

Submittal Date:  
September 29, 2022

**Riverbend Wind Energy Center**  
**SPECIAL LAND USE PERMIT APPLICATION**

PREPARED FOR:  
**Speaker Township, Sanilac County**

PREPARED BY:  
**Algonquin Power (MI Energy Developments) LLC**

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## I. PROJECT INTRODUCTION | Speaker Special Land Use Permit Amendment Application

Algonquin Power (MI Energy Developments) LLC, a Delaware limited liability company organized under the laws of Delaware, which is indirectly wholly owned Algonquin Power Co., d/b/a Liberty Power (“Liberty Power”), a Delaware limited liability company, proposes to construct a wind energy conversion system, titled “Riverbend Wind Energy Center”, in Sanilac County, Michigan.

Riverbend Wind, owned by Algonquin Power & Utilities Corp. (AQN), parent company of Liberty, is a diversified international generation, transmission, and distribution utility with over \$17 billion of total assets. Through its two business groups, the Regulated Services Group and the Renewable Energy Group, AQN is committed to providing safe, secure, reliable, cost-effective, and sustainable energy and water solutions through its portfolio of electric generation, transmission, and distribution utility investments to over one million customer connections, largely in the United States and Canada. AQN is a global leader in renewable energy through its portfolio of long-term contracted wind, solar, and hydroelectric generating facilities. AQN owns, operates, and/or has net interests in over 4 GW of installed renewable energy capacity. The company also has approximately 3.8 GW of projects within its development pipeline.

AQN is committed to delivering growth and the pursuit of operational excellence in a sustainable manner through an expanding global pipeline of renewable energy and electric transmission development projects, organic growth within its rate-regulated generation, distribution, and transmission businesses, and the pursuit of accretive acquisitions and value enhancing recycling of assets. The Riverbend Wind Energy Center (project) will be located in Fremont and Speaker townships. The project proposes to permit three layouts referenced as scenario 25, 16, and 16a in this application and will only construct one of the layouts. Scenario 25 consists of 50 turbine pad locations between Fremont and Speaker with 24 pad locations within Speaker Township. Scenario 16 and 16a both consists of a total of 56 wind turbines between both townships with a total of up to 26 turbine locations within Speaker Township. The total number of turbines proposed across both townships is 50 turbines totaling approximately 300 megawatts (MW), which is enough capacity to supply approximately 90,000 homes with clean renewable electricity.

As illustrated throughout this application narrative, Riverbend Wind has been very diligent in designing a project that meets or exceeds the requirements of the Speaker Township Zoning Ordinance (adopted 6/14/16, as amended through 8/21/21).

The portion of the wind energy center proposed in Speaker Township requires permitting for up to 26 turbine locations. There are approximately 90 agreements in Speaker Township alone which currently accounts for approximately 8,593 acres of land participating in the project.

Riverbend Wind’s application complies with the general and specific standards and requirements for special land uses in the Michigan Zoning Enabling Act (MZEA) and the Speaker Township Zoning Ordinance. This enclosed Speaker Township Special Land Use Permit (SLUP) application narrative is in response, and outlined accordingly, to the Speaker Township Zoning Ordinance. A section for “Additional Information” has also been included.

### 1) DESCRIPTION OF PROPOSED FACILITES

Individual lease and easement agreements, permitting the siting of the project, have been signed by respective landowners for each proposed wind turbine and related facilities location. In addition, Riverbend Wind has written agreements with all consenting landowners, which ensure minimal impact to their land and that public health and safety guidelines will be followed. In addition, the proposed project will not emit any fumes or odor. Below, please find a listing of all proposed Riverbend Wind Energy Center facilities. See site plan in **Appendix A** for locations of all proposed facilities.

- **Generation Equipment Description**

- The model being contemplated has a rotor diameter up to 163 (approx. 534ft) meters and are on monopole steel tubular towers up to an approximate hub height of 119m (approx. 390ft) These turbines employ active yaw control to steer the machine with respect to the wind. They have active blade pitching to maximize power output. The towers and turbines will be painted with a non-reflective/off-white color designed to minimize visual impacts. No advertising or graphics will be placed on any part of the tower or blades; however, the turbines will be clearly numbered above the entrance doors for identification and emergency response. The towers will not be illuminated except as required by the Federal Aviation Administration (FAA) approval. If the FAA concludes that an aircraft detection lighting system (ADLS) is appropriate for this site and approves its use, Riverbend Wind will install and operate the ADLS.

Typical Turbine Specifications							
Hub Height (m)	Hub Height (ft)	Rotor Diameter (m)	Rotor Diameter (ft)	Tip Height (m)	Tip Height (ft)	Ground Clearance (m)	Ground Clearance (ft)
119	390	162	531	200	656	38	124.5
118.5	389	163	535	200	656	38	124.5

**Electrical Collection System**

The power generated by the project will be collected and conveyed to the project substation located in Fremont Township by an electrical power collection system proposed. The project’s energy collection system will include buried cables and fiber-optic communication lines, and above ground electrical junction boxes. Underground collection lines, on private land, will be located in Speaker Township. Refer to the site plan for the approximate location, to be confirmed based on final design (Appendix A).

- **Substation**  
 The project substation, located in Fremont Township, increases the voltage from the 34.5 kV, as collected from the pad-mounted transformers at each wind turbine, to the 345 kV required for interconnection. The project substation shall include but not be limited to transformers, metering equipment, circuit breakers, poles and disconnects, and other devices to regulate the flow of electrical power.
- **Overhead Transmission Line Connection**  
 This project does not propose to construct an overhead transmission line. The project will connect directly into the existing overhead transmission line.
- **Laydown Yard**  
 One proposed gravel base temporary laydown area, located in Speaker Township, will be required during construction of the Riverbend Wind Energy Center. This laydown yard will be used to temporarily store turbine parts, equipment, office trailers, and parking.
- **Operations & Maintenance Facility**  
 The day-to-day operation of the proposed facility will be conducted at a newly constructed Operations & Maintenance (O&M) Facility located in Fremont Township. This facility will include a storage area for spare parts, vehicles, office spaces for local employees and more.
- **Switching Station (Built by Utility)**  
 The project Substation will tie into a project switching station located in Fremont Township that will be constructed by the local utility ITC.
- **Permanent MET Tower**  
 Three proposed MET towers will be located in Speaker Township.
- **Existing Public Roads**

There is an existing State controlled highway system providing sufficient transportation to the project location and to the necessary county roads providing access to each proposed wind turbine. It may be necessary to improve (grade or widen) some existing municipal roads during construction to accommodate construction equipment and equipment transport trucks. It may also be necessary to repair, repave, or reconstruct existing county roads damaged by project construction. Riverbend Wind anticipates entering into a formal Road Use Agreement with the jurisdiction having authority to comply with the use of public roads.

▪ **New Private Turbine Access Roads**

Newly constructed turbine access roads will be graded and will consist of gravel over compacted material, with a gravel thickness specified by the engineer upon completion of geotechnical analysis. The gravel will be obtained off site from local crushed rock gravel pits. The access roads will generally be constructed at-grade, where possible. Culverts may be installed if ‘washes’ cannot be crossed at grade and as a preventive measure to avoid any damages to the existing or new access roads and the existing highway/county road system. When construction is complete, the access roads will be left in place to provide access for future operations and maintenance activities. After construction, these roads will be graded where low spots and ruts have occurred, and culverts will be left in place. The roads will also be available for the use of the landowner.

## II. WIND ENERGY CONVERSION FACILITY | Special Land Use Permit Requirements

Riverbend Wind adheres to the following Wind Energy Conversion Facility Special Use requirements, as outlined in “Article XIA Section 11A.01 to 11A.11” of the Speaker Township Zoning Ordinance.

Wind Energy Conversion Facility Special Land Use Permit (SLUP) application requirements:

### 1) APPLICANT IDENTIFICATION

**Project Developer:**

Riverbend Wind, LLC  
354 Davis Road, Suite 100  
Oakville, ON L6J 2X1

**Riverbend Wind Energy Center Location:**

Speaker Township  
Sanilac County, Michigan

On behalf of the listed participating landowners of the Riverbend Wind Energy Center (participating landowner list is found in **Appendix K**), this application is submitted by Riverbend Wind, a limited liability company organized under the laws of Delaware to own and operate the proposed utility grid wind energy system. Riverbend Wind is a wholly owned subsidiary of Algonquin Power Co (d/b/a) Liberty Power. This application package is being submitted on September 29, 2022 to Speaker Township for special land use review and approval by the Speaker Township Planning Commission.

### 2) SECTION 11A.06.00 WIND ENERGY FACILITIES

The following criteria shall be included and/or be utilized as standards when preparing, admitting and reviewing an application for a Wind Energy Facility Special Land Use permit (SLUP). A permit application and site plan may be approved by the Planning Commission following a public hearing.

The text below outlines the specific requirements for a SLUP application followed by a brief explanation on how the Riverbend Wind meets or exceeds the Speaker Township zoning ordinance.

### 3) SECTION 11A.06.01 AVIAN ANALYSIS

See **Appendix B** for the environmental reports. The reports identify and assess potential impacts on the natural environment, including but not limited to avian species, bats, threatened and endangered species (TES). Riverbend Wind is currently working on completing reports summarizing the results of a formal wetland, stream, and floodplain determination and delineation, a threatened and endangered species habitat assessment (found within the Site Characterization Study and Critical Issues Analysis). Riverbend Wind can make these reports available to the township upon request once they have been completed. Riverbend Wind commits to complying with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 et seq.), including Part 31, Water Resources Protection (MCL 324.3101 et seq.), Part 91, Soil Erosion and Sedimentation Control (MCL 324.9101 et seq.), Part 301 Inland Lakes and Streams (MCL 324.30101 et seq.), Part 303 Wetlands (MCL 324.30301 et seq.), Part 325 Great Lakes and Submerged Lands (MCL 324.32501 et seq.), and Part 353 Sand Dunes Protection and Management (MCL 324.35301 et seq.). In general, Riverbend Wind is anticipated to have a low probability of impact to the natural and cultural environment.

In addition to the studies and reports completed pursuant to the requirements of the Speaker Township Zoning Ordinance, the additional studies listed below have also been completed as part of our due diligence:

- a. Tier I and Tier II Reports pursuant to USFWS Wind Energy Citing Guidelines (Critical Issues Analysis and Site Characteristic Study)
- b. Bat Surveys
- c. Large and Small Bird Use Report
- d. Economics Benefit Analysis Report
- e. Raptor Nest Survey Report
- f. Wetland Delineation Report
- g. Signal Interference Studies
- h. Public Health and Safety Report

**4) SECTION 11A.06.02 VISUAL APPEARANCE: LIGHTING, POWER LINES**

The model being contemplated has a rotor diameter up to 163 (approx. 534ft) meters and are on monopole steel tubular towers up to an approximate hub height of 119m (approx. 390ft) These turbines employ active yaw control to steer the machine with respect to the wind. They have active blade pitching to maximize power output.

Typical Turbine Specifications							
Hub Height (m)	Hub Height (ft)	Rotor Diameter (m)	Rotor Diameter (ft)	Tip Height (m)	Tip Height (ft)	Ground Clearance (m)	Ground Clearance (ft)
119	390	162	531	200	656	38	124.5
118.5	389	163	535	200	656	38	124.5

The towers and turbines will be painted with a non-reflective/off-white color designed to minimize visual impacts. The towers and blades will be of a color, design, operation, and appearance consistent with all other turbines in the area. The appearance of turbines, towers and buildings shall be maintained throughout the life of Riverbend Wind pursuant to industry standards. No advertising or graphics will be placed on any part of the tower or blades; however, the turbines are clearly numbered above the entrance doors for identification and emergency response.

The towers will not be illuminated except as required by the FAA, and an Aircraft Detection Lighting System (ADLS) will be utilized if authorized and approved by the FAA to minimize nighttime visual impact. If the FAA concludes that an aircraft detection lighting system (ADLS) is appropriate for this site and approves its use, Riverbend Wind will install and operate the ADLS.

The electrical collection system will be placed underground within the interior of each participating parcel at a depth designed to accommodate the existing land use to the maximum extent practicable. The collection system may be placed overhead adjacent to Township roadways (but on private land), near substations or points of interconnection to the electric grid or in other areas as necessary. Riverbend Wind will meet or exceed the following electrical wiring requirements as defined in the Speaker Township Ordinance:

1. Underground and/or overhead transmission and distribution lines are required to obtain a Special Land Use permit from the Township.
2. Underground and/or overhead collection lines or collection line system are required to obtain a Special Land Use permit from the Township.
3. Surface markers shall be placed to indicate the location of the wires and a map will be placed on the tower indicating same. Membership and participation in the MISS DIG Systems, Inc. of Michigan shall be required. Proof of membership shall be provided upon request.
4. Any new substation shall be located at a distance of no less than eight hundred (800) feet from the nearest residence, school, hospital, church or public library. A lesser setback may be approved if the intent of this Ordinance would be better served thereby. A lesser setback shall be considered only with written approval from the owner of the inhabited structure.
5. Any new substation shall be located at a distance of no less than the total wind turbine height plus fifty (50) feet from any non-participating property line. Where a proposed substation location is nearer to a non-participating intra-district property line than the total wind turbine height plus fifty (50) feet an easement may be established on the abutting (non-participating) parcel(s).
6. Riverbend Wind proposes to limit the clear cutting of trees or woods to great extent possible.

**5) SECTION 11A.06.03 SETBACKS**

Setbacks, as required, in Section 11A.06.03 are adhered to in the Riverbend Wind Energy Center and contained in this summary below:

<b>Turbine setback to</b>	<b>Ordinance Requirement</b>	<b>As Designed</b>
Inhabited Structures	The greater of 1,000 feet Or 1.6x total structure height (656 feet) = 1,050 feet	At least 1,071 feet
Participating Parcel Property Line	No setback required	N/A
Non-Participating Parcel Property Line	Total turbine height (656 feet) + fifty (50) feet = 706 feet	At least 721 feet
Public Roads	Total turbine height (656 feet) +	At least 752 feet

	fifty (50) feet = 706 feet	
Communication and Electrical Lines	Total turbine height (656 feet) + fifty (50) feet = 706 feet	At least 801 feet
Tower Separation	Two times the rotor diameter (535 feet) = 1,070 feet	At least 1,955 feet

**Appendix C** provides a table that includes setback distances of all turbines from inhabited structures, non-participating parcel property lines and public roads. As shown in Table C-1 each of the proposed turbine locations in Speaker Township comply with ordinance requirements for setbacks. Under the three Scenarios the closest turbine to an inhabited structure is 1,071 feet, 721 feet to a non-participating property line and 752 feet to a public road. The closest wind turbine to communication or electrical line is 801 feet and at least 1,559 feet to a railroad.

Wind Turbine OPA-10 is proposed to be located 144 feet from a municipal limit; the ordinance suggests 1,050 feet. As a result, Riverbend Wind will seek a variance from the Speaker Township Zoning Board of Appeals with respect to this single turbine location. To the extent that Riverbend Wind is not able to obtain its requested variance in advance of the Planning Commission’s determination with respect to this application, Riverbend Wind requests that the Planning Commission approve its application with respect to all compliant turbine locations and grant conditional approval of the location of Wind Turbine OPA-10, to become fully effective upon the Zoning Board of Appeals’ granting of the requested variance. Wind Turbine OPA-10 does meet all of the other minimum setback distances required in the ordinance. Wind Turbine OPA-10 does meet all of the other minimum setback distances required in the ordinance. The separation distance between towers is a minimum of 1,995 feet, which is almost twice the requirement in the ordinance.

There are 552 inhabited structures within 1 mi of a wind turbine, of which 57 are participating landowners and 495 are non-participating landowners.

The placement of the proposed turbines, access roads, and underground collection lines will be designed and installed to reduce the disruption to farmland activities. Farming practices will still be able to continue in the agricultural portions of site during the operations of the wind farm. Riverbend Wind will submit as-built drawings to the Township once construction is complete. Once construction is complete, Riverbend Wind will notify certify with the Township once the construction phase of the project is complete. Each turbine will be designed and installed to prevent unauthorized access to electrical and mechanical components and have access doors that are to be kept securely locked at all times when service personnel are not present. All access doors to wind turbine towers and electrical equipment will be lockable.

**6) SECTION 11A.06.04 WIND TURBINE/TOWER HEIGHT (TOTAL HEIGHT)**

The Riverbend Wind Energy Center turbines are proposed to be a maximum 119 meter at hub height. Riverbend Wind has submitted FAA requests for determinations of no hazard (DNH) from the FAA in December of 2021. Once the DNHs are received from the FAA Riverbend Wind will submit each turbine location, elevation, and height to the Michigan Department of Transportation (MDOT) tall structures for approval.



## 7) SECTION 11A.06.05 SOUND EMISSIONS

Refer to **Appendix D** for results of sound modeling report performed for this project. This report models that the Riverbend Wind Energy Center will meet the following noise requirements as defined in the Speaker Township zoning ordinance:

- A. Audible noise or the sound pressure level from the operation of the Wind Energy Facility shall not exceed fifty (50) dBA, or the ambient sound pressure level plus five (5) dBA, whichever is greater for more than ten percent (10%) of any sixty (60) minute interval, measured at any residence, school, hospital, church, or public library existing on the date of approval of any Wind Energy Facility SLUP. Within one year of facility being operational, the applicant at its expense shall provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and in the interior of the Wind Energy Facility to demonstrate compliance with this standard. The study shall provide sound pressure level measurements from each location both while the turbines are operational and while they are non-operational. The organization conducting the study must be approved by the township prior to commencement of the study. The Planning Commission may require additional study criteria at that time.
- B. In the event audible noise from the operation of the Wind Energy Facility contains a steady pure tone, the standards for audible noise set forth in subparagraph A) of this subsection shall be reduced by five (5) dBA.
  1. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one-third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.
- C. Ambient noise levels shall be measured at a building's exterior of potentially affected existing residences, schools, hospitals, churches and public libraries.
  1. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind-generated noise at the microphone.
  2. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operations, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.
- D. Any noise level falling between two (2) whole decibels shall be the lower of the two.
- E. In the event the noise levels resulting from the Wind Energy Facility exceed the criteria listed above, a waiver to said levels may be approved, provided that the following has been accomplished:
  1. Written consent from the affected property owner(s) has been obtained stating that they are aware of the Wind Energy Facility and the noise limitations imposed by this Article, and that consent is granted to allow noise levels to exceed the maximum limits otherwise allowed; and
  2. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement must be recorded in the Sanilac County Register of Deeds office that describes the benefited and burdened properties and that advises all subsequent owners of the burdened property that noise levels in excess of those otherwise permitted by the ordinance may exist on or at the burdened property.

## 8) SECTION 11A.06.06 SHADOW FLICKER

Riverbend Wind hired Stantec to conduct a shadow flicker analysis at occupied structures and public roads and rights of way. Riverbend Wind will remain compliant with the following provisions as stated in Section 11A.06.06 of Speaker Township's zoning ordinance:

1. Shadow flicker shall not exceed thirty (30) hours per year.
2. Applicant/developer shall mitigate the effects of any period of shadow flicker that exceeds thirty (30) minutes in duration by shutting down the offending turbine or other appropriate measures as the Township may approve

Refer to **Appendix E** for results of shadow modeling report performed for this project. Where applicable, Riverbend will comply with the ordinance based on mitigations identified in the shadow flicker report.

#### **9) SECTION 11A.06.07 MINIMUM GROUND CLEARANCE**

The clearance of turbines designed for the Riverbend Wind Energy project will exceed the minimum requirement of fifty (50) feet from ground level to the blade at its lowest point. The Riverbend Wind Energy Center turbines are currently proposed to have a ground clearance of 124.5 feet.

#### **10) SECTION 11A.06.08 SIGNAL INTERFERENCE**

No turbines associated with the Riverbend Wind project will be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception. No turbines associated with the project shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation.

In the event that verified interference is experienced, Riverbend Wind will provide alternate service to each individual resident or property owner affected within thirty (30) days of receipt of the complaint.

Riverbend Wind obtained reports from ComSearch (a third-party communications expert) to confirm that the project will not cause significant impacts to microwave beam paths, off-air television reception, Land Mobile and Emergency Services, Mobile Phone or AM/FM radio broadcast. The formal Signal Interference reports can be found in **Appendix F**.

#### **11) 11A.06.09 SAFETY**

The Riverbend Wind Energy Center will comply with all federal, state, and local safety codes and requirements and will adhere to section 11A.06.09 of Speaker Township's Zoning Ordinance. The project will be properly designed and grounded such that it will not produce stray voltage. Wind turbine towers will not be climbable on the exterior. All utility grid wind energy systems are designed to prevent unauthorized access to electrical and mechanical components and have access doors that are to be kept securely locked at all times when service personnel are not present. All access doors to wind turbine towers and electrical equipment will be lockable. Appropriate warning signs will be placed on wind turbines towers, electrical equipment, and Wind Energy Facility entrances.

Riverbend Wind will properly maintain all access roads and work with landowners to provide adequate measures to deter trespassers from the public right of way entrance. Riverbend Wind will provide a complete set of safety data sheets for any hazards that may be apart of the project. In addition to this, Riverbend Wind will work with the local Fire Department to provide any necessary safety equipment and annual training necessary to comply with any safety requirements or emergency situations that may occur.

The acceptability of the Township ordinance requirements, adhered to in the design of Riverbend Wind, to protect public health and safety are further discussed in **Appendix G**.

#### **12) SECTION 11A.06.10 EROSION AND FLOODING**

All erosion or flooding of property resulting from the construction of Riverbend Wind Energy Center structures or access roads is the responsibility of Liberty Power, the developer/owner of the structures. Natural features of the landscape will be retained wherever practicable to help to control erosion and contain storm water runoff. Applicable state (or local) permits will be obtained to comply with local Erosion and Sediment Control and Storm Water Management by Riverbend Wind or its contractors.

#### **13) SECTION 11A.06.11 COMPLAINT RESOLUTION**

Riverbend Wind has implemented a complaint resolution process to be used during the construction and operation phases of the project. The complaint resolution process is to establish a uniform and timely method of documenting and responding to complaints received by Riverbend Wind. The details of the complaint resolution process are consistent with the requirements for the Michigan Zoning Enabling Act (MZEA) and the Speaker Township Zoning Ordinance. The details of the Complaint Resolution process are provided in **Appendix H**.

#### **14) SECTION 11A.06.12 INSPECTIONS**

The Township may conduct annual inspections of Riverbend Wind energy conversion facilities. The cost of the annual Township inspection will be reimbursed to the Township by Liberty Power, the owner/operator, through an escrow fund established pursuant to annual fee resolution, adjustable from time-to-time by the Township Board. The inspections will consist of but not be limited to evaluating compliance with the original Site Plan Approval, compliance with improvements and updates and the Special Land Use Approval.

### **III. SITE PLAN REQUIREMENTS**

#### **ARTICLE XIA SECTION 11A.08 – 11A.11**

In accordance with the Speaker Township zoning ordinance Section 11A.08 – 11A.11, the site plan must meet the following standards:

#### **15) SECTION 11A.08.01 GENERAL**

- A) Survey of the property showing existing features such as contours, large trees, buildings, structures, roads (rights-of-way), utility easements, land use, zoning district, ownership of property, and vehicular access (survey may utilize publicly available information);**  
Refer to sheets SPE-01 to SPE-36 of the site plan for this item.
  
- B) Subsection B of Section 11.A.08.01 was repealed and thereafter amended to C, see below.**
  
- C) Plan(s) showing the location of proposed turbine towers, underground and overhead wiring (which shall be a minimum of five (5) feet in depth), new drainage facilities (if any), access roads (including width), substations and accessory structures;**  
Refer to sheets SPE-01 to SPE-36 of the site plan for this item.

**D) A description of the proposed routes to be used by construction and delivery Vehicles and of any road improvements that will be necessary in the Township to accommodate construction vehicles, equipment or other deliveries, and an agreement or bond which guarantees the repair of damage to public roads and other areas caused by construction of the Wind Energy Facility;**

Refer to sheet SPE-OVL of the site plan for this item.

**E) Studies, surveys, or models designed to show compliance with the requirements for shadow flicker and noise, and a Wind Rose Chart to show wind data for the proposed area;**

Refer to **Appendix D, E & I** for the above mentioned studies.

**F) Engineering data concerning construction of the tower and its base or Foundation, which must be engineered and constructed in such a manner that upon removal of said tower, the soil will be restored to its original condition to a depth of four (4) feet;**

Refer to sheet SUP-DET of the site plan for this item.

**G) Anticipated construction schedule;**

Assuming all permits and approvals are issued, the below table depicts an anticipated schedule outlining major project milestones.

<b>Riverbend Wind Energy Center Anticipated Milestones</b>	
Break Ground	Spring, 2024
Spring Turbine Delivery Commencement	Summer, 2024
Commercial Operation Date	Summer, 2025

**H) Description of operations, including anticipated regular and unscheduled maintenance;**

The project will be monitored during various daily checks and inspections consistent with industry practice. Following Installation and Start-up, the service and maintenance include the following intervals:

- A 500-hr. service inspection;
- A detailed annual inspection and service;
- Multi-year service – gear oil changes and part repair and replacement

First Service Inspection: Service inspection will take place one to three months after the turbines have been commissioned. Typical activities include torque check of bolts, cleaning, visual inspections, greasing and filtering of gear oil.

Annual Service: The yearly service inspections will consist of a semi-annual inspection and an annual component check.

Multi-Year Service: Inspections and preventative maintenance are performed consistent with industry practice and manufacturer recommendations based upon turbine hours, age and performance history. Items such as checking and tightening of terminal connectors, inspection of the wind braking system, cleaning, visual inspections, checking and testing of oil and grease and balance check are normal multi-year checks.

i. General Maintenance Duties

The O&M involves scheduled and unscheduled maintenance including periodic operational checks and tests, and regular preventive maintenance on all turbines, related plant facilities, equipment, safety systems, controls, instruments and machinery. These tasks are completed on an “as-needed basis” and are determined by the visual inspections and monitoring data. The general items are:

- Perform routine inspections;
- Maintain all oil levels;
- Maintain the control systems, access roads, drainage systems and other facilities necessary for the operation and access;
- Update all manuals with new bulletins;
- Maintain interconnection facilities;
- Provide an inventory of all consumables, and parts required to perform scheduled and unscheduled maintenance on the wind farm;
- Manage lubricants, solvents, and other hazardous materials as required by local and/or state regulations;
- Train and supervise a work force necessary to meet the general maintenance requirements;
- Implement appropriate security measures.

**l) Complaint resolution policy and procedures manual; MISS DIG Systems Inc. of Michigan membership; and proof of liability insurance prior to the start of construction for all contractors and subcontractors that are to be part of the project.**

The details of the Complaint Resolution process are provided in **Appendix H**. Riverbend Wind will submit as-built surveys to the MISS DIG Systems Inc. of Michigan. Riverbend Wind will provide the Township with all suitable proof of liability insurance prior to the start of construction for all contractors and subcontractors working on the project.

**16) SECTION 11A.08.02 CONSTRUCTION BOND AND PERMIT**

Riverbend Wind or another acceptable third party shall file a construction performance bond or other financial security acceptable to the Township for a minimum of one hundred (100%) percent of the total project cost or other amount as determined by the Planning Commission, to ensure that, in the event that the project is not completed, the project site and other affected private or governmental properties (e.g., roads, ditches, bridges, etc.) will be restored to pre-construction condition.

Riverbend Wind will acquire the appropriate approval from the Sanilac County Construction Department prior to starting construction activities that would require their approval.

**17) SECTION 11A.08.03 DECOMMISSIONING PLAN AND BOND**

The applicant has completed a decommissioning plan and estimate. A bond or equivalent instrument shall be posted for the amounts stipulated in **Appendix J-1** and **Appendix J-2**.

Riverbend Wind is committed to developing a plan to decommission the project at the end of its useful life, generally 40 years after the start of commercial operation. The goal of project decommissioning is to remove the installed power generation and transmission equipment for recycling or reuse and return the

site to a condition as close to a pre-construction state as feasible. A performance bond or equivalent financial instrument shall be posted in an amount determined by prudent industry estimating standards to guarantee decommissioning activities. A general reference of the cost to decommission is found in **Appendix J**.

The major activities required for the decommissioning include the following:

- Creation of temporary work areas to enable decommissioning of equipment;
- Wind turbine and meteorological tower removal;
- Electrical system removal;
- Structural foundation removal to 6 feet below grade;
- Road removal;
- Re-grading;
- Re-vegetation; and
- Restoration of temporary work areas.

**18) SECTION 11A.08.04 PERMITS**

The applicant must also obtain a permit from the Sanilac County Road Commission and/or MDOT for permission to connect access roads to existing County roads and from the Sanilac County Drain Commission for any county culverts or other drainage facilities

Riverbend Wind will comply with all applicable federal, state, and local laws and regulations and will obtain all required federal, state, and local approvals, licenses, permits or variances for the proposed utility grid wind energy system prior to the start date of construction. Liberty Power performs a systematic evaluation of its wind projects to ensure they are sited in an environmentally responsible manner and in compliance with all applicable local, state and federal laws and regulations.

The following list represents some of the permits and approvals being pursued, regarding Speaker Township, as part of this project:

ENTITY / APPLICATION	DESCRIPTION	STATUS
Michigan Department of Environment, Great Lakes and Energy (EGLE)	Potential NREPA permits/approvals include: <ul style="list-style-type: none"> <li>• Part 31 Floodplains</li> <li>• Part 301 Watercourses</li> <li>• Part 303 Wetlands</li> </ul>	Application Anticipated
Federal Aviation Administration (FAA)	Approval / Permit	Application Anticipated
Michigan Department of Transportation (MDOT)	Tall Structure Permit	Application Anticipated
Sanilac County Road Commission	ROW Permits & Agreements	Application Anticipated
Sanilac County Drain Commission	ROW Permits & Agreements	Application Anticipated
Sanilac County Construction and Land Use	Soil Erosion and Sedimentation Control Permit	Application Anticipated
Michigan Department of Transportation (MDOT)	ROW Permits & Agreements	Application Anticipated

Sanilac County Airport Board of Appeals (AZBA)	Permits & Variances	Application Anticipated
Public and Private Utility Crossing Agreements	Permits & Agreements	Application Anticipated

**19) SECTION 11A.09.00 APPLICATION FEE AND ESCROW DEPOSIT**

Riverbend Wind will submit the appropriate application fee as determined by the Township and will provide the Township with an escrow deposit based upon the megawatt capacity of the development or as determined by the Township to be equal to the estimated costs to complete the review of the application.

**20) SECTION 11A.10.00 APPLICATION PROCEDURE**

Riverbend wind will comply with the application procedures as referenced in sections 11A.10.01 and 11A.10.02 of the Speaker Township Zoning Ordinance.

**21) SECTION 11A.11.00 DECOMMISSIONING**

The details of the Decommissioning Plan for layout 25 is provided in **Appendix J-1**. The details of the Decommissioning Plan for layouts 16 and 16a are provided in **Appendix J-2**. These Decommissioning Plans adhere to Section 11A.08.03 of the Speaker Township ordinance and are covered in Section 17 of this application.

**V. CONCLUSION**

This submission and its attachments demonstrate Riverbend Wind’s compliance with the Speaker Township Zoning Ordinance. Upon approval of the application, Riverbend Wind looks forward to the opportunity to construct the Riverbend Wind Energy Center in 2024. The project anticipates bringing several local benefits such as:

1. Local jobs: For instance, Deerfield II Wind Project in Huron County, MI currently employs approximately 150-200 people during construction and has an estimate of 10-17 permanent full-time jobs during operations,
2. Supplies clean renewable energy to approximately 90,000 homes while operating safely and in compliance with all applicable local, state, and federal regulations.
3. Supports local establishments through donations and other community events
4. Approximately \$54.6 million in local tax revenues
5. Improved infrastructure