |
| 60D2 | La Rose loam, 10 to 18 percent slopes, eroded | 4e | Farmland of statewide importance | 16.5 | 0.1% |
| 61A | Atterberry silt loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 10.4 | 0.1% |
| 61B | Atterberry silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 10.7 | 0.1% |
| 67A | Harpster silty clay loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 41.5 | 0.2% |
| 68A | Sable silty clay loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 4,006.9 | 22.5% |
| 86B | Osco silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 600.0 | 3.4% |
| 86C2 | Osco silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 472.7 | 2.7% |
| 87B | Dickinson sandy loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 1.2 | 0.0% |
| 105B | Batavia silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 2.9 | 0.0% |
| 105C2 | Batavia silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 5.8 | 0.0% |
| 131B | Alvin fine sandy loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 11.1 | 0.1% |
| 131C2 | Alvin fine sandy loam, 5 to 10 percent slopes, eroded | 3e | All areas are prime farmland | 1.2 | 0.0% |
| 134B | Camden silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 17.6 | 0.1% |
| 134C2 | Camden silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 13.6 | 0.1% |
| 134D2 | Camden silt loam, 10 to 18 percent slopes, eroded | 4e | Not prime farmland | 12.2 | 0.1% |
| 146B | Elliott silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 4.1 | 0.0% |
| 148B | Proctor silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 1.6 | 0.0% |
| 148C2 | Proctor silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 6.6 | 0.0% |
| 151B | Ridgeville fine sandy loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 7.4 | 0.0% |

UKA North America, LLC
LaSalle County Special Use Application
Appendix G: Soil Characteristics Table for the Hickory Wind Project

| Map Unit ID | Soil Name | Land Capability Class ¹ | Farmland Classification | Acres in Project Area | Percent of Project Area |
|-------------|---|------------------------------------|----------------------------------|-----------------------|-------------------------|
| 152A | Drummer silty clay loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 501.5 | 2.8% |
| 154A | Flanagan silt loam, 0 to 2 percent slopes | 1 | All areas are prime farmland | 287.9 | 1.6% |
| 171B | Catlin silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 9.0 | 0.1% |
| 171B2 | Catlin silt loam, 2 to 5 percent slopes, eroded | 2e | All areas are prime farmland | 31.7 | 0.2% |
| 171C2 | Catlin silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 265.5 | 1.5% |
| 171C3 | Catlin silty clay loam, 5 to 10 percent slopes, severely eroded | 4e | Farmland of statewide importance | 78.1 | 0.4% |
| 193C2 | Mayville silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 7.0 | 0.0% |
| 198A | Elburn silt loam, 0 to 2 percent slopes | 1 | All areas are prime farmland | 11.2 | 0.1% |
| 199B | Plano silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 34.6 | 0.2% |
| 199C2 | Plano silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 35.2 | 0.2% |
| 206A | Thorp silt loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 5.0 | 0.0% |
| 223C2 | Varna silt loam, 4 to 6 percent slopes, eroded | 3e | All areas are prime farmland | 32.4 | 0.2% |
| 223C3 | Varna silty clay loam, 4 to 6 percent slopes, severely eroded | 4e | Farmland of statewide importance | 8.5 | 0.0% |
| 223D2 | Varna silt loam, 6 to 12 percent slopes, eroded | 4e | Farmland of statewide importance | 30.4 | 0.2% |
| 223D3 | Varna silty clay loam, 6 to 12 percent slopes, severely eroded | 4e | Farmland of statewide importance | 37.5 | 0.2% |
| 228C2 | Nappanee silty clay loam, 4 to 6 percent slopes, eroded | 3e | Farmland of statewide importance | 2.4 | 0.0% |
| 233B | Birkbeck silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 79.2 | 0.4% |
| 233C2 | Birkbeck silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 113.1 | 0.6% |
| 234A | Sunbury silt loam, 0 to 2 percent slopes | 1 | All areas are prime farmland | 150.4 | 0.8% |
| 236A | Sabina silt loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 508.1 | 2.8% |
| 241D3 | Chatsworth silty clay, 6 to 12 percent slopes, severely eroded | 6e | Not prime farmland | 21.3 | 0.1% |

UKA North America, LLC
LaSalle County Special Use Application
Appendix G: Soil Characteristics Table for the Hickory Wind Project

| Map Unit ID | Soil Name | Land Capability Class ¹ | Farmland Classification | Acres in Project Area | Percent of Project Area |
|-------------|---|------------------------------------|----------------------------------|-----------------------|-------------------------|
| 241E3 | Chatsworth silty clay, 12 to 20 percent slopes, severely eroded | 6e | Not prime farmland | 82.0 | 0.5% |
| 241F | Chatsworth silty clay loam, 20 to 30 percent slopes | 7e | Not prime farmland | 24.0 | 0.1% |
| 241G | Chatsworth silty clay loam, 30 to 50 percent slopes | 7e | Not prime farmland | 56.3 | 0.3% |
| 242A | Kendall silt loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 4.3 | 0.0% |
| 243B | St. Charles silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 12.3 | 0.1% |
| 243C2 | St. Charles silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 7.6 | 0.0% |
| 278B | Stronghurst silt loam, 2 to 5 percent slopes | 2e | Prime farmland if drained | 6.3 | 0.0% |
| 294C2 | Symerton silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 5.6 | 0.0% |
| 298B | Beecher silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 3.2 | 0.0% |
| 311B | Ritchey silt loam, 2 to 4 percent slopes | 3e | Farmland of statewide importance | 12.1 | 0.1% |
| 315B | Channahon silt loam, 2 to 4 percent slopes | 3e | Farmland of statewide importance | 6.3 | 0.0% |
| 327B | Fox silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 2.1 | 0.0% |
| 327C2 | Fox silt loam, 4 to 6 percent slopes, eroded | 3e | All areas are prime farmland | 4.9 | 0.0 |
| 330A | Peotone silty clay loam, 0 to 2 percent slopes | 3w | Prime farmland if drained | 17.3 | 0.1% |
| 344C2 | Harvard silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 4.1 | 0.0% |
| 356A | Elpaso silty clay loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 577.5 | 3.2% |
| 375B | Rutland silty clay loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 44.9 | 0.3% |
| 527D2 | Kidami loam, 6 to 12 percent slopes, eroded | 3e | Farmland of statewide importance | 2.5 | 0.0% |
| 530B | Ozaukee silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 28.3 | 0.2% |
| 530C2 | Ozaukee silt loam, 4 to 6 percent slopes, eroded | 3e | All areas are prime farmland | 154.6 | 0.9% |
| 530C3 | Ozaukee silty clay loam, 4 to 6 percent slopes, severely eroded | 3e | Farmland of statewide importance | 5.8 | 0.0 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix G: Soil Characteristics Table for the Hickory Wind Project

| Map Unit ID | Soil Name | Land Capability Class ¹ | Farmland Classification | Acres in Project Area | Percent of Project Area |
|-------------|---|------------------------------------|----------------------------------|-----------------------|-------------------------|
| 530D2 | Ozaukee silt loam, 6 to 12 percent slopes, eroded | 3e | Farmland of statewide importance | 113.7 | 0.6% |
| 530D3 | Ozaukee silty clay loam, 6 to 12 percent slopes, severely eroded | 4e | Farmland of statewide importance | 27.5 | 0.2% |
| 530E2 | Ozaukee silt loam, 12 to 20 percent slopes, eroded | 4e | Not prime farmland | 17.3 | 0.1% |
| 541C2 | Graymont silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 17.2 | 0.1% |
| 549D2 | Marseilles silt loam, 10 to 18 percent slopes, eroded | 4e | Farmland of statewide importance | 4.5 | 0.0% |
| 554B | Kernan silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 28.6 | 0.2% |
| 614B | Chenoa silty clay loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 9.7 | 0.1% |
| 662B | Barony silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 2.7 | 0.0% |
| 663B | Clare silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 11.6 | 0.1% |
| 668B | Somonauk silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 9.2 | 0.1% |
| 675B | Greenbush silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 6.8 | 0.0% |
| 675C2 | Greenbush silt loam, 5 to 10 percent slopes, eroded | 3e | Farmland of statewide importance | 3.4 | 0.0% |
| 679B | Blackberry silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 138.8 | 0.8% |
| 680B | Campton silt loam, 2 to 5 percent slopes | 2e | All areas are prime farmland | 7.5 | 0.0% |
| 712A | Spaulding silty clay loam, 0 to 2 percent slopes | 2w | Prime farmland if drained | 434.1 | 2.4 |
| 791B | Rush silt loam, 2 to 4 percent slopes | 2e | All areas are prime farmland | 1.3 | 0.0% |
| 794G | Marseilles, Northfield, and Ritchey silt loams, 30 to 60 percent slopes | 8 | Not prime farmland | 25.8 | 0.1% |
| 802B | Orthents, loamy, 1 to 6 percent slopes | 2s | Not prime farmland | 78.6 | 0.4% |
| 802D | Orthents, loamy, rolling | 4e | Not prime farmland | 0.5 | 0.0% |
| 814A | Muscataune-Buckhart silt loams, 0 to 3 percent slopes | 1-2e | All areas are prime farmland | 5,600.9 | 31.4% |
| 818A | Flanagan-Catlin silt loams, 0 to 3 percent slopes | 1 | All areas are prime farmland | 1,081.2 | 6.1% |

UKA North America, LLC
LaSalle County Special Use Application
Appendix G: Soil Characteristics Table for the Hickory Wind Project

| Map Unit ID | Soil Name | Land Capability Class ¹ | Farmland Classification | Acres in Project Area | Percent of Project Area |
|---|--|------------------------------------|--|-----------------------|-------------------------|
| 820E | Hennepin-Casco complex, 12 to 30 percent slopes | 1 | Not prime farmland | 51.1 | 0.3% |
| 820G | Hennepin-Casco complex, 30 to 60 percent slopes | 6e | Not prime farmland | 186.4 | 1.0% |
| 3073A | Ross loam, 0 to 2 percent slopes, frequently flooded | 3w | Prime farmland if protected from flooding or not frequently flooded during the growing season | 49.0 | 0.3% |
| 3082A | Millington silt loam, 0 to 2 percent slopes, frequently flooded | 3w | Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season | 3.9 | 0.0% |
| 3107A | Sawmill silty clay loam, heavy till plain, 0 to 2 percent slopes, frequently flooded | 3w | Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season | 14.3 | 0.1% |
| 3451A | Lawson silt loam, 0 to 2 percent slopes, frequently flooded, brief duration | 3w | Prime farmland if protected from flooding or not frequently flooded during the growing season | 135.6 | 0.8% |
| 8073A | Ross loam, 0 to 2 percent slopes, occasionally flooded | 2w | All areas are prime farmland | 11.1 | 0.1% |
| 8107A | Sawmill silty clay loam, 0 to 2 percent slopes, occasionally flooded | 2w | Prime farmland if drained | 85.2 | 0.5% |
| 8451A | Lawson silt loam, cool mesic, 0 to 2 percent slopes, occasionally flooded | 2w | All areas are prime farmland | 56.7 | 0.3% |
| M-W | Miscellaneous water | 8w | Not prime farmland | 4.2 | 0.0% |
| W | Water | 8w | Not prime farmland | 9.3 | 0.1% |
| Total | | | | 17,833.0 | 100% |
| ¹ Capability Subclasses: “e” indicates main hazard is erosion, “w” indicates water in or on the soil, “s” indicates shallow, droughty, or stony soil, and “c” indicates climate (very cold or very dry) is the main limitation. Class 1 has no subclasses. | | | | | |

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Appendix H

EcoCAT Reports

Hickory Wind Project

LaSalle County, Illinois

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Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

January 19, 2023

Brian Gift
LaSalle County Zoning Board of Appeals
707 E. Etna Road
Ottawa, IL 61350

**RE: Hickory Wind
Consultation Program
EcoCAT Review #2308318
LaSalle County**

Dear Mr. Gift,

The Department has received an EcoCAT submission of this project from the developer UKA North America, LLC regarding the proposed Hickory Wind (farm) for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of developing an 80-megawatt wind energy facility in LaSalle County, IL. This will include up to twelve (12) wind turbines, a collection substation, a laydown yard, underground collection lines and access roads.

The proposed project site is located 1.1 miles southwest of Oglesby, IL, 0.5 miles west of Tonica and 2.1 miles south of Peru, IL.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

State Listed

Gray Wolf (*Canis lupus*)

State and Federally Listed

Gray Bat (*Myotis grisescens*)

Indiana Bat (*Myotis sodalis*)

Northern Long-eared Bat (*Myotis septentrionalis*)

Illinois Natural Areas Inventory Sites

**Illinois Valley College Geological Area
LaSalle026**

Mt. Palatine Cemetery Prairie

IDNR-Owned Properties

Matthiessen State Park

Illinois Nature Preserves

Mt. Palatine Cemetery Prairie Nature Preserve

Due to the project scope and proximity to protected resources the Department recommends the following actions be taken to avoid adversely impacting listed species and protected natural areas in the vicinity of the project:

Birds and Bats

Due to the siting of the project in relation to the Blackball mine, the Department recommends the County require an incidental take permit for the above listed bat species.

Additionally, the Department recommends the following be included in the County Special Use Permit to avoid and minimize impacts to bird and bat species:

- The Department recommends that the County require the applicant to curtail wind turbine operations below wind speeds of 6.9 meters per second, from sunset to sunrise during the fall migratory period (between August 1st and November 1st) and during the spring emergence period (between March 15th and April 15th) to minimize the risk of striking birds and bats, and to minimize mortality. Wind turbines should be feathered (minimal rotations) during these curtailment events.
 - If data from this hibernacula site can be provided that indicates migratory and emergence dates differ from what is stated, the Department may alter recommended curtailment dates.
 - Future data or technologies, as it pertains to wind turbine collision risk for bats or birds, may pose opportunities for new curtailment regimes to be discussed between the wind energy facility and the Department through the operational life of this facility.
 - The Department recommends the County require a minimum three years of mortality monitoring to statistically quantify bird and bat mortality, by species, due to turbine operations. If the County chooses not to do so, the applicant should consider implementing such a program to demonstrate the level of mortality experienced and the species affected.
- The Department recommends the County require a minimum of 5 years of post-construction mortality monitoring be conducted and results sent to the Department for review and concurrence on methods and a report of results annually.
 - The project proponent should seek the necessary research permits from the Department's Office of Resource Conservation to handle birds and bats.
 - If state-listed species are found during this monitoring, Incidental Take Authorization will likely be recommended.
- If significant bird or bat mortality is observed, or listed species are discovered, the Department recommends further coordination be engaged immediately and careful consideration be given to implementing the best available technologies to avoid and minimize these impacts.

Stream Setback

To avoid and minimize potential impacts to aquatic life in perennial streams and wildlife in stream riparian zones, the Department recommends a minimum 300-foot setback from any perennial streams with a non-forested riparian zone, this would include but is not limited to the following streams:

Unnamed Tributary of Cedar Creek- From NW1/4 Section 32 Range 1N Township 32N to SE1/4 Section 8 Range 1E Township 32N of LaSalle County

Unnamed Tributary of Cedar Creek- From SE1/4 Section 20 Range 1E Township 32N to SW1/4 Section 9 Range 1E Township 32N of LaSalle County

Bailey Creek- SE1/4 Section 27 Range 1E Township 32N of LaSalle County

Unnamed Tributary of Cedar Creek- Section 3 Range 1E Township 32N of LaSalle County

Forested Areas and Forested Riparian Zones

The Department recommends a minimum 1,000-foot setback from any forested area five (5) acres or larger or forested riparian zones, which has a greater likelihood of harboring high wildlife biodiversity within the project footprint, including birds and bats. This includes but is not limited to the following areas:

Contiguous Forest-W1/2 Section 31 Range 1E Township 33N of LaSalle County

Contiguous Forest- SE1/4 NE1/4 Section 27 Range 1E Township 32 of LaSalle County

Cedar Creek- From N1/2 Section 4 Range 1E Township 32N to N1/2 SE1/4 Section 33 Range 1E Township 33N of LaSalle County, W1/2 Section 34 Range 1E Township 33N of LaSalle County, S1/2 NE1/4 Section 8 Range 1E Township 32N of LaSalle County.

Illinois Nature Preserves

The Department recommends implementing a one (1)-linear mile setback from the Mt. Palatine Cemetery Prairie Nature Preserve.

IDNR-Owned Properties

The Department recommends implementing a one (1)-linear mile setback from the west boundary of Matthiessen State Park.

Illinois Natural Areas Inventory Sites

The Department recommends implementing a one thousand (1,000)-linear foot setback from the LaSalle026 Natural Areas Inventory Site.

Review of Supporting Infrastructure

The Department recommends that the following be submitted for additional ecological compliance review under appropriate jurisdictional title:

- New permanent access roads
- Laydown and storage yards

- Overhead/buried transmission lines
- Operations center (if building new)
- Bridge abutments, upgrades, or replacements
- Road widenings

Given the above recommendations are adopted the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

If temporary or permanent lighting is required, the Department recommends the following lighting recommendation to minimize adverse effects to wildlife:

- All lighting should be fully shielded fixtures that emit no light upward.
- Only "warm-white" or filtered LEDs (CCT < 3,000 K; S/P ratio < 1.2) should be used to minimize blue emission.
- Only light the exact space with the amount (lumens) needed to meet facility safety requirement.
- If LEDs are to be used, avoid the temptation to over-light based on the higher luminous efficiency of LEDs.

If erosion control blanket is to be used, the Department also recommends that wildlife-friendly plastic-free blanket be used around wetlands and adjacent to natural areas, if not feasible to implement project wide, to prevent the entanglement of native wildlife.

Please contact me with any questions you have regarding this review.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kyle Burkwald', written in a cursive style.

Kyle Burkwald
Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Kyle.Burkwald@Illinois.gov
Phone: (217) 785-4984

CC
Sarah Rosche-UKA North America, LLC
Heather Osborn – IDNR
Joe Kath - IDNR
Amber Schorg – USFWS
Ryan Prehn - IDNR

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Applicant: UKA North America, LLC
Contact: Sarah Rosche
Address: 1002 SE Monterey Commons Blvd
Stuart, FL 34996

Project: Hickory Wind
Address: Co Hwy 16, Cedar Point

IDNR Project Number: 2308318
Date: 12/28/2022

Description: UKA North America, LLC (Applicant) is proposing an 80 megawatt (MW) wind power facility in LaSalle County, Illinois. The Hickory Wind Project is planned to be constructed on approximately 17,833 acres and will consist of up to 12 turbines ranging from 6.2 and 6.8 MW nameplate capacity, a Project substation, a transmission line, underground electrical collection lines, crane paths, access roads, permanent meteorological towers, and one or more temporary laydown yards.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Illinois Valley College Geological Area INAI Site
Lasalle026 INAI Site
Mt. Palatine Cemetery Prairie INAI Site
Mt. Palatine Cemetery Prairie Nature Preserve
Gray Bat (*Myotis grisescens*)
Gray/Timber Wolf (*Canis lupus*)
Indiana Bat (*Myotis sodalis*)
Indiana Bat (*Myotis sodalis*)
Indiana Bat (*Myotis sodalis*)
Northern Long-Eared Myotis (*Myotis septentrionalis*)

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: LaSalle

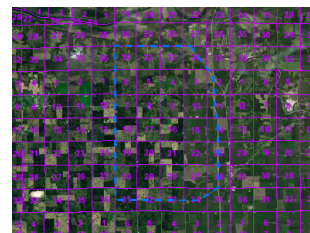
County: Putnam

Township, Range, Section:

32N, 1E, 2
32N, 1E, 3
32N, 1E, 4
32N, 1E, 5
32N, 1E, 6
32N, 1E, 7
32N, 1E, 8
32N, 1E, 9
32N, 1E, 10

Township, Range, Section:

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|-------------|-------------|
| 32N, 1E, 11 | , , |
| 32N, 1E, 14 | , , |
| 32N, 1E, 15 | , , |
| 32N, 1E, 16 | , , |
| 32N, 1E, 17 | , , |
| 32N, 1E, 18 | , , |
| 32N, 1E, 19 | , , |
| 32N, 1E, 20 | , , |
| 32N, 1E, 21 | , , |
| 32N, 1E, 22 | , , |
| 32N, 1E, 23 | , , |
| 32N, 1E, 26 | , , |
| 32N, 1E, 27 | , , |
| 32N, 1E, 28 | , , |
| 32N, 1E, 29 | , , |
| 32N, 1E, 30 | , , |
| 32N, 1E, 31 | , , |
| 32N, 1E, 32 | , , |
| 32N, 1E, 33 | , , |
| 32N, 1E, 34 | , , |
| 32N, 1E, 35 | , , |
| 33N, 1E, 27 | , , |
| 33N, 1E, 28 | , , |
| 33N, 1E, 29 | , , |
| 33N, 1E, 30 | , , |
| 33N, 1E, 31 | , , |
| 33N, 1E, 32 | , , |
| 33N, 1E, 33 | , , |
| 33N, 1E, 34 | , , |
| 33N, 1E, 35 | , , |
| , , | 32N, 1W, 1 |
| , , | 32N, 1W, 12 |
| , , | 32N, 1W, 13 |
| , , | 32N, 1W, 24 |
| , , | 32N, 1W, 25 |
| , , | 32N, 1W, 36 |
| , , | 33N, 1W, 25 |
| , , | 33N, 1W, 36 |

IL Department of Natural Resources
Contact
 Kyle Burkwald
 217-785-5500
 Division of Ecosystems & Environment

Government Jurisdiction
 LaSalle County
 N/A
 119 W. Madison St
 Ottawa, Illinois 61350

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

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EcoCAT Receipt

Project Code 2308318

| APPLICANT | DATE |
|---|------------|
| UKA North America, LLC Sarah Rosche 1002 SE Monterey Commons Blvd Stuart, FL 34996 | 12/28/2022 |

| DESCRIPTION | FEE | CONVENIENCE FEE | TOTAL PAID |
|---------------------|-----------|-----------------|------------|
| EcoCAT Consultation | \$ 125.00 | \$ 2.81 | \$ 127.81 |
| | | TOTAL PAID | \$ 127.81 |

Illinois Department of Natural Resources
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Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

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Appendix I

Noise Studies for Nordex N163 and the Siemens Gamesa SG170 Wind Turbines

Hickory Wind Project

LaSalle County, Illinois

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NOISE IMPACT ANALYSIS – NORDEX N163-6X TURBINE

Hickory Wind Project

LaSalle County, Illinois

FEBRUARY 2, 2023

PREPARED FOR:



PREPARED BY:

Westwood

Noise Impact Analysis

Nordex N163-6X Turbine

Hickory Wind Project

LaSalle County, Illinois

Prepared For:

Denis Onwualu
UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996

Prepared By:

Westwood Professional Services, Inc.
12701 Whitewater Drive
Suite 300
Minnetonka, MN 55343

Project Number: 0032910.00

Date: February 2, 2023

Executive Summary

Westwood Professional Services, Inc. (Westwood) was contracted by UKA North America, LLC (Client) to complete a noise assessment for the Hickory Wind Project located in LaSalle County, Illinois. Westwood understands that the Project has 17 potential turbine locations.

An operational noise impact evaluation of the Project was conducted using a CADNA-A model built for the proposed Project layout. Sound propagation for each turbine was modeled using manufacturer sound data. The sound propagation model was then used to predict levels at all noise sensitive receptors within a one-quarter mile of the Project boundary. The maximum sound level from the Project expected at a noise sensitive receptor is 48 dBA. County and State regulations include octave band noise limits and discrete tone limits set by the Illinois Pollution Control Board (IPCB). Project levels do not exceed the limits set forth in the Illinois Administrative Code. Minimal noise impacts are expected from Project operation.

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| Appendix F: Receptor 1/3 Octave Band Levels – Daytime Modes |
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1.0 Introduction and Site Description

The proposed Project is located in LaSalle County, Illinois (**Figure 1**). The noise impact assessment was completed as required by the Illinois Pollution Control Board (IPCB). The noise sensitive receptors in the Project vicinity include residences. Existing noise sources include I-39 to the east, IL-251 to the northeast, and IL-71 running east to west through the middle of the Project Area. The primary land uses in the Project Area are agricultural row crops and rural residential.

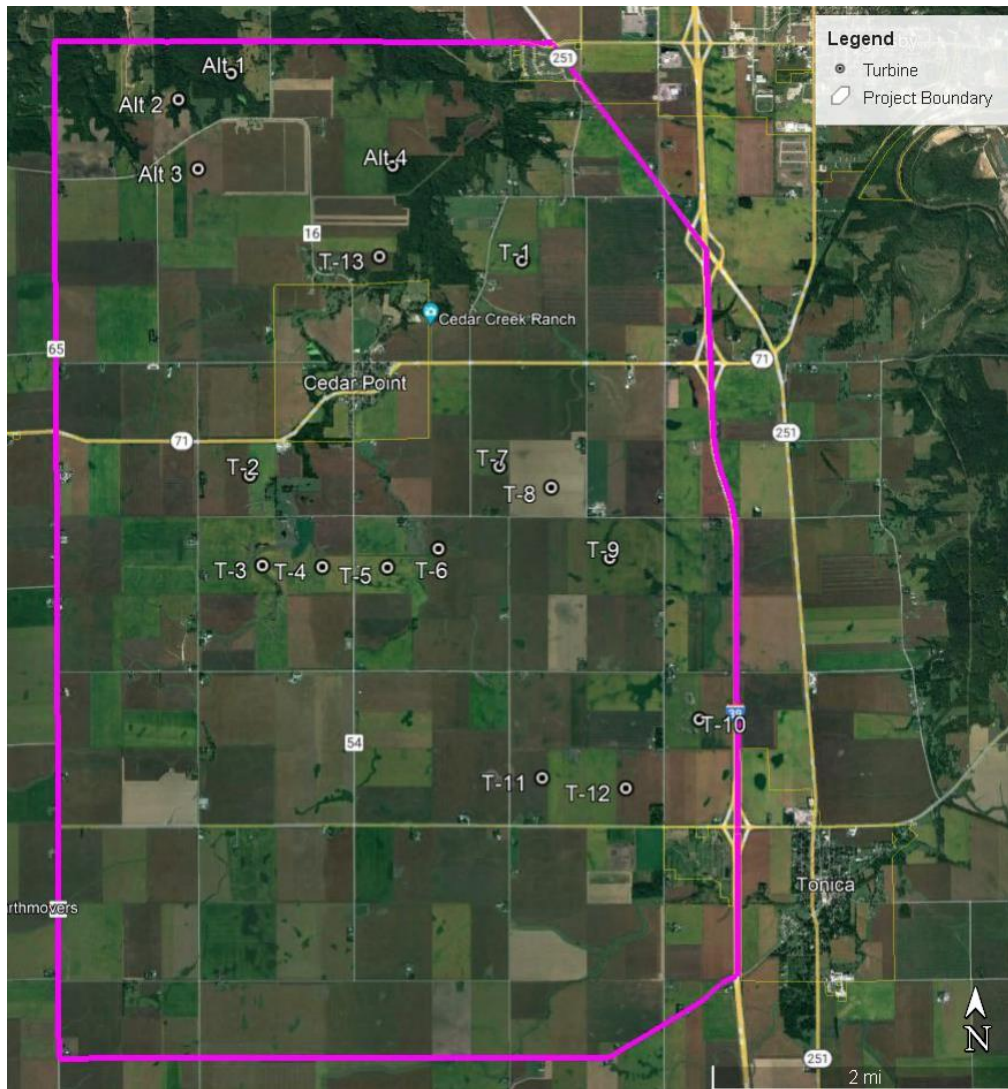


Figure 1: Project Overview

Details of the turbines used in both the noise and shadow flicker analysis are found below in **Table 1**.

Table 1: Turbine Specifications

| Manufacturer | Model | Hub Height (m) | Rotor Diameter (m) | Cut-in-Wind Speed (m/s) | Cut-out Wind Speed (m/s) |
|--------------|----------|----------------|--------------------|-------------------------|--------------------------|
| Nordex | N163-6.X | 118 | 163 | 3 | 26 |

2.0 Background

The State of Illinois's relevant sound regulation is Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*. This regulation regulates sound levels according to the land use where the sound is produced and where the sound is received. Land uses are split into three classes: Class A refers to residences or equally sensitive areas, Class B land is of mixed use, and Class C refers to agricultural and industrial land uses. It is standard practice to consider homes on agricultural land Class A receptors, so the applicable limits are those of sounds produced on Class C land impacting Class A land. The daytime and nighttime octave band limits are listed in **Table 2**.

Table 2: Permissible Sound Levels, Class C to Class A (L_{eq})

| Sound Level | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|----------------|------|----|-----|-----|-----|------|------|------|------|
| Daytime (dB) | 75 | 74 | 69 | 64 | 58 | 52 | 47 | 43 | 40 |
| Nighttime (dB) | 69 | 67 | 62 | 54 | 47 | 41 | 36 | 32 | 32 |

Additionally, the Illinois Administrative Code prohibits the emission of any prominent discrete tones from any property-line noise source located on any Class C land to any receiving Class A land, when measured at any point within the receiving land at least 25' away from the property-line noise source). Discrete tones that have a one-third octave band sound pressure level 10 or more decibels below the allowable octave band sound pressure level specified in **Table 1**. A discrete tone is defined as a one-third octave band sound level that exceeds the arithmetic average of the sound pressure levels of the two adjacent one-third octave bands by 5 dB if the center frequency is between 500 and 1000 Hz inclusive, by 8 dB if the center frequency is between 160 and 400 Hz inclusive, or by 15 dB if the center frequency is between 25 and 125 Hz inclusive.

3.0 Study Methodology

A noise propagation model was run for the Project using CADNA-A (a noise modeling software in compliance with ISO 9613-2). Cumulative Project noise was calculated at all noise sensitive receptors within 2 km of proposed Project infrastructure. Receptor locations have not been field verified and are based upon aerial imagery; we will update with Client provided receptor locations and participation status. The proposed Project turbines were modeled as point sources, with noise source data taken from manufacturer cut sheets. The model assumed the turbines to be operating at the loudest noise emission levels, which, in combination with the other parameters, ensures a “worst case” scenario.

Model parameters were as follows, per ANSI/ACP 111-1-2022 *Wind Turbine Sound Modeling*, Section 2.1.1 Option 1:

- Ground absorption factor of $G=0$
- Receptor height of 1.5 m above ground level
- Turbine modeled at hub height using vendors apparent downwind Sound Power Level specified consistent with IEC 61400-11
- No other model adjustments.
- Meteorological conditions of 10°C and 70% humidity were assumed.

4.0 Results of Analysis

Octave band L_{eq} sound pressure levels were calculated for each receptor from 31.5 Hz to 8 kHz. The octave band levels were then compared to the nighttime regulation levels from **Table 2** above, as the nighttime levels are most conservative. Exceedances were present at several noise sensitive receptors when all Project turbines were operating in Mode 0.

To meet the nighttime limits and eliminate exceedances, it was determined that serrated trailing edges and/or noise reduced modes are necessary at some turbines. **Table 3** below lists the necessary modes for each turbine. The octave band results with these modes implemented can be found in **Appendix C**.

Table 3: Nighttime Turbine Modes

| Turbine ID | Mode |
|------------|--------------------|
| T-1 | Mode 0 with STE |
| T-2 | Mode 0 with STE |
| T-3 | Mode 2 with STE |
| T-4 | Mode 2 with STE |
| T-5 | Mode 0 with STE |
| T-6 | Mode 0 with STE |
| T-7 | Mode 0 with STE |
| T-8 | Mode 0 with STE |
| T-9 | Mode 0 with STE |
| T-10 | Mode 1 with STE |
| T-11 | Mode 0 with STE |
| T-12 | Mode 0 with STE |
| T-13 | Mode 0 with STE |
| Alt 1 | Mode 0 with STE |
| Alt 2 | Mode 0 with STE |
| Alt 3 | Mode 0 without STE |
| Alt 4 | Mode 0 without STE |

4.1 Daytime Operating Modes

As the nighttime limits are most conservative and require significant noise reduced modes at several turbines, daytime and nighttime operational modes may be implemented, using the appropriate noise reduced modes to meet the daytime and nighttime limits respectively. To meet the daytime limits, noise reduced modes are not necessary at turbines where they were necessary to meet nighttime limits. **Table 4** below lists the necessary modes for each turbine. The octave band results with these modes implemented can be found in **Appendix D**.

Table 4: Daytime Turbine Modes

| Turbine ID | Mode |
|------------|--------------------|
| T-1 | Mode 0 with STE |
| T-2 | Mode 0 with STE |
| T-3 | Mode 0 with STE |
| T-4 | Mode 0 with STE |
| T-5 | Mode 0 with STE |
| T-6 | Mode 0 with STE |
| T-7 | Mode 0 with STE |
| T-8 | Mode 0 with STE |
| T-9 | Mode 0 with STE |
| T-10 | Mode 0 with STE |
| T-11 | Mode 0 with STE |
| T-12 | Mode 0 with STE |
| T-13 | Mode 0 with STE |
| Alt 1 | Mode 0 with STE |
| Alt 2 | Mode 0 with STE |
| Alt 3 | Mode 0 without STE |
| Alt 4 | Mode 0 without STE |

Additionally, discrete tones were determined by analyzing the one-third octave band levels with regards to the Illinois Administrative Code discrete tone criteria. No discrete tones were determined to be present. Third-octave band levels at each receptor can be found in **Appendix E** for nighttime modes and **Appendix F** for daytime modes; detailed calculations available upon request.

With the above daytime and nighttime operating modes implemented, minimal impacts are anticipated to nearby noise sensitive receptors. Detailed noise contour maps can be found in **Appendix G**.

5.0 Conclusions

The noise assessment concluded that, utilizing the daytime and nighttime operating modes listed above, all of the 420 receptors are modeled at or below the octave band noise level limits set forth in Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*. Additionally, no discrete tones were determined to exist.

Appendix A

Project Turbine Locations

| Turbine ID | Model | UTM NAD83 Zone 16 | | Base Elev. AMSL (m) | Hub Height (m) |
|------------|----------|-------------------|--------------|---------------------|----------------|
| | | Easting (m) | Northing (m) | | |
| T-1 | N163-6.X | 323733 | 4571392 | 314.94 | 118.0 |
| T-2 | N163-6.X | 320824 | 4569219 | 320.52 | 118.0 |
| T-3 | N163-6.X | 320932 | 4568274 | 320.6 | 118.0 |
| T-4 | N163-6.X | 321559 | 4568245 | 322 | 118.0 |
| T-5 | N163-6.X | 322242 | 4568221 | 321.03 | 118.0 |
| T-6 | N163-6.X | 322783 | 4568404 | 318.74 | 118.0 |
| T-7 | N163-6.X | 323443 | 4569248 | 320.38 | 118.0 |
| T-8 | N163-6.X | 323982 | 4569015 | 320 | 118.0 |
| T-9 | N163-6.X | 324578 | 4568262 | 322 | 118.0 |
| T-10 | N163-6.X | 325474 | 4566554 | 322.84 | 118.0 |
| T-11 | N163-6.X | 323811 | 4565983 | 324.37 | 118.0 |
| T-12 | N163-6.X | 324686 | 4565854 | 323 | 118.0 |
| T-13 | N163-6.X | 322240 | 4571474 | 315.66 | 118.0 |
| Alt 1 | N163-6.X | 320716 | 4573421 | 313.11 | 118.0 |
| Alt 2 | N163-6.X | 320172 | 4573166 | 309.18 | 118.0 |
| Alt 3 | N163-6.X | 320359 | 4572434 | 318.84 | 118.0 |
| Alt 4 | N163-6.X | 322400 | 4572415 | 311.72 | 118.0 |

Appendix B

Noise Sensitive Receptor Locations

| Receptor # | UTM NAD83 Zone 16 | | Elevation AMSL (m) |
|------------|-------------------|-----------------|-----------------------|
| | Easting (m) | Northing (m) | |
| NSA-001 | 322041 | 4570286 | 201.92 |
| NSA-002 | 321999 | 4570338 | 201.53 |
| NSA-003 | 321968 | 4570321 | 201.56 |
| NSA-004 | 321953 | 4570343 | 201.44 |
| NSA-005 | 321945 | 4570298 | 201.7 |
| NSA-006 | 321948 | 4570278 | 201.88 |
| NSA-007 | 321845 | 4570339 | 201.49 |
| NSA-008 | 321800 | 4570298 | 199.23 |
| NSA-009 | 321786 | 4570334 | 201.35 |
| NSA-010 | 321893 | 4570309 | 201.5 |
| NSA-011 | 321975 | 4570389 | 201.48 |
| NSA-012 | 322003 | 4570389 | 201.5 |
| NSA-013 | 322063 | 4570388 | 201.5 |
| NSA-014 | 322094 | 4570392 | 201.58 |
| NSA-021 | 321797 | 4570319 | 200.7 |
| NSA-073 | 325152 | 4564391 | 206.35 |
| NSA-074 | 323379 | 4564602 | 206.78 |
| NSA-084 | 325080 | 4564830 | 204.67 |
| NSA-085 | 325402 | 4565353 | 205.5 |
| NSA-086 | 325346 | 4565363 | 205.5 |
| NSA-087 | 325600 | 4565464 | 205.5 |
| NSA-088 | 323621 | 4565510 | 208.17 |
| NSA-089 | 323675 | 4565502 | 208.02 |
| NSA-090 | 323475 | 4565282 | 208.32 |
| NSA-091 | 323469 | 4565002 | 207.5 |
| NSA-092 | 323722 | 4565516 | 207.98 |
| NSA-093 | 323295 | 4565402 | 208.46 |
| NSA-094 | 322935 | 4565519 | 208.55 |
| NSA-095 | 322436 | 4565407 | 208.54 |
| NSA-106 | 324942 | 4566274 | 206.35 |
| NSA-107 | 325016 | 4565501 | 204.93 |
| NSA-108 | 324953 | 4565638 | 205.5 |
| NSA-109 | 325162 | 4566985 | 206.07 |

| | | | |
|---------|--------|---------|--------|
| NSA-110 | 325148 | 4567074 | 206.02 |
| NSA-111 | 324260 | 4567135 | 207.4 |
| NSA-112 | 323576 | 4567048 | 206 |
| NSA-113 | 323403 | 4566980 | 205.91 |
| NSA-114 | 321924 | 4567165 | 207.02 |
| NSA-115 | 321210 | 4567122 | 208.5 |
| NSA-116 | 321805 | 4567488 | 207.5 |
| NSA-117 | 320269 | 4567096 | 209.5 |
| NSA-118 | 320172 | 4567203 | 207.18 |
| NSA-124 | 320191 | 4567712 | 207.34 |
| NSA-125 | 320269 | 4567487 | 207.5 |
| NSA-126 | 323467 | 4567715 | 205.5 |
| NSA-127 | 325085 | 4567633 | 204.88 |
| NSA-128 | 325653 | 4568575 | 205.82 |
| NSA-129 | 326127 | 4568656 | 205.5 |
| NSA-130 | 325120 | 4568822 | 205.5 |
| NSA-131 | 324462 | 4568702 | 205.5 |
| NSA-132 | 323319 | 4568792 | 205.41 |
| NSA-133 | 322410 | 4568691 | 203.5 |
| NSA-134 | 321927 | 4568972 | 205.5 |
| NSA-135 | 321450 | 4568725 | 203.5 |
| NSA-136 | 321115 | 4568790 | 203.62 |
| NSA-137 | 320282 | 4568150 | 209.57 |
| NSA-138 | 320214 | 4568560 | 208.73 |
| NSA-143 | 318830 | 4569347 | 208.66 |
| NSA-144 | 320312 | 4569150 | 205.5 |
| NSA-145 | 322054 | 4569541 | 201.05 |
| NSA-146 | 324313 | 4569366 | 203.02 |
| NSA-147 | 324322 | 4569471 | 202.73 |
| NSA-148 | 324406 | 4569843 | 200.76 |
| NSA-149 | 325226 | 4570239 | 198.87 |
| NSA-150 | 325254 | 4570472 | 196.5 |
| NSA-151 | 324860 | 4570317 | 199.99 |
| NSA-152 | 324795 | 4570213 | 200.93 |
| NSA-153 | 324415 | 4570026 | 200.65 |
| NSA-154 | 324539 | 4570326 | 198.86 |
| NSA-155 | 324438 | 4570367 | 198.1 |
| NSA-156 | 321874 | 4569587 | 198.25 |
| NSA-157 | 321876 | 4569638 | 200.04 |

| | | | |
|---------|--------|---------|--------|
| NSA-158 | 321876 | 4569690 | 202.3 |
| NSA-159 | 321881 | 4569771 | 203.5 |
| NSA-160 | 321881 | 4569825 | 202.98 |
| NSA-161 | 321887 | 4569859 | 203.21 |
| NSA-162 | 321884 | 4569905 | 203.27 |
| NSA-163 | 322053 | 4569914 | 204.55 |
| NSA-164 | 322090 | 4569914 | 204.58 |
| NSA-165 | 322130 | 4569915 | 204.41 |
| NSA-166 | 322142 | 4569954 | 203.89 |
| NSA-167 | 322095 | 4569961 | 204.04 |
| NSA-168 | 322034 | 4569968 | 204.27 |
| NSA-169 | 321992 | 4569947 | 204.21 |
| NSA-170 | 321692 | 4570070 | 202.5 |
| NSA-171 | 321694 | 4569990 | 201.37 |
| NSA-172 | 321647 | 4569946 | 195.98 |
| NSA-173 | 321838 | 4569960 | 202.52 |
| NSA-174 | 321729 | 4569992 | 202.5 |
| NSA-175 | 322191 | 4570025 | 203.18 |
| NSA-176 | 322195 | 4570106 | 202.64 |
| NSA-177 | 321749 | 4570332 | 198.37 |
| NSA-178 | 321408 | 4570299 | 199.87 |
| NSA-179 | 320088 | 4570370 | 199.59 |
| NSA-180 | 320026 | 4570371 | 199.5 |
| NSA-181 | 319273 | 4570372 | 202.5 |
| NSA-184 | 319855 | 4570631 | 199.57 |
| NSA-185 | 321496 | 4571149 | 197.27 |
| NSA-186 | 322074 | 4571076 | 193.82 |
| NSA-187 | 322222 | 4570679 | 199.9 |
| NSA-188 | 322583 | 4570850 | 196.5 |
| NSA-189 | 322673 | 4570839 | 196.74 |
| NSA-190 | 322811 | 4570885 | 197.5 |
| NSA-191 | 322878 | 4570837 | 197.21 |
| NSA-192 | 323216 | 4570876 | 196.83 |
| NSA-193 | 323181 | 4570948 | 196.56 |
| NSA-194 | 323190 | 4570981 | 195.86 |
| NSA-195 | 325186 | 4571206 | 196.04 |
| NSA-196 | 325176 | 4571160 | 194.8 |
| NSA-197 | 325185 | 4571457 | 197.46 |
| NSA-198 | 323288 | 4571175 | 194.03 |

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|---------|--------|---------|--------|
| NSA-199 | 323349 | 4571123 | 196.01 |
| NSA-200 | 321934 | 4571240 | 194.48 |
| NSA-201 | 321725 | 4571249 | 196.61 |
| NSA-202 | 321761 | 4571231 | 197.03 |
| NSA-203 | 321657 | 4571327 | 197.5 |
| NSA-204 | 321463 | 4571272 | 197.46 |
| NSA-205 | 321494 | 4571351 | 197.26 |
| NSA-206 | 321457 | 4571520 | 199.5 |
| NSA-207 | 318871 | 4572240 | 203.5 |
| NSA-208 | 319440 | 4572474 | 202.5 |
| NSA-209 | 319739 | 4572340 | 199.45 |
| NSA-210 | 322980 | 4571809 | 199.11 |
| NSA-211 | 323429 | 4571786 | 200.45 |
| NSA-212 | 323395 | 4571738 | 200.5 |
| NSA-213 | 323168 | 4572168 | 198.5 |
| NSA-214 | 323239 | 4572095 | 199.5 |
| NSA-215 | 323326 | 4572113 | 198.7 |
| NSA-216 | 323479 | 4572100 | 197.88 |
| NSA-217 | 323556 | 4572080 | 198.5 |
| NSA-218 | 323506 | 4571944 | 199.5 |
| NSA-219 | 323673 | 4572156 | 197.18 |
| NSA-220 | 324201 | 4572002 | 197.48 |
| NSA-221 | 324604 | 4571981 | 197.5 |
| NSA-222 | 325200 | 4571651 | 198.16 |
| NSA-223 | 325475 | 4571949 | 199.5 |
| NSA-224 | 325140 | 4572285 | 199.39 |
| NSA-225 | 325256 | 4572541 | 197.42 |
| NSA-226 | 324305 | 4572266 | 197.32 |
| NSA-227 | 323118 | 4572089 | 198.61 |
| NSA-228 | 321689 | 4572790 | 199.5 |
| NSA-229 | 320966 | 4572992 | 196.97 |
| NSA-230 | 319774 | 4572430 | 199.67 |
| NSA-231 | 318917 | 4573064 | 199.5 |
| NSA-232 | 318751 | 4573099 | 197.34 |
| NSA-233 | 318491 | 4573224 | 193.75 |
| NSA-234 | 321183 | 4573357 | 198 |
| NSA-235 | 324442 | 4572846 | 196.49 |
| NSA-236 | 318694 | 4574268 | 145.08 |
| NSA-237 | 318657 | 4574271 | 144.29 |

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|---------|--------|---------|--------|
| NSA-238 | 319164 | 4574207 | 154.34 |
| NSA-239 | 319391 | 4574198 | 155.02 |
| NSA-241 | 318970 | 4573966 | 193.21 |
| NSA-242 | 321393 | 4574135 | 183.63 |
| NSA-243 | 321372 | 4574270 | 181.5 |
| NSA-244 | 321220 | 4574425 | 176.12 |
| NSA-245 | 321200 | 4574353 | 183.46 |
| NSA-246 | 321333 | 4574567 | 164.76 |
| NSA-247 | 321394 | 4574655 | 145.25 |
| NSA-248 | 321117 | 4574609 | 147.73 |
| NSA-249 | 321784 | 4574525 | 185.37 |
| NSA-250 | 321993 | 4574371 | 151.08 |
| NSA-251 | 322140 | 4574484 | 190.09 |
| NSA-255 | 323134 | 4573958 | 194.92 |
| NSA-256 | 322036 | 4569994 | 203.77 |
| NSA-257 | 322037 | 4570011 | 203.49 |
| NSA-258 | 322046 | 4570029 | 203.37 |
| NSA-259 | 322093 | 4570028 | 203.33 |
| NSA-260 | 322090 | 4569990 | 203.71 |
| NSA-261 | 322136 | 4570024 | 203.3 |
| NSA-262 | 322136 | 4570007 | 203.43 |
| NSA-263 | 322134 | 4569980 | 203.62 |
| NSA-264 | 321993 | 4570026 | 203.16 |
| NSA-265 | 321985 | 4570006 | 203.47 |
| NSA-266 | 321986 | 4569976 | 203.88 |
| NSA-267 | 321936 | 4570029 | 202.69 |
| NSA-268 | 321933 | 4570010 | 202.9 |
| NSA-269 | 321936 | 4569994 | 203.19 |
| NSA-270 | 321935 | 4569968 | 203.5 |
| NSA-271 | 321876 | 4569955 | 202.93 |
| NSA-272 | 321886 | 4569976 | 202.81 |
| NSA-273 | 321888 | 4569996 | 202.62 |
| NSA-274 | 321887 | 4570016 | 202.4 |
| NSA-275 | 321888 | 4570029 | 202.24 |
| NSA-276 | 321844 | 4570019 | 201.88 |
| NSA-277 | 321791 | 4570145 | 200.22 |
| NSA-278 | 321788 | 4570117 | 200.5 |
| NSA-279 | 321835 | 4570126 | 200.94 |
| NSA-280 | 321832 | 4570098 | 200.83 |

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|---------|--------|---------|--------|
| NSA-281 | 321894 | 4570144 | 202.41 |
| NSA-282 | 321886 | 4570092 | 202 |
| NSA-283 | 321937 | 4570127 | 202.5 |
| NSA-284 | 321942 | 4570082 | 202.5 |
| NSA-285 | 321999 | 4570084 | 202.7 |
| NSA-286 | 321991 | 4570102 | 202.5 |
| NSA-287 | 321988 | 4570141 | 202.5 |
| NSA-288 | 321990 | 4570122 | 202.5 |
| NSA-289 | 321954 | 4570065 | 202.6 |
| NSA-290 | 322030 | 4570142 | 202.5 |
| NSA-291 | 322036 | 4570119 | 202.63 |
| NSA-292 | 322041 | 4570083 | 202.96 |
| NSA-293 | 322036 | 4570069 | 203.04 |
| NSA-294 | 322087 | 4570062 | 203.1 |
| NSA-295 | 322089 | 4570115 | 202.74 |
| NSA-296 | 322142 | 4570080 | 202.86 |
| NSA-297 | 322145 | 4570137 | 202.5 |
| NSA-298 | 321797 | 4570204 | 200.5 |
| NSA-299 | 321783 | 4570174 | 200.44 |
| NSA-300 | 321892 | 4570174 | 202.42 |
| NSA-301 | 321883 | 4570233 | 201.68 |
| NSA-302 | 321837 | 4570251 | 200.53 |
| NSA-303 | 321955 | 4570200 | 202.5 |
| NSA-304 | 321942 | 4570256 | 202.07 |
| NSA-305 | 321993 | 4570210 | 202.5 |
| NSA-306 | 321999 | 4570239 | 202.29 |
| NSA-307 | 322037 | 4570250 | 202.12 |
| NSA-308 | 322041 | 4570194 | 202.46 |
| NSA-309 | 322040 | 4570169 | 202.5 |
| NSA-310 | 322096 | 4570213 | 202.23 |
| NSA-311 | 322143 | 4570188 | 202.42 |
| NSA-312 | 322141 | 4570243 | 202.18 |
| NSA-313 | 321841 | 4570206 | 201.01 |
| NSA-314 | 322240 | 4570336 | 202.23 |
| NSA-315 | 322242 | 4570301 | 202.25 |
| NSA-316 | 322197 | 4570338 | 202.08 |
| NSA-317 | 322136 | 4570341 | 201.86 |
| NSA-318 | 322135 | 4570319 | 201.87 |

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|---------|--------|---------|--------|
| NSA-319 | 322141 | 4570298 | 201.95 |
| NSA-320 | 322135 | 4570285 | 201.99 |
| NSA-321 | 322107 | 4570332 | 201.76 |
| NSA-322 | 322082 | 4570327 | 201.72 |
| NSA-323 | 322092 | 4570301 | 201.85 |
| NSA-324 | 322087 | 4570283 | 201.92 |
| NSA-325 | 322045 | 4570323 | 201.67 |
| NSA-326 | 323624 | 4573626 | 194.5 |
| NSA-327 | 323624 | 4573571 | 192.53 |
| NSA-328 | 323618 | 4573499 | 193.5 |
| NSA-329 | 323618 | 4573457 | 193.5 |
| NSA-330 | 323625 | 4573409 | 193.5 |
| NSA-331 | 323690 | 4573317 | 190.61 |
| NSA-332 | 323708 | 4573362 | 192.86 |
| NSA-333 | 323649 | 4573325 | 191.41 |
| NSA-334 | 323636 | 4573347 | 190.75 |
| NSA-335 | 323686 | 4573475 | 193.5 |
| NSA-336 | 323696 | 4573540 | 193.63 |
| NSA-337 | 323695 | 4573589 | 194.11 |
| NSA-338 | 323694 | 4573626 | 194.57 |
| NSA-339 | 323764 | 4573626 | 194.5 |
| NSA-340 | 323764 | 4573590 | 194.5 |
| NSA-341 | 323766 | 4573553 | 194.36 |
| NSA-342 | 323766 | 4573512 | 194.14 |
| NSA-343 | 323764 | 4573478 | 193.98 |
| NSA-344 | 323763 | 4573435 | 193.79 |
| NSA-345 | 323763 | 4573400 | 193.53 |
| NSA-346 | 323811 | 4573437 | 193.86 |
| NSA-347 | 323811 | 4573480 | 194.16 |
| NSA-348 | 323813 | 4573517 | 194.45 |
| NSA-349 | 323811 | 4573555 | 194.5 |
| NSA-350 | 323815 | 4573589 | 194.5 |
| NSA-351 | 323811 | 4573620 | 194.5 |
| NSA-352 | 323820 | 4573391 | 193.56 |
| NSA-353 | 323832 | 4573355 | 193.35 |
| NSA-354 | 323852 | 4573324 | 192.64 |
| NSA-355 | 323827 | 4573291 | 191.25 |
| NSA-356 | 323796 | 4573292 | 190.51 |

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|---------|--------|---------|--------|
| NSA-357 | 323776 | 4573318 | 191.05 |
| NSA-358 | 323776 | 4573356 | 192.03 |
| NSA-359 | 323877 | 4573616 | 194.5 |
| NSA-360 | 323868 | 4573576 | 194.5 |
| NSA-361 | 323876 | 4573551 | 194.5 |
| NSA-362 | 323875 | 4573524 | 194.5 |
| NSA-363 | 323877 | 4573495 | 194.5 |
| NSA-364 | 323875 | 4573457 | 194.25 |
| NSA-365 | 323873 | 4573434 | 194.07 |
| NSA-366 | 323886 | 4573399 | 193.77 |
| NSA-367 | 323896 | 4573366 | 193.5 |
| NSA-368 | 323917 | 4573347 | 193.21 |
| NSA-369 | 323922 | 4573309 | 192.57 |
| NSA-370 | 323951 | 4573303 | 192.33 |
| NSA-371 | 323979 | 4573308 | 192.38 |
| NSA-372 | 324013 | 4573312 | 192.33 |
| NSA-373 | 324043 | 4573305 | 191.77 |
| NSA-374 | 324071 | 4573307 | 191.91 |
| NSA-375 | 324112 | 4573304 | 192.6 |
| NSA-376 | 324080 | 4573359 | 193.1 |
| NSA-377 | 324042 | 4573362 | 193.24 |
| NSA-378 | 323997 | 4573362 | 193.5 |
| NSA-379 | 323965 | 4573377 | 193.63 |
| NSA-380 | 323932 | 4573437 | 194.09 |
| NSA-381 | 323928 | 4573466 | 194.33 |
| NSA-382 | 323931 | 4573598 | 194.5 |
| NSA-383 | 323923 | 4573576 | 194.5 |
| NSA-384 | 323928 | 4573513 | 194.5 |
| NSA-385 | 323958 | 4573565 | 194.5 |
| NSA-386 | 323983 | 4573564 | 194.5 |
| NSA-387 | 324016 | 4573555 | 194.5 |
| NSA-388 | 323992 | 4573505 | 194.5 |
| NSA-389 | 323962 | 4573511 | 194.5 |
| NSA-390 | 324045 | 4573491 | 194.5 |
| NSA-391 | 324014 | 4573465 | 194.24 |
| NSA-392 | 323992 | 4573471 | 194.34 |
| NSA-393 | 323959 | 4573456 | 194.25 |
| NSA-394 | 324030 | 4573436 | 193.87 |

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|---------|--------|---------|--------|
| NSA-395 | 324026 | 4573408 | 193.64 |
| NSA-396 | 323991 | 4573396 | 193.72 |
| NSA-397 | 324093 | 4573452 | 194.32 |
| NSA-398 | 324111 | 4573423 | 194.05 |
| NSA-399 | 324155 | 4573376 | 193.71 |
| NSA-400 | 324181 | 4573317 | 193.06 |
| NSA-401 | 324203 | 4573280 | 192.8 |
| NSA-405 | 323487 | 4573563 | 193.27 |
| NSA-406 | 323458 | 4573517 | 189.87 |
| NSA-407 | 323426 | 4573544 | 192.47 |
| NSA-408 | 323372 | 4573572 | 191.76 |
| NSA-409 | 323329 | 4573614 | 190.05 |
| NSA-410 | 323343 | 4573640 | 193.33 |
| NSA-411 | 323229 | 4573649 | 184.67 |
| NSA-412 | 323122 | 4573704 | 191.09 |
| NSA-413 | 323148 | 4573770 | 194.76 |
| NSA-414 | 323118 | 4573771 | 194.5 |
| NSA-415 | 323079 | 4573770 | 193.46 |
| NSA-416 | 323015 | 4573789 | 192.02 |
| NSA-417 | 323152 | 4573811 | 194.97 |
| NSA-418 | 323110 | 4573816 | 194.5 |
| NSA-419 | 323070 | 4573822 | 193.81 |
| NSA-420 | 323034 | 4573826 | 193.5 |
| NSA-421 | 323075 | 4573868 | 193.72 |
| NSA-422 | 323143 | 4573864 | 194.74 |
| NSA-423 | 323001 | 4573854 | 192.86 |
| NSA-424 | 322966 | 4573863 | 191.79 |
| NSA-425 | 322971 | 4573815 | 189.85 |
| NSA-426 | 322919 | 4573882 | 189.5 |
| NSA-427 | 322794 | 4573873 | 187.66 |
| NSA-468 | 322188 | 4574466 | 190.67 |
| NSA-469 | 322022 | 4574548 | 190.5 |
| NSA-475 | 326098 | 4564764 | 200.99 |
| NSA-476 | 326473 | 4564893 | 203.29 |
| NSA-477 | 326473 | 4564869 | 203.44 |
| NSA-478 | 326427 | 4564820 | 202.84 |
| NSA-479 | 326522 | 4564889 | 202.54 |
| NSA-480 | 326539 | 4564888 | 202.07 |

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|---------|--------|---------|--------|
| NSA-481 | 326563 | 4564888 | 201.72 |
| NSA-482 | 326581 | 4564892 | 201.59 |
| NSA-483 | 326515 | 4564852 | 203.29 |
| NSA-484 | 326473 | 4564928 | 202.49 |
| NSA-485 | 326470 | 4564955 | 201.94 |
| NSA-486 | 326531 | 4564990 | 201.3 |
| NSA-487 | 326517 | 4565027 | 201.5 |
| NSA-488 | 326560 | 4565023 | 201.5 |
| NSA-489 | 326548 | 4564990 | 201.14 |
| NSA-490 | 326580 | 4564968 | 200.5 |
| NSA-491 | 326628 | 4564972 | 200.5 |
| NSA-492 | 326633 | 4565013 | 201.29 |
| NSA-493 | 326674 | 4564964 | 200.5 |
| NSA-494 | 326680 | 4564992 | 200.81 |
| NSA-495 | 326676 | 4565030 | 201.71 |
| NSA-496 | 326678 | 4565090 | 202.5 |
| NSA-497 | 326584 | 4565072 | 202.16 |
| NSA-498 | 326525 | 4565072 | 201.7 |
| NSA-499 | 326581 | 4565087 | 202.33 |
| NSA-500 | 326584 | 4565125 | 202.96 |
| NSA-501 | 326586 | 4565143 | 203.29 |
| NSA-502 | 326479 | 4565110 | 201.56 |
| NSA-503 | 326476 | 4565125 | 201.84 |
| NSA-504 | 326483 | 4565164 | 202.3 |
| NSA-505 | 326528 | 4565155 | 202.95 |
| NSA-506 | 326538 | 4565173 | 203.2 |
| NSA-507 | 326588 | 4565163 | 203.5 |
| NSA-508 | 326588 | 4565182 | 203.5 |
| NSA-509 | 326589 | 4565215 | 203.5 |
| NSA-510 | 326477 | 4565226 | 202.88 |
| NSA-511 | 326531 | 4565231 | 203.32 |
| NSA-512 | 326479 | 4565270 | 203.78 |
| NSA-513 | 326434 | 4565270 | 203.5 |
| NSA-514 | 326421 | 4565353 | 204.47 |
| NSA-515 | 326465 | 4565355 | 204.5 |
| NSA-516 | 326486 | 4565310 | 204.5 |
| NSA-517 | 326489 | 4565372 | 204.5 |
| NSA-518 | 326446 | 4565374 | 204.5 |

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|---------|--------|---------|--------|
| NSA-519 | 326388 | 4565441 | 204.5 |
| NSA-520 | 326344 | 4565472 | 204.19 |
| NSA-521 | 326542 | 4565370 | 204.5 |
| NSA-522 | 326585 | 4565373 | 204.49 |
| NSA-523 | 326581 | 4565339 | 204.33 |
| NSA-524 | 326529 | 4565307 | 204.5 |
| NSA-525 | 326591 | 4565313 | 204.09 |
| NSA-526 | 326590 | 4565293 | 203.93 |
| NSA-527 | 326589 | 4565280 | 203.8 |
| NSA-528 | 326529 | 4565103 | 202.32 |
| NSA-529 | 326633 | 4564991 | 200.64 |
| NSA-530 | 326634 | 4565048 | 201.86 |
| NSA-531 | 326676 | 4565057 | 202.17 |
| NSA-532 | 326640 | 4565197 | 203.32 |
| NSA-533 | 326656 | 4565299 | 203.83 |
| NSA-534 | 326766 | 4565159 | 202.69 |
| NSA-535 | 326768 | 4565145 | 202.56 |
| NSA-536 | 326758 | 4565114 | 202.3 |
| NSA-537 | 326772 | 4565104 | 201.96 |
| NSA-538 | 326771 | 4565085 | 201.8 |
| NSA-539 | 326749 | 4565093 | 202.23 |
| NSA-540 | 326767 | 4565063 | 201.57 |
| NSA-541 | 326764 | 4565040 | 200.98 |
| NSA-542 | 326743 | 4565016 | 201.01 |
| NSA-543 | 326807 | 4565098 | 201.5 |
| NSA-544 | 326834 | 4565099 | 201.46 |
| NSA-545 | 326811 | 4565133 | 202.34 |
| NSA-546 | 326821 | 4565158 | 202.66 |
| NSA-547 | 326865 | 4565123 | 202.07 |
| NSA-548 | 326865 | 4565143 | 202.54 |
| NSA-549 | 326167 | 4565456 | 204.2 |
| NSA-550 | 326475 | 4565003 | 201.81 |
| NSA-551 | 326481 | 4565096 | 201.5 |
| NSA-552 | 326529 | 4565130 | 202.73 |
| NSA-553 | 326427 | 4565077 | 202.3 |
| NSA-554 | 326422 | 4565098 | 202.2 |
| NSA-555 | 326427 | 4565155 | 201.57 |
| NSA-556 | 326440 | 4565313 | 204.35 |

| | | | |
|---------|--------|---------|--------|
| NSA-557 | 326418 | 4565376 | 204.43 |
| NSA-558 | 326528 | 4565336 | 204.5 |
| NSA-559 | 326421 | 4565231 | 202.53 |

Appendix C

Receptor Octave Band Levels – Nighttime Modes

| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|----------------------|------|----|-----|-----|-----|------|------|------|------|
| Nighttime Regulation | 69 | 67 | 62 | 54 | 47 | 41 | 36 | 32 | 32 |
| NSA-001 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -9 | -80 |
| NSA-002 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-003 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -9 | -80 |
| NSA-004 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -8 | -80 |
| NSA-005 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -9 | -80 |
| NSA-006 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |
| NSA-007 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -9 | -80 |
| NSA-008 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -10 | -80 |
| NSA-009 | 62 | 55 | 50 | 43 | 37 | 31 | 20 | -9 | -80 |
| NSA-010 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -9 | -80 |
| NSA-011 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -79 |
| NSA-012 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -79 |
| NSA-013 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-014 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-021 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -9 | -80 |
| NSA-073 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-074 | 59 | 51 | 46 | 40 | 33 | 26 | 16 | -16 | -80 |
| NSA-084 | 60 | 53 | 48 | 41 | 35 | 30 | 20 | -6 | -79 |
| NSA-085 | 61 | 54 | 49 | 44 | 37 | 32 | 24 | 1 | -65 |
| NSA-086 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 2 | -61 |
| NSA-087 | 61 | 54 | 49 | 43 | 37 | 32 | 23 | -2 | -74 |
| NSA-088 | 64 | 57 | 53 | 47 | 41 | 37 | 31 | 13 | -33 |
| NSA-089 | 64 | 57 | 53 | 47 | 41 | 37 | 31 | 13 | -32 |
| NSA-090 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -57 |
| NSA-091 | 60 | 53 | 48 | 42 | 36 | 30 | 21 | -4 | -77 |
| NSA-092 | 65 | 58 | 53 | 47 | 42 | 38 | 32 | 14 | -30 |
| NSA-093 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -57 |
| NSA-094 | 60 | 53 | 48 | 42 | 36 | 30 | 21 | -3 | -74 |
| NSA-095 | 59 | 52 | 46 | 40 | 33 | 26 | 15 | -18 | -80 |
| NSA-106 | 66 | 59 | 54 | 49 | 43 | 39 | 33 | 15 | -31 |
| NSA-107 | 65 | 58 | 53 | 47 | 42 | 38 | 31 | 14 | -31 |
| NSA-108 | 67 | 60 | 55 | 50 | 44 | 41 | 35 | 20 | -18 |
| NSA-109 | 64 | 57 | 53 | 47 | 41 | 37 | 30 | 12 | -35 |
| NSA-110 | 64 | 57 | 52 | 46 | 40 | 36 | 29 | 9 | -43 |
| NSA-111 | 63 | 56 | 51 | 45 | 38 | 33 | 23 | -5 | -80 |
| NSA-112 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-113 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -5 | -78 |

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|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-114 | 62 | 55 | 50 | 44 | 38 | 32 | 23 | -4 | -79 |
| NSA-115 | 61 | 54 | 49 | 43 | 37 | 31 | 22 | -6 | -80 |
| NSA-116 | 64 | 57 | 52 | 46 | 40 | 35 | 28 | 5 | -58 |
| NSA-117 | 60 | 52 | 47 | 41 | 34 | 28 | 17 | -14 | -80 |
| NSA-118 | 60 | 53 | 47 | 41 | 34 | 28 | 17 | -13 | -80 |
| NSA-124 | 61 | 54 | 49 | 43 | 37 | 31 | 23 | -2 | -70 |
| NSA-125 | 61 | 54 | 49 | 42 | 36 | 30 | 21 | -5 | -77 |
| NSA-126 | 63 | 56 | 52 | 46 | 39 | 34 | 25 | -1 | -73 |
| NSA-127 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 3 | -60 |
| NSA-128 | 61 | 54 | 48 | 42 | 36 | 30 | 20 | -7 | -79 |
| NSA-129 | 59 | 52 | 47 | 40 | 33 | 26 | 14 | -20 | -80 |
| NSA-130 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 4 | -57 |
| NSA-131 | 67 | 60 | 55 | 50 | 44 | 40 | 34 | 16 | -28 |
| NSA-132 | 67 | 60 | 56 | 50 | 44 | 40 | 34 | 16 | -30 |
| NSA-133 | 68 | 61 | 56 | 50 | 45 | 41 | 34 | 17 | -28 |
| NSA-134 | 65 | 58 | 53 | 47 | 42 | 37 | 29 | 6 | -57 |
| NSA-135 | 67 | 60 | 55 | 49 | 44 | 39 | 33 | 14 | -32 |
| NSA-136 | 67 | 60 | 55 | 50 | 44 | 40 | 34 | 15 | -32 |
| NSA-137 | 63 | 56 | 51 | 45 | 40 | 35 | 27 | 7 | -47 |
| NSA-138 | 63 | 56 | 51 | 45 | 39 | 35 | 27 | 5 | -57 |
| NSA-143 | 58 | 51 | 45 | 38 | 31 | 23 | 9 | -31 | -80 |
| NSA-144 | 65 | 58 | 53 | 47 | 41 | 37 | 31 | 13 | -34 |
| NSA-145 | 63 | 56 | 51 | 45 | 39 | 33 | 23 | -6 | -80 |
| NSA-146 | 66 | 59 | 54 | 48 | 43 | 38 | 32 | 14 | -31 |
| NSA-147 | 65 | 58 | 53 | 47 | 42 | 37 | 30 | 11 | -39 |
| NSA-148 | 63 | 56 | 51 | 45 | 38 | 33 | 24 | 0 | -70 |
| NSA-149 | 58 | 51 | 46 | 40 | 33 | 27 | 15 | -22 | -80 |
| NSA-150 | 59 | 52 | 47 | 40 | 33 | 26 | 14 | -23 | -80 |
| NSA-151 | 60 | 53 | 48 | 42 | 35 | 29 | 17 | -16 | -80 |
| NSA-152 | 61 | 54 | 49 | 42 | 35 | 29 | 18 | -14 | -80 |
| NSA-153 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -5 | -79 |
| NSA-154 | 61 | 54 | 49 | 43 | 36 | 30 | 20 | -11 | -80 |
| NSA-155 | 61 | 54 | 49 | 43 | 37 | 31 | 21 | -9 | -80 |
| NSA-156 | 63 | 56 | 51 | 45 | 39 | 33 | 23 | -5 | -79 |
| NSA-157 | 62 | 55 | 50 | 44 | 38 | 33 | 23 | -6 | -79 |
| NSA-158 | 63 | 56 | 51 | 45 | 38 | 33 | 22 | -7 | -80 |
| NSA-159 | 63 | 56 | 51 | 44 | 38 | 32 | 22 | -8 | -80 |
| NSA-160 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -9 | -80 |
| NSA-161 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-162 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-163 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-164 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-165 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-166 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-167 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-168 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-169 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-170 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -9 | -80 |
| NSA-171 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -8 | -80 |
| NSA-172 | 61 | 54 | 49 | 43 | 37 | 32 | 22 | -6 | -79 |
| NSA-173 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-174 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-175 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-176 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-177 | 60 | 54 | 49 | 42 | 36 | 30 | 19 | -12 | -80 |
| NSA-178 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -9 | -80 |
| NSA-179 | 60 | 53 | 48 | 41 | 35 | 29 | 17 | -14 | -80 |
| NSA-180 | 60 | 53 | 48 | 41 | 35 | 28 | 17 | -15 | -80 |
| NSA-181 | 58 | 51 | 46 | 39 | 32 | 25 | 12 | -29 | -80 |
| NSA-184 | 60 | 52 | 47 | 41 | 34 | 28 | 16 | -22 | -80 |
| NSA-185 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 2 | -60 |
| NSA-186 | 65 | 58 | 54 | 48 | 43 | 39 | 33 | 16 | -26 |
| NSA-187 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 3 | -59 |
| NSA-188 | 63 | 56 | 52 | 46 | 40 | 35 | 27 | 6 | -51 |
| NSA-189 | 63 | 56 | 51 | 45 | 40 | 35 | 26 | 4 | -56 |
| NSA-190 | 63 | 56 | 51 | 45 | 40 | 35 | 26 | 3 | -61 |
| NSA-191 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 1 | -67 |
| NSA-192 | 63 | 56 | 52 | 46 | 40 | 35 | 27 | 5 | -53 |
| NSA-193 | 64 | 57 | 52 | 46 | 40 | 35 | 27 | 6 | -51 |
| NSA-194 | 64 | 57 | 52 | 46 | 40 | 35 | 28 | 7 | -49 |
| NSA-195 | 59 | 52 | 47 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-196 | 59 | 52 | 47 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-197 | 59 | 52 | 46 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-198 | 65 | 58 | 53 | 48 | 42 | 38 | 31 | 14 | -32 |
| NSA-199 | 65 | 58 | 53 | 48 | 42 | 38 | 32 | 15 | -30 |
| NSA-200 | 66 | 59 | 55 | 49 | 44 | 40 | 34 | 18 | -22 |
| NSA-201 | 64 | 57 | 52 | 47 | 41 | 37 | 30 | 11 | -38 |
| NSA-202 | 64 | 57 | 53 | 47 | 41 | 37 | 30 | 12 | -36 |
| NSA-203 | 64 | 57 | 52 | 46 | 41 | 36 | 29 | 10 | -42 |
| NSA-204 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 3 | -59 |
| NSA-205 | 63 | 56 | 51 | 45 | 39 | 35 | 27 | 4 | -55 |
| NSA-206 | 63 | 56 | 51 | 45 | 40 | 35 | 27 | 4 | -58 |
| NSA-207 | 59 | 52 | 47 | 40 | 34 | 29 | 19 | -15 | -80 |
| NSA-208 | 62 | 55 | 50 | 44 | 39 | 35 | 27 | 2 | -68 |
| NSA-209 | 64 | 57 | 52 | 47 | 42 | 38 | 32 | 10 | -44 |
| NSA-210 | 64 | 57 | 52 | 47 | 41 | 37 | 30 | 7 | -57 |
| NSA-211 | 65 | 58 | 53 | 48 | 42 | 38 | 31 | 13 | -32 |
| NSA-212 | 65 | 58 | 53 | 48 | 42 | 38 | 32 | 14 | -31 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-213 | 63 | 56 | 51 | 46 | 40 | 36 | 29 | 5 | -59 |
| NSA-214 | 63 | 56 | 51 | 46 | 40 | 36 | 28 | 4 | -62 |
| NSA-215 | 63 | 56 | 51 | 45 | 40 | 35 | 28 | 4 | -61 |
| NSA-216 | 63 | 56 | 51 | 45 | 40 | 35 | 27 | 5 | -55 |
| NSA-217 | 63 | 56 | 51 | 45 | 40 | 35 | 28 | 6 | -51 |
| NSA-218 | 64 | 57 | 52 | 46 | 41 | 36 | 29 | 10 | -41 |
| NSA-219 | 62 | 55 | 50 | 45 | 39 | 34 | 26 | 4 | -56 |
| NSA-220 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -56 |
| NSA-221 | 60 | 53 | 48 | 42 | 35 | 30 | 20 | -5 | -77 |
| NSA-222 | 59 | 51 | 46 | 39 | 32 | 26 | 14 | -18 | -80 |
| NSA-223 | 58 | 50 | 45 | 38 | 31 | 23 | 10 | -27 | -80 |
| NSA-224 | 58 | 51 | 45 | 39 | 31 | 24 | 12 | -22 | -80 |
| NSA-225 | 57 | 50 | 45 | 38 | 30 | 23 | 10 | -29 | -80 |
| NSA-226 | 60 | 53 | 48 | 42 | 36 | 30 | 21 | -5 | -77 |
| NSA-227 | 63 | 56 | 51 | 46 | 41 | 37 | 30 | 6 | -58 |
| NSA-228 | 63 | 56 | 51 | 46 | 40 | 36 | 29 | 5 | -59 |
| NSA-229 | 66 | 59 | 54 | 49 | 44 | 40 | 33 | 14 | -32 |
| NSA-230 | 64 | 57 | 53 | 47 | 42 | 39 | 33 | 12 | -40 |
| NSA-231 | 60 | 52 | 47 | 41 | 35 | 30 | 20 | -10 | -80 |
| NSA-232 | 58 | 51 | 46 | 40 | 34 | 28 | 18 | -15 | -80 |
| NSA-233 | 52 | 44 | 39 | 33 | 27 | 23 | 12 | -25 | -80 |
| NSA-234 | 65 | 58 | 53 | 48 | 43 | 39 | 32 | 15 | -30 |
| NSA-235 | 57 | 50 | 45 | 39 | 32 | 26 | 14 | -21 | -80 |
| NSA-236 | 52 | 45 | 40 | 33 | 27 | 20 | 7 | -32 | -80 |
| NSA-237 | 49 | 42 | 36 | 30 | 23 | 16 | 4 | -35 | -80 |
| NSA-238 | 56 | 49 | 44 | 38 | 32 | 26 | 16 | -16 | -80 |
| NSA-239 | 57 | 50 | 45 | 39 | 33 | 28 | 18 | -11 | -80 |
| NSA-241 | 58 | 51 | 46 | 40 | 33 | 27 | 17 | -16 | -80 |
| NSA-242 | 60 | 53 | 49 | 43 | 37 | 32 | 22 | -3 | -74 |
| NSA-243 | 60 | 53 | 48 | 42 | 36 | 31 | 21 | -6 | -78 |
| NSA-244 | 52 | 45 | 40 | 34 | 28 | 22 | 13 | -14 | -80 |
| NSA-245 | 60 | 53 | 48 | 42 | 36 | 31 | 21 | -5 | -77 |
| NSA-246 | 51 | 44 | 40 | 35 | 30 | 25 | 15 | -15 | -80 |
| NSA-247 | 51 | 44 | 38 | 32 | 26 | 20 | 9 | -23 | -80 |
| NSA-248 | 51 | 44 | 39 | 33 | 27 | 21 | 11 | -19 | -80 |
| NSA-249 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -19 | -80 |
| NSA-250 | 57 | 50 | 45 | 39 | 33 | 27 | 15 | -20 | -80 |
| NSA-251 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-255 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-256 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-257 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-258 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-259 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-260 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |

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|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-261 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-262 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-263 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-264 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-265 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-266 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-267 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-268 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-269 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-270 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-271 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-272 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-273 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-274 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-275 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-276 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-277 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-278 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-279 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-280 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-281 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-282 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-283 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-284 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-285 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-286 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-287 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-288 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-289 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-290 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-291 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-292 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-293 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-294 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-295 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-296 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-297 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-298 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-299 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-300 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-301 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-302 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -10 | -80 |
| NSA-303 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-304 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-305 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-306 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |
| NSA-307 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |
| NSA-308 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-309 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-310 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -10 | -80 |
| NSA-311 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-312 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-313 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-314 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-315 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-316 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-317 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-318 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-319 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-320 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-321 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-322 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-323 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-324 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-325 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-326 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-327 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-328 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-329 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -19 | -80 |
| NSA-330 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-331 | 58 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-332 | 58 | 51 | 46 | 39 | 33 | 27 | 17 | -19 | -80 |
| NSA-333 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-334 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-335 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -20 | -80 |
| NSA-336 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-337 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-338 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-339 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-340 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-341 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-342 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-343 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-344 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-345 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -21 | -80 |
| NSA-346 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-347 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-348 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -24 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-349 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-350 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-351 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-352 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-353 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-354 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -21 | -80 |
| NSA-355 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-356 | 59 | 52 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-357 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-358 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-359 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-360 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-361 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-362 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-363 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-364 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -24 | -80 |
| NSA-365 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-366 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-367 | 58 | 51 | 46 | 39 | 33 | 26 | 15 | -23 | -80 |
| NSA-368 | 58 | 51 | 46 | 39 | 33 | 26 | 15 | -23 | -80 |
| NSA-369 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-370 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -23 | -80 |
| NSA-371 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-372 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-373 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-374 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-375 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-376 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-377 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-378 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-379 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-380 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-381 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-382 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-383 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-384 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-385 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-386 | 58 | 51 | 45 | 38 | 32 | 25 | 13 | -28 | -80 |
| NSA-387 | 58 | 51 | 45 | 38 | 31 | 25 | 13 | -28 | -80 |
| NSA-388 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-389 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-390 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-391 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-392 | 58 | 51 | 45 | 39 | 32 | 26 | 13 | -26 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-393 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-394 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-395 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-396 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-397 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -28 | -80 |
| NSA-398 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-399 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-400 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-401 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-405 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-406 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-407 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-408 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-409 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-410 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-411 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-412 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-413 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-414 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-415 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-416 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-417 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -18 | -80 |
| NSA-418 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-419 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-420 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-421 | 58 | 51 | 46 | 40 | 33 | 27 | 17 | -19 | -80 |
| NSA-422 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -20 | -80 |
| NSA-423 | 58 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-424 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-425 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-426 | 58 | 51 | 46 | 39 | 33 | 28 | 17 | -18 | -80 |
| NSA-427 | 59 | 52 | 47 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-468 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-469 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -23 | -80 |
| NSA-475 | 56 | 49 | 44 | 38 | 31 | 24 | 13 | -24 | -80 |
| NSA-476 | 57 | 50 | 44 | 38 | 30 | 23 | 11 | -28 | -80 |
| NSA-477 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-478 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-479 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-480 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-481 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-482 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-483 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-484 | 57 | 50 | 45 | 38 | 30 | 24 | 11 | -27 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-485 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -26 | -80 |
| NSA-486 | 57 | 49 | 44 | 37 | 30 | 23 | 11 | -27 | -80 |
| NSA-487 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -26 | -80 |
| NSA-488 | 57 | 50 | 44 | 38 | 30 | 24 | 11 | -27 | -80 |
| NSA-489 | 57 | 49 | 44 | 37 | 30 | 23 | 11 | -27 | -80 |
| NSA-490 | 56 | 49 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-491 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-492 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-493 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -30 | -80 |
| NSA-494 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-495 | 57 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-496 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-497 | 57 | 50 | 45 | 38 | 30 | 24 | 11 | -26 | -80 |
| NSA-498 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-499 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -26 | -80 |
| NSA-500 | 57 | 50 | 44 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-501 | 57 | 50 | 44 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-502 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-503 | 57 | 50 | 45 | 38 | 31 | 24 | 13 | -23 | -80 |
| NSA-504 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-505 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-506 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-507 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-508 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-509 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-510 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -21 | -80 |
| NSA-511 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-512 | 57 | 50 | 45 | 38 | 32 | 25 | 14 | -21 | -80 |
| NSA-513 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-514 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -18 | -80 |
| NSA-515 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-516 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-517 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -19 | -80 |
| NSA-518 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -18 | -80 |
| NSA-519 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -16 | -80 |
| NSA-520 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -14 | -80 |
| NSA-521 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-522 | 58 | 50 | 45 | 38 | 32 | 25 | 14 | -21 | -80 |
| NSA-523 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -21 | -80 |
| NSA-524 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -21 | -80 |
| NSA-525 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-526 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-527 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-528 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-529 | 55 | 48 | 43 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-530 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-531 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-532 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-533 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -23 | -80 |
| NSA-534 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-535 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-536 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-537 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-538 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-539 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-540 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -30 | -80 |
| NSA-541 | 54 | 47 | 42 | 35 | 29 | 22 | 9 | -30 | -80 |
| NSA-542 | 55 | 47 | 42 | 36 | 29 | 22 | 10 | -30 | -80 |
| NSA-543 | 56 | 49 | 44 | 37 | 30 | 22 | 10 | -30 | -80 |
| NSA-544 | 56 | 49 | 44 | 37 | 29 | 22 | 9 | -30 | -80 |
| NSA-545 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-546 | 57 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-547 | 56 | 49 | 43 | 37 | 29 | 22 | 9 | -30 | -80 |
| NSA-548 | 57 | 49 | 44 | 37 | 30 | 22 | 9 | -30 | -80 |
| NSA-549 | 59 | 52 | 47 | 40 | 34 | 28 | 18 | -12 | -80 |
| NSA-550 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -26 | -80 |
| NSA-551 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-552 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-553 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-554 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-555 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-556 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -19 | -80 |
| NSA-557 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -18 | -80 |
| NSA-558 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-559 | 57 | 50 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |

Appendix D

Receptor Octave Band Levels – Daytime Modes

| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---------------------------|------|----|-----|-----|-----|------|------|------|------|
| Daytime Regulation | 75 | 74 | 69 | 64 | 58 | 52 | 47 | 43 | 40 |
| NSA-001 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-002 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-003 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-004 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-005 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -9 | -80 |
| NSA-006 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |
| NSA-007 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -9 | -80 |
| NSA-008 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -10 | -80 |
| NSA-009 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -9 | -80 |
| NSA-010 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -9 | -80 |
| NSA-011 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -79 |
| NSA-012 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -79 |
| NSA-013 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-014 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-021 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -9 | -80 |
| NSA-073 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-074 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -16 | -80 |
| NSA-084 | 60 | 53 | 48 | 42 | 35 | 30 | 20 | -6 | -79 |
| NSA-085 | 61 | 54 | 50 | 44 | 38 | 33 | 24 | 1 | -65 |
| NSA-086 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 2 | -61 |
| NSA-087 | 61 | 54 | 49 | 43 | 37 | 32 | 23 | -2 | -74 |
| NSA-088 | 64 | 57 | 53 | 47 | 41 | 37 | 31 | 13 | -33 |
| NSA-089 | 64 | 57 | 53 | 47 | 42 | 37 | 31 | 13 | -32 |
| NSA-090 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -57 |
| NSA-091 | 60 | 53 | 48 | 42 | 36 | 30 | 21 | -4 | -77 |
| NSA-092 | 65 | 58 | 53 | 47 | 42 | 38 | 32 | 14 | -30 |
| NSA-093 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -57 |
| NSA-094 | 61 | 53 | 48 | 42 | 36 | 30 | 21 | -3 | -74 |
| NSA-095 | 59 | 52 | 47 | 40 | 33 | 26 | 15 | -18 | -80 |
| NSA-106 | 66 | 59 | 54 | 49 | 43 | 39 | 33 | 15 | -31 |
| NSA-107 | 65 | 58 | 53 | 47 | 42 | 38 | 31 | 14 | -31 |
| NSA-108 | 67 | 60 | 55 | 50 | 44 | 41 | 35 | 20 | -18 |
| NSA-109 | 64 | 57 | 53 | 47 | 41 | 37 | 30 | 12 | -35 |
| NSA-110 | 64 | 57 | 52 | 46 | 40 | 36 | 29 | 9 | -43 |
| NSA-111 | 63 | 56 | 51 | 45 | 38 | 33 | 23 | -5 | -80 |
| NSA-112 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -6 | -79 |
| NSA-113 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -5 | -78 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-114 | 62 | 55 | 51 | 44 | 38 | 33 | 23 | -4 | -78 |
| NSA-115 | 62 | 55 | 50 | 44 | 37 | 32 | 22 | -6 | -80 |
| NSA-116 | 64 | 57 | 52 | 47 | 41 | 36 | 28 | 5 | -57 |
| NSA-117 | 60 | 53 | 48 | 41 | 34 | 28 | 17 | -13 | -80 |
| NSA-118 | 60 | 53 | 48 | 41 | 34 | 28 | 18 | -12 | -80 |
| NSA-124 | 61 | 54 | 49 | 43 | 37 | 32 | 23 | -1 | -70 |
| NSA-125 | 61 | 54 | 49 | 43 | 36 | 31 | 22 | -4 | -76 |
| NSA-126 | 64 | 57 | 52 | 46 | 39 | 34 | 25 | -1 | -73 |
| NSA-127 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 3 | -60 |
| NSA-128 | 61 | 54 | 48 | 42 | 36 | 30 | 20 | -7 | -79 |
| NSA-129 | 59 | 52 | 47 | 40 | 33 | 26 | 14 | -20 | -80 |
| NSA-130 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 4 | -57 |
| NSA-131 | 67 | 60 | 55 | 50 | 44 | 40 | 34 | 16 | -28 |
| NSA-132 | 67 | 60 | 56 | 50 | 45 | 40 | 34 | 16 | -30 |
| NSA-133 | 68 | 61 | 56 | 50 | 45 | 41 | 35 | 17 | -28 |
| NSA-134 | 65 | 58 | 53 | 48 | 42 | 37 | 29 | 6 | -57 |
| NSA-135 | 67 | 60 | 55 | 50 | 44 | 40 | 33 | 15 | -32 |
| NSA-136 | 67 | 60 | 55 | 50 | 44 | 40 | 34 | 16 | -32 |
| NSA-137 | 63 | 56 | 52 | 46 | 40 | 35 | 28 | 8 | -47 |
| NSA-138 | 63 | 56 | 52 | 46 | 40 | 35 | 27 | 5 | -56 |
| NSA-143 | 58 | 51 | 45 | 38 | 31 | 23 | 10 | -30 | -80 |
| NSA-144 | 65 | 58 | 53 | 47 | 42 | 37 | 31 | 13 | -34 |
| NSA-145 | 63 | 56 | 51 | 45 | 39 | 33 | 23 | -6 | -80 |
| NSA-146 | 66 | 59 | 54 | 48 | 43 | 38 | 32 | 14 | -31 |
| NSA-147 | 65 | 58 | 53 | 47 | 42 | 37 | 30 | 11 | -39 |
| NSA-148 | 63 | 56 | 51 | 45 | 38 | 33 | 24 | 0 | -70 |
| NSA-149 | 58 | 51 | 46 | 40 | 33 | 27 | 15 | -22 | -80 |
| NSA-150 | 59 | 52 | 47 | 40 | 33 | 26 | 14 | -23 | -80 |
| NSA-151 | 60 | 53 | 48 | 42 | 35 | 29 | 17 | -16 | -80 |
| NSA-152 | 61 | 54 | 49 | 42 | 36 | 29 | 18 | -14 | -80 |
| NSA-153 | 62 | 55 | 50 | 44 | 38 | 32 | 22 | -5 | -79 |
| NSA-154 | 61 | 54 | 49 | 43 | 36 | 30 | 20 | -11 | -80 |
| NSA-155 | 61 | 54 | 49 | 43 | 37 | 31 | 21 | -9 | -80 |
| NSA-156 | 63 | 56 | 51 | 45 | 39 | 33 | 23 | -5 | -79 |
| NSA-157 | 63 | 56 | 51 | 45 | 38 | 33 | 23 | -6 | -79 |
| NSA-158 | 63 | 56 | 51 | 45 | 38 | 33 | 23 | -7 | -80 |
| NSA-159 | 63 | 56 | 51 | 45 | 38 | 32 | 22 | -8 | -80 |
| NSA-160 | 63 | 56 | 51 | 44 | 38 | 32 | 22 | -9 | -80 |
| NSA-161 | 63 | 56 | 51 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-162 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-163 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-164 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-165 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-166 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-167 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-168 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-169 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-170 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-171 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-172 | 62 | 55 | 50 | 44 | 37 | 32 | 22 | -6 | -79 |
| NSA-173 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-174 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-175 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-176 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-177 | 60 | 54 | 49 | 43 | 36 | 30 | 19 | -12 | -80 |
| NSA-178 | 61 | 54 | 49 | 43 | 37 | 31 | 20 | -9 | -80 |
| NSA-179 | 60 | 53 | 48 | 42 | 35 | 29 | 17 | -14 | -80 |
| NSA-180 | 60 | 53 | 48 | 41 | 35 | 28 | 17 | -15 | -80 |
| NSA-181 | 59 | 51 | 46 | 39 | 32 | 25 | 12 | -29 | -80 |
| NSA-184 | 60 | 52 | 47 | 41 | 34 | 28 | 16 | -22 | -80 |
| NSA-185 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 2 | -60 |
| NSA-186 | 65 | 58 | 54 | 48 | 43 | 39 | 33 | 16 | -26 |
| NSA-187 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 3 | -59 |
| NSA-188 | 64 | 57 | 52 | 46 | 40 | 35 | 27 | 6 | -51 |
| NSA-189 | 63 | 56 | 51 | 46 | 40 | 35 | 26 | 4 | -56 |
| NSA-190 | 63 | 56 | 51 | 46 | 40 | 35 | 26 | 3 | -61 |
| NSA-191 | 63 | 56 | 51 | 45 | 39 | 34 | 25 | 1 | -67 |
| NSA-192 | 63 | 56 | 52 | 46 | 40 | 35 | 27 | 5 | -53 |
| NSA-193 | 64 | 57 | 52 | 46 | 40 | 35 | 27 | 6 | -51 |
| NSA-194 | 64 | 57 | 52 | 46 | 40 | 35 | 28 | 7 | -49 |
| NSA-195 | 59 | 52 | 47 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-196 | 59 | 52 | 47 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-197 | 59 | 52 | 46 | 40 | 33 | 26 | 15 | -17 | -80 |
| NSA-198 | 65 | 58 | 53 | 48 | 42 | 38 | 31 | 14 | -32 |
| NSA-199 | 65 | 58 | 53 | 48 | 42 | 38 | 32 | 15 | -30 |
| NSA-200 | 66 | 59 | 55 | 49 | 44 | 40 | 34 | 18 | -22 |
| NSA-201 | 64 | 57 | 52 | 47 | 41 | 37 | 30 | 11 | -38 |
| NSA-202 | 64 | 57 | 53 | 47 | 41 | 37 | 30 | 12 | -36 |
| NSA-203 | 64 | 57 | 52 | 46 | 41 | 36 | 29 | 10 | -42 |
| NSA-204 | 63 | 56 | 51 | 45 | 39 | 34 | 26 | 3 | -59 |
| NSA-205 | 63 | 56 | 51 | 45 | 39 | 35 | 27 | 4 | -55 |
| NSA-206 | 63 | 56 | 51 | 45 | 40 | 35 | 27 | 4 | -58 |
| NSA-207 | 59 | 52 | 47 | 40 | 34 | 29 | 19 | -15 | -80 |
| NSA-208 | 62 | 55 | 50 | 44 | 39 | 35 | 27 | 2 | -68 |
| NSA-209 | 64 | 57 | 52 | 47 | 42 | 38 | 32 | 10 | -44 |
| NSA-210 | 64 | 57 | 52 | 47 | 41 | 37 | 30 | 7 | -57 |
| NSA-211 | 65 | 58 | 53 | 48 | 42 | 38 | 31 | 13 | -32 |
| NSA-212 | 65 | 58 | 53 | 48 | 42 | 38 | 32 | 14 | -31 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-213 | 63 | 56 | 51 | 46 | 40 | 36 | 29 | 5 | -59 |
| NSA-214 | 63 | 56 | 51 | 46 | 40 | 36 | 28 | 4 | -62 |
| NSA-215 | 63 | 56 | 51 | 45 | 40 | 35 | 28 | 4 | -61 |
| NSA-216 | 63 | 56 | 51 | 45 | 40 | 35 | 27 | 5 | -55 |
| NSA-217 | 63 | 56 | 51 | 45 | 40 | 35 | 28 | 6 | -51 |
| NSA-218 | 64 | 57 | 52 | 46 | 41 | 36 | 29 | 10 | -41 |
| NSA-219 | 62 | 55 | 50 | 45 | 39 | 34 | 26 | 4 | -56 |
| NSA-220 | 62 | 55 | 50 | 44 | 38 | 33 | 25 | 4 | -56 |
| NSA-221 | 60 | 53 | 48 | 42 | 35 | 30 | 20 | -5 | -77 |
| NSA-222 | 59 | 51 | 46 | 39 | 32 | 26 | 14 | -18 | -80 |
| NSA-223 | 58 | 50 | 45 | 38 | 31 | 23 | 10 | -27 | -80 |
| NSA-224 | 58 | 51 | 45 | 39 | 31 | 24 | 12 | -22 | -80 |
| NSA-225 | 57 | 50 | 45 | 38 | 30 | 23 | 10 | -29 | -80 |
| NSA-226 | 60 | 53 | 48 | 42 | 36 | 30 | 21 | -5 | -77 |
| NSA-227 | 63 | 56 | 51 | 46 | 41 | 37 | 30 | 6 | -58 |
| NSA-228 | 63 | 56 | 51 | 46 | 40 | 36 | 29 | 5 | -59 |
| NSA-229 | 66 | 59 | 54 | 49 | 44 | 40 | 33 | 14 | -32 |
| NSA-230 | 64 | 57 | 53 | 47 | 42 | 39 | 33 | 12 | -40 |
| NSA-231 | 60 | 52 | 47 | 41 | 35 | 30 | 20 | -10 | -80 |
| NSA-232 | 58 | 51 | 46 | 40 | 34 | 28 | 18 | -15 | -80 |
| NSA-233 | 52 | 45 | 39 | 33 | 27 | 23 | 12 | -25 | -80 |
| NSA-234 | 65 | 58 | 53 | 48 | 43 | 39 | 32 | 15 | -30 |
| NSA-235 | 57 | 50 | 45 | 39 | 32 | 26 | 14 | -21 | -80 |
| NSA-236 | 52 | 45 | 40 | 33 | 27 | 20 | 7 | -32 | -80 |
| NSA-237 | 49 | 42 | 36 | 30 | 23 | 16 | 4 | -35 | -80 |
| NSA-238 | 56 | 49 | 44 | 38 | 32 | 26 | 16 | -16 | -80 |
| NSA-239 | 57 | 50 | 45 | 39 | 33 | 28 | 18 | -11 | -80 |
| NSA-241 | 58 | 51 | 46 | 40 | 33 | 27 | 17 | -16 | -80 |
| NSA-242 | 60 | 53 | 49 | 43 | 37 | 32 | 22 | -3 | -74 |
| NSA-243 | 60 | 53 | 48 | 42 | 36 | 31 | 21 | -6 | -78 |
| NSA-244 | 52 | 45 | 40 | 34 | 28 | 22 | 13 | -14 | -80 |
| NSA-245 | 60 | 53 | 48 | 42 | 36 | 31 | 21 | -5 | -77 |
| NSA-246 | 51 | 44 | 40 | 35 | 30 | 25 | 15 | -15 | -80 |
| NSA-247 | 51 | 44 | 38 | 32 | 26 | 20 | 9 | -23 | -80 |
| NSA-248 | 51 | 44 | 39 | 33 | 27 | 21 | 11 | -19 | -80 |
| NSA-249 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -19 | -80 |
| NSA-250 | 57 | 50 | 45 | 39 | 33 | 27 | 15 | -20 | -80 |
| NSA-251 | 58 | 51 | 46 | 39 | 33 | 26 | 14 | -24 | -80 |
| NSA-255 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-256 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-257 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-258 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-259 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-260 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-261 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-262 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-263 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-264 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-265 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-266 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-267 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-268 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-269 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-270 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-271 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-272 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-273 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-274 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-275 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-276 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-277 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-278 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-279 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-280 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-281 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-282 | 62 | 55 | 50 | 44 | 38 | 31 | 21 | -11 | -80 |
| NSA-283 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -12 | -80 |
| NSA-284 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-285 | 62 | 55 | 50 | 44 | 38 | 32 | 20 | -12 | -80 |
| NSA-286 | 62 | 55 | 50 | 44 | 38 | 32 | 20 | -12 | -80 |
| NSA-287 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-288 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-289 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-290 | 62 | 55 | 50 | 44 | 38 | 31 | 20 | -12 | -80 |
| NSA-291 | 62 | 55 | 50 | 44 | 38 | 32 | 20 | -12 | -80 |
| NSA-292 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-293 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-294 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-295 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-296 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-297 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -12 | -80 |
| NSA-298 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-299 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-300 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-301 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-302 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |
| NSA-303 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-304 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -10 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-305 | 62 | 55 | 50 | 44 | 37 | 31 | 21 | -11 | -80 |
| NSA-306 | 62 | 55 | 50 | 44 | 37 | 32 | 21 | -10 | -80 |
| NSA-307 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-308 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-309 | 62 | 55 | 50 | 44 | 38 | 31 | 21 | -11 | -80 |
| NSA-310 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-311 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -11 | -80 |
| NSA-312 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -10 | -80 |
| NSA-313 | 62 | 55 | 50 | 44 | 37 | 31 | 20 | -11 | -80 |
| NSA-314 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-315 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-316 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-317 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -7 | -80 |
| NSA-318 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-319 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-320 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-321 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-322 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-323 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-324 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -9 | -80 |
| NSA-325 | 62 | 55 | 50 | 44 | 38 | 32 | 21 | -8 | -80 |
| NSA-326 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-327 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-328 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-329 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -19 | -80 |
| NSA-330 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-331 | 58 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-332 | 58 | 51 | 46 | 39 | 33 | 27 | 17 | -19 | -80 |
| NSA-333 | 59 | 52 | 47 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-334 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-335 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-336 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-337 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-338 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-339 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-340 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-341 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-342 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-343 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-344 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-345 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -21 | -80 |
| NSA-346 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-347 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-348 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -24 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-349 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-350 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-351 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-352 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-353 | 58 | 51 | 46 | 39 | 33 | 27 | 16 | -21 | -80 |
| NSA-354 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -21 | -80 |
| NSA-355 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-356 | 59 | 52 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-357 | 59 | 52 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-358 | 59 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-359 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-360 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-361 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-362 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-363 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-364 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -24 | -80 |
| NSA-365 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-366 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -23 | -80 |
| NSA-367 | 58 | 51 | 46 | 39 | 33 | 26 | 15 | -23 | -80 |
| NSA-368 | 58 | 51 | 46 | 39 | 33 | 26 | 15 | -23 | -80 |
| NSA-369 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -22 | -80 |
| NSA-370 | 58 | 51 | 46 | 39 | 33 | 27 | 15 | -23 | -80 |
| NSA-371 | 58 | 51 | 46 | 39 | 33 | 26 | 15 | -23 | -80 |
| NSA-372 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-373 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-374 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-375 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-376 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-377 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-378 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-379 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -24 | -80 |
| NSA-380 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-381 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-382 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-383 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-384 | 58 | 51 | 45 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-385 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-386 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -28 | -80 |
| NSA-387 | 58 | 51 | 45 | 38 | 31 | 25 | 13 | -28 | -80 |
| NSA-388 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-389 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-390 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-391 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-392 | 58 | 51 | 45 | 39 | 32 | 26 | 13 | -26 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-393 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-394 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-395 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -26 | -80 |
| NSA-396 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-397 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -28 | -80 |
| NSA-398 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-399 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-400 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -27 | -80 |
| NSA-401 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -26 | -80 |
| NSA-405 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-406 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-407 | 59 | 52 | 46 | 40 | 34 | 28 | 17 | -17 | -80 |
| NSA-408 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-409 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-410 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-411 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-412 | 59 | 52 | 47 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-413 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-414 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-415 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-416 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-417 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -18 | -80 |
| NSA-418 | 59 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-419 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-420 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -17 | -80 |
| NSA-421 | 59 | 51 | 46 | 40 | 33 | 27 | 17 | -19 | -80 |
| NSA-422 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -20 | -80 |
| NSA-423 | 58 | 51 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-424 | 59 | 52 | 46 | 40 | 33 | 28 | 17 | -18 | -80 |
| NSA-425 | 59 | 52 | 46 | 40 | 34 | 28 | 18 | -17 | -80 |
| NSA-426 | 58 | 51 | 46 | 39 | 33 | 28 | 17 | -18 | -80 |
| NSA-427 | 59 | 52 | 47 | 40 | 34 | 28 | 18 | -16 | -80 |
| NSA-468 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -25 | -80 |
| NSA-469 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -23 | -80 |
| NSA-475 | 56 | 49 | 44 | 38 | 31 | 25 | 13 | -24 | -80 |
| NSA-476 | 57 | 50 | 45 | 38 | 30 | 23 | 11 | -27 | -80 |
| NSA-477 | 57 | 50 | 44 | 38 | 30 | 23 | 11 | -28 | -80 |
| NSA-478 | 57 | 50 | 44 | 38 | 30 | 23 | 11 | -28 | -80 |
| NSA-479 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-480 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-481 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-482 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-483 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-484 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -27 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-485 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -26 | -80 |
| NSA-486 | 57 | 50 | 44 | 38 | 30 | 24 | 11 | -27 | -80 |
| NSA-487 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -26 | -80 |
| NSA-488 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -27 | -80 |
| NSA-489 | 57 | 49 | 44 | 37 | 30 | 24 | 11 | -27 | -80 |
| NSA-490 | 57 | 49 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-491 | 57 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-492 | 56 | 49 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-493 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -30 | -80 |
| NSA-494 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-495 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-496 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -27 | -80 |
| NSA-497 | 57 | 50 | 45 | 38 | 31 | 24 | 11 | -26 | -80 |
| NSA-498 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-499 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -26 | -80 |
| NSA-500 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-501 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-502 | 57 | 50 | 45 | 38 | 31 | 24 | 13 | -24 | -80 |
| NSA-503 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-504 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-505 | 57 | 50 | 45 | 38 | 31 | 24 | 13 | -24 | -80 |
| NSA-506 | 57 | 50 | 45 | 38 | 31 | 24 | 13 | -23 | -80 |
| NSA-507 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-508 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-509 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-510 | 57 | 50 | 45 | 38 | 32 | 25 | 14 | -21 | -80 |
| NSA-511 | 57 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-512 | 57 | 50 | 45 | 39 | 32 | 25 | 14 | -21 | -80 |
| NSA-513 | 58 | 51 | 46 | 39 | 32 | 26 | 14 | -20 | -80 |
| NSA-514 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -18 | -80 |
| NSA-515 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-516 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-517 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-518 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -18 | -80 |
| NSA-519 | 58 | 51 | 46 | 40 | 33 | 27 | 16 | -16 | -80 |
| NSA-520 | 59 | 52 | 46 | 40 | 33 | 27 | 17 | -14 | -80 |
| NSA-521 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-522 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -21 | -80 |
| NSA-523 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -21 | -80 |
| NSA-524 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -21 | -80 |
| NSA-525 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-526 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-527 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -22 | -80 |
| NSA-528 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|-----|-----|
| NSA-529 | 55 | 48 | 43 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-530 | 57 | 50 | 44 | 38 | 30 | 23 | 11 | -27 | -80 |
| NSA-531 | 57 | 50 | 44 | 37 | 30 | 23 | 11 | -28 | -80 |
| NSA-532 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-533 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -23 | -80 |
| NSA-534 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-535 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-536 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -28 | -80 |
| NSA-537 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-538 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-539 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-540 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-541 | 54 | 47 | 42 | 35 | 29 | 22 | 10 | -30 | -80 |
| NSA-542 | 55 | 48 | 42 | 36 | 29 | 22 | 10 | -30 | -80 |
| NSA-543 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -30 | -80 |
| NSA-544 | 56 | 49 | 44 | 37 | 30 | 22 | 9 | -30 | -80 |
| NSA-545 | 56 | 49 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-546 | 57 | 50 | 44 | 37 | 30 | 23 | 10 | -29 | -80 |
| NSA-547 | 56 | 49 | 43 | 37 | 29 | 22 | 9 | -30 | -80 |
| NSA-548 | 57 | 49 | 44 | 37 | 30 | 22 | 10 | -30 | -80 |
| NSA-549 | 59 | 52 | 47 | 41 | 34 | 28 | 18 | -11 | -80 |
| NSA-550 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -25 | -80 |
| NSA-551 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-552 | 57 | 50 | 45 | 38 | 31 | 24 | 12 | -24 | -80 |
| NSA-553 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-554 | 58 | 50 | 45 | 38 | 31 | 25 | 13 | -23 | -80 |
| NSA-555 | 58 | 51 | 45 | 39 | 32 | 25 | 13 | -22 | -80 |
| NSA-556 | 58 | 51 | 45 | 39 | 32 | 26 | 15 | -19 | -80 |
| NSA-557 | 58 | 51 | 46 | 39 | 32 | 26 | 15 | -17 | -80 |
| NSA-558 | 58 | 51 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |
| NSA-559 | 58 | 50 | 45 | 39 | 32 | 25 | 14 | -20 | -80 |

Appendix E

Receptor 1/3 Octave Band Levels – Nighttime Modes

| | 25 | 31.5 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | 8000 | 10000 |
|---------|----|------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|-------|
| NSA-001 | 60 | 57 | 53 | 50 | 52 | 49 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-002 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-003 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -27 | -52 | -80 | -80 | -80 |
| NSA-004 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-005 | 60 | 56 | 53 | 50 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-006 | 60 | 56 | 53 | 50 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-007 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-008 | 59 | 55 | 52 | 48 | 50 | 48 | 45 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-009 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-010 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-011 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -24 | -49 | -79 | -80 | -80 |
| NSA-012 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -24 | -48 | -79 | -80 | -80 |
| NSA-013 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 15 | 5 | -6 | -24 | -48 | -79 | -80 | -80 |
| NSA-014 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 21 | 15 | 6 | -6 | -23 | -47 | -79 | -80 | -80 |
| NSA-021 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 23 | 19 | 13 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-073 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -41 | -72 | -80 | -80 | -80 |
| NSA-074 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-084 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 35 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 14 | 5 | -6 | -24 | -47 | -79 | -80 | -80 |
| NSA-085 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 37 | 34 | 32 | 31 | 29 | 28 | 26 | 23 | 18 | 11 | 1 | -14 | -34 | -65 | -80 | -80 |
| NSA-086 | 60 | 56 | 52 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 23 | 19 | 12 | 2 | -12 | -31 | -61 | -80 | -80 |
| NSA-087 | 59 | 55 | 52 | 48 | 51 | 48 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 29 | 27 | 25 | 22 | 17 | 9 | -2 | -18 | -40 | -74 | -80 | -80 |
| NSA-088 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 31 | 29 | 25 | 20 | 13 | 2 | -12 | -33 | -62 | -80 |
| NSA-089 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-090 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 24 | 20 | 12 | 3 | -10 | -29 | -57 | -80 | -80 |
| NSA-091 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 20 | 15 | 7 | -5 | -21 | -44 | -77 | -80 | -80 |
| NSA-092 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 26 | 21 | 14 | 4 | -10 | -30 | -57 | -80 |
| NSA-093 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 30 | 28 | 26 | 24 | 19 | 12 | 3 | -10 | -29 | -57 | -80 | -80 |
| NSA-094 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 20 | 15 | 7 | -3 | -19 | -41 | -74 | -80 | -80 |
| NSA-095 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -3 | -18 | -39 | -69 | -80 | -80 | -80 |
| NSA-106 | 64 | 60 | 57 | 53 | 56 | 53 | 51 | 50 | 47 | 46 | 44 | 42 | 40 | 38 | 37 | 36 | 34 | 33 | 31 | 28 | 22 | 15 | 4 | -10 | -31 | -59 | -80 |
| NSA-107 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 29 | 26 | 20 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-108 | 65 | 61 | 58 | 54 | 56 | 54 | 51 | 51 | 48 | 47 | 45 | 43 | 41 | 39 | 38 | 37 | 36 | 35 | 33 | 30 | 25 | 19 | 10 | -1 | -18 | -40 | -65 |
| NSA-109 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 31 | 28 | 25 | 19 | 12 | 1 | -13 | -35 | -65 | -80 |
| NSA-110 | 62 | 58 | 54 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 39 | 37 | 35 | 34 | 32 | 31 | 29 | 27 | 23 | 17 | 9 | -3 | -19 | -43 | -74 | -80 |
| NSA-111 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 31 | 30 | 28 | 26 | 22 | 17 | 7 | -5 | -24 | -50 | -80 | -80 | -80 |
| NSA-112 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 6 | -6 | -23 | -47 | -79 | -80 | -80 |
| NSA-113 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 25 | 21 | 15 | 6 | -6 | -23 | -46 | -78 | -80 | -80 |
| NSA-114 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 22 | 17 | 8 | -4 | -22 | -46 | -79 | -80 | -80 |
| NSA-115 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 20 | 15 | 6 | -6 | -24 | -50 | -80 | -80 | -80 |
| NSA-116 | 62 | 58 | 55 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 37 | 35 | 34 | 32 | 30 | 29 | 26 | 22 | 14 | 5 | -9 | -28 | -58 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-117 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 35 | 34 | 31 | 29 | 27 | 25 | 23 | 20 | 16 | 10 | 0 | -14 | -34 | -62 | -80 | -80 | -80 |
| NSA-118 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 31 | 29 | 27 | 25 | 23 | 20 | 16 | 10 | 0 | -13 | -33 | -60 | -80 | -80 | -80 |
| NSA-124 | 59 | 55 | 52 | 48 | 50 | 48 | 45 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 24 | 21 | 16 | 8 | -2 | -17 | -38 | -70 | -80 | -80 |
| NSA-125 | 59 | 55 | 52 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 20 | 15 | 6 | -5 | -21 | -44 | -77 | -80 | -80 |
| NSA-126 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 40 | 39 | 36 | 34 | 33 | 31 | 29 | 27 | 24 | 18 | 10 | -1 | -18 | -40 | -73 | -80 | -80 |
| NSA-127 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 12 | 3 | -11 | -30 | -60 | -80 | -80 |
| NSA-128 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 19 | 13 | 5 | -7 | -24 | -49 | -79 | -80 | -80 |
| NSA-129 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 27 | 26 | 23 | 21 | 18 | 13 | 6 | -5 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-130 | 61 | 57 | 53 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 4 | -10 | -29 | -57 | -80 | -80 |
| NSA-131 | 65 | 61 | 58 | 54 | 56 | 54 | 51 | 51 | 48 | 46 | 44 | 43 | 41 | 39 | 38 | 36 | 35 | 34 | 32 | 29 | 23 | 16 | 6 | -7 | -28 | -55 | -79 |
| NSA-132 | 65 | 62 | 58 | 55 | 57 | 55 | 52 | 51 | 49 | 47 | 45 | 43 | 41 | 39 | 38 | 37 | 35 | 34 | 32 | 28 | 23 | 15 | 5 | -9 | -30 | -57 | -80 |
| NSA-133 | 65 | 62 | 58 | 55 | 57 | 55 | 52 | 52 | 49 | 47 | 45 | 44 | 42 | 40 | 38 | 37 | 36 | 35 | 32 | 29 | 23 | 17 | 6 | -7 | -28 | -55 | -80 |
| NSA-134 | 63 | 59 | 56 | 52 | 55 | 52 | 50 | 49 | 46 | 44 | 42 | 41 | 38 | 36 | 35 | 33 | 32 | 30 | 27 | 23 | 15 | 6 | -9 | -28 | -57 | -80 | -80 |
| NSA-135 | 64 | 61 | 57 | 54 | 56 | 54 | 51 | 51 | 48 | 46 | 44 | 43 | 41 | 39 | 37 | 36 | 35 | 33 | 31 | 27 | 21 | 14 | 3 | -11 | -32 | -60 | -80 |
| NSA-136 | 65 | 61 | 58 | 54 | 56 | 54 | 51 | 51 | 48 | 46 | 44 | 43 | 41 | 39 | 38 | 36 | 35 | 34 | 32 | 28 | 22 | 15 | 4 | -10 | -32 | -62 | -80 |
| NSA-137 | 61 | 58 | 54 | 50 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 26 | 22 | 15 | 7 | -6 | -22 | -47 | -78 | -80 |
| NSA-138 | 61 | 57 | 54 | 50 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 21 | 14 | 5 | -9 | -28 | -57 | -80 | -80 |
| NSA-143 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 18 | 14 | 9 | 1 | -12 | -31 | -58 | -80 | -80 | -80 | -80 |
| NSA-144 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 29 | 25 | 19 | 12 | 2 | -12 | -34 | -63 | -80 |
| NSA-145 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 33 | 32 | 30 | 28 | 26 | 22 | 16 | 7 | -7 | -26 | -54 | -80 | -80 | -80 |
| NSA-146 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 50 | 47 | 45 | 43 | 42 | 40 | 37 | 36 | 35 | 33 | 32 | 30 | 27 | 21 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-147 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 36 | 35 | 34 | 32 | 31 | 28 | 25 | 18 | 11 | -1 | -16 | -39 | -69 | -80 |
| NSA-148 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 32 | 30 | 28 | 26 | 23 | 18 | 10 | -1 | -16 | -37 | -70 | -80 | -80 |
| NSA-149 | 56 | 53 | 49 | 45 | 48 | 45 | 42 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-150 | 57 | 54 | 50 | 47 | 49 | 47 | 43 | 43 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 13 | 6 | -7 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-151 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 26 | 24 | 21 | 17 | 10 | -1 | -16 | -38 | -70 | -80 | -80 | -80 |
| NSA-152 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 17 | 11 | 0 | -14 | -36 | -66 | -80 | -80 | -80 |
| NSA-153 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 25 | 21 | 16 | 7 | -5 | -23 | -47 | -79 | -80 | -80 |
| NSA-154 | 59 | 56 | 52 | 49 | 51 | 49 | 45 | 45 | 42 | 40 | 38 | 36 | 33 | 31 | 29 | 27 | 25 | 23 | 19 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-155 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 14 | 4 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-156 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 33 | 32 | 30 | 28 | 26 | 22 | 16 | 7 | -5 | -23 | -48 | -79 | -80 | -80 |
| NSA-157 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 35 | 33 | 31 | 30 | 28 | 25 | 22 | 16 | 6 | -6 | -24 | -49 | -79 | -80 | -80 |
| NSA-158 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 31 | 30 | 28 | 25 | 21 | 16 | 6 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-159 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 5 | -8 | -27 | -53 | -80 | -80 | -80 |
| NSA-160 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-161 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -29 | -56 | -80 | -80 | -80 |
| NSA-162 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-163 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -64 | -80 | -80 | -80 |
| NSA-164 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-165 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-166 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-167 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-168 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-169 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -63 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-170 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-171 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 27 | 24 | 20 | 14 | 5 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-172 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 37 | 34 | 32 | 30 | 29 | 27 | 24 | 20 | 15 | 6 | -6 | -24 | -48 | -79 | -80 | -80 |
| NSA-173 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-174 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-175 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-176 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-177 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 22 | 18 | 12 | 2 | -12 | -31 | -58 | -80 | -80 | -80 |
| NSA-178 | 59 | 55 | 52 | 48 | 51 | 48 | 45 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 13 | 4 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-179 | 58 | 54 | 51 | 48 | 49 | 47 | 44 | 44 | 40 | 38 | 36 | 34 | 32 | 29 | 28 | 26 | 23 | 21 | 16 | 10 | -1 | -14 | -34 | -63 | -80 | -80 | -80 |
| NSA-180 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 32 | 29 | 28 | 26 | 23 | 20 | 16 | 9 | -1 | -15 | -36 | -65 | -80 | -80 | -80 |
| NSA-181 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 16 | 11 | 3 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-184 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 35 | 34 | 31 | 29 | 27 | 25 | 22 | 20 | 15 | 7 | -5 | -22 | -46 | -78 | -80 | -80 | -80 |
| NSA-185 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 12 | 2 | -12 | -31 | -60 | -80 | -80 |
| NSA-186 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 47 | 45 | 43 | 42 | 39 | 37 | 36 | 35 | 34 | 33 | 31 | 27 | 22 | 15 | 6 | -7 | -26 | -52 | -78 |
| NSA-187 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 12 | 3 | -11 | -30 | -59 | -80 | -80 |
| NSA-188 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 33 | 32 | 30 | 28 | 25 | 21 | 14 | 6 | -7 | -25 | -51 | -80 | -80 |
| NSA-189 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 20 | 13 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-190 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 20 | 12 | 3 | -12 | -31 | -61 | -80 | -80 |
| NSA-191 | 61 | 57 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 11 | 1 | -14 | -35 | -67 | -80 | -80 |
| NSA-192 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 40 | 39 | 37 | 34 | 33 | 32 | 30 | 28 | 25 | 21 | 14 | 5 | -8 | -26 | -53 | -80 | -80 |
| NSA-193 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 39 | 37 | 35 | 33 | 32 | 30 | 29 | 26 | 22 | 15 | 6 | -7 | -24 | -51 | -80 | -80 |
| NSA-194 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 39 | 37 | 35 | 34 | 32 | 30 | 29 | 26 | 22 | 15 | 7 | -6 | -23 | -49 | -79 | -80 |
| NSA-195 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 14 | 7 | -3 | -17 | -38 | -68 | -80 | -80 | -80 |
| NSA-196 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 14 | 8 | -3 | -17 | -38 | -68 | -80 | -80 | -80 |
| NSA-197 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 27 | 25 | 23 | 21 | 18 | 14 | 8 | -3 | -17 | -38 | -67 | -80 | -80 | -80 |
| NSA-198 | 63 | 59 | 56 | 52 | 54 | 52 | 50 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 36 | 34 | 33 | 32 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-199 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 46 | 45 | 43 | 41 | 39 | 37 | 36 | 34 | 33 | 32 | 30 | 27 | 21 | 14 | 4 | -9 | -30 | -57 | -80 |
| NSA-200 | 64 | 61 | 57 | 54 | 56 | 54 | 51 | 50 | 47 | 46 | 44 | 43 | 40 | 38 | 37 | 36 | 35 | 34 | 32 | 29 | 24 | 17 | 8 | -4 | -22 | -46 | -72 |
| NSA-201 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 30 | 28 | 24 | 18 | 11 | -1 | -15 | -38 | -68 | -80 |
| NSA-202 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 28 | 25 | 19 | 12 | 1 | -14 | -36 | -65 | -80 |
| NSA-203 | 62 | 58 | 55 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 35 | 34 | 33 | 31 | 30 | 27 | 23 | 17 | 9 | -2 | -18 | -42 | -73 | -80 |
| NSA-204 | 61 | 57 | 53 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 12 | 3 | -11 | -30 | -59 | -80 | -80 |
| NSA-205 | 61 | 57 | 54 | 51 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 21 | 13 | 4 | -9 | -27 | -55 | -80 | -80 |
| NSA-206 | 61 | 57 | 54 | 51 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 28 | 25 | 20 | 13 | 3 | -10 | -29 | -58 | -80 | -80 |
| NSA-207 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 34 | 31 | 29 | 28 | 26 | 24 | 22 | 18 | 11 | 0 | -15 | -37 | -69 | -80 | -80 | -80 |
| NSA-208 | 60 | 56 | 53 | 50 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 38 | 36 | 34 | 33 | 31 | 30 | 28 | 26 | 21 | 13 | 2 | -14 | -36 | -68 | -80 | -80 |
| NSA-209 | 61 | 58 | 54 | 52 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 36 | 36 | 34 | 33 | 32 | 30 | 26 | 19 | 10 | -3 | -19 | -44 | -75 | -80 |
| NSA-210 | 62 | 59 | 55 | 52 | 53 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 28 | 24 | 17 | 7 | -8 | -27 | -57 | -80 | -80 |
| NSA-211 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 36 | 34 | 33 | 32 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-212 | 63 | 59 | 56 | 52 | 54 | 53 | 50 | 49 | 46 | 45 | 43 | 41 | 39 | 37 | 36 | 35 | 33 | 32 | 30 | 26 | 21 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-213 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 31 | 30 | 28 | 23 | 15 | 5 | -10 | -30 | -59 | -80 | -80 |
| NSA-214 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 37 | 35 | 34 | 32 | 31 | 30 | 27 | 22 | 15 | 4 | -11 | -31 | -62 | -80 | -80 |
| NSA-215 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 31 | 29 | 26 | 22 | 14 | 4 | -11 | -31 | -61 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-216 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 29 | 26 | 21 | 14 | 5 | -9 | -27 | -55 | -80 | -80 |
| NSA-217 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 29 | 26 | 22 | 15 | 6 | -7 | -24 | -51 | -80 | -80 |
| NSA-218 | 62 | 58 | 55 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 35 | 34 | 33 | 31 | 30 | 28 | 24 | 17 | 10 | -2 | -17 | -41 | -72 | -80 |
| NSA-219 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 36 | 34 | 32 | 31 | 29 | 28 | 25 | 20 | 13 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-220 | 60 | 56 | 52 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 24 | 19 | 12 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-221 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 14 | 6 | -5 | -22 | -45 | -77 | -80 | -80 |
| NSA-222 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 7 | -4 | -18 | -39 | -69 | -80 | -80 | -80 |
| NSA-223 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -27 | -52 | -80 | -80 | -80 | -80 |
| NSA-224 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 19 | 16 | 11 | 4 | -7 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-225 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 20 | 18 | 14 | 9 | 1 | -11 | -29 | -55 | -80 | -80 | -80 | -80 |
| NSA-226 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 20 | 15 | 6 | -5 | -21 | -44 | -77 | -80 | -80 |
| NSA-227 | 61 | 57 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 28 | 23 | 16 | 6 | -9 | -29 | -58 | -80 | -80 |
| NSA-228 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 28 | 23 | 15 | 5 | -10 | -30 | -59 | -80 | -80 |
| NSA-229 | 64 | 60 | 57 | 53 | 55 | 53 | 50 | 50 | 47 | 46 | 44 | 42 | 40 | 38 | 37 | 36 | 35 | 34 | 31 | 28 | 21 | 14 | 3 | -11 | -32 | -60 | -80 |
| NSA-230 | 62 | 59 | 55 | 52 | 53 | 52 | 49 | 48 | 45 | 44 | 42 | 41 | 39 | 37 | 36 | 35 | 34 | 33 | 31 | 27 | 21 | 12 | -1 | -17 | -40 | -71 | -80 |
| NSA-231 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-232 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 37 | 34 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | 0 | -15 | -36 | -66 | -80 | -80 | -80 |
| NSA-233 | 49 | 46 | 42 | 39 | 41 | 39 | 36 | 35 | 32 | 30 | 27 | 26 | 23 | 21 | 20 | 20 | 18 | 15 | 11 | 3 | -9 | -25 | -49 | -79 | -80 | -80 | -80 |
| NSA-234 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 46 | 45 | 43 | 42 | 39 | 37 | 36 | 35 | 34 | 33 | 30 | 27 | 21 | 14 | 4 | -9 | -30 | -57 | -80 |
| NSA-235 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -5 | -21 | -44 | -75 | -80 | -80 | -80 |
| NSA-236 | 50 | 46 | 43 | 39 | 41 | 39 | 36 | 36 | 32 | 30 | 28 | 26 | 24 | 21 | 19 | 17 | 15 | 12 | 7 | -1 | -14 | -32 | -59 | -80 | -80 | -80 | -80 |
| NSA-237 | 47 | 43 | 39 | 36 | 38 | 36 | 33 | 32 | 29 | 27 | 24 | 23 | 20 | 17 | 16 | 14 | 11 | 8 | 3 | -5 | -18 | -35 | -61 | -80 | -80 | -80 | -80 |
| NSA-238 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 21 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-239 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 33 | 30 | 28 | 26 | 25 | 23 | 21 | 17 | 11 | 2 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-241 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-242 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 36 | 34 | 31 | 30 | 28 | 27 | 25 | 21 | 16 | 8 | -3 | -19 | -41 | -74 | -80 | -80 |
| NSA-243 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 26 | 23 | 20 | 14 | 6 | -6 | -23 | -46 | -78 | -80 | -80 |
| NSA-244 | 50 | 46 | 43 | 40 | 41 | 39 | 36 | 36 | 33 | 31 | 29 | 27 | 25 | 22 | 21 | 19 | 17 | 15 | 12 | 6 | -3 | -14 | -32 | -56 | -80 | -80 | -80 |
| NSA-245 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 28 | 26 | 24 | 20 | 15 | 6 | -5 | -22 | -45 | -77 | -80 | -80 |
| NSA-246 | 49 | 46 | 42 | 39 | 41 | 39 | 36 | 36 | 33 | 31 | 30 | 29 | 27 | 25 | 23 | 22 | 20 | 17 | 14 | 8 | -2 | -15 | -35 | -62 | -80 | -80 | -80 |
| NSA-247 | 49 | 45 | 41 | 38 | 40 | 38 | 35 | 34 | 31 | 29 | 27 | 25 | 23 | 20 | 19 | 17 | 15 | 12 | 8 | 1 | -9 | -23 | -44 | -72 | -80 | -80 | -80 |
| NSA-248 | 49 | 46 | 42 | 39 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 26 | 24 | 21 | 20 | 18 | 16 | 14 | 10 | 4 | -6 | -19 | -38 | -64 | -80 | -80 | -80 |
| NSA-249 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -19 | -41 | -72 | -80 | -80 | -80 |
| NSA-250 | 55 | 51 | 48 | 45 | 46 | 44 | 41 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-251 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 18 | 13 | 5 | -7 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-255 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-256 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-257 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-258 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-259 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-260 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-261 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-262 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-263 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|-----|-----|-----|-----|-----|-----|
| NSA-264 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-265 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-266 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-267 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-268 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-269 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-270 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-271 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -10 | -30 | -58 | -80 | -80 | -80 |
| NSA-272 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-273 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-274 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-275 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-276 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-277 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-278 | 60 | 56 | 53 | 49 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-279 | 60 | 56 | 53 | 49 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-280 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-281 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-282 | 60 | 57 | 53 | 50 | 52 | 49 | 47 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-283 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-284 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-285 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-286 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-287 | 60 | 57 | 53 | 50 | 52 | 49 | 47 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-288 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-289 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-290 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-291 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-292 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -63 | -80 | -80 | -80 |
| NSA-293 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-294 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-295 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-296 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -63 | -80 | -80 | -80 |
| NSA-297 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-298 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-299 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-300 | 60 | 56 | 53 | 49 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-301 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 20 | 13 | 3 | -11 | -30 | -58 | -80 | -80 | -80 |
| NSA-302 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -10 | -30 | -58 | -80 | -80 | -80 |
| NSA-303 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-304 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-305 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-306 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-307 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| NSA-308 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-309 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-310 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-311 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-312 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 14 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-313 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-314 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-315 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -52 | -80 | -80 | -80 |
| NSA-316 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-317 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-318 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-319 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -27 | -52 | -80 | -80 | -80 |
| NSA-320 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-321 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -8 | -26 | -50 | -80 | -80 | -80 |
| NSA-322 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-323 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -52 | -80 | -80 | -80 |
| NSA-324 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -28 | -53 | -80 | -80 | -80 |
| NSA-325 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-326 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-327 | 56 | 53 | 49 | 46 | 47 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -77 | -80 | -80 | -80 |
| NSA-328 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-329 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -3 | -19 | -42 | -75 | -80 | -80 | -80 |
| NSA-330 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -74 | -80 | -80 | -80 |
| NSA-331 | 56 | 53 | 49 | 46 | 47 | 46 | 42 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-332 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 9 | -3 | -19 | -43 | -75 | -80 | -80 | -80 |
| NSA-333 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-334 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-335 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-336 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-337 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -6 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-338 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-339 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-340 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-341 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-342 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-343 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-344 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-345 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -21 | -45 | -77 | -80 | -80 | -80 |
| NSA-346 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -48 | -79 | -80 | -80 | -80 |
| NSA-347 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-348 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-349 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -50 | -80 | -80 | -80 | -80 |
| NSA-350 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-351 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |

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|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|-----|-----|-----|-----|-----|-----|
| NSA-352 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-353 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-354 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-355 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-356 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-357 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-358 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-359 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-360 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-361 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-362 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-363 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-364 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-365 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-366 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-367 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-368 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-369 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -48 | -79 | -80 | -80 | -80 |
| NSA-370 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-371 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-372 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -80 | -80 | -80 | -80 |
| NSA-373 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-374 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-375 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -8 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-376 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-377 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-378 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-379 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-380 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-381 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-382 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-383 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-384 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-385 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-386 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-387 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-388 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-389 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-390 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-391 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-392 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-393 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-394 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-395 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-396 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-397 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-398 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-399 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-400 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-401 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-405 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -18 | -42 | -74 | -80 | -80 | -80 |
| NSA-406 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -71 | -80 | -80 | -80 |
| NSA-407 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -71 | -80 | -80 | -80 |
| NSA-408 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-409 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -71 | -80 | -80 | -80 |
| NSA-410 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-411 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -38 | -69 | -80 | -80 | -80 |
| NSA-412 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | 0 | -16 | -38 | -69 | -80 | -80 | -80 |
| NSA-413 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-414 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-415 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -71 | -80 | -80 | -80 |
| NSA-416 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-417 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -3 | -19 | -42 | -74 | -80 | -80 | -80 |
| NSA-418 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-419 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-420 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-421 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 8 | -3 | -19 | -43 | -75 | -80 | -80 | -80 |
| NSA-422 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-423 | 56 | 53 | 49 | 46 | 47 | 46 | 42 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-424 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-425 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -70 | -80 | -80 | -80 |
| NSA-426 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-427 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-468 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-469 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 6 | -7 | -23 | -48 | -78 | -80 | -80 | -80 |
| NSA-475 | 54 | 50 | 47 | 43 | 46 | 43 | 40 | 40 | 37 | 35 | 32 | 30 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-476 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -28 | -54 | -80 | -80 | -80 | -80 |
| NSA-477 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-478 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-479 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-480 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-481 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 22 | 20 | 18 | 15 | 9 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-482 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 14 | 9 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-483 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-484 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-485 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 16 | 11 | 3 | -9 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-486 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-487 | 55 | 52 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 3 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|-----|-----|-----|-----|-----|-----|-----|
| NSA-488 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -9 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-489 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-490 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-491 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-492 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-493 | 54 | 51 | 47 | 44 | 46 | 43 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-494 | 54 | 51 | 47 | 44 | 46 | 44 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
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| NSA-496 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -54 | -80 | -80 | -80 | -80 |
| NSA-497 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 11 | 3 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-498 | 55 | 52 | 48 | 44 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-499 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 16 | 11 | 3 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-500 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -9 | -25 | -51 | -79 | -80 | -80 | -80 |
| NSA-501 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-502 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 5 | -7 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-503 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-504 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -47 | -78 | -80 | -80 | -80 |
| NSA-505 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 4 | -7 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-506 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 5 | -7 | -24 | -48 | -79 | -80 | -80 | -80 |
| NSA-507 | 55 | 52 | 48 | 44 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-508 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 24 | 21 | 19 | 16 | 11 | 4 | -8 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-509 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 4 | -7 | -24 | -48 | -79 | -80 | -80 | -80 |
| NSA-510 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 38 | 35 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -6 | -21 | -45 | -77 | -80 | -80 | -80 |
| NSA-511 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -6 | -22 | -46 | -78 | -80 | -80 | -80 |
| NSA-512 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -21 | -44 | -76 | -80 | -80 | -80 |
| NSA-513 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 7 | -5 | -20 | -43 | -75 | -80 | -80 | -80 |
| NSA-514 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -3 | -18 | -40 | -71 | -80 | -80 | -80 |
| NSA-515 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -41 | -73 | -80 | -80 | -80 |
| NSA-516 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 6 | -5 | -20 | -43 | -75 | -80 | -80 | -80 |
| NSA-517 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 7 | -4 | -19 | -42 | -73 | -80 | -80 | -80 |
| NSA-518 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -3 | -18 | -40 | -71 | -80 | -80 | -80 |
| NSA-519 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-520 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 9 | -1 | -14 | -35 | -64 | -80 | -80 | -80 |
| NSA-521 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-522 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -21 | -44 | -75 | -80 | -80 | -80 |
| NSA-523 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 6 | -6 | -21 | -45 | -76 | -80 | -80 | -80 |
| NSA-524 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -21 | -44 | -76 | -80 | -80 | -80 |
| NSA-525 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 20 | 17 | 12 | 5 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-526 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-527 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -47 | -78 | -80 | -80 | -80 |
| NSA-528 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-529 | 53 | 50 | 46 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 29 | 27 | 24 | 22 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-530 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -54 | -80 | -80 | -80 | -80 |
| NSA-531 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-532 | 55 | 52 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-533 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 21 | 19 | 16 | 12 | 4 | -7 | -23 | -48 | -78 | -80 | -80 | -80 |
| NSA-534 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -54 | -80 | -80 | -80 | -80 |
| NSA-535 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-536 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 14 | 9 | 2 | -11 | -29 | -55 | -80 | -80 | -80 | -80 |
| NSA-537 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-538 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-539 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 14 | 9 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-540 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-541 | 52 | 48 | 45 | 41 | 43 | 41 | 38 | 37 | 34 | 32 | 30 | 28 | 26 | 23 | 21 | 19 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-542 | 52 | 49 | 45 | 42 | 44 | 42 | 39 | 38 | 35 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
| NSA-543 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 31 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-544 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 31 | 29 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
| NSA-545 | 54 | 51 | 47 | 44 | 46 | 43 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-546 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-547 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 29 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
| NSA-548 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-549 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 43 | 39 | 38 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 21 | 17 | 11 | 2 | -12 | -31 | -59 | -80 | -80 | -80 |
| NSA-550 | 55 | 52 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -9 | -26 | -51 | -80 | -80 | -80 | -80 |
| NSA-551 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 4 | -8 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-552 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 21 | 19 | 16 | 11 | 4 | -8 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-553 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-554 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -48 | -78 | -80 | -80 | -80 |
| NSA-555 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 6 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-556 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 7 | -4 | -19 | -42 | -73 | -80 | -80 | -80 |
| NSA-557 | 56 | 53 | 49 | 45 | 48 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 8 | -3 | -18 | -40 | -70 | -80 | -80 | -80 |
| NSA-558 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -20 | -44 | -75 | -80 | -80 | -80 |
| NSA-559 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 6 | -5 | -20 | -44 | -75 | -80 | -80 | -80 |

Appendix F

Receptor 1/3 Octave Band Levels – Daytime Modes

| | 25 | 31.5 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | 8000 | 10000 |
|---------|----|------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|-------|
| NSA-001 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-002 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-003 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -52 | -80 | -80 | -80 |
| NSA-004 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-005 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-006 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-007 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-008 | 59 | 55 | 52 | 48 | 50 | 48 | 45 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-009 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 41 | 38 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 4 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-010 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-011 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -24 | -49 | -79 | -80 | -80 |
| NSA-012 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -24 | -48 | -79 | -80 | -80 |
| NSA-013 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 15 | 5 | -6 | -24 | -48 | -79 | -80 | -80 |
| NSA-014 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 25 | 21 | 15 | 6 | -6 | -23 | -47 | -79 | -80 | -80 |
| NSA-021 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 19 | 13 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-073 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -41 | -72 | -80 | -80 | -80 |
| NSA-074 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 27 | 26 | 24 | 21 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-084 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 43 | 40 | 39 | 36 | 35 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 14 | 5 | -6 | -24 | -47 | -79 | -80 | -80 |
| NSA-085 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 37 | 34 | 32 | 31 | 29 | 28 | 26 | 23 | 18 | 11 | 1 | -14 | -34 | -65 | -80 | -80 |
| NSA-086 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 24 | 19 | 12 | 2 | -12 | -31 | -61 | -80 | -80 |
| NSA-087 | 59 | 56 | 52 | 48 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 29 | 27 | 25 | 22 | 17 | 9 | -2 | -18 | -40 | -74 | -80 | -80 |
| NSA-088 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 31 | 29 | 25 | 20 | 13 | 2 | -12 | -33 | -62 | -80 |
| NSA-089 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-090 | 60 | 56 | 53 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 24 | 20 | 12 | 3 | -10 | -29 | -57 | -80 | -80 |
| NSA-091 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 20 | 15 | 7 | -5 | -21 | -44 | -77 | -80 | -80 |
| NSA-092 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 26 | 21 | 14 | 4 | -10 | -30 | -57 | -80 |
| NSA-093 | 60 | 56 | 52 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 30 | 28 | 26 | 24 | 19 | 12 | 3 | -10 | -29 | -57 | -80 | -80 |
| NSA-094 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 20 | 15 | 7 | -3 | -19 | -41 | -74 | -80 | -80 |
| NSA-095 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -3 | -18 | -39 | -69 | -80 | -80 | -80 |
| NSA-106 | 64 | 60 | 57 | 53 | 56 | 54 | 51 | 50 | 47 | 46 | 44 | 42 | 40 | 38 | 37 | 36 | 34 | 33 | 31 | 28 | 22 | 15 | 4 | -10 | -31 | -59 | -80 |
| NSA-107 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 29 | 26 | 20 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-108 | 65 | 61 | 58 | 54 | 56 | 54 | 52 | 51 | 48 | 47 | 45 | 43 | 41 | 39 | 38 | 37 | 36 | 35 | 33 | 30 | 25 | 19 | 10 | -1 | -18 | -40 | -65 |
| NSA-109 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 31 | 28 | 25 | 19 | 12 | 1 | -13 | -35 | -65 | -80 |
| NSA-110 | 62 | 58 | 55 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 37 | 35 | 34 | 32 | 31 | 29 | 27 | 23 | 17 | 9 | -3 | -18 | -43 | -74 | -80 |
| NSA-111 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 32 | 30 | 28 | 26 | 22 | 17 | 7 | -5 | -24 | -50 | -80 | -80 | -80 |
| NSA-112 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 6 | -6 | -23 | -47 | -79 | -80 | -80 |
| NSA-113 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 6 | -6 | -23 | -46 | -78 | -80 | -80 |
| NSA-114 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 35 | 33 | 31 | 30 | 28 | 26 | 22 | 17 | 8 | -4 | -21 | -46 | -78 | -80 | -80 |
| NSA-115 | 60 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 41 | 38 | 37 | 34 | 32 | 30 | 29 | 27 | 24 | 21 | 16 | 6 | -6 | -24 | -49 | -80 | -80 | -80 |
| NSA-116 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 43 | 41 | 40 | 38 | 35 | 34 | 32 | 31 | 29 | 26 | 22 | 15 | 5 | -9 | -28 | -57 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-117 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 31 | 29 | 27 | 25 | 23 | 21 | 16 | 10 | 0 | -13 | -33 | -62 | -80 | -80 | -80 |
| NSA-118 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 17 | 11 | 1 | -12 | -32 | -60 | -80 | -80 | -80 |
| NSA-124 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 29 | 27 | 25 | 22 | 17 | 9 | -1 | -17 | -38 | -70 | -80 | -80 |
| NSA-125 | 59 | 55 | 52 | 48 | 51 | 48 | 45 | 45 | 42 | 40 | 38 | 36 | 33 | 31 | 30 | 28 | 26 | 24 | 20 | 15 | 7 | -4 | -21 | -43 | -76 | -80 | -80 |
| NSA-126 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 40 | 39 | 36 | 34 | 33 | 31 | 29 | 27 | 24 | 18 | 10 | -1 | -18 | -40 | -73 | -80 | -80 |
| NSA-127 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 12 | 3 | -11 | -30 | -60 | -80 | -80 |
| NSA-128 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 19 | 13 | 5 | -7 | -24 | -49 | -79 | -80 | -80 |
| NSA-129 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 23 | 21 | 18 | 13 | 6 | -5 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-130 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 4 | -10 | -29 | -57 | -80 | -80 |
| NSA-131 | 65 | 61 | 58 | 54 | 56 | 54 | 51 | 51 | 48 | 46 | 44 | 43 | 41 | 39 | 38 | 36 | 35 | 34 | 32 | 29 | 23 | 16 | 6 | -7 | -28 | -55 | -79 |
| NSA-132 | 65 | 62 | 58 | 55 | 57 | 55 | 52 | 51 | 49 | 47 | 45 | 43 | 41 | 39 | 38 | 37 | 35 | 34 | 32 | 28 | 23 | 15 | 5 | -9 | -30 | -57 | -80 |
| NSA-133 | 65 | 62 | 58 | 55 | 57 | 55 | 52 | 52 | 49 | 47 | 45 | 44 | 42 | 40 | 38 | 37 | 36 | 35 | 32 | 29 | 23 | 17 | 6 | -7 | -28 | -55 | -80 |
| NSA-134 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 46 | 44 | 42 | 41 | 39 | 36 | 35 | 34 | 32 | 30 | 27 | 23 | 16 | 6 | -8 | -28 | -57 | -80 | -80 |
| NSA-135 | 65 | 61 | 58 | 54 | 57 | 54 | 52 | 51 | 48 | 47 | 45 | 43 | 41 | 39 | 38 | 36 | 35 | 34 | 31 | 28 | 22 | 14 | 4 | -10 | -32 | -60 | -80 |
| NSA-136 | 65 | 61 | 58 | 54 | 57 | 55 | 52 | 51 | 48 | 47 | 45 | 43 | 41 | 39 | 38 | 37 | 35 | 34 | 32 | 29 | 23 | 15 | 4 | -10 | -32 | -61 | -80 |
| NSA-137 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 33 | 32 | 30 | 29 | 26 | 22 | 16 | 7 | -5 | -21 | -47 | -78 | -80 |
| NSA-138 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 40 | 39 | 37 | 34 | 33 | 32 | 30 | 28 | 26 | 21 | 14 | 5 | -9 | -28 | -56 | -80 | -80 |
| NSA-143 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 28 | 25 | 23 | 21 | 18 | 15 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
| NSA-144 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 38 | 36 | 35 | 34 | 32 | 31 | 29 | 25 | 20 | 12 | 2 | -12 | -34 | -63 | -80 |
| NSA-145 | 61 | 57 | 54 | 50 | 53 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 22 | 16 | 7 | -6 | -26 | -54 | -80 | -80 | -80 |
| NSA-146 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 50 | 47 | 45 | 43 | 42 | 40 | 37 | 36 | 35 | 33 | 32 | 30 | 27 | 21 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-147 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 36 | 35 | 34 | 32 | 31 | 28 | 25 | 18 | 11 | -1 | -16 | -39 | -69 | -80 |
| NSA-148 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 32 | 30 | 28 | 26 | 23 | 18 | 10 | -1 | -16 | -37 | -70 | -80 | -80 |
| NSA-149 | 56 | 53 | 49 | 45 | 48 | 45 | 42 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-150 | 57 | 54 | 50 | 47 | 49 | 47 | 43 | 43 | 40 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 13 | 6 | -7 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-151 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 26 | 24 | 21 | 17 | 10 | -1 | -16 | -38 | -70 | -80 | -80 | -80 |
| NSA-152 | 59 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 17 | 11 | 0 | -14 | -36 | -66 | -80 | -80 | -80 |
| NSA-153 | 60 | 56 | 53 | 49 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 25 | 21 | 16 | 7 | -5 | -23 | -47 | -79 | -80 | -80 |
| NSA-154 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 33 | 31 | 29 | 27 | 25 | 23 | 19 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-155 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 14 | 4 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-156 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 33 | 32 | 30 | 28 | 26 | 22 | 17 | 7 | -5 | -23 | -48 | -79 | -80 | -80 |
| NSA-157 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 31 | 30 | 28 | 26 | 22 | 16 | 7 | -6 | -24 | -49 | -79 | -80 | -80 |
| NSA-158 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 35 | 33 | 32 | 30 | 28 | 25 | 21 | 16 | 6 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-159 | 61 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 39 | 38 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 5 | -8 | -27 | -53 | -80 | -80 | -80 |
| NSA-160 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 35 | 33 | 31 | 29 | 27 | 25 | 21 | 15 | 5 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-161 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 20 | 14 | 4 | -9 | -29 | -56 | -80 | -80 | -80 |
| NSA-162 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-163 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -12 | -33 | -64 | -80 | -80 | -80 |
| NSA-164 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-165 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-166 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-167 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-168 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-169 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -63 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-170 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -28 | -54 | -80 | -80 | -80 |
| NSA-171 | 60 | 56 | 53 | 49 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-172 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 41 | 38 | 37 | 34 | 32 | 30 | 29 | 27 | 24 | 21 | 15 | 6 | -6 | -24 | -48 | -79 | -80 | -80 |
| NSA-173 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-174 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-175 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-176 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-177 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 36 | 33 | 31 | 29 | 27 | 25 | 22 | 18 | 12 | 2 | -12 | -31 | -58 | -80 | -80 | -80 |
| NSA-178 | 59 | 56 | 52 | 49 | 51 | 49 | 46 | 45 | 42 | 40 | 38 | 36 | 34 | 31 | 30 | 28 | 26 | 23 | 19 | 13 | 4 | -9 | -28 | -55 | -80 | -80 | -80 |
| NSA-179 | 58 | 55 | 51 | 48 | 49 | 47 | 44 | 44 | 41 | 39 | 36 | 34 | 32 | 29 | 28 | 26 | 23 | 21 | 16 | 10 | -1 | -14 | -34 | -63 | -80 | -80 | -80 |
| NSA-180 | 58 | 54 | 51 | 48 | 49 | 47 | 44 | 44 | 40 | 38 | 36 | 34 | 32 | 29 | 28 | 26 | 23 | 21 | 16 | 9 | -1 | -15 | -36 | -65 | -80 | -80 | -80 |
| NSA-181 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 17 | 11 | 3 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-184 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 31 | 29 | 27 | 25 | 23 | 20 | 15 | 7 | -5 | -22 | -46 | -78 | -80 | -80 | -80 |
| NSA-185 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 12 | 2 | -12 | -31 | -60 | -80 | -80 |
| NSA-186 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 47 | 45 | 43 | 42 | 39 | 37 | 36 | 35 | 34 | 33 | 31 | 27 | 22 | 15 | 6 | -7 | -26 | -52 | -78 |
| NSA-187 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 12 | 3 | -11 | -30 | -59 | -80 | -80 |
| NSA-188 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 33 | 32 | 30 | 28 | 25 | 21 | 14 | 6 | -7 | -25 | -51 | -80 | -80 |
| NSA-189 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 20 | 13 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-190 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 20 | 12 | 3 | -12 | -31 | -61 | -80 | -80 |
| NSA-191 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 19 | 11 | 1 | -14 | -35 | -67 | -80 | -80 |
| NSA-192 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 47 | 44 | 43 | 40 | 39 | 37 | 34 | 33 | 32 | 30 | 28 | 25 | 21 | 14 | 5 | -8 | -26 | -53 | -80 | -80 |
| NSA-193 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 39 | 37 | 35 | 33 | 32 | 30 | 29 | 26 | 22 | 15 | 6 | -7 | -24 | -51 | -80 | -80 |
| NSA-194 | 61 | 58 | 54 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 39 | 37 | 35 | 34 | 32 | 30 | 29 | 26 | 22 | 15 | 7 | -6 | -23 | -49 | -79 | -80 |
| NSA-195 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 14 | 7 | -3 | -17 | -38 | -68 | -80 | -80 | -80 |
| NSA-196 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 21 | 18 | 14 | 8 | -3 | -17 | -38 | -68 | -80 | -80 | -80 |
| NSA-197 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 27 | 25 | 23 | 21 | 18 | 14 | 8 | -3 | -17 | -38 | -67 | -80 | -80 | -80 |
| NSA-198 | 63 | 59 | 56 | 52 | 55 | 52 | 50 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 36 | 34 | 33 | 32 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-199 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 46 | 45 | 43 | 41 | 39 | 37 | 36 | 35 | 33 | 32 | 30 | 27 | 21 | 14 | 4 | -9 | -30 | -57 | -80 |
| NSA-200 | 64 | 61 | 57 | 54 | 56 | 54 | 51 | 50 | 48 | 46 | 44 | 43 | 40 | 38 | 37 | 36 | 35 | 34 | 32 | 29 | 24 | 17 | 8 | -4 | -22 | -46 | -72 |
| NSA-201 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 33 | 32 | 30 | 28 | 24 | 18 | 11 | -1 | -15 | -38 | -68 | -80 |
| NSA-202 | 62 | 59 | 55 | 52 | 54 | 52 | 49 | 48 | 46 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 28 | 25 | 19 | 12 | 1 | -14 | -36 | -65 | -80 |
| NSA-203 | 62 | 58 | 55 | 52 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 35 | 34 | 33 | 31 | 30 | 27 | 23 | 17 | 9 | -2 | -18 | -42 | -73 | -80 |
| NSA-204 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | 31 | 29 | 27 | 24 | 20 | 12 | 3 | -11 | -30 | -59 | -80 | -80 |
| NSA-205 | 61 | 57 | 54 | 51 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 31 | 30 | 28 | 25 | 21 | 13 | 4 | -9 | -27 | -55 | -80 | -80 |
| NSA-206 | 61 | 57 | 54 | 51 | 52 | 50 | 48 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 28 | 25 | 20 | 13 | 3 | -10 | -29 | -58 | -80 | -80 |
| NSA-207 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 34 | 31 | 29 | 28 | 26 | 24 | 22 | 18 | 11 | 0 | -15 | -37 | -69 | -80 | -80 | -80 |
| NSA-208 | 60 | 56 | 53 | 50 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 38 | 36 | 34 | 33 | 31 | 30 | 28 | 26 | 21 | 13 | 2 | -14 | -36 | -68 | -80 | -80 |
| NSA-209 | 61 | 58 | 54 | 52 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 36 | 36 | 34 | 33 | 32 | 30 | 26 | 19 | 10 | -3 | -19 | -44 | -75 | -80 |
| NSA-210 | 62 | 59 | 55 | 52 | 53 | 52 | 49 | 48 | 45 | 44 | 42 | 40 | 38 | 36 | 35 | 34 | 32 | 31 | 28 | 24 | 17 | 7 | -8 | -27 | -57 | -80 | -80 |
| NSA-211 | 63 | 59 | 56 | 52 | 54 | 52 | 49 | 49 | 46 | 44 | 42 | 41 | 39 | 37 | 36 | 34 | 33 | 32 | 29 | 26 | 20 | 13 | 3 | -11 | -32 | -60 | -80 |
| NSA-212 | 63 | 59 | 56 | 52 | 54 | 53 | 50 | 49 | 46 | 45 | 43 | 41 | 39 | 37 | 36 | 35 | 33 | 32 | 30 | 26 | 21 | 14 | 3 | -10 | -31 | -58 | -80 |
| NSA-213 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 31 | 30 | 28 | 23 | 15 | 5 | -10 | -30 | -59 | -80 | -80 |
| NSA-214 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 42 | 40 | 39 | 37 | 35 | 34 | 32 | 31 | 30 | 27 | 22 | 15 | 4 | -11 | -31 | -62 | -80 | -80 |
| NSA-215 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 31 | 29 | 26 | 22 | 14 | 4 | -11 | -31 | -61 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-216 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 29 | 26 | 21 | 14 | 5 | -9 | -27 | -55 | -80 | -80 |
| NSA-217 | 61 | 57 | 54 | 50 | 52 | 50 | 47 | 47 | 44 | 42 | 40 | 39 | 36 | 34 | 33 | 32 | 30 | 29 | 26 | 22 | 15 | 6 | -7 | -24 | -51 | -80 | -80 |
| NSA-218 | 62 | 58 | 55 | 51 | 53 | 51 | 48 | 48 | 45 | 43 | 41 | 40 | 38 | 35 | 34 | 33 | 31 | 30 | 28 | 24 | 17 | 10 | -2 | -17 | -41 | -72 | -80 |
| NSA-219 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 38 | 36 | 34 | 32 | 31 | 29 | 28 | 25 | 20 | 13 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-220 | 60 | 56 | 52 | 49 | 51 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 35 | 33 | 31 | 30 | 28 | 26 | 24 | 19 | 12 | 4 | -10 | -28 | -56 | -80 | -80 |
| NSA-221 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 14 | 6 | -5 | -22 | -45 | -77 | -80 | -80 |
| NSA-222 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 7 | -4 | -18 | -39 | -69 | -80 | -80 | -80 |
| NSA-223 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -27 | -52 | -80 | -80 | -80 | -80 |
| NSA-224 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 19 | 16 | 11 | 4 | -7 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-225 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 20 | 18 | 14 | 9 | 1 | -11 | -29 | -55 | -80 | -80 | -80 | -80 |
| NSA-226 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 35 | 33 | 30 | 29 | 27 | 25 | 23 | 20 | 15 | 6 | -5 | -21 | -44 | -77 | -80 | -80 |
| NSA-227 | 61 | 57 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 28 | 23 | 16 | 6 | -9 | -29 | -58 | -80 | -80 |
| NSA-228 | 61 | 58 | 54 | 51 | 52 | 51 | 48 | 47 | 44 | 43 | 41 | 39 | 37 | 35 | 34 | 33 | 32 | 30 | 28 | 23 | 15 | 5 | -10 | -30 | -59 | -80 | -80 |
| NSA-229 | 64 | 60 | 57 | 53 | 55 | 53 | 50 | 50 | 47 | 46 | 44 | 42 | 40 | 38 | 37 | 36 | 35 | 34 | 31 | 28 | 21 | 14 | 3 | -11 | -32 | -60 | -80 |
| NSA-230 | 62 | 59 | 55 | 52 | 53 | 52 | 49 | 48 | 45 | 44 | 42 | 41 | 39 | 37 | 36 | 35 | 34 | 33 | 31 | 27 | 21 | 12 | -1 | -17 | -40 | -71 | -80 |
| NSA-231 | 57 | 54 | 50 | 47 | 49 | 47 | 44 | 43 | 40 | 38 | 36 | 34 | 32 | 30 | 28 | 27 | 25 | 23 | 19 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-232 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 37 | 34 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | 0 | -15 | -36 | -66 | -80 | -80 | -80 |
| NSA-233 | 50 | 46 | 43 | 39 | 41 | 39 | 36 | 35 | 32 | 30 | 27 | 26 | 23 | 21 | 20 | 20 | 18 | 15 | 11 | 3 | -9 | -25 | -49 | -79 | -80 | -80 | -80 |
| NSA-234 | 63 | 60 | 56 | 53 | 55 | 53 | 50 | 49 | 46 | 45 | 43 | 42 | 39 | 37 | 36 | 35 | 34 | 33 | 30 | 27 | 21 | 14 | 4 | -9 | -30 | -57 | -80 |
| NSA-235 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -5 | -21 | -44 | -75 | -80 | -80 | -80 |
| NSA-236 | 50 | 46 | 43 | 39 | 41 | 39 | 36 | 36 | 32 | 30 | 28 | 26 | 24 | 21 | 19 | 17 | 15 | 12 | 7 | -1 | -14 | -32 | -59 | -80 | -80 | -80 | -80 |
| NSA-237 | 47 | 43 | 40 | 36 | 38 | 36 | 33 | 32 | 29 | 27 | 24 | 23 | 20 | 17 | 16 | 14 | 11 | 8 | 3 | -5 | -18 | -35 | -61 | -80 | -80 | -80 | -80 |
| NSA-238 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 29 | 27 | 25 | 23 | 21 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-239 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 33 | 30 | 28 | 26 | 25 | 23 | 21 | 17 | 11 | 2 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-241 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-242 | 58 | 55 | 51 | 48 | 50 | 48 | 45 | 44 | 41 | 39 | 37 | 36 | 34 | 31 | 30 | 28 | 27 | 25 | 21 | 16 | 8 | -3 | -19 | -41 | -74 | -80 | -80 |
| NSA-243 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 27 | 26 | 23 | 20 | 14 | 6 | -6 | -23 | -46 | -78 | -80 | -80 |
| NSA-244 | 50 | 46 | 43 | 40 | 41 | 39 | 36 | 36 | 33 | 31 | 29 | 27 | 25 | 22 | 21 | 19 | 17 | 15 | 12 | 6 | -3 | -14 | -32 | -56 | -80 | -80 | -80 |
| NSA-245 | 58 | 54 | 51 | 47 | 49 | 47 | 44 | 44 | 41 | 39 | 37 | 35 | 33 | 31 | 29 | 28 | 26 | 24 | 20 | 15 | 6 | -5 | -22 | -45 | -77 | -80 | -80 |
| NSA-246 | 49 | 46 | 42 | 39 | 41 | 39 | 36 | 36 | 33 | 31 | 30 | 29 | 27 | 25 | 23 | 22 | 20 | 17 | 14 | 8 | -2 | -15 | -35 | -62 | -80 | -80 | -80 |
| NSA-247 | 49 | 45 | 41 | 38 | 40 | 38 | 35 | 34 | 31 | 29 | 27 | 25 | 23 | 20 | 19 | 17 | 15 | 12 | 8 | 1 | -9 | -23 | -44 | -72 | -80 | -80 | -80 |
| NSA-248 | 49 | 46 | 42 | 39 | 41 | 39 | 36 | 35 | 32 | 30 | 28 | 26 | 24 | 21 | 20 | 18 | 16 | 14 | 10 | 4 | -6 | -19 | -38 | -64 | -80 | -80 | -80 |
| NSA-249 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -19 | -41 | -72 | -80 | -80 | -80 |
| NSA-250 | 55 | 51 | 48 | 45 | 46 | 44 | 41 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-251 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 18 | 13 | 5 | -7 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-255 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-256 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-257 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-258 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-259 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-260 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-261 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-262 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |
| NSA-263 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -65 | -80 | -80 | -80 |

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|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|-----|-----|-----|-----|-----|-----|
| NSA-264 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-265 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-266 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-267 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-268 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-269 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-270 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-271 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -10 | -30 | -58 | -80 | -80 | -80 |
| NSA-272 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-273 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-274 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-275 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-276 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-277 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-278 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-279 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-280 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-281 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-282 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -61 | -80 | -80 | -80 |
| NSA-283 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-284 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-285 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-286 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-287 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-288 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-289 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -63 | -80 | -80 | -80 |
| NSA-290 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-291 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-292 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -63 | -80 | -80 | -80 |
| NSA-293 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-294 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -64 | -80 | -80 | -80 |
| NSA-295 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 2 | -12 | -33 | -62 | -80 | -80 | -80 |
| NSA-296 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 2 | -12 | -34 | -63 | -80 | -80 | -80 |
| NSA-297 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -12 | -32 | -61 | -80 | -80 | -80 |
| NSA-298 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 19 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-299 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -60 | -80 | -80 | -80 |
| NSA-300 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-301 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -30 | -58 | -80 | -80 | -80 |
| NSA-302 | 60 | 56 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -30 | -58 | -80 | -80 | -80 |
| NSA-303 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-304 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |
| NSA-305 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-306 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-307 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -29 | -56 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| NSA-308 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-309 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -32 | -60 | -80 | -80 | -80 |
| NSA-310 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 26 | 24 | 20 | 13 | 3 | -10 | -30 | -57 | -80 | -80 | -80 |
| NSA-311 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 13 | 3 | -11 | -31 | -58 | -80 | -80 | -80 |
| NSA-312 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 3 | -10 | -29 | -55 | -80 | -80 | -80 |
| NSA-313 | 60 | 57 | 53 | 50 | 52 | 49 | 46 | 46 | 43 | 41 | 39 | 37 | 34 | 32 | 30 | 29 | 26 | 24 | 20 | 13 | 3 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-314 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-315 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -52 | -80 | -80 | -80 |
| NSA-316 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-317 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -7 | -25 | -50 | -80 | -80 | -80 |
| NSA-318 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-319 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -27 | -52 | -80 | -80 | -80 |
| NSA-320 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -53 | -80 | -80 | -80 |
| NSA-321 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 5 | -8 | -26 | -50 | -80 | -80 | -80 |
| NSA-322 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-323 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -27 | -52 | -80 | -80 | -80 |
| NSA-324 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -9 | -28 | -53 | -80 | -80 | -80 |
| NSA-325 | 60 | 57 | 53 | 50 | 52 | 50 | 47 | 46 | 43 | 41 | 39 | 37 | 35 | 32 | 31 | 29 | 27 | 24 | 20 | 14 | 4 | -8 | -26 | -51 | -80 | -80 | -80 |
| NSA-326 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-327 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -77 | -80 | -80 | -80 |
| NSA-328 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-329 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -3 | -19 | -42 | -75 | -80 | -80 | -80 |
| NSA-330 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -74 | -80 | -80 | -80 |
| NSA-331 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-332 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 9 | -3 | -19 | -43 | -75 | -80 | -80 | -80 |
| NSA-333 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-334 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-335 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-336 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-337 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -6 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-338 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-339 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-340 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-341 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-342 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-343 | 56 | 53 | 49 | 46 | 47 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-344 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-345 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 8 | -4 | -21 | -45 | -77 | -80 | -80 | -80 |
| NSA-346 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -22 | -48 | -79 | -80 | -80 | -80 |
| NSA-347 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-348 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-349 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -50 | -80 | -80 | -80 | -80 |
| NSA-350 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-351 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|-----|-----|-----|-----|-----|-----|
| NSA-352 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -47 | -78 | -80 | -80 | -80 |
| NSA-353 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-354 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 19 | 15 | 7 | -4 | -21 | -46 | -78 | -80 | -80 | -80 |
| NSA-355 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-356 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-357 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-358 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -4 | -20 | -45 | -77 | -80 | -80 | -80 |
| NSA-359 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-360 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-361 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-362 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-363 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-364 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -79 | -80 | -80 | -80 |
| NSA-365 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 24 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-366 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-367 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-368 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-369 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 7 | -5 | -22 | -48 | -79 | -80 | -80 | -80 |
| NSA-370 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 19 | 14 | 7 | -5 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-371 | 56 | 53 | 49 | 46 | 48 | 46 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 26 | 24 | 21 | 18 | 14 | 6 | -6 | -23 | -49 | -79 | -80 | -80 | -80 |
| NSA-372 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -50 | -80 | -80 | -80 | -80 |
| NSA-373 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-374 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-375 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -8 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-376 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-377 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-378 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-379 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -6 | -24 | -51 | -80 | -80 | -80 | -80 |
| NSA-380 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 6 | -7 | -25 | -51 | -80 | -80 | -80 | -80 |
| NSA-381 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-382 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-383 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-384 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-385 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-386 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-387 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-388 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-389 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-390 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-391 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-392 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-393 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-394 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 5 | -8 | -26 | -54 | -80 | -80 | -80 | -80 |
| NSA-395 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -8 | -26 | -53 | -80 | -80 | -80 | -80 |

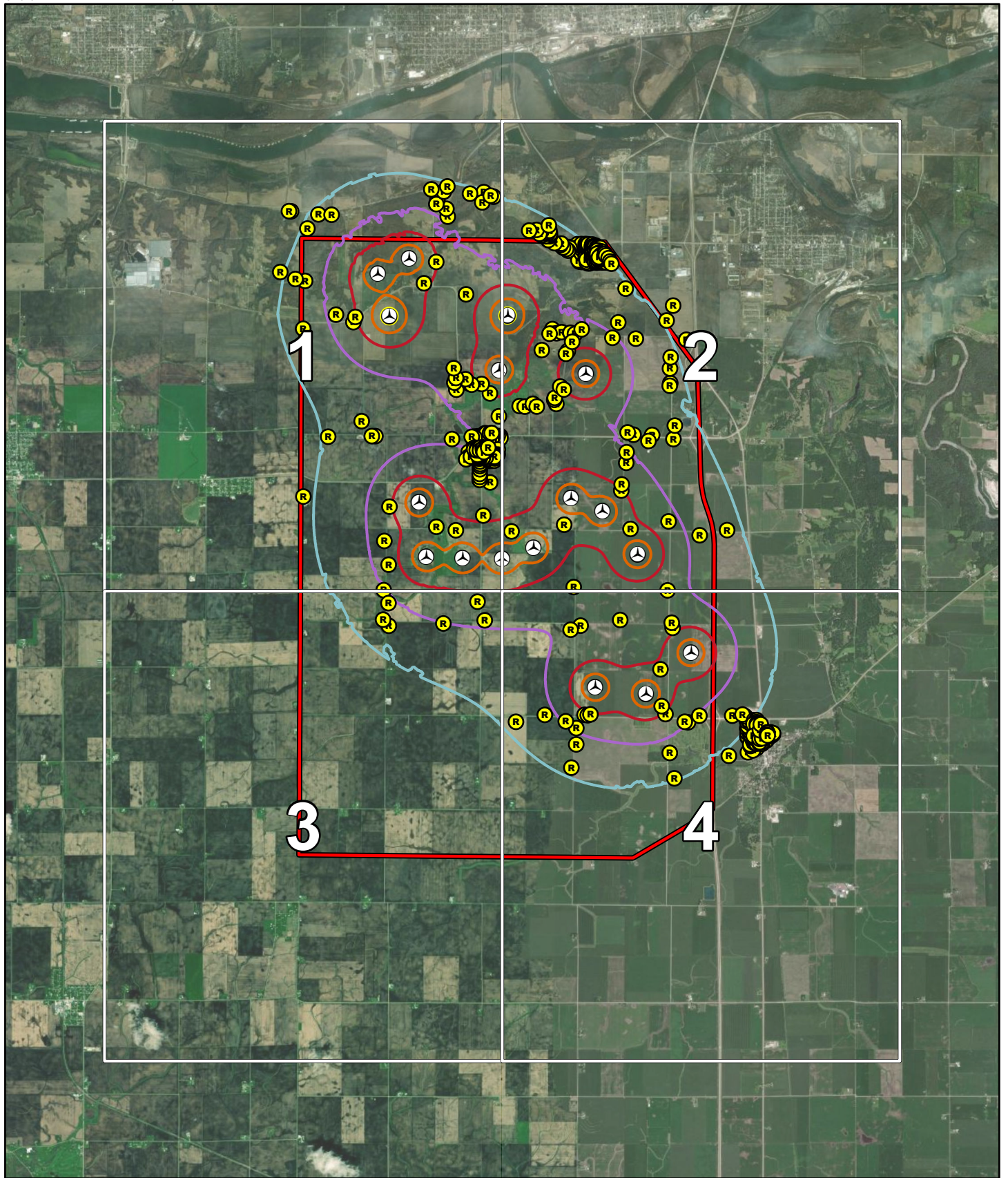
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-396 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -52 | -80 | -80 | -80 | -80 |
| NSA-397 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-398 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-399 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 25 | 22 | 20 | 17 | 12 | 4 | -9 | -27 | -55 | -80 | -80 | -80 | -80 |
| NSA-400 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 12 | 4 | -9 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-401 | 56 | 52 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 17 | 13 | 4 | -8 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-405 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -18 | -42 | -74 | -80 | -80 | -80 |
| NSA-406 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -71 | -80 | -80 | -80 |
| NSA-407 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -40 | -71 | -80 | -80 | -80 |
| NSA-408 | 57 | 53 | 50 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-409 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -71 | -80 | -80 | -80 |
| NSA-410 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-411 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -38 | -69 | -80 | -80 | -80 |
| NSA-412 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | 0 | -16 | -38 | -69 | -80 | -80 | -80 |
| NSA-413 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-414 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-415 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -71 | -80 | -80 | -80 |
| NSA-416 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-417 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -3 | -19 | -42 | -74 | -80 | -80 | -80 |
| NSA-418 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-419 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-420 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -17 | -40 | -72 | -80 | -80 | -80 |
| NSA-421 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 8 | -3 | -19 | -43 | -75 | -80 | -80 | -80 |
| NSA-422 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 15 | 8 | -3 | -20 | -44 | -76 | -80 | -80 | -80 |
| NSA-423 | 56 | 53 | 49 | 46 | 47 | 46 | 42 | 42 | 39 | 37 | 34 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-424 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 27 | 25 | 23 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-425 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -17 | -39 | -70 | -80 | -80 | -80 |
| NSA-426 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 28 | 26 | 25 | 22 | 20 | 16 | 9 | -2 | -18 | -41 | -73 | -80 | -80 | -80 |
| NSA-427 | 57 | 53 | 50 | 47 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 31 | 28 | 27 | 25 | 23 | 21 | 17 | 10 | -1 | -16 | -39 | -70 | -80 | -80 | -80 |
| NSA-468 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 5 | -7 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-469 | 56 | 53 | 49 | 46 | 47 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 13 | 6 | -7 | -23 | -48 | -78 | -80 | -80 | -80 |
| NSA-475 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 40 | 37 | 35 | 32 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-476 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-477 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-478 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-479 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -11 | -28 | -56 | -80 | -80 | -80 | -80 |
| NSA-480 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-481 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-482 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 9 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-483 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-484 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 11 | 3 | -9 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-485 | 55 | 52 | 48 | 44 | 47 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 3 | -9 | -26 | -53 | -80 | -80 | -80 | -80 |
| NSA-486 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 11 | 3 | -9 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-487 | 55 | 52 | 48 | 44 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-488 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 11 | 3 | -9 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-489 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 18 | 15 | 10 | 3 | -10 | -27 | -53 | -80 | -80 | -80 | -80 |
| NSA-490 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-491 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-492 | 54 | 51 | 47 | 44 | 46 | 44 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-493 | 54 | 51 | 47 | 44 | 46 | 44 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-494 | 54 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 14 | 9 | 2 | -11 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-495 | 55 | 51 | 47 | 44 | 46 | 44 | 41 | 40 | 37 | 34 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-496 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -27 | -54 | -80 | -80 | -80 | -80 |
| NSA-497 | 55 | 52 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 3 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-498 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -51 | -79 | -80 | -80 | -80 |
| NSA-499 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 3 | -9 | -26 | -52 | -80 | -80 | -80 | -80 |
| NSA-500 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -51 | -79 | -80 | -80 | -80 |
| NSA-501 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-502 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 5 | -7 | -24 | -48 | -79 | -80 | -80 | -80 |
| NSA-503 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-504 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 5 | -7 | -23 | -47 | -78 | -80 | -80 | -80 |
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| NSA-507 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 25 | 24 | 21 | 19 | 16 | 11 | 4 | -8 | -24 | -50 | -79 | -80 | -80 | -80 |
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| NSA-509 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 5 | -7 | -24 | -48 | -79 | -80 | -80 | -80 |
| NSA-510 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -6 | -21 | -45 | -77 | -80 | -80 | -80 |
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| NSA-513 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 20 | 18 | 13 | 7 | -4 | -20 | -43 | -74 | -80 | -80 | -80 |
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| NSA-515 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -41 | -72 | -80 | -80 | -80 |
| NSA-516 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 7 | -5 | -20 | -43 | -75 | -80 | -80 | -80 |
| NSA-517 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -41 | -73 | -80 | -80 | -80 |
| NSA-518 | 56 | 53 | 49 | 45 | 48 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 8 | -3 | -18 | -40 | -71 | -80 | -80 | -80 |
| NSA-519 | 56 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 34 | 32 | 30 | 27 | 26 | 24 | 22 | 19 | 15 | 9 | -2 | -16 | -37 | -67 | -80 | -80 | -80 |
| NSA-520 | 57 | 53 | 49 | 46 | 48 | 46 | 43 | 42 | 39 | 37 | 35 | 33 | 30 | 28 | 26 | 24 | 22 | 20 | 16 | 10 | -1 | -14 | -35 | -64 | -80 | -80 | -80 |
| NSA-521 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 6 | -5 | -20 | -43 | -74 | -80 | -80 | -80 |
| NSA-522 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -21 | -44 | -75 | -80 | -80 | -80 |
| NSA-523 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -6 | -21 | -45 | -76 | -80 | -80 | -80 |
| NSA-524 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -5 | -21 | -44 | -76 | -80 | -80 | -80 |
| NSA-525 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 5 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-526 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 20 | 17 | 12 | 5 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-527 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -6 | -22 | -46 | -78 | -80 | -80 | -80 |
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| NSA-531 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 21 | 18 | 15 | 10 | 2 | -10 | -28 | -55 | -80 | -80 | -80 | -80 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| NSA-532 | 55 | 52 | 48 | 45 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -8 | -25 | -50 | -79 | -80 | -80 | -80 |
| NSA-533 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 5 | -7 | -23 | -48 | -78 | -80 | -80 | -80 |
| NSA-534 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -10 | -28 | -54 | -80 | -80 | -80 | -80 |
| NSA-535 | 55 | 51 | 48 | 44 | 46 | 44 | 41 | 40 | 37 | 35 | 32 | 30 | 27 | 25 | 23 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-536 | 54 | 50 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 15 | 10 | 2 | -11 | -28 | -55 | -80 | -80 | -80 | -80 |
| NSA-537 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 14 | 9 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-538 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-539 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 40 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 18 | 15 | 9 | 2 | -11 | -29 | -56 | -80 | -80 | -80 | -80 |
| NSA-540 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -29 | -57 | -80 | -80 | -80 | -80 |
| NSA-541 | 52 | 48 | 45 | 41 | 43 | 41 | 38 | 38 | 35 | 33 | 30 | 28 | 26 | 23 | 22 | 19 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-542 | 52 | 49 | 45 | 42 | 44 | 42 | 39 | 38 | 35 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-543 | 54 | 51 | 47 | 43 | 46 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -57 | -80 | -80 | -80 | -80 |
| NSA-544 | 54 | 51 | 47 | 44 | 46 | 43 | 40 | 39 | 36 | 34 | 32 | 30 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
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| NSA-547 | 54 | 50 | 47 | 43 | 45 | 43 | 40 | 39 | 36 | 34 | 31 | 29 | 27 | 24 | 22 | 20 | 17 | 14 | 9 | 1 | -12 | -30 | -58 | -80 | -80 | -80 | -80 |
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| NSA-549 | 57 | 54 | 50 | 46 | 49 | 46 | 43 | 43 | 40 | 38 | 35 | 34 | 31 | 29 | 27 | 25 | 23 | 21 | 17 | 11 | 2 | -11 | -31 | -59 | -80 | -80 | -80 |
| NSA-550 | 55 | 52 | 48 | 44 | 47 | 44 | 41 | 40 | 37 | 35 | 33 | 31 | 28 | 25 | 23 | 21 | 19 | 16 | 11 | 4 | -9 | -25 | -51 | -80 | -80 | -80 | -80 |
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| NSA-552 | 55 | 52 | 48 | 45 | 47 | 45 | 41 | 41 | 37 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 16 | 12 | 4 | -8 | -24 | -49 | -79 | -80 | -80 | -80 |
| NSA-553 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 35 | 33 | 31 | 28 | 26 | 24 | 22 | 19 | 17 | 12 | 5 | -7 | -23 | -48 | -79 | -80 | -80 | -80 |
| NSA-554 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 12 | 5 | -7 | -23 | -47 | -78 | -80 | -80 | -80 |
| NSA-555 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 31 | 29 | 26 | 24 | 22 | 20 | 17 | 13 | 6 | -6 | -22 | -46 | -77 | -80 | -80 | -80 |
| NSA-556 | 56 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 34 | 32 | 29 | 27 | 25 | 23 | 21 | 18 | 14 | 7 | -4 | -19 | -42 | -73 | -80 | -80 | -80 |
| NSA-557 | 56 | 53 | 49 | 46 | 48 | 45 | 42 | 42 | 38 | 36 | 34 | 32 | 30 | 27 | 25 | 23 | 21 | 19 | 14 | 8 | -3 | -17 | -39 | -70 | -80 | -80 | -80 |
| NSA-558 | 56 | 52 | 49 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 22 | 20 | 17 | 13 | 6 | -5 | -20 | -43 | -75 | -80 | -80 | -80 |
| NSA-559 | 55 | 52 | 48 | 45 | 47 | 45 | 42 | 41 | 38 | 36 | 33 | 32 | 29 | 26 | 25 | 23 | 20 | 18 | 13 | 6 | -5 | -20 | -44 | -75 | -80 | -80 | -80 |

Appendix G

Noise Contour Maps





Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 7,500 Feet
Westwood

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Westwood Professional Services, Inc.

Legend

- Project Area
- Map Book Overview
-  Turbine
-  Receptor

- Noise (dB)**
- 35
 - 40
 - 45
 - 50
 - 55

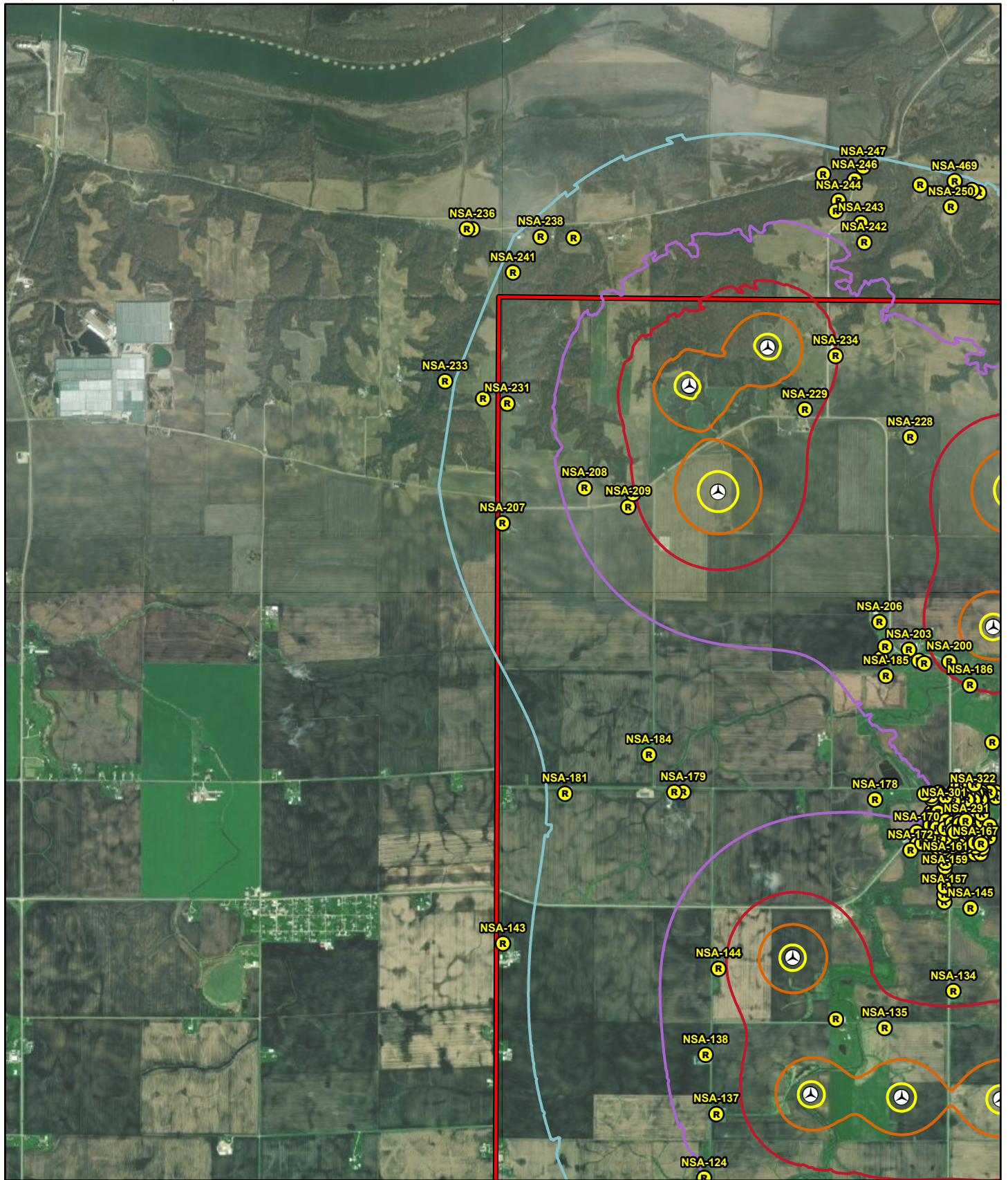


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
N163-6X 118mHH

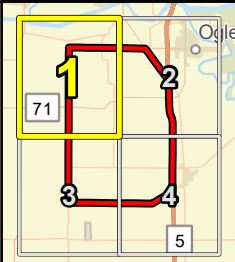
EXHIBIT 1



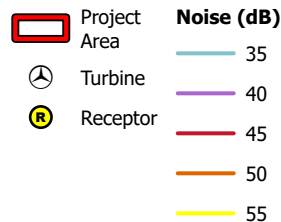
Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

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Legend

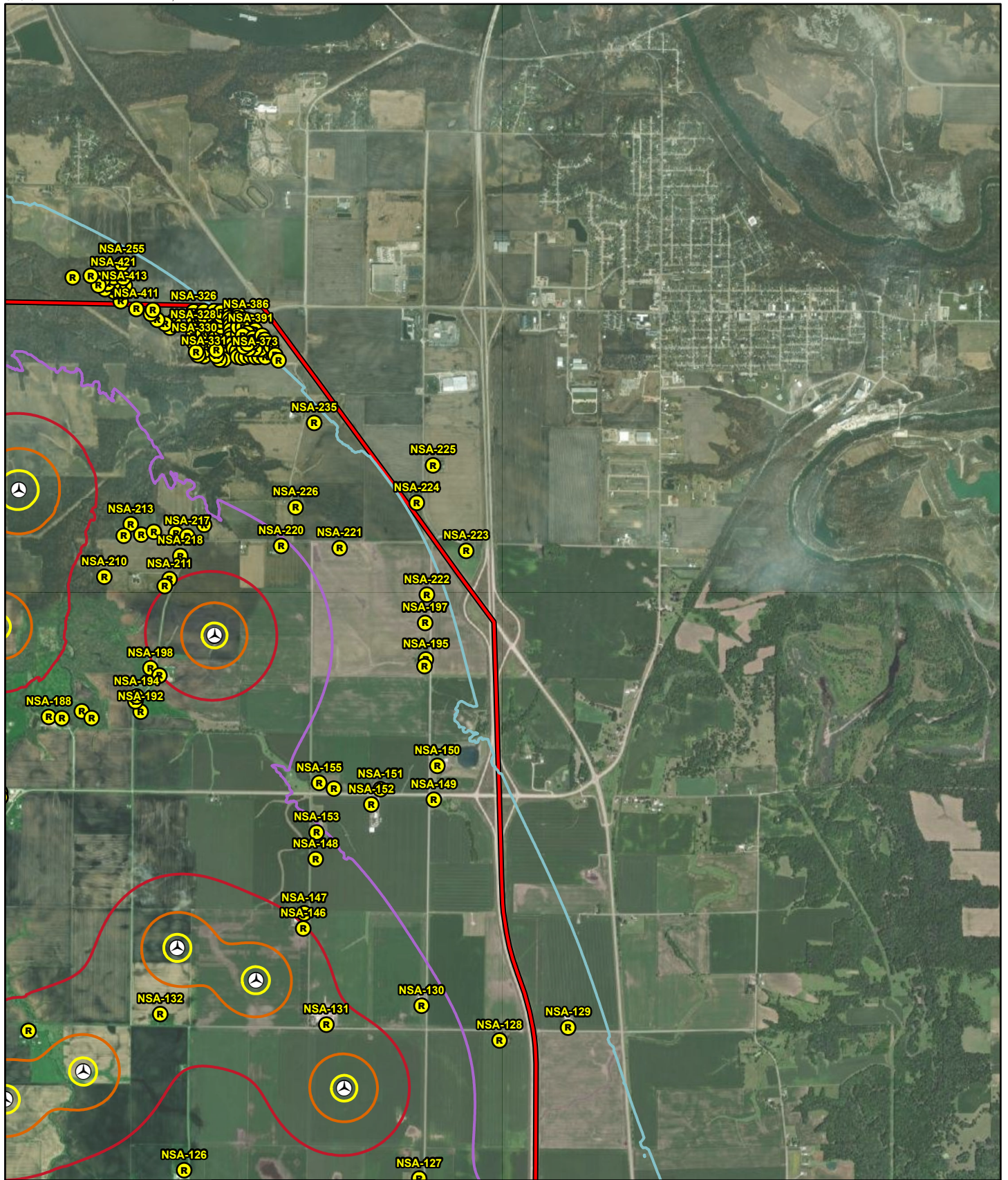


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
N163-6X 118mHH



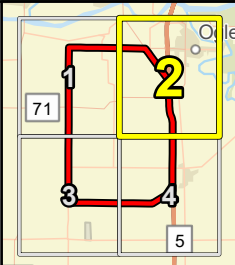


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- Turbine
- Receptor

Noise (dB)

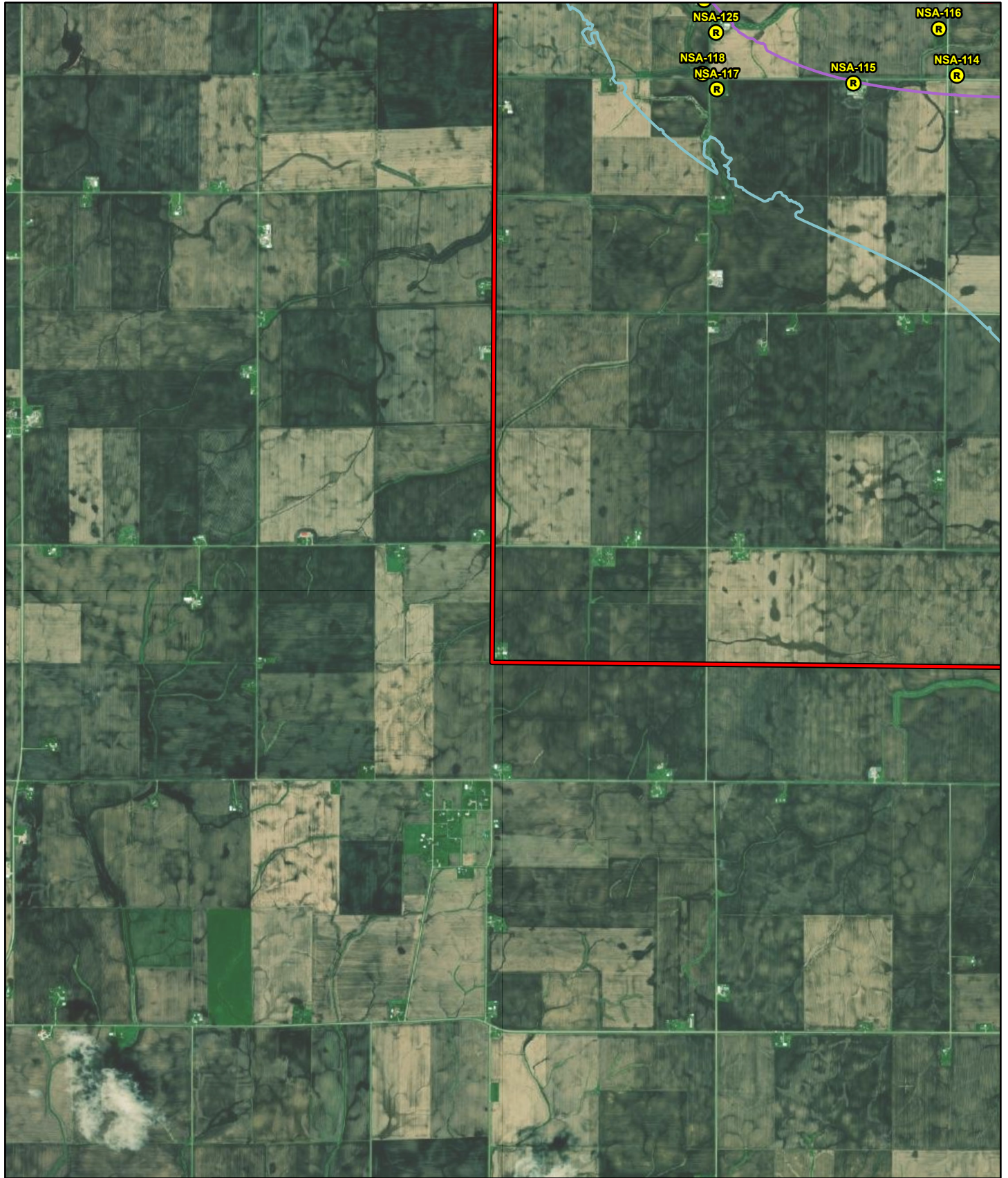
- 35
- 40
- 45
- 50
- 55

Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
N163-6X 118mHH



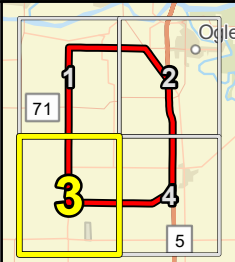


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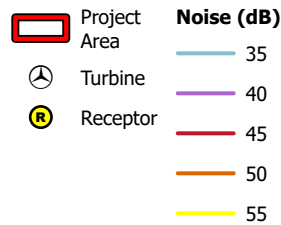
0 3,000 Feet

Westwood

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Westwood Professional Services, Inc.



Legend

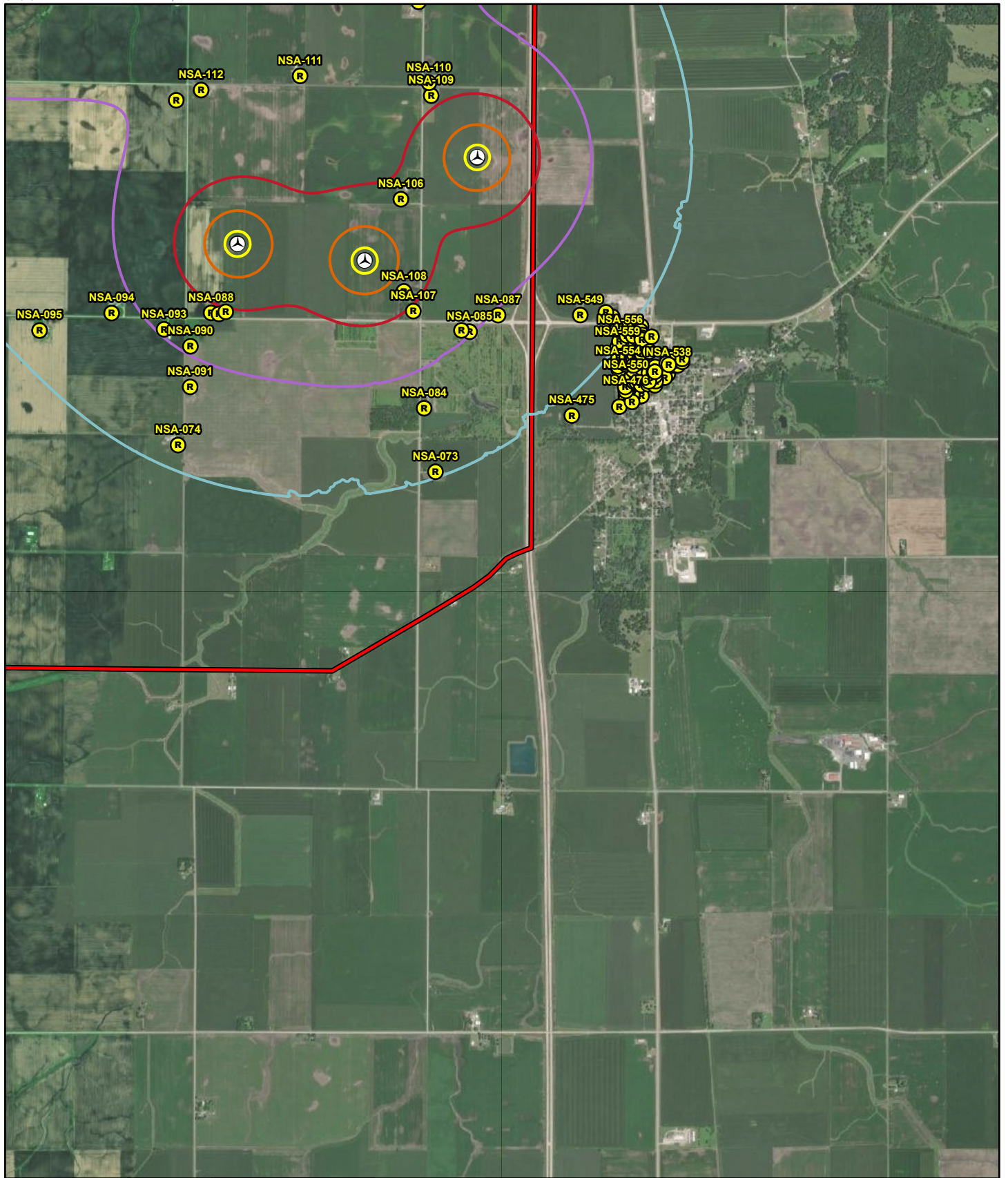


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
N163-6X 118mHH

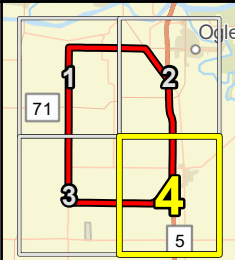




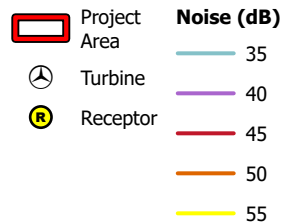
Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

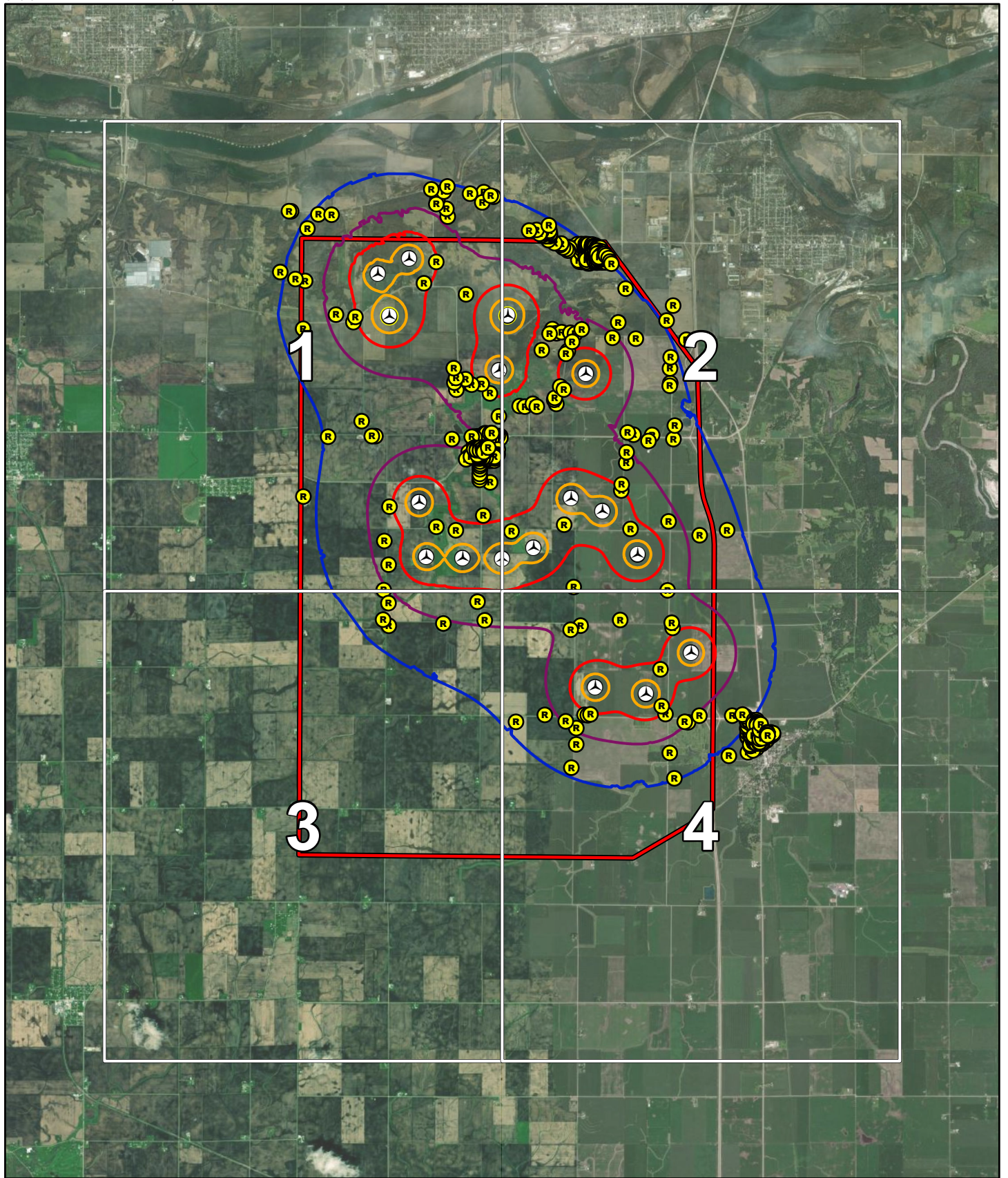


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
N163-6X 118mHH





Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 7,500 Feet

Westwood

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Westwood Professional Services, Inc.

Legend

- Project Area
- Map Book Overview
- Turbine
- Receptor

Noise (dB)

- 35
- 40
- 45
- 50
- 55

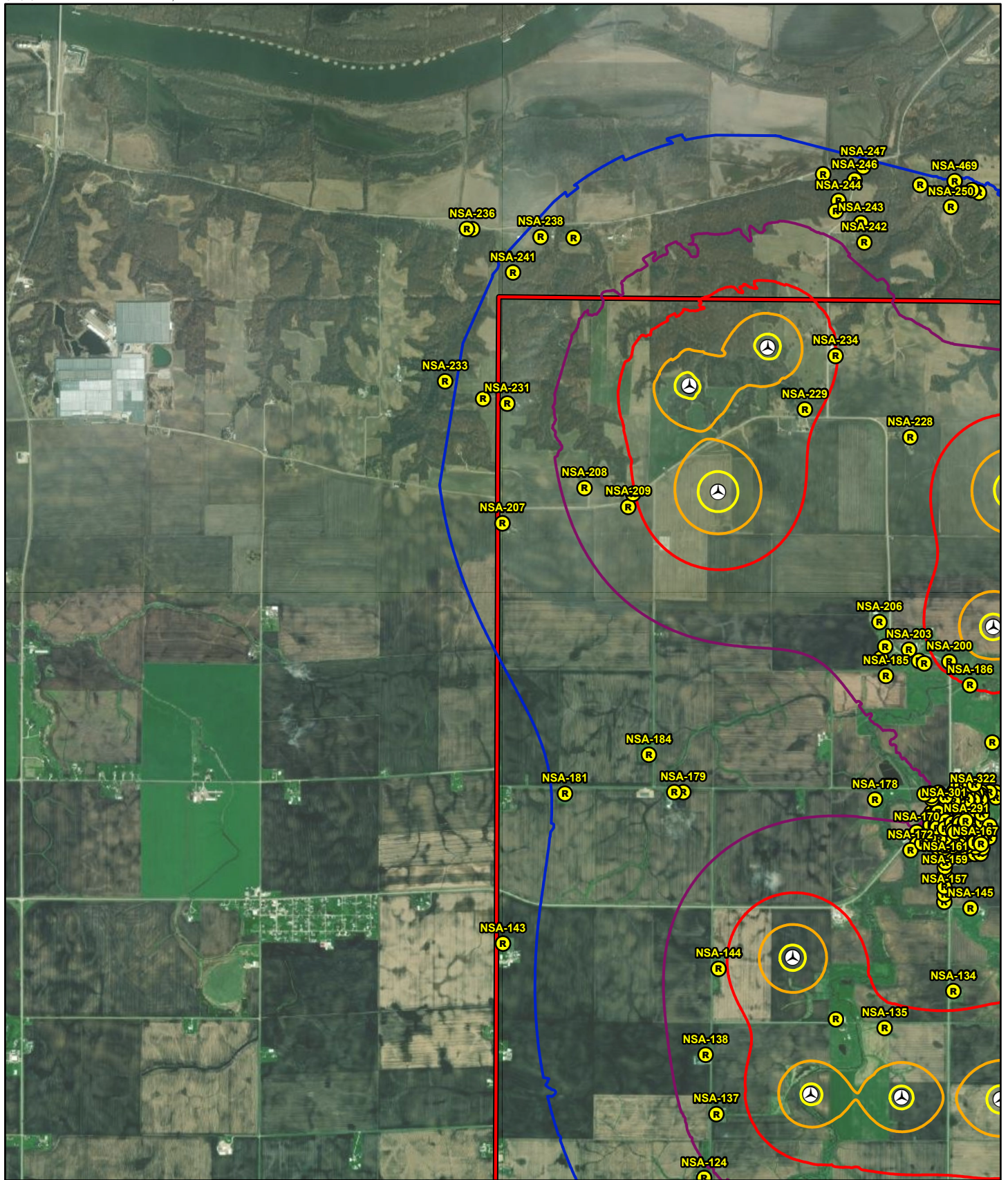


Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
N163-6X 118mHH

EXHIBIT 2

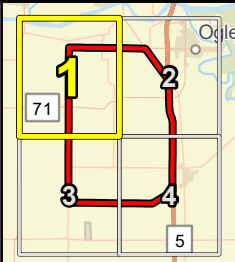


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

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Legend

- Project Area
- Turbine
- R Receptor

Noise (dB)

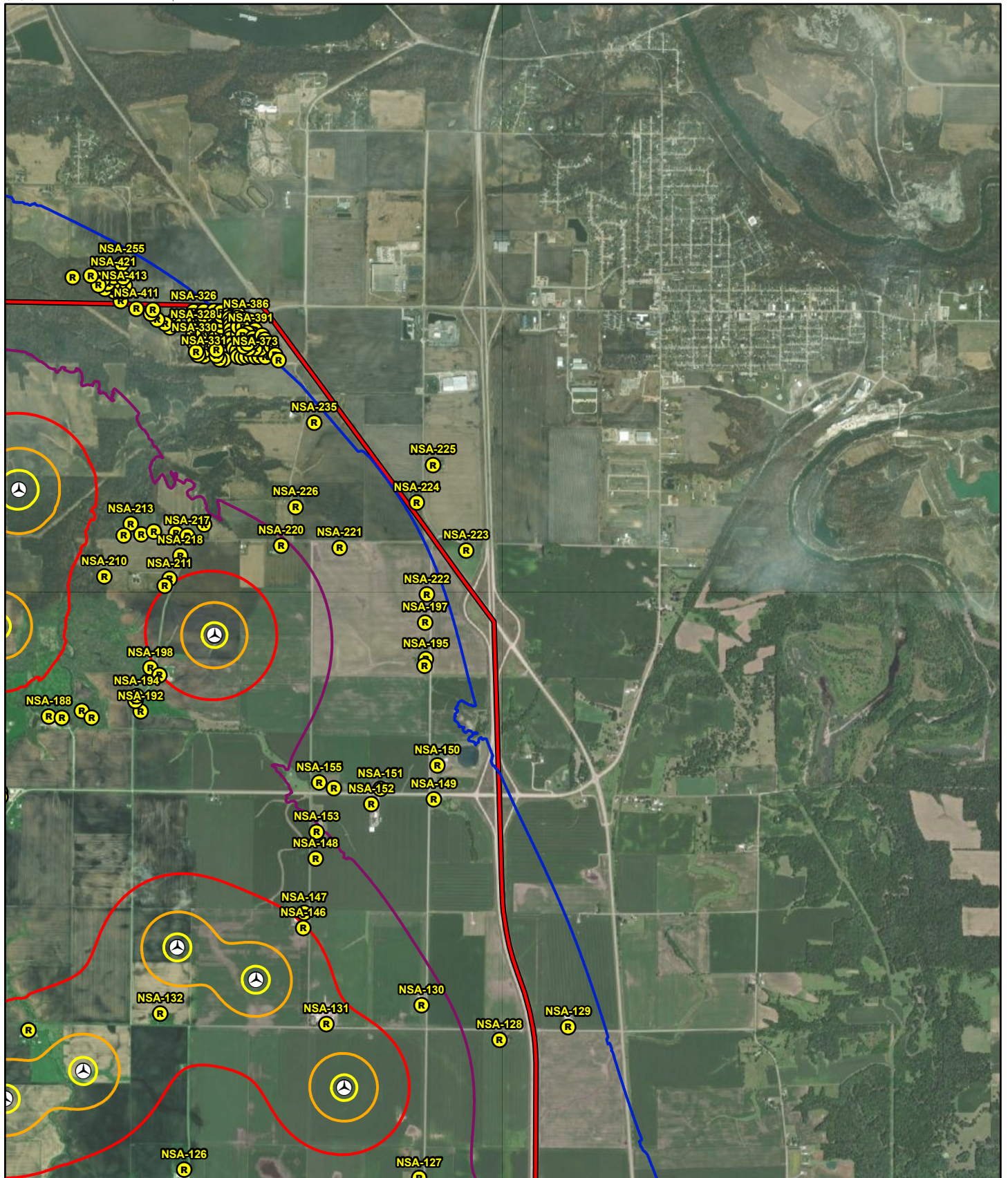
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- 40
- 45
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- 55

Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
N163-6X 118mHH



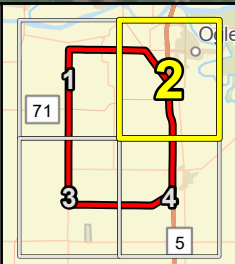


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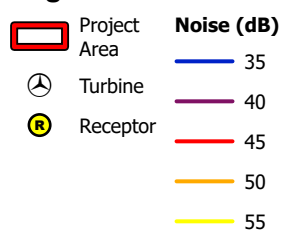
0 3,000 Feet

Westwood

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Legend

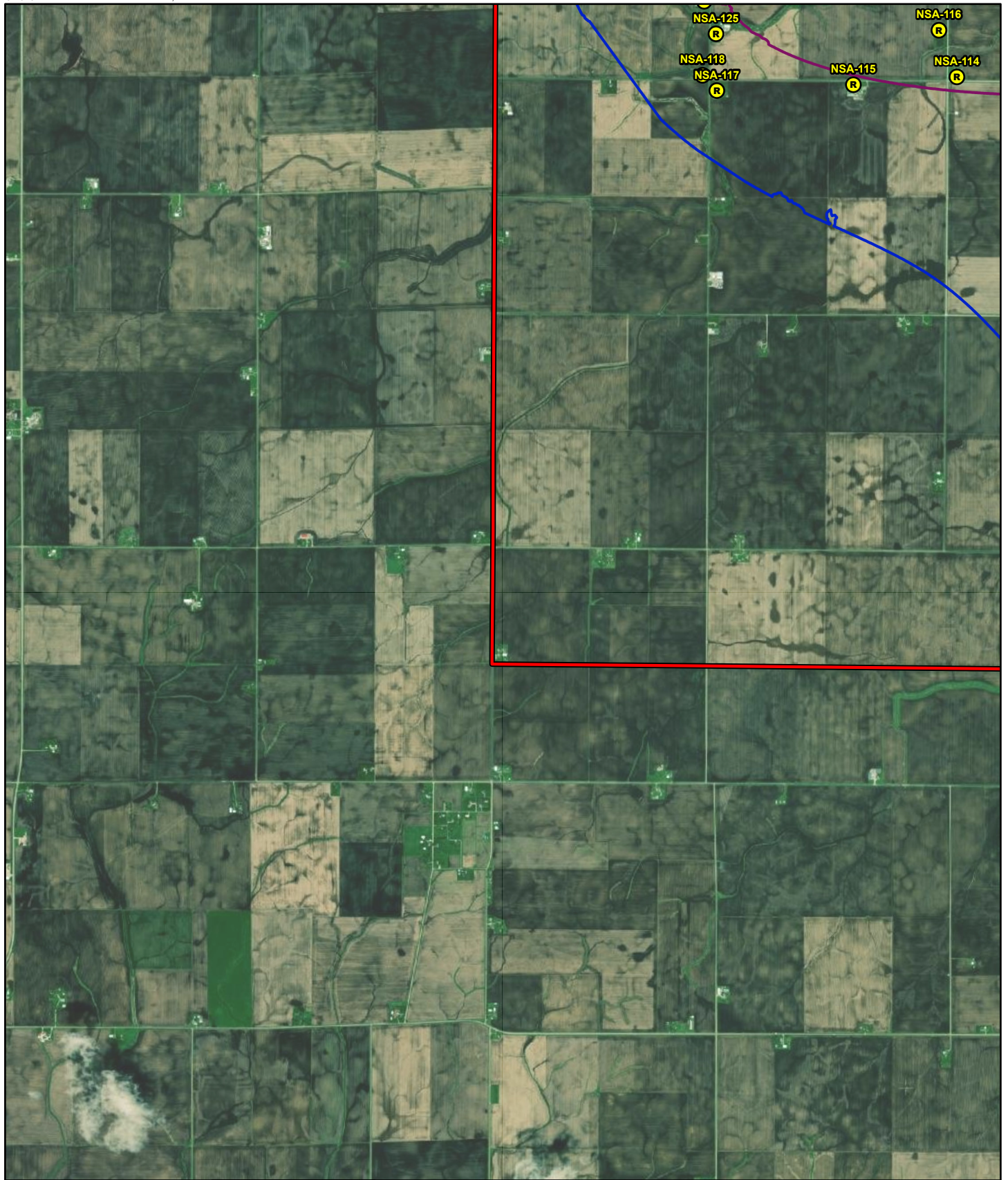


Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
N163-6X 118mHH

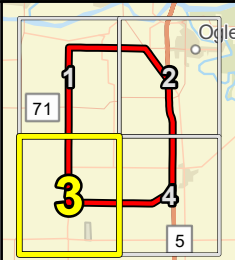




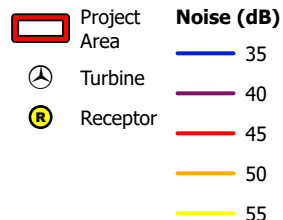
Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

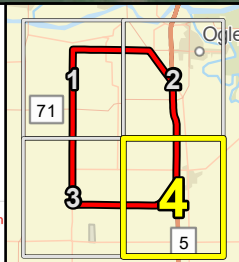
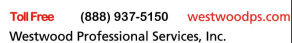
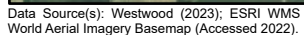


Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
N163-6X 118mHH





 Project Area
 Turbine
 Receptor

— 35
— 40
— 45
— 50
— 55

LaSalle County, Illinois

Nighttime Noise Contour Overview

EXHIBIT 2a: Page 4





NOISE IMPACT ANALYSIS – SIEMENS GAMESA SG6.6-170 TURBINE

Hickory Wind Project

LaSalle County, Illinois

FEBRUARY 2, 2023

PREPARED FOR:



PREPARED BY:

Westwood

Noise Impact Analysis

Siemens Gamesa SG6.6-170 Turbine

Hickory Wind Project

LaSalle County, Illinois

Prepared For:

Denis Onwualu
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Prepared By:

Westwood Professional Services, Inc.
12701 Whitewater Drive
Suite 300
Minnetonka, MN 55343

Project Number: 0032910.00

Date: February 2, 2023

Executive Summary

Westwood Professional Services, Inc. (Westwood) was contracted by UKA North America, LLC (Client) to complete a noise assessment for the Hickory Wind Project located in LaSalle County, Illinois. Westwood understands that the Project has 17 potential turbine locations.

An operational noise impact evaluation of the Project was conducted using a CADNA-A model built for the proposed Project layout. Sound propagation for each turbine was modeled using manufacturer sound data. The sound propagation model was then used to predict levels at all noise sensitive receptors within a one-quarter mile of the Project boundary. The maximum sound level from the Project expected at a noise sensitive receptor is 46 dBA. County and State regulations include octave band noise limits and discrete tone limits set by the Illinois Pollution Control Board (IPCB). Project levels do not exceed the limits set forth in the Illinois Administrative Code. Minimal noise impacts are expected from Project operation.

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- Appendix B: Receptor Locations
- Appendix C: Receptor Octave Band Levels – Nighttime Modes
- Appendix D: Receptor Octave Band Levels – Daytime Modes
- Appendix E: Receptor 1/3 Octave Band Levels – Nighttime Modes
- Appendix F: Receptor 1/3 Octave Band Levels – Daytime Modes
- Appendix G: Noise Contour Maps

1.0 Introduction and Site Description

The proposed Project is located in LaSalle County, Illinois (**Figure 1**). The noise impact assessment was completed as required by the Illinois Pollution Control Board (IPCB). The noise sensitive receptors in the Project vicinity include residences. Existing noise sources include I-39 to the east, IL-251 to the northeast, and IL-71 running east to west through the middle of the Project Area. The primary land uses in the Project Area are agricultural row crops and rural residential.

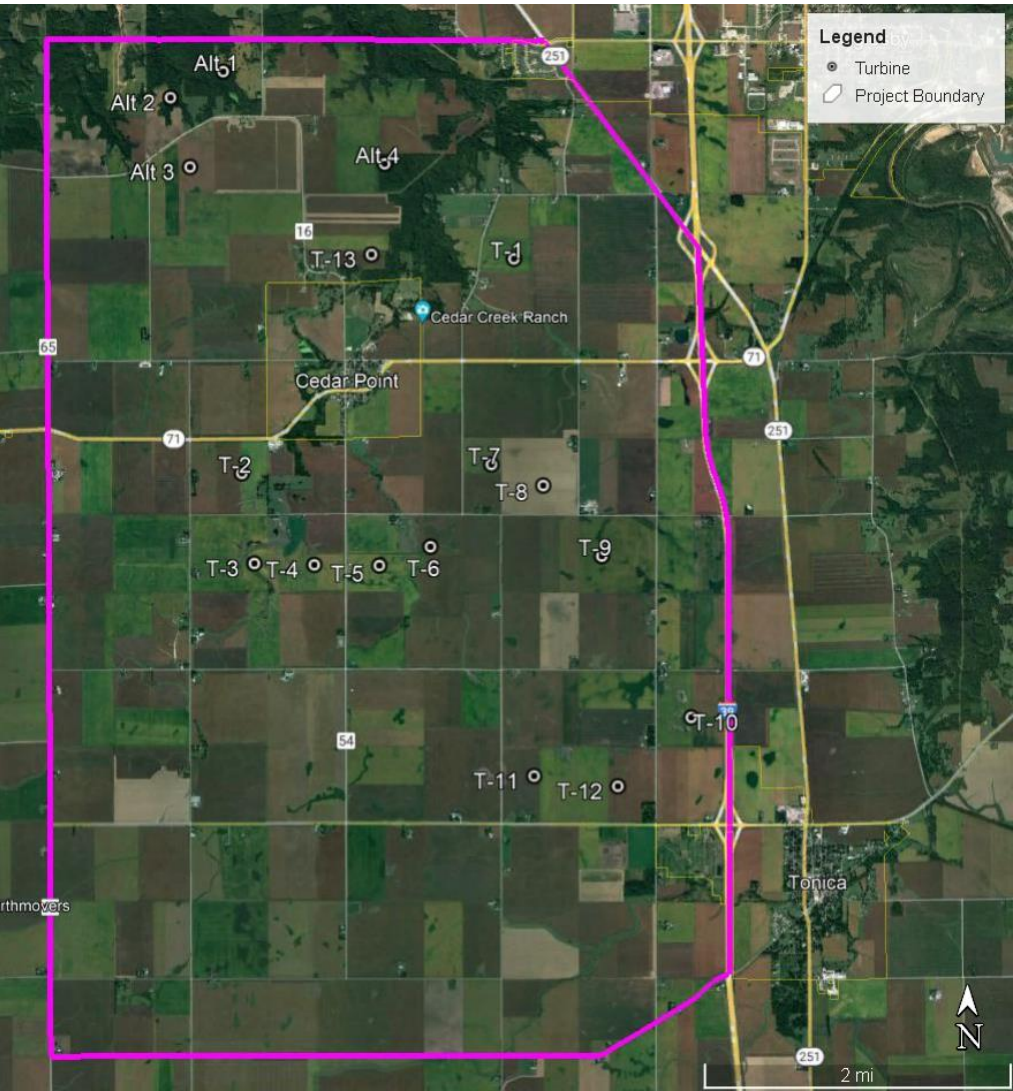


Figure 1: Project Overview

Details of the turbines used in both the noise and shadow flicker analysis are found below in **Table 1**.

Table 1: Turbine Specifications

| Manufacturer | Model | Hub Height (m) | Rotor Diameter (m) | Cut-in-Wind Speed (m/s) | Cut-out Wind Speed (m/s) |
|----------------|-----------|----------------|--------------------|-------------------------|--------------------------|
| Siemens Gamesa | SG6.6-170 | 115 | 170 | 3 | 23 |

2.0 Background

The State of Illinois's relevant sound regulation is Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*. This regulation regulates sound levels according to the land use where the sound is produced and where the sound is received. Land uses are split into three classes: Class A refers to residences or equally sensitive areas, Class B land is of mixed use, and Class C refers to agricultural and industrial land uses. It is standard practice to consider homes on agricultural land Class A receptors, so the applicable limits are those of sounds produced on Class C land impacting Class A land. The daytime and nighttime octave band limits are listed in **Table 2**.

Table 2: Permissible Sound Levels, Class C to Class A (L_{eq})

| Sound Level | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|----------------|------|----|-----|-----|-----|------|------|------|------|
| Daytime (dB) | 75 | 74 | 69 | 64 | 58 | 52 | 47 | 43 | 40 |
| Nighttime (dB) | 69 | 67 | 62 | 54 | 47 | 41 | 36 | 32 | 32 |

Additionally, the Illinois Administrative Code prohibits the emission of any prominent discrete tones from any property-line noise source located on any Class C land to any receiving Class A land, when measured at any point within the receiving land at least 25' away from the property-line noise source). Discrete tones that have a one-third octave band sound pressure level 10 or more decibels below the allowable octave band sound pressure level specified in **Table 1**. A discrete tone is defined as a one-third octave band sound level that exceeds the arithmetic average of the sound pressure levels of the two adjacent one-third octave bands by 5 dB if the center frequency is between 500 and 1000 Hz inclusive, by 8 dB if the center frequency is between 160 and 400 Hz inclusive, or by 15 dB if the center frequency is between 25 and 125 Hz inclusive.

3.0 Study Methodology

A noise propagation model was run for the Project using CADNA-A (a noise modeling software in compliance with ISO 9613-2). Cumulative Project noise was calculated at all noise sensitive receptors within 2 km of proposed Project infrastructure. Receptor locations have not been field verified and are based upon aerial imagery; we will update with Client provided receptor locations and participation status. The proposed Project turbines were modeled as point sources, with noise source data taken from manufacturer cut sheets. The model assumed the turbines to be operating at the loudest noise emission levels, which, in combination with the other parameters, ensures a “worst case” scenario.

Model parameters were as follows, per ANSI/ACP 111-1-2022 *Wind Turbine Sound Modeling*, Section 2.1.1 Option 1:

- Ground absorption factor of $G=0$
- Receptor height of 1.5 m above ground level
- Turbine modeled at hub height using vendors apparent downwind Sound Power Level specified consistent with IEC 61400-11
- No other model adjustments.
- Meteorological conditions of 10°C and 70% humidity were assumed.

4.0 Results of Analysis

Octave band L_{eq} sound pressure levels were calculated for each receptor from 63 Hz to 8 kHz. The octave band levels were then compared to the nighttime regulation levels from **Table 2** above, as the nighttime levels are most conservative. Exceedances were present at several noise sensitive receptors when all Project turbines were operating in Mode 0 (AM0).

To meet the nighttime limits and eliminate exceedances, it was determined that serrated trailing edges and/or noise reduced modes are necessary at some turbines. **Table 3** below lists the necessary modes for each turbine. The octave band results with these modes implemented can be found in **Appendix C**.

Table 3: Nighttime Turbine Modes

| Turbine ID | Mode |
|------------|------|
| T-1 | AM0 |
| T-2 | N1 |
| T-3 | N1 |
| T-4 | N1 |
| T-5 | N1 |
| T-6 | N2 |
| T-7 | N1 |
| T-8 | AM0 |
| T-9 | N1 |
| T-10 | AM0 |
| T-11 | AM0 |
| T-12 | N2 |
| T-13 | AM0 |
| Alt 1 | AM0 |
| Alt 2 | AM0 |
| Alt 3 | AM0 |
| Alt 4 | AM0 |

4.1 Daytime Operating Modes

As the nighttime limits are most conservative and require significant noise reduced modes at several turbines, daytime and nighttime operational modes may be implemented, using the appropriate noise reduced modes to meet the daytime and nighttime limits respectively. To meet the daytime limits, noise reduced modes are not necessary at turbines where they were necessary to meet nighttime limits. **Table 4** below lists the necessary modes for each turbine. The octave band results with these modes implemented can be found in **Appendix D**.

Table 4: Daytime Turbine Modes

| Turbine ID | Mode |
|------------|------|
| T-1 | AM0 |
| T-2 | AM0 |
| T-3 | AM0 |
| T-4 | AM0 |
| T-5 | AM0 |
| T-6 | AM0 |
| T-7 | AM0 |
| T-8 | AM0 |
| T-9 | AM0 |
| T-10 | AM0 |
| T-11 | AM0 |
| T-12 | AM0 |
| T-13 | AM0 |
| Alt 1 | AM0 |
| Alt 2 | AM0 |
| Alt 3 | AM0 |
| Alt 4 | AM0 |

Note that octave band noise data at 31.5 Hz was not available to us at the time of this analysis, and as such our compliance analysis excludes that band. Additionally, one-third octave band data has not yet been provided; one-third octave band data is necessary to complete discrete tone analysis. The analysis herein should be considered preliminary, upon receipt of full noise data including third-octave band sound power levels and the 31.5 octave band sound levels we will update and complete our analysis accordingly.

With the above daytime and nighttime operating modes implemented, minimal impacts are anticipated to nearby noise sensitive receptors. Detailed noise contour maps can be found in **Appendix G**.

5.0 Conclusions

The noise assessment concluded that, utilizing the daytime and nighttime operating modes listed above, all of the 420 receptors are modeled at or below the octave band noise level limits set forth in Illinois Administrative Code *Title 35, Subtitle H, Chapter I, Part 901 Sound Emissions Standards and Limitations for Property-Line Noise-Sources*.

Appendix A

Project Turbine Locations

| Turbine ID | Model | UTM NAD83 Zone 16 | | Base Elev. AMSL (m) | Hub Height (m) |
|------------|-----------|-------------------|--------------|---------------------|----------------|
| | | Easting (m) | Northing (m) | | |
| T-1 | SG6.6-170 | 323733 | 4571392 | 314.94 | 115.0 |
| T-2 | SG6.6-170 | 320824 | 4569219 | 320.52 | 115.0 |
| T-3 | SG6.6-170 | 320932 | 4568274 | 320.6 | 115.0 |
| T-4 | SG6.6-170 | 321559 | 4568245 | 322 | 115.0 |
| T-5 | SG6.6-170 | 322242 | 4568221 | 321.03 | 115.0 |
| T-6 | SG6.6-170 | 322783 | 4568404 | 318.74 | 115.0 |
| T-7 | SG6.6-170 | 323443 | 4569248 | 320.38 | 115.0 |
| T-8 | SG6.6-170 | 323982 | 4569015 | 320 | 115.0 |
| T-9 | SG6.6-170 | 324578 | 4568262 | 322 | 115.0 |
| T-10 | SG6.6-170 | 325474 | 4566554 | 322.84 | 115.0 |
| T-11 | SG6.6-170 | 323811 | 4565983 | 324.37 | 115.0 |
| T-12 | SG6.6-170 | 324686 | 4565854 | 323 | 115.0 |
| T-13 | SG6.6-170 | 322240 | 4571474 | 315.66 | 115.0 |
| Alt 1 | SG6.6-170 | 320716 | 4573421 | 313.11 | 115.0 |
| Alt 2 | SG6.6-170 | 320172 | 4573166 | 309.18 | 115.0 |
| Alt 3 | SG6.6-170 | 320359 | 4572434 | 318.84 | 115.0 |
| Alt 4 | SG6.6-170 | 322400 | 4572415 | 311.72 | 115.0 |

Appendix B

Noise Sensitive Receptor Locations

| Receptor # | UTM NAD83 Zone 16 | | Elevation AMSL (m) |
|------------|-------------------|-----------------|-----------------------|
| | Easting (m) | Northing (m) | |
| NSA-001 | 322041 | 4570286 | 201.92 |
| NSA-002 | 321999 | 4570338 | 201.53 |
| NSA-003 | 321968 | 4570321 | 201.56 |
| NSA-004 | 321953 | 4570343 | 201.44 |
| NSA-005 | 321945 | 4570298 | 201.7 |
| NSA-006 | 321948 | 4570278 | 201.88 |
| NSA-007 | 321845 | 4570339 | 201.49 |
| NSA-008 | 321800 | 4570298 | 199.23 |
| NSA-009 | 321786 | 4570334 | 201.35 |
| NSA-010 | 321893 | 4570309 | 201.5 |
| NSA-011 | 321975 | 4570389 | 201.48 |
| NSA-012 | 322003 | 4570389 | 201.5 |
| NSA-013 | 322063 | 4570388 | 201.5 |
| NSA-014 | 322094 | 4570392 | 201.58 |
| NSA-021 | 321797 | 4570319 | 200.7 |
| NSA-073 | 325152 | 4564391 | 206.35 |
| NSA-074 | 323379 | 4564602 | 206.78 |
| NSA-084 | 325080 | 4564830 | 204.67 |
| NSA-085 | 325402 | 4565353 | 205.5 |
| NSA-086 | 325346 | 4565363 | 205.5 |
| NSA-087 | 325600 | 4565464 | 205.5 |
| NSA-088 | 323621 | 4565510 | 208.17 |
| NSA-089 | 323675 | 4565502 | 208.02 |
| NSA-090 | 323475 | 4565282 | 208.32 |
| NSA-091 | 323469 | 4565002 | 207.5 |
| NSA-092 | 323722 | 4565516 | 207.98 |
| NSA-093 | 323295 | 4565402 | 208.46 |
| NSA-094 | 322935 | 4565519 | 208.55 |
| NSA-095 | 322436 | 4565407 | 208.54 |
| NSA-106 | 324942 | 4566274 | 206.35 |
| NSA-107 | 325016 | 4565501 | 204.93 |
| NSA-108 | 324953 | 4565638 | 205.5 |
| NSA-109 | 325162 | 4566985 | 206.07 |

| | | | |
|---------|--------|---------|--------|
| NSA-110 | 325148 | 4567074 | 206.02 |
| NSA-111 | 324260 | 4567135 | 207.4 |
| NSA-112 | 323576 | 4567048 | 206 |
| NSA-113 | 323403 | 4566980 | 205.91 |
| NSA-114 | 321924 | 4567165 | 207.02 |
| NSA-115 | 321210 | 4567122 | 208.5 |
| NSA-116 | 321805 | 4567488 | 207.5 |
| NSA-117 | 320269 | 4567096 | 209.5 |
| NSA-118 | 320172 | 4567203 | 207.18 |
| NSA-124 | 320191 | 4567712 | 207.34 |
| NSA-125 | 320269 | 4567487 | 207.5 |
| NSA-126 | 323467 | 4567715 | 205.5 |
| NSA-127 | 325085 | 4567633 | 204.88 |
| NSA-128 | 325653 | 4568575 | 205.82 |
| NSA-129 | 326127 | 4568656 | 205.5 |
| NSA-130 | 325120 | 4568822 | 205.5 |
| NSA-131 | 324462 | 4568702 | 205.5 |
| NSA-132 | 323319 | 4568792 | 205.41 |
| NSA-133 | 322410 | 4568691 | 203.5 |
| NSA-134 | 321927 | 4568972 | 205.5 |
| NSA-135 | 321450 | 4568725 | 203.5 |
| NSA-136 | 321115 | 4568790 | 203.62 |
| NSA-137 | 320282 | 4568150 | 209.57 |
| NSA-138 | 320214 | 4568560 | 208.73 |
| NSA-143 | 318830 | 4569347 | 208.66 |
| NSA-144 | 320312 | 4569150 | 205.5 |
| NSA-145 | 322054 | 4569541 | 201.05 |
| NSA-146 | 324313 | 4569366 | 203.02 |
| NSA-147 | 324322 | 4569471 | 202.73 |
| NSA-148 | 324406 | 4569843 | 200.76 |
| NSA-149 | 325226 | 4570239 | 198.87 |
| NSA-150 | 325254 | 4570472 | 196.5 |
| NSA-151 | 324860 | 4570317 | 199.99 |
| NSA-152 | 324795 | 4570213 | 200.93 |
| NSA-153 | 324415 | 4570026 | 200.65 |
| NSA-154 | 324539 | 4570326 | 198.86 |
| NSA-155 | 324438 | 4570367 | 198.1 |
| NSA-156 | 321874 | 4569587 | 198.25 |
| NSA-157 | 321876 | 4569638 | 200.04 |

| | | | |
|---------|--------|---------|--------|
| NSA-158 | 321876 | 4569690 | 202.3 |
| NSA-159 | 321881 | 4569771 | 203.5 |
| NSA-160 | 321881 | 4569825 | 202.98 |
| NSA-161 | 321887 | 4569859 | 203.21 |
| NSA-162 | 321884 | 4569905 | 203.27 |
| NSA-163 | 322053 | 4569914 | 204.55 |
| NSA-164 | 322090 | 4569914 | 204.58 |
| NSA-165 | 322130 | 4569915 | 204.41 |
| NSA-166 | 322142 | 4569954 | 203.89 |
| NSA-167 | 322095 | 4569961 | 204.04 |
| NSA-168 | 322034 | 4569968 | 204.27 |
| NSA-169 | 321992 | 4569947 | 204.21 |
| NSA-170 | 321692 | 4570070 | 202.5 |
| NSA-171 | 321694 | 4569990 | 201.37 |
| NSA-172 | 321647 | 4569946 | 195.98 |
| NSA-173 | 321838 | 4569960 | 202.52 |
| NSA-174 | 321729 | 4569992 | 202.5 |
| NSA-175 | 322191 | 4570025 | 203.18 |
| NSA-176 | 322195 | 4570106 | 202.64 |
| NSA-177 | 321749 | 4570332 | 198.37 |
| NSA-178 | 321408 | 4570299 | 199.87 |
| NSA-179 | 320088 | 4570370 | 199.59 |
| NSA-180 | 320026 | 4570371 | 199.5 |
| NSA-181 | 319273 | 4570372 | 202.5 |
| NSA-184 | 319855 | 4570631 | 199.57 |
| NSA-185 | 321496 | 4571149 | 197.27 |
| NSA-186 | 322074 | 4571076 | 193.82 |
| NSA-187 | 322222 | 4570679 | 199.9 |
| NSA-188 | 322583 | 4570850 | 196.5 |
| NSA-189 | 322673 | 4570839 | 196.74 |
| NSA-190 | 322811 | 4570885 | 197.5 |
| NSA-191 | 322878 | 4570837 | 197.21 |
| NSA-192 | 323216 | 4570876 | 196.83 |
| NSA-193 | 323181 | 4570948 | 196.56 |
| NSA-194 | 323190 | 4570981 | 195.86 |
| NSA-195 | 325186 | 4571206 | 196.04 |
| NSA-196 | 325176 | 4571160 | 194.8 |
| NSA-197 | 325185 | 4571457 | 197.46 |
| NSA-198 | 323288 | 4571175 | 194.03 |

| | | | |
|---------|--------|---------|--------|
| NSA-199 | 323349 | 4571123 | 196.01 |
| NSA-200 | 321934 | 4571240 | 194.48 |
| NSA-201 | 321725 | 4571249 | 196.61 |
| NSA-202 | 321761 | 4571231 | 197.03 |
| NSA-203 | 321657 | 4571327 | 197.5 |
| NSA-204 | 321463 | 4571272 | 197.46 |
| NSA-205 | 321494 | 4571351 | 197.26 |
| NSA-206 | 321457 | 4571520 | 199.5 |
| NSA-207 | 318871 | 4572240 | 203.5 |
| NSA-208 | 319440 | 4572474 | 202.5 |
| NSA-209 | 319739 | 4572340 | 199.45 |
| NSA-210 | 322980 | 4571809 | 199.11 |
| NSA-211 | 323429 | 4571786 | 200.45 |
| NSA-212 | 323395 | 4571738 | 200.5 |
| NSA-213 | 323168 | 4572168 | 198.5 |
| NSA-214 | 323239 | 4572095 | 199.5 |
| NSA-215 | 323326 | 4572113 | 198.7 |
| NSA-216 | 323479 | 4572100 | 197.88 |
| NSA-217 | 323556 | 4572080 | 198.5 |
| NSA-218 | 323506 | 4571944 | 199.5 |
| NSA-219 | 323673 | 4572156 | 197.18 |
| NSA-220 | 324201 | 4572002 | 197.48 |
| NSA-221 | 324604 | 4571981 | 197.5 |
| NSA-222 | 325200 | 4571651 | 198.16 |
| NSA-223 | 325475 | 4571949 | 199.5 |
| NSA-224 | 325140 | 4572285 | 199.39 |
| NSA-225 | 325256 | 4572541 | 197.42 |
| NSA-226 | 324305 | 4572266 | 197.32 |
| NSA-227 | 323118 | 4572089 | 198.61 |
| NSA-228 | 321689 | 4572790 | 199.5 |
| NSA-229 | 320966 | 4572992 | 196.97 |
| NSA-230 | 319774 | 4572430 | 199.67 |
| NSA-231 | 318917 | 4573064 | 199.5 |
| NSA-232 | 318751 | 4573099 | 197.34 |
| NSA-233 | 318491 | 4573224 | 193.75 |
| NSA-234 | 321183 | 4573357 | 198 |
| NSA-235 | 324442 | 4572846 | 196.49 |
| NSA-236 | 318694 | 4574268 | 145.08 |
| NSA-237 | 318657 | 4574271 | 144.29 |

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|---------|--------|---------|--------|
| NSA-238 | 319164 | 4574207 | 154.34 |
| NSA-239 | 319391 | 4574198 | 155.02 |
| NSA-241 | 318970 | 4573966 | 193.21 |
| NSA-242 | 321393 | 4574135 | 183.63 |
| NSA-243 | 321372 | 4574270 | 181.5 |
| NSA-244 | 321220 | 4574425 | 176.12 |
| NSA-245 | 321200 | 4574353 | 183.46 |
| NSA-246 | 321333 | 4574567 | 164.76 |
| NSA-247 | 321394 | 4574655 | 145.25 |
| NSA-248 | 321117 | 4574609 | 147.73 |
| NSA-249 | 321784 | 4574525 | 185.37 |
| NSA-250 | 321993 | 4574371 | 151.08 |
| NSA-251 | 322140 | 4574484 | 190.09 |
| NSA-255 | 323134 | 4573958 | 194.92 |
| NSA-256 | 322036 | 4569994 | 203.77 |
| NSA-257 | 322037 | 4570011 | 203.49 |
| NSA-258 | 322046 | 4570029 | 203.37 |
| NSA-259 | 322093 | 4570028 | 203.33 |
| NSA-260 | 322090 | 4569990 | 203.71 |
| NSA-261 | 322136 | 4570024 | 203.3 |
| NSA-262 | 322136 | 4570007 | 203.43 |
| NSA-263 | 322134 | 4569980 | 203.62 |
| NSA-264 | 321993 | 4570026 | 203.16 |
| NSA-265 | 321985 | 4570006 | 203.47 |
| NSA-266 | 321986 | 4569976 | 203.88 |
| NSA-267 | 321936 | 4570029 | 202.69 |
| NSA-268 | 321933 | 4570010 | 202.9 |
| NSA-269 | 321936 | 4569994 | 203.19 |
| NSA-270 | 321935 | 4569968 | 203.5 |
| NSA-271 | 321876 | 4569955 | 202.93 |
| NSA-272 | 321886 | 4569976 | 202.81 |
| NSA-273 | 321888 | 4569996 | 202.62 |
| NSA-274 | 321887 | 4570016 | 202.4 |
| NSA-275 | 321888 | 4570029 | 202.24 |
| NSA-276 | 321844 | 4570019 | 201.88 |
| NSA-277 | 321791 | 4570145 | 200.22 |
| NSA-278 | 321788 | 4570117 | 200.5 |
| NSA-279 | 321835 | 4570126 | 200.94 |
| NSA-280 | 321832 | 4570098 | 200.83 |

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|---------|--------|---------|--------|
| NSA-281 | 321894 | 4570144 | 202.41 |
| NSA-282 | 321886 | 4570092 | 202 |
| NSA-283 | 321937 | 4570127 | 202.5 |
| NSA-284 | 321942 | 4570082 | 202.5 |
| NSA-285 | 321999 | 4570084 | 202.7 |
| NSA-286 | 321991 | 4570102 | 202.5 |
| NSA-287 | 321988 | 4570141 | 202.5 |
| NSA-288 | 321990 | 4570122 | 202.5 |
| NSA-289 | 321954 | 4570065 | 202.6 |
| NSA-290 | 322030 | 4570142 | 202.5 |
| NSA-291 | 322036 | 4570119 | 202.63 |
| NSA-292 | 322041 | 4570083 | 202.96 |
| NSA-293 | 322036 | 4570069 | 203.04 |
| NSA-294 | 322087 | 4570062 | 203.1 |
| NSA-295 | 322089 | 4570115 | 202.74 |
| NSA-296 | 322142 | 4570080 | 202.86 |
| NSA-297 | 322145 | 4570137 | 202.5 |
| NSA-298 | 321797 | 4570204 | 200.5 |
| NSA-299 | 321783 | 4570174 | 200.44 |
| NSA-300 | 321892 | 4570174 | 202.42 |
| NSA-301 | 321883 | 4570233 | 201.68 |
| NSA-302 | 321837 | 4570251 | 200.53 |
| NSA-303 | 321955 | 4570200 | 202.5 |
| NSA-304 | 321942 | 4570256 | 202.07 |
| NSA-305 | 321993 | 4570210 | 202.5 |
| NSA-306 | 321999 | 4570239 | 202.29 |
| NSA-307 | 322037 | 4570250 | 202.12 |
| NSA-308 | 322041 | 4570194 | 202.46 |
| NSA-309 | 322040 | 4570169 | 202.5 |
| NSA-310 | 322096 | 4570213 | 202.23 |
| NSA-311 | 322143 | 4570188 | 202.42 |
| NSA-312 | 322141 | 4570243 | 202.18 |
| NSA-313 | 321841 | 4570206 | 201.01 |
| NSA-314 | 322240 | 4570336 | 202.23 |
| NSA-315 | 322242 | 4570301 | 202.25 |
| NSA-316 | 322197 | 4570338 | 202.08 |
| NSA-317 | 322136 | 4570341 | 201.86 |
| NSA-318 | 322135 | 4570319 | 201.87 |

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|---------|--------|---------|--------|
| NSA-319 | 322141 | 4570298 | 201.95 |
| NSA-320 | 322135 | 4570285 | 201.99 |
| NSA-321 | 322107 | 4570332 | 201.76 |
| NSA-322 | 322082 | 4570327 | 201.72 |
| NSA-323 | 322092 | 4570301 | 201.85 |
| NSA-324 | 322087 | 4570283 | 201.92 |
| NSA-325 | 322045 | 4570323 | 201.67 |
| NSA-326 | 323624 | 4573626 | 194.5 |
| NSA-327 | 323624 | 4573571 | 192.53 |
| NSA-328 | 323618 | 4573499 | 193.5 |
| NSA-329 | 323618 | 4573457 | 193.5 |
| NSA-330 | 323625 | 4573409 | 193.5 |
| NSA-331 | 323690 | 4573317 | 190.61 |
| NSA-332 | 323708 | 4573362 | 192.86 |
| NSA-333 | 323649 | 4573325 | 191.41 |
| NSA-334 | 323636 | 4573347 | 190.75 |
| NSA-335 | 323686 | 4573475 | 193.5 |
| NSA-336 | 323696 | 4573540 | 193.63 |
| NSA-337 | 323695 | 4573589 | 194.11 |
| NSA-338 | 323694 | 4573626 | 194.57 |
| NSA-339 | 323764 | 4573626 | 194.5 |
| NSA-340 | 323764 | 4573590 | 194.5 |
| NSA-341 | 323766 | 4573553 | 194.36 |
| NSA-342 | 323766 | 4573512 | 194.14 |
| NSA-343 | 323764 | 4573478 | 193.98 |
| NSA-344 | 323763 | 4573435 | 193.79 |
| NSA-345 | 323763 | 4573400 | 193.53 |
| NSA-346 | 323811 | 4573437 | 193.86 |
| NSA-347 | 323811 | 4573480 | 194.16 |
| NSA-348 | 323813 | 4573517 | 194.45 |
| NSA-349 | 323811 | 4573555 | 194.5 |
| NSA-350 | 323815 | 4573589 | 194.5 |
| NSA-351 | 323811 | 4573620 | 194.5 |
| NSA-352 | 323820 | 4573391 | 193.56 |
| NSA-353 | 323832 | 4573355 | 193.35 |
| NSA-354 | 323852 | 4573324 | 192.64 |
| NSA-355 | 323827 | 4573291 | 191.25 |
| NSA-356 | 323796 | 4573292 | 190.51 |

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|---------|--------|---------|--------|
| NSA-357 | 323776 | 4573318 | 191.05 |
| NSA-358 | 323776 | 4573356 | 192.03 |
| NSA-359 | 323877 | 4573616 | 194.5 |
| NSA-360 | 323868 | 4573576 | 194.5 |
| NSA-361 | 323876 | 4573551 | 194.5 |
| NSA-362 | 323875 | 4573524 | 194.5 |
| NSA-363 | 323877 | 4573495 | 194.5 |
| NSA-364 | 323875 | 4573457 | 194.25 |
| NSA-365 | 323873 | 4573434 | 194.07 |
| NSA-366 | 323886 | 4573399 | 193.77 |
| NSA-367 | 323896 | 4573366 | 193.5 |
| NSA-368 | 323917 | 4573347 | 193.21 |
| NSA-369 | 323922 | 4573309 | 192.57 |
| NSA-370 | 323951 | 4573303 | 192.33 |
| NSA-371 | 323979 | 4573308 | 192.38 |
| NSA-372 | 324013 | 4573312 | 192.33 |
| NSA-373 | 324043 | 4573305 | 191.77 |
| NSA-374 | 324071 | 4573307 | 191.91 |
| NSA-375 | 324112 | 4573304 | 192.6 |
| NSA-376 | 324080 | 4573359 | 193.1 |
| NSA-377 | 324042 | 4573362 | 193.24 |
| NSA-378 | 323997 | 4573362 | 193.5 |
| NSA-379 | 323965 | 4573377 | 193.63 |
| NSA-380 | 323932 | 4573437 | 194.09 |
| NSA-381 | 323928 | 4573466 | 194.33 |
| NSA-382 | 323931 | 4573598 | 194.5 |
| NSA-383 | 323923 | 4573576 | 194.5 |
| NSA-384 | 323928 | 4573513 | 194.5 |
| NSA-385 | 323958 | 4573565 | 194.5 |
| NSA-386 | 323983 | 4573564 | 194.5 |
| NSA-387 | 324016 | 4573555 | 194.5 |
| NSA-388 | 323992 | 4573505 | 194.5 |
| NSA-389 | 323962 | 4573511 | 194.5 |
| NSA-390 | 324045 | 4573491 | 194.5 |
| NSA-391 | 324014 | 4573465 | 194.24 |
| NSA-392 | 323992 | 4573471 | 194.34 |
| NSA-393 | 323959 | 4573456 | 194.25 |
| NSA-394 | 324030 | 4573436 | 193.87 |

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|---------|--------|---------|--------|
| NSA-395 | 324026 | 4573408 | 193.64 |
| NSA-396 | 323991 | 4573396 | 193.72 |
| NSA-397 | 324093 | 4573452 | 194.32 |
| NSA-398 | 324111 | 4573423 | 194.05 |
| NSA-399 | 324155 | 4573376 | 193.71 |
| NSA-400 | 324181 | 4573317 | 193.06 |
| NSA-401 | 324203 | 4573280 | 192.8 |
| NSA-405 | 323487 | 4573563 | 193.27 |
| NSA-406 | 323458 | 4573517 | 189.87 |
| NSA-407 | 323426 | 4573544 | 192.47 |
| NSA-408 | 323372 | 4573572 | 191.76 |
| NSA-409 | 323329 | 4573614 | 190.05 |
| NSA-410 | 323343 | 4573640 | 193.33 |
| NSA-411 | 323229 | 4573649 | 184.67 |
| NSA-412 | 323122 | 4573704 | 191.09 |
| NSA-413 | 323148 | 4573770 | 194.76 |
| NSA-414 | 323118 | 4573771 | 194.5 |
| NSA-415 | 323079 | 4573770 | 193.46 |
| NSA-416 | 323015 | 4573789 | 192.02 |
| NSA-417 | 323152 | 4573811 | 194.97 |
| NSA-418 | 323110 | 4573816 | 194.5 |
| NSA-419 | 323070 | 4573822 | 193.81 |
| NSA-420 | 323034 | 4573826 | 193.5 |
| NSA-421 | 323075 | 4573868 | 193.72 |
| NSA-422 | 323143 | 4573864 | 194.74 |
| NSA-423 | 323001 | 4573854 | 192.86 |
| NSA-424 | 322966 | 4573863 | 191.79 |
| NSA-425 | 322971 | 4573815 | 189.85 |
| NSA-426 | 322919 | 4573882 | 189.5 |
| NSA-427 | 322794 | 4573873 | 187.66 |
| NSA-468 | 322188 | 4574466 | 190.67 |
| NSA-469 | 322022 | 4574548 | 190.5 |
| NSA-475 | 326098 | 4564764 | 200.99 |
| NSA-476 | 326473 | 4564893 | 203.29 |
| NSA-477 | 326473 | 4564869 | 203.44 |
| NSA-478 | 326427 | 4564820 | 202.84 |
| NSA-479 | 326522 | 4564889 | 202.54 |
| NSA-480 | 326539 | 4564888 | 202.07 |

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|---------|--------|---------|--------|
| NSA-481 | 326563 | 4564888 | 201.72 |
| NSA-482 | 326581 | 4564892 | 201.59 |
| NSA-483 | 326515 | 4564852 | 203.29 |
| NSA-484 | 326473 | 4564928 | 202.49 |
| NSA-485 | 326470 | 4564955 | 201.94 |
| NSA-486 | 326531 | 4564990 | 201.3 |
| NSA-487 | 326517 | 4565027 | 201.5 |
| NSA-488 | 326560 | 4565023 | 201.5 |
| NSA-489 | 326548 | 4564990 | 201.14 |
| NSA-490 | 326580 | 4564968 | 200.5 |
| NSA-491 | 326628 | 4564972 | 200.5 |
| NSA-492 | 326633 | 4565013 | 201.29 |
| NSA-493 | 326674 | 4564964 | 200.5 |
| NSA-494 | 326680 | 4564992 | 200.81 |
| NSA-495 | 326676 | 4565030 | 201.71 |
| NSA-496 | 326678 | 4565090 | 202.5 |
| NSA-497 | 326584 | 4565072 | 202.16 |
| NSA-498 | 326525 | 4565072 | 201.7 |
| NSA-499 | 326581 | 4565087 | 202.33 |
| NSA-500 | 326584 | 4565125 | 202.96 |
| NSA-501 | 326586 | 4565143 | 203.29 |
| NSA-502 | 326479 | 4565110 | 201.56 |
| NSA-503 | 326476 | 4565125 | 201.84 |
| NSA-504 | 326483 | 4565164 | 202.3 |
| NSA-505 | 326528 | 4565155 | 202.95 |
| NSA-506 | 326538 | 4565173 | 203.2 |
| NSA-507 | 326588 | 4565163 | 203.5 |
| NSA-508 | 326588 | 4565182 | 203.5 |
| NSA-509 | 326589 | 4565215 | 203.5 |
| NSA-510 | 326477 | 4565226 | 202.88 |
| NSA-511 | 326531 | 4565231 | 203.32 |
| NSA-512 | 326479 | 4565270 | 203.78 |
| NSA-513 | 326434 | 4565270 | 203.5 |
| NSA-514 | 326421 | 4565353 | 204.47 |
| NSA-515 | 326465 | 4565355 | 204.5 |
| NSA-516 | 326486 | 4565310 | 204.5 |
| NSA-517 | 326489 | 4565372 | 204.5 |
| NSA-518 | 326446 | 4565374 | 204.5 |

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|---------|--------|---------|--------|
| NSA-519 | 326388 | 4565441 | 204.5 |
| NSA-520 | 326344 | 4565472 | 204.19 |
| NSA-521 | 326542 | 4565370 | 204.5 |
| NSA-522 | 326585 | 4565373 | 204.49 |
| NSA-523 | 326581 | 4565339 | 204.33 |
| NSA-524 | 326529 | 4565307 | 204.5 |
| NSA-525 | 326591 | 4565313 | 204.09 |
| NSA-526 | 326590 | 4565293 | 203.93 |
| NSA-527 | 326589 | 4565280 | 203.8 |
| NSA-528 | 326529 | 4565103 | 202.32 |
| NSA-529 | 326633 | 4564991 | 200.64 |
| NSA-530 | 326634 | 4565048 | 201.86 |
| NSA-531 | 326676 | 4565057 | 202.17 |
| NSA-532 | 326640 | 4565197 | 203.32 |
| NSA-533 | 326656 | 4565299 | 203.83 |
| NSA-534 | 326766 | 4565159 | 202.69 |
| NSA-535 | 326768 | 4565145 | 202.56 |
| NSA-536 | 326758 | 4565114 | 202.3 |
| NSA-537 | 326772 | 4565104 | 201.96 |
| NSA-538 | 326771 | 4565085 | 201.8 |
| NSA-539 | 326749 | 4565093 | 202.23 |
| NSA-540 | 326767 | 4565063 | 201.57 |
| NSA-541 | 326764 | 4565040 | 200.98 |
| NSA-542 | 326743 | 4565016 | 201.01 |
| NSA-543 | 326807 | 4565098 | 201.5 |
| NSA-544 | 326834 | 4565099 | 201.46 |
| NSA-545 | 326811 | 4565133 | 202.34 |
| NSA-546 | 326821 | 4565158 | 202.66 |
| NSA-547 | 326865 | 4565123 | 202.07 |
| NSA-548 | 326865 | 4565143 | 202.54 |
| NSA-549 | 326167 | 4565456 | 204.2 |
| NSA-550 | 326475 | 4565003 | 201.81 |
| NSA-551 | 326481 | 4565096 | 201.5 |
| NSA-552 | 326529 | 4565130 | 202.73 |
| NSA-553 | 326427 | 4565077 | 202.3 |
| NSA-554 | 326422 | 4565098 | 202.2 |
| NSA-555 | 326427 | 4565155 | 201.57 |
| NSA-556 | 326440 | 4565313 | 204.35 |

| | | | |
|---------|--------|---------|--------|
| NSA-557 | 326418 | 4565376 | 204.43 |
| NSA-558 | 326528 | 4565336 | 204.5 |
| NSA-559 | 326421 | 4565231 | 202.53 |

Appendix C

Receptor Octave Band Levels – Nighttime Modes

***31.5 Hz octave band source data not yet provided**

| | 31.5* | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|----------------------|-------|----|-----|-----|-----|------|------|------|------|
| Nighttime Regulation | 69 | 67 | 62 | 54 | 47 | 41 | 36 | 32 | 32 |
| NSA-001 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-002 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-003 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-004 | | 50 | 47 | 41 | 34 | 32 | 20 | -21 | -80 |
| NSA-005 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-006 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-007 | | 50 | 47 | 41 | 34 | 32 | 20 | -19 | -80 |
| NSA-008 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-009 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-010 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-011 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-012 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-013 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-014 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-021 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-073 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-074 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-084 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-085 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-086 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-087 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-088 | | 50 | 47 | 41 | 35 | 32 | 20 | -15 | -80 |
| NSA-089 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-090 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-091 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-092 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-093 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-094 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-095 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-106 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-107 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-108 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-109 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-110 | | 50 | 47 | 41 | 34 | 32 | 20 | -14 | -80 |
| NSA-111 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-112 | | 46 | 43 | 36 | 29 | 26 | 11 | -34 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-113 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-114 | | 46 | 43 | 36 | 30 | 26 | 13 | -31 | -80 |
| NSA-115 | | 46 | 43 | 36 | 30 | 27 | 13 | -30 | -80 |
| NSA-116 | | 47 | 43 | 37 | 30 | 27 | 14 | -29 | -80 |
| NSA-117 | | 46 | 43 | 36 | 30 | 27 | 14 | -29 | -80 |
| NSA-118 | | 46 | 43 | 36 | 29 | 27 | 13 | -30 | -80 |
| NSA-124 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-125 | | 47 | 44 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-126 | | 46 | 43 | 36 | 29 | 26 | 12 | -32 | -80 |
| NSA-127 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-128 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-129 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-130 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-131 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-132 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-133 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-134 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-135 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-136 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-137 | | 46 | 43 | 36 | 29 | 26 | 12 | -35 | -80 |
| NSA-138 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-143 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-144 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-145 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-146 | | 46 | 43 | 35 | 28 | 25 | 10 | -39 | -80 |
| NSA-147 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-148 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-149 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-150 | | 46 | 43 | 36 | 30 | 27 | 13 | -32 | -80 |
| NSA-151 | | 47 | 43 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-152 | | 46 | 43 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-153 | | 46 | 43 | 36 | 30 | 26 | 13 | -32 | -80 |
| NSA-154 | | 46 | 42 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-155 | | 46 | 43 | 35 | 28 | 25 | 10 | -40 | -80 |
| NSA-156 | | 46 | 43 | 36 | 28 | 25 | 10 | -39 | -80 |
| NSA-157 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-158 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-159 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-160 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-161 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-162 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |
| NSA-163 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |
| NSA-164 | | 46 | 43 | 36 | 29 | 26 | 12 | -35 | -80 |
| NSA-165 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-166 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-167 | | 46 | 43 | 36 | 29 | 26 | 11 | -37 | -80 |
| NSA-168 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-169 | | 46 | 43 | 36 | 29 | 25 | 11 | -39 | -80 |
| NSA-170 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-171 | | 46 | 43 | 36 | 29 | 25 | 10 | -40 | -80 |
| NSA-172 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-173 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-174 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-175 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-176 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-177 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-178 | | 46 | 42 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-179 | | 46 | 43 | 36 | 28 | 25 | 10 | -40 | -80 |
| NSA-180 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-181 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-184 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-185 | | 46 | 43 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-186 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-187 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-188 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-189 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-190 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-191 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-192 | | 46 | 43 | 36 | 29 | 25 | 10 | -40 | -80 |
| NSA-193 | | 46 | 43 | 36 | 29 | 25 | 11 | -39 | -80 |
| NSA-194 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-195 | | 46 | 42 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-196 | | 46 | 42 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-197 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-198 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-199 | | 46 | 43 | 36 | 30 | 27 | 13 | -29 | -80 |
| NSA-200 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-201 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-202 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-203 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-204 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-205 | | 47 | 44 | 37 | 30 | 27 | 14 | -25 | -80 |
| NSA-206 | | 47 | 44 | 37 | 30 | 27 | 15 | -25 | -80 |
| NSA-207 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-208 | | 47 | 43 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-209 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-210 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-211 | | 46 | 43 | 36 | 30 | 26 | 13 | -29 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-212 | | 46 | 43 | 36 | 30 | 27 | 13 | -29 | -80 |
| NSA-213 | | 46 | 43 | 37 | 30 | 27 | 13 | -28 | -80 |
| NSA-214 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-215 | | 46 | 43 | 36 | 30 | 26 | 13 | -30 | -80 |
| NSA-216 | | 46 | 43 | 36 | 29 | 26 | 12 | -31 | -80 |
| NSA-217 | | 46 | 43 | 36 | 30 | 27 | 13 | -28 | -80 |
| NSA-218 | | 46 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-219 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-220 | | 46 | 43 | 36 | 29 | 27 | 13 | -28 | -80 |
| NSA-221 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-222 | | 46 | 43 | 36 | 29 | 26 | 11 | -37 | -80 |
| NSA-223 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-224 | | 43 | 40 | 34 | 28 | 25 | 11 | -36 | -80 |
| NSA-225 | | 45 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-226 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-227 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-228 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-229 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-230 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-231 | | 44 | 41 | 34 | 27 | 23 | 8 | -44 | -80 |
| NSA-232 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-233 | | 45 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-234 | | 45 | 41 | 34 | 27 | 24 | 10 | -39 | -80 |
| NSA-235 | | 44 | 41 | 34 | 27 | 24 | 10 | -40 | -80 |
| NSA-236 | | 45 | 42 | 34 | 27 | 24 | 10 | -38 | -80 |
| NSA-237 | | 45 | 41 | 34 | 27 | 24 | 10 | -40 | -80 |
| NSA-238 | | 44 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-239 | | 44 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-241 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-242 | | 44 | 41 | 34 | 27 | 23 | 9 | -42 | -80 |
| NSA-243 | | 44 | 41 | 34 | 27 | 23 | 8 | -44 | -80 |
| NSA-244 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-245 | | 44 | 41 | 34 | 27 | 23 | 9 | -42 | -80 |
| NSA-246 | | 45 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-247 | | 45 | 41 | 34 | 27 | 24 | 10 | -39 | -80 |
| NSA-248 | | 45 | 42 | 35 | 28 | 24 | 10 | -37 | -80 |
| NSA-249 | | 45 | 41 | 34 | 27 | 24 | 10 | -38 | -80 |
| NSA-250 | | 45 | 41 | 34 | 28 | 24 | 10 | -37 | -80 |
| NSA-251 | | 45 | 41 | 34 | 28 | 24 | 11 | -37 | -80 |
| NSA-255 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-256 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-257 | | 45 | 42 | 35 | 28 | 25 | 12 | -34 | -80 |
| NSA-258 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-259 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-260 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-261 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-262 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-263 | | 45 | 42 | 35 | 28 | 26 | 12 | -32 | -80 |
| NSA-264 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-265 | | 45 | 42 | 35 | 29 | 26 | 13 | -31 | -80 |
| NSA-266 | | 46 | 42 | 35 | 29 | 26 | 13 | -29 | -80 |
| NSA-267 | | 46 | 43 | 36 | 29 | 27 | 14 | -27 | -80 |
| NSA-268 | | 46 | 42 | 36 | 29 | 26 | 14 | -28 | -80 |
| NSA-269 | | 46 | 42 | 35 | 29 | 26 | 13 | -30 | -80 |
| NSA-270 | | 46 | 42 | 36 | 29 | 26 | 14 | -28 | -80 |
| NSA-271 | | 46 | 43 | 36 | 29 | 27 | 14 | -27 | -80 |
| NSA-272 | | 46 | 43 | 36 | 30 | 27 | 16 | -23 | -80 |
| NSA-273 | | 46 | 43 | 37 | 30 | 28 | 16 | -21 | -80 |
| NSA-274 | | 46 | 42 | 35 | 29 | 26 | 13 | -29 | -80 |
| NSA-275 | | 45 | 42 | 35 | 28 | 26 | 13 | -30 | -80 |
| NSA-276 | | 45 | 42 | 35 | 28 | 25 | 12 | -31 | -80 |
| NSA-277 | | 45 | 42 | 35 | 29 | 26 | 13 | -31 | -80 |
| NSA-278 | | 45 | 42 | 35 | 28 | 25 | 12 | -32 | -80 |
| NSA-279 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-280 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-281 | | 45 | 42 | 35 | 28 | 25 | 11 | -37 | -80 |
| NSA-282 | | 43 | 40 | 33 | 27 | 23 | 9 | -42 | -80 |
| NSA-283 | | 45 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-284 | | 44 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-285 | | 45 | 42 | 34 | 28 | 24 | 10 | -37 | -80 |
| NSA-286 | | 45 | 42 | 35 | 28 | 25 | 11 | -34 | -80 |
| NSA-287 | | 44 | 41 | 34 | 27 | 23 | 9 | -41 | -80 |
| NSA-288 | | 44 | 41 | 34 | 27 | 23 | 9 | -41 | -80 |
| NSA-289 | | 44 | 41 | 34 | 27 | 23 | 8 | -42 | -80 |
| NSA-290 | | 44 | 40 | 34 | 27 | 23 | 8 | -42 | -80 |
| NSA-291 | | 44 | 40 | 33 | 27 | 23 | 8 | -43 | -80 |
| NSA-292 | | 44 | 41 | 34 | 27 | 23 | 8 | -42 | -80 |
| NSA-293 | | 44 | 40 | 33 | 26 | 23 | 8 | -43 | -80 |
| NSA-294 | | 42 | 39 | 32 | 26 | 23 | 8 | -44 | -80 |
| NSA-295 | | 42 | 39 | 33 | 26 | 23 | 8 | -44 | -80 |
| NSA-296 | | 44 | 41 | 33 | 26 | 23 | 8 | -43 | -80 |
| NSA-297 | | 44 | 41 | 33 | 26 | 23 | 8 | -44 | -80 |
| NSA-298 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-299 | | 44 | 41 | 34 | 27 | 23 | 8 | -42 | -80 |
| NSA-300 | | 43 | 40 | 33 | 26 | 23 | 7 | -44 | -80 |
| NSA-301 | | 44 | 41 | 34 | 26 | 23 | 8 | -44 | -80 |
| NSA-302 | | 47 | 44 | 37 | 31 | 29 | 18 | -18 | -80 |
| NSA-303 | | 45 | 42 | 34 | 28 | 24 | 10 | -38 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-304 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-305 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-306 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-307 | | 45 | 42 | 35 | 28 | 25 | 12 | -34 | -80 |
| NSA-308 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-309 | | 45 | 42 | 36 | 29 | 26 | 14 | -28 | -80 |
| NSA-310 | | 46 | 43 | 36 | 29 | 27 | 15 | -26 | -80 |
| NSA-311 | | 45 | 42 | 35 | 29 | 26 | 13 | -30 | -80 |
| NSA-312 | | 45 | 42 | 35 | 29 | 26 | 13 | -30 | -80 |
| NSA-313 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-314 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-315 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-316 | | 50 | 47 | 41 | 34 | 32 | 20 | -21 | -80 |
| NSA-317 | | 50 | 47 | 41 | 34 | 32 | 20 | -20 | -80 |
| NSA-318 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-319 | | 50 | 47 | 41 | 34 | 32 | 20 | -19 | -80 |
| NSA-320 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-321 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-322 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-323 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-324 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-325 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-326 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-327 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-328 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-329 | | 50 | 47 | 41 | 34 | 32 | 20 | -16 | -80 |
| NSA-330 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-331 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-332 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-333 | | 50 | 47 | 41 | 34 | 32 | 20 | -17 | -80 |
| NSA-334 | | 50 | 47 | 41 | 35 | 32 | 20 | -15 | -80 |
| NSA-335 | | 50 | 47 | 41 | 34 | 32 | 20 | -18 | -80 |
| NSA-336 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-337 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-338 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-339 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-340 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-341 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-342 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-343 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-344 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-345 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-346 | | 50 | 47 | 41 | 34 | 32 | 20 | -14 | -80 |
| NSA-347 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-348 | | 46 | 43 | 36 | 29 | 26 | 11 | -34 | -80 |
| NSA-349 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-350 | | 46 | 43 | 36 | 30 | 26 | 13 | -31 | -80 |
| NSA-351 | | 46 | 43 | 36 | 30 | 27 | 13 | -30 | -80 |
| NSA-352 | | 47 | 43 | 37 | 30 | 27 | 14 | -29 | -80 |
| NSA-353 | | 46 | 43 | 36 | 30 | 27 | 14 | -29 | -80 |
| NSA-354 | | 46 | 43 | 36 | 29 | 27 | 13 | -30 | -80 |
| NSA-355 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-356 | | 47 | 44 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-357 | | 46 | 43 | 36 | 29 | 26 | 12 | -32 | -80 |
| NSA-358 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-359 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-360 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-361 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-362 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-363 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-364 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-365 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-366 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-367 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-368 | | 46 | 43 | 36 | 29 | 26 | 12 | -35 | -80 |
| NSA-369 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-370 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-371 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-372 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-373 | | 46 | 43 | 35 | 28 | 25 | 10 | -39 | -80 |
| NSA-374 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-375 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-376 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-377 | | 46 | 43 | 36 | 30 | 27 | 13 | -32 | -80 |
| NSA-378 | | 47 | 43 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-379 | | 46 | 43 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-380 | | 46 | 43 | 36 | 30 | 26 | 13 | -32 | -80 |
| NSA-381 | | 46 | 42 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-382 | | 46 | 43 | 35 | 28 | 25 | 10 | -40 | -80 |
| NSA-383 | | 46 | 43 | 36 | 28 | 25 | 10 | -39 | -80 |
| NSA-384 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-385 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-386 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-387 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-388 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-389 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |
| NSA-390 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |
| NSA-391 | | 46 | 43 | 36 | 29 | 26 | 12 | -35 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-392 | | 46 | 43 | 36 | 29 | 26 | 12 | -36 | -80 |
| NSA-393 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-394 | | 46 | 43 | 36 | 29 | 26 | 11 | -37 | -80 |
| NSA-395 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-396 | | 46 | 43 | 36 | 29 | 25 | 11 | -39 | -80 |
| NSA-397 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-398 | | 46 | 43 | 36 | 29 | 25 | 10 | -40 | -80 |
| NSA-399 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-400 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-401 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-405 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-406 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-407 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-408 | | 46 | 42 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-409 | | 46 | 43 | 36 | 28 | 25 | 10 | -40 | -80 |
| NSA-410 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-411 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-412 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-413 | | 46 | 43 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-414 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-415 | | 46 | 42 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-416 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-417 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-418 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-419 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-420 | | 46 | 43 | 36 | 29 | 25 | 10 | -40 | -80 |
| NSA-421 | | 46 | 43 | 36 | 29 | 25 | 11 | -39 | -80 |
| NSA-422 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
| NSA-423 | | 46 | 42 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-424 | | 46 | 42 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-425 | | 46 | 43 | 35 | 28 | 25 | 10 | -41 | -80 |
| NSA-426 | | 46 | 43 | 36 | 28 | 25 | 10 | -41 | -80 |
| NSA-427 | | 46 | 43 | 36 | 30 | 27 | 13 | -29 | -80 |
| NSA-468 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-469 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-475 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-476 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-477 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-478 | | 47 | 44 | 37 | 30 | 27 | 14 | -25 | -80 |
| NSA-479 | | 47 | 44 | 37 | 30 | 27 | 15 | -25 | -80 |
| NSA-480 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-481 | | 47 | 43 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-482 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-483 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-484 | | 46 | 43 | 36 | 30 | 26 | 13 | -29 | -80 |
| NSA-485 | | 46 | 43 | 36 | 30 | 27 | 13 | -29 | -80 |
| NSA-486 | | 46 | 43 | 37 | 30 | 27 | 13 | -28 | -80 |
| NSA-487 | | 47 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-488 | | 46 | 43 | 36 | 30 | 26 | 13 | -30 | -80 |
| NSA-489 | | 46 | 43 | 36 | 29 | 26 | 12 | -31 | -80 |
| NSA-490 | | 46 | 43 | 36 | 30 | 27 | 13 | -28 | -80 |
| NSA-491 | | 46 | 43 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-492 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-493 | | 46 | 43 | 36 | 29 | 27 | 13 | -28 | -80 |
| NSA-494 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-495 | | 46 | 43 | 36 | 29 | 26 | 11 | -37 | -80 |
| NSA-496 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-497 | | 43 | 40 | 34 | 28 | 25 | 11 | -36 | -80 |
| NSA-498 | | 45 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-499 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-500 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-501 | | 45 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-502 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-503 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-504 | | 44 | 41 | 34 | 27 | 23 | 8 | -44 | -80 |
| NSA-505 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-506 | | 45 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-507 | | 45 | 41 | 34 | 27 | 24 | 10 | -39 | -80 |
| NSA-508 | | 44 | 41 | 34 | 27 | 24 | 10 | -40 | -80 |
| NSA-509 | | 45 | 42 | 34 | 27 | 24 | 10 | -38 | -80 |
| NSA-510 | | 45 | 41 | 34 | 27 | 24 | 10 | -40 | -80 |
| NSA-511 | | 44 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-512 | | 44 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-513 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-514 | | 44 | 41 | 34 | 27 | 23 | 9 | -42 | -80 |
| NSA-515 | | 44 | 41 | 34 | 27 | 23 | 8 | -44 | -80 |
| NSA-516 | | 44 | 41 | 34 | 27 | 23 | 8 | -43 | -80 |
| NSA-517 | | 44 | 41 | 34 | 27 | 23 | 9 | -42 | -80 |
| NSA-518 | | 45 | 41 | 34 | 27 | 24 | 9 | -40 | -80 |
| NSA-519 | | 45 | 41 | 34 | 27 | 24 | 10 | -39 | -80 |
| NSA-520 | | 45 | 42 | 35 | 28 | 24 | 10 | -37 | -80 |
| NSA-521 | | 45 | 41 | 34 | 27 | 24 | 10 | -38 | -80 |
| NSA-522 | | 45 | 41 | 34 | 28 | 24 | 10 | -37 | -80 |
| NSA-523 | | 45 | 41 | 34 | 28 | 24 | 11 | -37 | -80 |
| NSA-524 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-525 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-526 | | 45 | 42 | 35 | 28 | 25 | 12 | -34 | -80 |
| NSA-527 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |

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|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-528 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-529 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-530 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-531 | | 45 | 42 | 35 | 28 | 25 | 11 | -35 | -80 |
| NSA-532 | | 45 | 42 | 35 | 28 | 26 | 12 | -32 | -80 |
| NSA-533 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-534 | | 45 | 42 | 35 | 29 | 26 | 13 | -31 | -80 |
| NSA-535 | | 46 | 42 | 35 | 29 | 26 | 13 | -29 | -80 |
| NSA-536 | | 46 | 43 | 36 | 29 | 27 | 14 | -27 | -80 |
| NSA-537 | | 46 | 42 | 36 | 29 | 26 | 14 | -28 | -80 |
| NSA-538 | | 46 | 42 | 35 | 29 | 26 | 13 | -30 | -80 |
| NSA-539 | | 46 | 42 | 36 | 29 | 26 | 14 | -28 | -80 |
| NSA-540 | | 46 | 43 | 36 | 29 | 27 | 14 | -27 | -80 |
| NSA-541 | | 46 | 43 | 36 | 30 | 27 | 16 | -23 | -80 |
| NSA-542 | | 46 | 43 | 37 | 30 | 28 | 16 | -21 | -80 |
| NSA-543 | | 46 | 42 | 35 | 29 | 26 | 13 | -29 | -80 |
| NSA-544 | | 45 | 42 | 35 | 28 | 26 | 13 | -30 | -80 |
| NSA-545 | | 45 | 42 | 35 | 28 | 25 | 12 | -31 | -80 |
| NSA-546 | | 45 | 42 | 35 | 29 | 26 | 13 | -31 | -80 |
| NSA-547 | | 45 | 42 | 35 | 28 | 25 | 12 | -32 | -80 |
| NSA-548 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-549 | | 45 | 42 | 35 | 28 | 25 | 12 | -33 | -80 |
| NSA-550 | | 45 | 42 | 35 | 28 | 25 | 11 | -37 | -80 |
| NSA-551 | | 43 | 40 | 33 | 27 | 23 | 9 | -42 | -80 |
| NSA-552 | | 45 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-553 | | 44 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-554 | | 45 | 42 | 34 | 28 | 24 | 10 | -37 | -80 |
| NSA-555 | | 45 | 42 | 35 | 28 | 25 | 11 | -34 | -80 |
| NSA-556 | | 44 | 41 | 34 | 27 | 23 | 9 | -41 | -80 |
| NSA-557 | | 44 | 41 | 34 | 27 | 23 | 9 | -41 | -80 |
| NSA-558 | | 44 | 41 | 34 | 27 | 23 | 8 | -42 | -80 |
| NSA-559 | | 44 | 40 | 34 | 27 | 23 | 8 | -42 | -80 |

Appendix D

Receptor Octave Band Levels – Daytime Modes

***31.5 Hz octave band source data not yet provided**

| | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---------------------------|------|----|-----|-----|-----|------|------|------|------|
| Daytime Regulation | 75 | 74 | 69 | 64 | 58 | 52 | 47 | 43 | 40 |
| NSA-001 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-002 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-003 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-004 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-005 | | 50 | 47 | 41 | 35 | 32 | 20 | -14 | -80 |
| NSA-006 | | 50 | 47 | 41 | 35 | 32 | 20 | -15 | -80 |
| NSA-007 | | 50 | 47 | 41 | 35 | 32 | 20 | -14 | -80 |
| NSA-008 | | 49 | 46 | 40 | 34 | 32 | 20 | -16 | -80 |
| NSA-009 | | 50 | 47 | 41 | 34 | 32 | 20 | -15 | -80 |
| NSA-010 | | 50 | 47 | 41 | 35 | 32 | 20 | -15 | -80 |
| NSA-011 | | 50 | 47 | 41 | 35 | 32 | 21 | -11 | -80 |
| NSA-012 | | 50 | 47 | 41 | 35 | 33 | 21 | -11 | -80 |
| NSA-013 | | 50 | 47 | 41 | 35 | 33 | 21 | -10 | -80 |
| NSA-014 | | 50 | 48 | 41 | 35 | 33 | 22 | -10 | -80 |
| NSA-021 | | 49 | 47 | 40 | 34 | 32 | 20 | -15 | -80 |
| NSA-073 | | 46 | 43 | 36 | 30 | 27 | 14 | -27 | -80 |
| NSA-074 | | 47 | 44 | 37 | 30 | 28 | 16 | -24 | -80 |
| NSA-084 | | 48 | 45 | 39 | 33 | 31 | 21 | -10 | -80 |
| NSA-085 | | 50 | 47 | 41 | 35 | 34 | 25 | -1 | -79 |
| NSA-086 | | 50 | 47 | 41 | 35 | 34 | 26 | 2 | -76 |
| NSA-087 | | 49 | 46 | 40 | 34 | 33 | 24 | -4 | -80 |
| NSA-088 | | 52 | 50 | 44 | 39 | 38 | 32 | 16 | -38 |
| NSA-089 | | 53 | 50 | 44 | 39 | 38 | 33 | 16 | -36 |
| NSA-090 | | 50 | 47 | 41 | 35 | 34 | 27 | 3 | -71 |
| NSA-091 | | 48 | 45 | 39 | 33 | 31 | 22 | -8 | -80 |
| NSA-092 | | 53 | 50 | 45 | 39 | 39 | 33 | 17 | -33 |
| NSA-093 | | 50 | 47 | 41 | 35 | 34 | 26 | 3 | -71 |
| NSA-094 | | 49 | 46 | 39 | 33 | 31 | 22 | -6 | -80 |
| NSA-095 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-106 | | 54 | 52 | 46 | 41 | 40 | 35 | 18 | -35 |
| NSA-107 | | 53 | 50 | 45 | 39 | 39 | 33 | 17 | -34 |
| NSA-108 | | 55 | 53 | 47 | 42 | 42 | 37 | 24 | -16 |
| NSA-109 | | 53 | 50 | 44 | 39 | 38 | 32 | 15 | -40 |
| NSA-110 | | 52 | 49 | 43 | 38 | 37 | 30 | 11 | -51 |
| NSA-111 | | 51 | 48 | 42 | 36 | 34 | 24 | -10 | -80 |
| NSA-112 | | 50 | 48 | 41 | 35 | 33 | 22 | -10 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-113 | | 50 | 48 | 41 | 35 | 33 | 22 | -9 | -80 |
| NSA-114 | | 51 | 48 | 42 | 36 | 34 | 24 | -8 | -80 |
| NSA-115 | | 50 | 47 | 41 | 35 | 33 | 23 | -10 | -80 |
| NSA-116 | | 52 | 50 | 44 | 38 | 37 | 29 | 5 | -73 |
| NSA-117 | | 48 | 45 | 38 | 32 | 29 | 17 | -20 | -80 |
| NSA-118 | | 48 | 45 | 38 | 32 | 29 | 18 | -19 | -80 |
| NSA-124 | | 49 | 47 | 40 | 35 | 33 | 24 | -3 | -80 |
| NSA-125 | | 49 | 46 | 40 | 34 | 32 | 22 | -7 | -80 |
| NSA-126 | | 52 | 49 | 43 | 37 | 35 | 25 | -4 | -80 |
| NSA-127 | | 51 | 48 | 42 | 36 | 35 | 27 | 2 | -74 |
| NSA-128 | | 49 | 46 | 39 | 33 | 31 | 20 | -11 | -80 |
| NSA-129 | | 47 | 44 | 37 | 30 | 27 | 13 | -30 | -80 |
| NSA-130 | | 51 | 48 | 42 | 36 | 35 | 27 | 3 | -72 |
| NSA-131 | | 55 | 52 | 47 | 42 | 41 | 36 | 19 | -30 |
| NSA-132 | | 55 | 53 | 47 | 42 | 41 | 35 | 18 | -33 |
| NSA-133 | | 56 | 53 | 48 | 42 | 42 | 36 | 20 | -31 |
| NSA-134 | | 53 | 51 | 45 | 39 | 38 | 30 | 5 | -73 |
| NSA-135 | | 55 | 53 | 47 | 42 | 41 | 35 | 17 | -35 |
| NSA-136 | | 55 | 53 | 47 | 42 | 41 | 36 | 18 | -37 |
| NSA-137 | | 52 | 49 | 43 | 37 | 36 | 29 | 9 | -57 |
| NSA-138 | | 51 | 49 | 43 | 37 | 36 | 28 | 5 | -71 |
| NSA-143 | | 46 | 43 | 35 | 28 | 24 | 8 | -44 | -80 |
| NSA-144 | | 53 | 50 | 44 | 39 | 38 | 32 | 15 | -38 |
| NSA-145 | | 51 | 48 | 42 | 36 | 34 | 23 | -13 | -80 |
| NSA-146 | | 54 | 51 | 46 | 40 | 40 | 34 | 17 | -34 |
| NSA-147 | | 53 | 50 | 45 | 39 | 38 | 32 | 13 | -45 |
| NSA-148 | | 51 | 48 | 42 | 36 | 34 | 25 | -3 | -80 |
| NSA-149 | | 46 | 43 | 37 | 30 | 28 | 14 | -34 | -80 |
| NSA-150 | | 47 | 44 | 37 | 30 | 27 | 13 | -35 | -80 |
| NSA-151 | | 48 | 45 | 39 | 32 | 30 | 17 | -25 | -80 |
| NSA-152 | | 49 | 46 | 39 | 33 | 30 | 18 | -22 | -80 |
| NSA-153 | | 50 | 47 | 41 | 35 | 33 | 23 | -9 | -80 |
| NSA-154 | | 49 | 46 | 40 | 34 | 31 | 20 | -17 | -80 |
| NSA-155 | | 49 | 47 | 40 | 34 | 32 | 21 | -15 | -80 |
| NSA-156 | | 51 | 48 | 42 | 36 | 34 | 24 | -10 | -80 |
| NSA-157 | | 51 | 48 | 42 | 36 | 34 | 23 | -11 | -80 |
| NSA-158 | | 51 | 48 | 42 | 36 | 34 | 23 | -12 | -80 |
| NSA-159 | | 51 | 48 | 42 | 36 | 33 | 22 | -13 | -80 |
| NSA-160 | | 51 | 48 | 42 | 35 | 33 | 22 | -14 | -80 |
| NSA-161 | | 51 | 48 | 41 | 35 | 33 | 21 | -15 | -80 |
| NSA-162 | | 50 | 48 | 41 | 35 | 33 | 21 | -16 | -80 |
| NSA-163 | | 50 | 48 | 41 | 35 | 33 | 21 | -20 | -80 |
| NSA-164 | | 51 | 48 | 41 | 35 | 33 | 21 | -20 | -80 |
| NSA-165 | | 51 | 48 | 41 | 35 | 33 | 21 | -20 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-166 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-167 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-168 | | 50 | 48 | 41 | 35 | 33 | 20 | -20 | -80 |
| NSA-169 | | 50 | 48 | 41 | 35 | 33 | 20 | -19 | -80 |
| NSA-170 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-171 | | 50 | 47 | 41 | 35 | 33 | 21 | -13 | -80 |
| NSA-172 | | 49 | 46 | 40 | 34 | 32 | 22 | -10 | -80 |
| NSA-173 | | 50 | 48 | 41 | 35 | 33 | 21 | -16 | -80 |
| NSA-174 | | 50 | 48 | 41 | 35 | 33 | 21 | -14 | -80 |
| NSA-175 | | 50 | 48 | 41 | 35 | 33 | 20 | -20 | -80 |
| NSA-176 | | 50 | 48 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-177 | | 49 | 46 | 40 | 33 | 31 | 19 | -18 | -80 |
| NSA-178 | | 49 | 46 | 40 | 34 | 32 | 20 | -15 | -80 |
| NSA-179 | | 48 | 45 | 39 | 32 | 29 | 17 | -21 | -80 |
| NSA-180 | | 48 | 45 | 38 | 32 | 29 | 16 | -22 | -80 |
| NSA-181 | | 46 | 43 | 36 | 29 | 25 | 9 | -42 | -80 |
| NSA-184 | | 48 | 45 | 38 | 31 | 28 | 13 | -33 | -80 |
| NSA-185 | | 51 | 48 | 42 | 36 | 34 | 26 | 2 | -75 |
| NSA-186 | | 53 | 51 | 45 | 40 | 40 | 34 | 19 | -27 |
| NSA-187 | | 51 | 48 | 42 | 36 | 35 | 26 | 3 | -73 |
| NSA-188 | | 52 | 49 | 43 | 37 | 36 | 28 | 6 | -64 |
| NSA-189 | | 51 | 49 | 43 | 37 | 35 | 27 | 4 | -70 |
| NSA-190 | | 51 | 49 | 43 | 37 | 35 | 27 | 2 | -76 |
| NSA-191 | | 51 | 48 | 42 | 36 | 35 | 26 | -1 | -80 |
| NSA-192 | | 52 | 49 | 43 | 37 | 36 | 28 | 6 | -66 |
| NSA-193 | | 52 | 49 | 43 | 37 | 36 | 29 | 7 | -63 |
| NSA-194 | | 52 | 49 | 43 | 37 | 36 | 29 | 8 | -60 |
| NSA-195 | | 47 | 44 | 37 | 30 | 27 | 14 | -25 | -80 |
| NSA-196 | | 47 | 44 | 37 | 30 | 27 | 15 | -24 | -80 |
| NSA-197 | | 47 | 44 | 37 | 30 | 27 | 15 | -24 | -80 |
| NSA-198 | | 53 | 51 | 45 | 39 | 39 | 33 | 16 | -36 |
| NSA-199 | | 53 | 51 | 45 | 40 | 39 | 34 | 18 | -32 |
| NSA-200 | | 54 | 52 | 46 | 41 | 41 | 36 | 22 | -21 |
| NSA-201 | | 52 | 50 | 44 | 38 | 37 | 31 | 13 | -44 |
| NSA-202 | | 53 | 50 | 44 | 39 | 38 | 32 | 14 | -41 |
| NSA-203 | | 52 | 49 | 44 | 38 | 37 | 30 | 11 | -49 |
| NSA-204 | | 51 | 48 | 42 | 36 | 35 | 26 | 2 | -74 |
| NSA-205 | | 51 | 48 | 42 | 36 | 35 | 27 | 4 | -69 |
| NSA-206 | | 51 | 48 | 42 | 37 | 35 | 27 | 3 | -72 |
| NSA-207 | | 47 | 44 | 37 | 31 | 28 | 16 | -24 | -80 |
| NSA-208 | | 50 | 47 | 41 | 35 | 34 | 26 | -1 | -80 |
| NSA-209 | | 52 | 49 | 43 | 38 | 37 | 30 | 10 | -53 |
| NSA-210 | | 52 | 50 | 44 | 38 | 37 | 30 | 6 | -73 |
| NSA-211 | | 53 | 50 | 45 | 39 | 39 | 33 | 16 | -36 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-212 | | 53 | 51 | 45 | 40 | 39 | 33 | 17 | -34 |
| NSA-213 | | 51 | 49 | 43 | 37 | 36 | 28 | 3 | -74 |
| NSA-214 | | 51 | 49 | 43 | 37 | 36 | 28 | 2 | -78 |
| NSA-215 | | 51 | 48 | 42 | 37 | 35 | 27 | 2 | -76 |
| NSA-216 | | 51 | 48 | 42 | 37 | 35 | 28 | 5 | -68 |
| NSA-217 | | 51 | 48 | 42 | 37 | 36 | 28 | 6 | -63 |
| NSA-218 | | 52 | 49 | 43 | 38 | 37 | 31 | 11 | -49 |
| NSA-219 | | 50 | 48 | 42 | 36 | 35 | 27 | 4 | -70 |
| NSA-220 | | 50 | 47 | 41 | 35 | 34 | 26 | 4 | -70 |
| NSA-221 | | 48 | 45 | 39 | 32 | 30 | 21 | -8 | -80 |
| NSA-222 | | 47 | 43 | 36 | 30 | 26 | 14 | -25 | -80 |
| NSA-223 | | 46 | 42 | 35 | 28 | 24 | 9 | -38 | -80 |
| NSA-224 | | 46 | 43 | 36 | 28 | 25 | 11 | -32 | -80 |
| NSA-225 | | 45 | 42 | 35 | 27 | 23 | 8 | -41 | -80 |
| NSA-226 | | 48 | 45 | 39 | 33 | 31 | 21 | -8 | -80 |
| NSA-227 | | 51 | 49 | 43 | 37 | 36 | 29 | 4 | -72 |
| NSA-228 | | 51 | 49 | 43 | 37 | 36 | 27 | 2 | -74 |
| NSA-229 | | 54 | 51 | 46 | 41 | 40 | 34 | 17 | -36 |
| NSA-230 | | 52 | 50 | 44 | 39 | 38 | 32 | 12 | -47 |
| NSA-231 | | 48 | 45 | 38 | 32 | 30 | 19 | -16 | -80 |
| NSA-232 | | 46 | 43 | 37 | 30 | 28 | 16 | -23 | -80 |
| NSA-233 | | 40 | 37 | 30 | 23 | 23 | 10 | -36 | -80 |
| NSA-234 | | 53 | 51 | 45 | 40 | 39 | 34 | 17 | -32 |
| NSA-235 | | 45 | 42 | 36 | 29 | 26 | 13 | -30 | -80 |
| NSA-236 | | 37 | 34 | 27 | 20 | 17 | 3 | -46 | -80 |
| NSA-237 | | 37 | 34 | 27 | 20 | 17 | 2 | -48 | -80 |
| NSA-238 | | 44 | 42 | 35 | 29 | 27 | 16 | -24 | -80 |
| NSA-239 | | 45 | 43 | 37 | 31 | 29 | 18 | -18 | -80 |
| NSA-241 | | 46 | 43 | 37 | 30 | 28 | 16 | -24 | -80 |
| NSA-242 | | 48 | 46 | 40 | 34 | 32 | 23 | -5 | -80 |
| NSA-243 | | 48 | 45 | 39 | 33 | 31 | 21 | -9 | -80 |
| NSA-244 | | 40 | 37 | 31 | 25 | 23 | 13 | -19 | -80 |
| NSA-245 | | 48 | 45 | 39 | 33 | 31 | 22 | -8 | -80 |
| NSA-246 | | 39 | 37 | 32 | 27 | 25 | 14 | -21 | -80 |
| NSA-247 | | 39 | 36 | 29 | 23 | 20 | 8 | -30 | -80 |
| NSA-248 | | 39 | 36 | 30 | 24 | 21 | 11 | -24 | -80 |
| NSA-249 | | 47 | 43 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-250 | | 45 | 42 | 36 | 29 | 27 | 14 | -29 | -80 |
| NSA-251 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-255 | | 46 | 43 | 36 | 29 | 26 | 11 | -34 | -80 |
| NSA-256 | | 50 | 48 | 41 | 35 | 33 | 20 | -20 | -80 |
| NSA-257 | | 50 | 48 | 41 | 35 | 32 | 20 | -21 | -80 |
| NSA-258 | | 50 | 48 | 41 | 35 | 32 | 20 | -21 | -80 |
| NSA-259 | | 50 | 48 | 41 | 35 | 32 | 20 | -21 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-260 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-261 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-262 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-263 | | 50 | 48 | 41 | 35 | 33 | 20 | -21 | -80 |
| NSA-264 | | 50 | 48 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-265 | | 50 | 48 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-266 | | 50 | 48 | 41 | 35 | 33 | 20 | -20 | -80 |
| NSA-267 | | 50 | 48 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-268 | | 50 | 48 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-269 | | 50 | 48 | 41 | 35 | 33 | 20 | -19 | -80 |
| NSA-270 | | 50 | 48 | 41 | 35 | 33 | 20 | -19 | -80 |
| NSA-271 | | 50 | 48 | 41 | 35 | 33 | 21 | -17 | -80 |
| NSA-272 | | 50 | 48 | 41 | 35 | 33 | 20 | -18 | -80 |
| NSA-273 | | 50 | 48 | 41 | 35 | 33 | 20 | -18 | -80 |
| NSA-274 | | 50 | 48 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-275 | | 50 | 48 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-276 | | 50 | 48 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-277 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-278 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-279 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-280 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-281 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-282 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-283 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-284 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-285 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-286 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-287 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-288 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-289 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-290 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-291 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-292 | | 50 | 47 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-293 | | 50 | 48 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-294 | | 50 | 48 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-295 | | 50 | 47 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-296 | | 50 | 48 | 41 | 35 | 32 | 20 | -20 | -80 |
| NSA-297 | | 50 | 48 | 41 | 35 | 32 | 20 | -19 | -80 |
| NSA-298 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-299 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-300 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-301 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-302 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-303 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-304 | | 50 | 47 | 41 | 35 | 32 | 20 | -16 | -80 |
| NSA-305 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-306 | | 50 | 47 | 41 | 35 | 32 | 20 | -16 | -80 |
| NSA-307 | | 50 | 47 | 41 | 35 | 32 | 20 | -16 | -80 |
| NSA-308 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-309 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-310 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-311 | | 50 | 47 | 41 | 35 | 32 | 20 | -17 | -80 |
| NSA-312 | | 50 | 47 | 41 | 35 | 32 | 20 | -15 | -80 |
| NSA-313 | | 50 | 47 | 41 | 35 | 32 | 20 | -18 | -80 |
| NSA-314 | | 50 | 48 | 41 | 35 | 33 | 21 | -12 | -80 |
| NSA-315 | | 50 | 48 | 41 | 35 | 33 | 21 | -13 | -80 |
| NSA-316 | | 50 | 48 | 41 | 35 | 33 | 21 | -12 | -80 |
| NSA-317 | | 50 | 47 | 41 | 35 | 33 | 21 | -12 | -80 |
| NSA-318 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-319 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-320 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-321 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-322 | | 50 | 47 | 41 | 35 | 32 | 21 | -12 | -80 |
| NSA-323 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-324 | | 50 | 47 | 41 | 35 | 32 | 21 | -14 | -80 |
| NSA-325 | | 50 | 47 | 41 | 35 | 32 | 21 | -13 | -80 |
| NSA-326 | | 46 | 43 | 36 | 29 | 26 | 11 | -34 | -80 |
| NSA-327 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-328 | | 46 | 43 | 36 | 30 | 26 | 13 | -31 | -80 |
| NSA-329 | | 47 | 43 | 37 | 30 | 27 | 13 | -30 | -80 |
| NSA-330 | | 47 | 44 | 37 | 30 | 27 | 14 | -29 | -80 |
| NSA-331 | | 46 | 43 | 36 | 30 | 27 | 14 | -29 | -80 |
| NSA-332 | | 46 | 43 | 36 | 29 | 27 | 13 | -30 | -80 |
| NSA-333 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-334 | | 47 | 44 | 37 | 30 | 27 | 14 | -28 | -80 |
| NSA-335 | | 46 | 43 | 36 | 29 | 26 | 12 | -32 | -80 |
| NSA-336 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-337 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-338 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-339 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-340 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-341 | | 46 | 43 | 36 | 29 | 25 | 11 | -36 | -80 |
| NSA-342 | | 46 | 43 | 36 | 29 | 26 | 11 | -35 | -80 |
| NSA-343 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-344 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-345 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-346 | | 46 | 43 | 36 | 29 | 26 | 12 | -35 | -80 |
| NSA-347 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
| NSA-348 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-349 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-350 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-351 | | 46 | 43 | 36 | 28 | 25 | 10 | -39 | -80 |
| NSA-352 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-353 | | 46 | 43 | 36 | 29 | 26 | 12 | -34 | -80 |
| NSA-354 | | 46 | 43 | 36 | 29 | 26 | 12 | -33 | -80 |
| NSA-355 | | 47 | 43 | 37 | 30 | 27 | 13 | -32 | -80 |
| NSA-356 | | 47 | 44 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-357 | | 47 | 43 | 37 | 30 | 27 | 13 | -31 | -80 |
| NSA-358 | | 46 | 43 | 36 | 30 | 26 | 13 | -32 | -80 |
| NSA-359 | | 46 | 43 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-360 | | 46 | 43 | 36 | 28 | 25 | 10 | -40 | -80 |
| NSA-361 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-362 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-363 | | 46 | 43 | 36 | 29 | 25 | 10 | -38 | -80 |
| NSA-364 | | 46 | 43 | 36 | 29 | 25 | 11 | -37 | -80 |
| NSA-365 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
| NSA-366 | | 46 | 43 | 36 | 29 | 26 | 11 | -36 | -80 |
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| NSA-379 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-380 | | 46 | 43 | 36 | 29 | 25 | 11 | -38 | -80 |
| NSA-381 | | 46 | 43 | 36 | 29 | 25 | 10 | -39 | -80 |
| NSA-382 | | 46 | 43 | 35 | 28 | 24 | 9 | -42 | -80 |
| NSA-383 | | 46 | 43 | 35 | 28 | 25 | 9 | -41 | -80 |
| NSA-384 | | 46 | 43 | 36 | 29 | 25 | 10 | -40 | -80 |
| NSA-385 | | 46 | 43 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-386 | | 46 | 42 | 35 | 28 | 24 | 9 | -43 | -80 |
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| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
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| NSA-398 | | 46 | 43 | 35 | 28 | 25 | 9 | -42 | -80 |
| NSA-399 | | 46 | 43 | 35 | 28 | 25 | 9 | -42 | -80 |
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| NSA-401 | | 46 | 43 | 36 | 29 | 25 | 10 | -41 | -80 |
| NSA-405 | | 47 | 43 | 37 | 30 | 27 | 13 | -29 | -80 |
| NSA-406 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-407 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-408 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
| NSA-409 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-410 | | 47 | 44 | 37 | 30 | 27 | 14 | -28 | -80 |
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| NSA-414 | | 47 | 44 | 37 | 30 | 27 | 14 | -27 | -80 |
| NSA-415 | | 47 | 44 | 37 | 30 | 27 | 14 | -26 | -80 |
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| NSA-419 | | 47 | 43 | 37 | 30 | 27 | 13 | -28 | -80 |
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| NSA-477 | | 45 | 42 | 35 | 28 | 24 | 9 | -41 | -80 |
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| NSA-483 | | 45 | 42 | 34 | 27 | 24 | 9 | -43 | -80 |

| | | | | | | | | | |
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| NSA-487 | | 45 | 42 | 35 | 28 | 25 | 11 | -38 | -80 |
| NSA-488 | | 45 | 42 | 35 | 28 | 25 | 10 | -39 | -80 |
| NSA-489 | | 45 | 41 | 35 | 28 | 24 | 10 | -40 | -80 |
| NSA-490 | | 44 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
| NSA-491 | | 44 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
| NSA-492 | | 44 | 41 | 34 | 27 | 24 | 9 | -41 | -80 |
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| NSA-494 | | 44 | 41 | 34 | 27 | 24 | 9 | -43 | -80 |
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| NSA-497 | | 45 | 42 | 35 | 28 | 25 | 10 | -39 | -80 |
| NSA-498 | | 45 | 42 | 35 | 28 | 25 | 11 | -37 | -80 |
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| NSA-500 | | 45 | 42 | 35 | 28 | 25 | 11 | -37 | -80 |
| NSA-501 | | 45 | 42 | 35 | 28 | 25 | 11 | -37 | -80 |
| NSA-502 | | 45 | 42 | 35 | 28 | 25 | 12 | -35 | -80 |
| NSA-503 | | 45 | 42 | 35 | 29 | 26 | 12 | -34 | -80 |
| NSA-504 | | 45 | 42 | 35 | 29 | 26 | 12 | -34 | -80 |
| NSA-505 | | 45 | 42 | 35 | 28 | 25 | 12 | -35 | -80 |
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| NSA-508 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
| NSA-509 | | 45 | 42 | 35 | 28 | 25 | 12 | -35 | -80 |
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| NSA-512 | | 45 | 42 | 36 | 29 | 26 | 13 | -30 | -80 |
| NSA-513 | | 46 | 43 | 36 | 29 | 27 | 14 | -29 | -80 |
| NSA-514 | | 46 | 43 | 36 | 30 | 27 | 15 | -27 | -80 |
| NSA-515 | | 46 | 43 | 36 | 29 | 27 | 14 | -28 | -80 |
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| NSA-517 | | 46 | 43 | 36 | 29 | 27 | 14 | -28 | -80 |
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| NSA-527 | | 45 | 42 | 35 | 29 | 26 | 12 | -33 | -80 |

| | | | | | | | | | |
|---------|--|----|----|----|----|----|----|-----|-----|
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| NSA-532 | | 45 | 42 | 35 | 28 | 25 | 11 | -36 | -80 |
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| NSA-536 | | 44 | 41 | 34 | 27 | 24 | 9 | -42 | -80 |
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| NSA-556 | | 46 | 43 | 36 | 29 | 27 | 14 | -28 | -80 |
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| NSA-558 | | 46 | 43 | 36 | 29 | 26 | 13 | -30 | -80 |
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Appendix E
Receptor 1/3 Octave Band Levels – Nighttime Modes

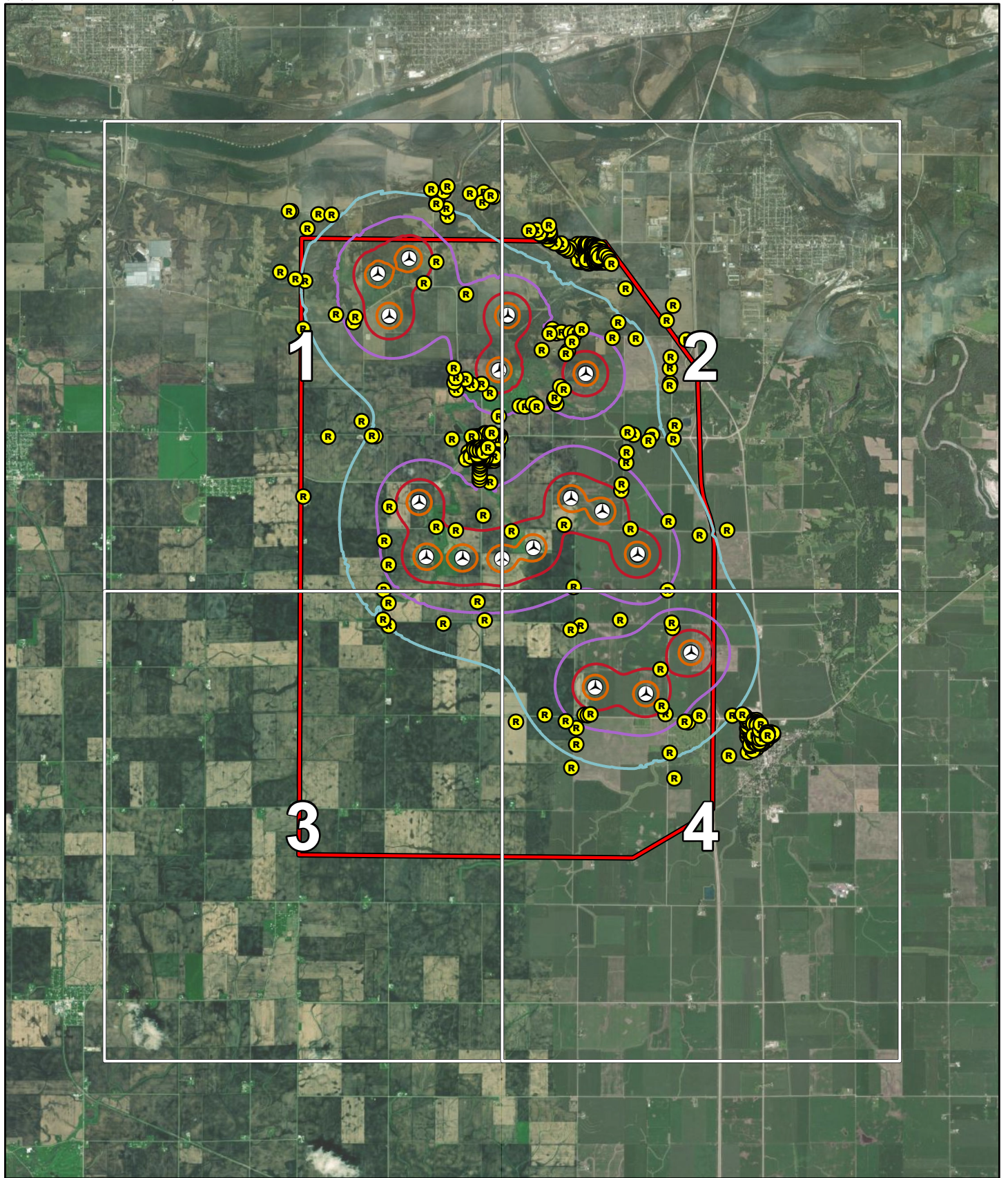
1/3 octave band source data not yet provided

Appendix F
Receptor 1/3 Octave Band Levels – Daytime Modes

1/3 octave band source data not yet provided

Appendix G

Noise Contour Map



Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 7,500 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- Map Book Overview
- Turbine
- R Receptor

Noise (dB)

- 35
- 40
- 45
- 50
- 55

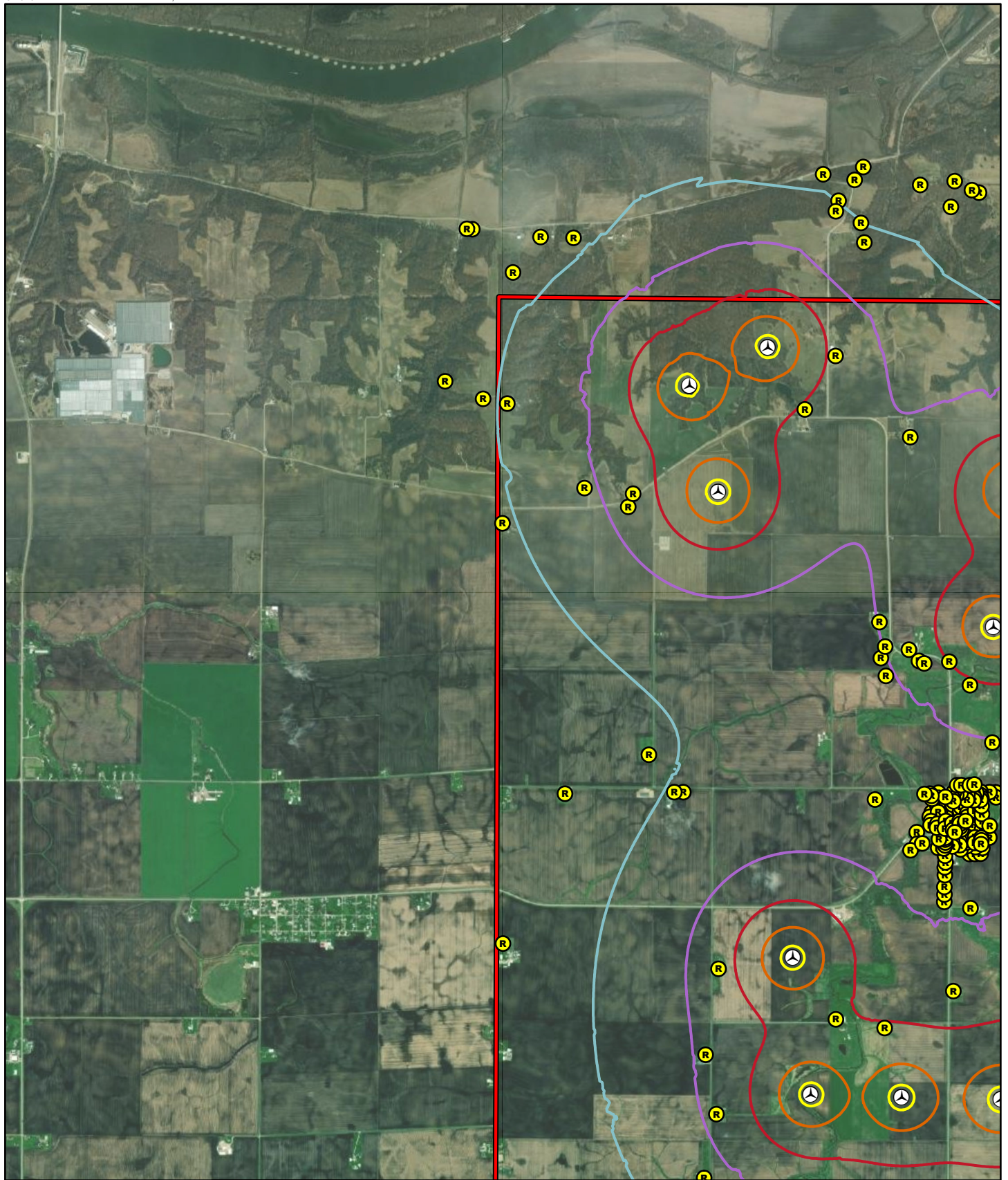


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
SG6.6-170 115mHH

EXHIBIT 3

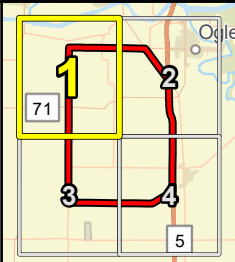


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

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Westwood Professional Services, Inc.



Legend

- Project Area
- Turbine
- Receptor

Noise (dB)

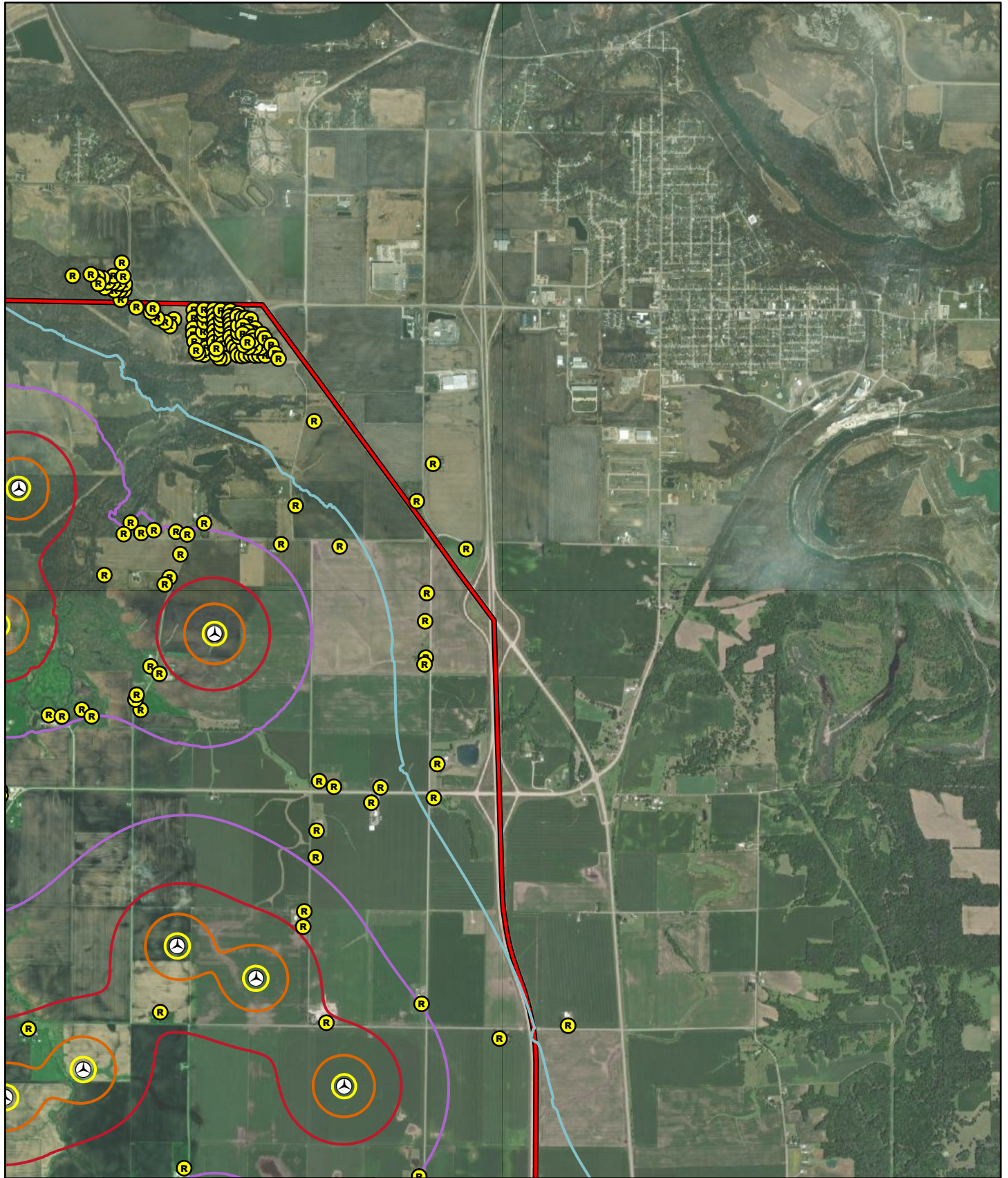
- 35
- 40
- 45
- 50
- 55

Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
SG6.6-170 115mHH



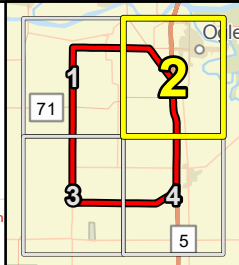


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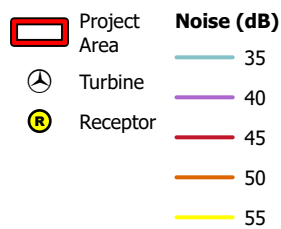
0 3,000 Feet

Westwood

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Westwood Professional Services, Inc.



Legend

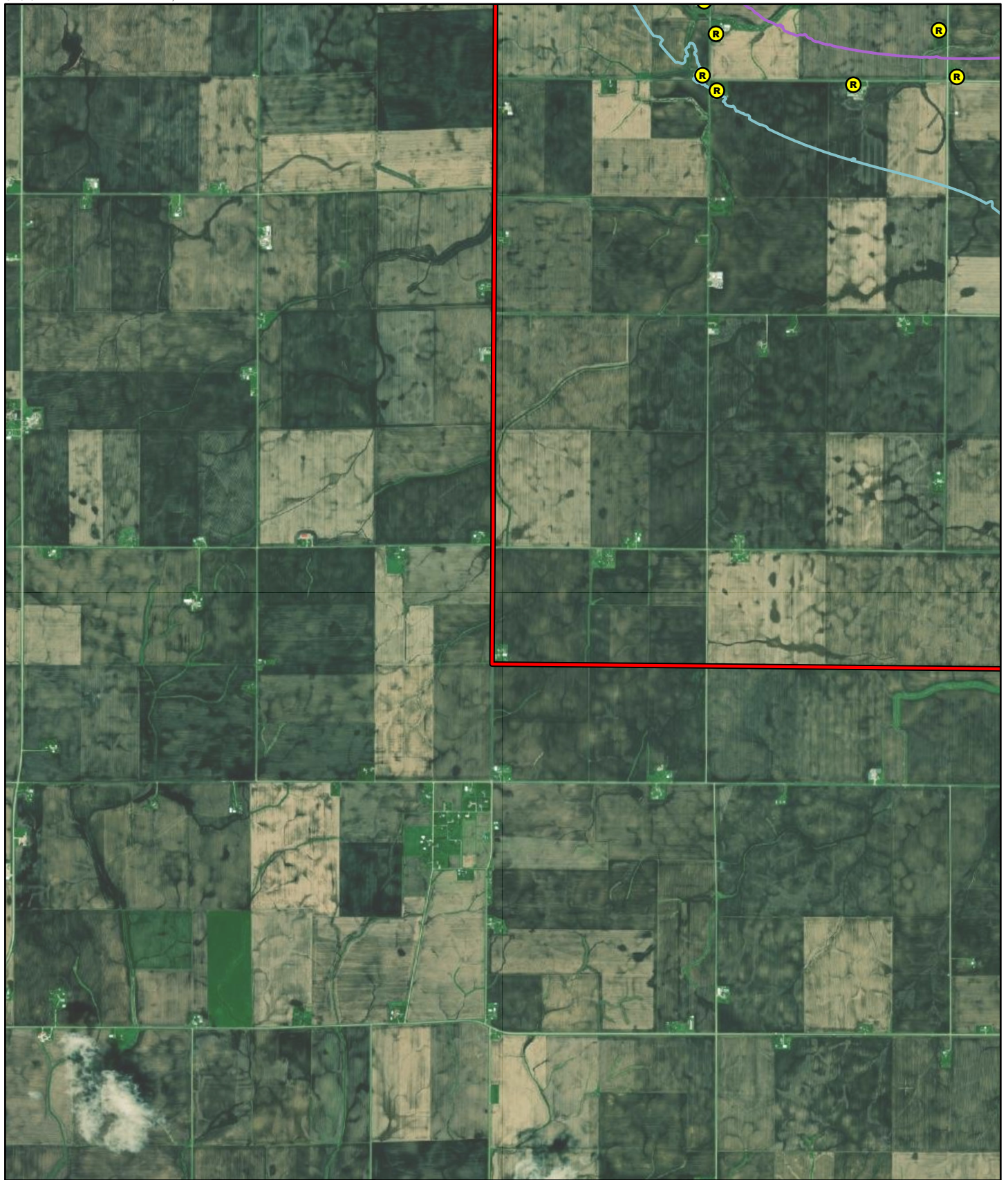


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
SG6.6-170 115mHH



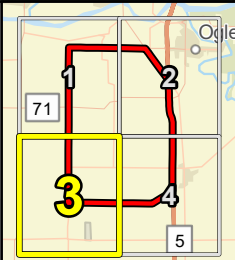


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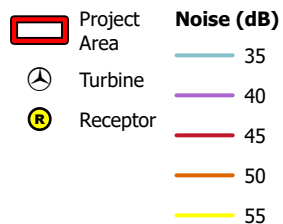
0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

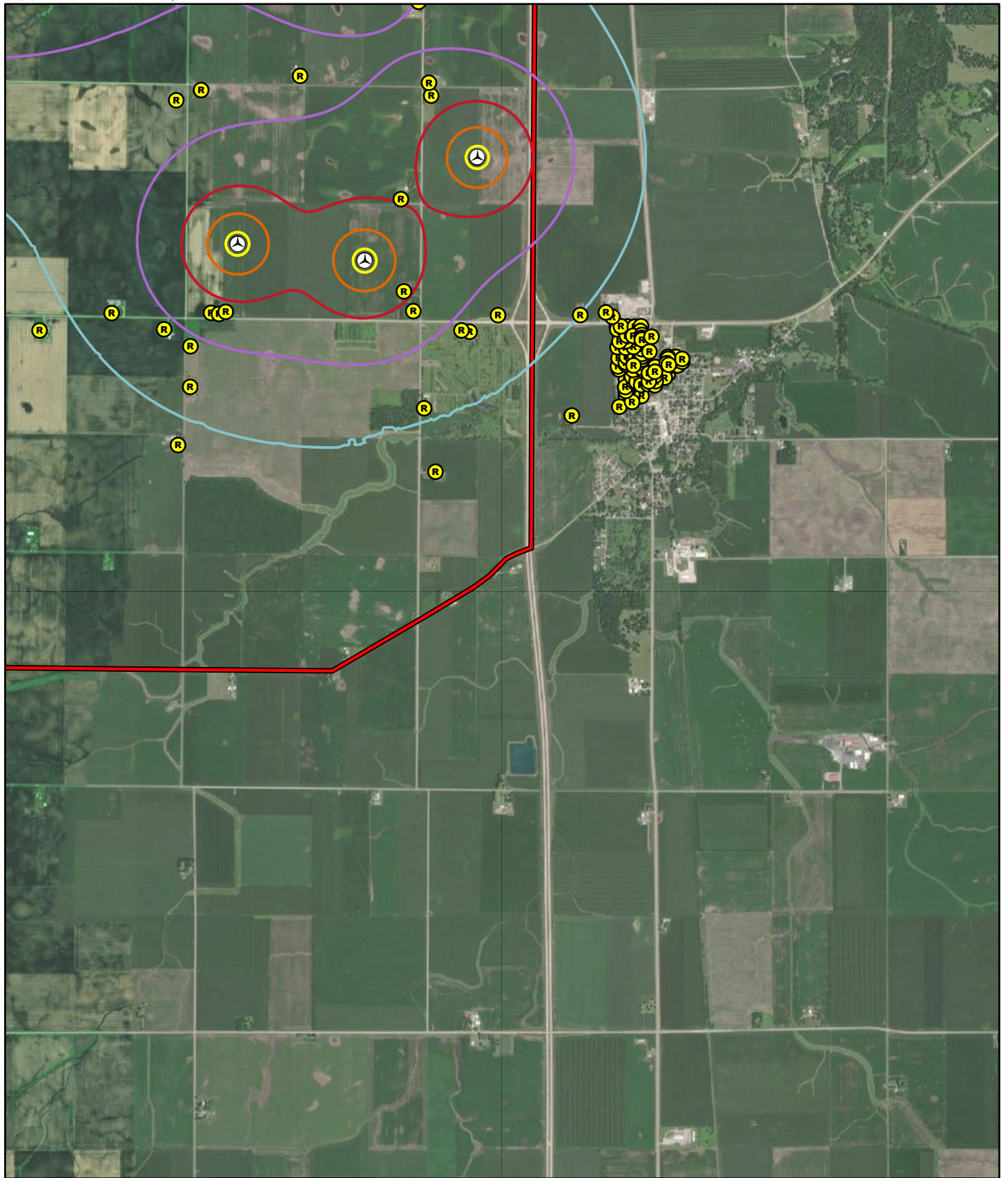


Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
SG6.6-170 115mHH

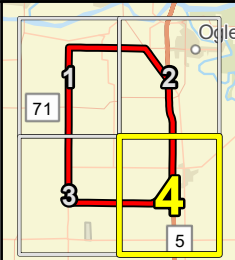




Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

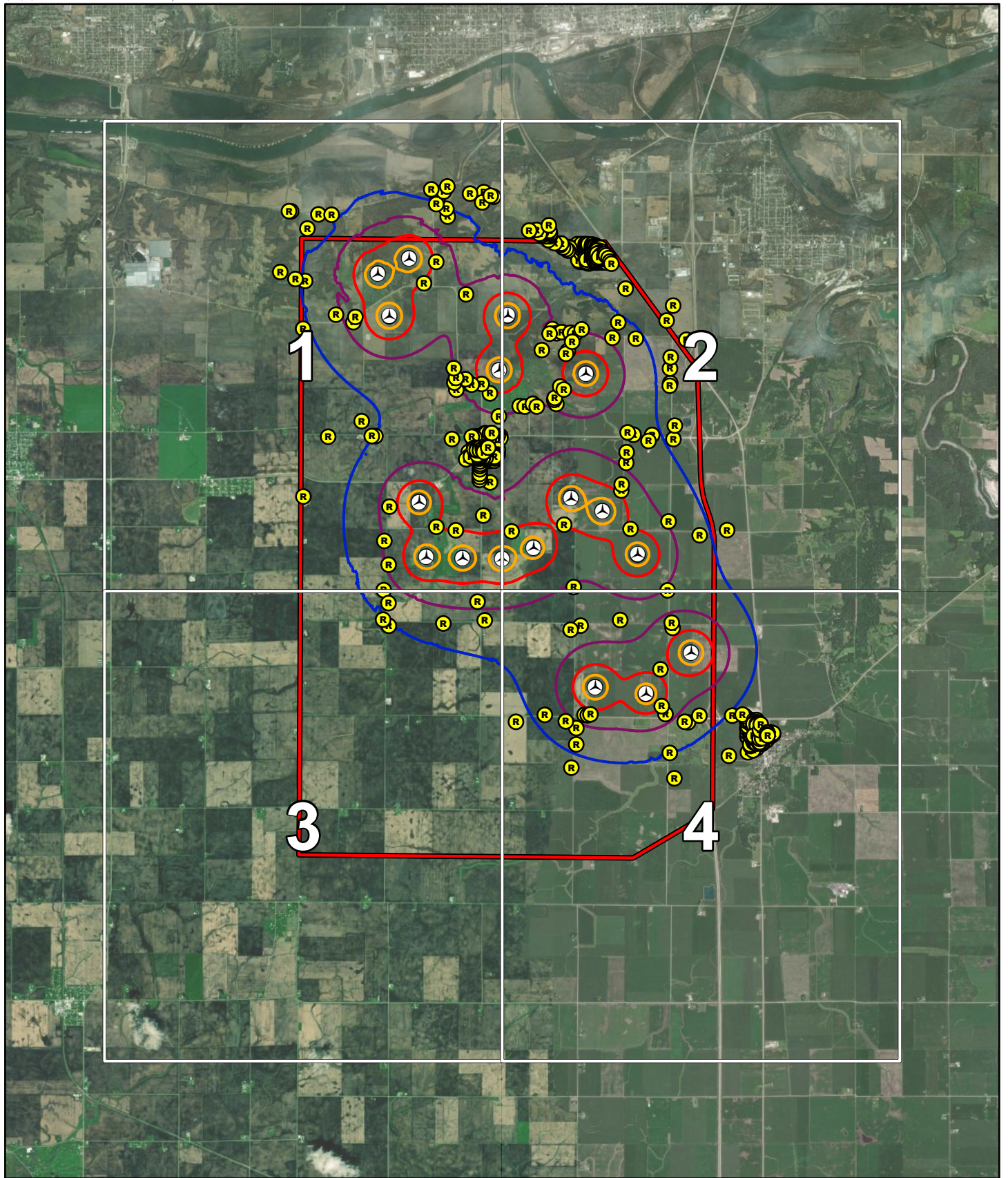
- | | |
|--------------|-------------------|
| Project Area | Noise (dB) |
| Turbine | 35 |
| Receptor | 40 |
| | 45 |
| | 50 |
| | 55 |

Hickory Wind Project

LaSalle County, Illinois

Daytime Noise
Contour Overview
SG6.6-170 115mHH







Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 7,500 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- Map Book Overview
-  Turbine
-  Receptor

- Noise (dB)**
- 35
 - 40
 - 45
 - 50
 - 55

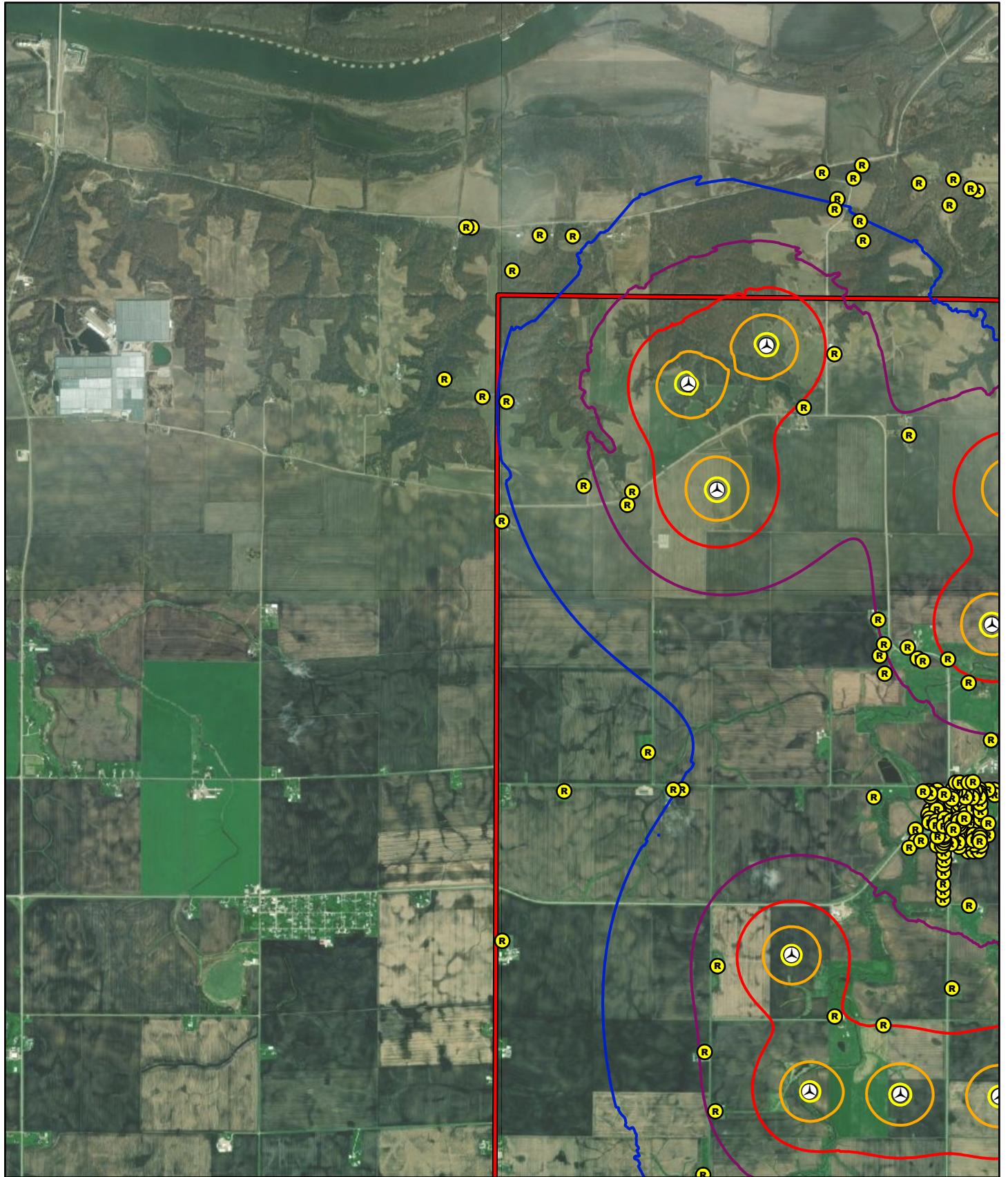


Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
SG6.6-170 115mHH

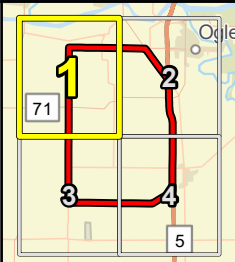
EXHIBIT 4




Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

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Westwood Professional Services, Inc.



Legend

- Project Area
-  Turbine
- R Receptor

Noise (dB)

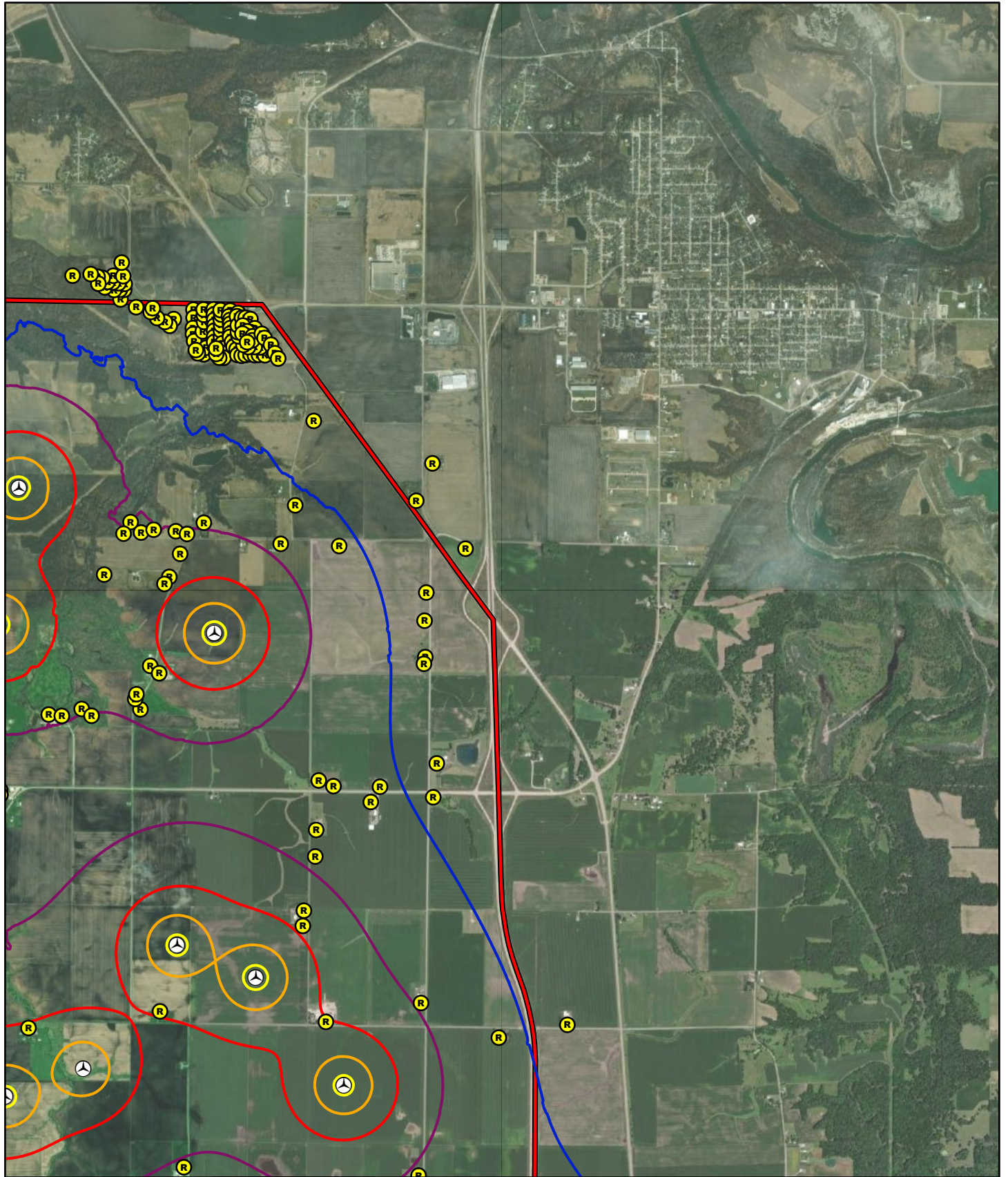
- 35
- 40
- 45
- 50
- 55

Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
SG6.6-170 115mHH

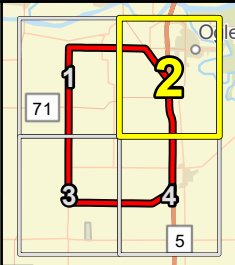




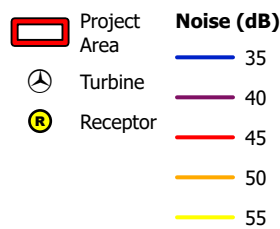
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0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

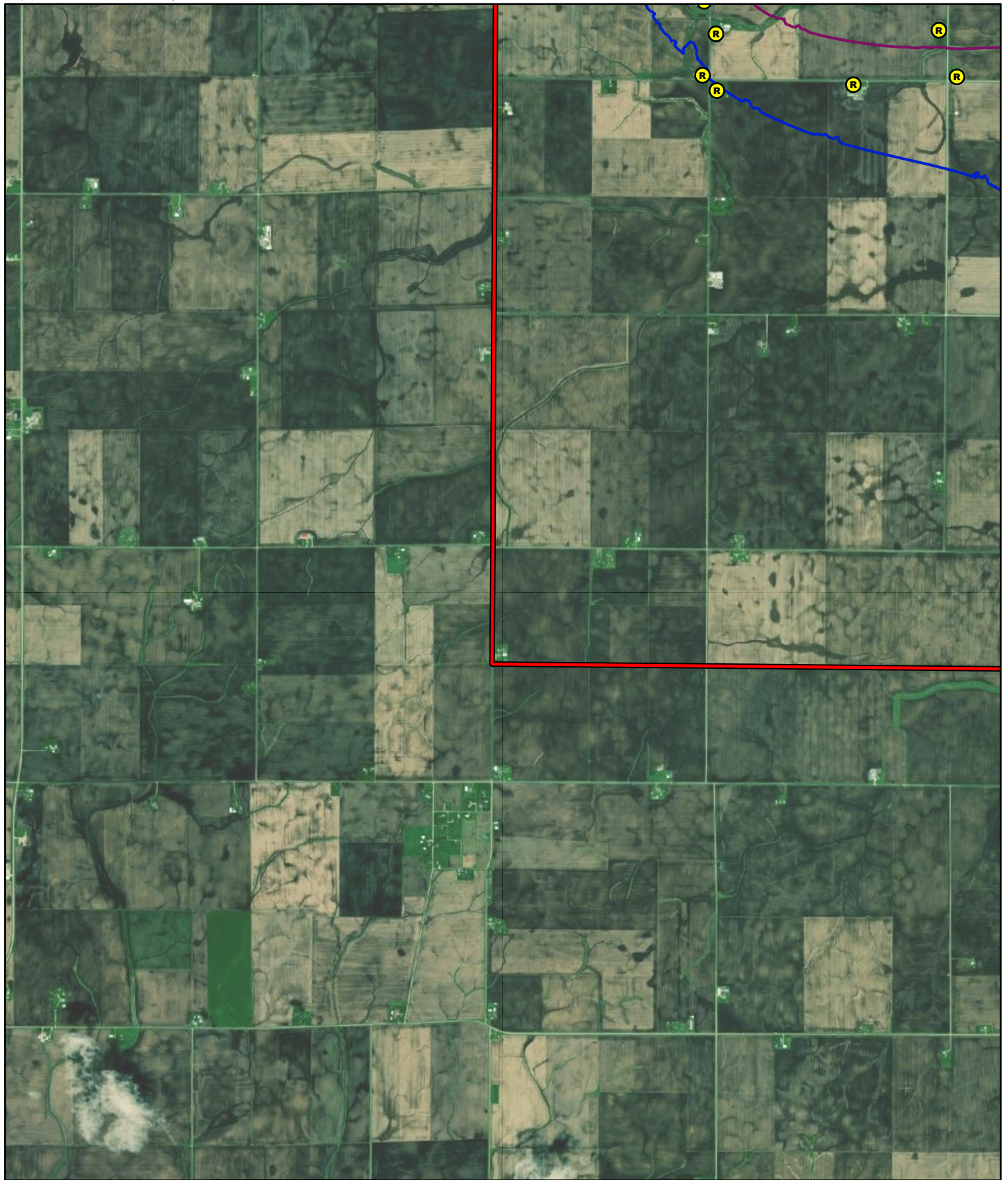


Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
SG6.6-170 115mHH



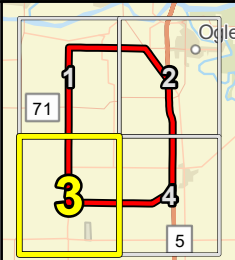


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).


0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
-  Turbine
- R Receptor

Noise (dB)

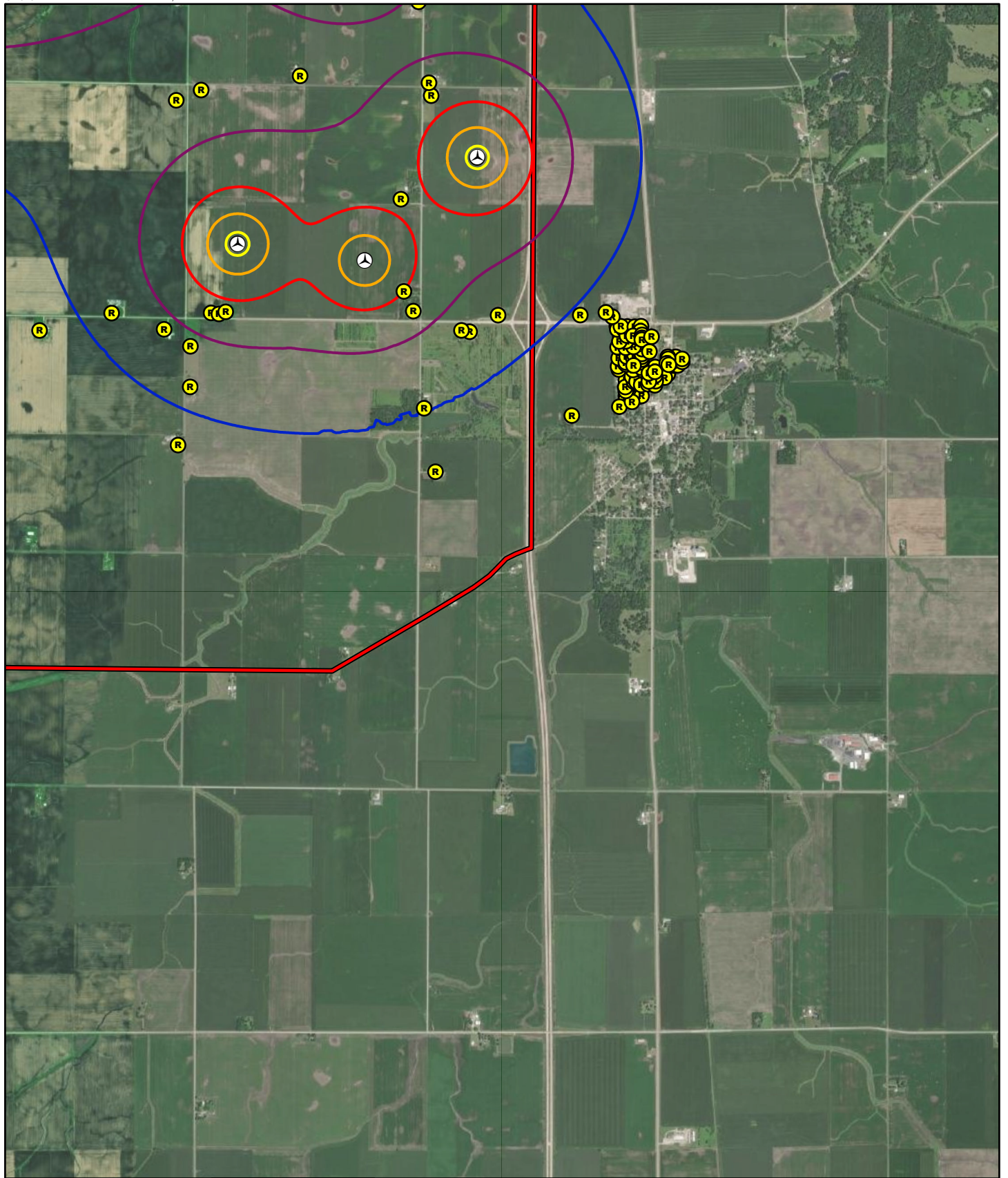
- 35
- 40
- 45
- 50
- 55

Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
SG6.6-170 115mHH

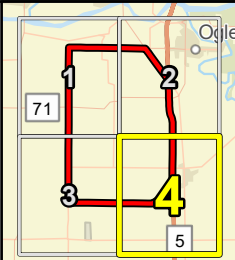




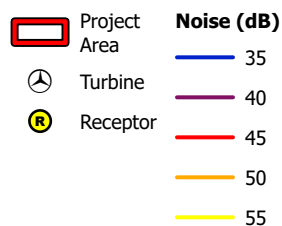
Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

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Legend



Hickory Wind Project

LaSalle County, Illinois

Nighttime Noise
Contour Overview
SG6.6-170 115mHH



Appendix J

Shadow Flicker Reports for Nordex N163 and the Siemens Gamesa SG170 Wind Turbines

Hickory Wind Project

LaSalle County, Illinois

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SHADOW FLICKER IMPACT ANALYSIS – NORDEX N163-6X TURBINE

Hickory Wind Project

LaSalle County, Illinois

FEBRUARY 2, 2023

PREPARED FOR:



PREPARED BY:

Westwood

Shadow Flicker Impact Analysis

Nordex N163-6X Turbine

Hickory Wind Project

LaSalle County, Illinois

Prepared For:

Denis Onwualu
UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996

Prepared By:

Westwood Professional Services, Inc.
12701 Whitewater Drive
Suite 300
Minnetonka, MN 55343

Project Number: 0032910.00

Date: February 2, 2023

Executive Summary

Westwood Professional Services, Inc. (Westwood) was contracted by UKA North America, LLC (Client) to complete a shadow flicker assessment for the Hickory Wind Project located in LaSalle County, Illinois. Westwood understand that the Project has 17 potential turbine locations.

A shadow flicker impact analysis of the Project was conducted by using windPRO modeling software. Based on the shadow flicker calculations, a site-wide realistic shadow flicker map was produced and an evaluation of the shadow flicker at area dwellings was performed. Dwellings were represented in the model by omni-directional shadow receptors that simulate a 1 m x 1 m window 1 m above ground level. Reductions based on turbine operational time, turbine operational direction, and sunshine probabilities were used to calculate a realistic number of hours of shadow flicker to be expected at each shadow receptor. No obstacles were used, so that shadow flicker reductions due to interference from trees and structures were not included, meaning that the “realistic” estimates are still conservative.

It should be noted that neither the State of Illinois nor LaSalle County requires limits on shadow flicker, however the IPCB states that any post-construction shadow flicker analysis should not exceed the shadow flicker modeling study results. The results from this study may be used for comparison with any future post-construction analysis to determine compliance. The generally accepted industry-standard limit is 30 cumulative hours per year per residence. The number of occupied residences registering more than 30 hours per year of shadow flicker from the Hickory Wind Project is 13, with a maximum exposure modeled at 68 hours and 37 minutes.

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Figure 1: Project Overview 1

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- Appendix A: Project Turbine Locations
- Appendix B: Shadow Flicker Results
- Appendix C: Shadow Flicker Maps

1.0 Introduction and Site Description

The proposed Project is located in LaSalle County, Illinois (**Figure 1**). The noise sensitive receptors in the Project vicinity include residences. The primary land uses in the Project Area are agricultural row crops and rural residential.

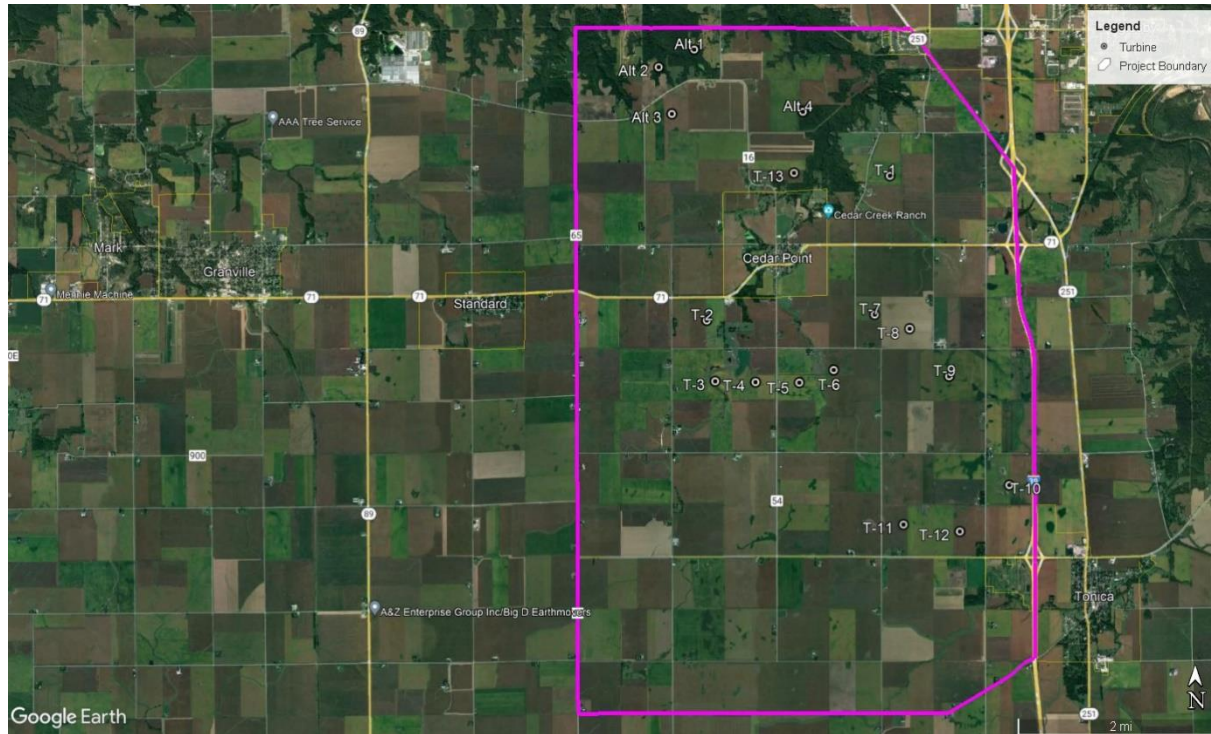


Figure 1: Project Overview

Details of the turbines used in the shadow flicker analysis are found below in **Table 1**.

Table 1: Turbine Specifications

| Manufacturer | Model | Hub Height (m) | Rotor Diameter | Cut-in-Wind Speed (m/s) | Cut-out Wind Speed (m/s) |
|--------------|----------|----------------|----------------|-------------------------|--------------------------|
| Nordex | N163-6.X | 118 | 163 | 3 | 26 |

2.0 Background

Shadow flicker from wind turbines occurs when rotating wind turbine blades move between the sun and the observer. Shadow flicker is generally experienced in areas near wind turbines where the distance between the observer and wind turbine blade is short enough that sunlight has not been significantly diffused by the atmosphere. When the blades rotate, this shadow creates a pulsating effect, known as shadow flicker. If the blade's shadow is passing over the window of a building, it will have the effect of increasing and decreasing the light intensity in the room at a low frequency in the range of 0.4 to 0.78 Hz, hence the term "flicker." This flickering effect can

also be experienced outdoors, but the effect is typically less intense, and becomes less intense when farther from the wind turbine causing the flicker. This flickering effect is most noticeable within approximately 1,000 meters of the turbine and becomes more and more diffused as the distance increases.

Beyond 1,700 meters, the shadow flicker effects are indistinguishable. There are no uniform standards defining what distance from the turbine is regarded as an acceptable limit beyond which the shadow flicker is considered to be insignificant. The same applies to the number of hours of flickering that is deemed to be acceptable. Shadow flicker is typically greatest in the winter months when the angle of the sun is lower and casts longer shadows. The effect is also more pronounced around sunrise and sunset when the sun is near the horizon and the shadows are longer. A number of factors influence the amount of shadow flicker on the shadow receptors.

One consideration is the environment around the shadow receptor. Obstacles such as terrain, trees or buildings between the wind turbine and the receptor can significantly reduce or eliminate shadow flicker effects. Deciduous trees may block the shadow flickering effect to some degree, depending on the tree density, species present and time of year. Deciduous trees can lead to a reduction of shadow flicker during the summer when the trees are bearing leaves. However, during the winter months, these trees are without their leaves and their impact on shadow flicker is not as significant. Coniferous trees tend to provide mitigation from shadow flicker year-round. For this study, no credit was taken for any potential shading effects from any type of trees or other obstacles that would reduce the number of shadow flickering hours at the structures which will make the shadow flicker prediction more conservative (higher than in reality).

Another consideration is the time of day when shadow flicker occurs. For example, it may be more acceptable for private homes to experience the shadow flickering during daytime hours when family members may be at work or school. Likewise, a commercial property would not be significantly affected if all the shadow flicker impact occurred before or after business hours. The climate also needs to be considered when assessing shadow flicker. In areas with a significant amount of overcast weather, there would be less shadow flicker, as there are no shadows if the sun is blocked by clouds. Also, if the wind is not blowing, the turbines would not be operational and therefore not creating shadow flickering.

Neither the State of Illinois nor LaSalle County have requirements regarding shadow flicker. The Illinois Pollution Control Board (IPCB) requires that any post-construction shadow flicker field analysis should not exceed the shadow flicker modeling study results. In the absence of local regulations, 30 hours/year of shadow flicker is a well-known and accepted standard for which impacts can be measured against.

3.0 Study Methodology

This shadow flicker analysis was performed utilizing windPRO, which has the ability to calculate detailed shadow flicker maps across an entire area of interest or at site-specific locations using shadow receptors.

Shadow maps which indicate where the shadows will be cast and for how long, are generated using windPRO, calculating the shadow flicker in varying user-defined resolutions. Fine resolution was used for this study and represents shadow flicker being calculated every two minutes of every 3rd day over the period of an entire year over a grid with a 10 m x 10 m resolution.

In addition to generating a shadow flicker map, the amount of shadow flicker that may occur at a specific point can be calculated more precisely by placing a shadow receptor at the location of interest and essentially “recording” the shadow flicker that occurs as the relative sunrise to sunset motion of the sun is simulated throughout an entire year.

The point-specific shadow flicker calculation is run at a higher resolution as compared to the shadow flicker map calculation to utilize the highest precision available within windPRO. Shadow flicker at each shadow receptor location is calculated every minute of every day for an entire year. Shadow receptors can be configured to represent an omni-directional window of a specific size at a specific point (greenhouse mode) or a window facing a single direction of a specific size at a specific point (single direction mode).

The shadow receptors used in this analysis were configured as greenhouse-mode receptors representing a 1 m x 1 m window located 1 m above ground level. This represents more of a “worst-case” scenario and thus will produce more conservative results since it assumes that all windows are always in direct line of sight with the turbines and the sun.

As a part of the calculation method, windPRO must determine whether a turbine will be visible at the receptor locations and not blocked by local topography or obstacles. It does this by performing a preliminary Zones of Visual Influence (ZVI) calculation, utilizing 10 m grid spacing. If a particular turbine is not visible within the 10 m x 10 m area that the shadow receptor is contained within, then that turbine is not included in the shadow flicker calculation for that receptor.

The inputs for the windPRO shadow flicker calculation include the following:

- Turbine Coordinates
- Turbine Specifications
- Shadow Receptor Coordinates
- Monthly Sunshine Probabilities
- Joint Wind Speed and Direction Frequency Distribution
- USGS Digital Elevation Model (DEM)

A description of each input variable and how they affect the shadow flicker calculation are included below.

Turbine Coordinates: The location of a wind turbine in relation to a shadow receptor is one of the most important factors in determining shadow flicker impacts. A line-of-sight is required for shadow flicker to occur. The intensity of the shadow flicker is dependent upon the distance from the wind turbine and weather conditions.

Turbine Specifications: A wind turbine's total height and rotor diameter will be included in the windPRO shadow flicker model. The taller the wind turbine, the more likely shadow flicker could have an impact on local shadow receptors as the ability to clear obstacles (such as hills or trees) is greater, although in this analysis, no credit is taken for any such blockage from trees. The larger the rotor diameter is, the wider the area where shadows will be cast. Also included with the turbine specifications are the cut-in and cut-out wind speeds within which the wind turbine is operational. If the wind speed is below the cut-in threshold or above the cut-out threshold, the turbine rotor will not be spinning and thus shadow flicker will not occur.

Shadow Receptor Coordinates: As with the wind turbine coordinates, the elevation, distance and orientation of a shadow receptor in relation to the wind turbines and the sun are the main factors in determining the impact of shadow flicker. Westwood analyzed shadow flicker at all receptors within 2 km of proposed project infrastructure; note that receptors have not been field verified and are based upon aerial imagery only.

Monthly Sunshine Probabilities: windPRO calculates sunrise and sunset times to determine the total annual hours of daylight for the modeled area. To further refine the shadow flicker calculations, the monthly probability of sunshine is included to account for cloud cover. The greater the probability of cloud cover, the less of an impact from shadow flicker. The monthly sunshine probabilities for many of the larger cities across the United States are available from the National Climatic Data Center (NCDC). For this study, monthly sunshine probability data was retrieved for Moline, IL, which was the closest, most representative station, to create the long-term representative monthly sunshine probabilities.

The long-term representative monthly average sunshine probabilities are presented in **Table 2** below.

Table 2: Moline, IL Monthly Sunshine Probabilities

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sunshine % | 0.48 | 0.53 | 0.49 | 0.51 | 0.54 | 0.62 | 0.65 | 0.63 | 0.60 | 0.56 | 0.40 | 0.38 |

Joint Wind Speed and Direction Frequency Distribution: Hub height wind data was used to represent the annual wind speed and direction distribution for the project site. This data was also used to estimate the probable number of operational hours for the wind turbines from each of the 36 wind direction sectors. During operation, the wind turbine rotors will always be assumed to face into the wind and automatically orient themselves as the wind direction changes. Shadow flicker can only occur when the blades are turning, and the wind turbine rotor is between the sun and the receptor. Shadow flicker is most significant when the rotor is facing the sun.

USGS Digital Elevation Model (DEM): For this study, 1/3 arc-second USGS National Elevation Database (NED) DEM's were used for the windPRO shadow flicker model. The DEM grid information is important to the shadow flicker calculation since it allows the model to place the wind turbines and the shadow receptors at the correct elevations. The elevation model also allows the model to include the topography of the site when calculating the zones of visual influence surrounding the wind turbine and shadow receptor locations.

Shadow Flicker Calculation: The actual calculation of potential shadow flicker at a given shadow receptor is carried out by simulating the environment near the wind turbines and the shadow receptors. The position of the sun relative to the turbine rotor disk and the resulting shadow is calculated in time steps of one minute throughout an entire year. If the shadow of the rotor disk (which in the calculation is assumed solid) at any time casts a shadow on a receptor window, then this step will be registered as one minute of shadow flicker. The calculation also requires that the sun must be at least 3.0° above the horizon in order to register shadow flicker. When the sun angle is less than 3.0° , the shadow quickly becomes too diffuse to be distinguishable since the amount of atmosphere that the light must pass through is 15 times greater than when the sun is directly overhead.

The sun's path with respect to each wind turbine location is calculated by the software to determine the paths of cast shadows for every minute of every day over a full year.

The turbine runtime and direction are calculated from the site's long-term wind speed and direction distribution. Finally, the effects of cloud cover are calculated using long-term reference data (monthly sunshine probability) to arrive at the projected annual flicker time at each receptor.

4.0 Results of Analysis

The term “realistic” as used in this report means that turbine operational hours and direction as well as local sunshine probabilities have been factored in, but no blocking or shading effects due to trees or structures have been accounted for. This means that the realistic estimates are still inherently conservative values. Also, the realistic shadow flicker hours predicted by windPRO assumes an availability factor of 100% which is very unlikely to be the case. Actual availability factors will likely be in the range of 95-98%, however, with a conservative approach to estimating shadow flicker totals, the realistic estimates are not discounted accordingly.

A total of 420 participating and non-participating residential dwellings within the project area vicinity were analyzed. Fine resolution shadow flicker maps were also generated for the turbine array. All 420 shadow receptors were modeled as greenhouse-mode receptors in the shadow flicker calculation. 407 receptors are expected to experience no more than 30 hours of shadow flicker per year, with 223 of those receptors modeled at zero (0) hours/year. The maximum expected impact is 68 hours and 37 minutes. Hickory will attempt to obtain agreements with the thirteen landowners who are projected to exceed the 30 hours/year of shadow flicker. If Hickory is not able to obtain agreements, then Hickory would implement a program to curtail shadow flicker on the turbines, so that no receptors exceed the 30 hours/year of shadow flicker.

Table 3 below depicts the distribution of shadow flicker hours modeled at the occupied structures. Please see **Appendix B** for the full shadow flicker analysis results.

Table 3: Distribution of Realistic Shadow Flicker Hours Modeled at Occupied Structures

| Realistic Shadow Flicker (hours/year) | # Receptors |
|---------------------------------------|-------------|
| 0 | 223 |
| 0 to 5 | 73 |
| 5 to 10 | 79 |
| 10 to 15 | 8 |
| 15 to 20 | 10 |
| 20 to 25 | 6 |
| 25 to 30 | 8 |
| 30+ | 13 |

5.0 Conclusions

The shadow flicker impact assessment for the identified receptors was calculated with reductions due to turbine operational direction and sunshine probabilities. Based on the provided turbine array, 407 of the shadow receptor locations modeled are expected to experience less than 30 hours/year of flickering. 13 receptors are expected to register above 30 hours/year with the maximum exposure modeled at 68 hours and 37 minutes.

Appendix A

Project Turbine Locations

| Turbine ID | Model | UTM NAD83 Zone 16 | | Base Elev. AMSL (m) | Hub Height (m) |
|------------|----------|-------------------|--------------|---------------------|----------------|
| | | Easting (m) | Northing (m) | | |
| T-1 | N163-6.X | 323733 | 4571392 | 314.94 | 118.0 |
| T-2 | N163-6.X | 320824 | 4569219 | 320.52 | 118.0 |
| T-3 | N163-6.X | 320932 | 4568274 | 320.6 | 118.0 |
| T-4 | N163-6.X | 321559 | 4568245 | 322 | 118.0 |
| T-5 | N163-6.X | 322242 | 4568221 | 321.03 | 118.0 |
| T-6 | N163-6.X | 322783 | 4568404 | 318.74 | 118.0 |
| T-7 | N163-6.X | 323443 | 4569248 | 320.38 | 118.0 |
| T-8 | N163-6.X | 323982 | 4569015 | 320 | 118.0 |
| T-9 | N163-6.X | 324578 | 4568262 | 322 | 118.0 |
| T-10 | N163-6.X | 325474 | 4566554 | 322.84 | 118.0 |
| T-11 | N163-6.X | 323811 | 4565983 | 324.37 | 118.0 |
| T-12 | N163-6.X | 324686 | 4565854 | 323 | 118.0 |
| T-13 | N163-6.X | 322240 | 4571474 | 315.66 | 118.0 |
| Alt 1 | N163-6.X | 320716 | 4573421 | 313.11 | 118.0 |
| Alt 2 | N163-6.X | 320172 | 4573166 | 309.18 | 118.0 |
| Alt 3 | N163-6.X | 320359 | 4572434 | 318.84 | 118.0 |
| Alt 4 | N163-6.X | 322400 | 4572415 | 311.72 | 118.0 |

Appendix B

Shadow Flicker Results

| Receptor # | UTM NAD83 Zone 16 | | Elevation AMSL (m) | Real Case Shadow (hrs/year) |
|------------|-------------------|-----------------|-----------------------|-----------------------------------|
| | Easting (m) | Northing (m) | | |
| SR-001 | 322041 | 4570286 | 200.2 | 04:17 |
| SR-002 | 321999 | 4570338 | 199.7 | 00:00 |
| SR-003 | 321968 | 4570321 | 199.8 | 00:00 |
| SR-004 | 321953 | 4570343 | 199.7 | 00:00 |
| SR-005 | 321945 | 4570298 | 200 | 00:00 |
| SR-006 | 321948 | 4570278 | 200.2 | 00:00 |
| SR-007 | 321845 | 4570339 | 199 | 00:00 |
| SR-008 | 321800 | 4570298 | 198.6 | 00:00 |
| SR-009 | 321786 | 4570334 | 198.5 | 00:00 |
| SR-010 | 321893 | 4570309 | 199.6 | 00:00 |
| SR-011 | 321975 | 4570389 | 199.7 | 00:00 |
| SR-012 | 322003 | 4570389 | 199.7 | 00:00 |
| SR-013 | 322063 | 4570388 | 199.7 | 00:00 |
| SR-014 | 322094 | 4570392 | 199.8 | 01:34 |
| SR-021 | 321797 | 4570319 | 198.6 | 00:00 |
| SR-073 | 325152 | 4564391 | 205.7 | 00:00 |
| SR-074 | 323379 | 4564602 | 207 | 00:00 |
| SR-084 | 325080 | 4564830 | 204.1 | 00:00 |
| SR-085 | 325402 | 4565353 | 205.4 | 03:26 |
| SR-086 | 325346 | 4565363 | 205.2 | 03:57 |
| SR-087 | 325600 | 4565464 | 205.4 | 20:00 |
| SR-088 | 323621 | 4565510 | 207.8 | 11:01 |
| SR-089 | 323675 | 4565502 | 207.7 | 16:17 |
| SR-090 | 323475 | 4565282 | 208.5 | 09:01 |
| SR-091 | 323469 | 4565002 | 208.5 | 00:00 |
| SR-092 | 323722 | 4565516 | 207.8 | 18:22 |
| SR-093 | 323295 | 4565402 | 208.5 | 05:00 |
| SR-094 | 322935 | 4565519 | 208.7 | 08:37 |
| SR-095 | 322436 | 4565407 | 208.6 | 09:35 |
| SR-106 | 324942 | 4566274 | 206.4 | 31:25 |
| SR-107 | 325016 | 4565501 | 204.6 | 08:19 |
| SR-108 | 324953 | 4565638 | 205.4 | 07:11 |
| SR-109 | 325162 | 4566985 | 205.4 | 22:48 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-110 | 325148 | 4567074 | 205.4 | 04:11 |
| SR-111 | 324260 | 4567135 | 207 | 04:10 |
| SR-112 | 323576 | 4567048 | 205.8 | 00:00 |
| SR-113 | 323403 | 4566980 | 205.7 | 00:39 |
| SR-114 | 321924 | 4567165 | 206.1 | 00:00 |
| SR-115 | 321210 | 4567122 | 207.2 | 00:00 |
| SR-116 | 321805 | 4567488 | 205.4 | 00:00 |
| SR-117 | 320269 | 4567096 | 208.6 | 00:00 |
| SR-118 | 320172 | 4567203 | 206.4 | 00:00 |
| SR-124 | 320191 | 4567712 | 205.8 | 07:24 |
| SR-125 | 320269 | 4567487 | 205.6 | 00:00 |
| SR-126 | 323467 | 4567715 | 205.4 | 16:16 |
| SR-127 | 325085 | 4567633 | 204.6 | 00:00 |
| SR-128 | 325653 | 4568575 | 205.8 | 07:54 |
| SR-129 | 326127 | 4568656 | 204.8 | 02:17 |
| SR-130 | 325120 | 4568822 | 204.2 | 15:15 |
| SR-131 | 324462 | 4568702 | 204.3 | 14:00 |
| SR-132 | 323319 | 4568792 | 203.6 | 67:10 |
| SR-133 | 322410 | 4568691 | 202.4 | 68:37 |
| SR-134 | 321927 | 4568972 | 204.2 | 29:19 |
| SR-135 | 321450 | 4568725 | 201.8 | 34:41 |
| SR-136 | 321115 | 4568790 | 201.8 | 16:20 |
| SR-137 | 320282 | 4568150 | 208.5 | 29:59 |
| SR-138 | 320214 | 4568560 | 207.7 | 16:39 |
| SR-143 | 318830 | 4569347 | 207.2 | 00:00 |
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| SR-145 | 322054 | 4569541 | 200 | 07:20 |
| SR-146 | 324313 | 4569366 | 201.7 | 41:52 |
| SR-147 | 324322 | 4569471 | 201.5 | 20:56 |
| SR-148 | 324406 | 4569843 | 199.2 | 09:35 |
| SR-149 | 325226 | 4570239 | 197.5 | 00:00 |
| SR-150 | 325254 | 4570472 | 195.3 | 01:39 |
| SR-151 | 324860 | 4570317 | 198.6 | 02:09 |
| SR-152 | 324795 | 4570213 | 199.4 | 04:11 |
| SR-153 | 324415 | 4570026 | 199.3 | 05:21 |
| SR-154 | 324539 | 4570326 | 197.7 | 00:00 |
| SR-155 | 324438 | 4570367 | 197 | 00:00 |
| SR-156 | 321874 | 4569587 | 197 | 08:42 |
| SR-157 | 321876 | 4569638 | 198.7 | 08:35 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-158 | 321876 | 4569690 | 201 | 08:22 |
| SR-159 | 321881 | 4569771 | 201.7 | 08:21 |
| SR-160 | 321881 | 4569825 | 201.4 | 08:54 |
| SR-161 | 321887 | 4569859 | 201.2 | 09:39 |
| SR-162 | 321884 | 4569905 | 201.6 | 10:26 |
| SR-163 | 322053 | 4569914 | 202 | 07:32 |
| SR-164 | 322090 | 4569914 | 202.5 | 07:13 |
| SR-165 | 322130 | 4569915 | 202.8 | 07:00 |
| SR-166 | 322142 | 4569954 | 202.4 | 07:10 |
| SR-167 | 322095 | 4569961 | 202.2 | 07:31 |
| SR-168 | 322034 | 4569968 | 201.6 | 08:40 |
| SR-169 | 321992 | 4569947 | 201.1 | 09:07 |
| SR-170 | 321692 | 4570070 | 201.4 | 00:00 |
| SR-171 | 321694 | 4569990 | 200.7 | 02:45 |
| SR-172 | 321647 | 4569946 | 195 | 04:42 |
| SR-173 | 321838 | 4569960 | 201.1 | 09:49 |
| SR-174 | 321729 | 4569992 | 201.4 | 03:42 |
| SR-175 | 322191 | 4570025 | 201.5 | 07:49 |
| SR-176 | 322195 | 4570106 | 201 | 09:59 |
| SR-177 | 321749 | 4570332 | 198.4 | 00:00 |
| SR-178 | 321408 | 4570299 | 199.4 | 00:00 |
| SR-179 | 320088 | 4570370 | 198.4 | 00:00 |
| SR-180 | 320026 | 4570371 | 198.2 | 00:00 |
| SR-181 | 319273 | 4570372 | 201.2 | 00:00 |
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| SR-185 | 321496 | 4571149 | 196.2 | 20:26 |
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| SR-187 | 322222 | 4570679 | 198.3 | 06:38 |
| SR-188 | 322583 | 4570850 | 195.3 | 09:52 |
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| SR-190 | 322811 | 4570885 | 196.2 | 03:57 |
| SR-191 | 322878 | 4570837 | 195.8 | 00:00 |
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| SR-194 | 323190 | 4570981 | 194.3 | 13:28 |
| SR-195 | 325186 | 4571206 | 195 | 03:13 |
| SR-196 | 325176 | 4571160 | 193.8 | 03:19 |
| SR-197 | 325185 | 4571457 | 195.8 | 02:57 |
| SR-198 | 323288 | 4571175 | 192.8 | 28:47 |

| | | | | |
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| SR-199 | 323349 | 4571123 | 194.8 | 08:03 |
| SR-200 | 321934 | 4571240 | 192.7 | 00:00 |
| SR-201 | 321725 | 4571249 | 195.8 | 27:28 |
| SR-202 | 321761 | 4571231 | 195.8 | 16:18 |
| SR-203 | 321657 | 4571327 | 196.2 | 41:40 |
| SR-204 | 321463 | 4571272 | 195.8 | 22:18 |
| SR-205 | 321494 | 4571351 | 196 | 18:33 |
| SR-206 | 321457 | 4571520 | 198.2 | 12:49 |
| SR-207 | 318871 | 4572240 | 202.7 | 03:09 |
| SR-208 | 319440 | 4572474 | 201.2 | 09:04 |
| SR-209 | 319739 | 4572340 | 198.2 | 28:36 |
| SR-210 | 322980 | 4571809 | 197.8 | 25:18 |
| SR-211 | 323429 | 4571786 | 198.9 | 34:18 |
| SR-212 | 323395 | 4571738 | 199.2 | 41:46 |
| SR-213 | 323168 | 4572168 | 195.9 | 31:37 |
| SR-214 | 323239 | 4572095 | 198.2 | 31:26 |
| SR-215 | 323326 | 4572113 | 197.1 | 19:25 |
| SR-216 | 323479 | 4572100 | 196.5 | 11:56 |
| SR-217 | 323556 | 4572080 | 196.9 | 09:57 |
| SR-218 | 323506 | 4571944 | 197.9 | 16:55 |
| SR-219 | 323673 | 4572156 | 195.7 | 07:23 |
| SR-220 | 324201 | 4572002 | 195.8 | 00:00 |
| SR-221 | 324604 | 4571981 | 195.8 | 11:45 |
| SR-222 | 325200 | 4571651 | 196.7 | 02:38 |
| SR-223 | 325475 | 4571949 | 198.1 | 00:00 |
| SR-224 | 325140 | 4572285 | 197.8 | 04:15 |
| SR-225 | 325256 | 4572541 | 196 | 00:00 |
| SR-226 | 324305 | 4572266 | 196.5 | 00:00 |
| SR-227 | 323118 | 4572089 | 196.7 | 38:22 |
| SR-228 | 321689 | 4572790 | 197.8 | 20:28 |
| SR-229 | 320966 | 4572992 | 195.4 | 28:57 |
| SR-230 | 319774 | 4572430 | 198.4 | 25:25 |
| SR-231 | 318917 | 4573064 | 198 | 07:24 |
| SR-232 | 318751 | 4573099 | 195.9 | 05:23 |
| SR-233 | 318491 | 4573224 | 192.7 | 01:56 |
| SR-234 | 321183 | 4573357 | 196 | 62:29 |
| SR-235 | 324442 | 4572846 | 194.9 | 00:00 |
| SR-236 | 318694 | 4574268 | 142.4 | 00:00 |
| SR-237 | 318657 | 4574271 | 142.4 | 00:00 |

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| SR-239 | 319391 | 4574198 | 152.7 | 04:05 |
| SR-241 | 318970 | 4573966 | 191.1 | 05:05 |
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| SR-243 | 321372 | 4574270 | 179.7 | 00:00 |
| SR-244 | 321220 | 4574425 | 172.9 | 00:00 |
| SR-245 | 321200 | 4574353 | 182.9 | 00:00 |
| SR-246 | 321333 | 4574567 | 161.4 | 00:00 |
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| SR-248 | 321117 | 4574609 | 144.8 | 00:00 |
| SR-249 | 321784 | 4574525 | 185 | 00:00 |
| SR-250 | 321993 | 4574371 | 148.6 | 05:33 |
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| SR-256 | 322036 | 4569994 | 201.6 | 08:54 |
| SR-257 | 322037 | 4570011 | 201.5 | 08:59 |
| SR-258 | 322046 | 4570029 | 201.3 | 08:57 |
| SR-259 | 322093 | 4570028 | 201.5 | 08:46 |
| SR-260 | 322090 | 4569990 | 201.9 | 08:09 |
| SR-261 | 322136 | 4570024 | 201.8 | 08:14 |
| SR-262 | 322136 | 4570007 | 201.9 | 07:51 |
| SR-263 | 322134 | 4569980 | 202.2 | 07:25 |
| SR-264 | 321993 | 4570026 | 201.2 | 09:01 |
| SR-265 | 321985 | 4570006 | 201.2 | 09:13 |
| SR-266 | 321986 | 4569976 | 201.1 | 09:24 |
| SR-267 | 321936 | 4570029 | 200.7 | 08:40 |
| SR-268 | 321933 | 4570010 | 200.7 | 09:07 |
| SR-269 | 321936 | 4569994 | 200.7 | 09:27 |
| SR-270 | 321935 | 4569968 | 200.9 | 09:48 |
| SR-271 | 321876 | 4569955 | 201.1 | 10:07 |
| SR-272 | 321886 | 4569976 | 200.8 | 09:41 |
| SR-273 | 321888 | 4569996 | 200.6 | 09:11 |
| SR-274 | 321887 | 4570016 | 200.4 | 08:26 |
| SR-275 | 321888 | 4570029 | 200.4 | 07:50 |
| SR-276 | 321844 | 4570019 | 200.2 | 07:19 |
| SR-277 | 321791 | 4570145 | 199 | 00:00 |
| SR-278 | 321788 | 4570117 | 198.6 | 00:00 |
| SR-279 | 321835 | 4570126 | 199.7 | 00:00 |
| SR-280 | 321832 | 4570098 | 199.5 | 00:52 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-281 | 321894 | 4570144 | 201 | 00:13 |
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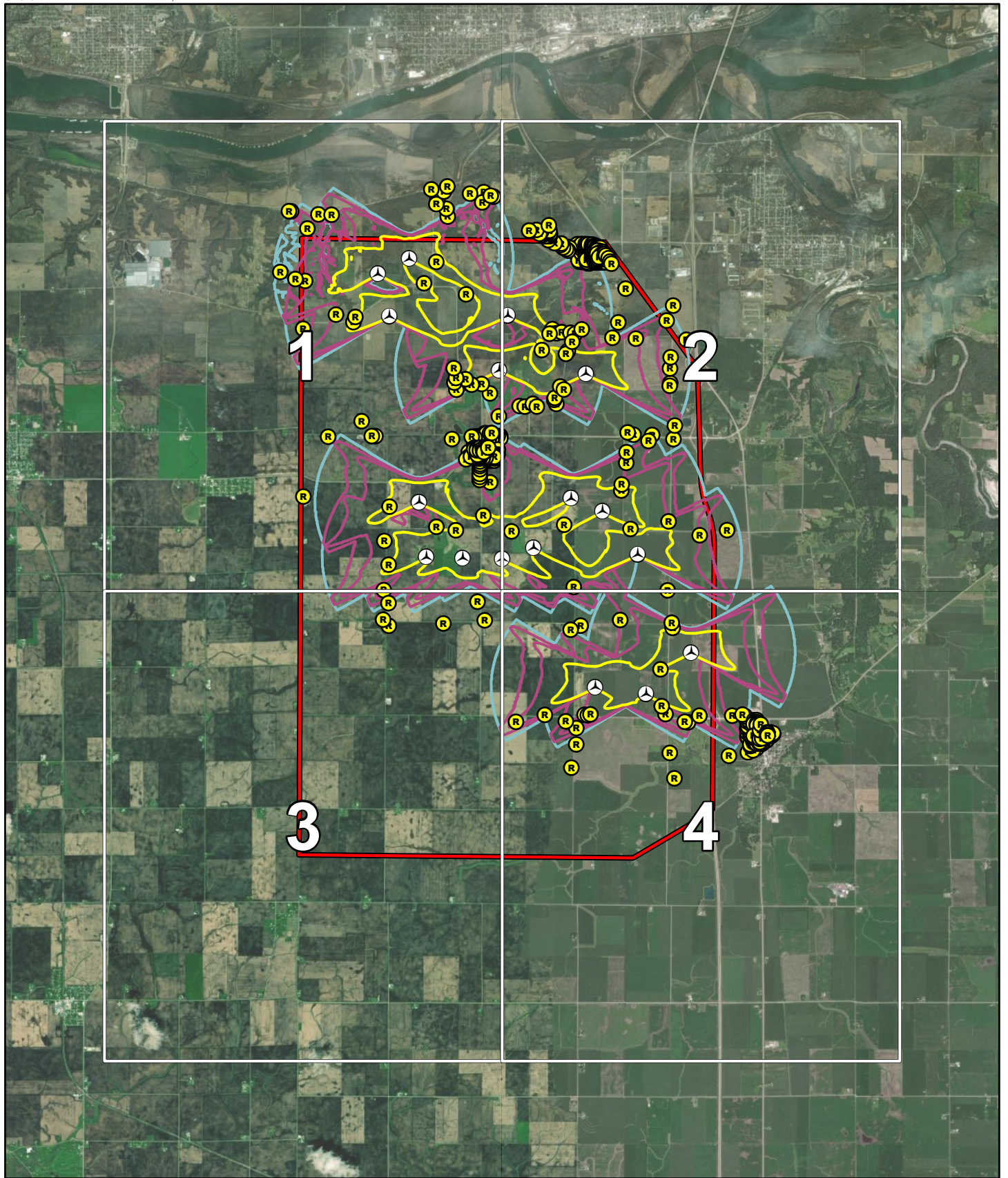
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Appendix C
Shadow Flicker Result Maps



Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

Legend

- Project Area
- Map Book Overview
-  Turbine
- R Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30

0  7,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



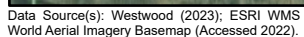
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Overview




N163-6X 118mHH

EXHIBIT 5



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Westwood Professional Services, Inc.



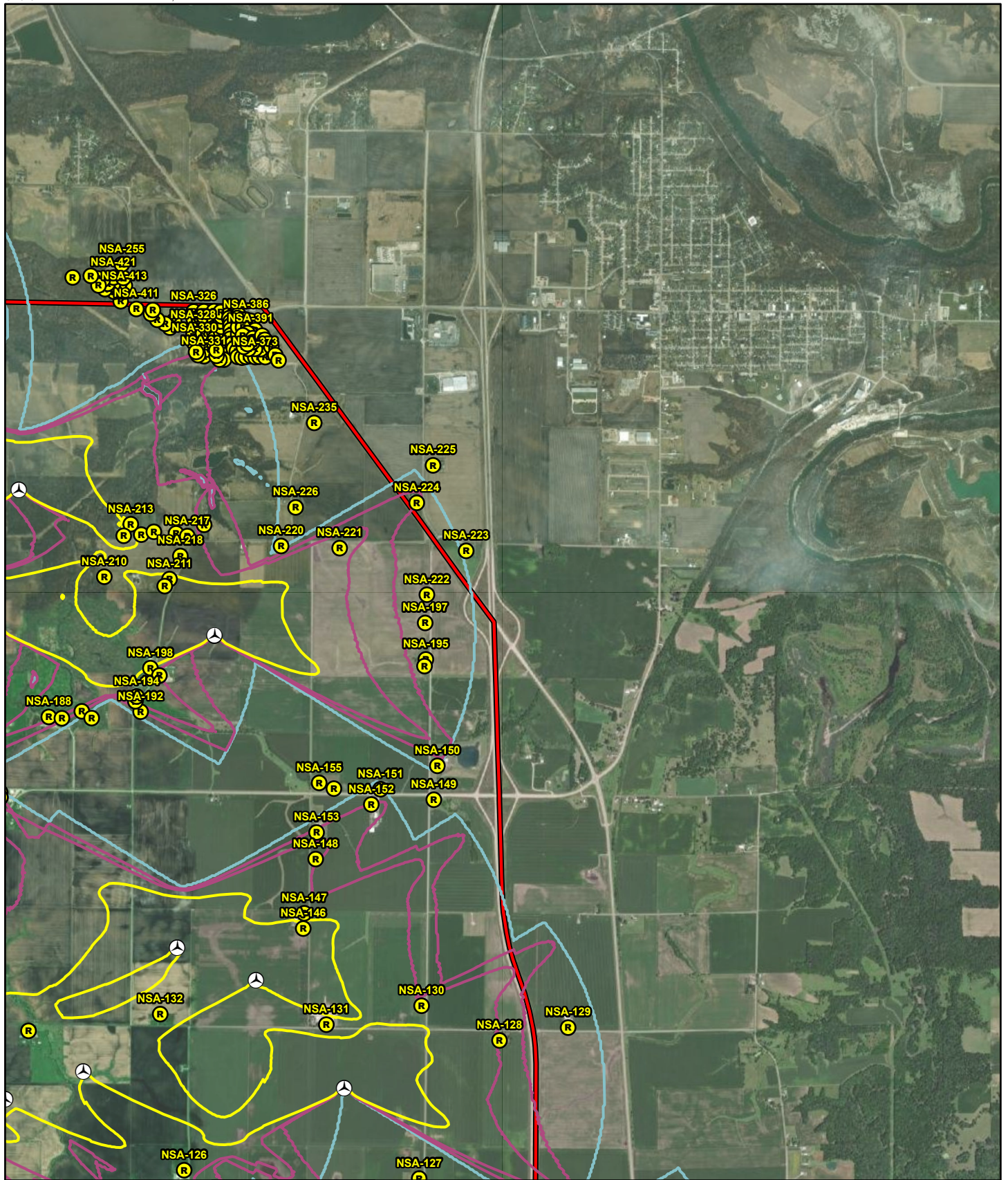
-  Project Area
-  Turbine
-  Receptor

Shadow Flicker
(hrs/yr)



LaSalle County, Illinois

N163-6X 118mHH

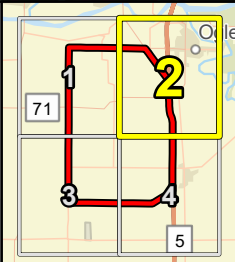


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- Turbine
- Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



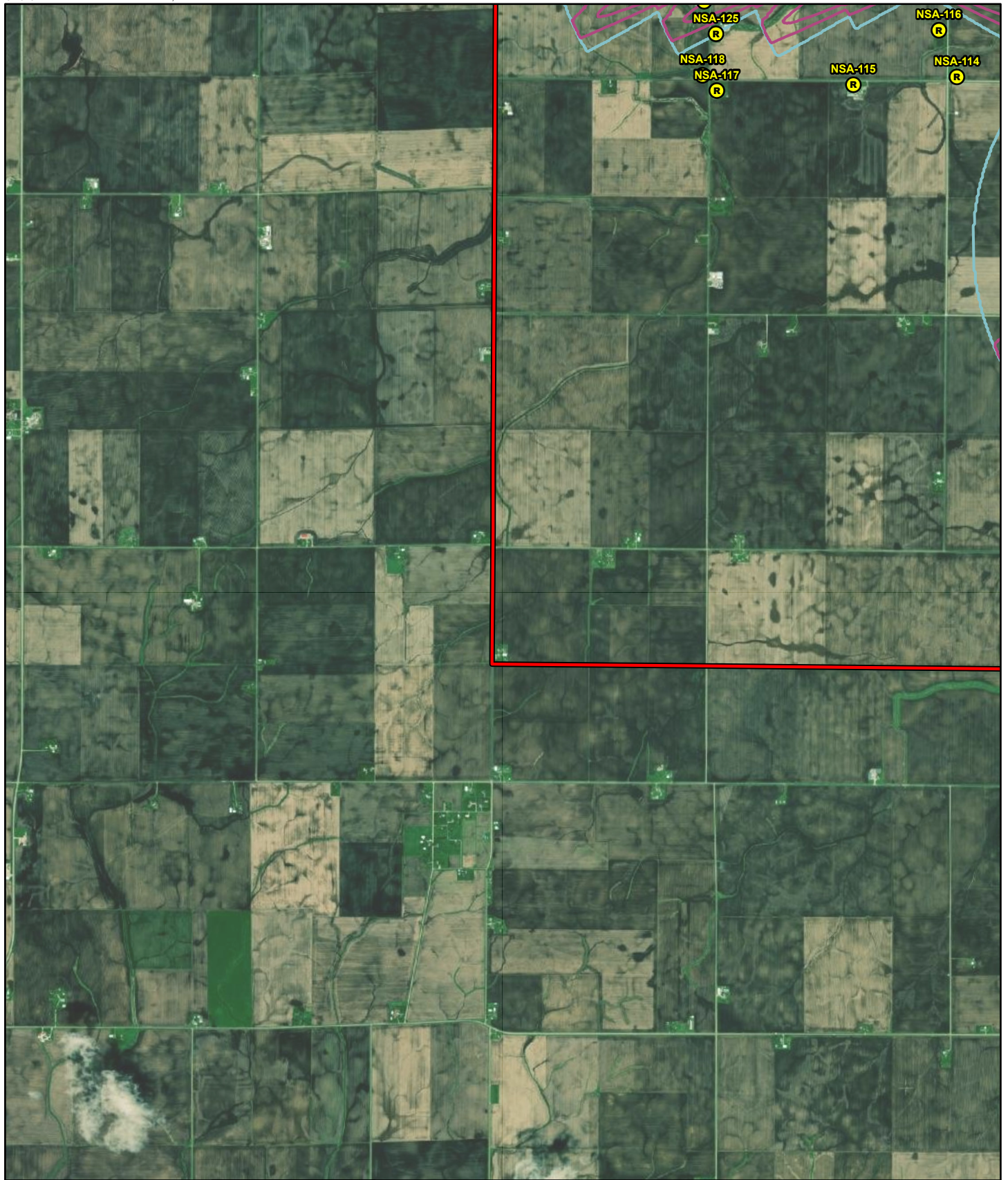
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

N163-6X 118mHH

EXHIBIT 5a: Page 2

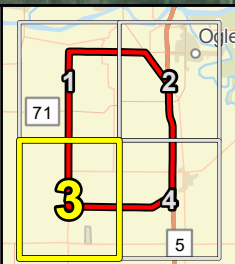


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
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Legend

- Project Area
- Turbine
- Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



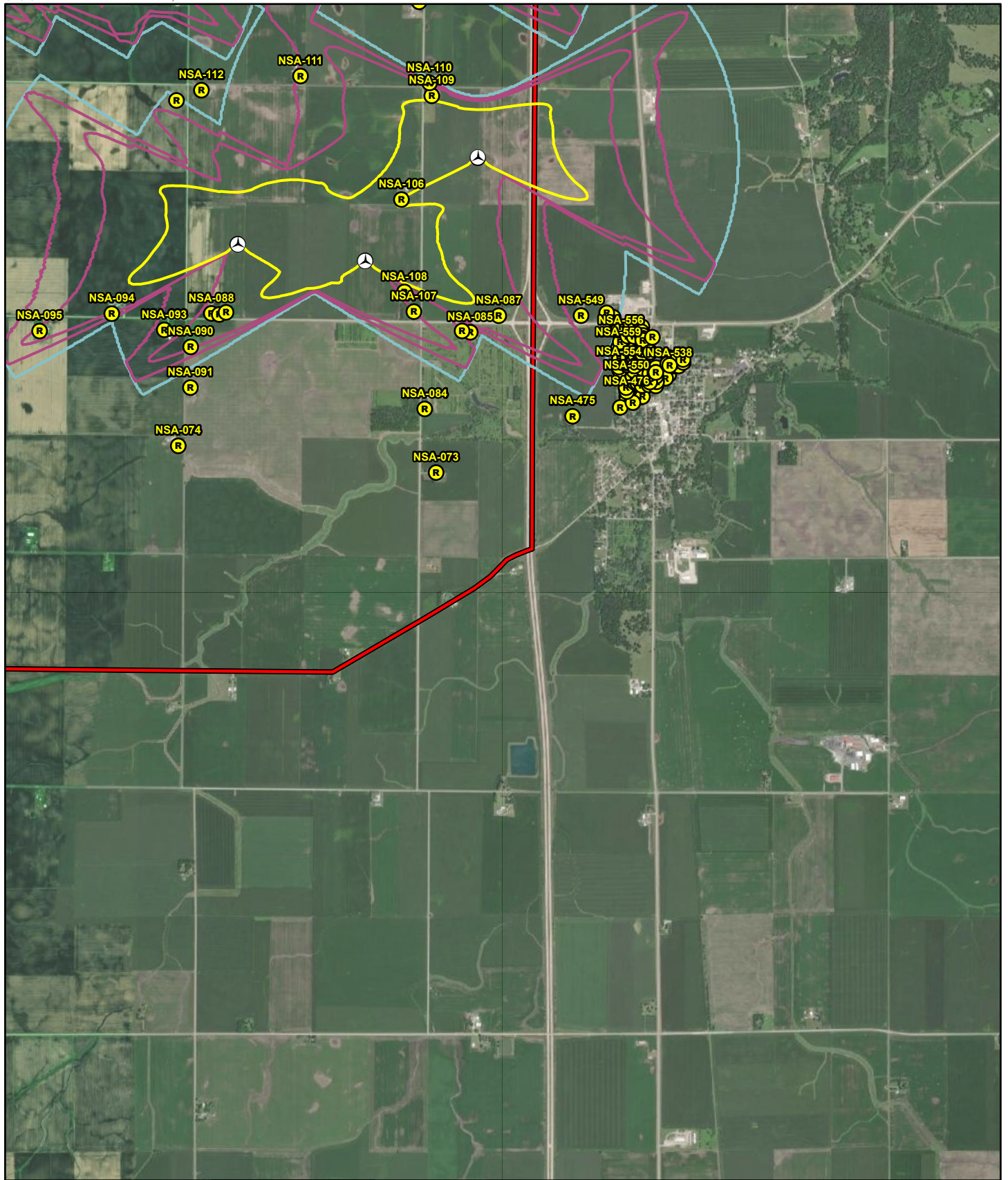
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

N163-6X 118mHH

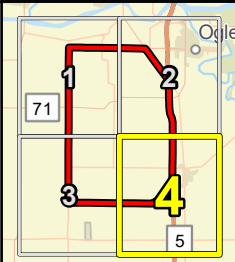
EXHIBIT 5a: Page 3



Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- Turbine
- Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

N163-6X 118mHH

EXHIBIT 5a: Page 4



**SHADOW FLICKER IMPACT ANALYSIS – SIEMENS GAMESA SG6.6-170
TURBINE**

Hickory Wind Project

LaSalle County, Illinois

FEBRUARY 2, 2023

PREPARED FOR:



North America

PREPARED BY:

Westwood

Shadow Flicker Impact Analysis

Siemens Gamesa SG6.6-170 Turbine

Hickory Wind Project

LaSalle County, Illinois

Prepared For:

Denis Onwualu
UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996

Prepared By:

Westwood Professional Services, Inc.
12701 Whitewater Drive
Suite 300
Minnetonka, MN 55343

Project Number: 0032910.00

Date: February 2, 2023

Executive Summary

Westwood Professional Services, Inc. (Westwood) was contracted by UKA North America, LLC (Client) to complete a shadow flicker assessment for the Hickory Wind Project located in LaSalle County, Illinois. Westwood understand that the Project has 17 potential turbine locations.

A shadow flicker impact analysis of the Project was conducted by using windPRO modeling software. Based on the shadow flicker calculations, a site-wide realistic shadow flicker map was produced and an evaluation of the shadow flicker at area dwellings was performed. Dwellings were represented in the model by omni-directional shadow receptors that simulate a 1 m x 1 m window 1 m above ground level. Reductions based on turbine operational time, turbine operational direction, and sunshine probabilities were used to calculate a realistic number of hours of shadow flicker to be expected at each shadow receptor. No obstacles were used, so that shadow flicker reductions due to interference from trees and structures were not included, meaning that the “realistic” estimates are still conservative.

It should be noted that neither the State of Illinois nor LaSalle County requires limits on shadow flicker, however the IPCB states that any post-construction shadow flicker analysis should not exceed the shadow flicker modeling study results. The results from this study may be used for comparison with any future post-construction analysis to determine compliance. The generally accepted industry-standard limit is 30 cumulative hours per year per residence. The number of occupied residences registering more than 30 hours per year of shadow flicker from the Hickory Wind Project is 19, with a maximum exposure modeled at 73 hours and 16 minutes.

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- Appendix A: Project Turbine Locations
- Appendix B: Shadow Flicker Results
- Appendix C: Shadow Flicker Maps

1.0 Introduction and Site Description

The proposed Project is located in LaSalle County, Illinois (**Figure 1**). The noise sensitive receptors in the Project vicinity include residences. The primary land uses in the Project Area are agricultural row crops and rural residential.

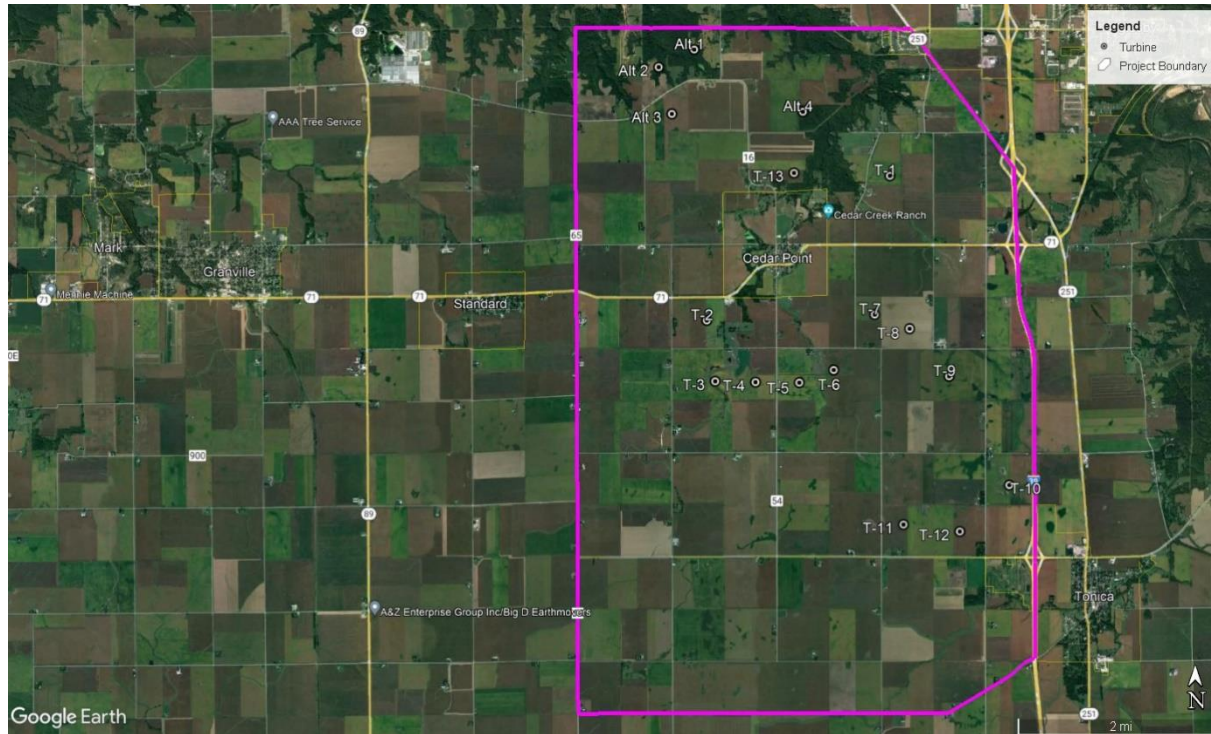


Figure 1: Project Overview

Details of the turbines used in the shadow flicker analysis are found below in **Table 1**.

Table 1: Turbine Specifications

| Manufacturer | Model | Hub Height (m) | Rotor Diameter | Cut-in-Wind Speed (m/s) | Cut-out Wind Speed (m/s) |
|----------------|-----------|----------------|----------------|-------------------------|--------------------------|
| Siemens Gamesa | SG6.6-170 | 115 | 170 | 3 | 23 |

2.0 Background

Shadow flicker from wind turbines occurs when rotating wind turbine blades move between the sun and the observer. Shadow flicker is generally experienced in areas near wind turbines where the distance between the observer and wind turbine blade is short enough that sunlight has not been significantly diffused by the atmosphere. When the blades rotate, this shadow creates a pulsating effect, known as shadow flicker. If the blade's shadow is passing over the window of a building, it will have the effect of increasing and decreasing the light intensity in the room at a low frequency in the range of 0.4 to 0.78 Hz, hence the term "flicker." This flickering effect can

also be experienced outdoors, but the effect is typically less intense, and becomes less intense when farther from the wind turbine causing the flicker. This flickering effect is most noticeable within approximately 1,000 meters of the turbine and becomes more and more diffused as the distance increases.

Beyond 1,700 meters, the shadow flicker effects are indistinguishable. There are no uniform standards defining what distance from the turbine is regarded as an acceptable limit beyond which the shadow flicker is considered to be insignificant. The same applies to the number of hours of flickering that is deemed to be acceptable. Shadow flicker is typically greatest in the winter months when the angle of the sun is lower and casts longer shadows. The effect is also more pronounced around sunrise and sunset when the sun is near the horizon and the shadows are longer. A number of factors influence the amount of shadow flicker on the shadow receptors.

One consideration is the environment around the shadow receptor. Obstacles such as terrain, trees or buildings between the wind turbine and the receptor can significantly reduce or eliminate shadow flicker effects. Deciduous trees may block the shadow flickering effect to some degree, depending on the tree density, species present and time of year. Deciduous trees can lead to a reduction of shadow flicker during the summer when the trees are bearing leaves. However, during the winter months, these trees are without their leaves and their impact on shadow flicker is not as significant. Coniferous trees tend to provide mitigation from shadow flicker year-round. For this study, no credit was taken for any potential shading effects from any type of trees or other obstacles that would reduce the number of shadow flickering hours at the structures which will make the shadow flicker prediction more conservative (higher than in reality).

Another consideration is the time of day when shadow flicker occurs. For example, it may be more acceptable for private homes to experience the shadow flickering during daytime hours when family members may be at work or school. Likewise, a commercial property would not be significantly affected if all the shadow flicker impact occurred before or after business hours. The climate also needs to be considered when assessing shadow flicker. In areas with a significant amount of overcast weather, there would be less shadow flicker, as there are no shadows if the sun is blocked by clouds. Also, if the wind is not blowing, the turbines would not be operational and therefore not creating shadow flickering.

Neither the State of Illinois nor LaSalle County have requirements regarding shadow flicker. The Illinois Pollution Control Board (IPCB) requires that any post-construction shadow flicker field analysis should not exceed the shadow flicker modeling study results. In the absence of local regulations, 30 hours/year of shadow flicker is a well-known and accepted standard for which impacts can be measured against.

3.0 Study Methodology

This shadow flicker analysis was performed utilizing windPRO, which has the ability to calculate detailed shadow flicker maps across an entire area of interest or at site-specific locations using shadow receptors.

Shadow maps which indicate where the shadows will be cast and for how long, are generated using windPRO, calculating the shadow flicker in varying user-defined resolutions. Fine resolution was used for this study and represents shadow flicker being calculated every two minutes of every 3rd day over the period of an entire year over a grid with a 10 m x 10 m resolution.

In addition to generating a shadow flicker map, the amount of shadow flicker that may occur at a specific point can be calculated more precisely by placing a shadow receptor at the location of interest and essentially “recording” the shadow flicker that occurs as the relative sunrise to sunset motion of the sun is simulated throughout an entire year.

The point-specific shadow flicker calculation is run at a higher resolution as compared to the shadow flicker map calculation to utilize the highest precision available within windPRO. Shadow flicker at each shadow receptor location is calculated every minute of every day for an entire year. Shadow receptors can be configured to represent an omni-directional window of a specific size at a specific point (greenhouse mode) or a window facing a single direction of a specific size at a specific point (single direction mode).

The shadow receptors used in this analysis were configured as greenhouse-mode receptors representing a 1 m x 1 m window located 1 m above ground level. This represents more of a “worst-case” scenario and thus will produce more conservative results since it assumes that all windows are always in direct line of sight with the turbines and the sun.

As a part of the calculation method, windPRO must determine whether a turbine will be visible at the receptor locations and not blocked by local topography or obstacles. It does this by performing a preliminary Zones of Visual Influence (ZVI) calculation, utilizing 10 m grid spacing. If a particular turbine is not visible within the 10 m x 10 m area that the shadow receptor is contained within, then that turbine is not included in the shadow flicker calculation for that receptor.

The inputs for the windPRO shadow flicker calculation include the following:

- Turbine Coordinates
- Turbine Specifications
- Shadow Receptor Coordinates
- Monthly Sunshine Probabilities
- Joint Wind Speed and Direction Frequency Distribution
- USGS Digital Elevation Model (DEM)

A description of each input variable and how they affect the shadow flicker calculation are included below.

Turbine Coordinates: The location of a wind turbine in relation to a shadow receptor is one of the most important factors in determining shadow flicker impacts. A line-of-sight is required for shadow flicker to occur. The intensity of the shadow flicker is dependent upon the distance from the wind turbine and weather conditions.

Turbine Specifications: A wind turbine’s total height and rotor diameter will be included in the windPRO shadow flicker model. The taller the wind turbine, the more likely shadow flicker could have an impact on local shadow receptors as the ability to clear obstacles (such as hills or trees) is greater, although in this analysis, no credit is taken for any such blockage from trees. The larger the rotor diameter is, the wider the area where shadows will be cast. Also included with the turbine specifications are the cut-in and cut-out wind speeds within which the wind turbine is operational. If the wind speed is below the cut-in threshold or above the cut-out threshold, the turbine rotor will not be spinning and thus shadow flicker will not occur.

Shadow Receptor Coordinates: As with the wind turbine coordinates, the elevation, distance and orientation of a shadow receptor in relation to the wind turbines and the sun are the main factors in determining the impact of shadow flicker. Westwood analyzed shadow flicker at all receptors within 2 km of proposed project infrastructure; note that receptors have not been field verified and are based upon aerial imagery only.

Monthly Sunshine Probabilities: windPRO calculates sunrise and sunset times to determine the total annual hours of daylight for the modeled area. To further refine the shadow flicker calculations, the monthly probability of sunshine is included to account for cloud cover. The greater the probability of cloud cover, the less of an impact from shadow flicker. The monthly sunshine probabilities for many of the larger cities across the United States are available from the National Climatic Data Center (NCDC). For this study, monthly sunshine probability data was retrieved for Moline, IL, which was the closest, most representative station, to create the long-term representative monthly sunshine probabilities.

The long-term representative monthly average sunshine probabilities are presented in **Table 2** below.

Table 2: Moline, IL Monthly Sunshine Probabilities

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sunshine % | 0.48 | 0.53 | 0.49 | 0.51 | 0.54 | 0.62 | 0.65 | 0.63 | 0.60 | 0.56 | 0.40 | 0.38 |

Joint Wind Speed and Direction Frequency Distribution: Hub height wind data was used to represent the annual wind speed and direction distribution for the project site. This data was also used to estimate the probable number of operational hours for the wind turbines from each of the 36 wind direction sectors. During operation, the wind turbine rotors will always be assumed to face into the wind and automatically orient themselves as the wind direction changes. Shadow flicker can only occur when the blades are turning, and the wind turbine rotor is between the sun and the receptor. Shadow flicker is most significant when the rotor is facing the sun.

USGS Digital Elevation Model (DEM): For this study, 1/3 arc-second USGS National Elevation Database (NED) DEM’s were used for the windPRO shadow flicker model. The DEM grid information is important to the shadow flicker calculation since it allows the model to place the wind turbines and the shadow receptors at the correct elevations. The elevation model also allows the model to include the topography of the site when calculating the zones of visual influence surrounding the wind turbine and shadow receptor locations.

Shadow Flicker Calculation: The actual calculation of potential shadow flicker at a given shadow receptor is carried out by simulating the environment near the wind turbines and the shadow receptors. The position of the sun relative to the turbine rotor disk and the resulting shadow is calculated in time steps of one minute throughout an entire year. If the shadow of the rotor disk (which in the calculation is assumed solid) at any time casts a shadow on a receptor window, then this step will be registered as one minute of shadow flicker. The calculation also requires that the sun must be at least 3.0° above the horizon in order to register shadow flicker. When the sun angle is less than 3.0° , the shadow quickly becomes too diffuse to be distinguishable since the amount of atmosphere that the light must pass through is 15 times greater than when the sun is directly overhead.

The sun's path with respect to each wind turbine location is calculated by the software to determine the paths of cast shadows for every minute of every day over a full year.

The turbine runtime and direction are calculated from the site's long-term wind speed and direction distribution. Finally, the effects of cloud cover are calculated using long-term reference data (monthly sunshine probability) to arrive at the projected annual flicker time at each receptor.

4.0 Results of Analysis

The term “realistic” as used in this report means that turbine operational hours and direction as well as local sunshine probabilities have been factored in, but no blocking or shading effects due to trees or structures have been accounted for. This means that the realistic estimates are still inherently conservative values. Also, the realistic shadow flicker hours predicted by windPRO assumes an availability factor of 100% which is very unlikely to be the case. Actual availability factors will likely be in the range of 95-98%, however, with a conservative approach to estimating shadow flicker totals, the realistic estimates are not discounted accordingly.

A total of 420 participating and non-participating residential dwellings within the project area vicinity were analyzed. Fine resolution shadow flicker maps were also generated for the turbine array. All 420 shadow receptors were modeled as greenhouse-mode receptors in the shadow flicker calculation. 401 receptors are expected to experience no more than 30 hours of shadow flicker per year, with 103 of those receptors modeled at zero (0) hours/year. The maximum expected impact is 73 hours and 16 minutes. Hickory will attempt to obtain agreements with the nineteen (19) landowners who are projected to exceed the 30 hours/year of shadow flicker. If Hickory is not able to obtain agreements, then Hickory would implement a program to curtail shadow flicker on the turbines, so that no receptors exceed the 30 hours/year of shadow flicker.

Table 3 below depicts the distribution of shadow flicker hours modeled at the occupied structures. Please see **Appendix B** for the full shadow flicker analysis results.

Table 3: Distribution of Realistic Shadow Flicker Hours Modeled at Occupied Structures

| Realistic Shadow Flicker (hours/year) | # Receptors |
|---------------------------------------|-------------|
| 0 | 103 |
| 0 to 5 | 186 |
| 5 to 10 | 79 |
| 10 to 15 | 15 |
| 15 to 20 | 8 |
| 20 to 25 | 7 |
| 25 to 30 | 3 |
| 30+ | 19 |

5.0 Conclusions

The shadow flicker impact assessment for the identified receptors was calculated with reductions due to turbine operational direction and sunshine probabilities. Based on the provided turbine array, 401 of the shadow receptor locations modeled are expected to experience less than 30 hours/year of flickering. 19 receptors are expected to register above 30 hours/year with the maximum exposure modeled at 73 hours and 16 minutes.

Appendix A

Project Turbine Locations

| Turbine ID | Model | UTM NAD83 Zone 16 | | Base Elev. AMSL (m) | Hub Height (m) |
|------------|-----------|-------------------|--------------|---------------------|----------------|
| | | Easting (m) | Northing (m) | | |
| T-1 | SG6.6-170 | 323733 | 4571392 | 314.94 | 115.0 |
| T-2 | SG6.6-170 | 320824 | 4569219 | 320.52 | 115.0 |
| T-3 | SG6.6-170 | 320932 | 4568274 | 320.6 | 115.0 |
| T-4 | SG6.6-170 | 321559 | 4568245 | 322 | 115.0 |
| T-5 | SG6.6-170 | 322242 | 4568221 | 321.03 | 115.0 |
| T-6 | SG6.6-170 | 322783 | 4568404 | 318.74 | 115.0 |
| T-7 | SG6.6-170 | 323443 | 4569248 | 320.38 | 115.0 |
| T-8 | SG6.6-170 | 323982 | 4569015 | 320 | 115.0 |
| T-9 | SG6.6-170 | 324578 | 4568262 | 322 | 115.0 |
| T-10 | SG6.6-170 | 325474 | 4566554 | 322.84 | 115.0 |
| T-11 | SG6.6-170 | 323811 | 4565983 | 324.37 | 115.0 |
| T-12 | SG6.6-170 | 324686 | 4565854 | 323 | 115.0 |
| T-13 | SG6.6-170 | 322240 | 4571474 | 315.66 | 115.0 |
| Alt 1 | SG6.6-170 | 320716 | 4573421 | 313.11 | 115.0 |
| Alt 2 | SG6.6-170 | 320172 | 4573166 | 309.18 | 115.0 |
| Alt 3 | SG6.6-170 | 320359 | 4572434 | 318.84 | 115.0 |
| Alt 4 | SG6.6-170 | 322400 | 4572415 | 311.72 | 115.0 |

Appendix B

Shadow Flicker Results

| Receptor # | UTM NAD83 Zone 16 | | Elevation AMSL (m) | Real Case Shadow (hrs/year) |
|------------|-------------------|-----------------|-----------------------|-----------------------------------|
| | Easting (m) | Northing (m) | | |
| SR-001 | 322041 | 4570286 | 200.2 | 04:22 |
| SR-002 | 321999 | 4570338 | 199.7 | 03:55 |
| SR-003 | 321968 | 4570321 | 199.8 | 03:55 |
| SR-004 | 321953 | 4570343 | 199.7 | 03:46 |
| SR-005 | 321945 | 4570298 | 200 | 03:41 |
| SR-006 | 321948 | 4570278 | 200.2 | 03:34 |
| SR-007 | 321845 | 4570339 | 199 | 02:52 |
| SR-008 | 321800 | 4570298 | 198.6 | 02:11 |
| SR-009 | 321786 | 4570334 | 198.5 | 02:13 |
| SR-010 | 321893 | 4570309 | 199.6 | 03:09 |
| SR-011 | 321975 | 4570389 | 199.7 | 03:31 |
| SR-012 | 322003 | 4570389 | 199.7 | 03:13 |
| SR-013 | 322063 | 4570388 | 199.7 | 02:27 |
| SR-014 | 322094 | 4570392 | 199.8 | 01:40 |
| SR-021 | 321797 | 4570319 | 198.6 | 02:14 |
| SR-073 | 325152 | 4564391 | 205.7 | 00:00 |
| SR-074 | 323379 | 4564602 | 207 | 00:00 |
| SR-084 | 325080 | 4564830 | 204.1 | 00:00 |
| SR-085 | 325402 | 4565353 | 205.4 | 03:35 |
| SR-086 | 325346 | 4565363 | 205.2 | 04:05 |
| SR-087 | 325600 | 4565464 | 205.4 | 22:49 |
| SR-088 | 323621 | 4565510 | 207.8 | 11:35 |
| SR-089 | 323675 | 4565502 | 207.7 | 17:02 |
| SR-090 | 323475 | 4565282 | 208.5 | 09:11 |
| SR-091 | 323469 | 4565002 | 208.5 | 00:00 |
| SR-092 | 323722 | 4565516 | 207.8 | 19:09 |
| SR-093 | 323295 | 4565402 | 208.5 | 05:14 |
| SR-094 | 322935 | 4565519 | 208.7 | 09:14 |
| SR-095 | 322436 | 4565407 | 208.6 | 09:56 |
| SR-106 | 324942 | 4566274 | 206.4 | 34:45 |
| SR-107 | 325016 | 4565501 | 204.6 | 08:44 |
| SR-108 | 324953 | 4565638 | 205.4 | 07:30 |
| SR-109 | 325162 | 4566985 | 205.4 | 23:48 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-110 | 325148 | 4567074 | 205.4 | 04:35 |
| SR-111 | 324260 | 4567135 | 207 | 04:23 |
| SR-112 | 323576 | 4567048 | 205.8 | 01:16 |
| SR-113 | 323403 | 4566980 | 205.7 | 00:46 |
| SR-114 | 321924 | 4567165 | 206.1 | 00:00 |
| SR-115 | 321210 | 4567122 | 207.2 | 00:00 |
| SR-116 | 321805 | 4567488 | 205.4 | 00:00 |
| SR-117 | 320269 | 4567096 | 208.6 | 00:00 |
| SR-118 | 320172 | 4567203 | 206.4 | 00:00 |
| SR-124 | 320191 | 4567712 | 205.8 | 07:45 |
| SR-125 | 320269 | 4567487 | 205.6 | 00:02 |
| SR-126 | 323467 | 4567715 | 205.4 | 18:26 |
| SR-127 | 325085 | 4567633 | 204.6 | 00:00 |
| SR-128 | 325653 | 4568575 | 205.8 | 08:16 |
| SR-129 | 326127 | 4568656 | 204.8 | 02:22 |
| SR-130 | 325120 | 4568822 | 204.2 | 15:53 |
| SR-131 | 324462 | 4568702 | 204.3 | 14:54 |
| SR-132 | 323319 | 4568792 | 203.6 | 71:41 |
| SR-133 | 322410 | 4568691 | 202.4 | 73:16 |
| SR-134 | 321927 | 4568972 | 204.2 | 30:39 |
| SR-135 | 321450 | 4568725 | 201.8 | 36:30 |
| SR-136 | 321115 | 4568790 | 201.8 | 17:08 |
| SR-137 | 320282 | 4568150 | 208.5 | 31:41 |
| SR-138 | 320214 | 4568560 | 207.7 | 17:23 |
| SR-143 | 318830 | 4569347 | 207.2 | 01:08 |
| SR-144 | 320312 | 4569150 | 204.2 | 57:46 |
| SR-145 | 322054 | 4569541 | 200 | 08:18 |
| SR-146 | 324313 | 4569366 | 201.7 | 47:24 |
| SR-147 | 324322 | 4569471 | 201.5 | 25:18 |
| SR-148 | 324406 | 4569843 | 199.2 | 10:03 |
| SR-149 | 325226 | 4570239 | 197.5 | 01:39 |
| SR-150 | 325254 | 4570472 | 195.3 | 01:48 |
| SR-151 | 324860 | 4570317 | 198.6 | 02:15 |
| SR-152 | 324795 | 4570213 | 199.4 | 04:19 |
| SR-153 | 324415 | 4570026 | 199.3 | 05:34 |
| SR-154 | 324539 | 4570326 | 197.7 | 00:00 |
| SR-155 | 324438 | 4570367 | 197 | 00:00 |
| SR-156 | 321874 | 4569587 | 197 | 09:06 |
| SR-157 | 321876 | 4569638 | 198.7 | 08:56 |

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|--------|--------|---------|-------|-------|
| SR-158 | 321876 | 4569690 | 201 | 08:45 |
| SR-159 | 321881 | 4569771 | 201.7 | 08:45 |
| SR-160 | 321881 | 4569825 | 201.4 | 09:20 |
| SR-161 | 321887 | 4569859 | 201.2 | 10:10 |
| SR-162 | 321884 | 4569905 | 201.6 | 10:46 |
| SR-163 | 322053 | 4569914 | 202 | 07:52 |
| SR-164 | 322090 | 4569914 | 202.5 | 07:33 |
| SR-165 | 322130 | 4569915 | 202.8 | 07:22 |
| SR-166 | 322142 | 4569954 | 202.4 | 07:28 |
| SR-167 | 322095 | 4569961 | 202.2 | 07:52 |
| SR-168 | 322034 | 4569968 | 201.6 | 08:59 |
| SR-169 | 321992 | 4569947 | 201.1 | 09:29 |
| SR-170 | 321692 | 4570070 | 201.4 | 01:36 |
| SR-171 | 321694 | 4569990 | 200.7 | 04:40 |
| SR-172 | 321647 | 4569946 | 195 | 06:40 |
| SR-173 | 321838 | 4569960 | 201.1 | 10:07 |
| SR-174 | 321729 | 4569992 | 201.4 | 05:43 |
| SR-175 | 322191 | 4570025 | 201.5 | 08:13 |
| SR-176 | 322195 | 4570106 | 201 | 10:23 |
| SR-177 | 321749 | 4570332 | 198.4 | 01:58 |
| SR-178 | 321408 | 4570299 | 199.4 | 00:00 |
| SR-179 | 320088 | 4570370 | 198.4 | 00:00 |
| SR-180 | 320026 | 4570371 | 198.2 | 00:00 |
| SR-181 | 319273 | 4570372 | 201.2 | 03:21 |
| SR-184 | 319855 | 4570631 | 198.1 | 00:00 |
| SR-185 | 321496 | 4571149 | 196.2 | 21:33 |
| SR-186 | 322074 | 4571076 | 192.3 | 02:37 |
| SR-187 | 322222 | 4570679 | 198.3 | 06:45 |
| SR-188 | 322583 | 4570850 | 195.3 | 10:05 |
| SR-189 | 322673 | 4570839 | 195.2 | 06:07 |
| SR-190 | 322811 | 4570885 | 196.2 | 04:32 |
| SR-191 | 322878 | 4570837 | 195.8 | 00:00 |
| SR-192 | 323216 | 4570876 | 195.3 | 03:57 |
| SR-193 | 323181 | 4570948 | 195.1 | 09:39 |
| SR-194 | 323190 | 4570981 | 194.3 | 13:49 |
| SR-195 | 325186 | 4571206 | 195 | 03:19 |
| SR-196 | 325176 | 4571160 | 193.8 | 03:30 |
| SR-197 | 325185 | 4571457 | 195.8 | 03:04 |
| SR-198 | 323288 | 4571175 | 192.8 | 33:13 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-199 | 323349 | 4571123 | 194.8 | 08:26 |
| SR-200 | 321934 | 4571240 | 192.7 | 01:55 |
| SR-201 | 321725 | 4571249 | 195.8 | 32:00 |
| SR-202 | 321761 | 4571231 | 195.8 | 21:17 |
| SR-203 | 321657 | 4571327 | 196.2 | 44:18 |
| SR-204 | 321463 | 4571272 | 195.8 | 23:56 |
| SR-205 | 321494 | 4571351 | 196 | 19:43 |
| SR-206 | 321457 | 4571520 | 198.2 | 13:33 |
| SR-207 | 318871 | 4572240 | 202.7 | 03:15 |
| SR-208 | 319440 | 4572474 | 201.2 | 09:36 |
| SR-209 | 319739 | 4572340 | 198.2 | 30:55 |
| SR-210 | 322980 | 4571809 | 197.8 | 26:51 |
| SR-211 | 323429 | 4571786 | 198.9 | 35:56 |
| SR-212 | 323395 | 4571738 | 199.2 | 43:40 |
| SR-213 | 323168 | 4572168 | 195.9 | 33:53 |
| SR-214 | 323239 | 4572095 | 198.2 | 32:58 |
| SR-215 | 323326 | 4572113 | 197.1 | 20:26 |
| SR-216 | 323479 | 4572100 | 196.5 | 12:30 |
| SR-217 | 323556 | 4572080 | 196.9 | 10:24 |
| SR-218 | 323506 | 4571944 | 197.9 | 17:40 |
| SR-219 | 323673 | 4572156 | 195.7 | 07:40 |
| SR-220 | 324201 | 4572002 | 195.8 | 02:56 |
| SR-221 | 324604 | 4571981 | 195.8 | 12:07 |
| SR-222 | 325200 | 4571651 | 196.7 | 02:46 |
| SR-223 | 325475 | 4571949 | 198.1 | 01:42 |
| SR-224 | 325140 | 4572285 | 197.8 | 04:23 |
| SR-225 | 325256 | 4572541 | 196 | 01:25 |
| SR-226 | 324305 | 4572266 | 196.5 | 01:21 |
| SR-227 | 323118 | 4572089 | 196.7 | 40:01 |
| SR-228 | 321689 | 4572790 | 197.8 | 22:05 |
| SR-229 | 320966 | 4572992 | 195.4 | 30:21 |
| SR-230 | 319774 | 4572430 | 198.4 | 27:35 |
| SR-231 | 318917 | 4573064 | 198 | 09:38 |
| SR-232 | 318751 | 4573099 | 195.9 | 07:05 |
| SR-233 | 318491 | 4573224 | 192.7 | 03:33 |
| SR-234 | 321183 | 4573357 | 196 | 68:16 |
| SR-235 | 324442 | 4572846 | 194.9 | 00:00 |
| SR-236 | 318694 | 4574268 | 142.4 | 05:22 |
| SR-237 | 318657 | 4574271 | 142.4 | 05:06 |

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|--------|--------|---------|-------|-------|
| SR-238 | 319164 | 4574207 | 152.4 | 03:05 |
| SR-239 | 319391 | 4574198 | 152.7 | 04:23 |
| SR-241 | 318970 | 4573966 | 191.1 | 07:11 |
| SR-242 | 321393 | 4574135 | 182.2 | 03:28 |
| SR-243 | 321372 | 4574270 | 179.7 | 00:00 |
| SR-244 | 321220 | 4574425 | 172.9 | 00:00 |
| SR-245 | 321200 | 4574353 | 182.9 | 00:00 |
| SR-246 | 321333 | 4574567 | 161.4 | 00:00 |
| SR-247 | 321394 | 4574655 | 141.7 | 00:00 |
| SR-248 | 321117 | 4574609 | 144.8 | 00:00 |
| SR-249 | 321784 | 4574525 | 185 | 00:00 |
| SR-250 | 321993 | 4574371 | 148.6 | 05:48 |
| SR-251 | 322140 | 4574484 | 191.3 | 02:39 |
| SR-255 | 323134 | 4573958 | 193.9 | 00:00 |
| SR-256 | 322036 | 4569994 | 201.6 | 09:16 |
| SR-257 | 322037 | 4570011 | 201.5 | 09:16 |
| SR-258 | 322046 | 4570029 | 201.3 | 09:15 |
| SR-259 | 322093 | 4570028 | 201.5 | 09:04 |
| SR-260 | 322090 | 4569990 | 201.9 | 08:32 |
| SR-261 | 322136 | 4570024 | 201.8 | 08:36 |
| SR-262 | 322136 | 4570007 | 201.9 | 08:14 |
| SR-263 | 322134 | 4569980 | 202.2 | 07:48 |
| SR-264 | 321993 | 4570026 | 201.2 | 09:16 |
| SR-265 | 321985 | 4570006 | 201.2 | 09:31 |
| SR-266 | 321986 | 4569976 | 201.1 | 09:41 |
| SR-267 | 321936 | 4570029 | 200.7 | 08:56 |
| SR-268 | 321933 | 4570010 | 200.7 | 09:27 |
| SR-269 | 321936 | 4569994 | 200.7 | 09:46 |
| SR-270 | 321935 | 4569968 | 200.9 | 10:04 |
| SR-271 | 321876 | 4569955 | 201.1 | 10:25 |
| SR-272 | 321886 | 4569976 | 200.8 | 09:59 |
| SR-273 | 321888 | 4569996 | 200.6 | 09:30 |
| SR-274 | 321887 | 4570016 | 200.4 | 08:47 |
| SR-275 | 321888 | 4570029 | 200.4 | 08:12 |
| SR-276 | 321844 | 4570019 | 200.2 | 07:37 |
| SR-277 | 321791 | 4570145 | 199 | 01:52 |
| SR-278 | 321788 | 4570117 | 198.6 | 01:53 |
| SR-279 | 321835 | 4570126 | 199.7 | 02:01 |
| SR-280 | 321832 | 4570098 | 199.5 | 02:59 |

| | | | | |
|--------|--------|---------|-------|-------|
| SR-281 | 321894 | 4570144 | 201 | 02:38 |
| SR-282 | 321886 | 4570092 | 200.5 | 05:00 |
| SR-283 | 321937 | 4570127 | 201.1 | 04:46 |
| SR-284 | 321942 | 4570082 | 201.1 | 06:59 |
| SR-285 | 321999 | 4570084 | 201.1 | 08:11 |
| SR-286 | 321991 | 4570102 | 201.1 | 07:23 |
| SR-287 | 321988 | 4570141 | 201.1 | 05:41 |
| SR-288 | 321990 | 4570122 | 201.1 | 06:35 |
| SR-289 | 321954 | 4570065 | 201.1 | 08:00 |
| SR-290 | 322030 | 4570142 | 201.1 | 06:57 |
| SR-291 | 322036 | 4570119 | 201.1 | 07:53 |
| SR-292 | 322041 | 4570083 | 201 | 08:44 |
| SR-293 | 322036 | 4570069 | 201.1 | 08:57 |
| SR-294 | 322087 | 4570062 | 201.1 | 09:12 |
| SR-295 | 322089 | 4570115 | 200.9 | 08:52 |
| SR-296 | 322142 | 4570080 | 201.3 | 09:21 |
| SR-297 | 322145 | 4570137 | 200.9 | 09:54 |
| SR-298 | 321797 | 4570204 | 198.9 | 01:57 |
| SR-299 | 321783 | 4570174 | 198.9 | 01:51 |
| SR-300 | 321892 | 4570174 | 201 | 02:20 |
| SR-301 | 321883 | 4570233 | 200.2 | 02:27 |
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| SR-303 | 321955 | 4570200 | 200.9 | 02:50 |
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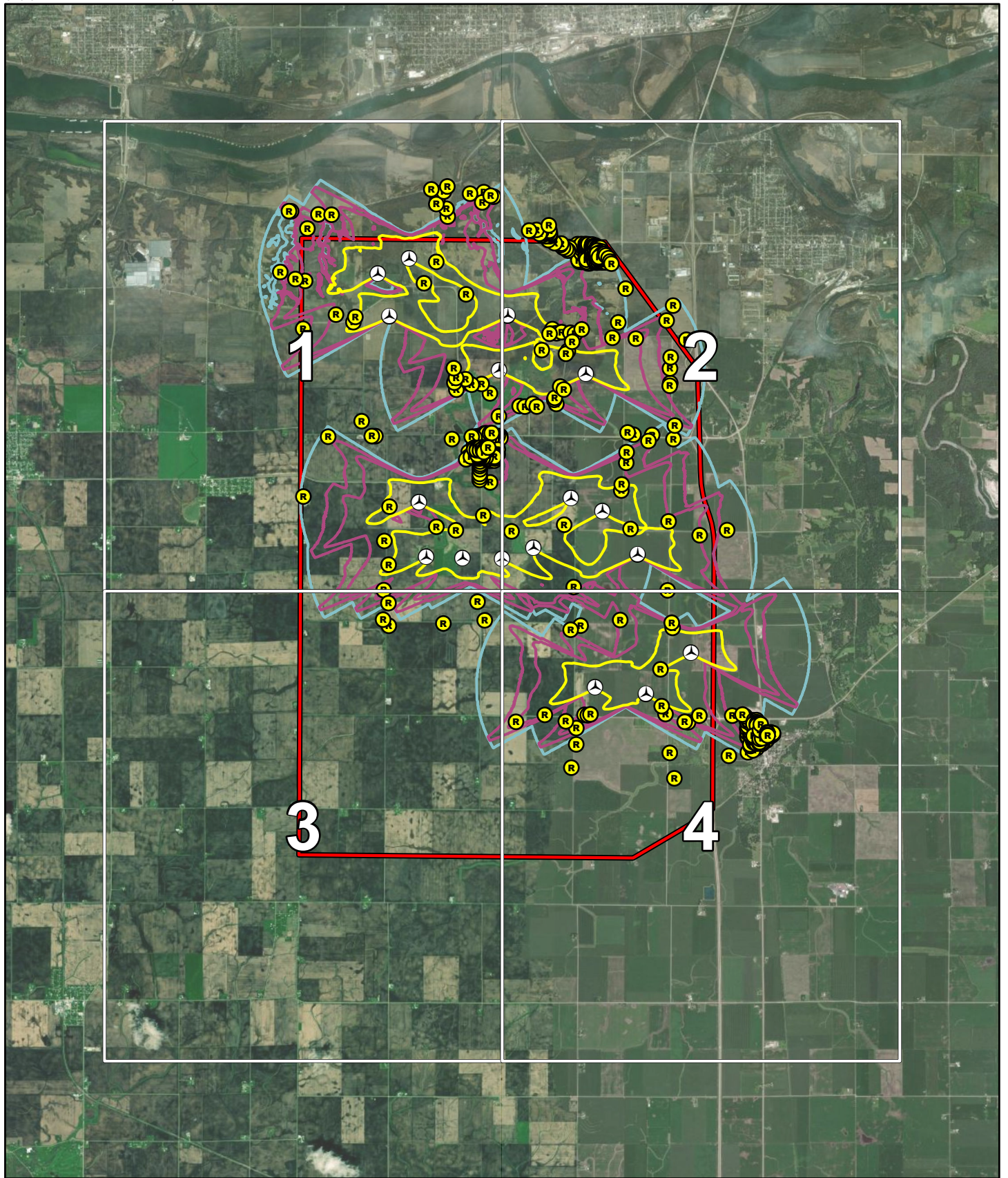
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Appendix C
Shadow Flicker Result Maps



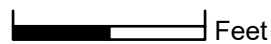
Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

Legend

- Project Area
- Map Book Overview
-  Turbine
- R Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30

0  7,500 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



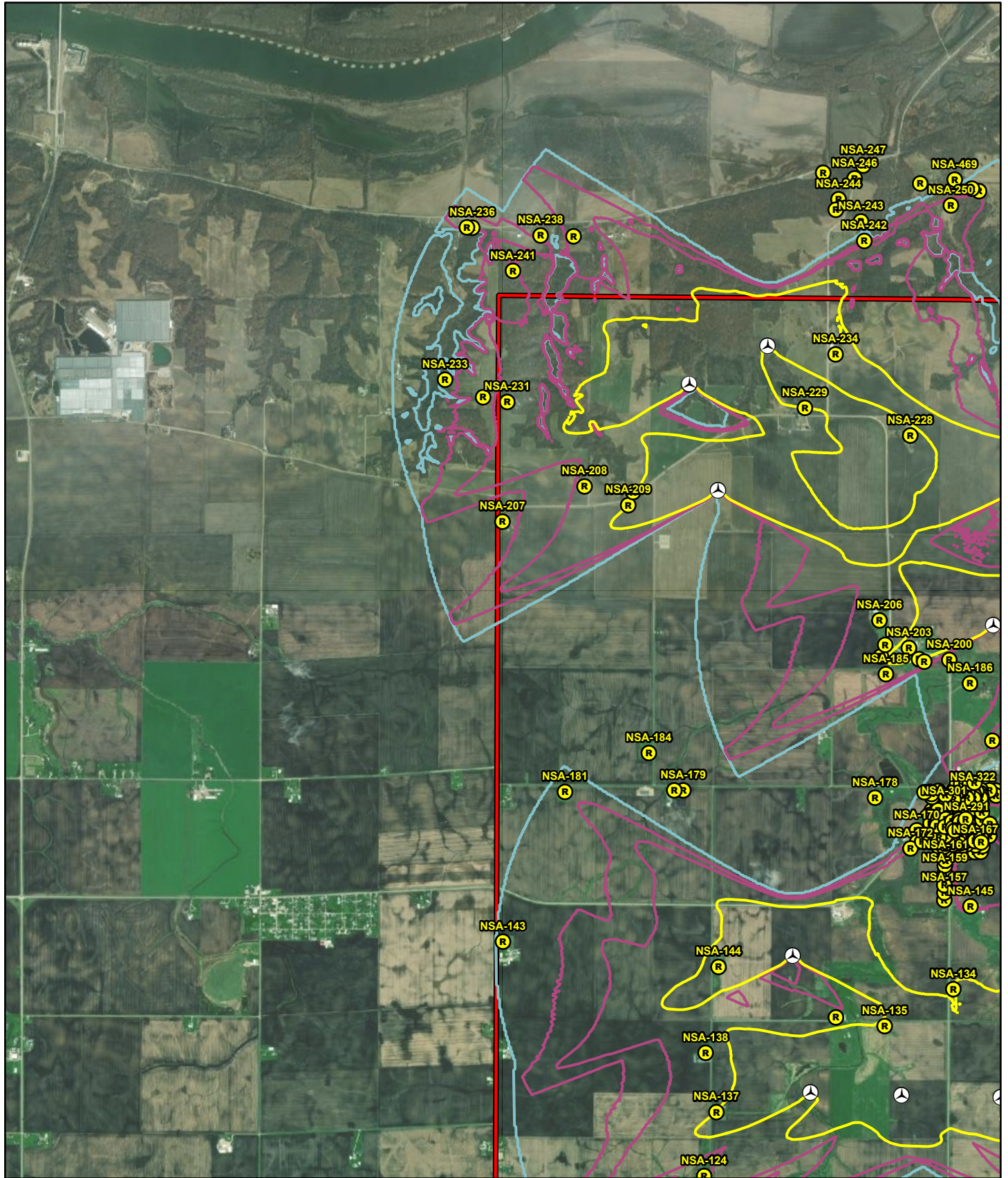
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Overview

SG6.6-170 115mHH

EXHIBIT 6

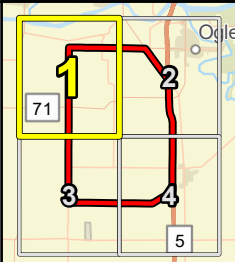


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- Turbine
- Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



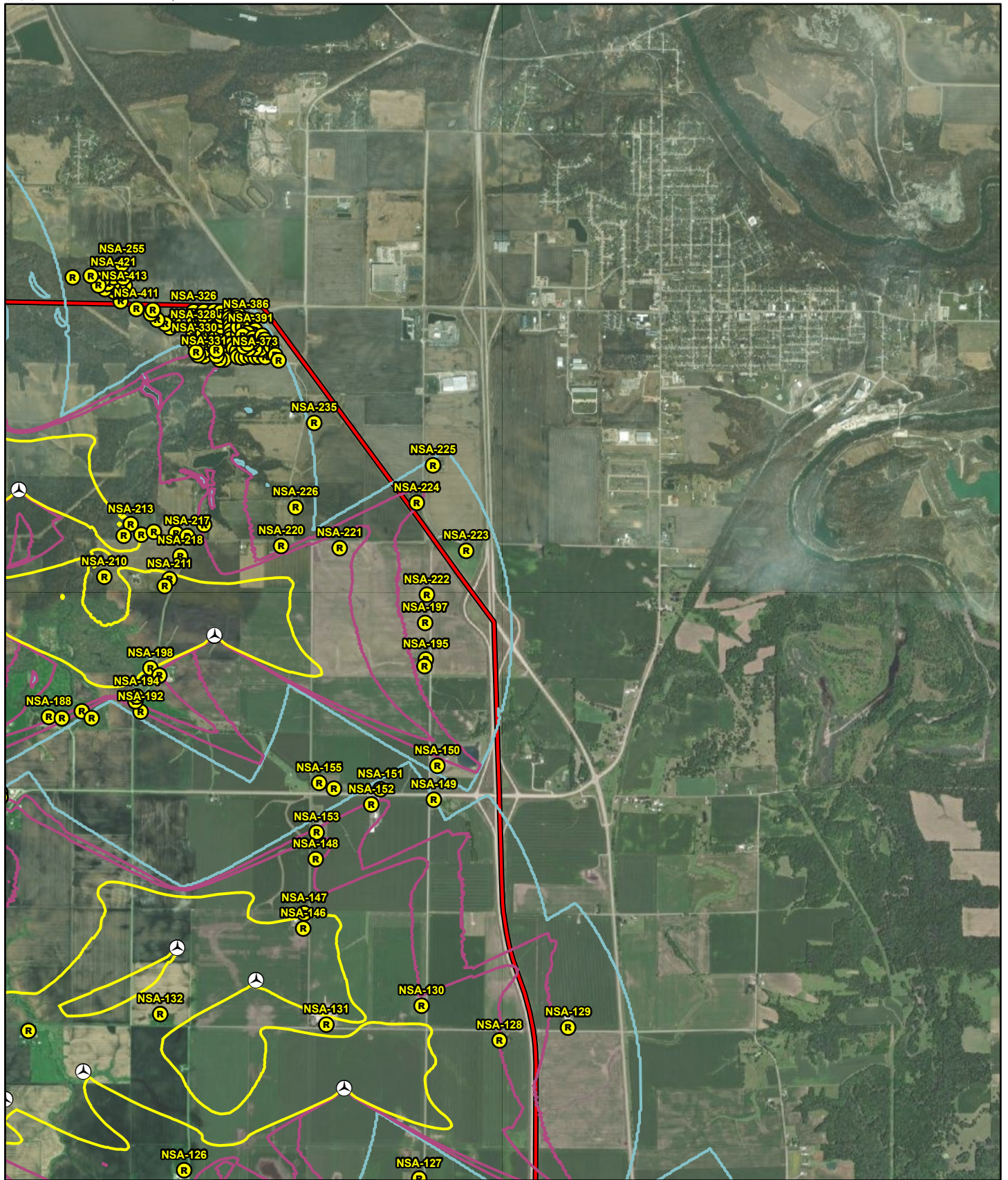
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

SG6.6-170 115mHH

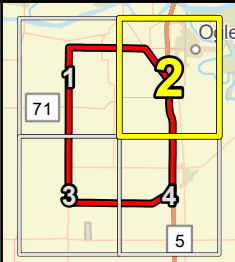
EXHIBIT 6a: Page 1



Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- T Turbine
- R Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



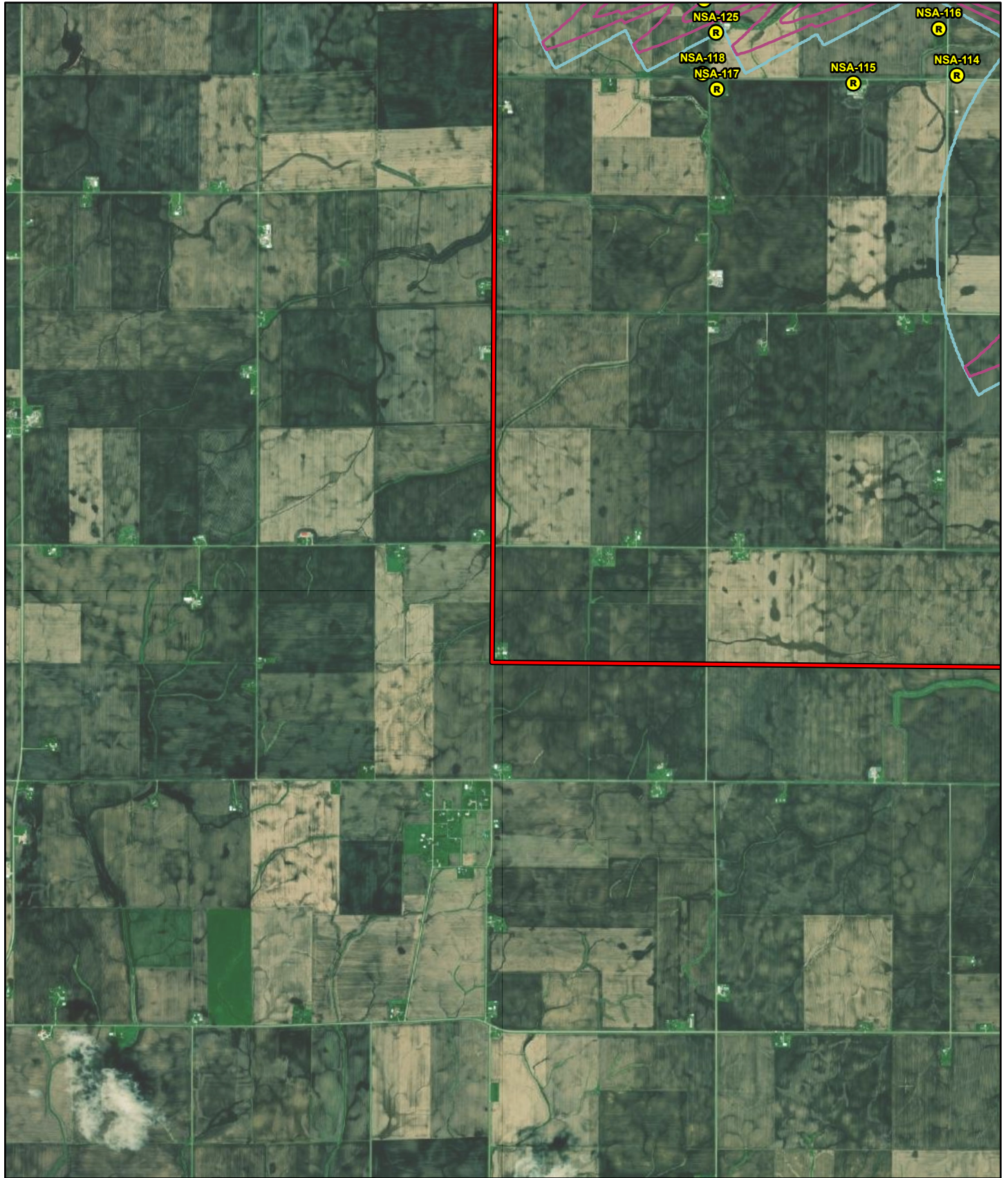
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

SG6.6-170 115mHH

EXHIBIT 6a: Page 2

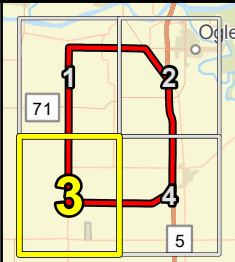


Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).



0 3,000 Feet

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
-  Turbine
-  Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



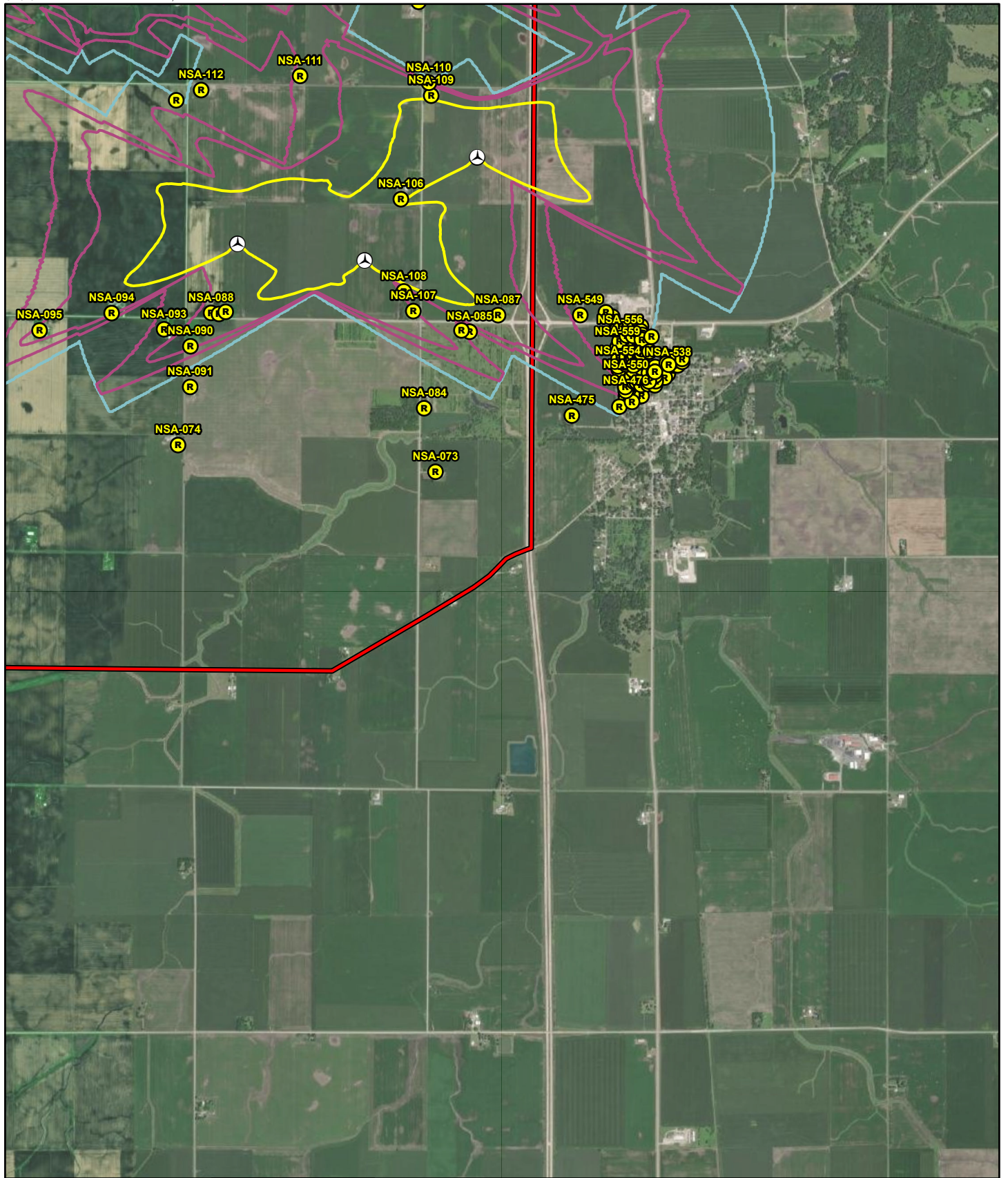
Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

SG6.6-170 115mHH

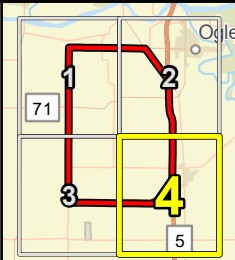
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Data Source(s): Westwood (2023); ESRI WMS World Aerial Imagery Basemap (Accessed 2022).

0 3,000 Feet
Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Legend

- Project Area
- ⊙ Turbine
- R Receptor

Shadow Flicker (hrs/yr)

- 0
- 10
- 20
- 30



Hickory Wind Project

LaSalle County, Illinois

Shadow Flicker Map Book

SG6.6-170 115mHH

EXHIBIT 6a: Page 4

Appendix K

Communication Infrastructure and NTIA Review Request

Hickory Wind Project

LaSalle County, Illinois

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Wind Power GeoPlanner™

Microwave Study

Hickory Wind Project



Prepared on Behalf of
UKA North America, LLC

December 21, 2022



Table of Contents

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| 2. Project Overview | - 1 - |
| 3. Two-Dimensional Fresnel Zone Analysis | - 2 - |
| 4. Cross Sectional Analysis | - 8 - |
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1. Introduction

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of wind turbines on licensed, proposed and applied non-federal government microwave systems.

2. Project Overview

Project Information

Name: Hickory Wind Project

County: LaSalle

State: Illinois

Number of Turbines: 12

Blade Diameter: 163 meters

Hub Height: 118 meters

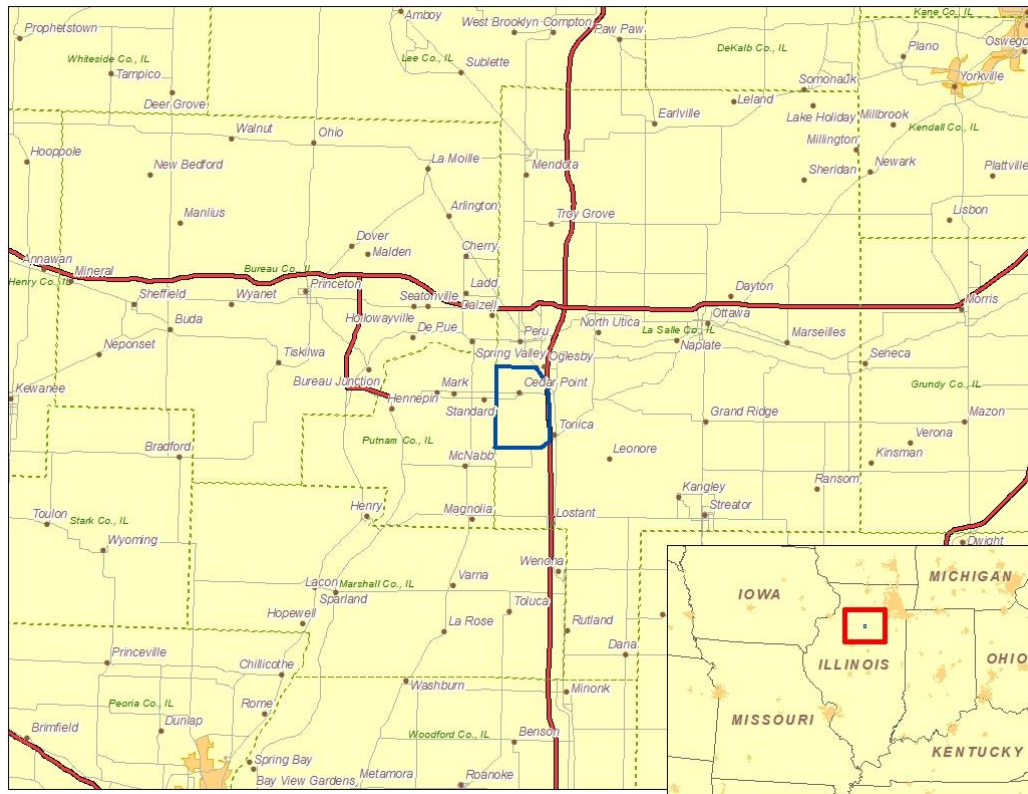


Figure 1: Area of Interest

3. Two-Dimensional Fresnel Zone Analysis

Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz¹. First, we determined all microwave paths that intersect the area of interest² and listed them in Table 1. These paths and the area of interest that encompasses the planned turbine locations are shown in Figure 2.

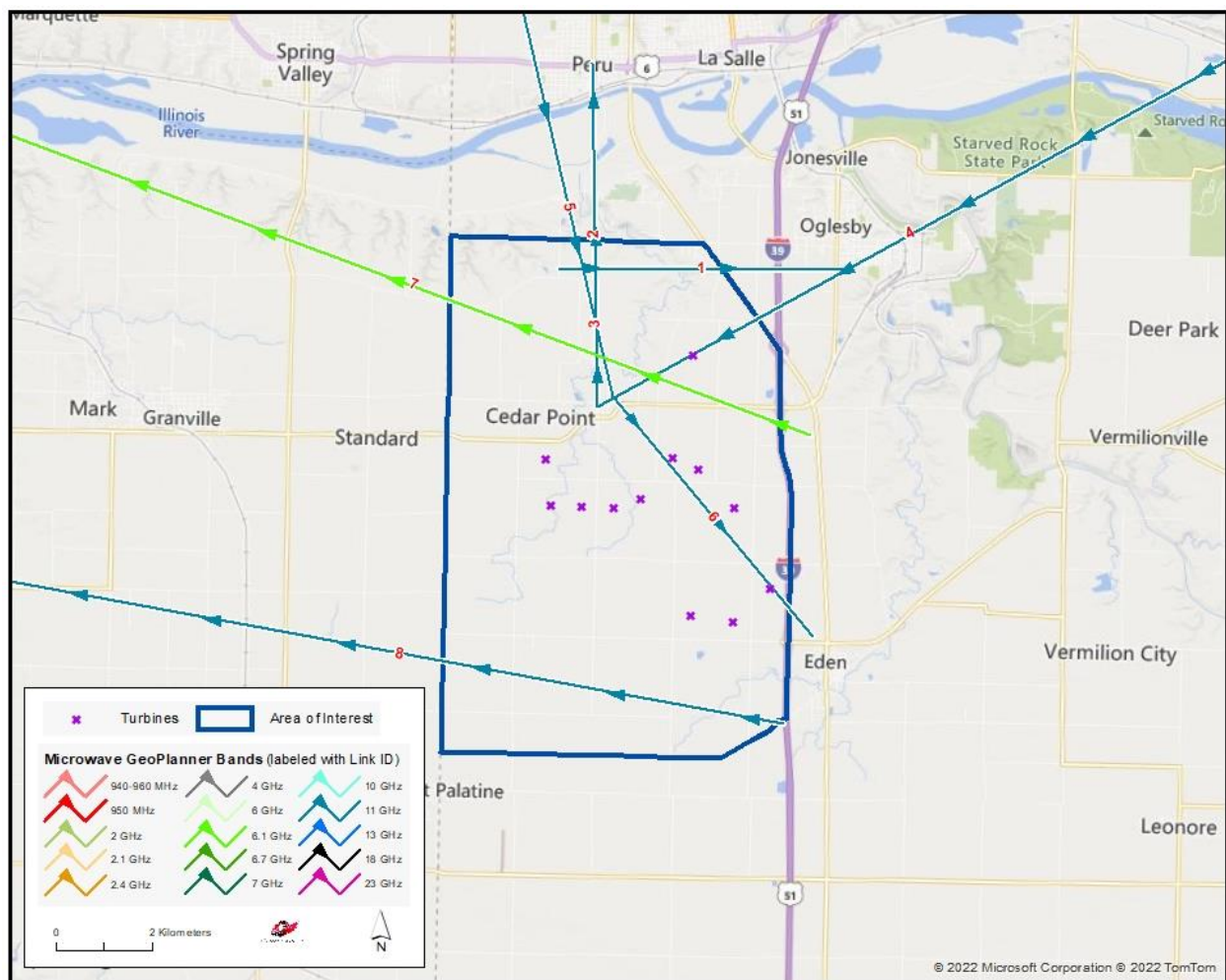


Figure 2: Microwave Paths that Intersect the Area of Interest

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.

| ID | Status | Callsign 1 | Callsign 2 | Band | Path Length (km) | Licensee |
|----|----------|------------|------------|---------|------------------|--|
| 1 | Licensed | WQQM804 | WQQM805 | 11 GHz | 5.90 | Cellco Partnership -IA/IL/IN/WI |
| 2 | Licensed | WRAB447 | WQXX538 | 11 GHz | 7.08 | Hi Cable LLC |
| 3 | Licensed | WRAB447 | WQXX538 | 11 GHz | 7.08 | Hi Cable LLC |
| 4 | Licensed | WRBU736 | WRBU735 | 11 GHz | 26.31 | Hi Cable LLC |
| 5 | Licensed | WRFJ757 | WRHU601 | 11 GHz | 12.37 | Surf Air Wireless, LLC |
| 6 | Licensed | WRHU601 | WRHU611 | 11 GHz | 6.45 | Surf Air Wireless, LLC |
| 7 | Licensed | WRKD929 | WRJW716 | 6.1 GHz | 21.75 | AT&T Mobility Spectrum LLC -IL/WI Mkts |
| 8 | Licensed | WRUG263 | WRUG299 | 11 GHz | 28.38 | T-Mobile License LLC |

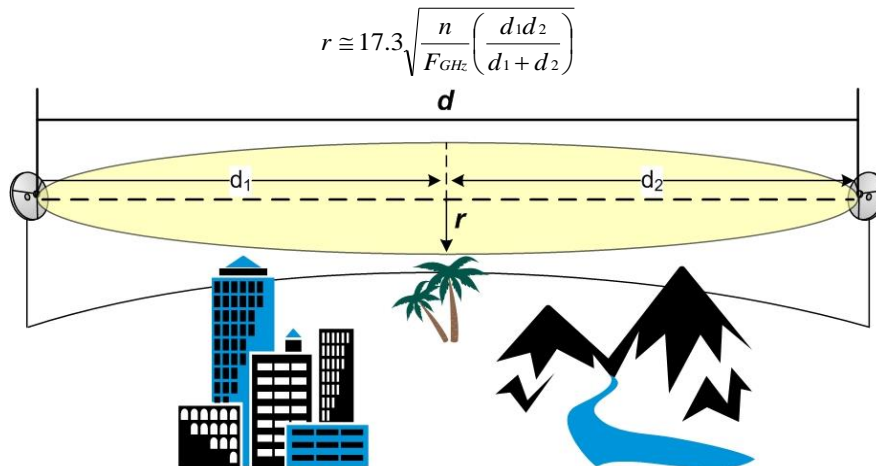
Table 1: Summary of Microwave Paths that Intersect the Area of Interest

(See enclosed *mw_geopl.xlsx* for more information and
GP_dict_matrix_description.xls for detailed field descriptions)

Verification of Coordinate Accuracy

It is possible that as-built coordinates may differ from those on the FCC license. For this project, one path crosses within close proximity of the proposed turbines and the tower locations for this path will have a critical impact on the result. Therefore, we verified these locations using aerial photography and they were found to be accurate.

Next, we calculated a Fresnel Zone for each path based on the following formula:



Where,

- r = Fresnel Zone radius at a specific point in the microwave path, meters
- n = Fresnel Zone number, 1
- F_{GHz} = Frequency of microwave system, GHz
- d_1 = Distance from antenna 1 to a specific point in the microwave path, kilometers
- d_2 = Distance from antenna 2 to a specific point in the microwave path, kilometers

In general, this is the area where the planned wind turbines should be avoided, if possible. Likewise, Comsearch recommends that an area directly in front of each microwave antenna should be avoided. This corresponds to the Consultation Zone which measures 1 kilometer along the main beam of the antenna and 24 ft (7.3 meters) wide. A depiction of the Fresnel Zones and Consultation Zones for each microwave path listed can be found in Figure 3, and is also included in the enclosed shapefiles^{3,4}.

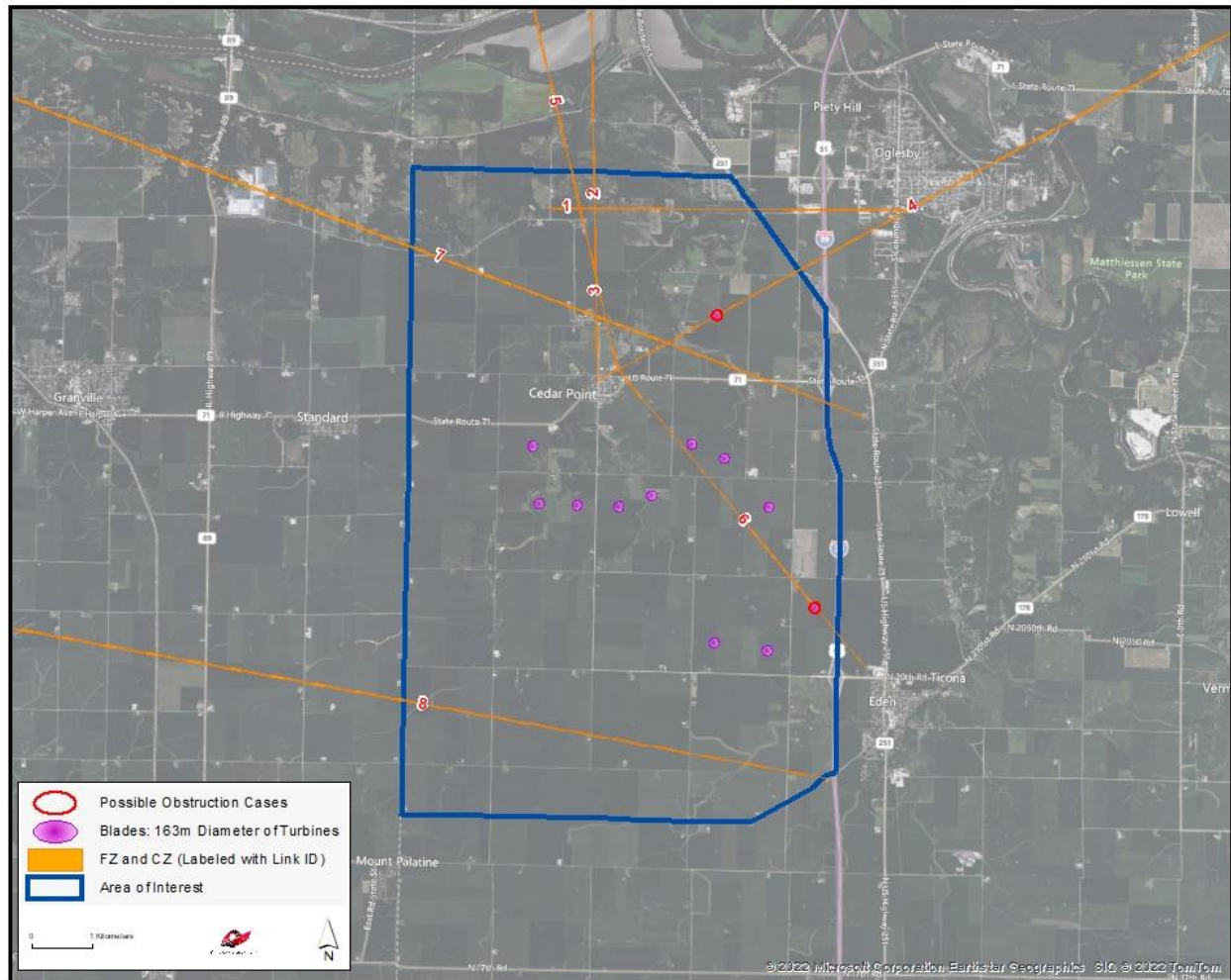


Figure 3: Fresnel Zones and Consultation Zones in the Area of Interest

³ The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 16 projected coordinate system.

⁴ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

Discussion of Potential Two Dimensional Obstructions

| Total Microwave Paths | Paths with Affected Fresnel Zones | Total Turbines | Turbines Intersecting the 2D Fresnel Zones |
|-----------------------|-----------------------------------|----------------|--|
| 8 | 2 | 12 | 2 |

Table 2: Fresnel Zone Analysis Result

For this project, twelve turbines were considered in the analysis, each with a blade diameter of 163 meters and turbine hub height of 118 meters. Of those turbines, two were found to intersect the Fresnel Zones of two microwave paths. Figures 4 and 5 contain a detailed depiction of the potential obstruction scenarios and Table 3 contains a summary of the affected turbines. A cross sectional analysis was performed in Section 4 to determine the diagonal clearance value for these cases.

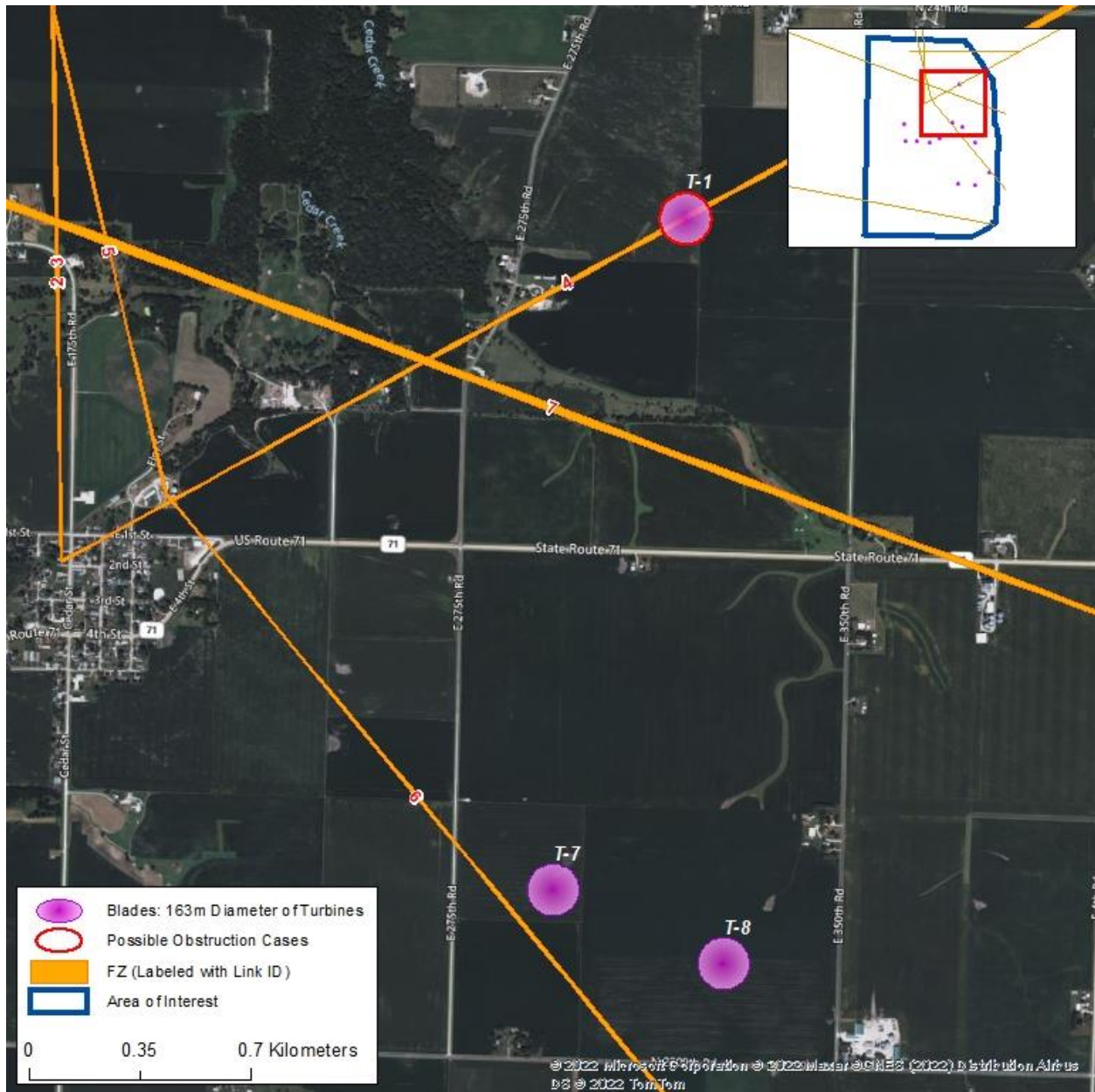


Figure 4: Potential Obstruction Case T-1



Figure 5: Potential Obstruction Case T-10

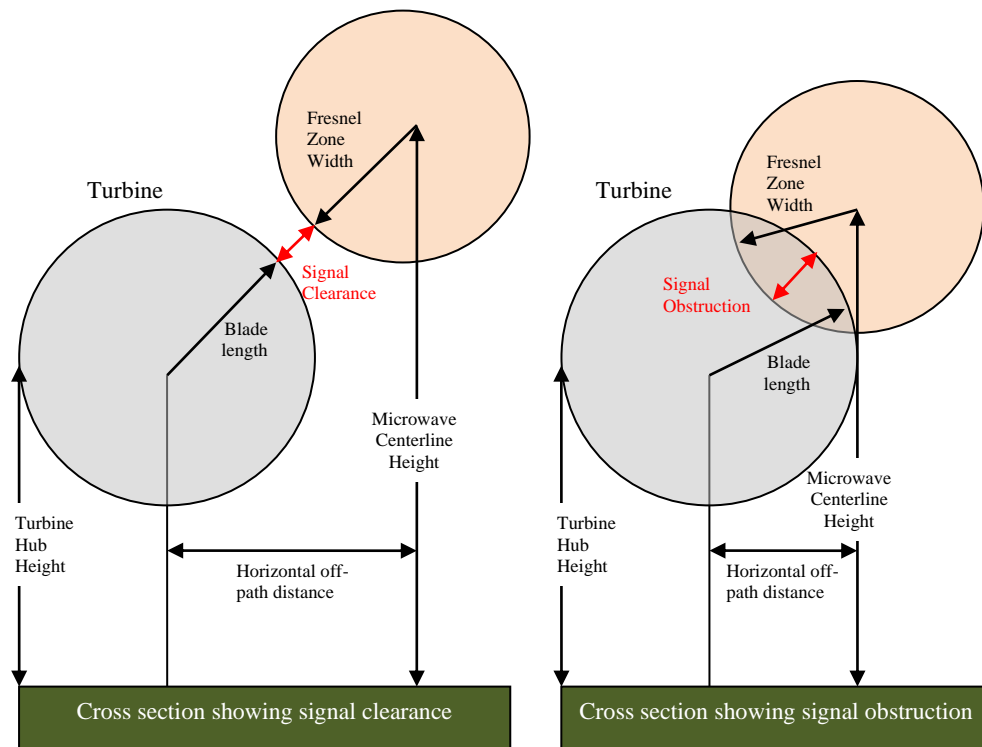
| Turbine ID | Latitude (NAD83) | Longitude (NAD83) | Affected Microwave Path ID | Fresnel Zone Radius at Turbine Location (m) | Horizontal off-path Distance (m) | Distance along the path from site 1 (km) | Horizontal Clearance (m) |
|------------|------------------|-------------------|----------------------------|---|----------------------------------|--|--------------------------|
| T-1 | 41.274525 | -89.103036 | 4 | 7.42 | 4 | 24.06 | -84.92 |
| T-10 | 41.231557 | -89.082421 | 6 | 5.32 | 13 | 5.11 | -73.82 |

Table 3: Turbines that Intersect Fresnel Zones

4. Cross Sectional Analysis

Our Fresnel Zone analysis in the previous section identified two potential obstruction cases that need to be further examined from a cross sectional perspective. The cases that will be analyzed in this section can be found in Table 3.

Our cross sectional analysis calculates the precise height and width of 100% of the first Fresnel Zone at the turbine location based on the antenna heights of the two link endpoints and the earth curvature bulge at the specific turbine location. The horizontal off-path distance was calculated in the previous section and the turbine hub height and blade length were provided by the client. The cross sectional analysis uses these values to calculate the clearance between the blades and the microwave Fresnel Zone as shown in the two diagrams below.



The results of the cross sectional calculations can be seen in Table 4. It shows negative clearance values indicating obstruction of the Fresnel Zone and positive clearance values indicating clearance.

| Microwave Path ID | Fresnel Zone Radius at Turbine Location (m) | Microwave Centerline Height at Turbine Location (m) | Turbine ID | Hub Height (m) | Blade Length (m) | Cross Sectional Clearance (m) |
|-------------------|---|---|------------|----------------|------------------|-------------------------------|
| 4 | 7.42 | 41.75 | T-1 | 118 | 81.5 | -12.57 |
| 6 | 5.32 | 27.28 | T-10 | 118 | 81.5 | 4.82 |

Table 4: Cross Sectional Analysis Results

5. Conclusion

Our study identified eight microwave paths within the Hickory Wind Project area. The Fresnel Zones for these microwave paths were calculated and mapped. One turbine was found to intersect the Fresnel Zone of one microwave path based on the cross sectional analysis. Table 5 below shows the distance and direction that the turbine would need to move to clear any Fresnel Zones causing potential obstructions from its currently sited location. An alternative approach would be to shift the edge of the turbine blades up by approximately 12.6 meters by increasing the hub height and/or decreasing the turbine blade size to clear the path.

| Turbine ID | Direction to Move Turbine | Approximate Azimuth | Distance from Currently Sited Location (meters) |
|------------|---------------------------|---------------------|---|
| T-1 | SE | 145 | 85 |

Table 5: Recommended Turbine Adjustment to Avoid Potential Signal Obstruction

6. Contact

For questions or information regarding the Microwave Study, please contact:

Contact person: David Meyer
Title: Senior Manager
Company: Comsearch
Address: 21515 Ridgeway Circle, Suite 300, Sterling, VA 20166
Telephone: 703-726-5656
Fax: 703-726-5595
Email: David.Meyer@CommScope.com
Web site: www.comsearch.com

Appendix: Turbine Locations

| Name | Latitude | Longitude |
|------|-----------|------------|
| T-12 | 41.225082 | -89.091615 |
| T-11 | 41.226056 | -89.102089 |
| T-10 | 41.231557 | -89.082421 |
| T-9 | 41.246356 | -89.091982 |
| T-8 | 41.253388 | -89.100928 |
| T-7 | 41.255364 | -89.107418 |
| T-6 | 41.247625 | -89.115051 |
| T-5 | 41.245855 | -89.121449 |
| T-4 | 41.245921 | -89.129595 |
| T-3 | 41.246045 | -89.137088 |
| T-2 | 41.254530 | -89.138656 |
| T-1 | 41.274525 | -89.103036 |

Wind Power GeoPlanner™

Land Mobile & Emergency Services Report

Hickory Wind Project



Prepared on Behalf of
UKA North America, LLC

December 21, 2022



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1. Introduction

An assessment of the emergency services in the Hickory Wind Project area was performed by Comsearch to identify potential impact from the planned turbines. We evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. We also identified all industrial and business land mobile radio (LMR) systems and commercial E911 operators within the proposed wind energy facility boundaries. This information is useful in the planning stages of the wind energy facility because the data can be used in support of facility communications needs and to evaluate any potential impact on the emergency services provided in that region. An overview of the project area, which is located in LaSalle County, Illinois, appears below in Figure 1.

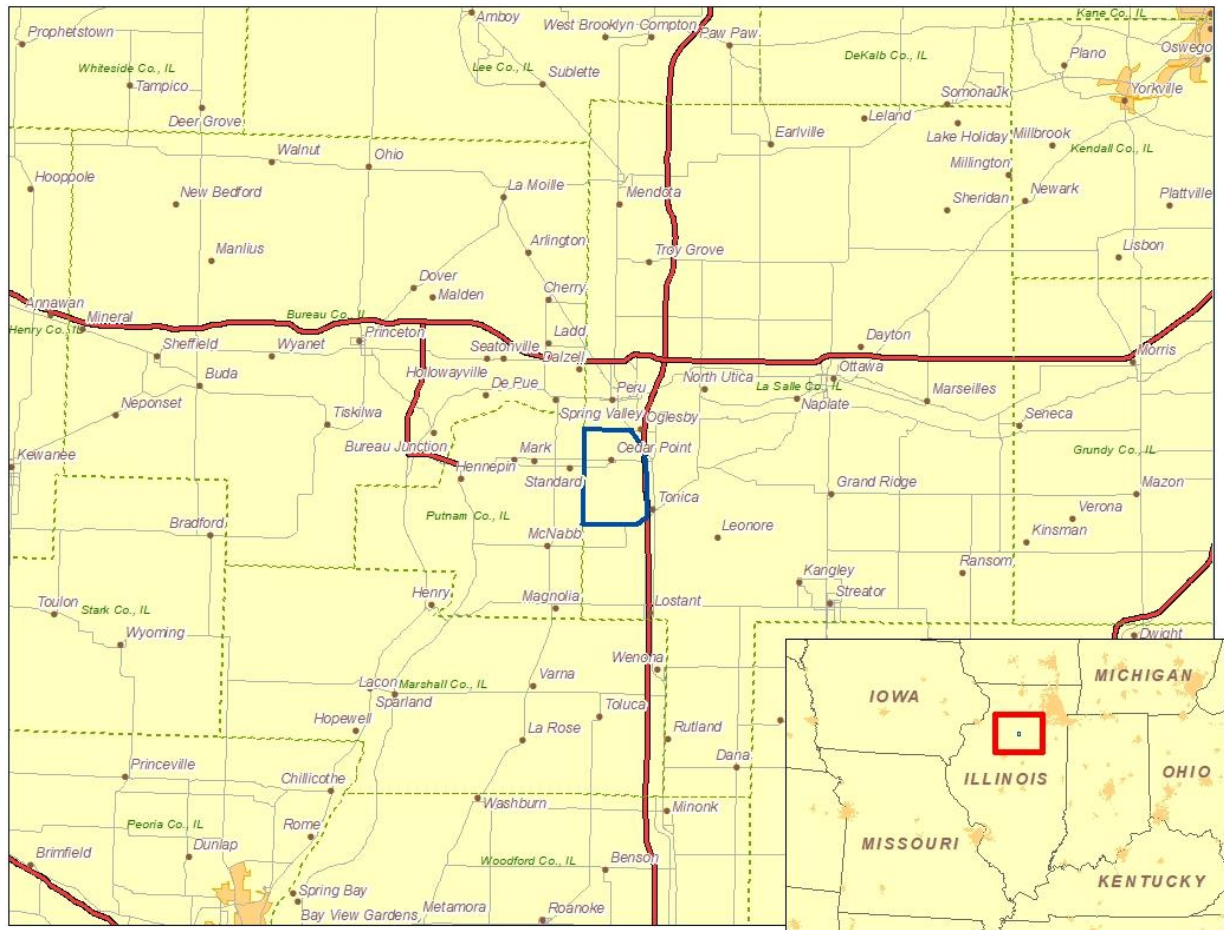


Figure 1: Area of Interest (AOI)

2. Summary of Results

Our land mobile and emergency services incumbent data¹ was derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. We identified both site-based licenses as well as regional area-wide licenses designated for public safety use.

Site-Based Licenses

The site-based licenses were imported into GIS software and geographically mapped relative to the wind energy project area of interest as defined by the customer. Each site on the map is associated with site information in a data table. A depiction of the fixed-site licenses in the project area appears in Figure 2.

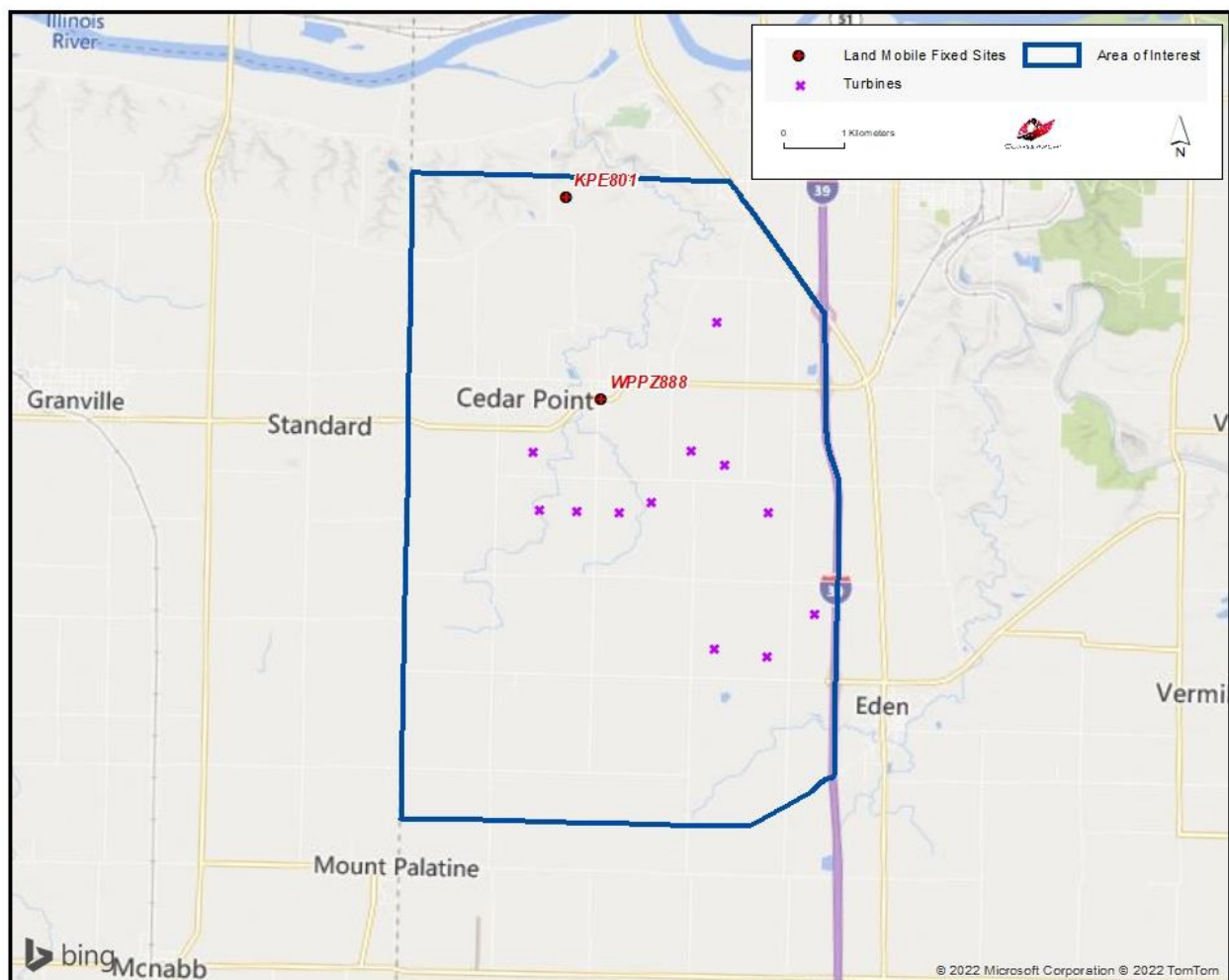


Figure 2: Land Mobile & Emergency Service Sites in Area of Interest

Figure 2 identifies two site-based licenses in the Hickory Wind Project area of interest. Specific information about these sites is provided in Table 1.

| Call Sign | Frequency Band (MHz) | Licensee | Antenna Height AGL (m) | Latitude (NAD83) | Longitude (NAD83) | Distance to Nearest Turbine (km) |
|-----------|----------------------|---------------------------|------------------------|------------------|-------------------|----------------------------------|
| WPPZ888 | 150-174 | CEDAR POINT, TOWN OF | 19 | 41.262528 | -89.125083 | 1.44 |
| KPE801 | 450-470 | MENDOTA BROADCASTING, INC | 24 | 41.292250 | -89.132861 | 3.18 |

Table 1: Land Mobile & Emergency Service Sites in Area of Interest

Mobile Licenses

In addition to the fixed-site licenses above, 519 mobile licenses defined by center point and radius were found to intersect the Hickory Wind Project area. Appendix A contains a tabular summary of these stations.

Area-Wide Licenses

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the wind energy project area. The Hickory Wind Project is located in LaSalle County, Illinois, part of Public Safety Region #13, which contains all the counties in Illinois, excluding the greater Chicago metropolitan area. The regional public safety operations are overseen by the entity listed below.

William J. Carter

Chairperson, Public Safety Region #13

Phone: 312-814-5208

Mobile: 312-793-7267

Email: wizard61@hotmail.com

The chairperson for Region #13 serves as the representative for all public safety entities in the area and is responsible for coordinating current and future public safety use in the wireless spectrum. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, fifty-two licenses were found for the State of Illinois and two for the County of LaSalle (see Table 2). These area-wide licenses are designated for mobile use only.

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the land mobile station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf

| ID | Licensee | Area of Operation | Frequency Band (MHz) |
|----|--|-------------------|--|
| 1 | ADVANCED MEDICAL TRANSPORT OF CENTRAL ILLINOIS | Statewide: IL | 150-174 |
| 2 | ALEXIS NORTH HENDERSON AMBULANCE SERVICE | Statewide: IL | 150-174 |
| 3 | AMERICAN MEDICAL RESPONSE INC | Statewide: IL | 150-174, 450-470 |
| 4 | American National Red Cross | Statewide: IL | 25-50 |
| 5 | Beecher Fire Protection District | Statewide: IL | 150-174 |
| 6 | Buncombe Fire Department | Statewide: IL | 150-174 |
| 7 | BUNKER HILL, CITY OF | Statewide: IL | 150-174 |
| 8 | CARLINVILLE, CITY OF | Statewide: IL | 150-174 |
| 9 | CAVE EASTERN FIRE PROTECTION DISTRICT | Statewide: IL | 150-174 |
| 10 | CHARLESTON, CITY OF | Statewide: IL | 150-174 |
| 11 | City of Chicago Heights Police Department | Statewide: IL | 4940-4990 |
| 12 | CLAY, COUNTY OF | Statewide: IL | 150-174 |
| 13 | Deaconess regional Healthcare Services Illinois, Inc | Statewide: IL | 150-174 |
| 14 | DOWNERS GROVE, VILLAGE OF | Statewide: IL | 150-174, 450-470 |
| 15 | EVERGREEN PARK, VILLAGE OF | Statewide: IL | 150-174 |
| 16 | Farina, Village of | Statewide: IL | 150-174 |
| 17 | GALESBURG HOSPITALS AMBULANCE SERVICE | Statewide: IL | 150-174 |
| 18 | GALVA, CITY OF | Statewide: IL | 150-174 |
| 19 | GLENDALE HEIGHTS, VILLAGE OF | Statewide: IL | 150-174 |
| 20 | Illinois Law Enforcement Alarm System | Statewide: IL | 0-10 |
| 21 | ILLINOIS LAW ENFORCEMENT ALARM SYSTEM (ILEAS) | Statewide: IL | 25-50, 150-174, 450-470, 800/900 |
| 22 | Illinois State Toll Highway Authority | Statewide: IL | 0-10, 450-470, 800/900, 4940-4990 |
| 23 | Illinois, State of | Statewide: IL | 0-10, 25-50, 150-174, 406-413, 421-430, 450-470, 769-775/799-805, 800/900, 2450-2500 |
| 24 | Illinois, State of Department of Transportation | Statewide: IL | 0-10, 25-50, 150-174 |

| ID | Licensee | Area of Operation | Frequency Band (MHz) |
|----|--|--------------------------|----------------------------------|
| 25 | JERSEY, COUNTY OF SHERIFF DEPARTMENT | Statewide: IL | 150-174 |
| 26 | JOHNSON COUNTY 9 1 1 ETSB | Statewide: IL | 150-174 |
| 27 | LA SALLE, COUNTY OF | Countywide: LA SALLE, IL | 25-50, 150-174, 450-470, 800/900 |
| 28 | Lakeside EMS, LLC | Statewide: IL | 150-174 |
| 29 | Maine Township Emergency Management Agency | Statewide: IL | 25-50, 150-174 |
| 30 | MEDICONE MEDICAL RESPONSE | Statewide: IL | 150-174 |
| 31 | METAMORA, CITY OF | Statewide: IL | 150-174 |
| 32 | MIDLOTHIAN, VILLAGE OF | Statewide: IL | 150-174 |
| 33 | MORGAN COUNTY ESDA | Statewide: IL | 150-174 |
| 34 | MOUNT ZION FIRE PROTECTION DISTRICT | Statewide: IL | 150-174 |
| 35 | MURPHYSBORO, CITY OF | Statewide: IL | 150-174 |
| 36 | MUTUAL AID BOX ALARM SYSTEM - IL | Statewide: IL | 25-50, 150-174, 450-470 |
| 37 | NATIONAL SKI PATROL SYSTEM INC | Statewide: IL | 150-174 |
| 38 | ONEIDA WATAGA FIRE PROTECTION DISTRICT | Statewide: IL | 150-174 |
| 39 | ORION FIRE PROTECTION DISTRICT | Statewide: IL | 150-174 |
| 40 | PARATECH AMBULANCE SERVICE INC | Statewide: IL | 150-174 |
| 41 | PATOKA FIRE PROTECTION DIST IL | Statewide: IL | 150-174 |
| 42 | RuralMed, LLC | Statewide: IL | 150-174 |
| 43 | Search And Rescue Mutual Aid (SARMA) | Statewide: IL | 150-174 |
| 44 | SOUTH HOLLAND, VILLAGE OF | Statewide: IL | 150-174 |
| 45 | Stickney, Village of | Statewide: IL | 150-174 |
| 46 | Superior Air Ground Ambulance Inc. | Statewide: IL | 150-174 |
| 47 | TUSCARORA FIRE PROTECTION DISTRICT | Statewide: IL | 150-174 |
| 48 | United Life Care Ambulance Service Inc | Statewide: IL | 150-174 |
| 49 | United Medical Response, LLC | Statewide: IL | 150-174 |

| ID | Licensee | Area of Operation | Frequency Band (MHz) |
|----|---------------------------------------|-----------------------------|----------------------|
| 50 | Village of University Park | Statewide: IL | 150-174 |
| 51 | WALLACE FIRE DEPARTMENT | Countywide: LA SALLE, IL | 150-174 |
| 52 | WAYNE COUNTY AMBULANCE SERVICE | Statewide: IL | 150-174 |
| 53 | WEST CITY, VILLAGE OF | Statewide: IL | 150-174 |
| 54 | WILLIAMSFIELD FIRE PROTECTION DIST | Statewide: IL | 150-174 |

Table 2: Regional Licenses

E911 Operators

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. We have identified the type of service for each carrier in LaSalle County, Illinois, in Table 3.

| Mobile Phone Carrier | Service ² |
|----------------------|----------------------------------|
| AT&T | 700 MHz, AWS, Cellular, PCS, WCS |
| DISH Network | 700 MHz, AWS |
| MTCO Communications | Cellular |
| T-Mobile | 700 MHz, AWS, PCS |
| US Cellular | 700 MHz |
| Verizon | 700 MHz, AWS, PCS |

Table 3: Mobile Phone Carriers in Area of Interest with E911 Service

3. Impact Assessment

The first responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications as described in this report are typically unaffected by the presence of wind turbines, and we do not anticipate any significant harmful effect to these services in the Hickory Wind Project area. Although each of these services operates in different frequency ranges and provides different types of service including voice, video and data applications, there is commonality among these different networks with regard to the impact of wind turbines on their service. Each of these networks is designed to operate reliably in a non-line-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells. Therefore, any signal blockage caused by the wind turbines does not materially degrade the reception because the end user is likely receiving signals from multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate through wind turbines. As a

² AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
WCS: Wireless Communications Service at 2.3 GHz
700 MHz: Lower 700 MHz Service

result, very little, if any, change in their coverage should occur when the wind turbines are installed.

When planning the wind energy turbine locations in the area of interest, a conservative approach would dictate not locating any turbines within 77.5 meters of land mobile fixed-base stations to avoid any possible impact to the communications services provided by these stations. This distance is based on FCC interference emissions from electrical devices in the land mobile frequency bands. As long as the turbines are located more than 77.5 meters from the land mobile stations, they will meet the setback distance criteria for FCC interference emissions in the land mobile bands.

4. Recommendations

In the event that a public safety entity believes its coverage has been compromised by the presence of the wind energy facility, it has many options to improve its signal coverage to the area through optimization of a nearby base station or even adding a repeater site. Utility towers, meteorological towers or even the turbine towers within the wind project area can serve as the platform for a base station or repeater site.

5. Contact

For questions or information regarding the Land Mobile & Emergency Services Report, please contact:

| | |
|-----------------|--|
| Contact person: | David Meyer |
| Title: | Senior Manager |
| Company: | Comsearch |
| Address: | 21515 Ridgetop Circle, Suite 300, Sterling, VA 20166 |
| Telephone: | 703-726-5656 |
| Fax: | 703-726-5595 |
| Email: | David.Meyer@CommScope.com |
| Web site: | www.comsearch.com |

Appendix A

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 1 | KZF751 | 150-174 | 10/33 Ambulance Service, Ltd. | 24 | 41.327250 | -89.194806 |
| 2 | WPEW279 | 450-470 | A BEEP, LLC | 72 | 41.705306 | -89.079806 |
| 3 | WPGC759 | 450-470 | A BEEP, LLC | 72 | 41.875861 | -88.754528 |
| 4 | WRKP473 | 800/900 | A BEEP, LLC | 113 | 42.020000 | -88.483611 |
| 5 | WPDM733 | 450-470 | ACE HARDWARE CORP | 32 | 41.399167 | -89.460278 |
| 6 | WQBV709 | 450-470 | Aclara Technologies LLC | 80 | 40.961472 | -88.544861 |
| 7 | WQES412 | 450-470 | Aclara Technologies LLC | 7 | 41.336583 | -89.098694 |
| 8 | WQXG596 | 450-470 | ACLARA TECHNOLOGIES LLC | 7 | 41.336583 | -89.098694 |
| 9 | WRAT773 | 800/900 | Addison, Village of | 113 | 41.821361 | -87.972667 |
| 10 | WRAT773 | 800/900 | Addison, Village of | 113 | 41.730278 | -87.969278 |
| 11 | WQVL985 | 150-174 | ADVANCE ASPHALT,CO. | 35 | 41.386028 | -89.470583 |
| 12 | WPAJ404 | 450-470 | AFFILIATED CUSTOMER SERVICE | 121 | 41.797528 | -87.954778 |
| 13 | WQRW241 | 150-174 | AG VIEW FS | 40 | 41.513917 | -89.280639 |
| 14 | WQVS239 | 450-470 | AG VIEW FS, INC. | 32 | 41.029944 | -89.223444 |
| 15 | WQOX297 | 450-470 | AHW LLC | 32 | 41.472528 | -88.845250 |
| 16 | KB70306 | 450-470 | ALARM DETECTION SYSTEMS INC | 113 | 41.840889 | -89.482722 |
| 17 | KB70306 | 450-470 | ALARM DETECTION SYSTEMS INC | 113 | 41.779750 | -88.295917 |
| 18 | KCX586 | 25-50 | ALARM DETECTION SYSTEMS INC | 113 | 41.779750 | -88.296194 |
| 19 | WNCG283 | 450-470 | ALARM DETECTION SYSTEMS, INC. | 113 | 41.779750 | -88.296194 |
| 20 | WPKN431 | 450-470 | ALARM DETECTION SYSTEMS, INC. | 120 | 41.780306 | -88.296750 |
| 21 | WPXK705 | 450-470 | Alarm Detection Systems, Inc. | 120 | 41.625361 | -87.728417 |
| 22 | WPED653 | 450-470 | ALPHA PRIME WIRELESS COMMUNICATIONS | 113 | 41.530306 | -87.805056 |
| 23 | WQAX349 | 150-174 | AMBOY COMMUNITY UNIT SCHOOL DISTRICT 272 | 40 | 41.390000 | -89.332583 |
| 24 | WNQJ842 | 800/900 | Ameren Services Company | 402 | 38.669194 | -92.208528 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 25 | WPIX671 | 800/900 | Ameren Services Company | 113 | 40.791972 | -89.619806 |
| 26 | WPLY438 | 800/900 | Ameren Services Company | 113 | 41.063083 | -89.585639 |
| 27 | WPMP607 | 800/900 | Ameren Services Company | 113 | 40.794194 | -89.198417 |
| 28 | WPFG537 | 150-174 | AMERICAN RIVER TRANSPORTATION CO., LLC | 121 | 41.830306 | -90.188472 |
| 29 | WNXH406 | 450-470 | American National Red Cross | 80 | 41.307500 | -88.146111 |
| 30 | WQOT870 | 450-470 | AMERICAN NICKELOID CO. | 32 | 41.322778 | -89.145000 |
| 31 | WQVN419 | 450-470 | AMERICAN TIME & SIGNAL CO. | 20 | 41.378333 | -89.217000 |
| 32 | WNLZ781 | 450-470 | ANDERSON, RICHARD L | 48 | 41.573083 | -89.464528 |
| 33 | WQLV439 | 450-470 | Andy Wurm Tire & Wheel Co Inc | 320 | 38.740667 | -90.304083 |
| 34 | KD23109 | 150-174 | Archer Daniels Midland Company | 121 | 41.357250 | -88.421167 |
| 35 | WPPX534 | 150-174 | Archer Daniels Midland Company | 113 | 41.313361 | -89.198139 |
| 36 | WQEH223 | 450-470 | Archer Daniels Midland Company | 32 | 41.348889 | -88.844611 |
| 37 | WQJL249 | 150-174 | Archer Daniels Midland Company | 40 | 41.324167 | -89.109167 |
| 38 | WQML299 | 450-470 | Archer Daniels Midland Company | 32 | 41.559694 | -89.054917 |
| 39 | WQOB439 | 450-470 | Archer Daniels Midland Company | 32 | 41.556389 | -89.104722 |
| 40 | WQPP409 | 450-470 | AREZ, LLC | 32 | 40.941250 | -89.273444 |
| 41 | KNHZ778 | 150-174 | ATHERTON, MARK | 48 | 41.600028 | -88.969528 |
| 42 | KNJY372 | 150-174 | BALENSIEFEN, VIRGIL L | 48 | 41.304472 | -89.684833 |
| 43 | WRUT645 | 450-470 | Bangert, Matthew M | 32 | 41.205583 | -89.014361 |
| 44 | WPMZ946 | 450-470 | BEARDSLEY, CRAIG L | 250 | 41.694194 | -87.687556 |
| 45 | WQYG630 | 150-174 | BERG FARMS | 80 | 41.501111 | -88.386667 |
| 46 | WQXF713 | 450-470 | BERGLUND CONSTRUCTION COMPANY | 120 | 41.844694 | -87.957639 |
| 47 | WQQW904 | 150-174 | BICKETT, DENNIS | 40 | 41.598472 | -89.317750 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|----|-----------|---|----------------------|-------------------------|------------------|-------------------|
| 48 | WQFB702 | 25-50, 150-174, 450-470, 470-512, 800/900 | B-K ELECTRIC INC | 300 | 39.713278 | -90.722639 |
| 49 | KBB346 | 150-174 | BNSF Railway Co. | 40 | 41.002333 | -89.122639 |
| 50 | KJB835 | 150-174 | BNSF Railway Co. | 40 | 41.364750 | -89.582028 |
| 51 | KJB835 | 150-174 | BNSF Railway Co. | 40 | 41.253361 | -89.566750 |
| 52 | KNCT660 | 150-174 | BNSF Railway Co. | 40 | 41.157167 | -88.657833 |
| 53 | KNEK637 | 150-174 | BNSF Railway Co. | 40 | 41.555306 | -89.108694 |
| 54 | WQOD474 | 150-174 | BNSF Railway Co. | 40 | 41.590417 | -88.924556 |
| 55 | WNAH497 | 450-470 | Bogner 634, Denny A | 48 | 41.075028 | -89.466472 |
| 56 | WPEY520 | 150-174 | BRADLE, ROGER | 72 | 40.729194 | -89.135083 |
| 57 | WPGJ619 | 800/900 | Brammann, Thomas L | 113 | 41.546694 | -90.465694 |
| 58 | KNBK256 | 450-470 | BRECHON, GERALD A | 80 | 41.768361 | -89.456222 |
| 59 | WQUP972 | 150-174 | BRESSNER, JEFF | 45 | 40.877250 | -88.772556 |
| 60 | KD24524 | 450-470 | BRINK'S INCORPORATED | 121 | 41.950028 | -88.066750 |
| 61 | KD28607 | 450-470 | BRINK'S INCORPORATED | 121 | 40.950028 | -90.366806 |
| 62 | KD28608 | 450-470 | BRINK'S INCORPORATED | 121 | 40.695028 | -89.592611 |
| 63 | KD28611 | 450-470 | BRINK'S INCORPORATED | 121 | 42.268639 | -89.096778 |
| 64 | KD28612 | 450-470 | BRINK'S INCORPORATED | 121 | 41.783361 | -89.191750 |
| 65 | KD28613 | 450-470 | BRINK'S INCORPORATED | 121 | 40.783361 | -88.250056 |
| 66 | KD28635 | 450-470 | BRINK'S INCORPORATED | 121 | 41.500306 | -90.500139 |
| 67 | KAS308 | 150-174 | BRUCH, GARY L | 40 | 41.256972 | -89.225639 |
| 68 | WPQB869 | 150-174 | BUREAU COUNTY OF | 40 | 41.285583 | -89.598972 |
| 69 | WPQB869 | 150-174 | BUREAU COUNTY OF | 40 | 41.559778 | -89.470556 |
| 70 | WPQB869 | 150-174 | BUREAU COUNTY OF | 40 | 41.352806 | -89.219528 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 71 | WPJZ685 | 150-174 | BUREAU FIRE PROTECTION DISTRICT | 38 | 41.288639 | -89.366194 |
| 72 | KNY210 | 150-174 | BUREAU, COUNTY | 80 | 41.370306 | -89.465083 |
| 73 | WPCD739 | 150-174 | BUREAU, COUNTY OF | 48 | 41.370028 | -89.465083 |
| 74 | WPPG733 | 150-174 | BUREAU, COUNTY OF | 40 | 41.285583 | -89.598972 |
| 75 | WPPG733 | 150-174 | BUREAU, COUNTY OF | 40 | 41.387389 | -89.452583 |
| 76 | WPDT402 | 150-174 | BURKE, JAMES F | 48 | 41.639750 | -89.362306 |
| 77 | WNKR589 | 150-174 | BUSCH, KENNETH | 48 | 41.208917 | -89.041750 |
| 78 | WRAS666 | 450-470 | Canam Group | 32 | 41.372389 | -89.131306 |
| 79 | WQLP696 | 450-470 | Cargill, Incorporated | 32 | 41.027111 | -89.412889 |
| 80 | WQLP696 | 150-174 | Cargill, Incorporated | 40 | 41.027111 | -89.412889 |
| 81 | WQLP696 | 450-470 | Cargill, Incorporated | 32 | 41.255167 | -89.346583 |
| 82 | WQLP696 | 450-470 | Cargill, Incorporated | 32 | 41.308667 | -89.200806 |
| 83 | WQLP696 | 150-174 | Cargill, Incorporated | 40 | 41.308667 | -89.200806 |
| 84 | WQLP696 | 450-470 | Cargill, Incorporated | 32 | 41.355917 | -88.841250 |
| 85 | KMB571 | 150-174 | Cargill, Incorporated - AgHorizons | 8 | 41.321139 | -89.204528 |
| 86 | WPPZ888 | 150-174 | CEDAR POINT, TOWN OF | 24 | 41.262528 | -89.125083 |
| 87 | WRVC397 | 450-470 | CERENITI DATASENSE NETWORKS | 5 | 41.294972 | -89.069444 |
| 88 | WQKY988 | 150-174 | CF Industries Distribution Facilities, LLC | 40 | 41.323611 | -89.150000 |
| 89 | KNCG436 | 150-174 | CHERRY FIRE PROTECTION DISTRICT | 32 | 41.506972 | -89.212583 |
| 90 | WQTY827 | 450-470 | CHEXX SYSTEMS | 80 | 41.608583 | -88.457306 |
| 91 | KZV871 | 150-174 | Chillicothe Township | 48 | 40.927806 | -89.494528 |
| 92 | WREM333 | 450-470 | CHS Inc | 8 | 41.327028 | -89.146250 |
| 93 | WQWP711 | 150-174 | CL FARMS | 40 | 41.320417 | -88.773194 |
| 94 | WNAW915 | 450-470 | CLOCK TOWER RESORT | 40 | 41.270861 | -88.961750 |
| 95 | WNCD378 | 450-470 | COLESON, DALE | 48 | 41.070583 | -89.268417 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---------------------------------------|-------------------------|------------------|-------------------|
| 96 | WPGE359 | 450-470 | COLLEGE OF DU PAGE | 121 | 41.843361 | -88.083389 |
| 97 | WRMP283 | 800/900 | Commonwealth Edison Company | 113 | 41.919722 | -88.429500 |
| 98 | WRMP283 | 800/900 | Commonwealth Edison Company | 113 | 41.981667 | -88.242778 |
| 99 | WRMP752 | 800/900 | Commonwealth Edison Company | 113 | 41.792500 | -89.965556 |
| 100 | WRMP752 | 800/900 | Commonwealth Edison Company | 113 | 41.759194 | -89.610722 |
| 101 | WRMP752 | 800/900 | Commonwealth Edison Company | 113 | 42.218333 | -89.326111 |
| 102 | WRMP752 | 800/900 | Commonwealth Edison Company | 113 | 41.687250 | -88.477556 |
| 103 | WRMP758 | 800/900 | Commonwealth Edison Company | 113 | 41.880556 | -88.751389 |
| 104 | WRMP758 | 800/900 | Commonwealth Edison Company | 113 | 41.388333 | -88.281111 |
| 105 | WRMP758 | 800/900 | Commonwealth Edison Company | 113 | 41.624167 | -87.932222 |
| 106 | WRMP758 | 800/900 | Commonwealth Edison Company | 113 | 41.208889 | -87.913333 |
| 107 | WRMT870 | 800/900 | Commonwealth Edison Company | 113 | 42.061944 | -89.508611 |
| 108 | WRMT870 | 800/900 | Commonwealth Edison Company | 113 | 41.041667 | -88.765000 |
| 109 | WRMT870 | 800/900 | Commonwealth Edison Company | 113 | 41.894722 | -88.045556 |
| 110 | WRMZ768 | 800/900 | Commonwealth Edison Company | 113 | 41.719444 | -89.067222 |
| 111 | WRMZ768 | 800/900 | Commonwealth Edison Company | 113 | 41.008056 | -88.265833 |
| 112 | WQXB603 | 450-470 | COMMUNITY HOSPITAL OF OTTAWA | 32 | 41.357250 | -88.825083 |
| 113 | WQXC479 | 150-174 | COMMUNITY HOSPITAL OF OTTAWA | 32 | 41.356139 | -88.825083 |
| 114 | WQQZ995 | 150-174 | CONNESSE, TOM | 40 | 41.105778 | -88.947917 |
| 115 | WQTH962 | 150-174 | CONSOLIDATED GRAIN & BARGE | 16 | 41.327222 | -89.020278 |
| 116 | WQWZ783 | 150-174 | CONSOLIDATED GRAIN & BARGE - HENNEPIN | 40 | 41.256944 | -89.351389 |
| 117 | WNCL915 | 216-220 | Constellation Energy Generation, LLC | 121 | 41.729194 | -90.306528 |
| 118 | WNCL915 | 216-220 | Constellation Energy Generation, LLC | 121 | 42.061972 | -89.508444 |
| 119 | WNCL915 | 216-220 | Constellation Energy Generation, LLC | 121 | 41.298361 | -88.434778 |
| 120 | WNCL915 | 216-220 | Constellation Energy Generation, LLC | 121 | 41.981417 | -88.243139 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 121 | WNP678 | 800/900 | Constellation Energy Generation, LLC | 113 | 41.389750 | -88.270333 |
| 122 | WNNS514 | 800/900 | COOK DUPAGE TRANSPORTATION COMPANY INC | 113 | 41.937222 | -88.124722 |
| 123 | WQEL763 | 800/900 | COOK DUPAGE TRANSPORTATION INC | 113 | 41.512500 | -88.255556 |
| 124 | WQSK637 | 150-174 | CSX Transportation Inc | 40 | 41.342806 | -89.009167 |
| 125 | WQSK637 | 150-174 | CSX Transportation Inc | 40 | 41.319667 | -88.610278 |
| 126 | WQXC508 | 150-174 | CSX Transportation Inc | 24 | 41.342611 | -89.008722 |
| 127 | WQXC508 | 150-174 | CSX Transportation Inc | 24 | 41.354444 | -88.840083 |
| 128 | WPGQ917 | 450-470 | D & I ELECTRONICS, INC. | 121 | 41.564750 | -88.219778 |
| 129 | WQLY426 | 150-174 | DALZELL GRADE SCHOOL | 40 | 41.361111 | -89.176944 |
| 130 | WQFH642 | 450-470 | DANA FIRE PROTECTION DISTRICT | 32 | 40.957000 | -88.949528 |
| 131 | WQQW298 | 150-174 | DEER PARK TOWNSHIP ROAD DISTRICT | 40 | 41.272694 | -88.966778 |
| 132 | WPDT431 | 450-470 | DEFENBAUGH, ANN | 64 | 41.088917 | -88.688389 |
| 133 | KNDY996 | 150-174 | DEPUE, CITY OF | 16 | 41.323639 | -89.302861 |
| 134 | WPBK611 | 150-174 | DOLDER, STACEY L | 64 | 41.633361 | -88.666750 |
| 135 | KKS575 | 150-174 | Doll, Jeff | 40 | 41.425028 | -89.214806 |
| 136 | KDE559 | 150-174 | DOUGHTY, WESLEY | 40 | 41.554472 | -89.098139 |
| 137 | WQRS545 | 150-174 | Doyle, Craig | 40 | 41.126250 | -89.499583 |
| 138 | WPES847 | 25-50 | DU PAGE, COUNTY OF | 105 | 41.865861 | -88.146472 |
| 139 | WQPI750 | 450-470 | DURDAN MR, JUSTIN | 32 | 41.149167 | -88.970833 |
| 140 | WNLP894 | 450-470 | DYNES, GARY | 80 | 41.320861 | -89.919556 |
| 141 | WNYD615 | 450-470 | EARLVILLE COMMUNITY UNIT SCHOOL DISTRICT NO 9 | 72 | 41.705306 | -89.079806 |
| 142 | WQBC936 | 150-174 | EARLVILLE FIRE PROTECTION DISTRICT | 40 | 41.588889 | -88.920833 |
| 143 | WRFD599 | 450-470 | East Peoria Elementary School Dist. 86 | 80 | 40.663972 | -89.572278 |
| 144 | WNKP742 | 150-174, 450-470 | EASTERN ILLINI ELECTRIC COOPERATIVE | 129 | 40.453083 | -88.103111 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|------------------------------------|-------------------------|------------------|-------------------|
| 145 | KD42341 | 150-174 | EASTERN MARSHALL COUNTY EMS | 80 | 41.050028 | -89.049250 |
| 146 | KSG895 | 150-174 | ELMHURST-CHICAGO STONE COMPANY | 80 | 41.836139 | -88.539250 |
| 147 | WPDU891 | 450-470 | ELSASSER, ROSS A | 64 | 41.031694 | -89.590083 |
| 148 | WRJA547 | 150-174 | Embr Retail Group | 40 | 41.335917 | -88.922194 |
| 149 | WPHA781 | 800/900 | ENERSTAR POWER COMPANY | 113 | 41.301417 | -88.953139 |
| 150 | WRTL410 | 450-470 | Epsilyte LLC | 32 | 41.325500 | -89.113083 |
| 151 | WPBK943 | 450-470 | ESP Wireless Technology Group, Inc | 121 | 41.838639 | -88.296750 |
| 152 | WPIK959 | 450-470 | ESP Wireless Technology Group, Inc | 113 | 41.496417 | -88.298944 |
| 153 | WRKU312 | 800/900 | Estate of Terry J Mack | 113 | 41.610278 | -88.439167 |
| 154 | WQRD732 | 450-470 | FARMERS COOP ASSOCIATION | 32 | 41.036417 | -89.226111 |
| 155 | WRVH880 | 800/900 | FBA Corporation | 113 | 41.496417 | -88.298944 |
| 156 | WRVH880 | 800/900 | FBA Corporation | 113 | 41.565833 | -88.062222 |
| 157 | KSF842 | 150-174 | FIRST STUDENT INC | 40 | 41.325583 | -89.134806 |
| 158 | KSF842 | 150-174 | FIRST STUDENT INC | 40 | 41.238639 | -88.830083 |
| 159 | WNVE333 | 800/900 | First Student Inc | 113 | 41.922250 | -88.751750 |
| 160 | KNCH513 | 450-470 | Flint Hills Resources Peru, LLC | 32 | 41.326333 | -89.112639 |
| 161 | KNCH513 | 450-470 | Flint Hills Resources Peru, LLC | 32 | 41.324667 | -89.112417 |
| 162 | WPKL271 | 450-470 | FSS Technologies, L.L.C. | 120 | 41.755583 | -87.956444 |
| 163 | WPWK499 | 150-174 | Ganz, Kevin W | 40 | 41.642222 | -89.089444 |
| 164 | WNVW473 | 150-174 | GARBER, JOHN J | 48 | 40.821417 | -89.325083 |
| 165 | WRJI360 | 150-174 | Gehm, Andrew | 40 | 41.281389 | -89.159444 |
| 166 | KUI773 | 450-470 | GEM ELECTRONICS OF MONMOUTH INC. | 64 | 41.372250 | -89.487861 |
| 167 | WQTV639 | 150-174 | Gillan, Brian J | 32 | 41.411167 | -89.272778 |
| 168 | WQNM857 | 150-174 | GILLAN, DENNIS | 40 | 41.452000 | -89.219306 |
| 169 | KZQ817 | 150-174 | GILLAN, WESLEY | 24 | 41.421694 | -89.213139 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 170 | WNFE922 | 450-470 | GILMORE, EDWARD J:GILMORE, SCOTT E:GILMORE, STEVEN F DBA GILMORE FARMS | 72 | 41.705306 | -89.079806 |
| 171 | WNMB396 | 150-174 | GRADY, JAMES | 40 | 41.543083 | -89.400361 |
| 172 | WPGH577 | 450-470 | GRAINLAND COOPERATIVE | 80 | 40.744472 | -89.134806 |
| 173 | WQZU398 | 150-174 | GRAND RIDGE GRADE SCHOOL | 40 | 41.237778 | -88.835556 |
| 174 | WPQB968 | 450-470 | GRANDVIEW SERVICE COMPANY | 32 | 41.033083 | -89.222583 |
| 175 | WQMI710 | 470-512 | GRAY TELEVISION LICENSEE, LLC | 270 | 41.528639 | -90.573444 |
| 176 | WPZW710 | 150-174, 450-470 | GREMLEY & BIEDERMANN | 160 | 41.962500 | -87.732500 |
| 177 | WPEP959 | 25-50 | GRUNDY, COUNTY OF | 113 | 41.371139 | -88.432833 |
| 178 | WPPD445 | 150-174 | GUNDERSEN LUTHERAN MEDICAL CENTER | 600 | 43.794417 | -91.249583 |
| 179 | WPBS287 | 450-470 | HAGENBUCH, HENRY | 64 | 41.454194 | -88.961750 |
| 180 | WRCJ538 | 450-470 | HALL HIGH SCHOOL | 13 | 41.325889 | -89.212306 |
| 181 | WNVD243 | 150-174 | HALL, DOUGLAS D | 40 | 41.449472 | -88.765639 |
| 182 | WPGX814 | 150-174 | HARMS, RONALD J | 48 | 41.023917 | -88.894528 |
| 183 | WPDT375 | 450-470 | HARVEY STAHL & WIELAND BROTHERS | 80 | 40.932250 | -89.689000 |
| 184 | WPPH705 | 450-470 | HCC INC | 32 | 41.558361 | -89.108139 |
| 185 | WQI355 | 150-174 | HELENA AGRI-ENTERPRISES, LLC | 121 | 41.002250 | -89.132028 |
| 186 | WPPU875 | 150-174 | HENKEL, MARK:HENKEL, TIM DBA M T FARM | 40 | 41.629472 | -89.267028 |
| 187 | KNBY450 | 150-174 | HENNEPIN FIRE RESCUE | 24 | 41.253361 | -89.342028 |
| 188 | KAR340 | 150-174 | Henry Community Ambulance Service | 40 | 41.141694 | -89.419528 |
| 189 | KUE678 | 150-174 | HENRY FIRE PROTECTION DISTRICT | 26 | 41.141694 | -89.419528 |
| 190 | WRNP221 | 450-470 | HENRY IL LLC | 32 | 41.130583 | -89.348694 |
| 191 | WRAE704 | 450-470 | HENRY SENACHWINE CONSOLIDATED UNIT SCHOOL DIST 5 | 32 | 41.114944 | -89.367611 |
| 192 | KAR369 | 150-174 | HENRY, CITY OF | 40 | 41.116694 | -89.357583 |
| 193 | KTO554 | 450-470 | HENRY, CITY OF | 32 | 41.109917 | -89.366500 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 194 | KTO554 | 150-174 | HENRY, CITY OF | 40 | 41.116694 | -89.357583 |
| 195 | WPEY269 | 150-174 | HERITAGE FS INC | 121 | 40.572250 | -88.247278 |
| 196 | WPEY269 | 150-174 | HERITAGE FS INC | 121 | 40.569167 | -88.247111 |
| 197 | WPEY269 | 150-174 | HERITAGE FS INC | 121 | 40.750583 | -87.996694 |
| 198 | WPEY269 | 150-174 | HERITAGE FS INC | 121 | 40.768917 | -87.922528 |
| 199 | KUL525 | 150-174 | Hodel Brothers Farms | 80 | 40.774194 | -89.192861 |
| 200 | WQCM264 | 450-470 | Home Depot Inc #1977 | 10 | 41.359444 | -89.126667 |
| 201 | WNFU757 | 150-174 | HUSTEDT, CHRISTOPHER R | 56 | 41.418083 | -88.444500 |
| 202 | WNMM238 | 150-174 | ILLINOIS CEMENT CO | 40 | 41.329472 | -89.083694 |
| 203 | WNMM238 | 150-174 | ILLINOIS CEMENT CO | 40 | 41.334194 | -89.064944 |
| 204 | WQLR654 | 450-470 | ILLINOIS CENTRAL SCHOOL BUS | 32 | 41.180306 | -88.868417 |
| 205 | WQWF517 | 450-470 | ILLINOIS CENTRAL SCHOOL BUS LLC | 32 | 41.413056 | -89.276111 |
| 206 | WQCT757 | 800/900 | Illinois Cooperative Association, Inc. | 56 | 41.301389 | -88.953056 |
| 207 | KNET289 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.309750 | -88.812306 |
| 208 | WNWB448 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.151139 | -87.855611 |
| 209 | WPBZ996 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.106694 | -87.888389 |
| 210 | WPHA808 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.891417 | -88.445889 |
| 211 | WPJK853 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.645833 | -89.179167 |
| 212 | WPLY585 | 800/900 | Illinois Cooperative dba Clear Talk | 70 | 41.274722 | -89.971667 |
| 213 | WPLY587 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.645833 | -89.179167 |
| 214 | WPLY617 | 800/900 | Illinois Cooperative dba Clear Talk | 90 | 41.301389 | -88.953056 |
| 215 | WPMD703 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.077528 | -87.756139 |
| 216 | WPMD731 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.891417 | -88.445889 |
| 217 | WPMD755 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.897806 | -89.605667 |
| 218 | WPMF885 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.372222 | -89.487778 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---------------------------------------|-------------------------|------------------|-------------------|
| 219 | WPPA251 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.336972 | -88.763972 |
| 220 | WPPA256 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.871111 | -89.020833 |
| 221 | WPRG706 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.884222 | -88.742444 |
| 222 | WPRG707 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 41.138889 | -87.852194 |
| 223 | WPSM625 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.508333 | -88.987500 |
| 224 | WPSM641 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.644722 | -89.179722 |
| 225 | WPST700 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.733056 | -89.486111 |
| 226 | WPSU481 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.508333 | -88.987500 |
| 227 | WRCN753 | 800/900 | Illinois Cooperative dba Clear Talk | 113 | 40.981611 | -90.165194 |
| 228 | WRHS692 | 800/900 | Illinois Cooperative dba Clear Talk | 32 | 41.490833 | -89.284722 |
| 229 | WNMF342 | 800/900 | ILLINOIS PUBLIC SAFETY AGENCY NETWORK | 113 | 41.918639 | -88.235917 |
| 230 | WNXS419 | 800/900 | ILLINOIS PUBLIC SAFETY AGENCY NETWORK | 112.7 | 40.729750 | -89.554806 |
| 231 | WPSP557 | 800/900 | ILLINOIS PUBLIC SAFETY AGENCY NETWORK | 80 | 41.274722 | -89.971667 |
| 232 | WPMS970 | 450-470 | ILLINOIS VALLEY COMMUNITY COLLEGE | 16 | 41.307250 | -89.097583 |
| 233 | WPXP448 | 450-470 | ILLINOIS VALLEY COMMUNITY HOSPITAL | 15 | 41.329194 | -89.123694 |
| 234 | WRFH595 | 150-174 | ILLINOIS VALLEY COMMUNITY HOSPITAL | 32 | 41.329194 | -89.123694 |
| 235 | WQXC739 | 150-174 | ILLINOIS VALLEY EXCAVATING, INC. | 40 | 41.357639 | -89.145250 |
| 236 | KEO371 | 150-174 | ILLINOIS, STATE OF | 64 | 41.363056 | -89.098611 |
| 237 | WQCZ741 | 800/900 | ILLINOIS, STATE OF | 32 | 41.357778 | -88.831667 |
| 238 | WQCZ742 | 800/900 | ILLINOIS, STATE OF | 32 | 41.363056 | -89.098611 |
| 239 | WRCM901 | 450-470 | INDUSTRIAL PUMP & REDUCER REPAIR | 32 | 41.291806 | -89.076861 |
| 240 | WQDV323 | 150-174 | Interstate Power & and Light Company | 290 | 42.686944 | -91.826389 |
| 241 | WPBI314 | 800/900 | Interstate Power and Light Company | 113 | 41.807806 | -90.233194 |
| 242 | WPYC512 | 800/900 | Interstate Power and Light Company | 113 | 41.812222 | -90.241917 |
| 243 | WQML859 | 150-174 | IOWA INTERSTATE RAILROAD | 32 | 41.287333 | -89.373444 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 244 | WQML859 | 150-174 | IOWA INTERSTATE RAILROAD | 32 | 41.327250 | -89.101972 |
| 245 | WQUH622 | 150-174 | Iowa Interstate Railroad | 40 | 41.287750 | -89.373306 |
| 246 | WPBT510 | 25-50 | ISAACSON CONCRETE & EXCAVATING LLC | 113 | 40.517528 | -88.969528 |
| 247 | WQEI905 | 450-470 | JAMES HARDIE BUILDING PRODUCTS | 32 | 41.373056 | -89.140000 |
| 248 | WRFU204 | 150-174 | JENSEN FARMS | 40 | 41.246639 | -89.572028 |
| 249 | WPGS819 | 150-174 | JESSE, RICK | 32 | 41.041694 | -89.216750 |
| 250 | WPJT201 | 800/900 | JOLIET, CITY OF | 113 | 41.524194 | -88.085056 |
| 251 | WQSW631 | 450-470 | JRM Farms LLC | 32 | 41.013000 | -89.272639 |
| 252 | WRFC799 | 150-174 | KAMINKE, TOM | 40 | 40.988056 | -88.873056 |
| 253 | WPUY811 | 450-470 | Keltron Corporation | 120 | 41.672222 | -88.004167 |
| 254 | WPYS418 | 450-470 | Keltron Corporation | 120 | 41.932222 | -88.178611 |
| 255 | KBS718 | 150-174 | KENDALL COUNTY CONCRETE INC | 120.7 | 41.500028 | -88.500083 |
| 256 | WPGE449 | 150-174 | KENNEL, LAWRENCE A | 40 | 40.894750 | -89.319250 |
| 257 | WNJZ554 | 450-470 | KEOKUK CO AMBULANCE | 322 | 41.333333 | -92.204639 |
| 258 | WQTB631 | 150-174 | Klendworth Farms | 40 | 40.945389 | -89.033889 |
| 259 | WQSA357 | 450-470 | KOCH, RODNEY | 32 | 41.029167 | -89.241944 |
| 260 | WNSS787 | 450-470 | Koehler, Karl | 48 | 41.063083 | -89.585639 |
| 261 | WNLP353 | 150-174 | KOELLER, JAN | 56 | 40.898639 | -88.872306 |
| 262 | WNLV471 | 450-470 | LA SALLE 648 PARTNERSHIP | 48 | 41.388083 | -89.320083 |
| 263 | WQAM433 | 450-470 | LA SALLE, CITY OF | 16 | 41.329472 | -89.094528 |
| 264 | WPHN550 | 150-174 | LA SALLE, CITY OF DBA LA SALLE CITY OF | 10 | 41.368917 | -89.097861 |
| 265 | WPHN550 | 150-174 | LA SALLE, CITY OF DBA LA SALLE CITY OF | 24 | 41.368917 | -89.097861 |
| 266 | WQRC950 | 150-174 | LA SALLE, COUNTY OF | 32 | 41.190778 | -88.982194 |
| 267 | WQRC950 | 150-174 | LA SALLE, COUNTY OF | 32 | 41.235333 | -88.831083 |
| 268 | WQRC950 | 150-174 | LA SALLE, COUNTY OF | 32 | 41.372306 | -88.826972 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 269 | WRAV421 | 150-174 | LADD POLICE DEPARTMENT | 32 | 41.382167 | -89.218917 |
| 270 | WQFP807 | 450-470 | LADD, VILLAGE OF | 16 | 41.378556 | -89.213222 |
| 271 | WQEH412 | 450-470 | Lake Thunderbird Association | 32 | 41.211417 | -89.448139 |
| 272 | WPCV359 | 150-174 | LAKE WILDWOOD ASSOCIATION INC | 40 | 41.074833 | -89.273000 |
| 273 | KWK423 | 150-174 | LANDER, WILLIAM A | 40 | 41.125028 | -88.838694 |
| 274 | WQLI922 | 450-470 | LaSalle Elementary Schools #122 | 32 | 41.340111 | -89.096583 |
| 275 | WQQ933 | 150-174 | LaSalle Fire Department | 24 | 41.368917 | -89.097861 |
| 276 | WQOW433 | 150-174 | LASALLE PERU TOWNSHIP HIGH SCHOOL | 40 | 41.332778 | -89.104444 |
| 277 | KSB208 | 150-174 | LASALLE, CITY OF | 16 | 41.328917 | -89.094528 |
| 278 | WQRS947 | 450-470 | LASALLE/PUTNAM EDUCATIONAL ALLIANCE FOR SPECIAL EDUCATION | 4 | 41.329389 | -89.134889 |
| 279 | WNNQ252 | 450-470 | LASSWELL, DARRELL G | 48 | 40.905861 | -89.267861 |
| 280 | WNWE554 | 450-470 | ELECTRONICS INC. | 80 | 41.873083 | -89.534556 |
| 281 | WPDP347 | 150-174 | LEFFELMAN, EUGENE A | 40 | 41.643639 | -89.227583 |
| 282 | WQRV462 | 150-174 | LEFFELMAN, MYRON G | 40 | 41.599750 | -89.334250 |
| 283 | WQEI312 | 150-174 | LinComm | 40 | 41.328917 | -89.205083 |
| 284 | WQUZ816 | 150-174 | LINCOMM | 40 | 41.334250 | -89.202556 |
| 285 | WQOL835 | 150-174 | LINDEN, LARRIE | 40 | 41.191333 | -89.626528 |
| 286 | WPFJ917 | 450-470 | LINDSTROM, RICHARD | 48 | 41.059750 | -89.186194 |
| 287 | KFN555 | 150-174 | LOSTANT COMMUNITY FIRE PROTECTION DIST | 13 | 41.143722 | -89.058917 |
| 288 | WRDG977 | 150-174 | Lucas Ambulance & Medi-Car Service, Inc. | 161 | 41.760361 | -87.860917 |
| 289 | WNPZ490 | 150-174 | LYONS, LAWRENCE | 64 | 41.442806 | -88.782861 |
| 290 | KCJ736 | 150-174 | MAGNOLIA, CITY OF | 24 | 41.100861 | -89.196750 |
| 291 | WQZA763 | 450-470 | MARINO DEVELOPMENT, LLC | 32 | 41.264028 | -89.329083 |
| 292 | WQAF282 | 450-470 | MARK, VILLAGE OF | 24 | 41.264472 | -89.249528 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|-----------------------------------|-------------------------|------------------|-------------------|
| 293 | KNO720 | 450-470 | MARQUIS INC | 32 | 41.277778 | -89.318194 |
| 294 | WQSD591 | 150-174 | MARSEILLES AREA AMBULANCE SERVICE | 40 | 41.328361 | -88.700083 |
| 295 | KNCS266 | 150-174 | MARSHALL, COUNTY OF | 40 | 41.030694 | -89.466528 |
| 296 | WPUT990 | 150-174, 450-470 | MARSHALL, COUNTY OF | 32 | 41.030694 | -89.466528 |
| 297 | WPUT990 | 150-174 | MARSHALL, COUNTY OF | 32 | 41.033056 | -89.222500 |
| 298 | KNBF445 | 150-174 | MARSHALL, COUNTY OF ESDA | 48 | 41.024472 | -89.407583 |
| 299 | WPHZ795 | 450-470 | MATERIAL SERVICE CORPORATION | 80 | 41.327806 | -88.483389 |
| 300 | WQSH966 | 150-174 | MATTER, TERRY | 40 | 40.910306 | -89.154000 |
| 301 | KLK903 | 150-174 | MC ILVAINE, CLIFFORD J | 121 | 41.901972 | -88.317861 |
| 302 | WQOR387 | 450-470 | MCCLURE, STEVEN M | 32 | 41.074333 | -88.949417 |
| 303 | WQLK453 | 150-174 | MCNABB FIRE PROTECTION DISTRICT | 19 | 41.179167 | -89.204167 |
| 304 | WQLP764 | 150-174 | MCNABB FIRE PROTECTION DISTRICT | 19 | 41.179194 | -89.204250 |
| 305 | WPBQ696 | 450-470 | MEDIC EMS | 121 | 41.541972 | -90.557361 |
| 306 | WNLY238 | 150-174 | MENDOTA AREA SENIOR SERVICES INC | 32 | 41.560028 | -89.126750 |
| 307 | KRW908 | 150-174 | MENDOTA COMMUNITY HOSPITAL | 40 | 41.555000 | -89.105500 |
| 308 | KRW908 | 150-174 | MENDOTA COMMUNITY HOSPITAL | 48 | 41.555000 | -89.105500 |
| 309 | WPHK390 | 450-470 | MENDOTA HIGH SCHOOL DISTRICT 280 | 72 | 41.705306 | -89.079806 |
| 310 | WPUK349 | 25-50 | MERTEL GRAVEL COMPANY INC | 40 | 41.347250 | -89.128694 |
| 311 | WPQC491 | 450-470 | Mexichem Specialty Resins, Inc. | 32 | 41.130583 | -89.348694 |
| 312 | WPBX488 | 450-470 | MICROWAVE CABLE | 97 | 40.451417 | -89.007028 |
| 313 | KNEX808 | 450-470 | MID AMERICAN GROWERS | 32 | 41.288083 | -89.195917 |
| 314 | WNXC747 | 450-470 | MIDAMERICAN ENERGY COMPANY | 113 | 41.681417 | -90.393472 |
| 315 | WPGV302 | 800/900 | MIDAMERICAN ENERGY COMPANY | 113 | 41.540028 | -90.447611 |
| 316 | WPPW661 | 800/900 | MIDAMERICAN ENERGY COMPANY | 113 | 41.659194 | -90.344861 |
| 317 | WPRJ938 | 800/900 | MIDAMERICAN ENERGY COMPANY | 113 | 41.540028 | -90.447611 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 318 | WPJQ496 | 150-174 | MINONK, CITY OF | 40 | 40.903917 | -89.034528 |
| 319 | KNIW845 | 150-174 | MOLLN, MYRON | 40 | 41.552806 | -89.390639 |
| 320 | WQXY368 | 150-174 | MONTEREY MUSHROOM INC | 40 | 41.361083 | -89.328722 |
| 321 | WNGP923 | 450-470 | N9JOZ Enterprises LLC-Series Communications dba Midwest 2-Way Communications | 32 | 40.947250 | -89.309250 |
| 322 | WQHL400 | 150-174 | NAFFZIGER FARMS INC | 40 | 41.474750 | -89.528139 |
| 323 | WPIG593 | 150-174 | NAFFZIGER, RONALD | 121 | 40.665306 | -89.463694 |
| 324 | WQVL794 | 450-470 | NAGEL FARMS | 80 | 41.820250 | -88.723750 |
| 325 | WPGV432 | 150-174 | NAPLATE VOLUNTEER FIRE DEPT | 24 | 41.333639 | -88.878139 |
| 326 | WQCM665 | 450-470 | NEWTOWN, TOWNSHIP OF | 32 | 41.069472 | -88.780639 |
| 327 | WQVZ521 | 800/900 | NEXGEN COMMUNICATIONS CORP. | 113 | 41.415278 | -88.271944 |
| 328 | KTE293 | 150-174 | Norfolk Southern Railway Company | 40 | 41.257389 | -89.225444 |
| 329 | KTE293 | 150-174 | Norfolk Southern Railway Company | 40 | 41.098417 | -88.811528 |
| 330 | WQAE318 | 150-174 | Norfolk Southern Railway Company | 16 | 41.139611 | -89.066806 |
| 331 | WQYZ833 | 450-470 | NORTHERN IL STEEL ERECTION, INC. | 32 | 41.513861 | -89.064972 |
| 332 | WPAH495 | 800/900 | NORTHERN INDIANA PUBLIC SERVICE COMPANY | 257 | 41.116167 | -86.163889 |
| 333 | WQSJ209 | 450-470 | NORTHERN INDIANA PUBLIC SERVICE COMPANY | 257 | 41.116167 | -86.163889 |
| 334 | WQUD345 | 450-470 | NORTHERN WHITE SAND | 32 | 41.346667 | -88.952500 |
| 335 | KC25364 | 450-470 | NRG LICENSE SUB, LLC | 80 | 41.827250 | -89.486500 |
| 336 | KPH604 | 150-174 | NRG LICENSE SUB, LLC | 64.4 | 41.816667 | -89.483333 |
| 337 | WQNL853 | 450-470 | OAK STATE PRODUCTS, INC. | 32 | 41.038528 | -89.050722 |
| 338 | WPDR278 | 150-174 | OBERT, ROGER | 56 | 40.908361 | -89.054250 |
| 339 | KNAB748 | 150-174 | OGLESBY, CITY OF | 19 | 41.290806 | -89.068778 |
| 340 | KWH773 | 150-174 | OGLESBY, CITY OF | 5 | 41.295861 | -89.065083 |
| 341 | WNQJ460 | 150-174 | OGLESBY, CITY OF | 103 | 41.297250 | -89.061194 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--|-------------------------|------------------|-------------------|
| 342 | WQAM854 | 150-174 | OGLESBY, CITY OF | 17 | 41.293639 | -89.070917 |
| 343 | WQRP948 | 150-174 | OGLESBY, CITY OF | 14 | 41.293639 | -89.070917 |
| 344 | WQYE800 | 450-470 | OHIO SEMITRONICS OF CA, INC | 80 | 40.813056 | -89.614167 |
| 345 | WNAF297 | 150-174 | OLTMAN & SONS INC | 64 | 41.146417 | -89.349528 |
| 346 | WQYL412 | 150-174 | OMNITRAX. INC. | 40 | 41.347250 | -88.846583 |
| 347 | KWH771 | 150-174 | OSF Healthcare System | 32 | 41.367528 | -89.459528 |
| 348 | WPGC202 | 450-470 | OSF Healthcare System | 40 | 41.367528 | -89.459528 |
| 349 | WPMW402 | 150-174 | OSF Healthcare System | 40 | 41.367528 | -89.459528 |
| 350 | WQCY417 | 150-174, 450-470 | OSF SAINT ELIZABETH | 32 | 41.100028 | -88.833417 |
| 351 | WNPV520 | 150-174 | OTTAWA ELEMENTARY SCHOOL DISTRICT | 40 | 41.348639 | -88.842028 |
| 352 | WQEY377 | 150-174 | OTTAWA RIVER RESCUE SQUAD | 40 | 41.346972 | -88.847583 |
| 353 | KSA910 | 150-174 | OTTAWA, CITY OF | 24 | 41.332472 | -88.873528 |
| 354 | KSA910 | 150-174 | OTTAWA, CITY OF | 24 | 41.331500 | -88.839611 |
| 355 | WQDR677 | 450-470 | OTTAWA, CITY OF - POLICE DEPARTMENT | 32 | 41.326694 | -88.846750 |
| 356 | WREC954 | 450-470 | Otter Creek Wind, LLC | 32 | 41.114000 | -88.719083 |
| 357 | WPKZ525 | 450-470 | PANDUIT CORPORATION | 120 | 41.590028 | -88.020056 |
| 358 | WPMT505 | 25-50, 150-174 | PANINOS OF AMERICA #34398 | 121 | 42.265306 | -89.074556 |
| 359 | WPIB242 | 450-470 | PAVELOC INDUSTRIES INC | 121 | 42.233361 | -88.600083 |
| 360 | KNAU496 | 150-174 | PAW PAW COMMUNITY FIRE PROTECTION DISTRICT | 48 | 41.692250 | -88.988417 |
| 361 | KNNK875 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.870000 | -88.298333 |
| 362 | KNNK875 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.301111 | -87.826389 |
| 363 | WNXG468 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.870583 | -88.295917 |
| 364 | WPIH433 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 42.228083 | -89.019833 |
| 365 | WPIH434 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 42.228083 | -89.019833 |
| 366 | WPKX425 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.870000 | -88.298333 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|-------------------------|-----------------------------------|-------------------------|------------------|-------------------|
| 367 | WPKX425 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.301111 | -87.826389 |
| 368 | WPML271 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 42.105583 | -88.379528 |
| 369 | WPML271 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.769444 | -88.245556 |
| 370 | WPML271 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.301111 | -87.826389 |
| 371 | WPRM224 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 42.105583 | -88.379528 |
| 372 | WPTG711 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.870000 | -88.298333 |
| 373 | WPTG711 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.301111 | -87.826389 |
| 374 | WPTU725 | 800/900 | PDV Spectrum Holding Company, LLC | 112 | 41.496417 | -88.298944 |
| 375 | WQGN891 | 800/900 | PDV Spectrum Holding Company, LLC | 113 | 41.870000 | -88.298333 |
| 376 | WPCV715 | 450-470 | PEDROS, DON | 121 | 41.788639 | -89.696222 |
| 377 | KUT788 | 450-470 | PEORIA DISPOSAL COMPANY | 32 | 41.037806 | -89.446194 |
| 378 | KSD295 | 25-50, 150-174, 450-470 | PEORIA, COUNTY OF | 72 | 40.777250 | -89.757056 |
| 379 | KNIK497 | 150-174 | PERKINS, JAMES | 80 | 40.835722 | -88.335833 |
| 380 | KDU480 | 150-174 | PERU FIRE DEPT | 16 | 41.328083 | -89.126472 |
| 381 | WPYA653 | 450-470 | PERU MALL | 32 | 41.343083 | -89.101194 |
| 382 | WPSJ772 | 150-174 | PERU RESCUE STATION INC | 32 | 41.363056 | -89.100000 |
| 383 | KD48741 | 150-174 | PERU VOLUNTEER AMB SERVICE INC | 24 | 41.333361 | -89.133417 |
| 384 | KD48741 | 150-174 | PERU VOLUNTEER AMB SERVICE INC | 40 | 41.348083 | -89.128694 |
| 385 | KD48741 | 150-174 | PERU VOLUNTEER AMB SERVICE INC | 24 | 41.329194 | -89.123694 |
| 386 | KSA778 | 150-174 | PERU, CITY OF | 7 | 41.328083 | -89.132028 |
| 387 | KZA358 | 150-174 | PERU, CITY OF | 6 | 41.328083 | -89.132028 |
| 388 | WRBY810 | 150-174 | PERU, CITY OF | 13 | 41.348083 | -89.128694 |
| 389 | WRBY810 | 150-174 | PERU, CITY OF | 16 | 41.329306 | -89.124778 |
| 390 | WPFU576 | 150-174 | PERU, TOWNSHIP OF | 11 | 41.332250 | -89.165639 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|--------------------------------------|-------------------------|------------------|-------------------|
| 391 | WQTT403 | 450-470 | PILLER, JAMES | 32 | 41.569000 | -89.178722 |
| 392 | KBV770 | 150-174 | PONTIAC, CITY OF | 105 | 40.908917 | -88.630333 |
| 393 | WQEV221 | 450-470 | PORTILLO'S HOT DOGS LLC | 80 | 40.513556 | -88.954056 |
| 394 | KNGX758 | 450-470 | PQ LLC | 32 | 41.341694 | -89.005083 |
| 395 | WQPF954 | 450-470 | Prairie State Tractor LLC | 32 | 41.368167 | -89.098611 |
| 396 | WQPS937 | 450-470 | Prairie State Tractor LLC | 32 | 41.032722 | -89.227778 |
| 397 | WQPS937 | 450-470 | Prairie State Tractor LLC | 32 | 41.414722 | -88.984167 |
| 398 | WNQV617 | 450-470 | PRINCETON HIGH SCHOOL DISTRICT 500 | 64 | 41.363639 | -89.393417 |
| 399 | KGT765 | 150-174 | PRINCETON REDI MIX INC | 40 | 41.380583 | -89.476472 |
| 400 | WNIW885 | 450-470 | PROBYN, TERRY | 64 | 41.017528 | -89.476194 |
| 401 | KSA928 | 25-50, 150-174 | PUTNAM, COUNTY OF | 24 | 41.253361 | -89.342583 |
| 402 | WQBX211 | 150-174 | PUTNAM, COUNTY OF | 16 | 41.253361 | -89.342583 |
| 403 | WPXR859 | 800/900 | RACOM Corporation | 113 | 41.540000 | -90.447500 |
| 404 | WQKD862 | 800/900 | RACOM Corporation | 113 | 41.860000 | -90.205000 |
| 405 | WNHD772 | 800/900 | RAGAN COMMUNICATIONS INC | 113 | 40.653056 | -89.587333 |
| 406 | WNHD772 | 800/900 | RAGAN COMMUNICATIONS INC | 113 | 40.697806 | -89.471750 |
| 407 | WNIC994 | 800/900 | RAGAN COMMUNICATIONS INC | 113 | 40.834306 | -89.616667 |
| 408 | WPGU598 | 450-470 | RAGAN COMMUNICATIONS, INC. | 64 | 41.284750 | -89.589806 |
| 409 | KNM843 | 450-470 | RAINWATER, RAYMOND | 72 | 41.870583 | -89.022583 |
| 410 | WNNL226 | 450-470 | RANSOM FERTILIZER SALES INC | 56 | 41.157528 | -88.655333 |
| 411 | WQLD611 | 800/900 | RCP Enterprises, Inc | 113 | 41.937222 | -88.124722 |
| 412 | WQLD611 | 800/900 | RCP Enterprises, Inc | 113 | 41.540556 | -88.035556 |
| 413 | KRV214 | 150-174 | READING TOWNSHIP VOLUNTEER FIRE DEPT | 48 | 41.105583 | -88.832861 |
| 414 | WNSZ338 | 150-174 | RIENTS, JEFF | 64 | 40.924750 | -88.866750 |
| 415 | WPCE690 | 450-470 | Rivian Automotive, LLC | 80 | 40.512528 | -89.055639 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 416 | WQSW615 | 450-470 | RJ & Sons Equipment LLC | 32 | 41.013639 | -89.277028 |
| 417 | WPUY889 | 800/900 | ROCKFORD MEMORIAL HOSPITAL | 113 | 42.295833 | -89.100278 |
| 418 | WQYG812 | 450-470 | RUFF BROTHERS GRAIN | 32 | 41.013333 | -89.056667 |
| 419 | WQCR252 | 25-50 | RUFF, JERRY | 40 | 40.991694 | -88.825639 |
| 420 | WNGD226 | 450-470 | RUMBOLD, KENNETH D | 32 | 41.037806 | -89.446194 |
| 421 | WNQP844 | 450-470 | RUMBOLD, MICHAEL | 48 | 41.031417 | -89.620361 |
| 422 | WQDH541 | 150-174 | SABIC Innovative Plastics US LLC | 32 | 41.337222 | -88.754722 |
| 423 | WQDZ837 | 150-174 | SABIC Innovative Plastics US LLC | 32 | 41.337222 | -88.754722 |
| 424 | WQWY639 | 450-470 | SAINT BEDE ABBEY ACADEMY | 32 | 41.322111 | -89.166500 |
| 425 | WQGH694 | 150-174 | SAINT MARGARETS HOSPITAL | 16 | 41.325028 | -89.197306 |
| 426 | WPFC911 | 450-470 | SANDWICH COMMUNITY UNIT SCHOOL DIST 430 | 64 | 41.665278 | -88.576111 |
| 427 | WNDF633 | 450-470 | SCHAUMBURG, BRIAN | 72 | 40.755583 | -88.607000 |
| 428 | WNMH957 | 450-470 | Schmidt, Joseph H | 48 | 41.388083 | -88.817306 |
| 429 | KQJ204 | 150-174 | SCHOFF, RAY | 48 | 41.557806 | -89.595667 |
| 430 | WQRF822 | 150-174 | SERENA, TOWNSHIP OF | 40 | 41.484778 | -88.730139 |
| 431 | WQPX427 | 450-470 | SOUTH OTTAWA TOWNSHIP | 32 | 41.304278 | -88.872361 |
| 432 | WNQE635 | 450-470 | SPOHN, DONALD P | 48 | 41.604194 | -89.479250 |
| 433 | KAA273 | 150-174 | SPRING VALLEY VOLUNTEER FIRE DEPT | 16 | 41.328917 | -89.205083 |
| 434 | WNFA461 | 150-174 | SPRING VALLEY, CITY OF | 16 | 41.326417 | -89.198694 |
| 435 | WPRR427 | 450-470 | SPRING VALLEY, CITY OF | 16 | 41.326139 | -89.196750 |
| 436 | WPSS409 | 150-174 | SPRING VALLEY, CITY OF | 20 | 41.352778 | -89.219444 |
| 437 | WPRW752 | 450-470 | SRHC LLC | 32 | 41.318917 | -88.994250 |
| 438 | KNIK458 | 150-174 | ST. JAMES HOSPITAL | 56 | 40.872778 | -88.671944 |
| 439 | WQSD615 | 150-174 | STAMBERGER, TIMOTHY | 35 | 41.543306 | -89.248111 |
| 440 | WNUW625 | 150-174 | STAMBERGER, Wilbur | 40 | 41.544750 | -89.218972 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 441 | WQFT258 | 450-470 | STANDARD, VILLAGE OF | 32 | 41.205583 | -89.182306 |
| 442 | WRKU576 | 450-470 | STANLEY CONVERGENT SOLUTIONS, INC. | 80 | 40.719056 | -89.593417 |
| 443 | WNDQ702 | 150-174 | STERLING ROCK FALLS READY MIX INC | 121 | 41.787806 | -89.761222 |
| 444 | WQJM518 | 450-470 | STREATOR TOWNSHIP HIGH SCHOOL | 32 | 41.116944 | -88.831111 |
| 445 | WRKC238 | 150-174 | Streator Woodland Community Unit District 5 | 32 | 41.126556 | -88.837083 |
| 446 | WRKC238 | 150-174 | Streator Woodland Community Unit District 5 | 32 | 41.296528 | -88.730750 |
| 447 | WQQN354 | 150-174 | STUART TREE SERVICE | 40 | 41.329722 | -89.107778 |
| 448 | WNFK437 | 150-174 | SULLIVAN, DUANE R | 48 | 40.915306 | -89.070361 |
| 449 | WQHV521 | 450-470 | SUN AG, INC. | 32 | 41.169222 | -89.205111 |
| 450 | WPCN468 | 450-470 | SUPER MIX INC | 32 | 41.250028 | -88.908417 |
| 451 | KSX271 | 450-470 | Superior Air Ground Ambulance Inc. | 56 | 41.407528 | -88.805639 |
| 452 | WQJL943 | 450-470 | SUPERVALUE INC. DBA ADVANTAGE LOGISTICS | 32 | 41.297222 | -89.089444 |
| 453 | WPEH988 | 450-470 | SUPREME RADIO COMMUNICATIONS INC | 56 | 41.063083 | -89.585639 |
| 454 | WPEH989 | 450-470 | SUPREME RADIO COMMUNICATIONS INC | 56 | 41.063083 | -89.585639 |
| 455 | WNGS881 | 800/900 | SUPREME RADIO COMMUNICATIONS, INC | 113 | 40.619472 | -89.572333 |
| 456 | WNGS881 | 800/900 | SUPREME RADIO COMMUNICATIONS, INC | 113 | 40.483056 | -88.995278 |
| 457 | WPZR850 | 800/900 | Supreme Radio Communications, Inc. | 113 | 41.074722 | -90.344722 |
| 458 | WQCH508 | 150-174 | SWARTZ, GARY | 80 | 40.920278 | -88.388056 |
| 459 | WQRR255 | 150-174 | SWEEDEN FARM SERVICE | 40 | 41.120528 | -88.735250 |
| 460 | WRKX712 | 800/900 | TCJ ENTERPRISES, INC | 88 | 41.496417 | -88.298944 |
| 461 | WQZC731 | 150-174 | TECHNISAND, INC. | 32 | 41.464139 | -89.079167 |
| 462 | WQSI458 | 150-174 | TESTIN, PATRICK | 40 | 41.012500 | -89.132806 |
| 463 | WQMI805 | 150-174 | Texas Eastern Communications, LLC | 80 | 40.720194 | -89.088889 |
| 464 | WQMI805 | 150-174 | Texas Eastern Communications, LLC | 80 | 40.828806 | -88.861111 |
| 465 | WQMI805 | 150-174 | Texas Eastern Communications, LLC | 80 | 41.099694 | -88.277306 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 466 | WPEK552 | 150-174 | TISKILWA Fire Department | 40 | 41.416694 | -89.500083 |
| 467 | WNXE950 | 150-174 | TISKILWA, VILLAGE OF | 32 | 41.287528 | -89.505639 |
| 468 | WPKQ644 | 25-50, 150-174 | TISKILWA, VILLAGE OF | 32 | 41.287528 | -89.505639 |
| 469 | WQTV818 | 450-470 | Toepper, Allen | 40 | 40.999389 | -89.082500 |
| 470 | KZZ424 | 150-174 | Toledo Peoria & Western Railway | 80 | 40.639194 | -89.581222 |
| 471 | WPVK970 | 150-174 | TOLUCA FIRE PROTECTION AND AMBULANCE DISTRICT | 32 | 41.001417 | -89.135639 |
| 472 | WNXN918 | 450-470 | TOLUCA, CITY OF | 24 | 41.002389 | -89.134472 |
| 473 | WNRD736 | 450-470 | TONICA COMMUNITY CON GRADE SCHOOL DISTRICT 79 | 32 | 41.223639 | -89.075083 |
| 474 | WPWM824 | 150-174 | TONICA VOLUNTEER FIRE DEPT INC | 24 | 41.223750 | -89.068500 |
| 475 | WPGZ665 | 450-470 | TRACY, MATTHEW W | 64 | 41.031417 | -89.620361 |
| 476 | WQSX825 | 150-174 | TROY SIMPLIFIED TECHNOLOGIES, INC. | 40 | 41.335694 | -89.261500 |
| 477 | WPXY447 | 450-470 | TYSON FOODS INC | 32 | 41.376667 | -88.826694 |
| 478 | WQHT325 | 450-470 | U. S. Truck Body | 32 | 41.137667 | -88.835056 |
| 479 | WQVJ551 | 450-470 | U.S. SILICA SAND | 25 | 41.454028 | -89.146139 |
| 480 | WQWJ306 | 450-470 | UNICOMM ELECTRONICS | 121 | 41.638083 | -88.080056 |
| 481 | WPFN897 | 450-470 | UNITED RADIO | 64 | 40.833361 | -89.318972 |
| 482 | KB82881 | 216-220 | UNIVERSITY OF MEMPHIS | 640 | 36.000056 | -86.000000 |
| 483 | WQAZ471 | 150-174 | UTICA FIRE PROTECTION DISTRICT | 16 | 41.359639 | -89.011056 |
| 484 | WQAZ471 | 150-174 | UTICA FIRE PROTECTION DISTRICT | 16 | 41.344667 | -89.006611 |
| 485 | WQBY549 | 450-470 | Vactor Manufacturing, Inc | 32 | 41.100000 | -88.824444 |
| 486 | WPTZ724 | 150-174 | VARNA FIRE DEPARTMENT AMBULANCE SERVICE | 32 | 41.037250 | -89.220083 |
| 487 | KRJ514 | 150-174 | VEATCH AND SONS | 121 | 40.585861 | -88.143111 |
| 488 | WPCK232 | 220-222 | VIE Technologies Inc. | 113 | 41.301139 | -87.826444 |
| 489 | WREP875 | 150-174 | VILLAGE OF DANA POLICE DEPARTMEN | 40 | 40.957028 | -88.949444 |
| 490 | WQFD730 | 150-174 | VILLAGE OF NORTH UTICA POLICE DEPARTMENT | 12 | 41.334167 | -89.010833 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---|-------------------------|------------------|-------------------|
| 491 | WROH964 | 450-470 | Vision Management Services, LLC | 16 | 41.290833 | -89.085889 |
| 492 | WPXA381 | 150-174 | Vollmer, Francis G | 40 | 40.967250 | -88.728111 |
| 493 | WQFH265 | 450-470 | VON MAUR | 79 | 40.515278 | -88.951111 |
| 494 | WRE641 | 150-174 | WALLACE CONSOLIDATED SCHOOL DIST 195 | 24 | 41.411417 | -88.880917 |
| 495 | WPSF269 | 450-470 | Wal-Mart Stores East LP | 10 | 41.350833 | -89.223667 |
| 496 | WPSF269 | 450-470 | Wal-Mart Stores East LP | 13 | 41.350833 | -89.223667 |
| 497 | WQEQ698 | 450-470 | Wal-Mart Stores East LP | 32 | 41.263056 | -89.518333 |
| 498 | KNGS512 | 450-470 | WASHINGTON MILLS HENNEPIN, INC. | 32 | 41.300028 | -89.299806 |
| 499 | KNGS512 | 450-470 | WASHINGTON MILLS HENNEPIN, INC. | 32 | 41.297250 | -89.295917 |
| 500 | WQWW622 | 450-470 | WEDRON SILICA CO | 32 | 41.436167 | -88.774472 |
| 501 | WQWW622 | 450-470 | WEDRON SILICA CO | 32 | 41.436139 | -88.772306 |
| 502 | WPWL721 | 150-174 | WENONA FIRE PROTECTION DISTRICT & AMBULANCE SERVICE | 24 | 41.050278 | -89.049167 |
| 503 | WRDM900 | 450-470 | WENONA POLICE DEPARTMENT | 30 | 41.052278 | -89.051250 |
| 504 | WRFH997 | 150-174 | WENONA, CITY OF | 40 | 41.051778 | -89.049889 |
| 505 | WQZT877 | 800/900 | Western Will County Communication Center | 113 | 41.308722 | -88.146083 |
| 506 | WQZT878 | 800/900 | Western Will County Communication Center | 113 | 41.435389 | -88.183333 |
| 507 | WQMB294 | 450-470 | WHITE, TODD | 32 | 40.948083 | -89.309806 |
| 508 | WQUU895 | 450-470 | White, Todd | 32 | 40.948083 | -89.309806 |
| 509 | WQUU895 | 450-470 | White, Todd | 40 | 40.946028 | -89.270139 |
| 510 | WPSH670 | 450-470 | Willet Hofmann & Assoc Inc | 161 | 41.850000 | -89.475000 |
| 511 | WNVW882 | 800/900 | WINNEBAGO, COUNTY OF | 113 | 42.270306 | -89.097056 |
| 512 | KD50657 | 150-174 | WISCONSIN POWER AND LIGHT COMPANY | 241 | 43.005000 | -89.196222 |
| 513 | KJM544 | 450-470 | WLS TELEVISION, INC. | 160 | 41.878917 | -87.636167 |
| 514 | WRDF445 | 800/900 | WOODFORD, COUNTY OF | 64 | 40.823889 | -89.311389 |

| ID | Call Sign | Frequency Band (MHz) | Licensee | Mobile Area Radius (km) | Latitude (NAD83) | Longitude (NAD83) |
|-----|-----------|----------------------|---------------------|-------------------------|------------------|-------------------|
| 515 | WRDF445 | 800/900 | WOODFORD, COUNTY OF | 64 | 40.900944 | -89.039444 |
| 516 | WNBL262 | 150-174 | WRIGHT, GLEN | 48 | 41.205583 | -89.482306 |
| 517 | WNGC296 | 800/900 | Young, Joseph | 113 | 40.716667 | -88.001111 |
| 518 | WNGC296 | 800/900 | Young, Joseph | 113 | 40.923250 | -87.825889 |
| 519 | WQXV356 | 150-174 | ZAPF, JEREMY L | 40 | 41.634528 | -89.253139 |

Table A: Mobile Licenses Intersecting Project Area

Wind Power GeoPlanner™

Off-Air TV Analysis

Hickory Wind Project



Prepared on Behalf of
UKA North America, LLC

December 21, 2022



COMSEARCH
A CommScope Company

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1. Introduction

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those off-air stations whose service could potentially be affected by the proposed Hickory Wind Project in LaSalle County, Illinois. Comsearch then examined the coverage of the stations and the communities in the area that could potentially have degraded television reception due to the location of the proposed wind turbines.

2. Summary of Results

The proposed wind energy project area and local communities are depicted in Figure 1, below.

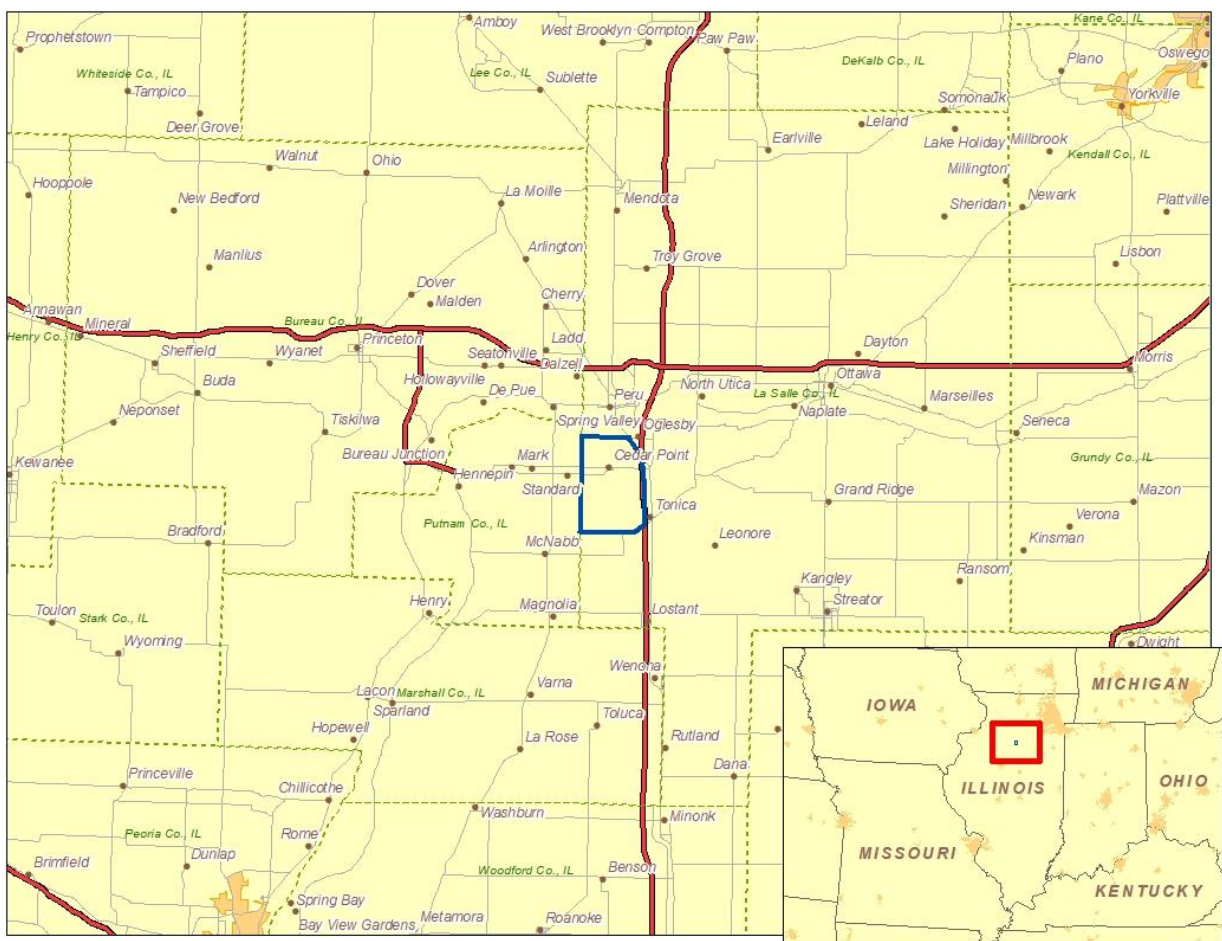


Figure 1: Wind Farm Project Area and Local Communities

To begin the analysis, Comsearch compiled all off-air television stations¹ within 150 kilometers of the proposed turbines. TV stations at a distance of 150 kilometers or less are the most likely to provide off-air coverage to the project area and neighboring communities. These stations are listed in Table 1, on the next page, and a plot depicting their locations is provided in Figure 2. There are a total of 98 database records for stations within approximately 150 kilometers of the proposed turbines. Of these stations, only 71 stations are currently licensed and operating, 26 of which are low-power stations or translators. Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

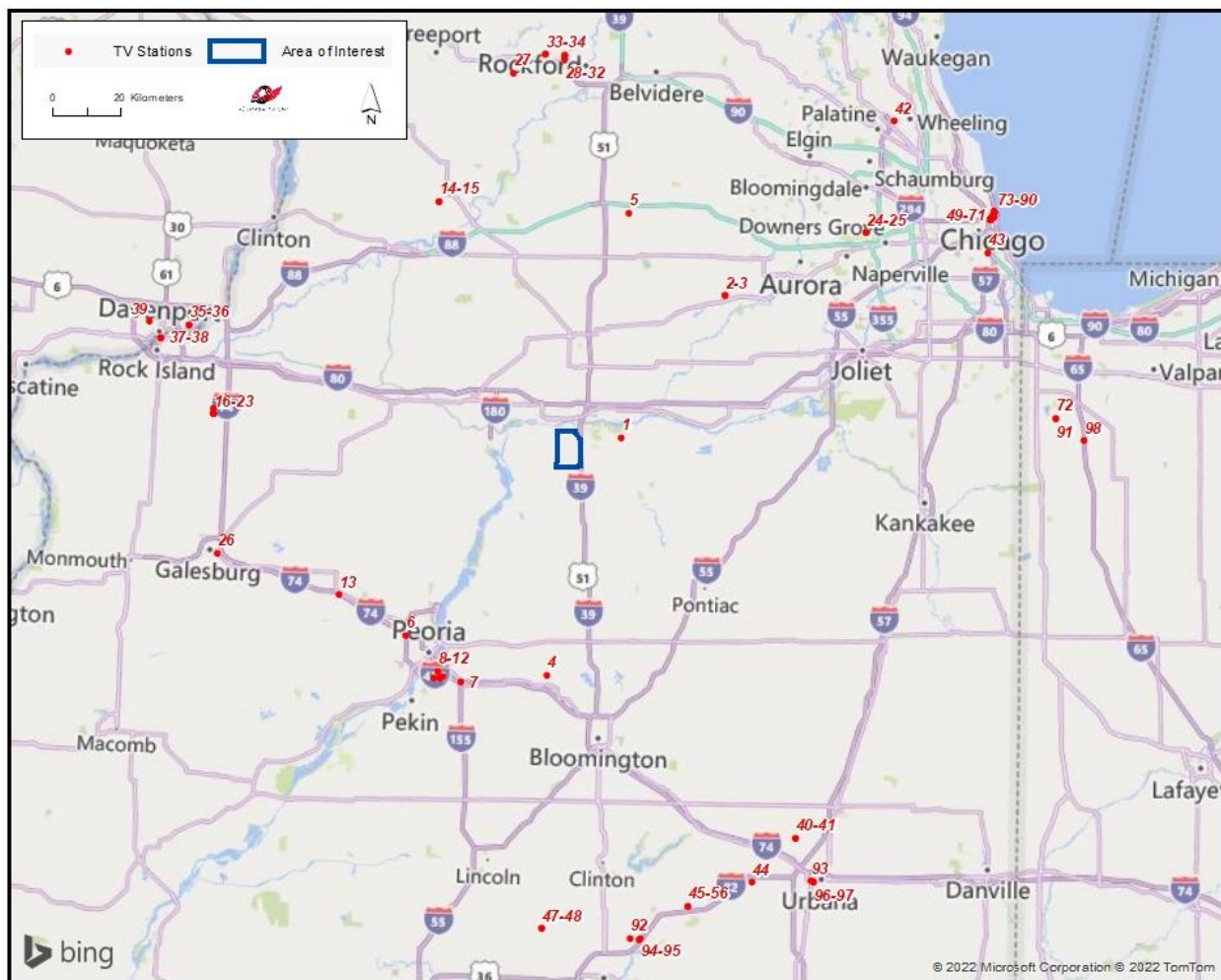


Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Proposed Turbines

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the TV station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

| ID | Call Sign | Status | Service ² | Channel | Transmit ERP ³ (kW) | Latitude (NAD 83) | Longitude (NAD 83) | Distance to the Closest Turbine (km) |
|----|-----------|--------|----------------------|---------|--------------------------------|-------------------|--------------------|--------------------------------------|
| 1 | WAOE | CP | DTS | 10 | 30.0 | 41.281833 | -88.936417 | 13.45 |
| 2 | WAUR-LD | LIC | LPD | 29 | 15.0 | 41.665278 | -88.576111 | 61.81 |
| 3 | WSPY-LD | LIC | LPD | 30 | 10.8 | 41.665278 | -88.576111 | 61.81 |
| 4 | WYZZ-TV | LIC | DTV | 28 | 1000.0 | 40.645833 | -89.179167 | 64.75 |
| 5 | WYCH-LD | LIC | LPD | 11 | 3.0 | 41.880028 | -88.924889 | 68.87 |
| 6 | WSIO-LD | CP | LPT | 19 | 11.0 | 40.741153 | -89.673717 | 72.00 |
| 7 | W27EQ-D | LIC | LPD | 27 | 15.0 | 40.621944 | -89.476667 | 74.14 |
| 8 | WAOE | LIC | DRT | 18 | 15.0 | 40.648056 | -89.557222 | 74.77 |
| 9 | WMBD-TV | LIC | DTV | 26 | 822.0 | 40.635000 | -89.538611 | 75.24 |
| 10 | WHOI | LIC | DTV | 24 | 402.0 | 40.629444 | -89.548056 | 76.17 |
| 11 | WEEK-TV | LIC | DTV | 25 | 536.0 | 40.629444 | -89.548056 | 76.17 |
| 12 | WTVP | LIC | DTV | 35 | 155.0 | 40.628889 | -89.570000 | 77.15 |
| 13 | W19ES-D | LIC | LPT | 19 | 1.62 | 40.843389 | -89.911083 | 78.97 |
| 14 | W19CX | LIC | LPX | 19 | 9.5 | 41.897778 | -89.605556 | 80.92 |
| 15 | W27EJ-D | LIC | LPD | 27 | 15.0 | 41.897861 | -89.606056 | 80.95 |
| 16 | WMWC-TV | APP | DTV | 8 | 39.0 | 41.312361 | -90.379500 | 104.18 |
| 17 | WMWC-TV | STA | DTV | 8 | 5.3 | 41.312361 | -90.379500 | 104.18 |
| 18 | WMWC-TV | LIC | DTV | 8 | 23.0 | 41.312361 | -90.379500 | 104.18 |
| 19 | WQPT-TV | LIC | DTV | 23 | 664.0 | 41.312361 | -90.379500 | 104.18 |
| 20 | KLJB | LIC | DTV | 30 | 1000.0 | 41.312361 | -90.379500 | 104.18 |
| 21 | WQAD-TV | LIC | DTV | 31 | 1000.0 | 41.312361 | -90.379500 | 104.18 |
| 22 | KQIN | LIC | DTV | 34 | 199.5 | 41.312361 | -90.379500 | 104.18 |
| 23 | KGCW | LIC | DTV | 21 | 1000.0 | 41.327500 | -90.379444 | 104.28 |
| 24 | WAUR-LD | CP | LPD | 29 | 12.2 | 41.838417 | -88.080250 | 105.82 |

² Definitions of service and status codes:

ACA - Analog Class A
DCA - Digital Class A
DRT - Digital Replacement Translator
DT - ETL testing
DTS - Distributed Transmission System
DTV - Full Service Television
DTX - Digital TV Auxiliary
LPA - Low Power Analog TV
LPD - Low Power Digital TV
LPT - Digital TV Translator
LPX - Analog TV Translator
TS - Legacy Service for Analog TV Auxiliary
TV - Analog TV legacy

LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational
STA – Special transmit authorization, usually granted by FCC for temporary operation
AMD - Amendment

³ ERP = Transmit Effective Radiated Power

| ID | Call Sign | Status | Service ² | Channel | Transmit ERP ³ (kW) | Latitude (NAD 83) | Longitude (NAD 83) | Distance to the Closest Turbine (km) |
|----|-----------|--------|----------------------|---------|--------------------------------|-------------------|--------------------|--------------------------------------|
| 25 | WWTO-TV | STA | DTV | 35 | 15.0 | 41.838417 | -88.080250 | 105.82 |
| 26 | W51DT | LIC | LPX | 51 | 17.8 | 40.942778 | -90.344167 | 106.89 |
| 27 | W35DY-D | LIC | LPT | 35 | 3.44 | 42.245250 | -89.353639 | 109.82 |
| 28 | WTVO | LIC | DTV | 16 | 196.0 | 42.287222 | -89.170833 | 112.62 |
| 29 | WQRF-TV | LIC | DTV | 36 | 910.0 | 42.287222 | -89.170833 | 112.62 |
| 30 | WFBN-LD | LIC | LPD | 23 | 15.0 | 42.296667 | -89.170833 | 113.67 |
| 31 | WIFR-LD | LIC | LPD | 28 | 15.0 | 42.296667 | -89.170833 | 113.67 |
| 32 | NEW | CP | DTV | 9 | 30.0 | 42.296750 | -89.170833 | 113.68 |
| 33 | WREX | LIC | DTV | 13 | 18.0 | 42.296667 | -89.239444 | 114.09 |
| 34 | WREX | CP | DTV | 13 | 30.0 | 42.296667 | -89.239444 | 114.09 |
| 35 | WHBF-TV | LIC | DTV | 4 | 33.7 | 41.546944 | -90.476389 | 116.52 |
| 36 | KWQC-TV | LIC | DTV | 17 | 1000.0 | 41.546889 | -90.477167 | 116.58 |
| 37 | WHBF-TV | CP | DRT | 19 | 0.25 | 41.510278 | -90.574167 | 123.43 |
| 38 | WHBF-TV | LIC | DRT | 47 | 2.3 | 41.510278 | -90.574167 | 123.43 |
| 39 | K33QA-D | CP | LPD | 33 | 15.0 | 41.552333 | -90.618389 | 128.12 |
| 40 | W07DD-D | STA | LPD | 7 | 0.1 | 40.224167 | -88.298889 | 129.75 |
| 41 | W07DD-D | LIC | LPD | 7 | 0.28 | 40.224167 | -88.298889 | 129.75 |
| 42 | WRJK-LP | LIC | LPA | 22 | 1.4 | 42.137139 | -87.982556 | 133.68 |
| 43 | WUVI-LD | LIC | LPD | 3 | 3.0 | 41.788694 | -87.645361 | 134.36 |
| 44 | WCIA | LIC | DTV | 34 | 681.0 | 40.105833 | -88.450000 | 135.60 |
| 45 | WILL-TV | LIC | DTV | 9 | 30.0 | 40.038889 | -88.669444 | 136.47 |
| 46 | WILL-TV | APP | DTV | 9 | 35.0 | 40.038889 | -88.669444 | 136.47 |
| 47 | WCQA-LD | STA | LPD | 12 | 1.5 | 39.971056 | -89.174361 | 139.43 |
| 48 | WCQA-LD | LIC | LPD | 12 | 3.0 | 39.971056 | -89.174361 | 139.43 |
| 49 | WMEU-CD | LIC | DCA | 18 | 15.0 | 41.878917 | -87.636167 | 139.51 |
| 50 | WGN-TV | LIC | DTV | 19 | 645.0 | 41.878917 | -87.636167 | 139.51 |
| 51 | WWME-CD | LIC | DCA | 20 | 15.0 | 41.878917 | -87.636167 | 139.51 |
| 52 | WCIU-TV | LIC | DTV | 23 | 1000.0 | 41.878917 | -87.636167 | 139.51 |
| 53 | WFLD | CP | DTV | 24 | 1000.0 | 41.878917 | -87.636167 | 139.51 |
| 54 | WTTW | LIC | DTV | 25 | 250.0 | 41.878917 | -87.636167 | 139.51 |
| 55 | WEDE-CD | LIC | DCA | 28 | 2.84 | 41.878917 | -87.636167 | 139.51 |
| 56 | WMAQ-TV | LIC | DTV | 29 | 350.0 | 41.878917 | -87.636167 | 139.51 |
| 57 | WSNS-TV | LIC | DTV | 29 | 350.0 | 41.878917 | -87.636167 | 139.51 |
| 58 | WFLD | LIC | DTV | 31 | 1000.0 | 41.878917 | -87.636167 | 139.51 |
| 59 | WPWR-TV | LIC | DTV | 31 | 1000.0 | 41.878917 | -87.636167 | 139.51 |
| 60 | WMAQ-TV | CP | DTV | 33 | 398.0 | 41.878917 | -87.636167 | 139.51 |
| 61 | WRJK-LP | AMD | LPD | 11 | 0.09 | 41.878889 | -87.635556 | 139.55 |
| 62 | WBBM-TV | LIC | DTV | 12 | 10.9 | 41.878889 | -87.635556 | 139.55 |
| 63 | WJYS | LIC | DTV | 21 | 140.0 | 41.878889 | -87.635556 | 139.55 |
| 64 | WLS-TV | STA | DTV | 22 | 908.0 | 41.878889 | -87.635556 | 139.55 |
| 65 | WLS-TV | CP | DTV | 22 | 1000.0 | 41.878889 | -87.635556 | 139.55 |
| 66 | WRJK-LP | CP | LPD | 24 | 15.0 | 41.878889 | -87.635556 | 139.55 |

| ID | Call Sign | Status | Service ² | Channel | Transmit ERP ³ (kW) | Latitude (NAD 83) | Longitude (NAD 83) | Distance to the Closest Turbine (km) |
|----|-----------|--------|----------------------|---------|--------------------------------|-------------------|--------------------|--------------------------------------|
| 67 | WCPX-TV | LIC | DTV | 34 | 400.0 | 41.878889 | -87.635556 | 139.55 |
| 68 | WXFT-DT | LIC | DTV | 44 | 1000.0 | 41.878889 | -87.635556 | 139.55 |
| 69 | WLS-TV | LIC | DTV | 44 | 1000.0 | 41.878889 | -87.635556 | 139.55 |
| 70 | WCHU-LD | LIC | LPD | 7 | 3.0 | 41.889083 | -87.626667 | 140.74 |
| 71 | WDCI-LD | LIC | LPD | 30 | 15.0 | 41.885028 | -87.621583 | 140.89 |
| 72 | WYIN | LIC | DTV | 17 | 300.0 | 41.348889 | -87.400556 | 141.45 |
| 73 | WOCK-CD | LIC | DCA | 4 | 3.0 | 41.898917 | -87.623111 | 141.52 |
| 74 | WRME-LD | LIC | LPD | 6 | 3.0 | 41.898917 | -87.623111 | 141.52 |
| 75 | WRME-LD | STA | LPD | 6 | 3.0 | 41.898917 | -87.623111 | 141.52 |
| 76 | WRME-LP | LIC | LPA | 6 | 3.0 | 41.898917 | -87.623111 | 141.52 |
| 77 | WAOE | CP | DTS | 10 | 13.25 | 41.898917 | -87.623111 | 141.52 |
| 78 | WMEU-CD | CP | DCA | 18 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 79 | WWME-CD | CP | DCA | 20 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 80 | WCIU-TV | CP | DTV | 23 | 1000.0 | 41.898917 | -87.623111 | 141.52 |
| 81 | WFLD | STA | DTV | 24 | 1000.0 | 41.898917 | -87.623111 | 141.52 |
| 82 | WPVN-CD | LIC | DCA | 26 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 83 | W27EB-D | LIC | DCA | 27 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 84 | WDCI-LD | CP | LPD | 30 | 0.85 | 41.898917 | -87.623111 | 141.52 |
| 85 | WESV-LD | LIC | LPD | 31 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 86 | W31EZ-D | LIC | LPD | 31 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 87 | WWTO-TV | LIC | DTV | 32 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 88 | WLPD-CD | LIC | DCA | 32 | 15.0 | 41.898917 | -87.623111 | 141.52 |
| 89 | WGBO-DT | LIC | DTV | 35 | 635.0 | 41.898917 | -87.623111 | 141.52 |
| 90 | WRJK-LD | LIC | LPT | 36 | 5.1 | 41.898917 | -87.623111 | 141.52 |
| 91 | WYIN | STA | DTV | 17 | 300.0 | 41.349806 | -87.399472 | 141.54 |
| 92 | WLCF-LD | LIC | LPD | 17 | 15.0 | 39.950833 | -88.868056 | 142.75 |
| 93 | WBXC-CD | LIC | DCA | 18 | 15.0 | 40.111111 | -88.243056 | 142.98 |
| 94 | WAND | LIC | DTV | 20 | 1000.0 | 39.952389 | -88.832389 | 143.01 |
| 95 | WBUI | LIC | DTV | 22 | 325.0 | 39.948889 | -88.836917 | 143.34 |
| 96 | W39BH | LIC | LPA | 39 | 12.5 | 40.109472 | -88.235028 | 143.48 |
| 97 | W27EL-D | LIC | LPD | 27 | 15.0 | 40.109361 | -88.234889 | 143.50 |
| 98 | KPDS-LD | LIC | LPD | 9 | 3.0 | 41.289917 | -87.299917 | 149.48 |

Table 1: Off-Air TV Stations within 150 Kilometers of Proposed Turbines

3. Impact Assessment

Based on a contour analysis of the licensed stations within 150 kilometers of the Hickory Wind Project, it was determined that nine of the full-power digital stations, identified below in Table 2, may have their reception disrupted in and around the project. The areas primarily affected would include TV service locations within 10 kilometers of the turbines that have clear line-of-sight (LOS) to a proposed wind turbine but not to the respective station. After the wind turbines are installed, communities and homes in these locations may have degraded reception of these stations. This is due to multipath interference caused by signal scattering as TV signals are reflected by the rotating wind turbine blades and mast.

| ID | Call Sign | Status | Service | Channel | Transmit ERP (kW) | Latitude (NAD 83) | Longitude (NAD 83) | Distance to the Closest Turbine (km) |
|----|-----------|--------|---------|---------|-------------------|-------------------|--------------------|--------------------------------------|
| 4 | WYZZ-TV | LIC | DTV | 28 | 1000.0 | 40.645833 | -89.179167 | 64.75 |
| 9 | WMBD-TV | LIC | DTV | 26 | 822.0 | 40.635000 | -89.538611 | 75.24 |
| 10 | WHOI | LIC | DTV | 24 | 402.0 | 40.629444 | -89.548056 | 76.17 |
| 11 | WEEK-TV | LIC | DTV | 25 | 536.0 | 40.629444 | -89.548056 | 76.17 |
| 12 | WTVF | LIC | DTV | 35 | 155.0 | 40.628889 | -89.570000 | 77.15 |
| 19 | WQPT-TV | LIC | DTV | 23 | 664.0 | 41.312361 | -90.379500 | 104.18 |
| 20 | KLJB | LIC | DTV | 30 | 1000.0 | 41.312361 | -90.379500 | 104.18 |
| 21 | WQAD-TV | LIC | DTV | 31 | 1000.0 | 41.312361 | -90.379500 | 104.18 |
| 35 | WHBF-TV | LIC | DTV | 4 | 33.7 | 41.546944 | -90.476389 | 116.52 |

Table 2: Licensed Off-Air TV Stations Subject to Degradation

4. Recommendations

While TV signals are reflected by wind turbines, which can cause multipath interference to the TV receiver, modern digital TV receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that signal scattering from wind farms will cause interference to digital TV reception.

Nevertheless, signal scattering could still impact certain areas currently served by the TV station mentioned above, especially those that would have line-of-sight to at least one wind turbine but not to the station antenna. In the unlikely event that interference is observed in any of the TV service areas, it is recommended that a high-gain directional antenna be used, preferably outdoors, and oriented towards the signal origin in order to mitigate the interference.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbine facility and may be offered to those residents who can show that their off-air TV reception has been disrupted by the presence of the wind turbines after they are installed.



5. Contact

For questions or information regarding the Off-Air TV Analysis, please contact:

| | |
|-----------------|--|
| Contact person: | David Meyer |
| Title: | Senior Manager |
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| Telephone: | 703-726-5656 |
| Fax: | 703-726-5595 |
| Email: | David.Meyer@CommScope.com |
| Web site: | www.comsearch.com |

Wind Power GeoPlanner™

AM and FM Radio Report

Hickory Wind Project



Prepared on Behalf of
UKA North America,
LLC

December 21, 2022



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1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Hickory Wind Project in LaSalle County, Illinois.

2. Summary of Results

Project Information

Name: Hickory Wind Project

County: LaSalle

State: Illinois

Number of Turbines: 12

Blade Diameter: 163 meters

Hub Height: 118 meters

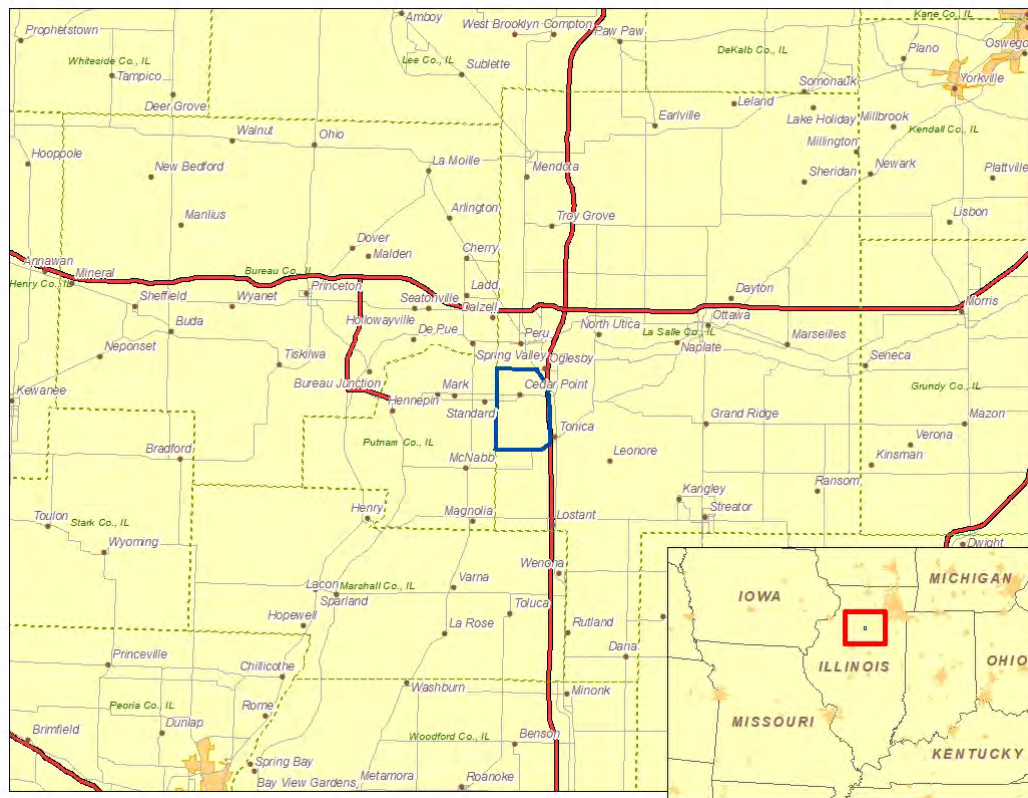


Figure 1: Area of Interest

AM Radio Analysis

Comsearch found seven database records¹ for AM stations within approximately 30 kilometers of the project, as shown in Table 1 and Figure 1. The closest station, WLPO, which broadcasts out of Lasalle, Illinois, is located 3.32 km from the nearest proposed turbine location to the north of the project. WLPO is licensed to operate at two different power levels, a higher transmit power for daytime operations and a lower transmit power for nighttime operations.

| ID | Call Sign | Status ² | Frequency (kHz) | Transmit ERP ³ (kW) | Operation Time | Latitude (NAD 83) | Longitude (NAD 83) | Required Separation Distance ⁴ (km) | Distance to Nearest Turbine (km) |
|----|-----------|---------------------|-----------------|--------------------------------|----------------|-------------------|--------------------|--|----------------------------------|
| 1 | WLPO | LIC | 1220 | 1.0 | Daytime | 41.303925 | -89.095639 | 2.46 | 3.32 |
| 2 | WLPO | LIC | 1220 | 0.5 | Nighttime | 41.303925 | -89.095639 | 2.46 | 3.32 |
| 3 | WSPL | LIC | 1250 | 0.5 | Daytime | 41.158367 | -88.837019 | 2.40 | 22.13 |
| 4 | WSPL | LIC | 1250 | 0.064 | Nighttime | 41.158367 | -88.837019 | 2.40 | 22.13 |
| 5 | WCMY | LIC | 1430 | 0.5 | Daytime | 41.348089 | -88.804244 | 0.21 | 26.32 |
| 6 | WCMY | LIC | 1430 | 0.038 | Nighttime | 41.348089 | -88.804244 | 0.21 | 26.32 |
| 7 | WZOE | LIC | 1490 | 1.0 | Unlimited | 41.352258 | -89.468147 | 0.20 | 29.65 |

Table 1: AM Radio Stations within 30 km

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

² LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

³ ERP = Transmit Effective Radiated Power.

⁴ The required separation distance is based on the lesser of 10 wavelengths or 3 kilometers for directional antennas and 1 wavelength for non-directional antennas.

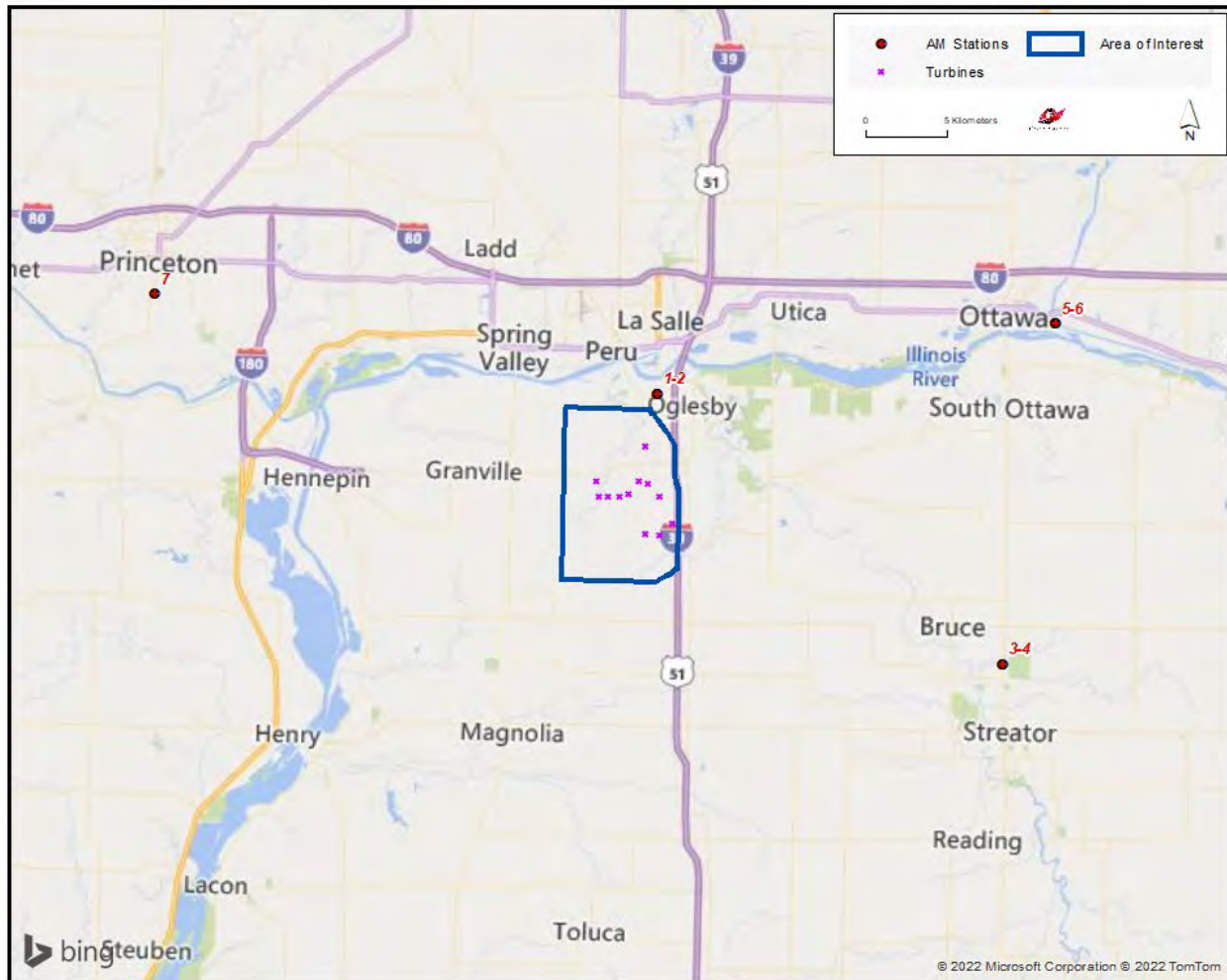


Figure 1: AM Radio Stations within 30 km

FM Radio Analysis

Comsearch determined that there were nineteen database records for FM stations within a 30-kilometer radius of the Hickory Wind project, as shown in Table 2 and Figure 2. All of the stations are licensed and operating, three of which are translator stations, one is a low power station and one is an auxiliary (backup) station that operates with limited range. The closest FM station to the project is WSOG, which broadcasts out of Spring Valley, Illinois, located just inside the northern edge of the project area, 3.20 km from the nearest turbine.

| ID | Call Sign | Service ⁵ | Status ⁶ | Frequency (MHz) | Transmit ERP ⁷ (kW) | Latitude (NAD 83) | Longitude (NAD 83) | Distance to Nearest Turbine (km) |
|----|-----------|----------------------|---------------------|-----------------|--------------------------------|-------------------|--------------------|----------------------------------|
| 1 | WSOG | FM | LIC | 88.1 | | 41.292250 | -89.133139 | 3.20 |
| 2 | WAJK | FS | LIC | 99.3 | 2.25 | 41.304194 | -89.096194 | 3.34 |
| 3 | W280EG | FX | LIC | 103.9 | 0.25 | 41.304472 | -89.095917 | 3.38 |
| 4 | WBZG | FM | LIC | 100.9 | 3.0 | 41.302528 | -89.236472 | 9.78 |
| 5 | WIVQ | FM | LIC | 103.3 | 4.9 | 41.302528 | -89.236472 | 9.78 |
| 6 | WALS | FM | LIC | 102.1 | 2.25 | 41.275583 | -88.965361 | 10.96 |
| 7 | WYYS | FM | LIC | 106.1 | 2.45 | 41.275583 | -88.965083 | 10.98 |
| 8 | WWGN | FM | LIC | 88.9 | 4.1 | 41.301417 | -88.953139 | 12.91 |
| 9 | WSTQ | FM | LIC | 97.7 | 6.0 | 41.180306 | -88.868417 | 18.83 |
| 10 | W253BX | FX | LIC | 98.5 | 0.25 | 41.180306 | -88.868417 | 18.83 |
| 11 | WNIW | FM | LIC | 91.3 | | 41.413083 | -89.276194 | 21.04 |
| 12 | WAJK | FM | LIC | 99.3 | 11.0 | 41.413083 | -89.276194 | 21.04 |
| 13 | WRWO-LP | FL | LIC | 94.5 | 0.1 | 41.348361 | -88.842833 | 23.28 |
| 14 | WRKX | FM | LIC | 95.3 | 4.3 | 41.383361 | -88.854528 | 24.06 |
| 15 | W228DZ | FX | LIC | 93.5 | 0.25 | 41.383333 | -88.854444 | 24.06 |
| 16 | WLWF | FM | LIC | 96.5 | 2.5 | 41.309194 | -88.812583 | 24.20 |
| 17 | WZOE-FM | FM | LIC | 98.1 | 6.0 | 41.363361 | -89.393417 | 24.52 |
| 18 | WRVY-FM | FM | LIC | 100.5 | 3.0 | 41.075861 | -89.353694 | 26.23 |
| 19 | WGLC-FM | FM | LIC | 100.1 | 2.5 | 41.535528 | -89.107278 | 28.99 |

Table 2: FM Radio Stations within 30 km

⁵ FM = FM broadcast station; FX = FM translator station; FS = FM auxiliary (backup) station; FB = FM booster station, FL = FM low power station.

⁶ LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

⁷ ERP = Transmit Effective Radiated Power.

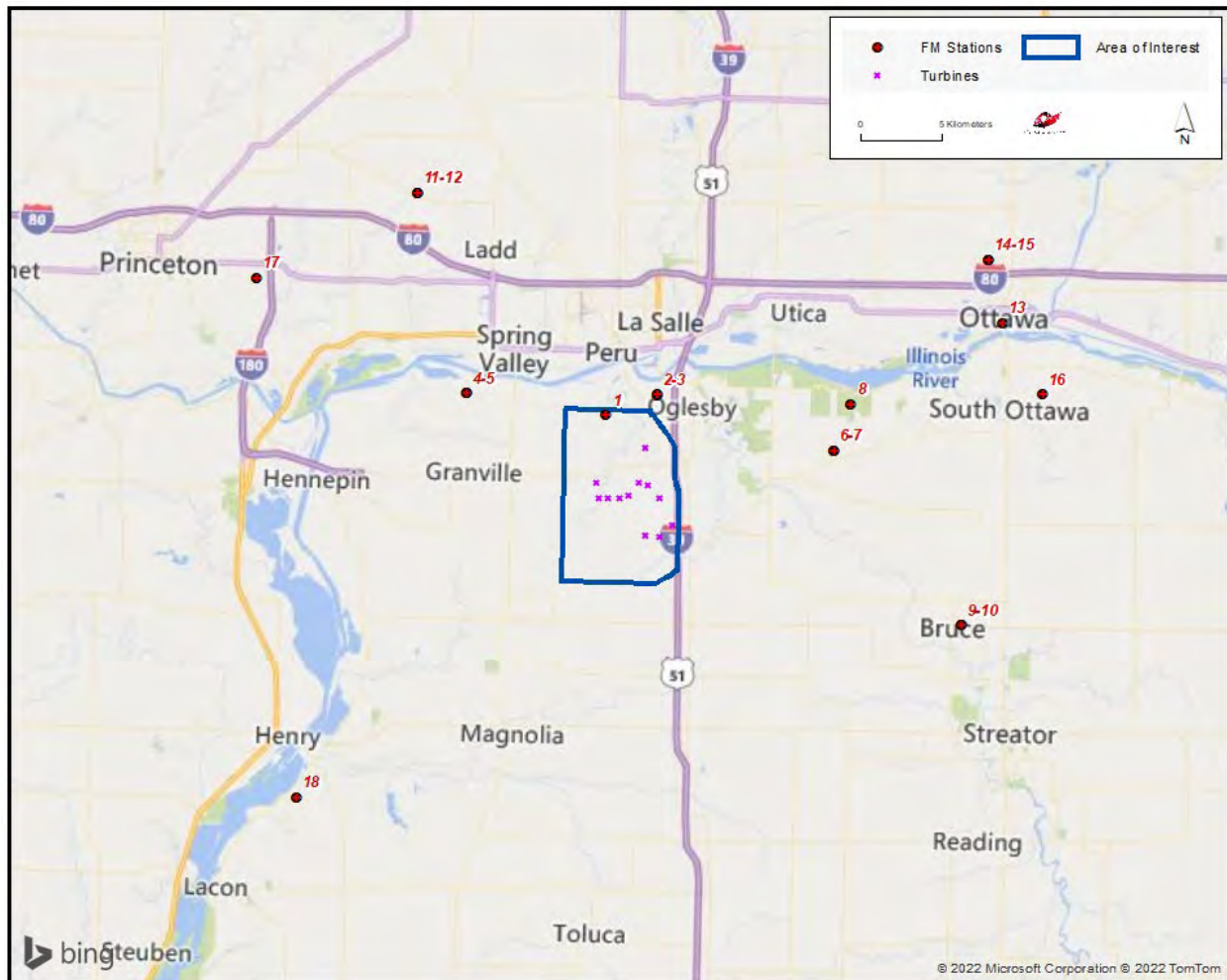


Figure 2: FM Radio Stations within 30 km

3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from wind turbine towers. The closest AM station to the Hickory Wind project, WLPO, is 3.32 kilometers from the nearest turbine. As there were no stations found within 3 kilometers of any proposed turbine locations, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not sensitive to interference due to wind turbines, especially when large objects (e.g., wind turbines) are located in the far field region of the radiating antenna to avoid the risk of distorting its radiation pattern. Station WSOG is the nearest FM station to any given turbine at 3.20 km away. At this distance there should be adequate separation to avoid radiation pattern distortion.

4. Recommendations

Since no impact on the licensed and operational AM or FM broadcast stations was identified in our analysis, no recommendations or mitigation techniques are required for this project.

5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

| | |
|-----------------|--|
| Contact person: | David Meyer |
| Title: | Senior Manager |
| Company: | Comsearch |
| Address: | 21515 Ridgetop Circle, Suite 300, Sterling, VA 20166 |
| Telephone: | 703-726-5656 |
| Fax: | 703-726-5595 |
| Email: | David.Meyer@CommScope.com |
| Web site: | www.comsearch.com |

February 3, 2023

Ms. Felicia Walker
U.S Department of Commerce
NTIA rm 6725
1401 Constitution Ave., NW
Washington, DC 20230
Work Phone: (202) 482-4589
fwalker@ntia.gov

Re: 80 MW Hickory Wind Project Farm, LaSalle County, Illinois - REVISED
Westwood Project No.: R0032910.00

Dear Joyce,

Westwood Professional Services, Inc. (Westwood) previously requested formal comments on the Hickory Wind Project on December 12, 2022. Since the initial submittal, Hickory Wind has revised their layout to add 5 turbine locations. Westwood is requesting formal comments from interested federal agencies regarding the revised Hickory Wind Project in LaSalle County, Illinois.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES



Shannon Hansen
Senior Permitting Specialist
Westwood Professional Services, Inc. on behalf of UKA North America, LLC.

Attachments (3):
Project Details
Project Location Map
Project Layout Map

Project Details

Date: February 3, 2023
Type of Notification: Revised/New
Project: Hickory Wind Project
County: LaSalle
State: Illinois
Project Sponsor: UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996
ATTN: Denis Onwualu
(561) 264 – 8674

Turbines:

Number of Turbines: 13 turbines within 17 potential locations
Turbine Size: 6.2 to 7.2 MW
Turbine Hub Height AGL (meters): up to 118
Turbine Rotor Diameter (meters): up to 170
Maximum Blade Tip Height AGL (meters): up to 200

Turbine Locations:

| Turbine Identifier | Primary/Alternate | Latitude | Longitude |
|---------------------------|--------------------------|-----------------|------------------|
| T1 | Primary | 41.274735 | -89.104583 |
| T2 | Primary | 41.254530 | -89.138656 |
| T3 | Primary | 41.246045 | -89.137088 |
| T4 | Primary | 41.245921 | -89.129595 |
| T5 | Primary | 41.245855 | -89.121449 |
| T6 | Primary | 41.247625 | -89.115051 |
| T7 | Primary | 41.255364 | -89.107418 |
| T8 | Primary | 41.253388 | -89.100928 |
| T9 | Primary | 41.246741 | -89.093607 |
| T10 | Primary | 41.231557 | -89.082421 |
| T11 | Primary | 41.226056 | -89.102089 |
| T12 | Primary | 41.225082 | -89.091615 |
| T13 | Primary | 41.275142 | -89.122423 |
| A-1 | Alternate | 41.292332 | -89.141012 |
| A-2 | Alternate | 41.289917 | -89.147603 |
| A-3 | Alternate | 41.283368 | -89.145154 |
| A-4 | Alternate | 41.283651 | -89.120787 |

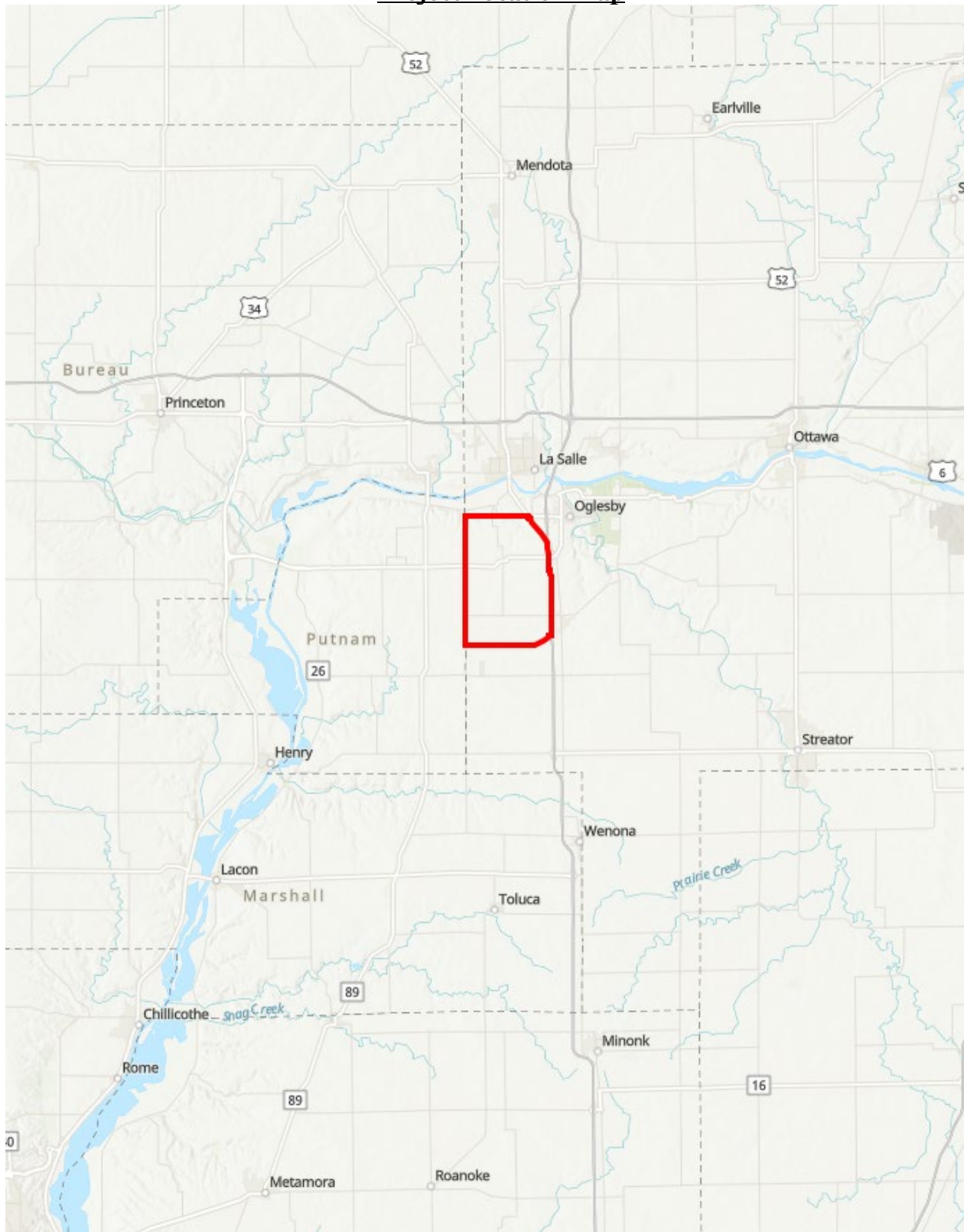
Met Towers:

Number of Met Towers: 1
Met Tower Height AGL (meters): 160

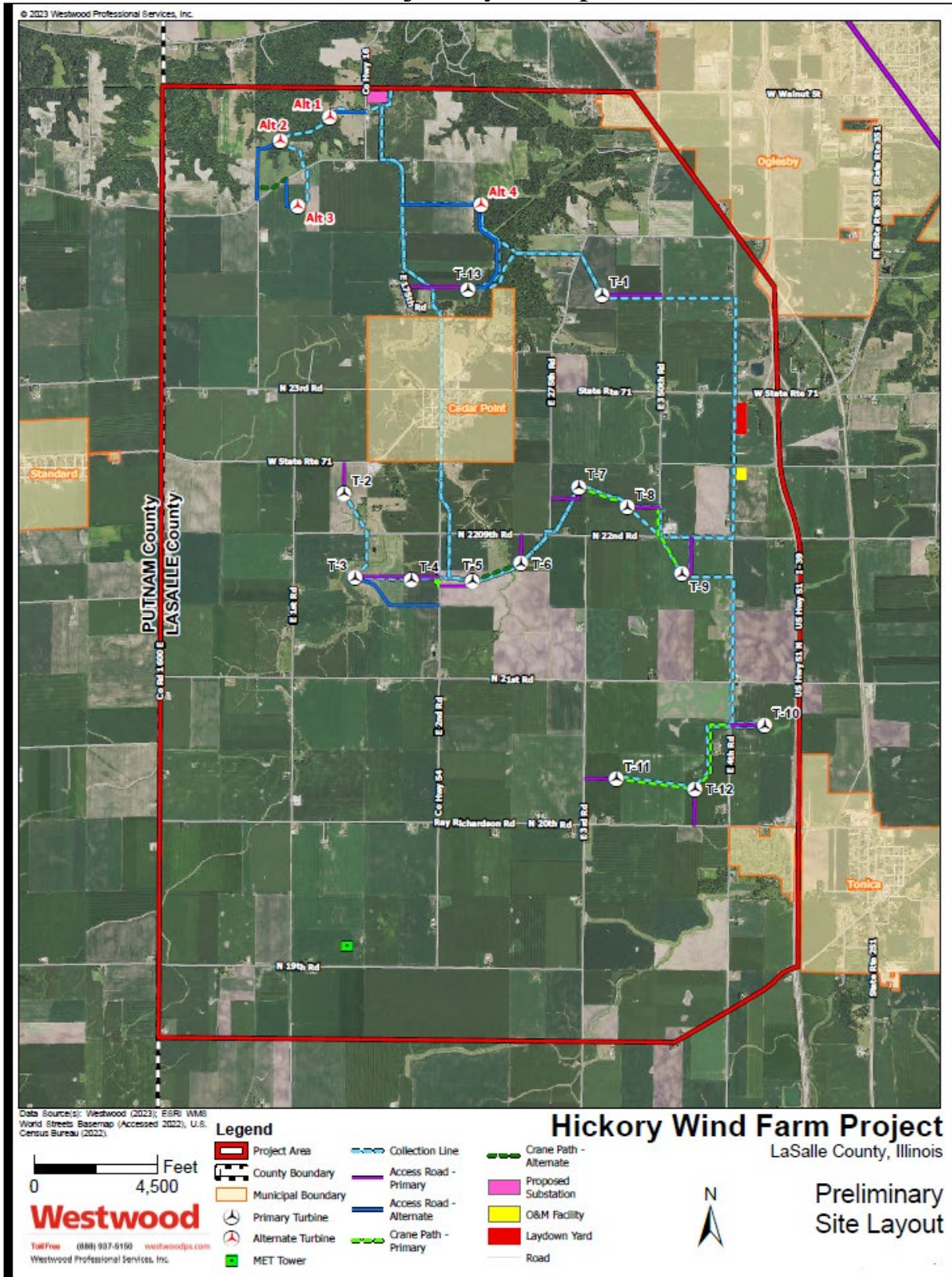
Met Tower Locations:

| Identifier | Latitude | Longitude |
|-------------|----------|------------|
| Met Tower 1 | 41.20896 | -89.137707 |

Project Location Map



Project Layout Map



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December 12, 2022

Joyce Countee Henry
U.S Department of Commerce/NTIA
Room 4099A, HCHB
1401 Constitution Ave., NW
Washington, DC 20230
Work Phone: (202) 482-2215
jhenry@ntia.doc.gov

Re: 80 MW Hickory Wind Project Farm, LaSalle County, Illinois
Westwood Project No.: R0032910.00

Dear Joyce,

Westwood Professional Services, Inc. is requesting formal comments from interested federal agencies regarding the proposed Hickory Wind Project in LaSalle County, Illinois.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES



Shannon Hansen
Senior Permitting Specialist
Westwood Professional Services, Inc. on behalf of UKA North America, LLC.

Attachments (3):
Project Details
Project Location Map
Project Layout Map

Project Details

Date: December 12, 2022
Type of Notification: New
Project: Hickory Wind Project
County: LaSalle
State: Illinois
Project Sponsor: UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996
ATTN: Denis Onwualu
(561) 264 – 8674

Turbines:

Number of Turbines: 12
Turbine Size: 6.2 to 7.2 MW
Turbine Hub Height AGL (meters): up to 115
Turbine Rotor Diameter (meters): 170
Maximum Blade Tip Height AGL (meters): up to 200

Turbine Locations:

| Turbine Identifier | Primary/Alternate | Latitude | Longitude |
|---------------------------|--------------------------|-----------------|------------------|
| T1 | Primary | 41.274525 | -89.103036 |
| T2 | Primary | 41.254530 | -89.138656 |
| T3 | Primary | 41.246045 | -89.137088 |
| T4 | Primary | 41.245921 | -89.129595 |
| T5 | Primary | 41.245855 | -89.121449 |
| T6 | Primary | 41.247625 | -89.115051 |
| T7 | Primary | 41.255364 | -89.107418 |
| T8 | Primary | 41.253388 | -89.100928 |
| T9 | Primary | 41.246356 | -89.091982 |
| T10 | Primary | 41.231557 | -89.082421 |
| T11 | Primary | 41.226056 | -89.102089 |
| T12 | Primary | 41.225082 | -89.091615 |

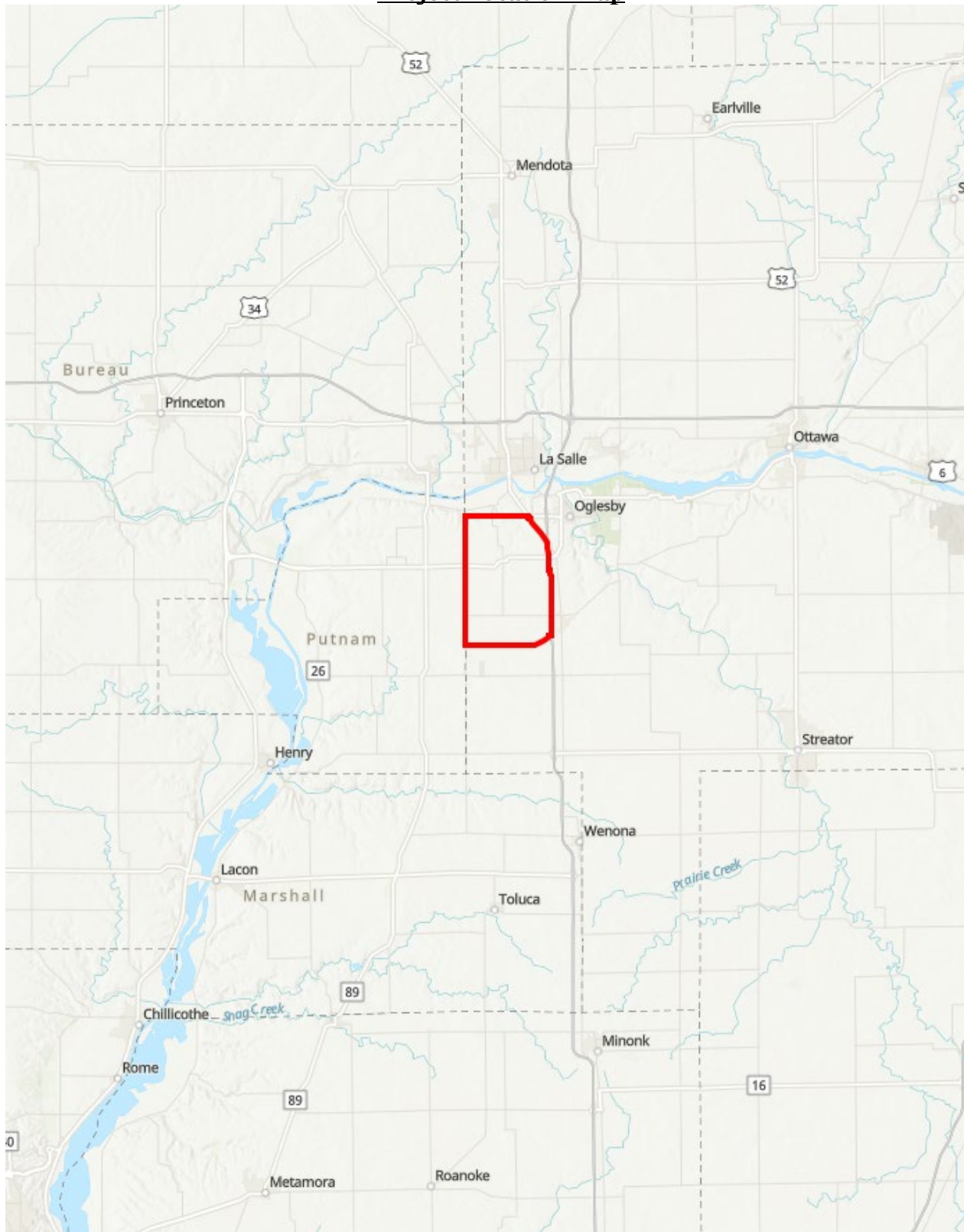
Met Towers:

Number of Met Towers: 1
Met Tower Height AGL (meters): 160

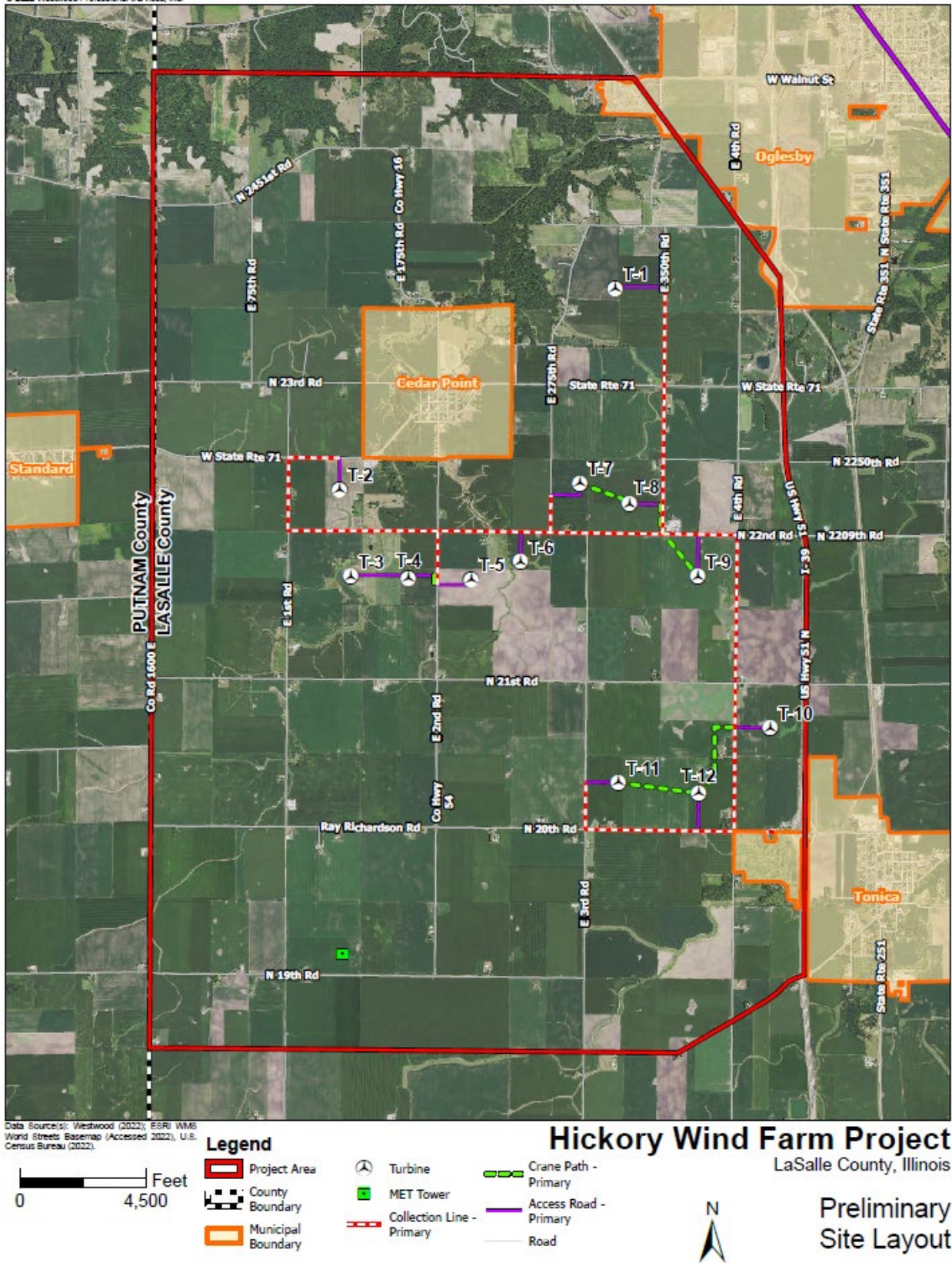
Met Tower Locations:

| Identifier | Latitude | Longitude |
|-------------------|-----------------|------------------|
| Met Tower 1 | 41.20896 | -89.137707 |

Project Location Map



Project Layout Map



Appendix L

Decommissioning Plan

Hickory Wind Project

LaSalle County, Illinois

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A DECOMMISSIONING PLAN FOR

Hickory Wind Facility

LaSalle County, Illinois

JANUARY 24, 2023

PREPARED FOR:



North America

PREPARED BY:

Westwood

Decommissioning Plan

Hickory Wind Facility

LaSalle County, Illinois

Prepared for:

Denis Onwualu
Senior Project Manager
UKA North America, LLC
1002 SE Monterey Commons Blvd.
Stuart, FL 34996

Prepared by:

Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

Project Number: 0032910.00

Date: January 24, 2023

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Attachments

Attachment A: Site Map

Attachment B: Decommissioning Cost Estimate

1.0 Introduction / Project Description

The Hickory Wind Facility (Facility) is a wind power generation project proposed by UKA North America, LLC (Applicant) in LaSalle County, Illinois. The Facility includes the construction of up to 13 Siemens-Gamesa SG170 wind turbines across 17 potential locations, access roads, one meteorological (met) tower, a substation, underground collection lines, and an operation and maintenance (O&M) facility. Please refer to the Site Map in Attachment A for a preliminary layout of the facility.

This Decommissioning Plan (“Plan”) has been prepared in accordance with the *LaSalle County Zoning Ordinance* (Zoning Ordinance) *RR.2.1* as well as the Illinois Department of Agriculture’s 2022 Agricultural Impact Mitigation Agreement (AIMA). Where the requirements of the Zoning Ordinance and AIMA differ, the more conservative guideline has been used.

The purpose of the Plan is to describe the means and methods that can be used to remove project facilities and reclaim, restore, and return the land altered during the construction and operation of the wind project to its predevelopment condition to the extent feasible. The Plan identifies components which may be removed and the areas that may be restored once the Facility has reached the end of its project life or abandoned. Decommissioning shall be completed within six (6) months of Facility abandonment or end of project life. In addition, the decommissioning plan shall include the structural engineer’s cost estimate, financial resources to be used to decommission the Facility if the Applicant fails to do so. The Zoning Ordinance also requires revision of Decommissioning costs every five (5) years to account for changes in labor costs, metal prices, and technology. Any changes in the revised costs shall be adjusted in the financial security.

The decommissioning plan shall act as an agreement between the Applicant and the county. Below are the conditions that are part of the agreement:

- i. The Applicant shall provide sufficient security, in an amount determined by the Zoning Director, in the form of cash escrow, surety bond, an irrevocable letter of credit or other comparable security.
- ii. Written documentation of the security arrangement and provided, establishing upon what conditions the funds may be disbursed.
- iii. The county shall have access to the security for the expressed purpose of completing decommissioning if decommissioning is not completed by the applicant within (6) months of the end of project life or facility abandonment.
- iv. The county is granted the right of entry onto the site, pursuant to reasonable notice, to effect or complete decommissioning.
- v. The county is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the county’s right to seek reimbursement for applicant or applicant’s successor for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real estate owned by applicant or applicant’s successor, or in which they have an interest, for the amount of the excess of the security provided and to take all steps allowed by law to enforce said lien.

The useful life of commercial size turbines is generally considered to be 25-30 years. At that time, the project will either be decommissioned or repowered with newer technology. This decommissioning plan reflects the full decommissioning of the Facility, including removal of all infrastructure and equipment and reclamation of the site to match previous land use, unless otherwise specified.

2.0 Proposed Future Land Use

Prior to the development of the Facility, the land use of the project area was primarily agricultural land with approximately 1.5 acres of grassland (near the proposed project substation). After the developed areas of the Facilities are decommissioned, they will be returned to their predevelopment condition, either tilled to a farmable condition or revegetated to match-pre-construction conditions. Please refer to Section 3.2 for a detailed description of reclamation activities.

3.0 Engineering Techniques

Decommissioning of the wind farm includes multiple phases and activities such as:

- Application of necessary sediment and erosion controls during and following decommissioning activities.
- Public road modifications (if required) and access road improvements to accommodate heavy equipment traffic during decommissioning.
- Removal of aboveground components (turbines, transformers, overhead transmission lines, and substation) for either resale or scrap.
- Removal of turbine foundations to a depth of four feet below grade.
- Removal of other underground components (junction boxes, transformer and substation foundations) to a depth of four feet below grade.
- Removal of access roads (unless the landowners request the roads to remain) and decompaction.
- Reclamation, re-grading, and restoration of disturbed areas including topsoil reapplication and decompaction of soils.
- Repair and/or restoration of public roads and culverts to pre-decommissioning conditions, as required.

During decommissioning, the landowners will be consulted to identify the extent and type of work to be completed. Some Facility infrastructure, such as the access roads, may be left in place at the landowners' requests. Underground utility lines, if deeper than four feet below ground surface elevation, may be left in place to minimize land disturbance and associated impacts to future land use.

Decommissioning will include the removal and transportation of all turbine components from the Facility site. Decommissioning will also include the removal of electrical components, foundations, and any other associated facilities in the manner described in the Plan, unless otherwise agreed upon by Applicant and the applicable landowner(s). All dismantling, removal, recycling, and disposal of materials generated during decommissioning will comply with rules, regulations, and prevailing Federal, State, and local laws at the time decommissioning is initiated and will use approved local or regional disposal or recycling sites as available.

Recyclable materials will be recycled to the furthest extent practicable. Non-recyclable materials will be disposed of in accordance with State and Federal law.

3.1 Decommissioning of Project Components

3.1.1 Public Road Improvement and Access Road Modifications and Removal

As the cost estimate is based on scrapping and recycling turbine components where possible, sections of public roads that have insufficient strength to accommodate the construction traffic necessary for decommissioning will need to be improved prior to the start of hauling operations. Intersection turning radius modifications are not anticipated since turbine components will be cut to fit on standard semitrailer trucks. The roads subjected to decommissioning traffic will be restored to a condition equal to or better than the condition of the road prior to decommissioning activities. Aggregate removed from the Facility access roads is a potential source for the public road restoration material. A pre-decommissioning road survey, similar to a pre-construction survey, will be prepared so that road conditions pre- and post-decommissioning can be accurately assessed.

3.1.2 Crane Path and Crane Pad Preparation and Removal

This cost estimate is based on the felling of all turbines, which eliminates the need for large industrial cranes and the associated crane paths and crane pads.

3.1.3 Wind Turbine Felling

This cost estimate assumes that the turbines not being resold will be brought to the ground using the technique of “felling.” Once on the ground, the turbines will be disassembled and processed for recycling. The felling technique has been used on numerous wind decommissioning projects and has several advantages over disassembly using large crawler cranes. Felling of a turbine eliminates the use of crane paths and crane pads that are otherwise necessary to disassemble the components of a turbine. In addition to avoiding costs associated with preparing crane paths and pads, this method will reduce the total disturbed area that needs to be reclaimed and restored during the decommissioning process. The elimination of the use of large cranes also reduces the number of trucks delivering and removing equipment and reduces the time required for decommissioning. Felling consists of disconnecting electrical connections and draining oil, hydraulic fluid, and any other liquids from the turbine. A long cable is attached to the nacelle and to a heavy piece of equipment, such as a bulldozer, positioned on the access road. Wedge shaped areas are then cut out of the tower steel using cutting torches to create a hinge that will direct the turbine to fall on the access road when pulled by the dozer.

3.1.4 Wind Turbine Removal

Each wind turbine consists of steel tower segments, a nacelle, a rotor and hub assembly, and three blades. These modular components can be disassembled and then processed into pieces small enough (less than 40 feet by eight feet by eight feet and less than 20 tons) to be loaded onto standard semitrailer trucks and transported off site. The components of the wind turbines that are not designated for resale will

be cut into pieces sized to meet recycling requirements so the scrap value may be maximized. The components will then be loaded on tractor-trailers and transported to a licensed recycling facility. If there are facilities for recycling of turbine blades at the time the turbines are decommissioned, the blades will be transported to the facility for recycling, if cost effective. At this time, blade recycling facilities are not operating at the scale necessary for the volume of waste that will be generated from decommissioning this project. As a result, this cost estimate assumes the blades and other components that cannot be recycled will be disposed of at a licensed landfill.

3.1.5 Turbine Foundation Removal and Restoration

The turbine foundations are constructed from concrete and rebar. Little topsoil stripping will be required since the portion of the foundation less than five feet deep is within the gravel ring around each turbine. The foundation will first be exposed using backhoes or other earth moving equipment. The pedestal (upper part of the turbine foundation) will then be removed to a depth of at least five feet below grade using hydraulic vibratory hammers to break up the concrete. The rebar can be cut with torches or cutoff saws. The concrete will be broken into pieces sized for transport. The foundation debris will be hauled off site to be recycled or disposed of, depending on market prices for aggregate at the time of decommissioning. The rebar will be recycled.

Following removal of the turbine foundation, the resulting void will be backfilled with native subsoils and compacted to at least 90% of the fill material's standard Proctor density. Topsoil will be reapplied to the site and graded to match surrounding grade to preserve existing drainage patterns. The topsoil and subsoil will be decompacted to a minimum depth of 18 inches and revegetated to match pre-construction conditions.

3.1.6 Meteorological (Met) Towers

Following disconnection of electrical components, towers will be gradually lowered to the ground for disassembly. The steel structures will be cut into pieces sized to meet recycling requirements so the scrap value may be maximized. The components will then be loaded on tractor-trailers and transported to a metal recycling facility.

The concrete pads, along with any anchoring components, will be excavated to a depth of 4 feet. Concrete will be broken into transportable pieces and hauled off site. Following removal of the foundations, subsoil will be decompacted to a minimum depth of 18 inches. Topsoil will be reapplied to match the surrounding grade.

3.1.7 Access Roads

Removal of access roads will entail removal of the road base aggregate and any other materials used for constructing the roads. During removal, the topsoil adjacent to both sides of the roads will be stripped and stockpiled in a windrow paralleling the road. The road base materials will then be removed by bulldozers, wheeled loaders, or backhoes and hauled off site in dump trucks to be recycled or disposed of at an off-site facility. On-site processing may allow much of the aggregate to be re-used to improve public roads. The aggregate base can often be used by local landowners for driveway or clean fill. Another option is to use the aggregate base as "daily cover" at a

landfill, where it is usually accepted without cost. If geotextile fabric was utilized under the aggregate base, it will be removed and disposed of in a landfill off site. The access road removal will proceed from the turbine area to the public roads to limit tracking and provide stable access during removal. Following removal, topsoil will be reapplied and graded to blend with surrounding contours to promote pre-construction drainage patterns. Topsoil to cover the access roads, turbine rings, and met tower rings will be acquired from the areas where it was stockpiled (or wasted) during the original construction. Since topsoil stayed with each landowner during the construction of the wind farm, there will be adequate topsoil to restore each area to its pre-construction condition. The soil and topsoil will then be decompacted to a minimum depth of 18 inches and restored to pre-construction tillable conditions or revegetated.

3.1.8 Underground Electrical Collection Lines

The electrical cables and fiber optic conduits contain no material known to be harmful to the environment and will be left in place, non-functional. Any cables at a depth of less than five feet, such as cables entering and exiting the turbine foundations, junction boxes, or substation components, will be removed. Following any necessary removal, the area affected will be restored by reapplication of topsoil to match the surrounding grade and preserve existing drainage patterns. The topsoil and subsoil will be decompacted to a minimum depth of 18 inches and tilled to farmable conditions.

3.1.9 Overhead Electrical Collection / Transmission Lines

There are no overhead electrical lines associated with the Facility as a high voltage transmission line runs just north of the project substation.

3.1.10 Substation

Decommissioning of the project substation will be performed with the rest of the Facility. All steel, conductors, switches, transformers, and other components of the substation will be disassembled and taken off site to be recycled or reused. Foundations and underground components will be removed to a depth of four feet. The rock base will be removed using bulldozers and backhoes or front loaders. The material will be hauled from the site using dump trucks to be recycled or disposed at an off-site facility. Additionally, any permanent stormwater treatment facilities (e.g., infiltration ponds and engineered drainage swales) will be removed. Topsoil will be reapplied to match surrounding grade to preserve existing drainage patterns. Topsoil and subsoil will be decompacted to a minimum depth of 18 inches and the site will be revegetated to match pre-construction conditions.

3.1.11 Operations and Maintenance Building

For the purposes of this decommissioning cost estimate, it is assumed that the O&M Building will be resold. As a result, no decommissioning or reclamation costs have been included in the estimate.

3.2 Reclamation

In addition to the reclamation activities described above for each decommissioning activity, all unexcavated areas compacted by equipment and activity during the decommissioning will be decompacted to a depth of 18 inches or to a depth as needed to ensure proper density of topsoil consistent and compatible with the surrounding area and associated land use. All materials and debris associated with the Facility decommissioning will be removed and properly recycled or disposed of at off-site facilities.

As necessary, the topsoil will be stripped and isolated prior to removal of structures and facilities for reapplication to promote future land use activities. Preservation of topsoil will be key for re-establishing vegetation at the site. The topsoil will be reapplied following backfill, as necessary, and graded to blend with adjacent contours to maintain pre-construction drainage patterns. Decompaction of the soil and topsoil will be applied to a minimum depth of 18 inches.

Areas formerly used for agriculture shall be re-tilled to a farmable condition. In areas not to be used for crops, the topsoil will then be revegetated using seed mixes approved by the local Farm Service Agency, Soil and Water Conservation District, Natural Resource Conservation Service, or other state agency. The selected seed mix must be suitable for the site's annual precipitation and elevation. Temporary erosion protection such as nurse crop (annual grass to aid in establishment of permanent species), mulch, hydromulch, or erosion control blanket will be applied in accordance with the requirements of the project Stormwater Pollution Prevention Plan (SWPPP) until permanent vegetation has been established.

4.0 Best Management Practices (BMPs)

During decommissioning, erosion and sediment control BMPs will be implemented to minimize potential for erosion of site soils and sedimentation of surface waters and waters of the state. Because decommissioning will entail disturbance of more than one acre of soil, the Applicant will prepare a SWPPP and obtain coverage under the state-specific National Pollutant Discharge Elimination System (NPDES) permit prior to initiating soil disturbing activities. Potential BMPs to be implemented during decommissioning activities are described below and will be subject to refinement in the SWPPP. The decommissioning team will review the permitting requirements at the time of decommissioning and obtain any other necessary permits, which may include a US Army Corps of Engineers Section 404 Permit to Discharge Dredged or Fill Material.

4.1 Erosion Control

Erosion control measures will be refined based on the standard of practice current at the time the SWPPP is developed for decommissioning. All disturbed areas without permanent impermeable or gravel surfaces, or planned for use as crop land, will be vegetated for final stabilization. All slopes steeper than 4:1 should be protected with erosion control blankets. Restoration should include seed application prior to application of the blanket. All slopes 4:1 or flatter should be restored with seed and mulch, which will be disc anchored.

Project Phasing/Design BMP: Time periods during which disturbed soils are exposed should be minimized to the degree possible. Stabilization of soils will generally be accomplished immediately following decommissioning of the access roads, turbine sites, electrical and fiber optic cables, step-up substation, and O&M facilities. Where this is not possible, temporarily exposed soils will be temporarily stabilized with vegetation in accordance with the SWPPP for decommissioning.

Erosion Control Blankets and Seed BMP: Erosion control blanket (double sided netting with wood fiber or weed-free straw fiber blanket) will be used as temporary stabilization for areas of slopes steeper than 4:1 and for areas of concentrated flow, such as ditches, swales, and similar areas around culverts. Additionally, seed will be applied in these areas as necessary for temporary and/or permanent vegetative growth. The SWPPP developed for decommissioning will provide detailed specifications for erosion control blankets to be used under various slope and drainage conditions.

Ditch/Channel Protection: Where new channels are formed, as in the case of culverts removed from access roads and the removal of low water crossings, the resulting channel will be protected with erosion control blankets as described in the section above.

Surface Roughening: Surface roughening, or slope tracking, is the act of running a dozer or other heavy tracked equipment perpendicular to the grade of disturbed slopes. The tracks will provide a rough surface to decrease erosion potential during an interim period until a smooth grade, seed, and erosion control blanket can be applied.

Temporary Mulch Cover and Seed BMP: Temporary mulch cover (wood fiber to resist loss from grazing by wildlife or domestic animals) will be applied at a rate of two tons per acre to provide temporary erosion protection of exposed soils on slopes flatter than or equal to 3:1. Seed will be applied with the mulch for temporary and/or permanent vegetative growth as called for in the SWPPP. Mulch will be used for all soil types where slopes are flatter than 3:1 and no significant concentrated flows are present. The mulch will be disc-anchored to the soil to keep it from blowing away. The mulch prohibits the impact of raindrop impact from dislodging soil and subsequently carrying the soil away during sheet drainage. If there is a challenge securing mulch to sandy soils, tackifier may be used to assist in disc anchoring.

Soil Stockpiles: Topsoil and subsoils that are stripped from the construction site will be stockpiled separately on site. Stockpiles will be located in areas that will not interfere with the decommissioning activities nor encroach upon pavement, site drainage routes, or other areas of concentrated flow. Stockpiles should also be located away from wetlands and surface waters. Perimeter controls, such as silt fence, will be installed around all stockpiles that are not placed within existing silt fences or other sediment control, where the potential exists for material to be eroded and transported to sensitive nature resources. Soils that are stockpiled for longer durations will be temporarily seeded and mulched or stabilized with a bonded fiber polymer emulsion.

Permanent Seed and Temporary Mulch and/or Erosion Control Blanket BMP: In areas at final grade that will not be used for agriculture, permanent seed will be applied to promote vegetative cover for permanent erosion control. Temporary mulch and/or erosion control blanket will be applied where appropriate to provide temporary erosion protection until the permanent seed is established.

4.2 Sediment Control

Removal of Ditch Crossing BMP: Temporary ditch crossings may be needed to accommodate the movements of cranes or other heavy equipment. Perimeter controls such as silt fence will be used at crossing locations to minimize runoff from exposed soils. Crossings will occur during dry conditions, if possible. If a stream is wet at the time of the crossing, alternative BMPs may be used, such as installing a temporary dam or using a bypass pump to create dry conditions at the proposed crossing location. Timber construction mats will be used as needed to prevent compaction and rutting at crossing locations. All temporary fills and construction mats will be removed immediately after the crossing is successfully completed and the temporarily disturbed area is restored using the appropriate BMPs as described above.

Dewatering: A temporary sump and rock base will be used if a temporary pump is used to dewater an area of accumulated water. If a rock base cannot be used, the pump intake will be elevated to draw water from the top of the water column to avoid the intake and discharge of turbid water. Energy dissipation riprap will be applied to the discharge area of the pump hose. The water will be discharged to a large flat vegetated area for filtration/infiltration prior to draining into receiving waters of conveyances/ditches. If discharge water is unavoidably turbid, dewatering bags, temporary traps, rock weepers, or other adequate BMP will be used to control sediment discharge.

Silt Fence BMP or Fiber Logs: Silt fences or fiber logs will be used as perimeter controls downgradient of exposed soils during construction to capture suspended sediment particles on site, to the extent possible. The standard silt fence or fiber logs will also be used in smaller watershed areas where the contributing areas are typically less than 1/4 acre of drainage per 100 feet of standard silt fence or fiber logs. Standard silt fence or fiber logs will also be used for stockpiles eight feet high or higher which have slopes of 3:1 or steeper. Standard silt fence or fiber logs should not be used in areas of highly erodible soils which are found within streams, slopes, or banks of creeks and streams within the Facility's site.

Rock Entrance/Exit Tracking Control BMP: Rock construction entrances will be installed where access to a construction area from adjacent paved surfaces is needed.

Street Scraping/Sweeping BMP: Street scraping and sweeping will be used to retrieve sediment tracked or washed onto paved surfaces at the end of each working day, or as needed.

4.3 Controlling Stormwater Flowing onto and Through the Project

Given the low gradient of the slopes in the project area, controlling stormwater flow that enters the project area will likely require minimal effort during decommissioning activities. Only newly disturbed areas may require new, temporary stormwater control.

Diversion Berms/Swales/Ditches: It may be necessary to direct diverted flow toward temporary settling basins via berms, swales, or ditches. If diversion controls are deemed necessary for decommissioning activities, these must be stabilized by temporary mulch and seeding, erosion control blankets, or by installing riprap to protect the channel from erosive forces.

Rock Check Dams: It may be necessary to install temporary check dams within swales or ditches that convey stormwater from areas disturbed by decommissioning activities. Rock check dams effectively control flow velocity and sediment, augmenting temporary stabilization of channels. Filter fabric can help filter the flow, minimize the scour of the soil under the rock, and facilitate removal of the check dams once permanent stabilization is achieved. The height of check dams should be at least two feet. Spacing depends upon slope. Downgradient rock checks should have a top elevation equal to the bottom elevation of the previous (upgradient) rock check.

Temporary Sedimentation Basins: Sedimentation basins serve to remove sediment from runoff from disturbed areas of the site. The basins detain runoff long enough to allow the majority of the sediment to settle out prior to discharge. The location and dimensions of temporary sedimentation basins, if any are necessary, will be verified in accordance with the Illinois Environmental Protection Agency requirements at the time of decommissioning.

4.4 Permitting

All decommissioning and reclamation activities will comply with Federal and State permit requirements. Decommissioning activities that will disturb more than one acre of soil will require coverage under the state-specific NPDES permit for construction stormwater. The permits will be applied for and received prior to decommissioning construction activities commencing. A SWPPP will be developed prior to filing for construction stormwater permit coverage.

If necessary for decommissioning activities, wetlands and waters permits will be obtained from the US Army Corps of Engineers (USACE) or Illinois Environmental Protection Agency. A Spill Prevention, Control, and Countermeasures (SPCC) Plan for decommissioning will likely also be required for decommissioning work.

4.5 Health and Safety Standards

Work will be conducted in strict accordance with the Applicant's health and safety plan. The construction contractor hired to perform the decommissioning will also be required to prepare a site-specific health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the Plans. A site safety office will be designated by the construction contractor to ensure compliance. This official will have stop-work authority over all activities on the site should unsafe conditions or lapses in the safety plan be observed.

5.0 Timeline

Decommissioning of the wind farm will be initiated if the Facility is abandoned or has reached the end of the project life. It is anticipated that the decommissioning activities for the project can be completed in 6 months. The estimated costs for decommissioning are tied to assumptions about the amount of equipment mobilized, the crew sizes, weather and climate conditions, and the productivity of the equipment and crews.

6.0 Decommissioning Costs

The cost estimate for decommissioning and reclamation of the Facility was prepared in current dollars, with the salvage value of equipment or materials calculated separately. The estimate includes:

- (i) An analysis of the physical activities necessary to implement the approved reclamation plan, with physical construction and demolition costs based on applicable Department of Transportation unit bid prices from surrounding states and RSMeans material and labor cost indices;
- (ii) The level of effort or number of crews required to perform each of the activities; and
- (iii) An amount to cover contingencies above the calculated cost.

The following information was used to develop the cost estimate:

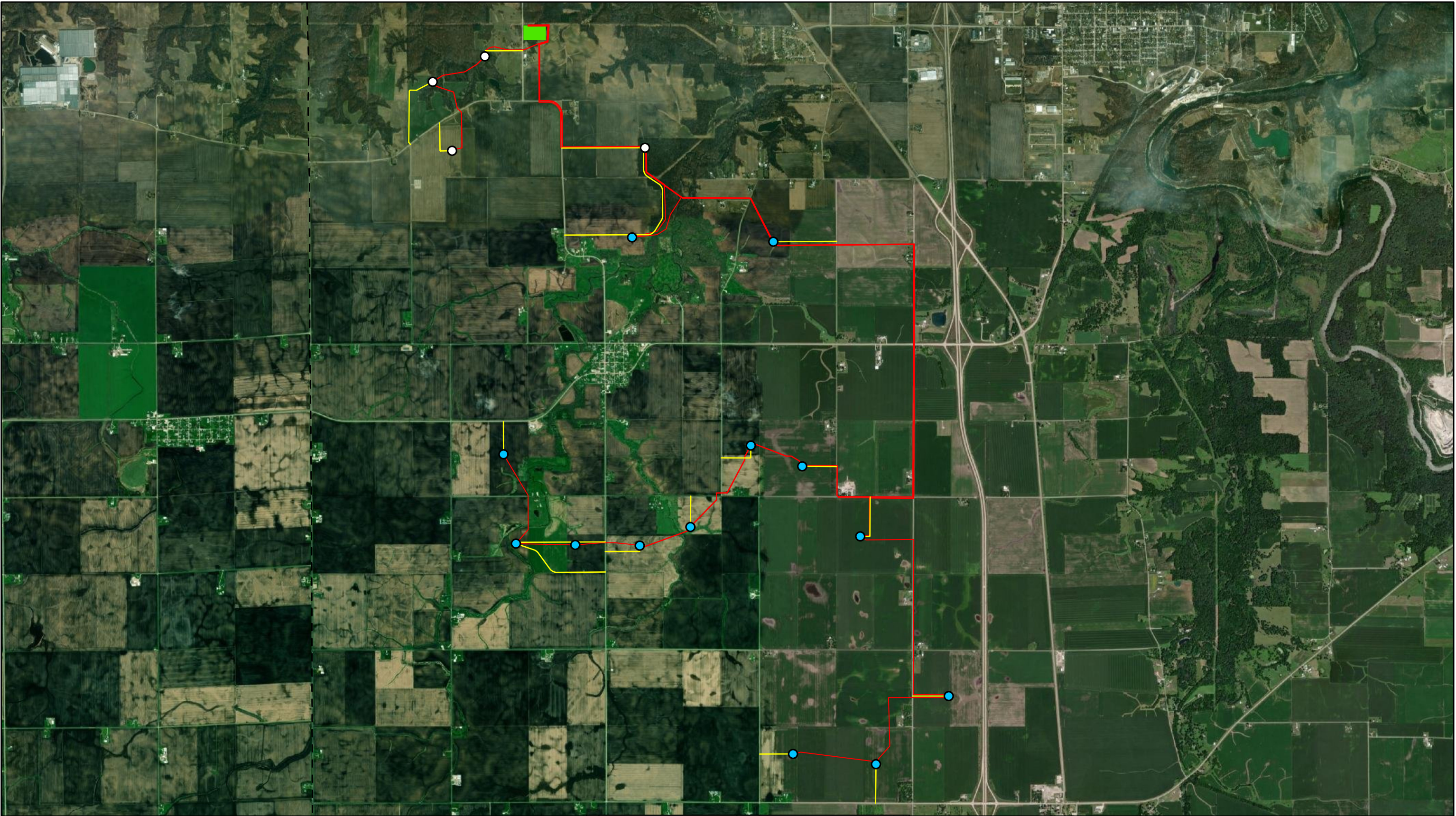
1. Project quantities for the Facility are based on site layouts as of January 13, 2023.
2. The Estimate is shown on a total cost and a per-turbine basis. The decommissioning plan and cost estimate will be revised every five years.
3. Turbines that are not resold will be assumed to have all applicable components recycled as scrap. The estimate uses a current structural scrap price of \$310 per ton, in the Midwest, based on prices posted on scrapmonster.com (Nov 25, 2022). The posted prices are three months old. The posted spot prices used in the cost estimate were discounted by twenty-five percent (25%) to reflect the difficulty of realizing spot prices from local recyclers.
4. Electrical transformers have significant value due to aluminum or copper used in the windings and the steel used in other parts of the transformer. Newer transformers can be resold. Older transformers are recycled as scrap. Few companies accept used transformers for resale or recycling, so finding pricing is difficult. For this estimate, we used pricing posted on scrapmonster.com of \$0.35 per pound for used transformers. We assumed the posted price is similar to the price offered by Interco located in Madison, IL, which was identified as the regional transformer recycling location.
5. Spot prices for insulated copper wire (85% recovery) are \$1.57 per pound, scrap electrical motors are \$0.30 per pound, and E.C. aluminum wire is \$1.18 per pound. The posted spot prices used in the cost estimate were discounted by twenty-five percent (25%) to reflect the difficulty of realizing spot prices from local recyclers.

The total estimated cost of the decommissioning of the Hickory Wind Project is approximately \$2,791,000 (\$214,692 per turbine), including crop loss. Estimated salvage/scrap value of the turbines, transformers, and other materials is approximately \$1,697,600. Estimated land sales total \$24,300. The net decommissioning cost after accounting for salvage values and land sales is approximately \$1,069,100, or \$82,238 per turbine.

The background of the entire page is a topographic map. It features a dark reddish-brown base color with intricate, lighter red contour lines that create a complex, wavy pattern. A dashed red line runs diagonally from the upper left towards the lower left. An 'x' mark is positioned in the upper-middle section, and a solid red dot is located in the lower-left quadrant.

Attachment A

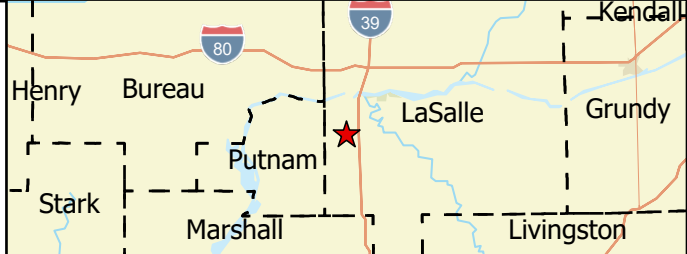
Site Map



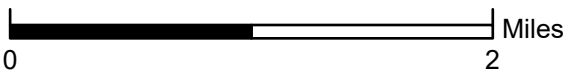
Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Westwood
Toll Free (888) 937-5150 westwoodps.com

- Legend**
- Primary Turbines
 - Alternate Turbines
 - Substation
 - Access Roads
 - Underground MV AC Collection
 - County Boundaries



★ -Project Location



Hickory Wind Project
LaSalle County, IL
Site Map
January 24, 2023



Attachment B

Decommissioning Cost Estimate

| Hickory Wind Farm Estimated Decommissioning Costs | | | | |
|---|----------|--------------|--------------|--------------------|
| Number of Turbines | 13 | Each | | |
| | Quantity | Unit | Unit Cost | Total Cost |
| Mobilization/Demobilization | 1 | Lump Sum | \$163,000.00 | \$163,000 |
| Permitting | | | | |
| County/Municipal Permits | 1 | Lump Sum | \$10,000.00 | \$10,000 |
| State Permits (SWPPP, SPCC) | 1 | Lump Sum | \$25,000.00 | \$25,000 |
| Subtotal Permits | | | | \$35,000 |
| Wind Turbine Generators | | | | |
| Disconnect Turbine Wiring | 13 | Each | \$2,833.60 | \$36,837 |
| Fell Turbine | 13 | Each | \$1,789.79 | \$23,267 |
| Process to Size and Load Turbine Components | 5,786 | Tons | \$145.73 | \$843,248 |
| Haul Turbine Components Offsite for Recycling (except blades) | 5,786 | Tons | \$6.67 | \$38,596 |
| Haul Turbine Components For Disposal (except blades) | 797 | Tons | \$9.40 | \$7,490 |
| Turbine Component Disposal (except blades) | 797 | Tons | \$84.00 | \$66,940 |
| Haul Fiberglass Blades For Disposal | 482 | Tons | \$27.29 | \$13,143 |
| Fiberglass Blades Disposal | 482 | Tons | \$84.00 | \$40,459 |
| Excavate Around Turbine Foundation | 13 | Each | \$258.89 | \$3,366 |
| Remove Turbine Foundation and Load | 683 | Cubic Yards | \$256.14 | \$174,833 |
| Backfill Excavation Area from Turbine Foundation Removal | 13 | Each | \$200.12 | \$2,602 |
| Haul Concrete (Turbine Foundation) | 1,382 | Tons | \$9.40 | \$12,991 |
| Disposal of Concrete from Turbine Foundation | 683 | Cubic Yards | \$84.00 | \$57,336 |
| Decompact Wind Turbine Generator Site | 13 | Each | \$182.03 | \$2,366 |
| Grade Wind Turbine Generator Site | 13 | Each | \$2,067.55 | \$26,878 |
| Erosion and Sediment Control at Turbine Site | 13 | Each | \$1,127.83 | \$14,662 |
| Topsoil and Revegetation at Turbine Sites | 13 | Each | \$10,821.04 | \$140,674 |
| Till to Farmable Condition | 9 | Acres | \$236.80 | \$2,220 |
| Subtotal Wind Turbine Generators | | | | \$1,507,905 |
| Met Towers | | | | |
| Disconnect Tower Wiring | 1 | Each | \$2,833.60 | \$2,834 |
| Dismantle, Disassemble, and Load Tower Components | 1 | Each | \$3,222.74 | \$3,223 |
| Haul Tower Components Off Site | 4 | Tons | \$6.67 | \$27 |
| Excavate Around Tower Foundation | 1 | Each | \$46.15 | \$46 |
| Remove Tower Foundation and Load | 1 | Cubic Yards | \$256.14 | \$237 |
| Haul Concrete (Tower Foundation) | 1 | Cubic Yards | \$9.40 | \$9 |
| Disposal of Concrete from Met Tower | 1 | Cubic Yards | \$84.00 | \$78 |
| Grade Met Tower Site | 1 | Each | \$1,350.83 | \$1,351 |
| Erosion and Sediment Control at Met Tower Site | 1 | Each | \$359.00 | \$359 |
| Till to Farmable condition at Met Tower Site | 0.06 | Acre | \$236.80 | \$14 |
| Subtotal Met Towers | | | | \$8,200 |
| Electrical Collection/Transmission System | | | | |
| Removal of Underground Collector System Cables | 13 | Locations | \$400.00 | \$5,200 |
| Haul Underground Collector System Cables | 1 | Tons | \$6.67 | \$6 |
| Disposal of Removed Cables (See Salvage Value) | 0.3 | Tons | \$0.00 | \$0 |
| Subtotal Electrical Collection/Transmission System | | | | \$5,300 |
| Access Roads | | | | |
| Remove and Load Gravel Surfacing from Access Roads | 7,712 | Cubic Yards | \$2.40 | \$18,536 |
| Haul Gravel Removed from Access Roads | 12,494 | Tons | \$9.40 | \$117,425 |
| Disposal of Gravel Removed from Access Roads | 12,494 | Tons | \$0.00 | \$0 |
| Remove and Load Geotextile Fabric | 43,381 | Square Yards | \$0.82 | \$35,574 |
| Haul Geotextile Fabric | 10 | Tons | \$9.40 | \$90 |
| Dispose of Geotextile Fabric | 10 | Tons | \$84.00 | \$802 |
| Remove and Load Culvert from Beneath Access Roads | 2 | Each | \$448.00 | \$896 |
| Haul Culvert Removed from Access Roads | 1 | Tons | \$9.40 | \$6 |
| Disposal of Culverts | 1 | Tons | \$84.00 | \$54 |
| Remove Low Water Crossing from Access Roads | 2 | Each | \$3,400.00 | \$6,800 |
| Haul Low Water Crossing Materials Removed from Access Roads | 2 | Each | \$9.40 | \$19 |
| Disposal of Low Water Crossing Materials | 2 | Each | \$168.00 | \$336 |
| Decompact Access Road Corridor | 19,521 | Linear Feet | \$0.09 | \$1,810 |
| Grade Access Road Corridor | 19,521 | Linear Feet | \$1.23 | \$23,987 |
| Erosion and Sediment Control Along Access Roads | 14,641 | Linear Feet | \$3.59 | \$52,561 |
| Till to Farmable Condition | 11 | Acres | \$236.80 | \$2,547 |
| Subtotal Access Roads | | | | \$261,500 |

| | | | | |
|--|---------|-------------|-------------|--------------------|
| Substation | | | | |
| Disassembly and Removal of Main Power Transformer(s) | 1 | Each | \$4,500.00 | \$4,500 |
| Freight Transformer(s) Offsite | 1 | Each | \$600.31 | \$600 |
| Disposal of Transformer (Including Oil; Assume Salvage Value) | 1 | Each | \$0.00 | \$0 |
| Excavate Around Transformer Foundation(s) | 1 | Each | \$1,324.29 | \$1,324 |
| Remove Complete Transformer Foundation(s) | 1 | Each | \$18,709.32 | \$18,709 |
| Backfill Excavation Area from Transformer Foundation Removal | 1 | Each | \$229.63 | \$230 |
| Haul Concrete (Transformer, Switch Gear, etc. Foundations) | 170 | Tons | \$9.40 | \$1,599 |
| Disposal of Concrete from Transformer Foundation | 170 | Tons | \$84.00 | \$14,288 |
| Demolish Substation Site Improvements (fences, etc.) | 1 | Lump Sum | \$3,500.00 | \$3,500 |
| Demolish Control Building and Foundation | 1 | Lump Sum | \$12,000.00 | \$12,000 |
| Remove Medium/High Voltage Equipment | 1 | Lump Sum | \$3,500.00 | \$3,500 |
| Remove Structural Steel Substation Frame | 1 | Lump Sum | \$3,500.00 | \$3,500 |
| Haul - Demolition Materials, Removed Equipment & Structural Steel | 1 | Lump Sum | \$1,334.01 | \$1,334 |
| Disposal of Demolition Materials, Removed Equipment and Structural Steel (Salvage) | 1 | Lump Sum | \$0.00 | \$0 |
| Remove and Load Gravel Surfacing from Substation Site | 1,154 | Cubic Yards | \$2.40 | \$2,773 |
| Haul Gravel Removed from Substation Site | 1,869 | Tons | \$9.40 | \$17,564 |
| Disposal of Gravel from Substation Site | 1,869 | Tons | \$0.00 | \$0 |
| Decompact Substation Site | 1 | Acre | \$252.39 | \$361 |
| Grade Substation Site | 1 | Acre | \$3,340.84 | \$4,777 |
| Erosion and Sediment Control at Substation Site | 750 | Linear Feet | \$3.59 | \$2,693 |
| Topsoil and Revegetation at Substation Site | 1.43 | Acre | \$15,004.00 | \$21,456 |
| Subtotal Substation | | | | \$114,800 |
| O&M Building (Assumed Resold) | | | | |
| Subtotal O&M Building | | | | \$0 |
| Public Roads Restoration | 10 | Miles | 44000 | \$435,500 |
| Total Direct Costs | | | | \$2,531,205 |
| Contingency (10%) | 10% | Percent | | \$253,200 |
| Total Demolition Costs | | | | \$2,784,405 |
| Crop Loss (13 Acres) | 13 | Acres | \$500.00 | \$6,500 |
| Total Cost | | | | \$2,791,000 |
| Land Sales | | | | |
| O & M Building and Substation | 2.43 | Acres | \$10,000.00 | \$24,300 |
| Subtotal Land Sales | | | | \$24,300 |
| Salvage/Recycle | | | | |
| Turbine Towers (Structural Steel) | 5619.65 | Tons | \$232.50 | \$1,306,568 |
| Turbine Nacelles (Structural Steel) | 796.9 | Tons | \$232.50 | \$185,279 |
| Met Towers (Structural Steel) | 3.82 | Tons | \$232.50 | \$888 |
| Substation (Structural Steel) | 20 | Tons | \$232.50 | \$4,650 |
| Turbine Generators | 333450 | Pounds | \$0.15 | \$50,018 |
| Aluminum Electrical Conductor (Supported) | 2379 | Pounds | \$0.15 | \$357 |
| Transformers (Steel) | 90 | Tons | \$232.50 | \$20,925 |
| Transformers (copper windings) | 96800 | Pounds | \$1.18 | \$113,982 |
| Transformers (oil) | 21240 | Gallons | \$0.70 | \$14,868 |
| Subtotal Salvage | | | | \$1,697,600 |
| Total Demolition Minus Resale and Salvage Value | | | | \$1,069,100 |

Appendix M

Public Hearing Mailing List

Hickory Wind Project

LaSalle County, Illinois

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| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|--|--|-------------------------------------|------------------|---------------|----------------|--------------|--|----------|-----------|------------|
| 17-28-307-000 | BENNETT, RAYMOND & RACCAH, D | 65452 DENSMORE RD | N/A | | | | | | AURORA | IL | 60506-8914 |
| 17-29-302-000 | CARUS FREDERICK L | PO BOX 1007 LASALLE IL 61301 | N/A | | | | | | | | |
| 17-29-303-000 | CARUS FREDERICK L | PO BOX 1007 LASALLE IL 61301 | N/A | | | | | | | | |
| 17-29-313-000 | CARUS CYNTHIA E/FREDERICK L | PO BOX 1007 LASALLE IL 61301-3007 | N/A | | | | | | | | |
| 17-29-403-000 | HENKEL, WILLIAM C / NANCY C TTEE | 2534 E 150TH RD | 2534 E 150TH RD PERU IL 61354 | 2534 E 150TH RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 17-29-404-000 | BENNETT, RAYMOND & RACCAH, D | 65452 DENSMORE RD | N/A | | | | | | AURORA | IL | 60506-8914 |
| 17-30-401-000 | CARUSBROOKE FARMS INC | FREDERICK L CARUS PO BOX 1007 LASALLE IL 61301-3007 | N/A | | | | | | | | |
| 17-30-411-000 | CORCORAN FAMILY FARMS LLC | 1164 N 33RD RD OTTAWA IL 61350 | N/A | | | | | | | | |
| 17-31-200-000 | CORCORAN FAMILY FARMS LLC | 1164 N 33RD RD OTTAWA IL 61350 | N/A | | | | | | | | |
| 17-31-402-000 | ERNAT MARTIN ETAL | 2476 E 150TH RD PERU IL 61354 | E 75 & N 2451ST RD PERU IL 61354 | | | | | | | | |
| 17-31-404-000 | ERNAT MARTIN ETAL | 2476 E 150TH RD PERU IL 61354 | N/A | | | | | | | | |
| 17-31-407-000 | AMEREN ILLINOIS CO | AMEREN SERVICES ATTN:DIR REAL ESTATE DEPT PO BOX 66149 MC 210 ST LOUIS MO 63166-6149 | E 75TH RD PERU IL 61354 | | | | | | | | |
| 17-32-106-000 | CARUSBROOKE FARMS INC / ATTN. TAX DEPT. - IL14242-B | 8051 CONGRESS AVE BOCA RATON FL 33487-1307 | 2459 E 150TH RD PERU IL 61354 | | | | | | | | |
| 17-32-202-000 | NEXSTAR BROADCASTING GROUP | ATTN: ACCOUNTS PAYABLE | E 150TH RD PERU IL 61354 | E 150TH RD | PERU | IL | 61354 | 545 E JOHN CARPENTER FREEWAY, STE700 | IRVING | TX | 75062 |
| 17-33-101-000 | BENNETT, RAYMOND & RACCAH, D | 65452 DENSMORE RD | N/A | | | | | | AURORA | IL | 60506-8914 |
| 17-33-102-000 | BENNETT, RAYMOND & RACCAH, D | 65452 DENSMORE RD | N/A | | | | | | AURORA | IL | 60506-8914 |
| 17-33-207-000 | JCS ENTERPRISES LLC | PO BOX 1067 | N 25TH RD PERU IL 61354 | N 25TH RD | PERU | IL | 61354 | | LASALLE | IL | 61301 |

UKA North America, LLC
LaSalle County Special Use Application
Appendix M: Public Hearing Mailing List

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|--|--|-------------------------------------|------------------|---------------|----------------|--------------|---------------------------|-----------|-----------|---------|
| 17-33-401-000 | PATTON, JUDITH A ETAL | 293 N 2409TH RD | 293 N 2409TH RD OGLESBY IL 61348 | 293 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-401-000 | PATTON, JUDITH A ETAL | 293 N 2409TH RD | 293 N 2409TH RD OGLESBY IL 61348 | 293 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-404-000 | THOMPSON, LARRY PAUL/DENISE M | 279 N 2409TH RD | 279 N 2409TH RD OGLESBY IL 61348 | 279 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-405-000 | THOMPSON, DONALD/DONNA | 275 N 2409TH RD | 275 N 2409TH RD OGLESBY IL 61348 | 275 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-407-000 | THOMPSON, LARRY | 279 N 2409TH RD | 2409TH RD OGLESBY IL 61348 | 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-408-000 | DUTKIEWICZ, DANIEL/ CONNIE | 287 N 2409TH RD | 287 N 2409TH RD OGLESBY IL 61348 | 287 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-409-000 | GRAY, EARL/CHRISTINA | 269 N 2409TH ROAD | 269 N 2409TH RD OGLESBY IL 61348 | 269 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 17-33-410-000 | THOMPSON, LARRY PAUL/DENISE | 279 N 2409TH RD | 2409TH RD OGLESBY IL 61348 | 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 18-34-109-000 | PAPPAS, PAMELA JO TRUSTEE | 2579 E 250TH RD | LYNWOOD DR PERU IL 61354 | LYNWOOD DR | PERU | IL | 61354 | | PERU | IL | 61354 |
| 18-34-110-000 | PAPPAS, PAMELA JO TRUSTEE | 2579 E 250TH RD | N/A | | | | | | PERU | IL | 61354 |
| 18-34-300-000 | MURPHY, ONLYN/ NORINNE | 203 SW 8TH ST | 303 N 24TH RD OGLESBY IL 61348 | 303 N 24TH RD | OGLESBY | IL | 61348 | | MICANOPY | FL | 32667 |
| 18-34-304-000 | ROSE, HARRY J-LINDA | 301 N 24TH RD | 301 N 24TH RD OGLESBY IL 61348 | 301 N 24TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 18-34-305-000 | HALM, LOIS ETAL | 2414 E 350TH RD | 2414 E 350TH RD OGLESBY IL 61348 | 2414 E 350TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 18-34-307-000 | PATTON, JUDITH A ETAL | 293 N 2409TH RD | 299 N 2409TH RD OGLESBY IL 61348 | 299 N 2409TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 18-34-308-000 | PATTON, JUDITH A ETAL | 293 N 2409TH RD | 299 N 2400TH RD OGLESBY IL 61348 | 299 N 2400TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 18-34-309-000 | STREATOR COMPANY LLC | 309 RACCUGLIA DR | N 24TH RD OGLESBY | N 24TH RD | OGLESBY | | | | LASALLE | IL | 61301 |
| 18-34-406-000 | MOSBACH, ROBERT-EILEEN | C/O ROBERTA MOSBACH DERR | OGLESBY IL 61348 | | OGLESBY | IL | 61348 | 21275 N 2700 EAST ROAD | LEXINGTON | IL | 61753 |
| 18-35-309-000 | TREGONING KURT C-HOLLY E | 418 N 2409TH RD OGLESBY IL 61348 | N 29TH / RTE 51 OGLESBY IL 61348 | | | | | | | | |
| 18-35-310-000 | LOFTUS, ROBERT M / ILDEFONSA CO-TTEES | ROBERT M & ILDEFONSA LOFTUS TRUST 11159 FAXON RD YORKVILLE IL 60560 | N 24TH RD OGLESBY IL 61348 | | | | | | | | |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|---|--|---|-------------------------------|---------------|----------------|--------------|---------------|----------|-----------|---------|
| 25-02-110-000 | BROVELLI, SHIRLEY J TTEE | SHIRLEY J BROVELLI REVOCABLE LIVING TRUST | E 4TH RD OGLESBY IL 61348 | E 4TH RD | OGLESBY | IL | 61348 | 2353 E 4TH RD | OGLESBY | IL | 61348 |
| 25-02-111-000 | BROVELLI, SHIRLEY J TTEE | SHIRLEY J BROVELLI REVOCABLE LIVING TRUST | N 24TH RD-IL ST RT 251 OGLESBY IL 61348 | N 24TH RD-IL ST RT 251 | OGLESBY | IL | 61348 | 2353 E 4TH RD | OGLESBY | IL | 61348 |
| 25-02-113-000 | FIRST MIDWEST TRUST CO | C/O NANCY SCHROEDER DR. 1308 ASHBURY DR LEMONT IL 60439 | N 24TH RD-IL ST RT 251 OGLESBY IL 61348 | | | | | | | | |
| 25-02-114-000 | TREGONING KURT/HOLLY | 418 N 2409TH RD OGLESBY IL 61348 | OGLESBY IL 61348 | | | | | | | | |
| 25-02-306-000 | GREGORICH, JOHN R / DONNA J CO-TTEES | JOHN R & DONNA J GREGORICH REVOCABLE TRUST PO BOX 620 WIMAUMA FL 33598 | N/A | | | | | | | | |
| 25-02-307-000 | GREGORICH, JOHN R / DONNA J CO-TTEES | JOHN R & DONNA J GREGORICH REVOCABLE TRUST PO BOX 620 WIMAUMA FL 33598 | N/A | | | | | | | | |
| 25-03-108-000 | WENZEL, CAROLE LYNETTE | 336 N 24TH RD | 336 N 24TH RD OGLESBY IL 61348 | 336 N 24TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-110-000 | TOUCHETTE, IDA / DOUGLAS LYNN JR | 717 SWIFT AVE | 342 N 24TH RD OGLESBY IL 61348 | 342 N 24TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-114-000 | WALGENBACH, THOMAS L / TAMMIE L | 340 N 24TH RD | N 24TH RD OGLESBY IL 61348 | N 24TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-201-000 | BROVELLI, SHIRLEY J TTEE | SHIRLEY J BROVELLI REVOCABLE LIVING TRUST | 2353 E 4TH RD OGLESBY IL 61348 | 2353 E 4TH RD | OGLESBY | IL | 61348 | 2353 E 4TH RD | OGLESBY | IL | 61348 |
| 25-03-206-000 | TRUMPINSKI, KATHY/BOBBY | 2381 E 4TH RD | 2381 E 4TH RD OGLESBY IL 61348 | 2381 E 4TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-208-000 | BROVELLI, DAVID/KELLY | 2369 E 4TH RD | 2369 E 4TH RD OGLESBY IL 61348 | 2369 E 4TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-210-000 | MARENDA, RYAN/LAURA | 362 N 24TH RD | 362 N 24TH RD OGLESBY IL 61348 | 362 N 24TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-03-300-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 1825A BAKER LN | E IL ST RT 71 / E 350TH RD OGLESBY IL 61348 | E IL ST RT 71 / E 350TH RD | OGLESBY | IL | 61348 | | PERU | IL | 61354 |
| 25-03-301-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | N/A | | | | | | OGLESBY | IL | 61348 |
| 25-03-402-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | N/A | | | | | | OGLESBY | IL | 61348 |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|---|--|---|-------------------|---------------|----------------|--------------|----------------------|-------------|-----------|------------|
| 25-03-403-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | N/A | | | | | | OGLESBY | IL | 61348 |
| 25-03-404-000 | BRUCH, THOMAS J | 379 E IL ST RT 71 | 379 E IL ST RT 71 OGLESBY IL 61348 | 379 E IL ST RT 71 | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-104-000 | CEDAR POINT FARMS & DEVELOPMNT | C/O DEAN A THOMPSON | 2375 E 175TH RD PERU IL 61354 | 2375 E 175TH RD | PERU | IL | 61354 | 7 FOX GLOVE COURT | WYNANTSKILL | NY | 12198 |
| 25-04-107-000 | LORENTZEN, LEE/KAROLYN | 2346 E 175TH RD | 2346 E 175TH RD PERU IL 61354 | 2346 E 175TH RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-04-200-004 | HARTY, LUKE / AMANDA | 2385 E 275TH RD | 2385 E 275TH RD OGLESBY IL 61348 | 2385 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-200-005 | BACHMAN, CLAUDIA | 2381 E 275TH RD | 2381 E 275TH RD OGLESBY IL 61348 | 2381 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348-9669 |
| 25-04-200-006 | DOOLEY, PATRICK M / VAGASKY, TRICIA | 2379 E 275TH RD | 2379 E 275TH RD OGLESBY IL 61348 | 2379 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-203-002 | SCHMITT DEAN J | 2351 E 275TH RD OGLESBY IL 61348 | N/A | | | | | | | | |
| 25-04-207-000 | SCHMITT, DEAN J | 2351 E 275TH RD | 2351 E 275TH RD OGLESBY IL 61348 | 2351 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-214-000 | PIZZAMIGLIO, NORMAN | 2387 E 275TH RD | 2387 E 275TH RD OGLESBY IL 61348 | 2387 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-215-000 | EDEN TWP CEMETARY | 307 MUGEKEWIS ST TONICA IL 61370 | CEDAR POINT CEMETERY CEDAR POINT IL | | | | | | | | |
| 25-04-216-000 | LADZINSKI, STEPHAN J / KAREN S TRUST | 2590 E 369TH RD | N/A | | | | | | OGLESBY | IL | 61348 |
| 25-04-218-000 | DITTLE, KRISTINA A | 2395 E 275TH RD | 2395 E 275TH RD OGLESBY IL 61348 | 2395 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-312-000 | LORENTZEN, LEE/KAROLYN | 2346 E 175TH RD | CEDAR POINT IL 61316 | | CEDAR POINT | IL | 61316 | | PERU | IL | 61354 |
| 25-04-318-000 | WILLIAMS JOHNATHAN | PO BOX 91 CEDAR POINT IL 61316 | N ELM ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-04-319-000 | HOLLY, BARBARA TTEE | 15066 N 1100TH AVE GRANVILLE IL 61326 | N/A | | | | | | | | |
| 25-04-322-000 | ZEMAN, JAMES / JEANNE E PIRAINO- | 2340 E 175TH RD | 2340 E 175TH RD PERU IL 61354 | 2340 E 175TH RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-04-324-000 | CEDAR POINT PROPERTY TRUST | C/O JEANNE E PIRAINO ZEMAN | E 175TH RD PERU IL 61354 | E 175TH RD | PERU | IL | 61354 | 2340 E 175TH RD | PERU | IL | 61354 |
| 25-04-401-000 | BELLINO, JOHN P TTEE | JOHN P BELLINO TRUST | N/A | | | | | 410 BERRY ST | STANDARD | IL | 61363 |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|---|---|--|---------------------------------|---------------|----------------|--------------|--------------------------|------------------|-----------|------------|
| 25-04-405-000 | ALLEMAN, RICHARD D-D | 251 E IL RTE 71 | 251 E IL RTE 71 PERU IL 61354 | 251 E IL RTE 71 | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-04-406-000 | LAVENS, CHARLES A / ARLENE I CO-TTEE ETAL | LAVENS FAMILY REVOCABLE LIVING TRUST AGREEMENT II | 2345 E 275TH RD OGLESBY IL 61348 | 2345 E 275TH RD | OGLESBY | IL | 61348 | 2345 E 275TH RD | OGLESBY | IL | 61348 |
| 25-04-407-000 | MILLER, JASON / CROOK, KIMBERLY AUTUMN | 407 OAK ST | 2333 E 275TH RD OGLESBY IL 61348 | 2333 E 275TH RD | OGLESBY | IL | 61348 | | CEDAR POINT | IL | 61316 |
| 25-04-408-000 | BROZOVICH, MARY M | 2323 E 275TH D | 2323 E 275TH RD OGLESBY IL 61348 | 2323 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-414-000 | GROSENBACH, SCOTT/SUZANNE | E IL ST RT 71 | 2320 E 275TH RD OGLESBY IL 61348 | 2320 E 275TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-04-415-000 | BIDASIO, JOSEPH DOMINICK / DAWN MARIE TTEE | JOSEPH D AND DAWN M BIDASIO REV LIVING TRUST | 253 E IL RT 71 PERU IL 61354 | 253 E IL RT 71 | PERU | IL | 61354 | 253 E ILLINOIS RTE 71 | PERU | IL | 61354 |
| 25-04-416-000 | ALLEMAN, RICHARD/DIANE | 251 US ROUTE 71 | PERU IL 61354 | | PERU | IL | 61354 | | PERU | IL | 61354-9200 |
| 25-05-106-000 | TONDI, RONNIE J / CAROL F | 2361 175TH RD | PERU IL 61354 | | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-05-204-000 | TONDI RONNIE J / CAROL | 2961 E 175TH RD PERU IL 61354 | 2361 E 175TH RD PERU IL 61354 | | | | | | | | |
| 25-05-206-000 | CEDAR POINT FARMS & DEVELOPMNT | C/O DEAN A THOMPSON | PERU IL 61354 | | PERU | IL | 61354 | 7 FOX GLOVE COURT | WYNANTSKILL | NY | 12198 |
| 25-05-209-000 | MC KEE LARRY/MARTHA | 2348 E 175TH RD PERU IL 61354 | 2348 E 175TH RD PERU IL 61354 | | | | | | | | |
| 25-05-210-000 | MUDGE JEFFREY-LINDA | 2347 E 175TH RD PERU IL 61354 | 2347 E 175TH RD PERU IL 61354 | | | | | | | | |
| 25-05-218-000 | TONDI MARK J | C/O GRANVILLE NAT BANK 328 S MC COY ST PO BOX 344 GRANVILLE IL 61326 | 2375 E 175TH RD PERU IL 61354 | | | | | | | | |
| 25-05-221-000 | TONDI, RONNIE J/CAROL F | 2361 175TH RD | E 175TH RD PERU IL 61354 | E 175TH RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-05-222-000 | TONDI GREGORY/CHRISTINE | 2359 E 150TH RD PERU IL 61354 | 2359 E 150TH RD PERU IL 61354 | | | | | | | | |
| 25-05-400-000 | PIANO, FRANCIS / THOMAS | 528 W ERIE ST | E COUNTY HWY 16 & 1ST STREET PERU IL 61354 | E COUNTY HWY 16 & 1ST STREET | PERU | IL | 61354 | | SPRING VALLEY | IL | 61362 |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|--|--|--|-------------------------|---------------|----------------|--------------|----------------------------|-----------|-----------|---------|
| 25-06-201-000 | ERNAT MARTIN ETAL | 2476 E 150TH RD PERU IL 61354 | N/A | | | | | | | | |
| 25-06-204-000 | BOERS BEVERLY J TTEE / BRIAN | 2292 MERIDEN RD PERU IL 61354-1354 | N/A | | | | | | | | |
| 25-06-206-000 | AMEREN ILLINOIS CO | TAX DEPT (MC212) PO BOX 66149 ST LOUIS MO 63166 | E 75TH RD PERU IL 61354 | | | | | | | | |
| 25-06-401-000 | BRUCH FARMLAND HOLDING COMPANY LLC | 12707 ILL HWY 71 | N/A | | | | | | GRANVILLE | IL | 61326 |
| 25-06-402-000 | GARNER, DONALD/PEGGY | 2313 E 75TH RD | 2313 E 75TH RD PERU IL 61354 | 2313 E 75TH RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-07-201-000 | HENSON, ROBERTA TTEE | ROBERTA L HENSON REV TRUST 1353 BUCKLIN AVE UNIT AVE LASALLE IL 61301 | PERU IL 61354 | | | | | | | | |
| 25-07-203-000 | GEHM, ANDREW | 2402 MERIDIAN RD | N 23RD PERU | N 23RD | PERU | | | | GRANVILLE | IL | 61326 |
| 25-07-205-000 | MORA, SAUL LOPEZ / RANGEL, JUANA ESCOBEDO | 80 N 23RD RD | 80 N 23RD RD PERU IL 61354 | 80 N 23RD RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-07-206-000 | JUDGE, SAMANTHA L | 82 N 23RD RD | 82 N 23RD RD PERU IL 61354 | 82 N 23RD RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-07-207-000 | HENSON, ROBERTA TTEE | ROBERTA L HENSON REV TRUST | N 23RD RD PERU IL 61354 | N 23RD RD | PERU | IL | 61354 | 1353 BUCKLIN AVE UNIT A | LASALLE | IL | 61301 |
| 25-07-402-000 | WARRICK, MARGARET S | 228 8TH ST | PERU IL 61354 | | PERU | IL | 61354 | | ANN ARBOR | MI | 48103 |
| 25-08-102-000 | MORFOOT, MARIANNE MARTENS ETAL | ATTN: LISA H BOUGHTON | E 1ST / N 23RD ROADS PERU IL 61354 | E 1ST / N 23RD ROADS | PERU | IL | 61354 | 4536 S WOODLAWN | CHICAGO | IL | 60653 |
| 25-08-200-000 | HODGE, DORIS M | 511 N PENNSYLVANIA AVE | 172 N 23RD RD PERU IL 61354 | 172 N 23RD RD | PERU | IL | 61354 | | MORTON | IL | 61550 |
| 25-08-209-010 | KASPERSKI JACOB | 409 CEDAR ST CEDAR POINT IL 61316 | 409 CEDAR ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-08-210-000 | HODGE, DORIS | 511 N PENNSYLVANIA AVE | CEDAR ST CEDAR POINT IL 61316 | CEDAR ST | CEDAR POINT | IL | 61316 | | MORTON | IL | 61550 |
| 25-08-210-016 | HINES JOSEPH J/ TAMMY J | PO BOX 168 509 CEDAR ST CEDAR POINT IL 61316 | CEDAR ST CEDAR POINT IL 61316 | | | | | | | | |

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|---------------|-------------------------------------|---|-----------------------------------|------------------|---------------|----------------|--------------|---------------------|-------------|-----------|---------|
| 25-08-210-018 | EVANS KENNETH & MARGARET | 503 CEDAR ST CEDAR POINT IL 61316 | 503 CEDAR ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-08-210-019 | SPRINGER STEVEN J | 501 CEDAR ST CEDAR POINT IL 61316 | 501 CEDAR ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-08-404-000 | ZELLMER, JOAN | PO BOX 132 | CEDAR POINT IL 61316 | | CEDAR POINT | IL | 61316 | | CEDAR POINT | IL | 61316 |
| 25-08-407-000 | SUPAN, MICHAEL R / LINDA L TTEE | MICHAEL R SUPAN DEC OF TRUST & LINDA L SUPAN DEC OF TRUST | N 22ND RD CEDAR POINT IL 61316 | N 22ND RD | CEDAR POINT | IL | 61316 | 7 BAILEY CREEK DR | TONICA | IL | 61370 |
| 25-09-110-005 | LAFOLLETTE, KEVIN W / DEBBIE | 102 E 5TH ST CEDAR POINT IL 61316 | 102 E 5TH ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-09-110-010 | MAHAR MICHAEL W / LUCILLE | PO BOX 19 CEDAR POINT IL 61316 | 409 OAK ST CEDAR POINT IL 61316 | | | | | | | | |
| 25-09-111-011 | RUTGENS STEVEN K | 408 OAK ST CEDAR POINT IL 61316 | 408 OAK ST CEDAR POINT | | | | | | | | |
| 25-09-113-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 1825A BAKER LN | N/A | | | | | | PERU | IL | 61354 |
| 25-09-113-003 | VILLAGE OF CEDAR POINT | PO BOX 20 | CEDAR ST CEDAR POINT IL | CEDAR ST | CEDAR POINT | IL | | | CEDAR POINT | IL | 61316 |
| 25-09-114-001 | RIGBY, JEFFREY S / KELLETT, KOREE L | 201 5TH ST | 201 5TH ST CEDAR POINT IL 61316 | 201 5TH ST | CEDAR POINT | IL | 61316 | | CEDAR POINT | IL | 61316 |
| 25-09-115-000 | HOLLY, BARBARA TTEE | 15066 N 1100TH AVE | N/A | | | | | | GRANVILLE | IL | 61326 |
| 25-09-200-000 | FIRST MIDWEST BANK TRUSTEE | TRUST #6871 | N/A | | | | | 2801 W JEFFERSON ST | JOLIET | IL | 60431 |
| 25-09-201-000 | BELLINO, JOHN P TTEE | JOHN P BELLINO TRUST 410 BERRY ST STANDARD IL 61363 | N/A | | | | | | | | |
| 25-09-202-000 | MILLER, ELEANOR | 906 W CENTRAL AVE | E 2750TH RD | E 2750TH RD | | | | | PRINCETON | IL | 61356 |
| 25-09-300-000 | HILTABRAND, LINDA / TAYLOR, MARIE | 1825A BAKER LN | 2250 E 2ND RD OGLESBY IL 61348 | 2250 E 2ND RD | OGLESBY | IL | 61348 | | PERU | IL | 61354 |
| 25-09-300-001 | STRADER, RICHARD L JR | 2214 E 2ND RD | 2214 E 2ND RD PERU IL 61354 | 2214 E 2ND RD | PERU | IL | 61354 | | PERU | IL | 61354 |

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|---------------|---|--|---|-------------------------------------|---------------|----------------|--------------|------------------------|-----------|-----------|------------|
| 25-09-300-002 | STRADER, BETTY GENE | 2210 E 2ND RD | 2210 E 2ND RD PERU IL 61354 | 2210 E 2ND RD | PERU | IL | 61354 | | PERU | IL | 61354-9312 |
| 25-10-100-000 | FIRST MIDWEST BANK TRUSTEE | TRUST #6871 | PERU IL 61354 | | PERU | IL | 61354 | 2801 W JEFFERSON ST | JOLIET | IL | 60431 |
| 25-10-101-000 | FIRST MIDWEST BANK TRUSTEE | TRUST #6871 | N/A | | | | | 2801 W JEFFERSON ST | JOLIET | IL | 60431 |
| 25-10-202-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | 2165 E 4TH RD OGLESBY IL 61348 | 2165 E 4TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-10-211-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | E 350TH RD OGLESBY IL 61348 | E 350TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-10-213-000 | SAUTER, JAMES A | 376 E STATE RTE 71 | E IL ST RT 71 OGLESBY IL 61348 | E IL ST RT 71 | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-10-403-000 | BASSETT, MARY ELLEN | 357 N 22ND RD | 357 N 22ND RD OGLESBY IL 61348 | 357 N 22ND RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-10-405-000 | MILNER, ALLAN / KATHLEEN | 306 N 21ST RD | N/A | | | | | | TONICA | IL | 61370 |
| 25-10-408-000 | LAMBERT, LEANN M | 2050 E FIRST RD | N 22ND RD OGLESBY | N 22ND RD | OGLESBY | | | | PERU | IL | 61354 |
| 25-10-410-000 | BELLINO, SUSAN J TTEE | STRAUGENBACH HOMESTEAD TRUST PO BOX 35 410 BERRY ST STANDARD IL 61363 | 2213 E 4TH RD OGLESBY IL 61348 | | | | | | | | |
| 25-11-207-000 | LADZINSKI, STEPHAN J/ KAREN S CO-TTEES | 2590 E 369TH RD OGLESBY IL 61348 | N/A | | | | | | | | |
| 25-11-211-000 | RENKOSIK CAROL M | 915 30TH ST PERU IL 61354 | 915 30TH ST PERU IL 61354 | | | | | | | | |
| 25-11-300-000 | RENKOSIK, CAROL M TTEE | 915 30TH ST | I-39 AND N 22ND / N 2250TH ROADS OGLESBY IL 61348 | I-39 AND N 22ND / N 2250TH ROADS | OGLESBY | IL | 61348 | | PERU | IL | 61354-1453 |
| 25-11-409-000 | BARTOLT RAYMOND L / RAELEEN M | 1599 LAFAYETTE ST LASALLE IL 61301-1313 | OGLESBY IL 61348 | | | | | | | | |
| 25-14-102-000 | THOMPSON, MARK A/CHRISTINE J | 438 N 2209TH RD | 438 N 2209TH RD OGLESBY IL 61348 | 438 N 2209TH RD | OGLESBY | IL | 61348 | | OGLESBY | IL | 61348 |
| 25-14-104-000 | HOLLY, BARBARA TTEE | 15066 N 1100TH AVE | N/A | | | | | | GRANVILLE | IL | 61326 |
| 25-14-105-000 | YEATER, BERNICE TTEE | 254 N WASHINGTON ST | N/A | | | | | | WESTMONT | IL | 60559 |
| 25-14-201-000 | JAEGLE, WILLIAM J ETAL | 1791 US HWY 251 TONICA IL 61370 | N/A | | | | | | | | |

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|---------------|--------------------------------------|----------------------------------|------------------------------------|------------------|---------------|----------------|--------------|-----------------|------------------|-----------|------------|
| 25-14-301-000 | MILLER, BENJAMIN, MARVIN & MARION | 31684 1800 N AVE | 403 N 2109TH RD TONICA IL 61370 | 403 N 2109TH RD | TONICA | IL | 61370 | | SPRING VALLEY | IL | 61362 |
| 25-14-302-000 | ERNAT, BERNARD | 20 BAILEY CREEK DR | N/A | | | | | | TONICA | IL | 61370 |
| 25-14-401-000 | ERNAT, BERNARD/ PATRICIA | 20 BAILEY CREEK DR | N/A | | | | | | TONICA | IL | 61370-9788 |
| 25-15-100-000 | PLOCH, ROGER / CAROLYN | 2184 MERIDIAN RD | 2150 N 3RD RD TONICA IL 61370 | 2150 N 3RD RD | TONICA | IL | 61370 | | PERU | IL | 61354 |
| 25-15-101-000 | WALTER, LINDA K TTEE | 1413 HENRY ST | N 22ND RD TONICA IL 61370 | N 22ND RD | TONICA | IL | 61370 | | PERU | IL | 61354 |
| 25-15-307-000 | KELLY, ZACHARY / VANESSA | 349 N 21ST RD TONICA IL 61370 | 349 N 21ST RD TONICA IL 61370 | | | | | | | | |
| 25-15-308-000 | SMITH, NANCY L TTEE | NANCY L SMITH TRUST | N 21ST RD TONICA IL 61370 | N 21ST RD | TONICA | IL | 61370 | 430 SUNSET BLVD | OGLESBY | IL | 61348 |
| 25-15-400-000 | ERNAT, BERNARD T / PATRICIA A | 20 BAILEY CREEK DR | N/A | | | | | | TONICA | IL | 61370 |
| 25-16-201-000 | PLOCH, CHRISTOPHER / AMY | 307 N 2ND ST | 2150 N 3RD RD TONICA IL 61370 | 2150 N 3RD RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-16-300-000 | HICKORY GROVE LLC | 2 BAILEY CREEK DR | N/A | | | | | | TONICA | IL | 61370 |
| 25-16-301-000 | FREDERICK, JULIA TRUST | 2102 E 2ND RD | 2102 E 2ND RD PERU IL 61354 | 2102 E 2ND RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-16-404-000 | LAMBERT, EDWARD R | 5 BAILEY CREEK DR/PO BOX 447 | N/A | | | | | | TONICA | IL | 61370 |
| 25-17-100-000 | DIPPEL, MARTIN & LANGE, ALICE | 4051 N KOSTNER | N/A | | | | | | CHICAGO | IL | 60641 |
| 25-17-203-000 | RUNDLE, RICHARD | 174 N 22ND RD | 174 N 22ND RD PERU IL 61354 | 174 N 22ND RD | PERU | IL | 61354 | | PERU | IL | 61354-9505 |
| 25-17-300-000 | OLSON, ROBERT J / KAREN N | 2122 E 1ST RD | 2122 E 1ST RD PERU IL 61354 | 2122 E 1ST RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-17-301-000 | HICKORY GROVE LLC | 2 BAILEY CREEK DR | N/A | | | | | | TONICA | IL | 61370 |
| 25-17-405-000 | HICKORY GROVE LLC | 2 BAILEY CREEK DR | E 2ND RD PERU IL 61354 | E 2ND RD | PERU | IL | 61354 | | TONICA | IL | 61370 |
| 25-18-201-000 | OLSON, ROBERT J / KAREN N | 2122 E 1ST RD | N/A | | | | | | PERU | IL | 61354 |
| 25-18-207-000 | SHERMAN, WILLIAM E JR | 2183 E 1ST RD | E 1ST RD PERU IL 61354 | E 1ST RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-18-403-000 | GARNER, PEGGY | 2313 E 75TH RD | 2135 E 1ST RD PERU IL 61354 | 2135 E 1ST RD | PERU | IL | 61354 | | PERU | IL | 61354 |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|---------------|--------------------------------------|--|--|------------------------|---------------|----------------|--------------|----------------------------|-------------|-----------|------------|
| 25-18-404-000 | ERJAVSEK, LARRY | 95 N 21ST RD | 95 N 21ST RD PERU IL 61354 | 95 N 21ST RD | PERU | IL | 61354 | | PERU | IL | 61354 |
| 25-19-200-000 | OLSON, FRIEDA | 5119 W MAHARK LN | N/A | | | | | | PEORIA | IL | 61607-1344 |
| 25-20-102-000 | OLSON FRIEDA | 5119 W MAHARK LN PEORIA IL 61607-1344 | N 21ST RD / E 1ST RD | | | | | | | | |
| 25-21-405-000 | SHERMAN, WILLIAM E III | 271 N 20TH RD | 271 N 20TH RD TONICA IL 61370 | 271 N 20TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-21-407-000 | SHERMAN, WILLIAM E JR | 2183 E 1ST ST | N/A | | | | | | PERU | IL | 61354 |
| 25-22-102-000 | WALTER, JOHN E / ANNA C TTEE | 150 PORTER AVE | N 21ST TONICA IL 61370 | N 21ST | TONICA | IL | 61370 | | GRAND RIDGE | IL | 61325 |
| 25-22-103-000 | WALTER, LAWRENCE TRUST | 603 PINE TREE DR | N 21ST RD TONICA IL 61370 | N 21ST RD | TONICA | IL | 61370 | | STREATOR | IL | 61364 |
| 25-22-104-000 | WALTER, ROGER W TTEE | ROGER W WALTER REV LIVING TRUST | N 21ST RD TONICA IL 61370 | N 21ST RD | TONICA | IL | 61370 | 2323 E 20TH RD | MARSEILLES | IL | 61341 |
| 25-22-202-000 | HENAK, JANET M | 2055 E 4TH RD | 2055 E 4TH RD TONICA IL 61370 | 2055 E 4TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370-9443 |
| 25-22-300-002 | ALLEMAN, THOMAS / EDITH | 1929 E 2ND RD TONICA IL 61370 | N/A | | | | | | | | |
| 25-22-300-003 | LUTZ, TIMOTHY A | 317 N 20TH RD | 311 & 317 N 20TH RD TONICA IL 61370 | 311 & 317 N 20TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-22-306-000 | ALLEMAN, RICHARD C ETAL | 215 SHAWANDASEE | 319 N 20TH RD TONICA IL 61370 | 319 N 20TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-22-307-000 | ALLEMAN, THOMAS / EDITH | 1929 E 2ND RD TONICA IL 61370 | N 20TH RD TONICA IL 61370 | | | | | | | | |
| 25-22-403-000 | FORD, ROSAURA | 2005 E 4TH RD | 2005 E 4TH RD TONICA IL 61370 | 2005 E 4TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-23-207-000 | LAIBLE, FLOISE R / VYRL LYNN TTEE | ELOISE LIABLE FAMILY TRUST | N/A | | | | | 307 N COTTAGE GROVE AVE | PRINCEVILLE | IL | 61559 |
| 25-23-208-000 | MICHEL I ROBERT ETAL TTEE | C/O JOAN M TEFERTILLAR 2056 E 550TH RD TONICA IL 61370-9438 | N/A | | | | | | | | |
| 25-23-210-000 | SHIVE REVOCABLE TRUST | 6 UNDREHILL AVE | IL | | | IL | | | OYSTER BAY | NY | 11771 |
| 25-23-306-000 | WALTER, CLARENCE E TTEE | BETTY J WALTER FAMILY TRUST | N/A | | | | | 145 PORTER AVE | GRAND RIDGE | IL | 61325 |

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|---------------|--|---|---|-------------------------|---------------|----------------|--------------|-----------------|-------------|-----------|---------|
| 25-23-307-000 | WALTER, CLARENCE W TTEE | BETTY J WALTER FAMILY TRUST | N/A | | | | | 145 PORTER AVE | GRAND RIDGE | IL | 61325 |
| 25-23-400-000 | MIGLIORINI, RONALD R TTEE | RONALD R MIGLIORINI REVOCABLE TRUST | 467 N 20TH RD TONICA IL 61370 | 467 N 20TH RD | TONICA | IL | 61370 | 15815 OBRIEN RD | MINOOKA | IL | 60447 |
| 25-27-104-000 | GINGERICH, GARY L / BETH A | 1988 E 3RD RD | E 3RD ROAD TONICA IL 61370 | E 3RD ROAD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-27-105-000 | SHERMAN, WILLIAM III / BETH | 271 N 20TH RD | RT 54 TONICA IL 61370 | RT 54 | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-27-109-000 | SHERMAN, WILLIAM E III | 271 N 20TH RD | E 3RD RD & N 20TH RD TONICA IL 61370 | E 3RD RD & N 20TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| 25-27-210-000 | SHERMAN, WILLIAM E III | 271 N 20TH RD TONICA IL 61370 | N 20TH RD TONICA IL 61370 | | | | | | | | |
| 25-28-203-000 | FLEMING, MICHAEL | 292 N 20TH RD | 292 N 20TH RD TONICA IL 61370 | 292 N 20TH RD | TONICA | IL | 61370 | | TONICA | IL | 61370 |
| N/A | N/A (Small square parcel just south of "ALLEMAN, RICHARD/DIANE" parcel (PIN 25-04-416-000 in this table)) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | N/A (Slim north/south ROW parcel just west of "WALTER, CLARENCE E TTEE" parcel (PIN 25-23-306-000 in this table)) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| N/A | RIVARA, DOMINIC; CITY OF OGLESBY MAYOR | 428 FITZGERALD STREET, OGLESBY, IL 61348 | N/A | | | | | | | | |
| N/A | EITUTIS, AMY; CITY OF OGLESBY CITY CLERK | 110 EAST WALNUT STREET, OGLESBY, IL 61348 | N/A | | | | | | | | |
| N/A | EICHELKRAUT, PATTY; CITY OF OGLESBY ASSISTANT CLERK | 110 EAST WALNUT STREET, OGLESBY, IL 61348 | N/A | | | | | | | | |
| N/A | QUICK, ERIN; CITY OF OGLESBY ASSISTANT CLERK II | 110 EAST WALNUT STREET, OGLESBY, IL 61348 | N/A | | | | | | | | |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|-----|---|---|--------------|------------------|---------------|----------------|--------------|---------------|----------|-----------|---------|
| N/A | CURRAN, JASON; CITY OF OGLESBY COMMISSIONER OF ELECTRIC, STREETS, WATER, SEWER | 101 CLARET KNOLL AVE, OGLESBY, IL 61348 | N/A | | | | | | | | |
| N/A | KOLOWSKI, KEN; CITY OF PERU MAYOR | 1901 4TH STREET, PERU, IL 61354 | N/A | | | | | | | | |
| N/A | BARTLEY, DAVID R.; CITY OF PERU CITY CLERK | 1901 4TH STREET, PERU, IL 61354 | N/A | | | | | | | | |
| N/A | PISCIA, STEPHANIE; CITY OF PERU DEPUTY CITY CLERK | 1901 4TH STREET, PERU, IL 61354 | N/A | | | | | | | | |
| N/A | BRUCH, TOM J.; EDEN TOWNSHIP SUPERVISOR | 379 E ILL 71, OGLESBY, IL 61348 | N/A | | | | | | | | |
| N/A | ANTOLIK, MARLA; EDEN TOWNSHIP CLERK | 104 N 20TH RD, PERU, IL 61354 | N/A | | | | | | | | |
| N/A | ANDERSON, TODD; EDEN TOWNSHIP HWY COMMISSIONER | 235 S 1ST ST, TONICA, IL 61370 | N/A | | | | | | | | |
| N/A | KORTER, LANCE; VILLAGE OF CEDAR POINT MAYOR | 101 4TH ST, PO BOX 146, CEDAR POINT, IL 61348 | N/A | | | | | | | | |
| N/A | GOULD, JANET; VILLAGE OF CEDAR POINT CLERK | 204 ELM ST, CEDAR POINT, IL 61316 | N/A | | | | | | | | |
| N/A | BALLERINI, LEE JR.; VILLAGE OF CEDAR POINT CITY COMMISSIONER | 206 OAK ST, CEDAR POINT, IL 61316 | N/A | | | | | | | | |
| N/A | KOTECKI, MARTIN; VILLAGE OF CEDAR POINT CITY COMMISSIONER | PO BOX 1512, CEDAR POINT, IL 61316 | N/A | | | | | | | | |
| N/A | LAFOLLETE, KEVIN; VILLAGE OF CEDAR POINT CITY COMMISSIONER | 219 E 1ST ST, CEDAR POINT, IL 61316 | N/A | | | | | | | | |

| PIN | TAX_NAME | TAX_ADDRESS | SITE_ADDRESS | PHYSICAL_ADDRESS | PHYSICAL_CITY | PHYSICAL_STATE | PHYSICAL_ZIP | TAX_ADDRESS_1 | TAX_CITY | TAX_STATE | TAX_ZIP |
|-----|---|-------------------------------------|--------------|------------------|---------------|----------------|--------------|---------------|----------|-----------|---------|
| N/A | MARGIS, MICHAEL; VILLAGE OF CEDAR POINT CITY COMMISSIONER | 219 E 1ST ST, CEDAR POINT, IL 61316 | N/A | | | | | | | | |
| N/A | SLUDER, KEVIN; VILLAGE OF TONICA VILLAGE PRESIDENT | 409 HIAWATHA ST, TONICA, IL 61370 | N/A | | | | | | | | |
| N/A | SHERMAN, HEATHER; VILLAGE OF TONICA CLERK | 409 LINDEN ST, TONICA, IL 61370 | N/A | | | | | | | | |
| N/A | MICHELINI, STEVE; PERU TOWNSHIP HWY COMMISSIONER | 4301 PLANK ROAD, PERU, IL 61354 | N/A | | | | | | | | |
| N/A | SLUSAREK, MICHAEL; LASALLE TOWNSHIP HWY COMMISSIONER | 931 FIRST ST, LASALLE, IL 61301 | N/A | | | | | | | | |