Appendix M:
SUMMARY OF AGENCY CONSULTATIONS (Exhibit A-4.4)

Agency	Coordination Description	Coordination Outreach Timeline	Status	Necessary Permits/Approval	Next Steps and Timeline
U.S. Fish and Wildlife Service (USFWS)	Project introduction email and USFWS pre-application meeting	February 2025 - March 2025	**02-19-2025** - Atwell sent out initial coordination email to USFWS (Scott Hicks, Carrie Tansy, and Jennifer Wong). **02-28-2025** - Atwell sent out meeting agenda and presentation prior to meeting. **03-03-2025** - Joint meeting occurred with REV Renewables, Atwell, MDNR, EGLE, and USFWS to discuss project requirements, wind BMP and permit application status updates. **03-13-2025** - Atwell sent out email with meeting minutes and requested attachments including KMZ of turbine locations, Avian Use Report, Raptor Nest Survey Report and Year 2 Avian Use Report.	N/A	N/A
U.S. Department of Defense	Letter of No Objection with Provision	April 2023 - November 2023	**04-26-2023** - Department of Defense provided letter describing potential impacts to military operations for the project. **10-22-2023** - Mitigation agreement signed by the Assistant Secretary of Defense for Energy, Installations, and Environment. **11-13-2023** - Military Aviation and Installation Assurance Siting Clearinghouse entered a determination of "No Objection with Provision" to the FAA	None	Additional consultation will occur as required
National Telecommunications and Information Administration	Letter of No Concern	October 2022 - November 2022	**10-7-2022** - Request provided to the federal agencies represented in the Interdepartment Radio Advisory Committee. **11-22-2022** - After a 45+ day period of review, no reviewing agencies had concerns with turbine construction in the designated build areas.	None	Additional consultation will occur as required.
Michigan Department of Natural Resources (MDNR)	Project introduction email and MDNR pre-application meeting	February 2025 - March 2025	**02-19-2025** - Atwell sent out initial coordination email to MDNR (Chris Hoving). **02-28-2025** - Atwell sent out meeting agenda and presentation prior to meeting. **03-03-2025** - Joint meeting occurred withREV Renewables, Atwell, MDNR, EGLE, and USFWS to discuss project requirements, wind BMP and permit application status updates. **03-13-2025** - Atwell sent out email with meeting minutes and requested attachments including KMZ of turbine locations, Avian Use Report, Raptor Nest Survey Report and Year 2 Avian Use Report.	N/A	Continued coordination through the EGLE WRD permitting process which will be submitted in October of 2025.

Agency	Coordination Description	Coordination Outreach Timeline	Status	Necessary Permits/Approval	Next Steps and Timeline
Department of Environment, Great Lakes, and Energy (EGLE)	Project introduction email and EGLE pre-application meeting.	February 2025 - March 2025	**02-19-2025 -** Atwell sent out initial coordination email to MDNR (Kathryn Kirkpatrick). **02-28-202**5 - Atwell sent out meeting agenda and presentation prior to meeting. **03-03-2025** - Joint meeting occurred with REV Renewables, Atwell, MDNR, EGLE, and USFWS to discuss project requirements, wind BMP and permit application status updates. **03-13-2025** - Atwell sent out email with meeting minutes and requested attachments including KMZ of turbine locations, Avian Use Report, Raptor Nest Survey Report and Year 2 Avian Use Report.	Riverbend Wind will need to submit an EGLE WRD Permit Application.	Riverbend Wind intends to submit an EGLE Permit Application in October 2025.
Michigan Department of Transportation (MDOT)	Tall Structures Permit Application	March 2022 - Ongoing	**03-09-2022** - Tall Structures Permit application denied, as a provision of the Michigan Tall Structures Act, local airport zoning approval must be granted before the airspace study can be completed. The Project will reinitiate MDOT consultation for Tall Structure Permits later on as the Project requires local airport zoning approval before MDOT will issue permits for tall structures.	Riverbend Wind will need to obtain a Tall Structures Permit from MDOT	Riverbend Wind waiting to receive final DNHs from FAA before it will be able to file with MDOT.
Sanilac County Airport Zoning Commission	Application for Permit to Erect a Structure	May 2023 - Ongoing	**05-09-2023** - Application seeking approval with county to erect structures over 500' in height administratively denied as a variance will be required. Once final DNHs are received the Project will resubmit and follow appeal process with the Airport Zoning Board of Appeals. Throughout the Project development and in close coordination with all interested parties, including a third party aeronautical consultant, and local interested parties. Based on this continued coordination and project modifications the applicant has the opinion that the height of the turbines will operate in safe manner in relation to Airports within the county, a variance to the AZBA application should be granted. Further supported by our DNHs.	Riverbend Wind will need to obtain a variance to construct a structure over 500'	Riverbend Wind waiting to receive final DNHs from FAA before it will be able to file with County.
Sanilac County Road Commission (SCRC)	Sanilac County Road Commission pre-application meeting to discuss necessity for driveway or utility ROW permits, design standards and permit processes, fees and bonds.	March 2025	**03-18-2025** - Atwell met with REV Renewables and the Sanilac County Road Commission to discuss project status and requirements. SCRC listed conditions of road maintenance, repair, and use that must be met for application approval.	None	Riverbend Wind will need to prepare Road Use Agreements for haul route and address county road requirements.

Agency	Coordination Description	Coordination Outreach Timeline	Status	Necessary Permits/Approval	Next Steps and Timeline
Sanilac County Drain Commission	Project introduction email and request for existing county drains, public drains/drain tile, stormwater requirements from the County, and an in- person meeting.	December 2024 - January 2025	**12-12-24** - Atwell sent out initial Project introduction email, requested information, and requested in-person meeting. **01-06-2025** - Virtual meeting conducted with Sanilac County Drain Commission, Atwell, REV Renewables, BMJ Inc., and FSBR Law to disuss the project and Sanilac County Drain Commission requirments for stormwater management and drain crossing permits.	Riverbend Wind will require drain crossing permits and a cooperation agreement will be required prior to construction.	Riverbend Wind to reengage with Sanilac County Drain Commission later in project development.
Tribal Coordination (12 State Recognized Tribes)	Project introduction emails and mailings to all Michigan recognized tribes.	Jun-25	**06-05-2025** - Atwell sent out initial coordination letters via USPS certified mail to the 12 tribal representatives. **06-09-2025 -** Atwell followed up via email to all 12 tribal representatives with PDF of coordination letter. **07-18-2025** - Response received from the Saginaw Chippewa Indian Tribe of Michigan. No recorded resources are within the area of potential effect and no additional consultation was requested.	None	Additional consultation will occur as required. Refer to **Appendix N** (Exhibit A-4.5) for further information regarding information sent and responses received.
State Historic Preservation Office (SHPO)	SHPO pre-application meeting to discuss project and agency requirements.	April 2025	**04-29-2025** - Virtual meeting conducted with REV Renewables and SHPO to discuss project status and survey methods. No concerns raised by SHPO. **07-09-2025** - Atwell and REV met with SHPO in person to tour the existing Deerfield II Wind Farm. **07-15-2025** - Atwell followed up with SHPO with previously provided methodology for completing desktop archaelogical surveys as well as the architectual surveys. SHPO approved of either a thematic approach or reducing the survey area for the architectual survey down to 1 mile.	Riverbend Wind will complete SHPO PA233 formal consultation process prior to construction.	Additional consultation will occur as required
Federal Aviation Administration (FAA)	Project submitted and received DNH status on all originally proposed turbines, additional filings were submitted for 8 new turbine locations which are currently under review.	January 2023 - Ongoing	**04-09-2022** - DNH received for Turbines 2, 8, 11, 14, 16, 18, 26, 36, 50 **03-28-2023** - DNH received for Turbines 1, 4, 5, 6, 7, 9, 10, 12, 13, 15, 17, 19, 20, 22, 23, 25, 27, 28, 29, 30, 31, 32, 34, 35, 38, 41, 42, 43, 44, 45, 46, 47, 48 **12-19-2024** - DNH pending for Turbines 3, 21, 24, 33, 37, 39, 40, 49	Riverbend Wind will need to receive DNH for all proposed turbine locations.	Additional consultation will occur as required

Agency	Coordination Description	Coordination Outreach Timeline	Status	Necessary Permits/Approval	Next Steps and Timeline
Michigan Department of Agriculture and Rural Development (MDARD)	MDARD PA 233 Consultation Form	August 2025	**08-07-2025** - Submitted MDARD PA 233 Consultation Form to designated email address.	Riverbend Wind will likely need to support landowners in amending easement agreements for the removal of project areas located within parcels enrolled in PA116. Based on available data approximately 5,340 acres of land hosting project infrastructure are enrolled representing 64 parcels.	Additional consultation will occur as required
Utility Owner (Various)	**ITC Holdings Corp.** - Project introduction email and request to review any potential crossing agreement needs.	June 2025	**06-20-2025** - Notification email and letter sent to ITC Holdings Corp.	Riverbend Wind anticipated crossing agreements will be required for any Project infrastructure crossing ITC easements.	Riverbend Wind will address ITC crossing requirements, as applicable.
	SEMCO Energy Natural Gas - Project introduction email and request to review any potential crossing agreement needs.	June 2025	**06-23-2025** - Notification letter sent to SEMCO via USPS certified mail.	Riverbend Wind anticipated crossing agreements will be required for any Project infrastructure crossing SEMCO easements.	Riverbend Wind will address SEMCO crossing requirements, as applicable.
	DTE Energy - Notification email and request for review of easements within Project Area.	May - June 2025	**05-28-2025** - Notification email and exhibits sent to DTE for preliminary reivew. **05-29-2025** - DTE responded requesting to have a meeting to discuss. **06-10-2025** - DTE, Atwell & REV met to discuss project and potential easement crossings.	Riverbend Wind will require crossing agreements prior to construction.	Riverbend Wind will continue to work with DTE to provide necessary information to facilitate the proposed crossings.

United States Fish and Wildlife Service

Michigan Department of Natural Resources

Michigan Department of Environment, Great Lakes, and Energy

Benjamin Sanford

From: Bourke Thomas
Sent: Wednesday, February 19, 2025 3:50 PM
To: Scott_Hicks@fws.gov; Carrie_Tansy@fws.gov; Jennifer_Wong@fws.gov; Chris Hoving, Ph.D. (HOVINGC@michigan.gov); Kate Kirkpatrick (KirkpatrickK3@michigan.gov)
Cc: Benjamin Sanford; Timothy Jones; Irene Bezuidenhout; RNadolny@revrenewables.com; STejada@revrenewables.com; NMoleiro@revrenewables.com
Subject: Multi-Agency Wind Project Introduction Request - Agenda and Project Information to Follow

Good afternoon, it has been a while. I hope everyone is doing well!

I am hoping to schedule a joint multi-agency meeting with USFWS, MDNR, and EGLE to discuss a proposed 300MW, 50-turbine wind project in Sanilac County, Michigan.

We'd like to introduce the project, discuss project status, and permit review processes as it pertains to working through the local process, EGLE WRD process, and possible MPSC (PA 233) state siting applications. Would you be able to provide available time slots for next week (Feb 24-28) or the week of March 3-7?

Project Summary:

- 300 MW Nameplate Capacity
- 50 Turbines

Completed Studies:

- Site Characterization Study (2021)
- Phase 2 Presence/Absence Bat Acoustic Survey (2021)
- Two Years of Pre-Con Avian Surveys (2021-2022 and 2022-2023)
- Wetland Delineation (2021, 2022, 2023)
- EGLE WRD Joint Permit Application Pre-Application Meeting with Randy Evilsizer (11/2022)
- Threatened and Endangered Species Habitat Assessment (2023)

Thank you and please let me know your availability.

Bourke Thomas
Vice President
ATWELL, LLC
248.447.2000 Office
586.601.6497 Mobile
Two Towne Square | Suite 700 | Southfield, MI 48076
www.atwell.com
Local Solutions | National Presence

Meeting Agenda

Project Name: Riverbend Wind
Location: +1 231-674-5592,,542812782# Join the meeting now; Meeting ID: 249 671 744 862; Passcode: ap99NH2W

Subject: Multi-Agency Project Introduction and PA233 Agency Coordination

Date/Time: 10:00am-11:00am EST, March 3, 2025

☒ Meeting ☐ Phone Conversation ☐ Incoming Call ☐ Outgoing Call

Attendee | Phone | Email

☐ Copies to Attendees (check all that apply)

☐ Scott Hicks - USFWS

☐ Jenny Wong - USFWS

☐ Kathryn Kirkpatrick - EGLE WRD

☐ Chris Hoving, Ph.D - MDNR

☐ Rob Nadolny - REV Renewables

☐ Irene Bezuidenhout - REV Renewables

☐ Sebastian Tejada - REV Renewables

☐ Nelson Moleiro - REVE Renewables

☐ Jill Collins - REV Renewables

☐ Bourke Thomas - Atwell

☐ Ben Sanford - Atwell

☐ Brian Ortman - Atwell

1. Attendee Introductions
2. REV Renewables Introduction
3. Project Introductions
    a. Riverbend Wind – Speaker, Fremont, and Elk Townships, Sanilac County, Michigan
        i. 300 MW; 50 Turbines; 6 MW Turbines
        ii. Project Schedule
            1. Development and Permitting: 2021-2026
            2. Target Construction: 2026-2027
            3. Target COD: 2027
    b. Completed Environmental Studies:
        i. Site Characterization Study (2021)

ii. Phase 2 Presence/Absence Bat Acoustic Survey (2021)

iii. Two Years of Pre-Con Avian Surveys (2021-2022 and 2022-2023)

iv. Wetland Delineation (2021, 2022, 2023)

v. EGLE WRD Joint Permit Application Pre-Application Meeting with Randy Evilsizer (11/2022)

vi. Threatened and Endangered Species Habitat Assessment (2023)

4. Discussions

   a. General Agency Comments

   b. MDNR Wind BMP Status Update

   c. State List-Bat Permit Application Update

   d. EGLE WRD Permit Application

      i. Will an EGLE WRD permits contain curtailment conditions if an applicant can prove curtailment should not be required?

ATWELL

Riverbend Wind

Fremont, Speaker & Elk Townships, Sanilac County, MI

Introductions

REV Renewables:

- Rob Nadolny – Director, Permitting & Stakeholder Relations
- Irene Bezuidenhout – Senior Manager, Environmental Planning & Permitting
- Sebastian Tejada – Project Manager, Development
- Nelson Moleiro – Director, Project Development
- Jill Collins – Manager, Engineering

Subject Matter Experts:

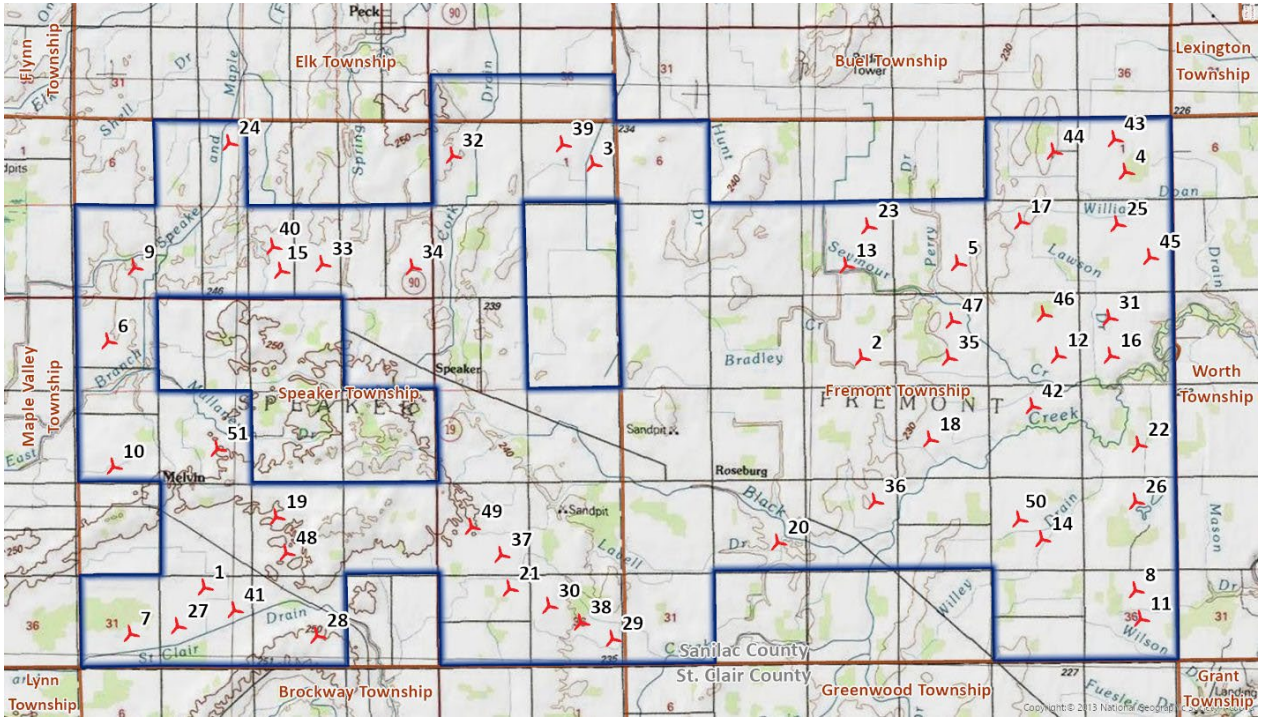
- Bourke Thomas – Atwell
- Ben Sanford – Atwell
- Brian Ortman – Atwell

Company Overview, Who is REV Renewables

- Headquartered in New York City, New York.
- Formed as a subsidiary of LS Power in 2021 to accelerate investment in the energy transition.
- REV owns/operates projects through the entire lifecycle.
- REV has one of the nation’s largest independent portfolios of renewables and energy storage, with a 2.9 GW operating portfolio and a substantial development pipeline.
- REV has 500 MWac in solar and wind capacity and growing.
- LS Power acquired Algonquin Power & Utilities Corp.'s renewable energy business in January 8, 2025.
- The acquisition strategically expands LS Power's renewable energy portfolio, adding to a fleet of more than 23 GW of top-performing renewable, energy storage, flexible gas and renewable fuels generation capacity.
- REV acquired 6,2 GW of development projects within the United States from the acquisition of Algonquin Power.

Project Details

1. Seeking approval of 50 turbine locations. 26 turbine locations are proposed within Fremont Township and 24 turbine locations, with 1 alternate location, are proposed within Speaker Township
2. 22,026 acres signed; permanent infrastructure occupies approx. 48 acres.
3. No proposed overhead high-voltage transmission line other than a gen-tie line with a few structures.



Environmental Studies

Comprehensive Studies Completed Pursuant to Agency Consultation and Applicable Regulatory Framework

- Site Characterization Study (2021)
- Phase 2 Presence/Absence Bat Acoustic Survey (2021)
- Raptor Nest Survey – 2021
- Two Years Avian Use – 2021-2022 and 2022-2023
- Wetland Delineation (2021, 2022, 2023)
- EGLE WRD Joint Permit Application Pre-Application Meeting with Randy Evilsizer (11/2022)
- Threatened and Endangered Species Habitat Assessment (2023)

THANK YOU

Questions?

ATWELL

Meeting Notes

Project Name: Riverbend Wind
Location: +1 231-674-5592,,542812782# Join the meeting now; Meeting ID: 249 671 744 862; Passcode: ap99NH2W

Subject: Multi-Agency Project Introduction and PA233 Agency Coordination

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☒ Meeting ☐ Phone Conversation ☐ Incoming Call ☐ Outgoing Call

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☐ Copies to Attendees (check all that apply)

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☐ Jenny Wong - USFWS
☐ Kathryn Kirkpatrick - EGLE WRD
☐ Chris Hoving, Ph.D - MDNR
☐ Rob Nadolny - REV Renewables
☐ Irene Bezuidenhout - REV Renewables
☐ Sebastian Tejada - REV Renewables
☐ Nelson Moleiro - REV Renewables
☐ Jill Collins - REV Renewables
☐ Bourke Thomas - Atwell
☐ Ben Sanford - Atwell
☐ Brian Ortman - Atwell

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iv. Wetland Delineation (2021, 2022, 2023)

v. EGLE WRD Joint Permit Application Pre-Application Meeting with Randy Evilsizer (11/2022)

vi. Threatened and Endangered Species Habitat Assessment (2023)

4. Discussion Notes

a. General Agency Comments

i. USFWS and MDNR requested copies of the avian reports as well as a kmz of the proposed turbine locations.

1. Atwell will send copies via email.

ii. USFWS to share sample voluntary curtailment BMPs currently being used by existing operating wind projects in Michigan with the Atwell/REV teams.

iii. USFWS stated that the Riverbend wind project is not within the region of known tri-colored hibernacula areas and USFWS is un-aware of any known tri-colored bat fatalities at wind projects in Michigan.

iv. 2021 bat study level of effort does not meet the current 2025 level of effort guidelines for tricolored bats.

v. USFWS may have recent eagle nest survey data from specific focus areas. Once Atwell provides Riverbend proposed turbine locations, USFWS will be able to review if the Service has any nest data newer than 2021.

b. MDNR Wind BMP Status Update

i. MDNR has a new version of the draft wind BMP guidance document and will share with the Atwell/REV teams.

c. State List-Bat Permit Application Update

i. MDNR Permitting Update – application still in draft form, project by project state listed bat permit or exploring statewide programmatic approach (similar to what's being done in Wisconsin). Different zones throughout the state depending on proximity to hibernacula. Would also include proposed cut in speeds. Permitting decision is solely on the state for the state listed bats. If federally listed, DNR will work with USFWS to create a permitting system. Voluntary BMPs have been drafted in coordination with USFWS.

ii. MDNR would recommend all wind projects to consider a state listed bat permit.

iii. MDNR will likely work with EGLE during a WRD water resources permit application review process and could build in bat permit or BMPs into the Part 31, 301, 303 permit conditions.

d. EGLE WRD Permit Application

i. Will an EGLE WRD permits contain curtailment conditions if an applicant can prove curtailment should not be required?

1. EGLE will rely on comments and guidance from USFWS and MDNR.

2. MDNR will likely work with EGLE during a WRD water resources permit application review process and could build in bat permit or BMPs into the Part 31, 301, 303 permit conditions.

3. MDNR recommended an updated environmental review through MNFI and IPaC prior to submittal of the WRD permit application submittal.

4. If an EGLE WRD permit is issued, a draft permit issued for counter signature will likely be issued for review by the applicant for review prior to finalization to address any condition questions or specific details.

Benjamin Sanford

From: Bourke Thomas <bthomas@atwell.com>
Sent: Thursday, March 13, 2025 5:07 PM
To: Wong, Jennifer (Jenny); hovingc@michigan.gov; Hicks, Scott; Kirkpatrick, Kathryn (EGLE)
Cc: Tansy, Carrie L; Brian Ortman; Benjamin Sanford; Irene Bezuidenhout; Rob Nadolny; Sebastian Tejada; Nelson Moleiro; Jill Collins; Timothy Jones
Subject: RE: Riverbend Wind - Multi-Agency Call
Attachments: Riverbend Avian Use Report_042622_Final.pdf; Final Riverbend Raptor Nest Survey 10282021.pdf; Riverbend_Y2AvianReport_2023.09.18_DRAFT.pdf; Riverbend Wind_Preliminary Turbine Layout_20250313.kmz; USFWS EGLE MDNR Riverbend Wind_Notes_20250303.pdf

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Good afternoon all,

Please find the attached meeting minute notes from our call last week (March 3, 2025) and the associated attachments we spoke about.

Here is a list of the attachments:

- Meeting Notes - USFWS EGLE MDNR Riverbend Wind_Notes_20250303.pdf
- Proposed Turbine KMZ - Riverbend Wind_Preliminary Turbine Layout_20250313.kmz
- Large and Small Bird Use Report (2021-2022 TRC)
- Final Riverbend Raptor Nest Survey 1028202 (2021 TRC)
- Riverbend_Y2AvianReport_2023.09.18_DRAFT (2023 Atwell)

Feel free to reach out with any questions.

Bourke Thomas
Vice President
ATWELL, LLC
248.447.2000 Office
586.601.6497 Mobile

-----Original Appointment-----
From: Bourke Thomas
Sent: Wednesday, February 26, 2025 1:59 PM
To: Bourke Thomas; Wong, Jennifer (Jenny); hovingc@michigan.gov; Hicks, Scott; Kirkpatrick, Kathryn (EGLE); Benjamin Sanford; Timothy Jones; Irene Bezuidenhout; Rob Nadolny; Sebastian Tejada; Nelson Moleiro; Jill Collins
Cc: Tansy, Carrie L; Brian Ortman
Subject: Riverbend Wind - Multi-Agency Call
When: Monday, March 3, 2025 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: +1 231-674-5592,,542812782#

Agenda to follow.

Microsoft Teams [Need help?]

Join the meeting now

Meeting ID: 249 671 744 862

Passcode: ap99NH2W

Dial in by phone

+1 231-674-5592,,542812782# United States, Grant

Find a local number

Phone conference ID: 542 812 782#

For organizers: Meeting options | Reset dial-in PIN

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United States Department of Defense

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

ENERGY, INSTALLATIONS,
AND ENVIRONMENT

November 13, 2023

Mr. Roberto Caputo
Algonquin Power
354 Davis Rd Suite 100
Oakville, ON L6J 2X1

Reference: Federal Aviation Administration Aeronautical Study Number: 2023-WTE-1229-OE and 61 associated structures

Dear Mr. Caputo,

Thank you for your participation in the Mitigation Response Team to assess and overcome military impacts from your proposed Riverbend Wind project near Peck, Michigan. In a letter dated April 26, 2023, the Department of Defense (DoD) described the potential impacts to military operations for the project.

As a result of discussions between Algonquin Power and the U.S. Air Force and a resulting mitigation agreement signed by the Assistant Secretary of Defense for Energy, Installations, and Environment on October 22, 2023, the Military Aviation and Installation Assurance Siting Clearinghouse (Clearinghouse) has found that construction of the Riverbend Wind project, with no more than 50 wind turbines up to 656 feet above ground level and no more than seven permanent meteorological evaluation towers up to 391 feet above ground level, would not have adverse impacts to DoD missions in the area. The Clearinghouse has entered a determination of "No Objection with Provision" for this project via the Federal Aviation Administration's (FAA) Obstruction Evaluation/Airport Airspace Analysis system.

Our response to the FAA included a notification that further expansion beyond the current project area may present an adverse impact. We encourage you to engage DoD prior to any proposed expansion.

If you have any concerns, please contact Ms. Robbin Beard, Clearinghouse Deputy Director, at robbin.e.beard.civ@mail.mil.

Sincerely,

Steven J. Sample
Executive Director
Military Aviation and Installation
Assurance Siting Clearinghouse

National Telecommunications and Information Administration

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

November 22, 2022

Lindsey DeLuga,
Radar Analyst,
WESTSLOPE CONSULTING
3940 W. Tecumseh Road, Ste. 200
Norman, Oklahoma 73072

Re: Riverbend Wind Project Rev. 1: Sanilac, MI

Dear Ms. DeLuga:

In response to your request on October 7, 2022, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Riverbend Wind Project Revision 1, located in Sanilac County, Michigan.

After a 45+ day period of review, no reviewing agencies had concerns with turbine construction in the designated build areas.

Commerce has completed our review of the subject wind farm proposal and found the project area is over 70 km NE of Detroit, MI NEXRAD. Based upon distance and terrain this project appears to be radar neutral. No further contact with the developer is requested at this time.

While the other IRAC agencies did not identify any concerns regarding radio frequency blockage, this does not eliminate the need for the wind energy facilities to meet any other requirements specified by law related to these agencies. For example, this review by the IRAC does not eliminate any need that may exist to coordinate with the Federal Aviation Administration concerning flight obstruction.

Thank you for the opportunity to review these proposals.

Sincerely,

John R. McFall
Deputy Chief, Spectrum Services Division
Office of Spectrum Management

Federal Aviation Administration

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5492-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 2
Location:	Peck, MI
Latitude:	43-12-34.03N NAD 83
Longitude:	82-42-48.62W
Heights:	761 feet site elevation (SE)
	656 feet above ground level (AGL)
	1417 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5492-OE.

Signature Control No: 505031684-569954907 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5492-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5492-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 2
Location:	Peck, MI
Latitude:	43-12-34.03N NAD 83
Longitude:	82-42-48.62W
Heights:	761 feet site elevation (SE) 656 feet above ground level (AGL) 1417 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5492-OE.

Signature Control No: 505031684-630691643 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5492-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

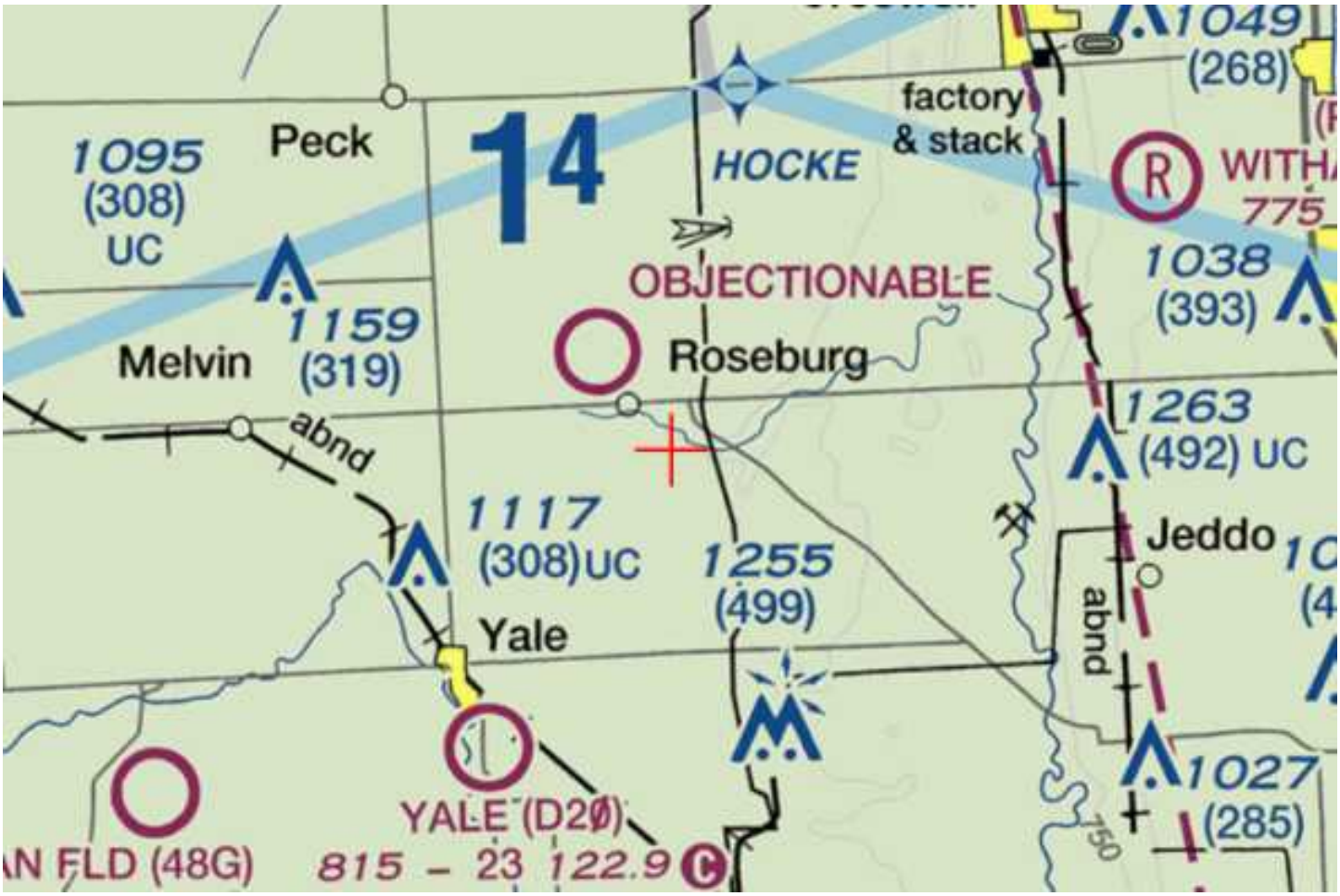
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5492-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1232-OE
Prior Study No.
2021-WTE-5494-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALTB-4
Location:	Peck, MI
Latitude:	43-14-22.90N NAD 83
Longitude:	82-39-29.62W
Heights:	751 feet site elevation (SE)
	656 feet above ground level (AGL)
	1407 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1407 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1232-OE.

Signature Control No: 577887888-606709150 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

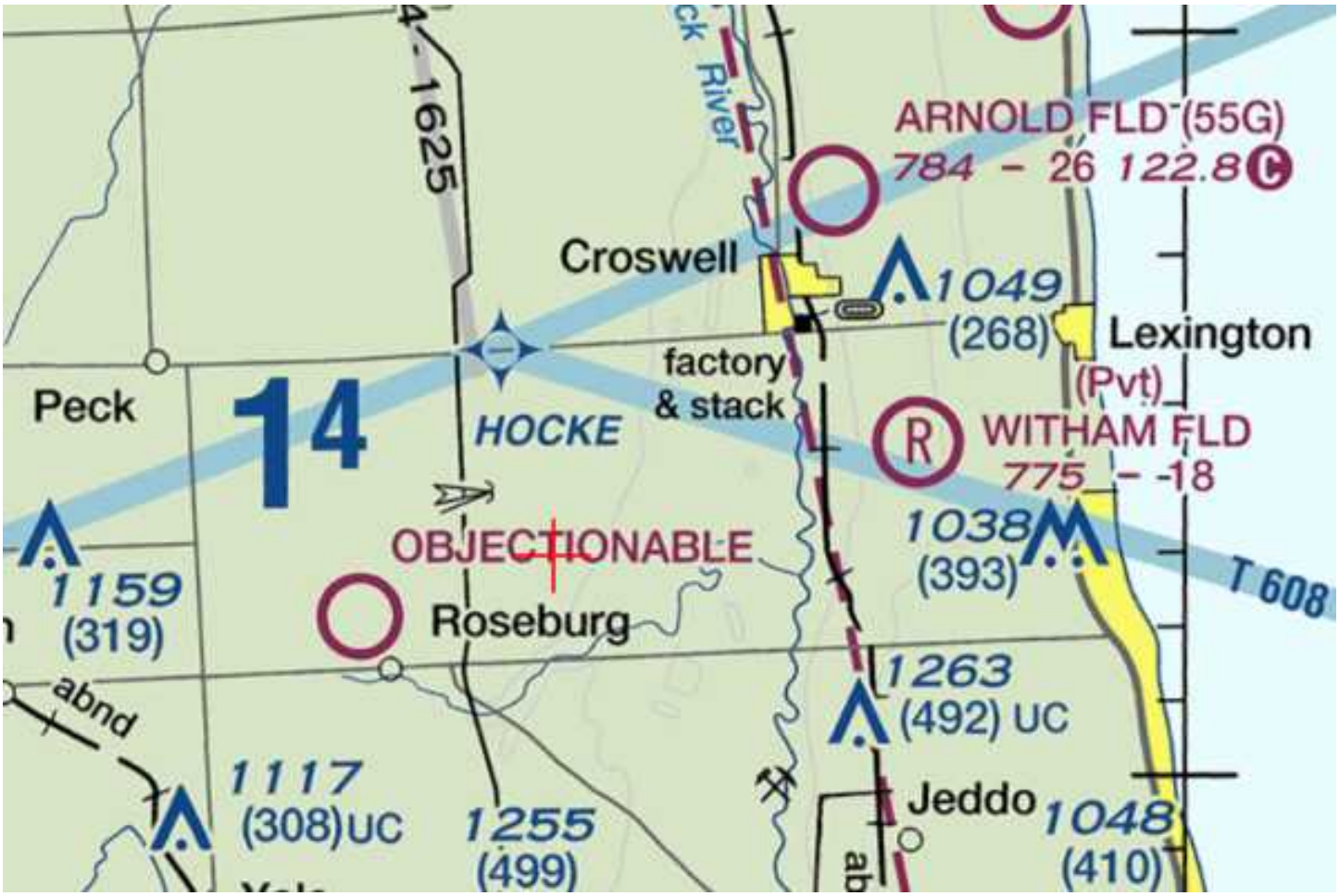
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1232-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5498-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 8
Location:	Peck, MI
Latitude:	43-10-27.79N NAD 83
Longitude:	82-39-11.34W
Heights:	747 feet site elevation (SE) 656 feet above ground level (AGL) 1403 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5498-OE.

Signature Control No: 505031691-569955204 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

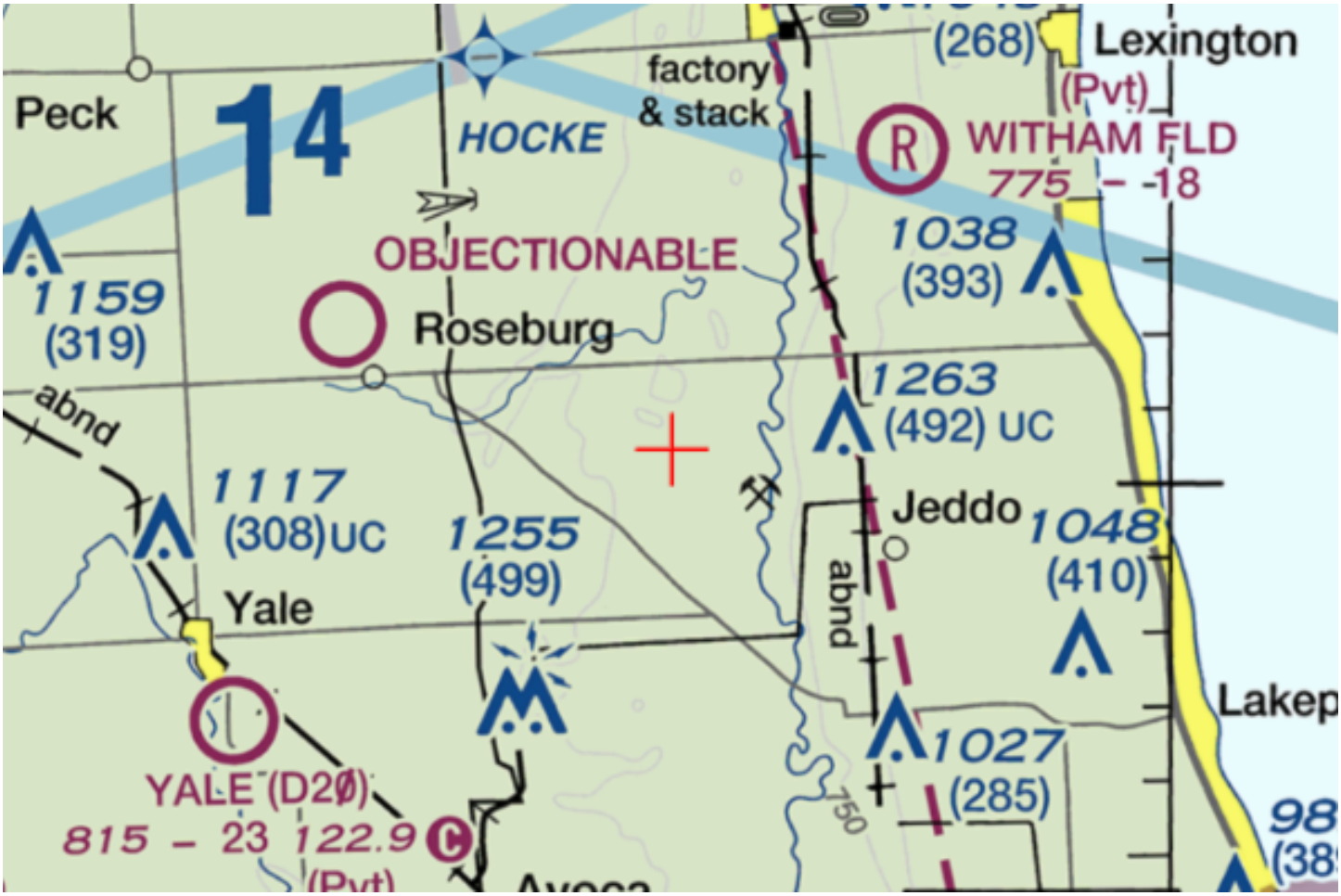
2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5498-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5498-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 8
Location:	Peck, MI
Latitude:	43-10-27.79N NAD 83
Longitude:	82-39-11.34W
Heights:	747 feet site elevation (SE) 656 feet above ground level (AGL) 1403 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5498-OE.

Signature Control No: 505031691-630691637 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5498-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

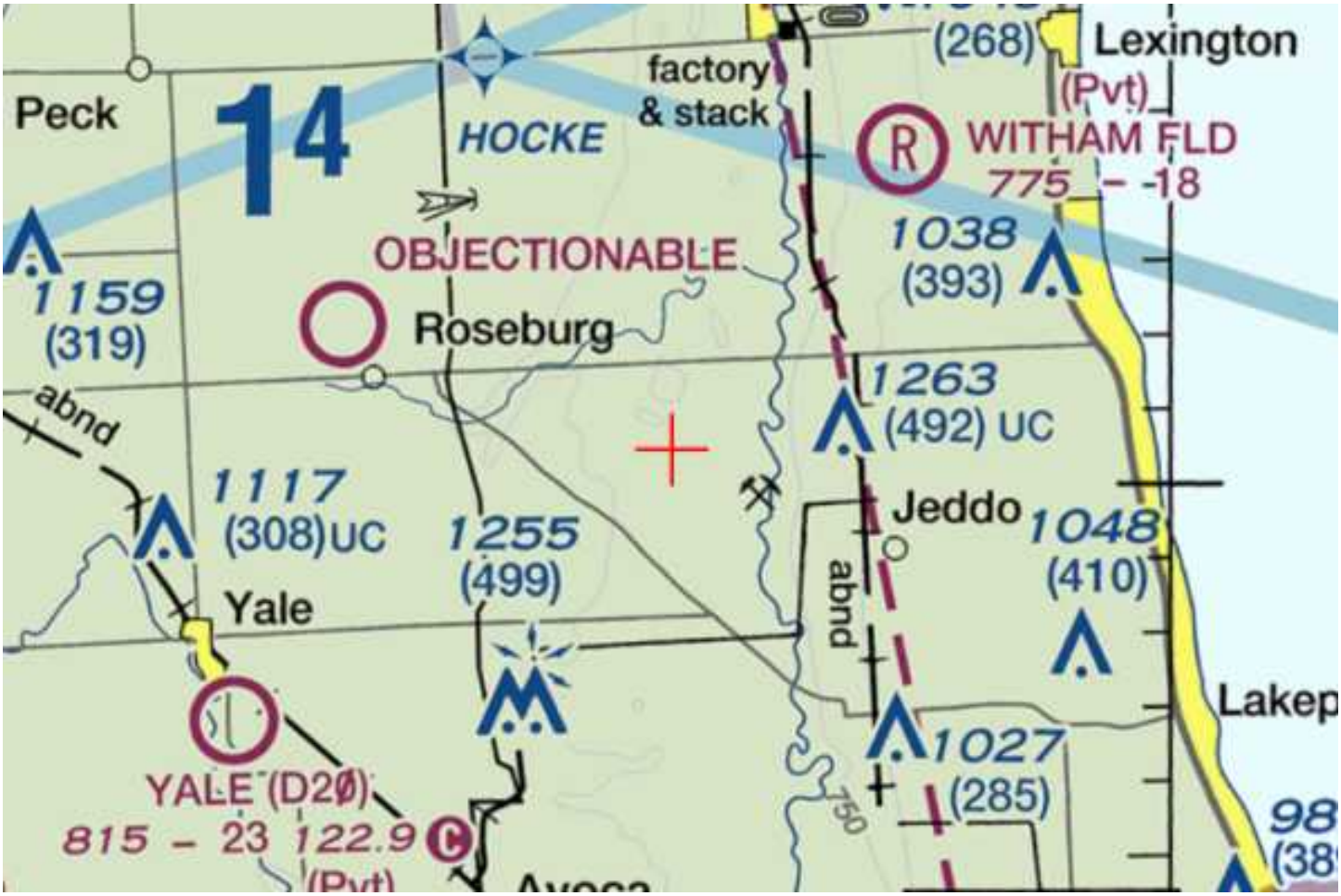
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5498-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5501-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 11
Location:	Peck, MI
Latitude:	43-10-11.81N NAD 83
Longitude:	82-39-06.79W
Heights:	746 feet site elevation (SE)
	656 feet above ground level (AGL)
	1402 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5501-OE.

Signature Control No: 505031694-569955198 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

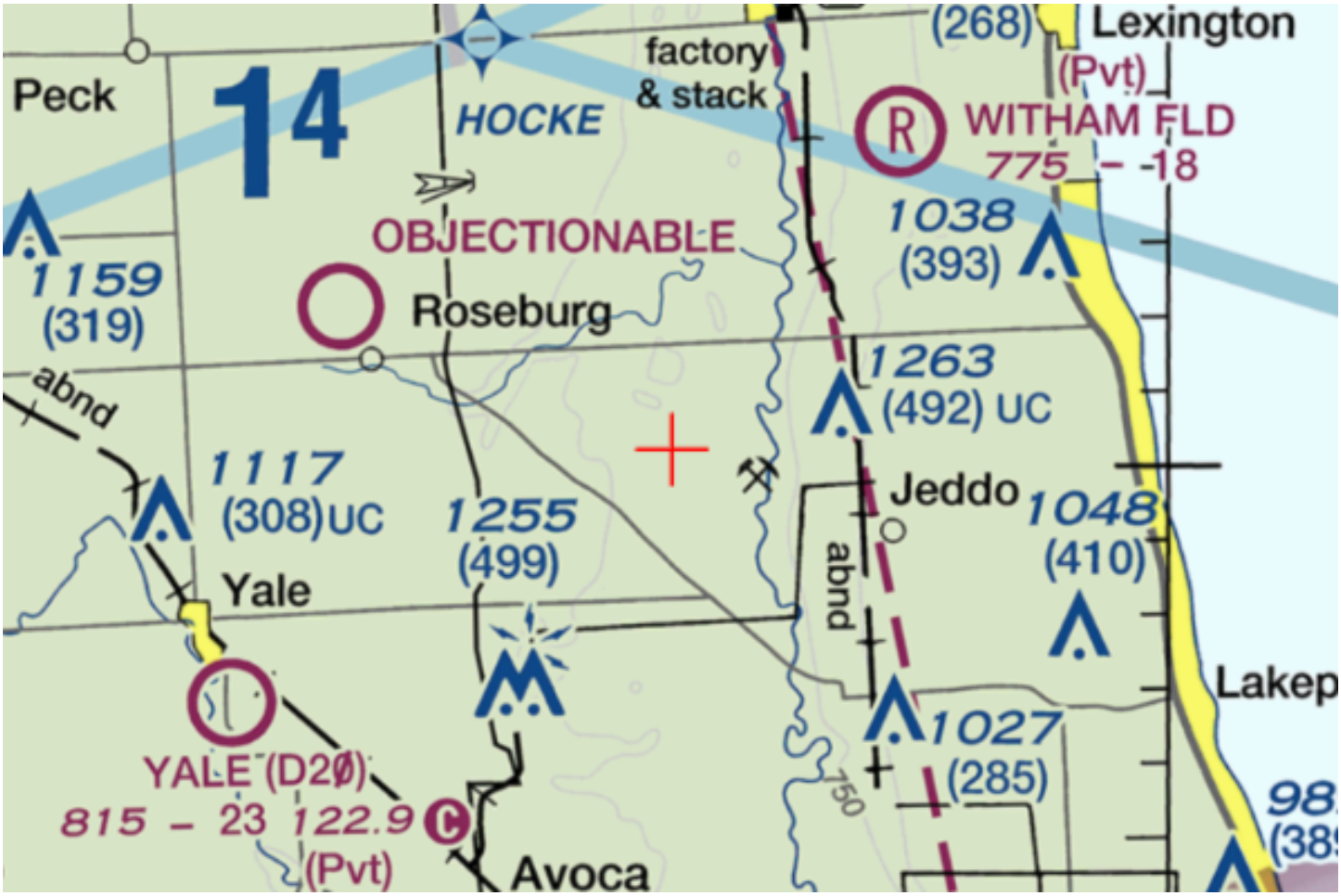
The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West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Avoca
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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5501-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 11
Location:	Peck, MI
Latitude:	43-10-11.81N NAD 83
Longitude:	82-39-06.79W
Heights:	746 feet site elevation (SE) 656 feet above ground level (AGL) 1402 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5501-OE.

Signature Control No: 505031694-630691631 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5501-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

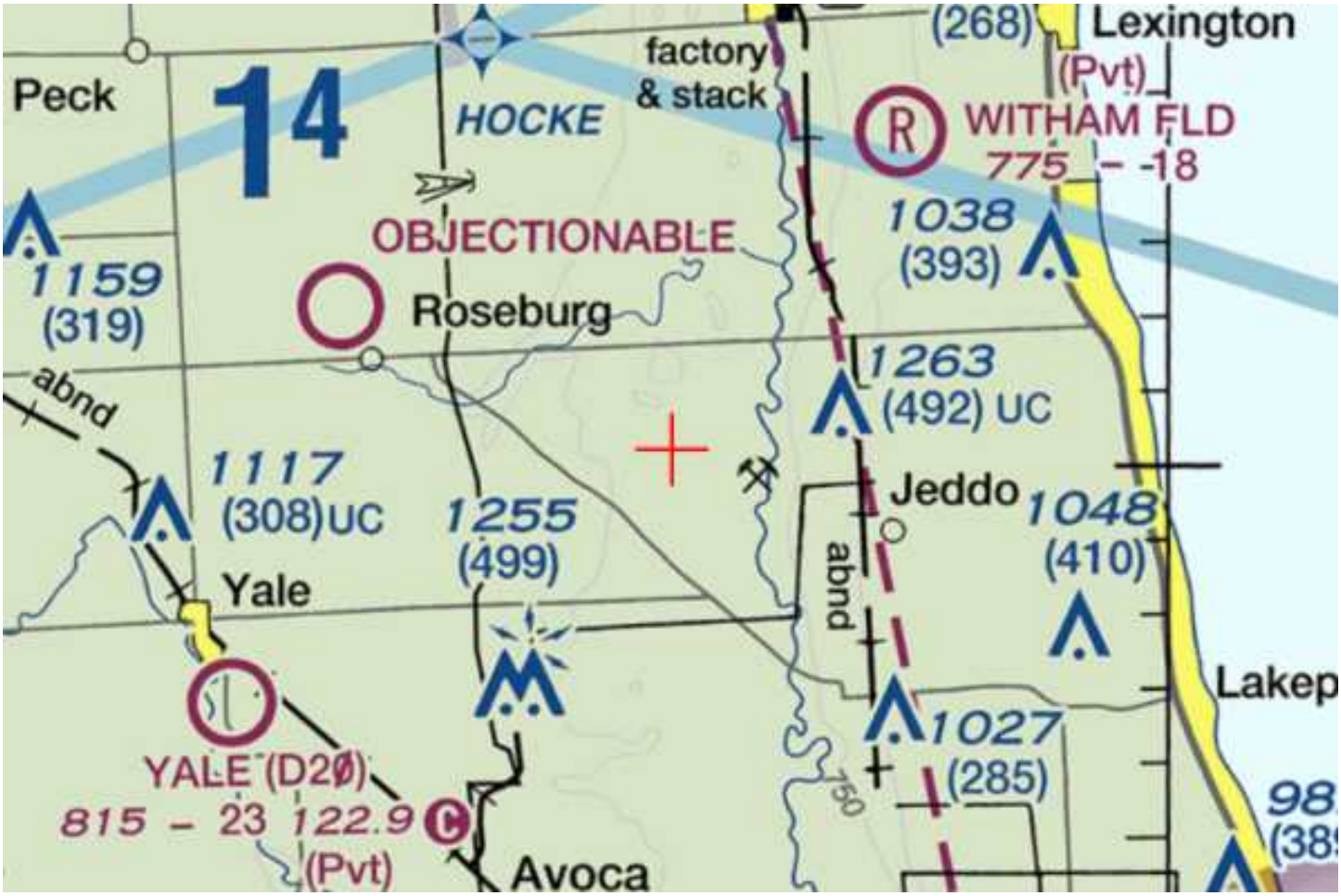
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5501-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5504-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 14
Location:	Peck, MI
Latitude:	43-10-54.66N NAD 83
Longitude:	82-40-25.20W
Heights:	750 feet site elevation (SE)
	656 feet above ground level (AGL)
	1406 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5504-OE.

Signature Control No: 505031697-569955201 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

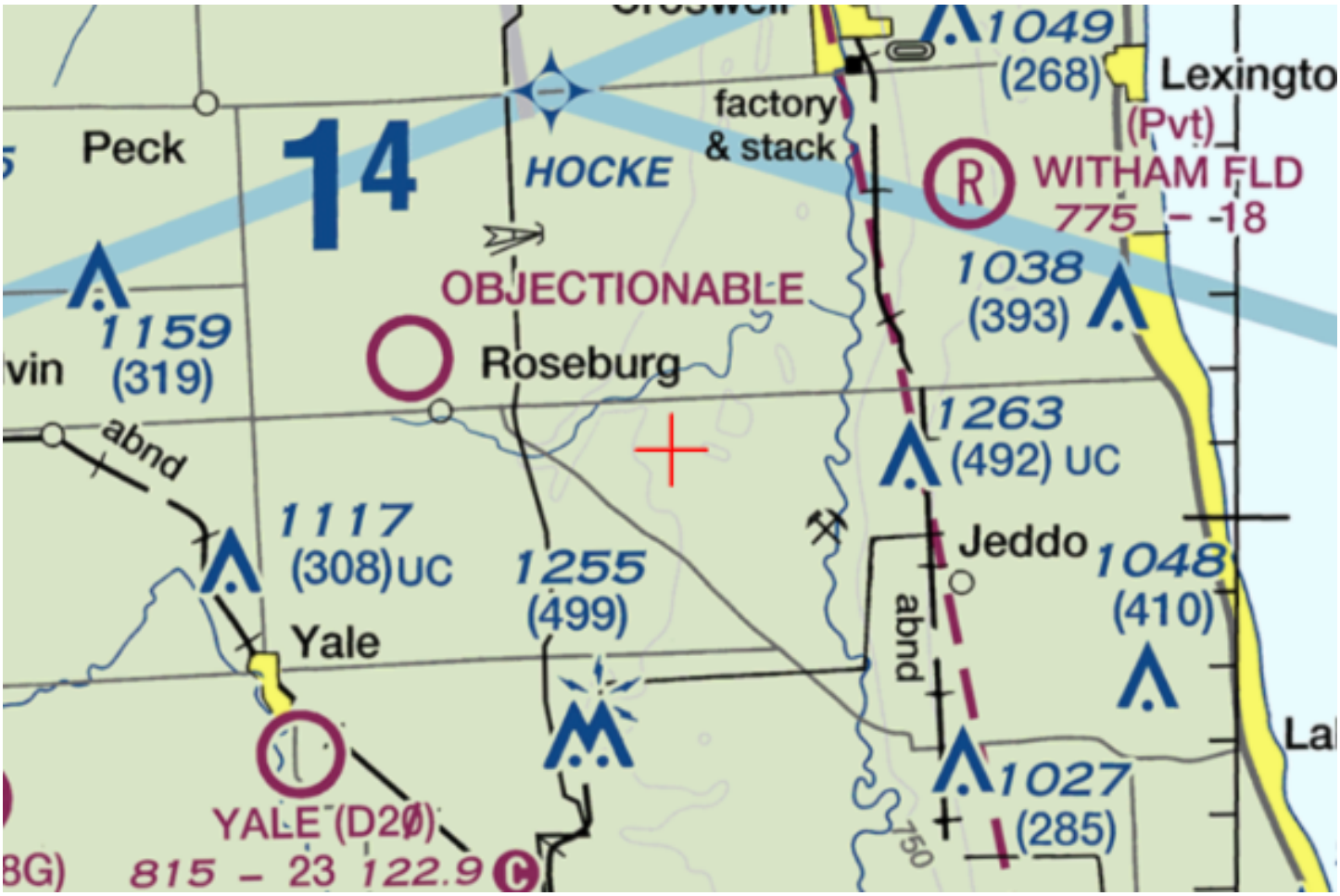
2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5504-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5504-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 14
Location:	Peck, MI
Latitude:	43-10-54.66N NAD 83
Longitude:	82-40-25.20W
Heights:	750 feet site elevation (SE) 656 feet above ground level (AGL) 1406 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5504-OE.

Signature Control No: 505031697-630691636 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5504-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

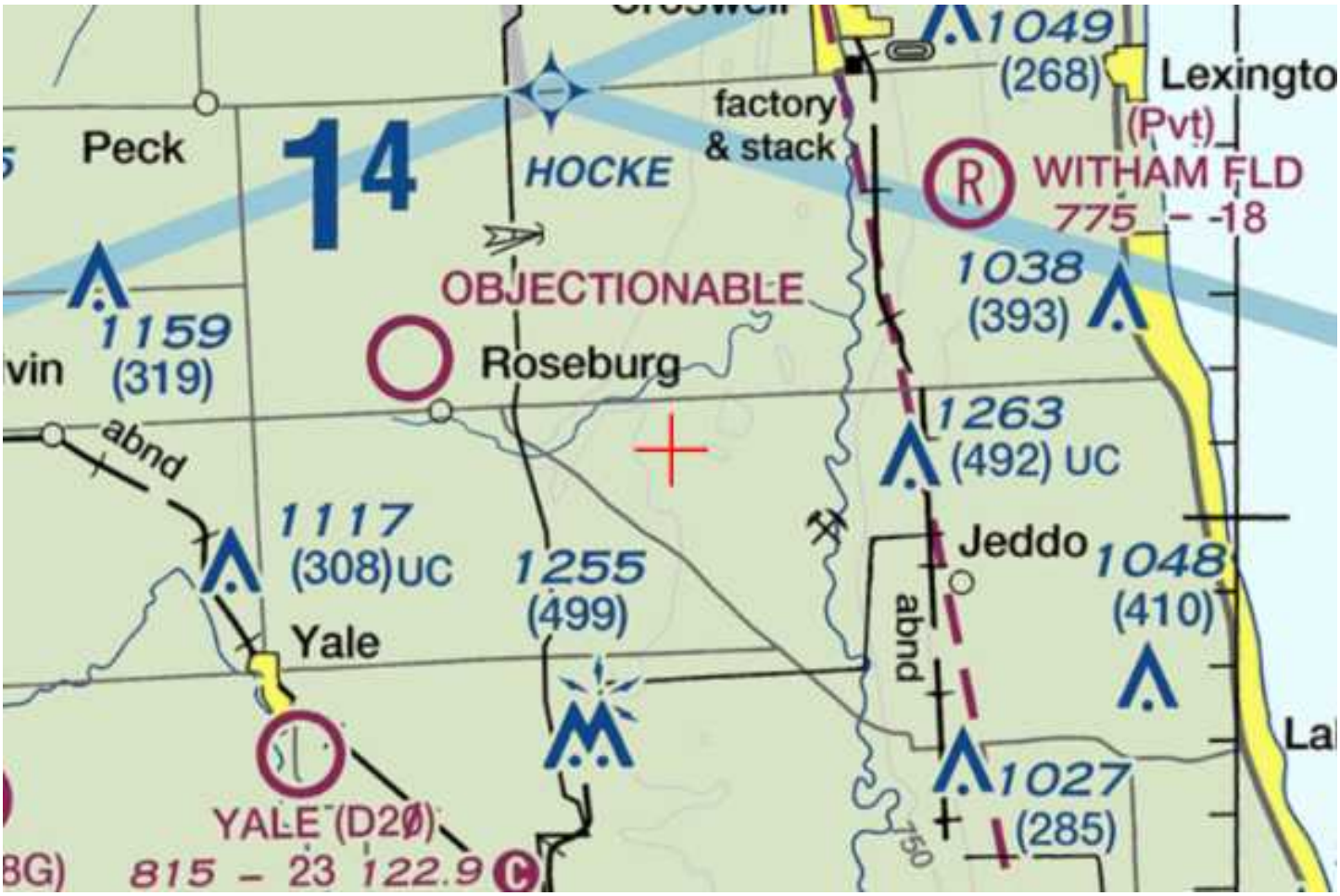
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5504-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5506-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 16
Location:	Peck, MI
Latitude:	43-12-39.56N NAD 83
Longitude:	82-39-36.40W
Heights:	745 feet site elevation (SE)
	656 feet above ground level (AGL)
	1401 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5506-OE.

Signature Control No: 505031699-569954911 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

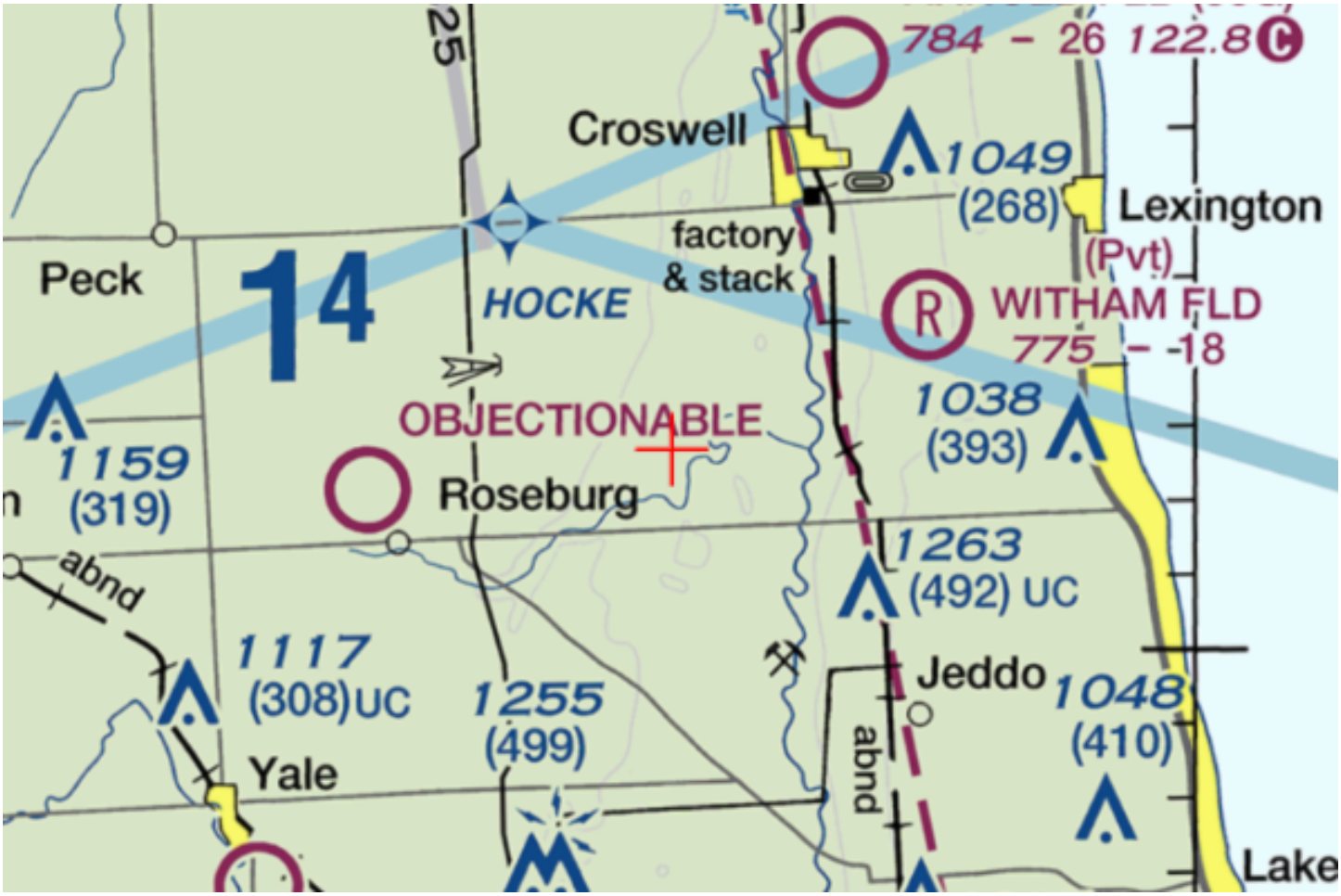
2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5506-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5506-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 16
Location:	Peck, MI
Latitude:	43-12-39.56N NAD 83
Longitude:	82-39-36.40W
Heights:	745 feet site elevation (SE) 656 feet above ground level (AGL) 1401 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5506-OE.

Signature Control No: 505031699-630691634 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5506-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5506-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5508-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 18
Location:	Peck, MI
Latitude:	43-11-48.88N NAD 83
Longitude:	82-41-53.36W
Heights:	750 feet site elevation (SE) 656 feet above ground level (AGL) 1406 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5508-OE.

Signature Control No: 505031701-569954910 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

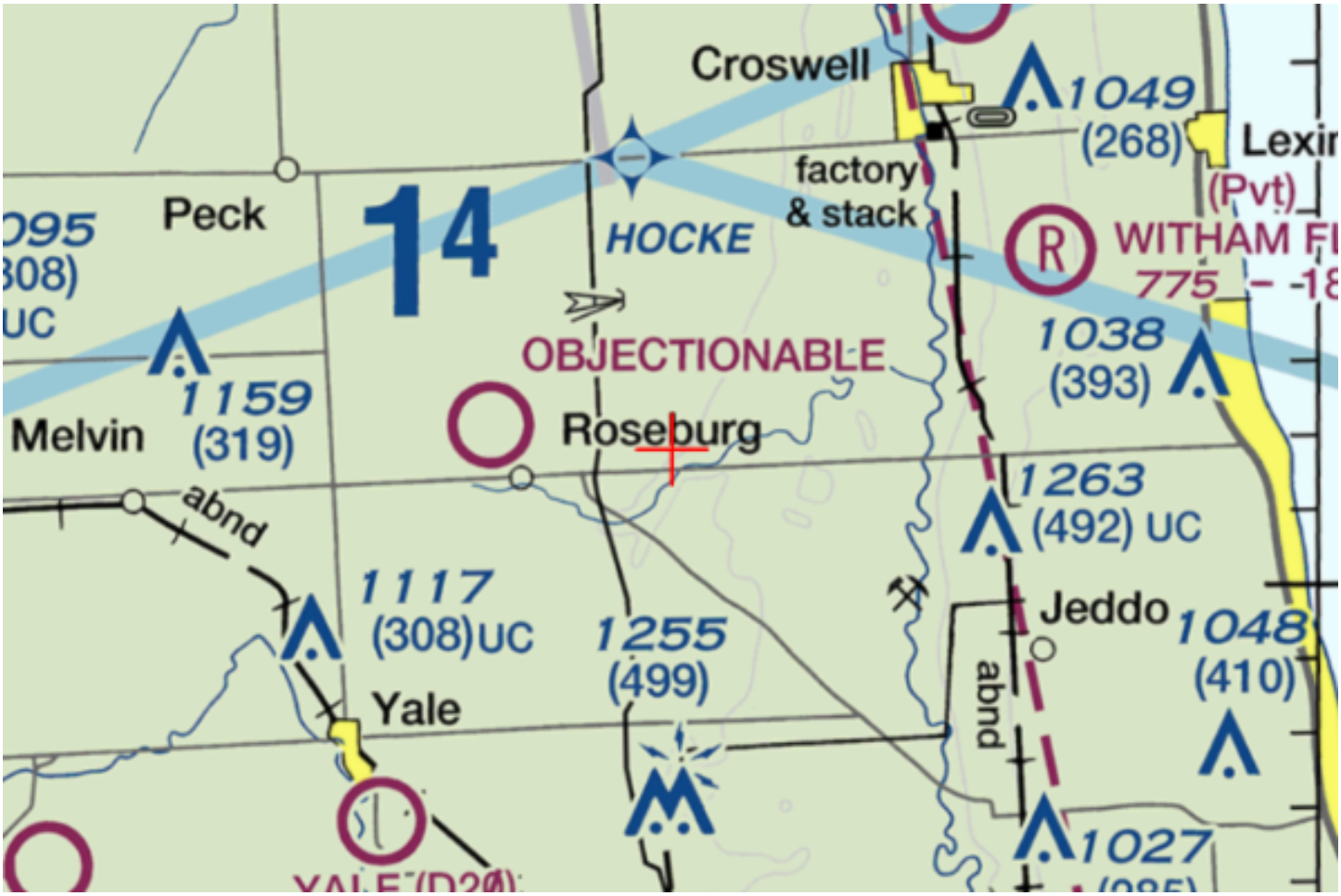
2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5508-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5508-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 18
Location:	Peck, MI
Latitude:	43-11-48.88N NAD 83
Longitude:	82-41-53.36W
Heights:	750 feet site elevation (SE) 656 feet above ground level (AGL) 1406 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5508-OE.

Signature Control No: 505031701-630691641 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5508-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

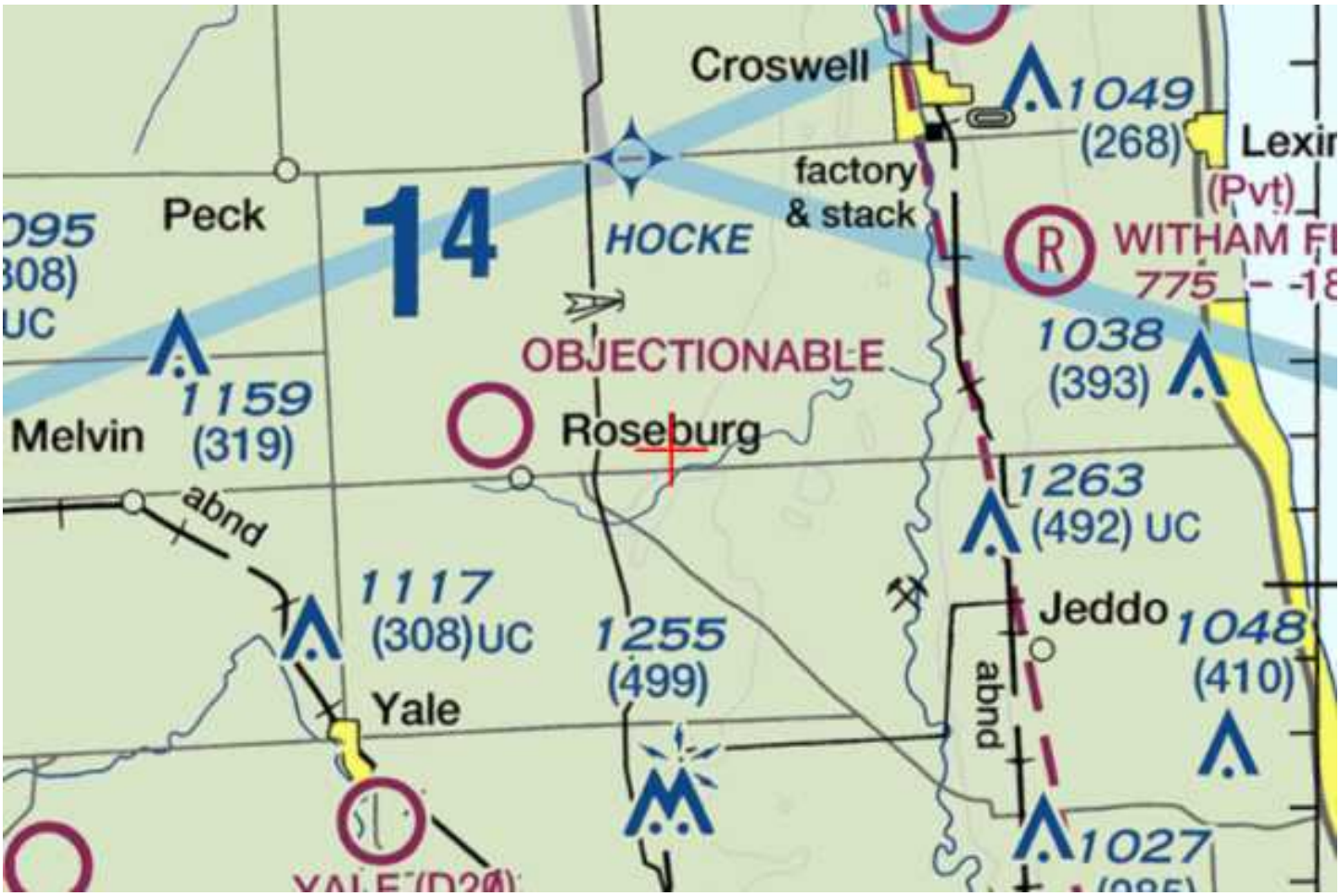
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5508-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5526-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 36
Location:	Peck, MI
Latitude:	43-11-13.03N NAD 83
Longitude:	82-42-33.20W
Heights:	759 feet site elevation (SE)
	656 feet above ground level (AGL)
	1415 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5526-OE.

Signature Control No: 505031725-569955205 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5526-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5526-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 36
Location:	Peck, MI
Latitude:	43-11-13.03N NAD 83
Longitude:	82-42-33.20W
Heights:	759 feet site elevation (SE) 656 feet above ground level (AGL) 1415 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5526-OE.

Signature Control No: 505031725-630691635 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5526-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

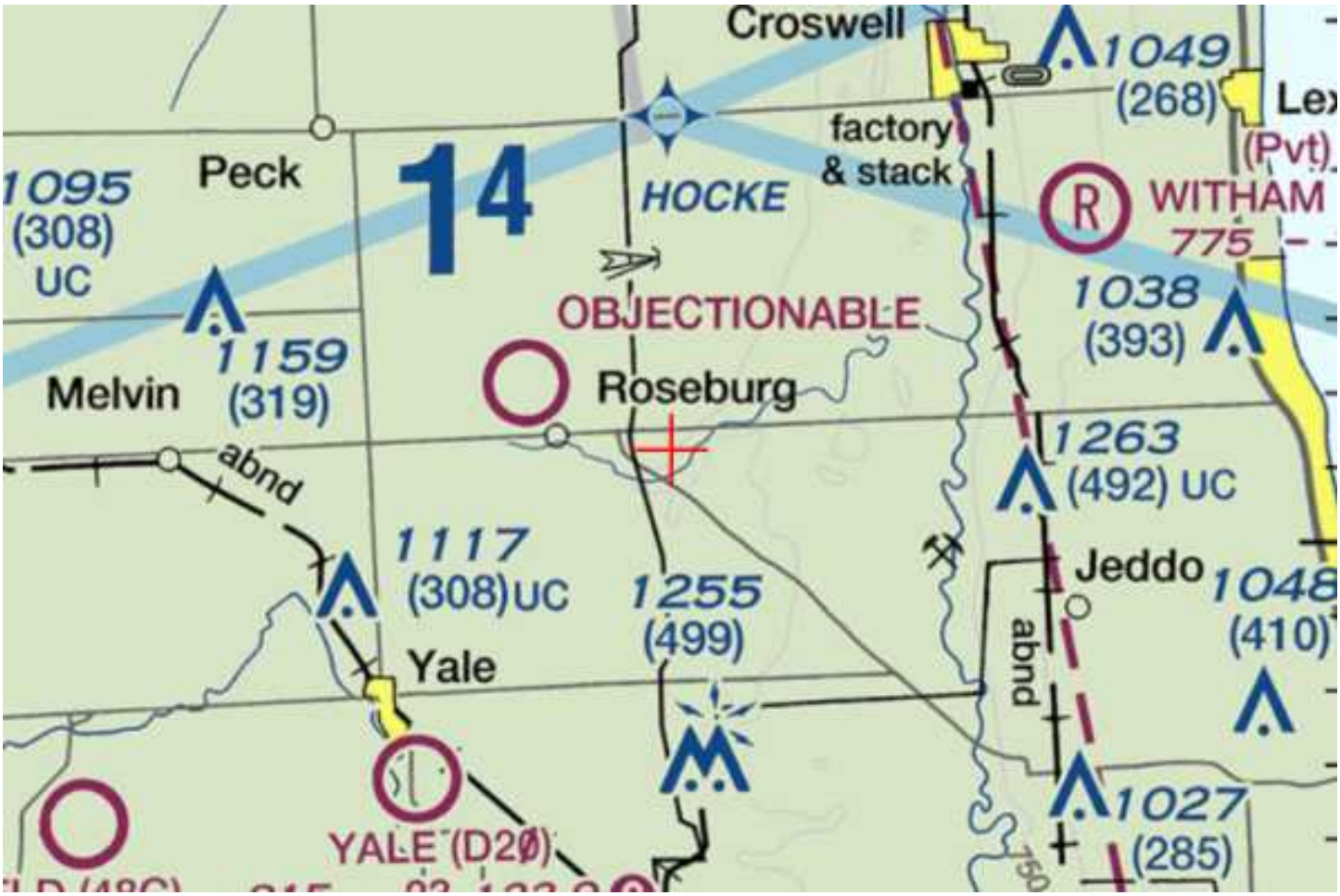
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5526-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5540-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine 50
Location:	Peck, MI
Latitude:	43-11-04.78N NAD 83
Longitude:	82-40-42.84W
Heights:	751 feet site elevation (SE) 656 feet above ground level (AGL) 1407 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5540-OE.

Signature Control No: 505031830-569955202 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2021-WTE-5540-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-5540-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine 50
Location:	Peck, MI
Latitude:	43-11-04.78N NAD 83
Longitude:	82-40-42.84W
Heights:	751 feet site elevation (SE) 656 feet above ground level (AGL) 1407 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-5540-OE.

Signature Control No: 505031830-630691633 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-5540-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2021-WTE-5540-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-WTE-1662-OE

Issued Date: 01/26/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALT_6
Location:	Peck, MI
Latitude:	43-11-17.96N NAD 83
Longitude:	82-39-13.36W
Heights:	756 feet site elevation (SE)
	656 feet above ground level (AGL)
	1412 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 07/26/2024 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before February 25, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on March 07, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-WTE-1662-OE.

Signature Control No: 519089327-569955207 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Proposed are 50 wind turbines for a project that lies approximately 12.2 NM through 21 NM southeast of the airport reference point (ARP) of the Marlette Township Airport (77G), Marlette, Michigan.

For the sake of efficiency, all of the wind turbines in this project that have similar impacts are included in this narrative.

The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN / AGL / AMSL / LAT / LONG

2021-WTE-5491-OE / 656 / 1462 / 43-10-12.50N / 82-51-01.50W
2021-WTE-5492-OE / 656 / 1417 / 43-12-34.03N / 82-42-48.62W
2021-WTE-5493-OE / 656 / 1432 / 43-14-19.09N / 82-46-27.76W
2021-WTE-5494-OE / 656 / 1407 / 43-14-27.08N / 82-39-32.53W
2021-WTE-5495-OE / 656 / 1421 / 43-13-28.15N / 82-41-33.49W
2021-WTE-5497-OE / 656 / 1464 / 43-09-43.36N / 82-52-01.70W
2021-WTE-5498-OE / 656 / 1403 / 43-10-27.79N / 82-39-11.34W
2021-WTE-5501-OE / 656 / 1402 / 43-10-11.81N / 82-39-06.79W
2021-WTE-5502-OE / 656 / 1403 / 43-12-37.42N / 82-40-16.02W
2021-WTE-5503-OE / 656 / 1417 / 43-13-27.37N / 82-43-00.58W
2021-WTE-5504-OE / 656 / 1406 / 43-10-54.66N / 82-40-25.20W
2021-WTE-5506-OE / 656 / 1401 / 43-12-39.56N / 82-39-36.40W
2021-WTE-5507-OE / 656 / 1413 / 43-13-52.44N / 82-40-47.08W
2021-WTE-5508-OE / 656 / 1406 / 43-11-48.88N / 82-41-53.36W
2021-WTE-5510-OE / 656 / 1416 / 43-10-48.73N / 82-43-52.07W
2021-WTE-5511-OE / 656 / 1475 / 43-10-17.62N / 82-47-17.80W
2021-WTE-5513-OE / 656 / 1420 / 43-13-43.96N / 82-43-03.57W
2021-WTE-5514-OE / 656 / 1401 / 43-13-55.31N / 82-39-14.73W
2021-WTE-5515-OE / 656 / 1405 / 43-13-47.06N / 82-39-42.57W
2021-WTE-5516-OE / 656 / 1419 / 43-12-00.77N / 82-42-39.63W
2021-WTE-5517-OE / 656 / 1461 / 43-09-50.08N / 82-51-25.17W

2021-WTE-5519-OE / 656 / 1443 / 43-09-52.97N / 82-45-55.54W
2021-WTE-5520-OE / 656 / 1473 / 43-10-11.65N / 82-46-41.24W
2021-WTE-5521-OE / 656 / 1404 / 43-12-55.58N / 82-39-38.42W
2021-WTE-5522-OE / 656 / 1448 / 43-14-18.09N / 82-48-04.54W
2021-WTE-5523-OE / 656 / 1460 / 43-13-16.60N / 82-49-45.22W
2021-WTE-5524-OE / 656 / 1462 / 43-13-09.91N / 82-48-40.34W
2021-WTE-5526-OE / 656 / 1415 / 43-11-13.03N / 82-42-33.20W
2021-WTE-5527-OE / 656 / 1469 / 43-10-45.54N / 82-47-12.72W
2021-WTE-5528-OE / 656 / 1460 / 43-09-57.09N / 82-46-30.55W
2021-WTE-5529-OE / 656 / 1433 / 43-14-32.51N / 82-46-42.47W
2021-WTE-5530-OE / 656 / 1452 / 43-13-21.37N / 82-50-20.91W
2021-WTE-5531-OE / 656 / 1461 / 43-09-50.14N / 82-50-42.68W
2021-WTE-5533-OE / 656 / 1409 / 43-14-40.27N / 82-39-41.57W
2021-WTE-5534-OE / 656 / 1417 / 43-14-31.51N / 82-40-26.56W
2021-WTE-5535-OE / 656 / 1401 / 43-13-33.64N / 82-39-15.65W
2021-WTE-5536-OE / 656 / 1405 / 43-13-00.35N / 82-40-17.69W
2021-WTE-5538-OE / 656 / 1473 / 43-10-33.48N / 82-50-15.61W
2021-WTE-5539-OE / 656 / 1476 / 43-10-44.54N / 82-47-48.18W
2021-WTE-5540-OE / 656 / 1407 / 43-11-04.78N / 82-40-42.84W
2022-WTE-1652-OE / 656 / 1470 / 43-10-35.71N / 82-52-12.39W
2022-WTE-1654-OE / 656 / 1498 / 43-09-48.23N / 82-49-38.82W
2022-WTE-1655-OE / 656 / 1415 / 43-12-37.15N / 82-41-41.44W
2022-WTE-1656-OE / 656 / 1416 / 43-12-55.03N / 82-41-50.98W
2022-WTE-1657-OE / 656 / 1417 / 43-11-41.95N / 82-42-38.43W
2022-WTE-1658-OE / 656 / 1403 / 43-11-48.26N / 82-39-09.16W
2022-WTE-1659-OE / 656 / 1406 / 43-12-06.44N / 82-40-39.70W
2022-WTE-1660-OE / 656 / 1463 / 43-10-28.96N / 82-51-14.39W
2022-WTE-1661-OE / 656 / 1484 / 43-10-52.41N / 82-50-11.75W
2022-WTE-1662-OE / 656 / 1412 / 43-11-17.96N / 82-39-13.36W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1): Exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

c. Section 77.17(a)(4): A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

The following proposed turbines would increase the MOCA from HOCKE to RAKAP intersection on airway T616 from 2100 ft. AMSL to 2400 ft. AMSL.

2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE

2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE

The following turbines would increase the above MOCA to 2500 ft. AMSL.

2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

The following proposed turbines would increase the MIA for Sector CJOC38 at Cleveland, Ohio ARTCC (ZOB) from 2400 ft. AMSL to 2500 ft. AMSL.

2021-WTE-5491-OE
2021-WTE-5497-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1): the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation.

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The project was circularized under ASN 2021-WTE-5500-OE on 08/03/2022, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. During further study 4 turbines were terminated by the sponsor that would be within the traffic pattern airspace at Para Field (4Y8), Yale, MI (2021-WTE-5499-5500-OE, 2021-WTE-5512-OE and 2022-WTE-1653-OE). There was one comment received during the public comment period as a result of the circularization and one that was received after the comment period concluded, they are both summarized below:

COMMENT:
The commenter expressed their objection to the placement of two or more turbines in the northeast part of the project that may present a conflict with aircraft into and out of Witham Field (4MI8).

RESPONSE:
The FAA recognizes obstructions may impact private use airports. The FAA studies a (an) obstacles impact to public use/military airports and generally does not have authority under a 14 CFR Part 77 aeronautical study to consider VFR effects to private use airports. This is the case for 4MI8 where the nearest turbine within the project is approximately 3.2 NM.

COMMENT:
The commenter expressed concern over detrimental effects the project would have on the Selfridge Air National Guard Base (SANGB) and the health, safety and welfare of residents living near the turbines. The overall height of the turbines, and concerns over the training and flight paths being used by SANGB.

RESPONSE:
During the aeronautical study process, a proposal is sent out to several divisional responders for comments/ concerns. The USAF along with the DoD Siting Clearing house include effects to the ANG in their response. They worked with the developer recognizing training routes/training areas to come up with a mutually agreeable arrangement (the closest turbine is approximately 33 NM from SANGB). The tall turbines are in airspace that could be utilized for en-route aircraft. Radar traffic data indicated that there would not be a significant amount of VFR traffic affected. Comments on the safety, health and welfare of residents living near the turbines is not included in an aeronautical study being conducted under 14 CFR Part 77. The study is determining the effects to the National Airspace System (NAS).

BASIS FOR DETERMINATION

a. IFR EFFECTS

The aeronautical study found effects to the MOCA/MIA. MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. MIA's are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling

facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations.

The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

5. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

6. CONDITIONS

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, sixty (60) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

2021-WTE-5491-OE
2021-WTE-5496-OE
2021-WTE-5497-OE
2021-WTE-5505-OE
2021-WTE-5511-OE
2021-WTE-5517-OE
2021-WTE-5518-OE
2021-WTE-5520-OE
2021-WTE-5523-OE
2021-WTE-5524-OE
2021-WTE-5525-OE

2021-WTE-5527-OE
2021-WTE-5528-OE
2021-WTE-5530-OE
2021-WTE-5531-OE
2021-WTE-5538-OE
2021-WTE-5539-OE
2022-WTE-1652-OE
2022-WTE-1654-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1660-OE
2022-WTE-1661-OE

The proponent is required to file FAA form 7460-2, part 1, Notice of Actual Construction or Alteration, ten (10) days prior to beginning construction, at the OE/AAA website (http://oeaaa.faa.gov) for the following ASN's:

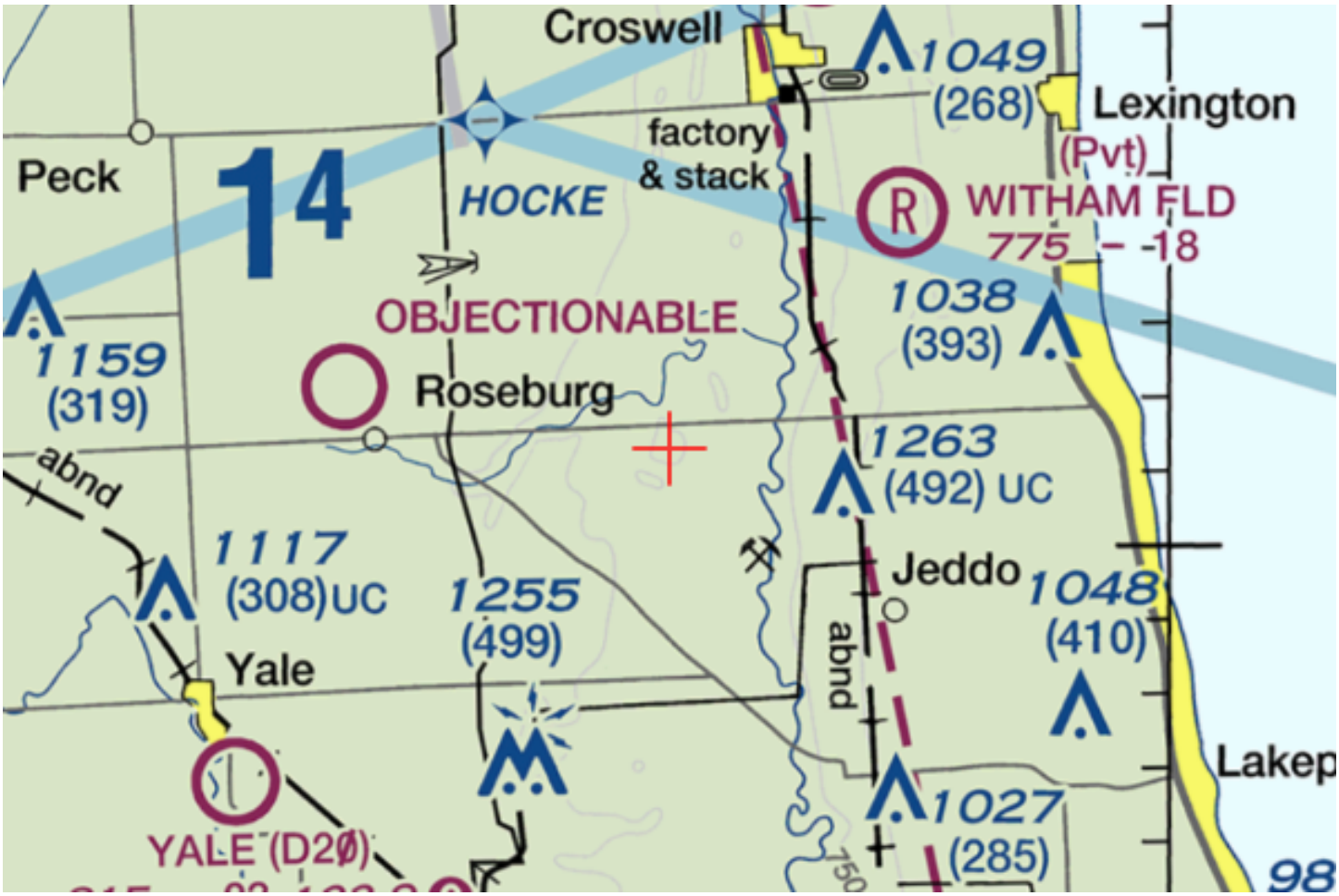
2021-WTE-5492-OE
2021-WTE-5493-OE
2021-WTE-5494-OE
2021-WTE-5495-OE
2021-WTE-5500-OE
2021-WTE-5502-OE
2021-WTE-5503-OE
2021-WTE-5506-OE
2021-WTE-5507-OE
2021-WTE-5508-OE
2021-WTE-5513-OE
2021-WTE-5514-OE
2021-WTE-5515-OE
2021-WTE-5516-OE
2021-WTE-5521-OE
2021-WTE-5529-OE
2021-WTE-5533-OE
2021-WTE-5534-OE
2021-WTE-5535-OE
2021-WTE-5536-OE
2021-WTE-5520-OE
2022-WTE-1655-OE
2022-WTE-1656-OE
2022-WTE-1659-OE

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar

ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway

S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2022-WTE-1662-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-WTE-1662-OE

Issued Date: 08/20/2024

Gabriella Kovacs
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine ALT_6
Location:	Peck, MI
Latitude:	43-11-17.96N NAD 83
Longitude:	82-39-13.36W
Heights:	756 feet site elevation (SE) 656 feet above ground level (AGL) 1412 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before September 19, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This extension becomes final on September 29, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact the Rules and Regulations Group via telephone (202) 267-8783.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 02/20/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable

airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-WTE-1662-OE.

Signature Control No: 519089327-630691640 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2022-WTE-1662-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

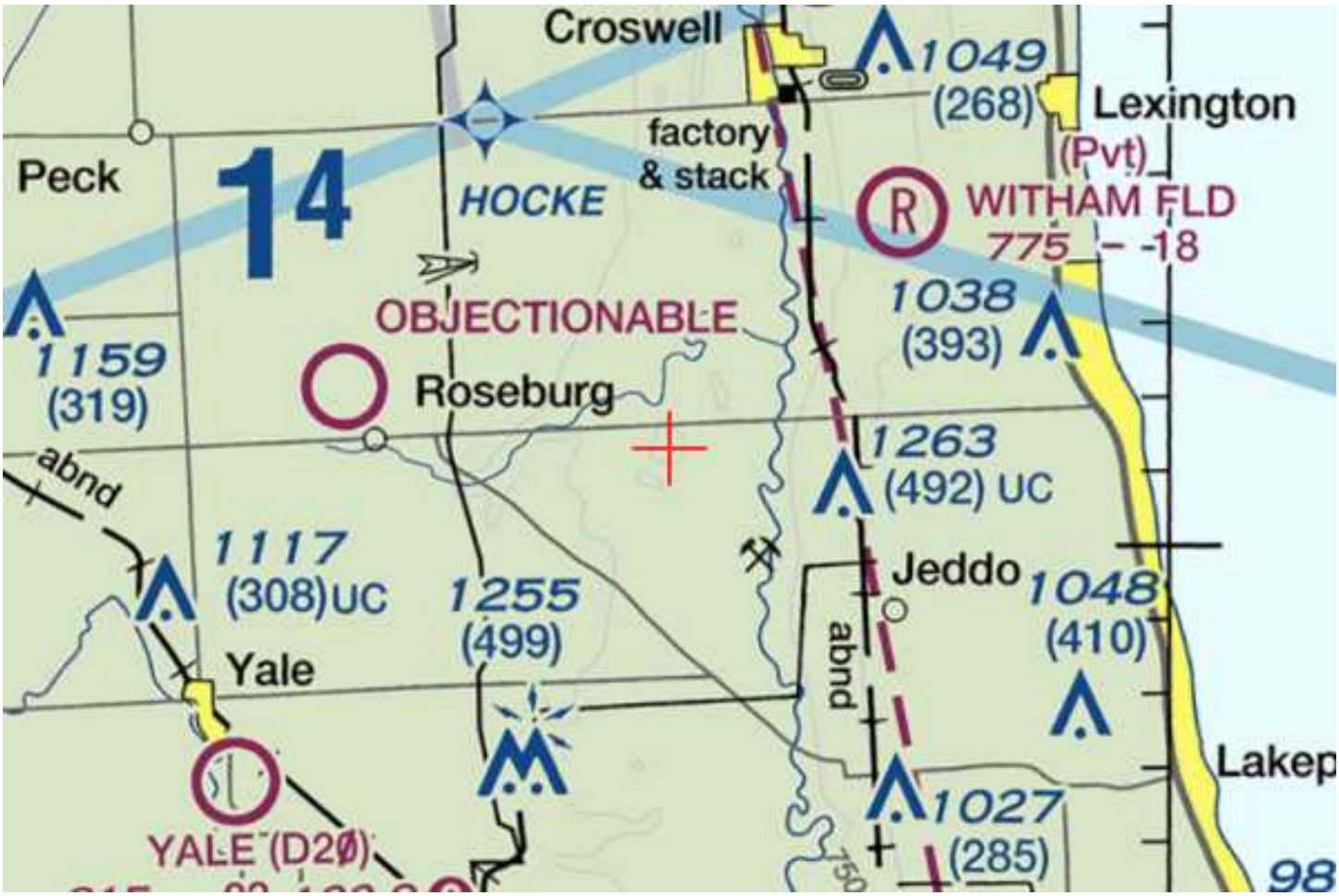
2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

a. At least 60 days prior to start of construction (7460-2, Part 1)

b. Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Sectional Map for ASN 2022-WTE-1662-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1229-OE
Prior Study No.
2022-WTE-1661-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALTB-1
Location:	Peck, MI
Latitude:	43-10-52.93N NAD 83
Longitude:	82-50-13.18W
Heights:	825 feet site elevation (SE)
	656 feet above ground level (AGL)
	1481 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1481 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1229-OE.

Signature Control No: 577887884-606709145 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

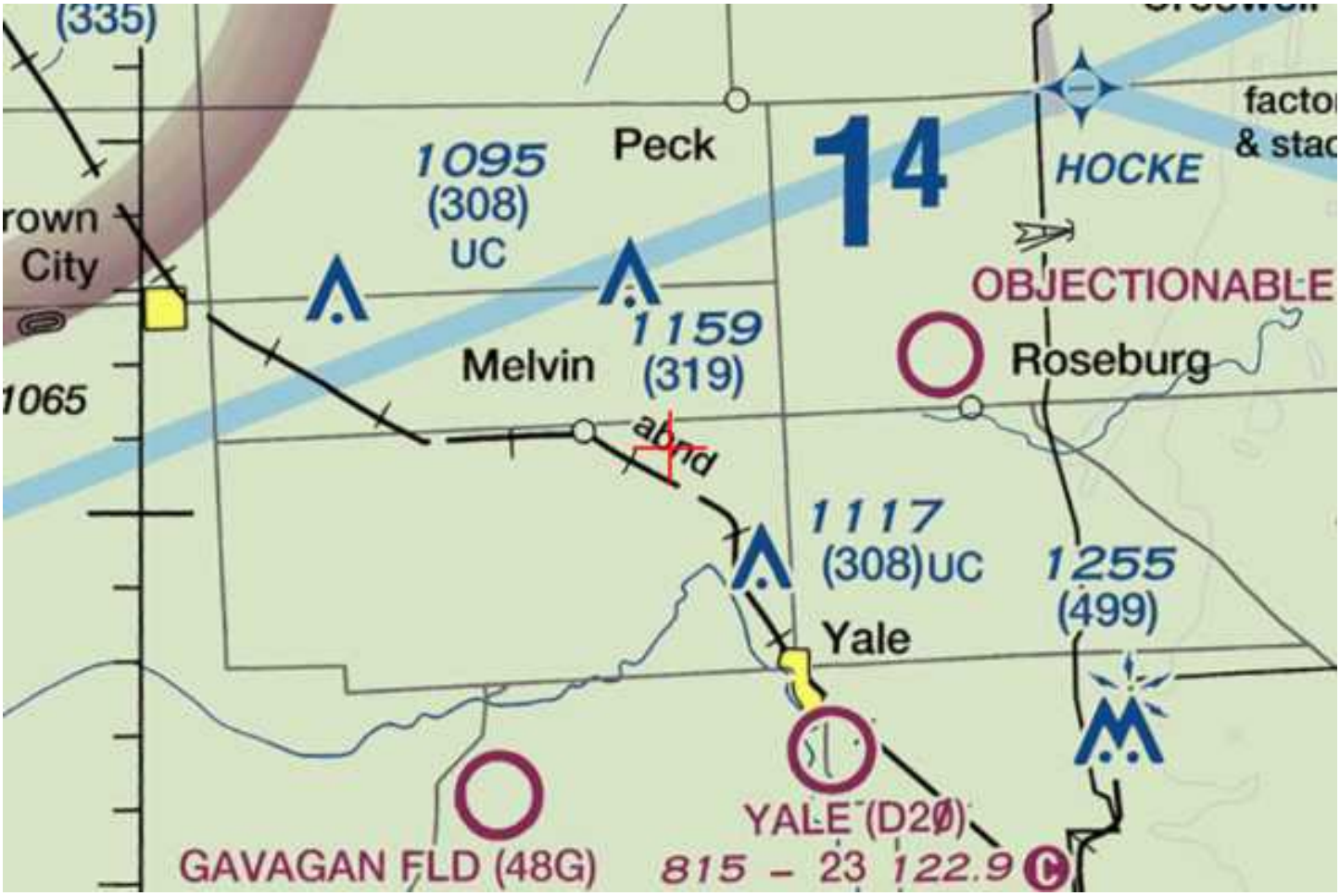
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1229-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1230-OE
Prior Study No.
2021-WTE-5520-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALTB-2
Location:	Peck, MI
Latitude:	43-10-08.21N NAD 83
Longitude:	82-46-41.48W
Heights:	816 feet site elevation (SE)
	656 feet above ground level (AGL)
	1472 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1472 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1230-OE.

Signature Control No: 577887886-606709143 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

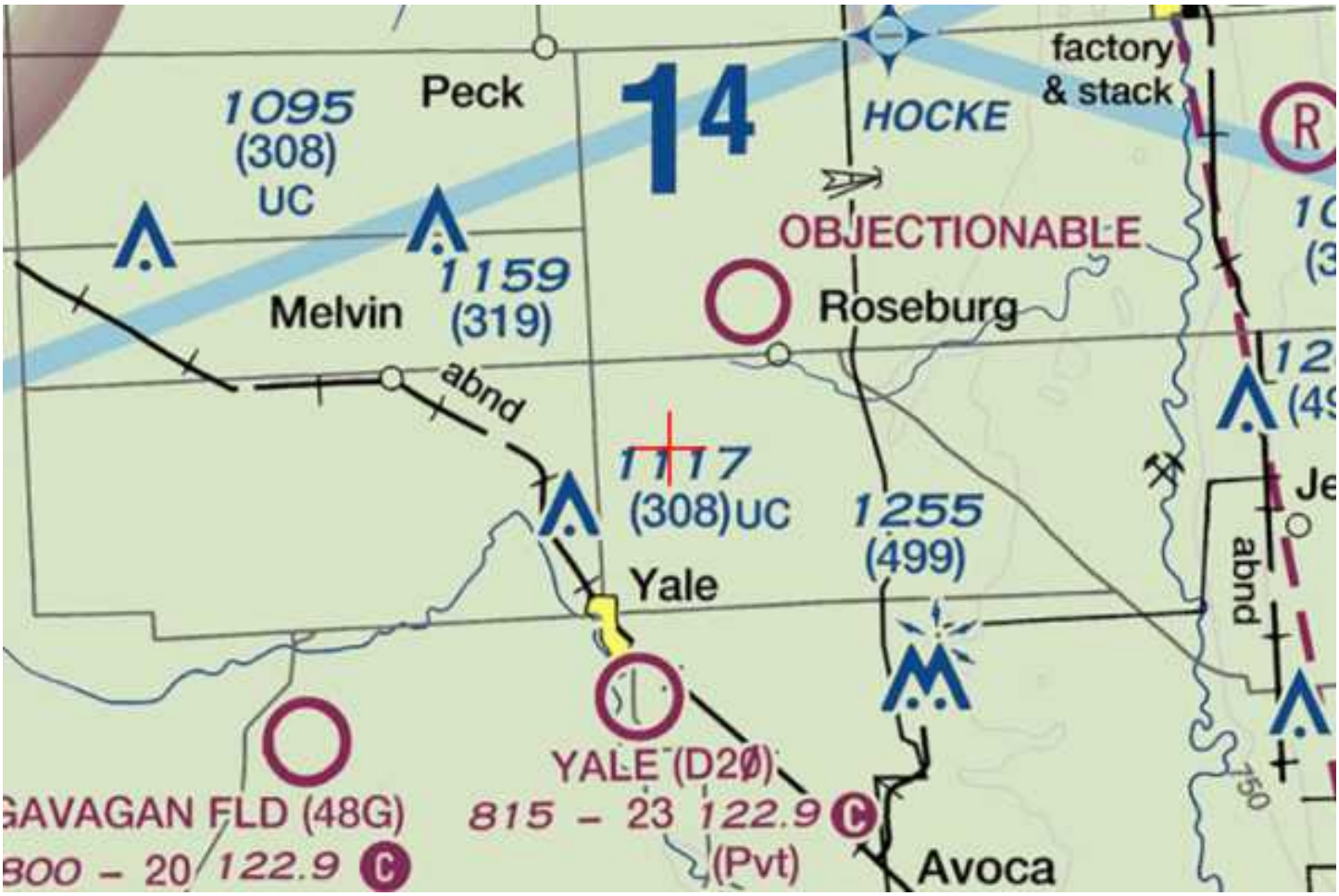
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1230-OE



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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1231-OE
Prior Study No.
2021-WTE-5521-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALTB-3
Location:	Peck, MI
Latitude:	43-13-00.50N NAD 83
Longitude:	82-39-38.47W
Heights:	747 feet site elevation (SE)
	656 feet above ground level (AGL)
	1403 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1403 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1231-OE.

Signature Control No: 577887887-606709146 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

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AGL, Above Ground Level
AMSL, Above Mean Sea Level
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ICA, Initial Climb Area
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LONG, Longitude
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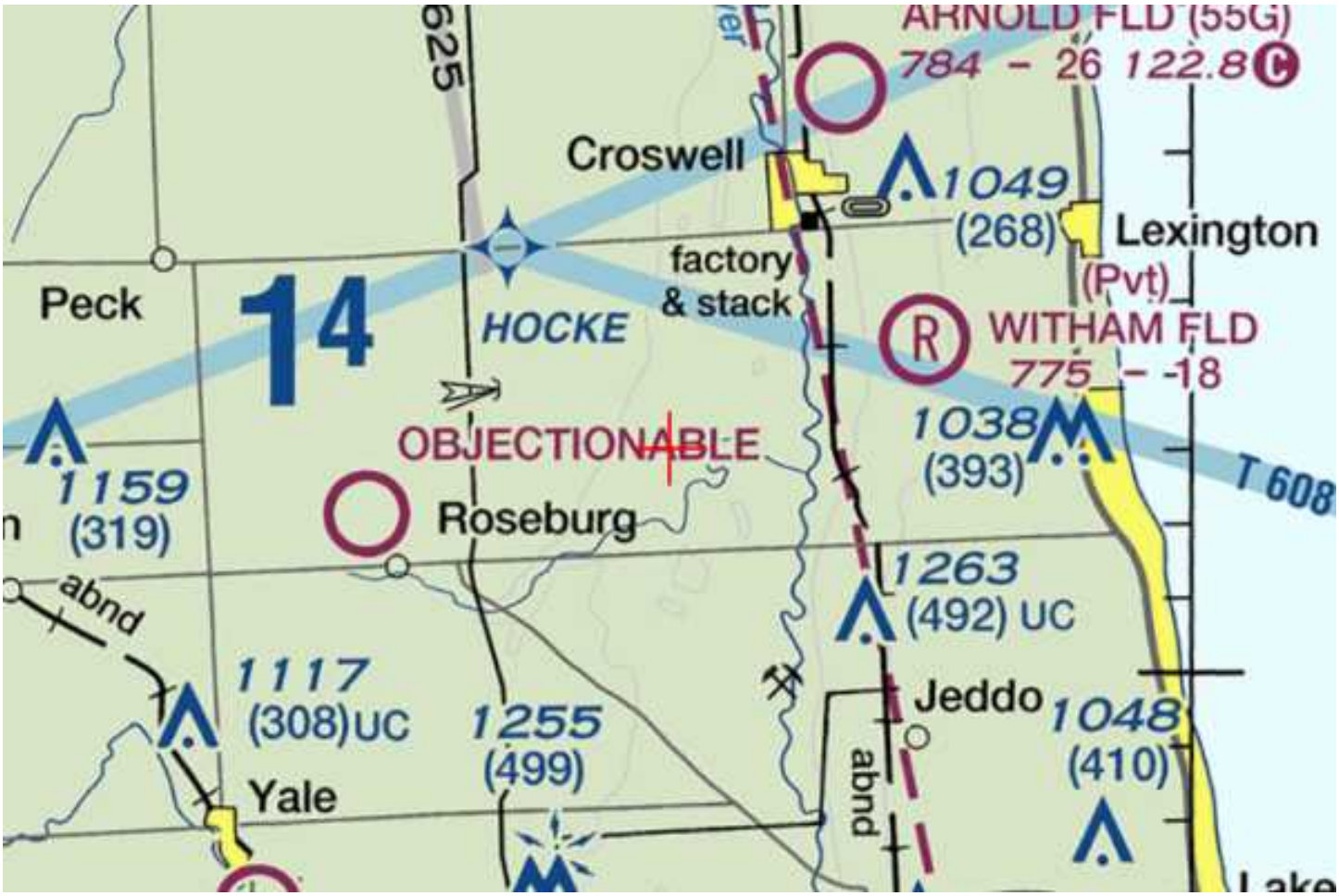
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1231-OE



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Aeronautical Study No.
2023-WTE-1233-OE
Prior Study No.
2022-WTE-1656-OE

Issued Date: 12/08/2023

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Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine ALTB-5
Location:	Peck, MI
Latitude:	43-12-55.98N NAD 83
Longitude:	82-41-38.99W
Heights:	758 feet site elevation (SE)
	656 feet above ground level (AGL)
	1414 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1414 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1233-OE.

Signature Control No: 577887889-606709155 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1233-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1234-OE
Prior Study No.
2021-WTE-5502-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

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

Structure:	Wind Turbine ALTB-6
Location:	Peck, MI
Latitude:	43-12-38.39N NAD 83
Longitude:	82-40-17.23W
Heights:	748 feet site elevation (SE)
	656 feet above ground level (AGL)
	1404 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1404 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1234-OE.

Signature Control No: 577887890-606709142 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
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2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1234-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1235-OE
Prior Study No.
2021-WTE-5491-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-1
Location:	Peck, MI
Latitude:	43-10-12.01N NAD 83
Longitude:	82-51-06.52W
Heights:	805 feet site elevation (SE)
	656 feet above ground level (AGL)
	1461 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1461 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1235-OE.

Signature Control No: 577887891-606709148 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

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2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
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2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

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3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

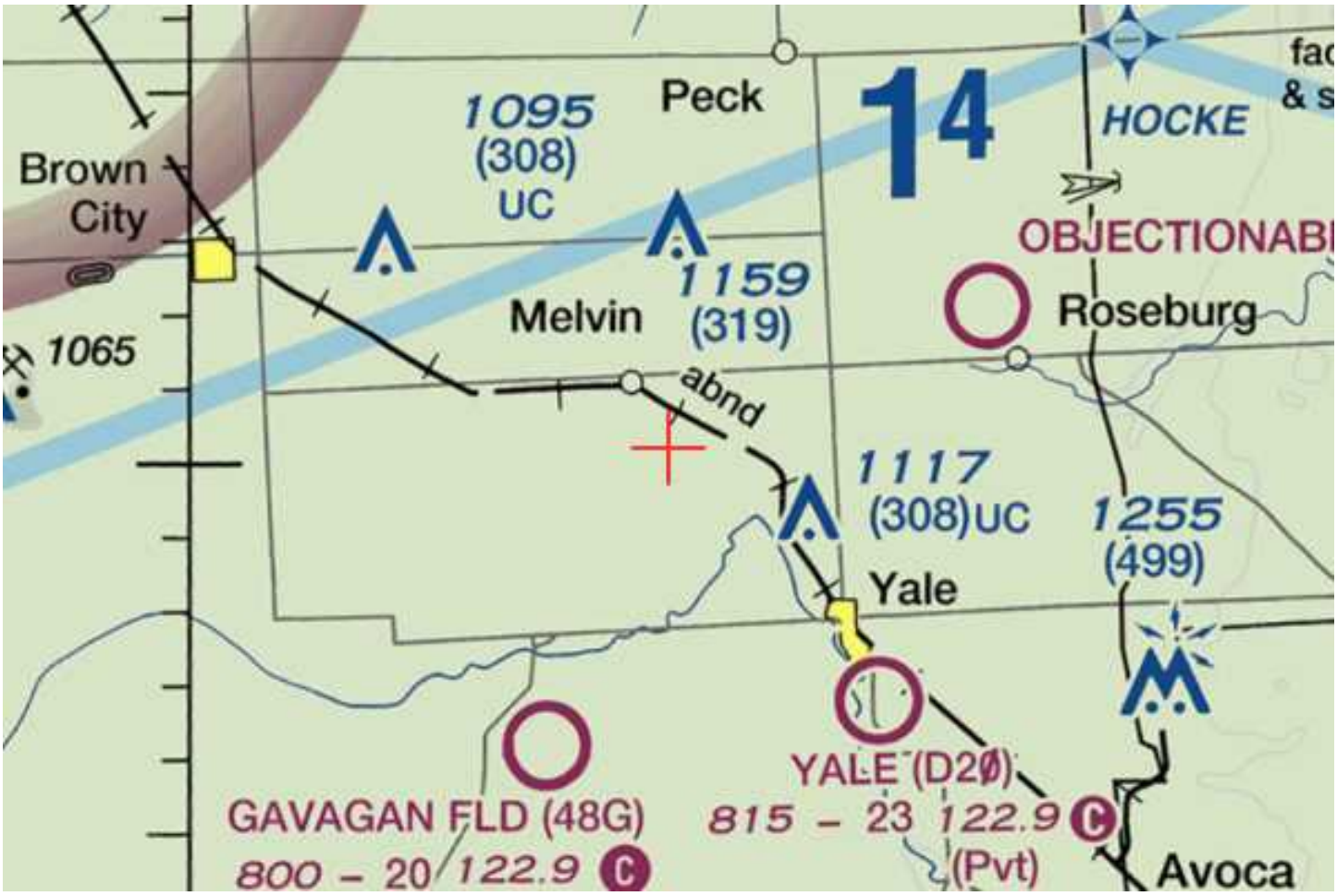
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1235-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1236-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-10
Location:	Peck, MI
Latitude:	43-11-18.18N NAD 83
Longitude:	82-52-19.58W
Heights:	812 feet site elevation (SE)
	656 feet above ground level (AGL)
	1468 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1468 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1236-OE.

Signature Control No: 577887893-606709156 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
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2023-WTE-1256-OE
2023-WTE-1259-OE
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2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

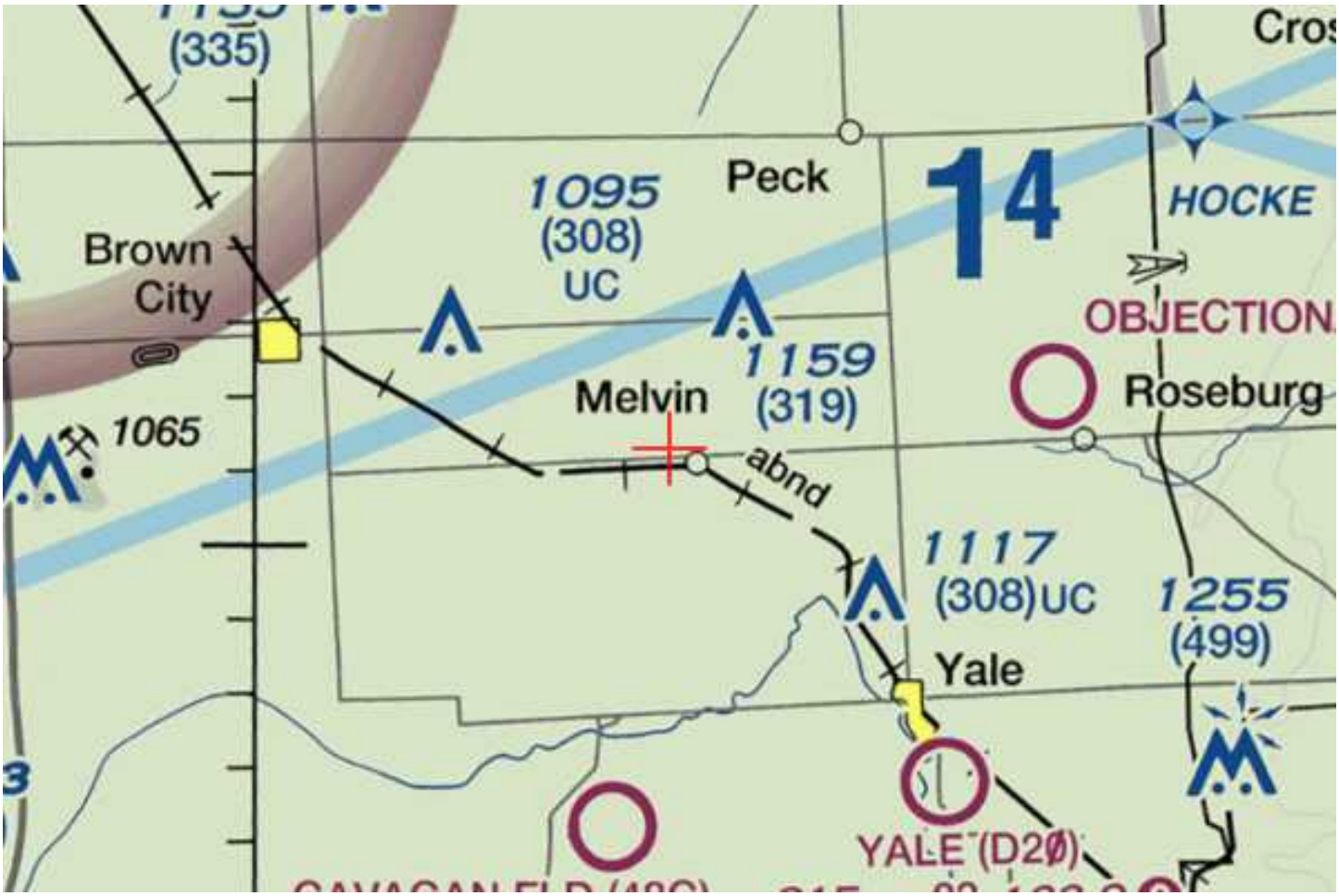
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1236-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1238-OE
Prior Study No.
2021-WTE-5503-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-13
Location:	Peck, MI
Latitude:	43-13-25.05N NAD 83
Longitude:	82-43-01.97W
Heights:	760 feet site elevation (SE)
	656 feet above ground level (AGL)
	1416 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1416 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1238-OE.

Signature Control No: 577887898-606709147 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
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2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
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2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
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a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

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2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

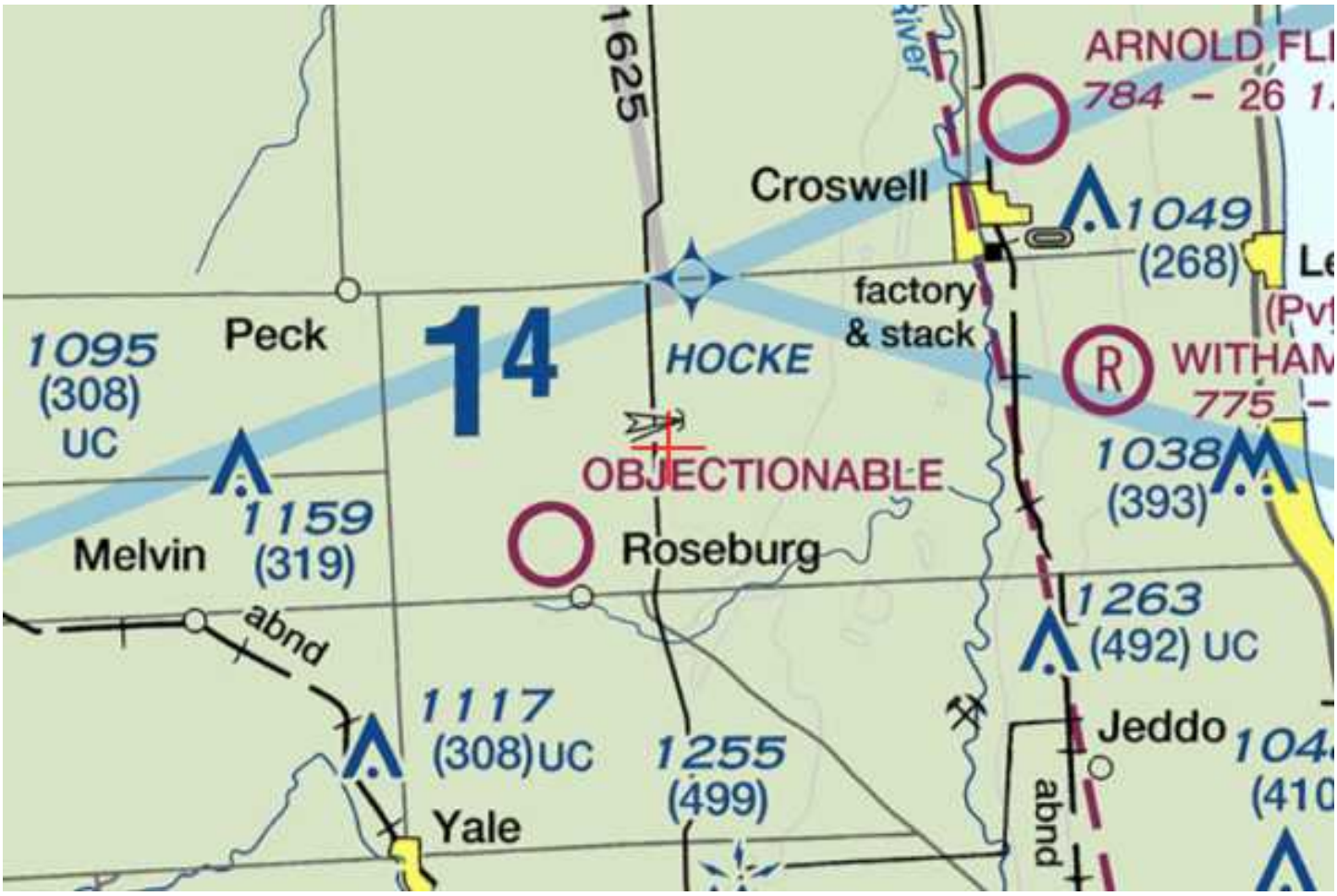
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1238-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1239-OE
Prior Study No.
2021-WTE-5536-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-14
Location:	Peck, MI
Latitude:	43-13-01.34N NAD 83
Longitude:	82-40-28.95W
Heights:	751 feet site elevation (SE) 656 feet above ground level (AGL) 1407 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1407 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1239-OE.

Signature Control No: 577887899-606709144 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1239-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1240-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-15
Location:	Peck, MI
Latitude:	43-13-11.53N NAD 83
Longitude:	82-50-16.19W
Heights:	811 feet site elevation (SE)
	656 feet above ground level (AGL)
	1467 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1467 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1240-OE.

Signature Control No: 577887900-606709158 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
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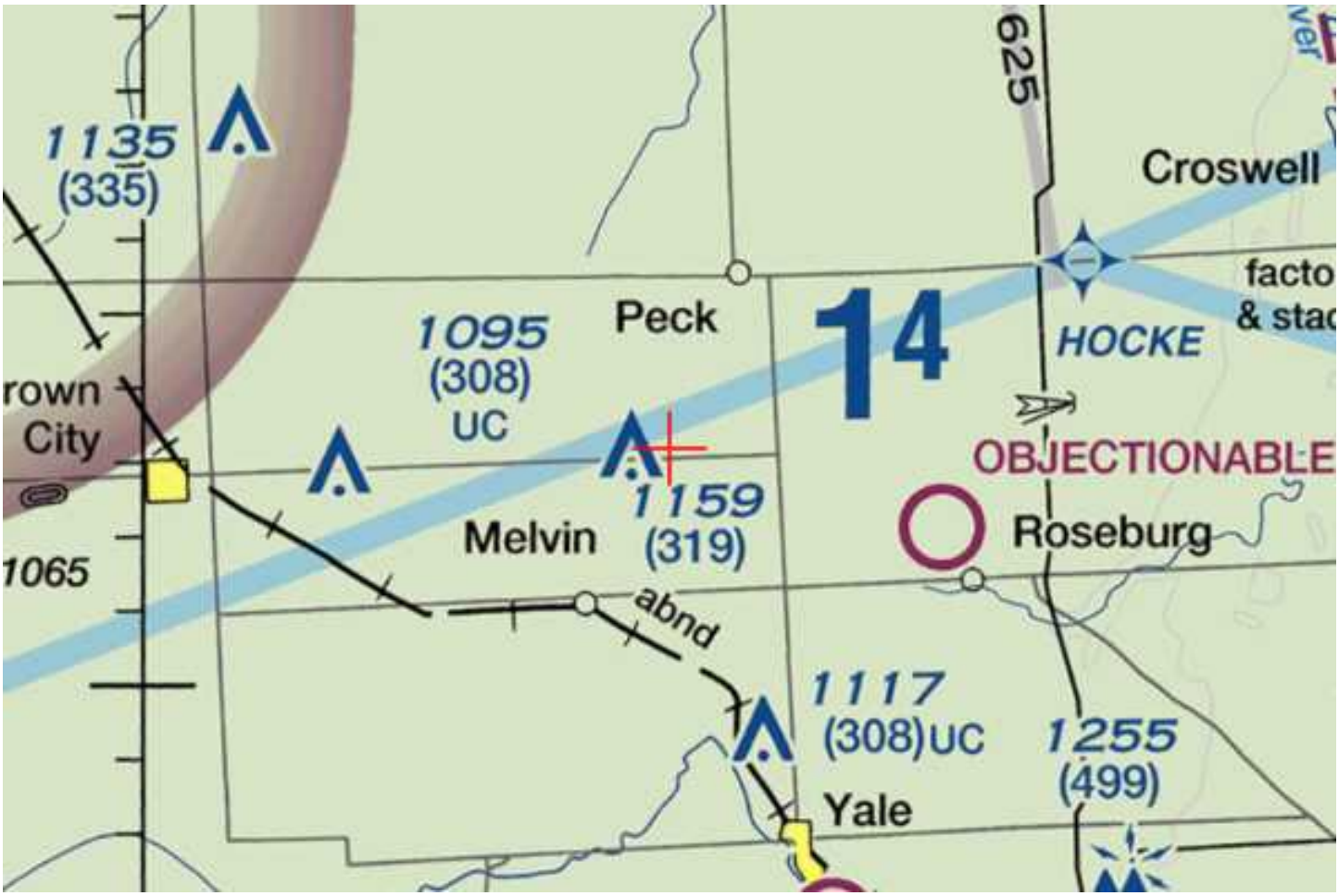
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West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Mail Processing Center
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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1241-OE
Prior Study No.
2021-WTE-5507-OE

Issued Date: 12/08/2023

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

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

Structure:	Wind Turbine OPB-17
Location:	Peck, MI
Latitude:	43-13-53.00N NAD 83
Longitude:	82-40-48.78W
Heights:	758 feet site elevation (SE)
	656 feet above ground level (AGL)
	1414 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1414 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1241-OE.

Signature Control No: 577887903-606709162 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

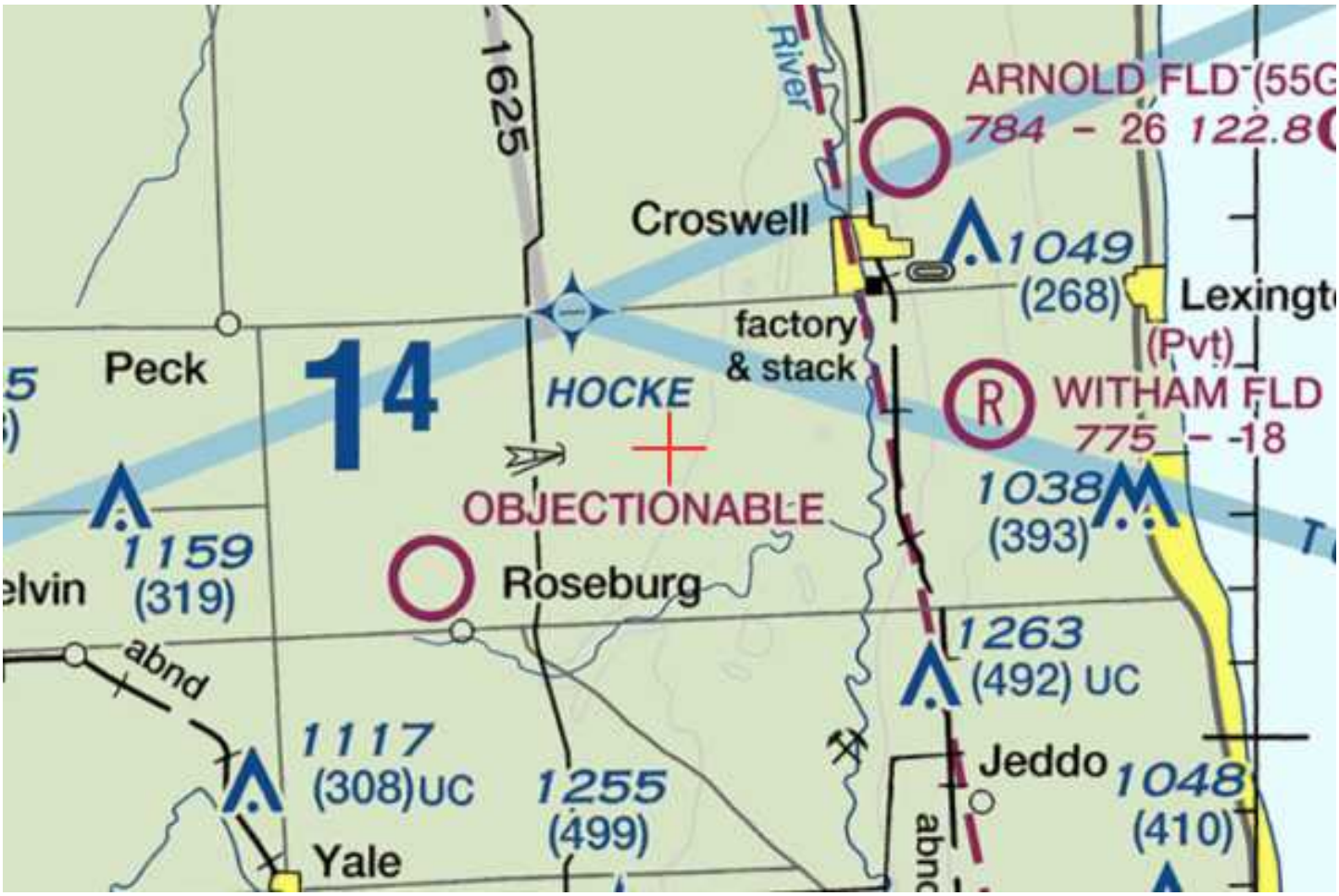
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1241-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1243-OE
Prior Study No.
2021-WTE-5510-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-20
Location:	Peck, MI
Latitude:	43-10-48.19N NAD 83
Longitude:	82-43-47.41W
Heights:	758 feet site elevation (SE)
	656 feet above ground level (AGL)
	1414 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1414 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1243-OE.

Signature Control No: 577887918-606709152 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
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2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

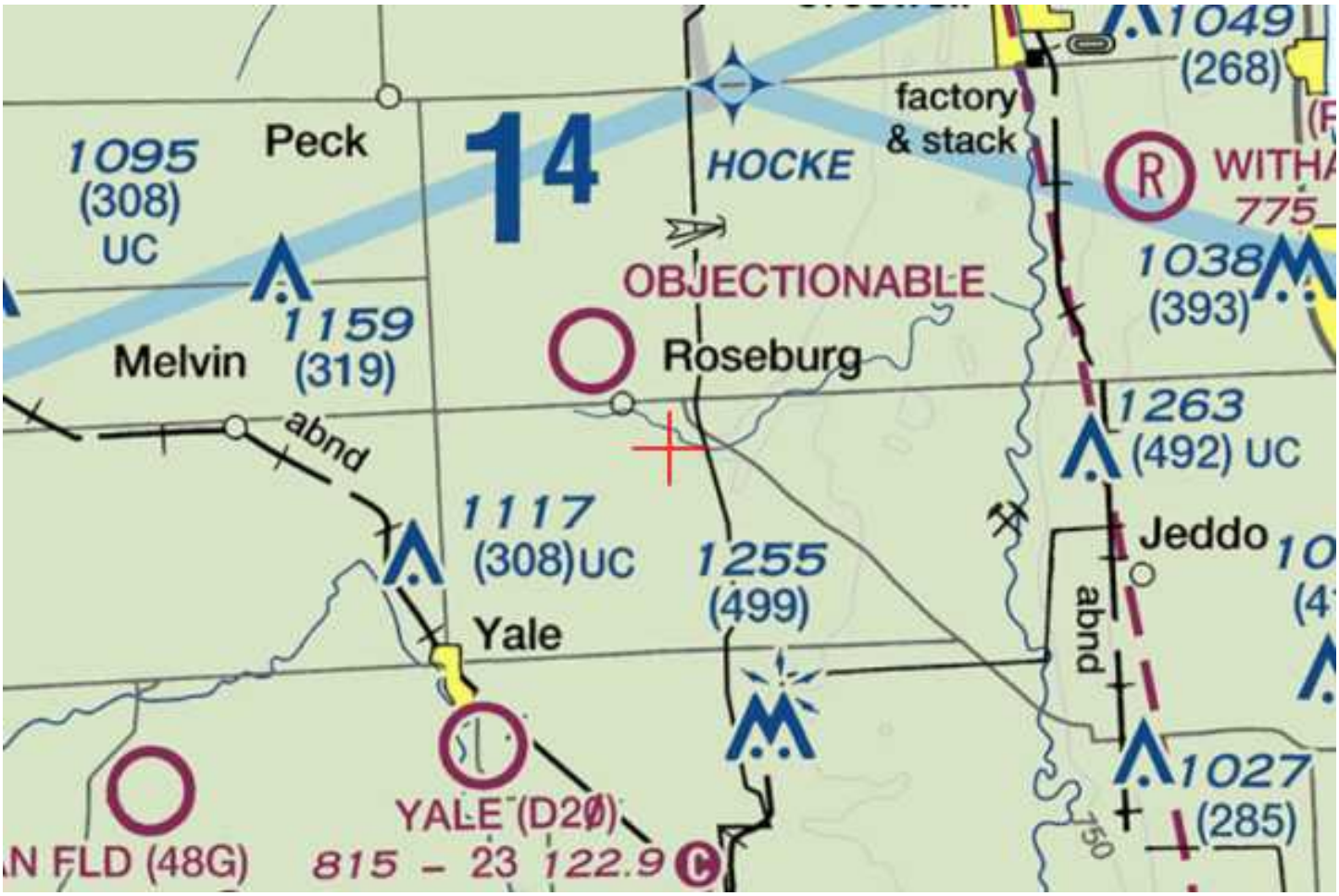
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1243-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1245-OE
Prior Study No.
2022-WTE-1658-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-22
Location:	Peck, MI
Latitude:	43-11-49.72N NAD 83
Longitude:	82-39-12.93W
Heights:	749 feet site elevation (SE) 656 feet above ground level (AGL) 1405 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1405 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1245-OE.

Signature Control No: 577887924-606709157 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
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2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
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2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

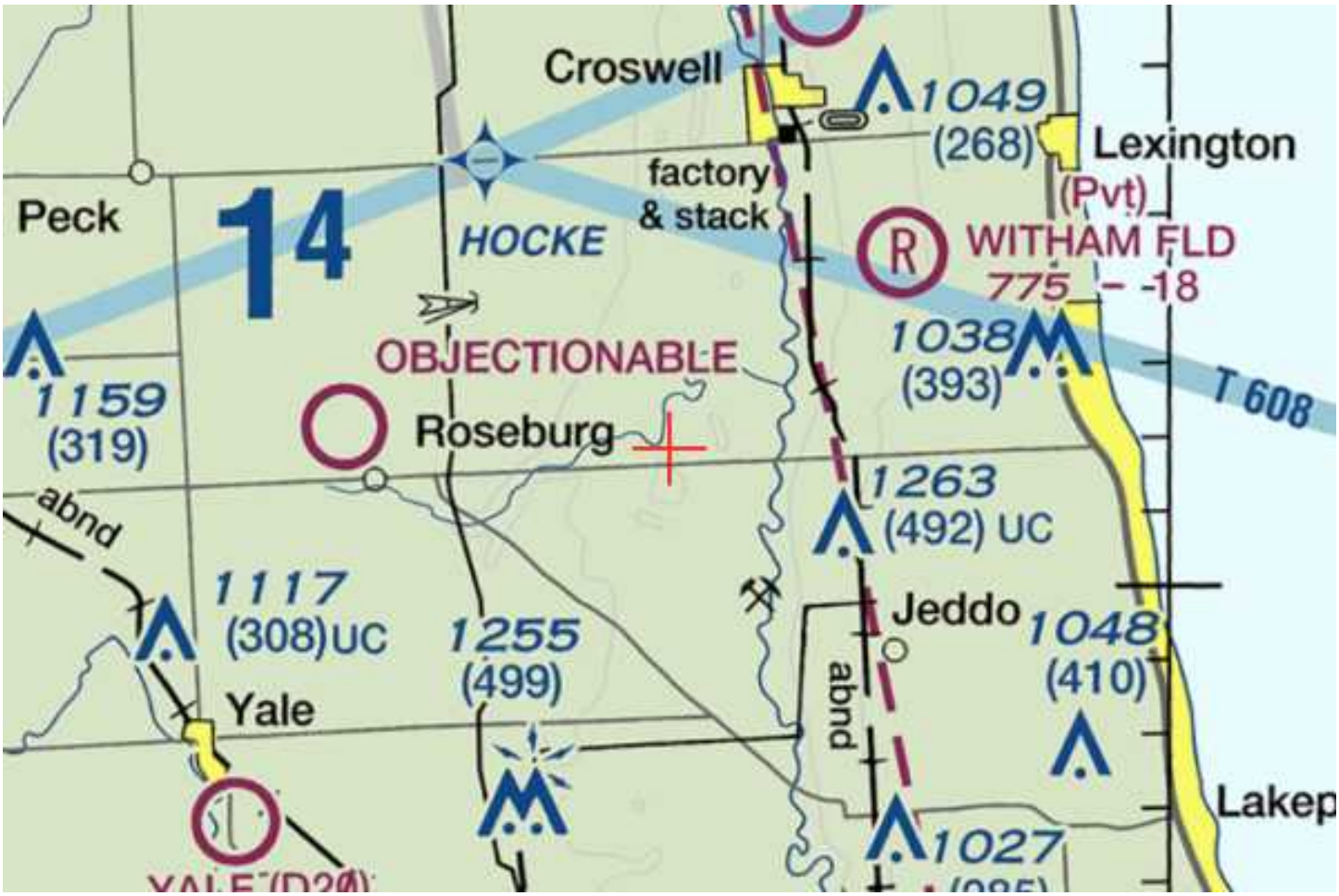
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1245-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1246-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-23
Location:	Peck, MI
Latitude:	43-13-47.80N NAD 83
Longitude:	82-42-45.28W
Heights:	768 feet site elevation (SE)
	656 feet above ground level (AGL)
	1424 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1424 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1246-OE.

Signature Control No: 577887926-606709159 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
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2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
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2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1246-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1248-OE
Prior Study No.
2021-WTE-5515-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-25
Location:	Peck, MI
Latitude:	43-13-53.33N NAD 83
Longitude:	82-39-34.76W
Heights:	747 feet site elevation (SE) 656 feet above ground level (AGL) 1403 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1403 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1248-OE.

Signature Control No: 577887959-606709161 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

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2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

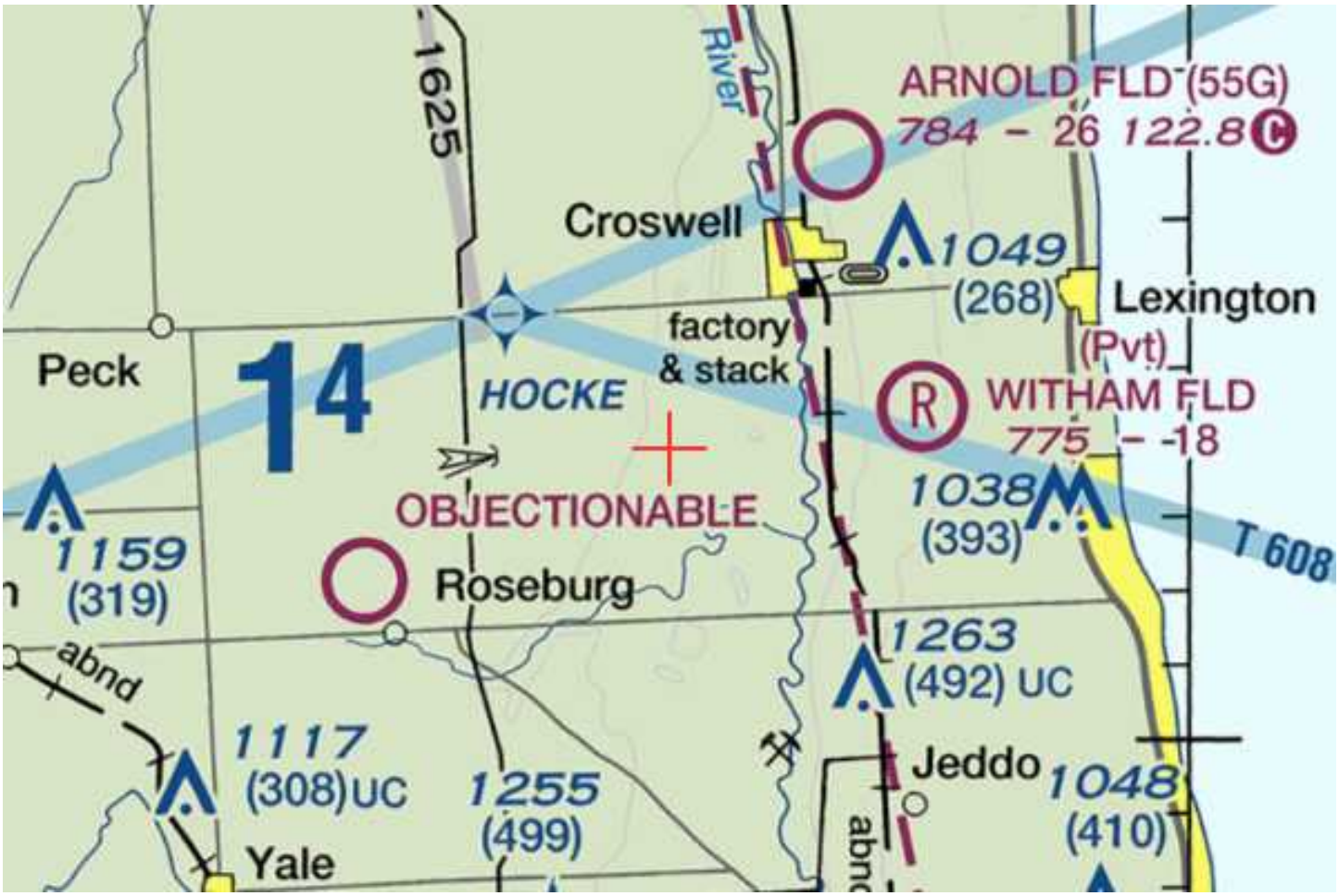
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1248-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1249-OE
Prior Study No.
2021-WTE-5517-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-27
Location:	Peck, MI
Latitude:	43-09-49.80N NAD 83
Longitude:	82-51-26.66W
Heights:	805 feet site elevation (SE)
	656 feet above ground level (AGL)
	1461 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1461 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1249-OE.

Signature Control No: 577887962-606709195 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

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ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
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CARSR, Common Air Route Surveillance Radar
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CG, Climb Gradient
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DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
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IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
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MSA, Minimum Safe Altitude
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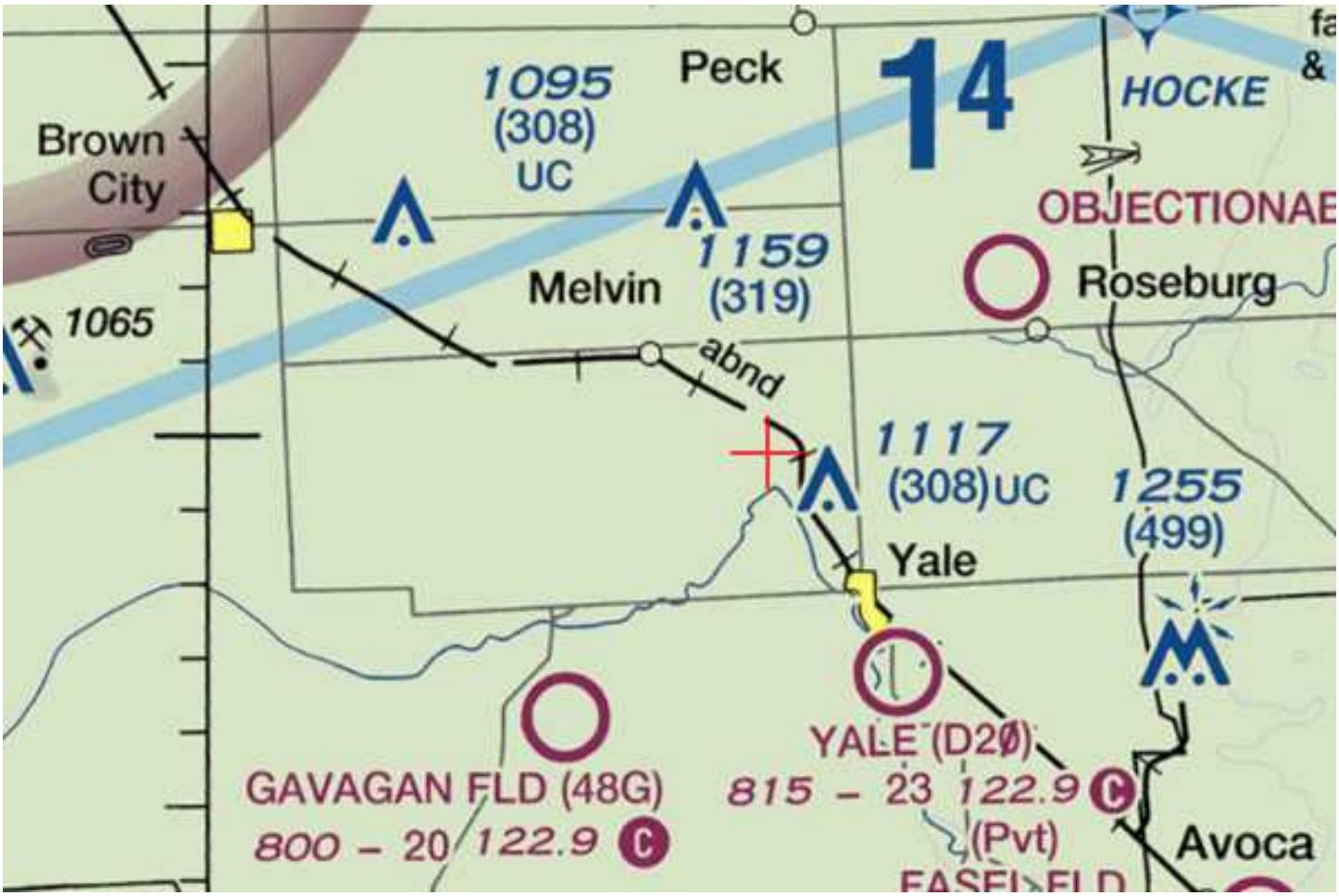
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1249-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1250-OE
Prior Study No.
2022-WTE-1654-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-28
Location:	Peck, MI
Latitude:	43-09-47.06N NAD 83
Longitude:	82-49-38.75W
Heights:	845 feet site elevation (SE)
	656 feet above ground level (AGL)
	1501 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1501 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1250-OE.

Signature Control No: 577887963-606709197 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/ AGL	/ AMSL	/ LAT	/ LONG
2023-WTE-1229-OE	/ 656	/ 1481	/ 43-10-52.93N	/ 82-50-13.18W
2023-WTE-1230-OE	/ 656	/ 1472	/ 43-10-08.21N	/ 82-46-41.48W
2023-WTE-1231-OE	/ 656	/ 1403	/ 43-13-00.50N	/ 82-39-38.47W
2023-WTE-1232-OE	/ 656	/ 1407	/ 43-14-22.90N	/ 82-39-29.62W
2023-WTE-1233-OE	/ 656	/ 1414	/ 43-12-55.98N	/ 82-41-38.99W
2023-WTE-1234-OE	/ 656	/ 1404	/ 43-12-38.39N	/ 82-40-17.23W
2023-WTE-1235-OE	/ 656	/ 1461	/ 43-10-12.01N	/ 82-51-06.52W
2023-WTE-1236-OE	/ 656	/ 1468	/ 43-11-18.18N	/ 82-52-19.58W
2023-WTE-1237-OE	/ 656	/ 1420	/ 43-12-02.92N	/ 82-42-43.67W
2023-WTE-1238-OE	/ 656	/ 1416	/ 43-13-25.05N	/ 82-43-01.97W
2023-WTE-1239-OE	/ 656	/ 1407	/ 43-13-01.34N	/ 82-40-28.95W
2023-WTE-1240-OE	/ 656	/ 1467	/ 43-13-11.53N	/ 82-50-16.19W
2023-WTE-1241-OE	/ 656	/ 1414	/ 43-13-53.00N	/ 82-40-48.78W
2023-WTE-1242-OE	/ 656	/ 1419	/ 43-12-34.82N	/ 82-42-57.23W
2023-WTE-1243-OE	/ 656	/ 1414	/ 43-10-48.19N	/ 82-43-47.41W
2023-WTE-1244-OE	/ 656	/ 1472	/ 43-10-17.65N	/ 82-47-08.65W
2023-WTE-1245-OE	/ 656	/ 1405	/ 43-11-49.72N	/ 82-39-12.93W
2023-WTE-1246-OE	/ 656	/ 1424	/ 43-13-47.80N	/ 82-42-45.28W
2023-WTE-1247-OE	/ 656	/ 1435	/ 43-14-25.16N	/ 82-50-59.33W
2023-WTE-1248-OE	/ 656	/ 1403	/ 43-13-53.33N	/ 82-39-34.76W
2023-WTE-1249-OE	/ 656	/ 1461	/ 43-09-49.80N	/ 82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

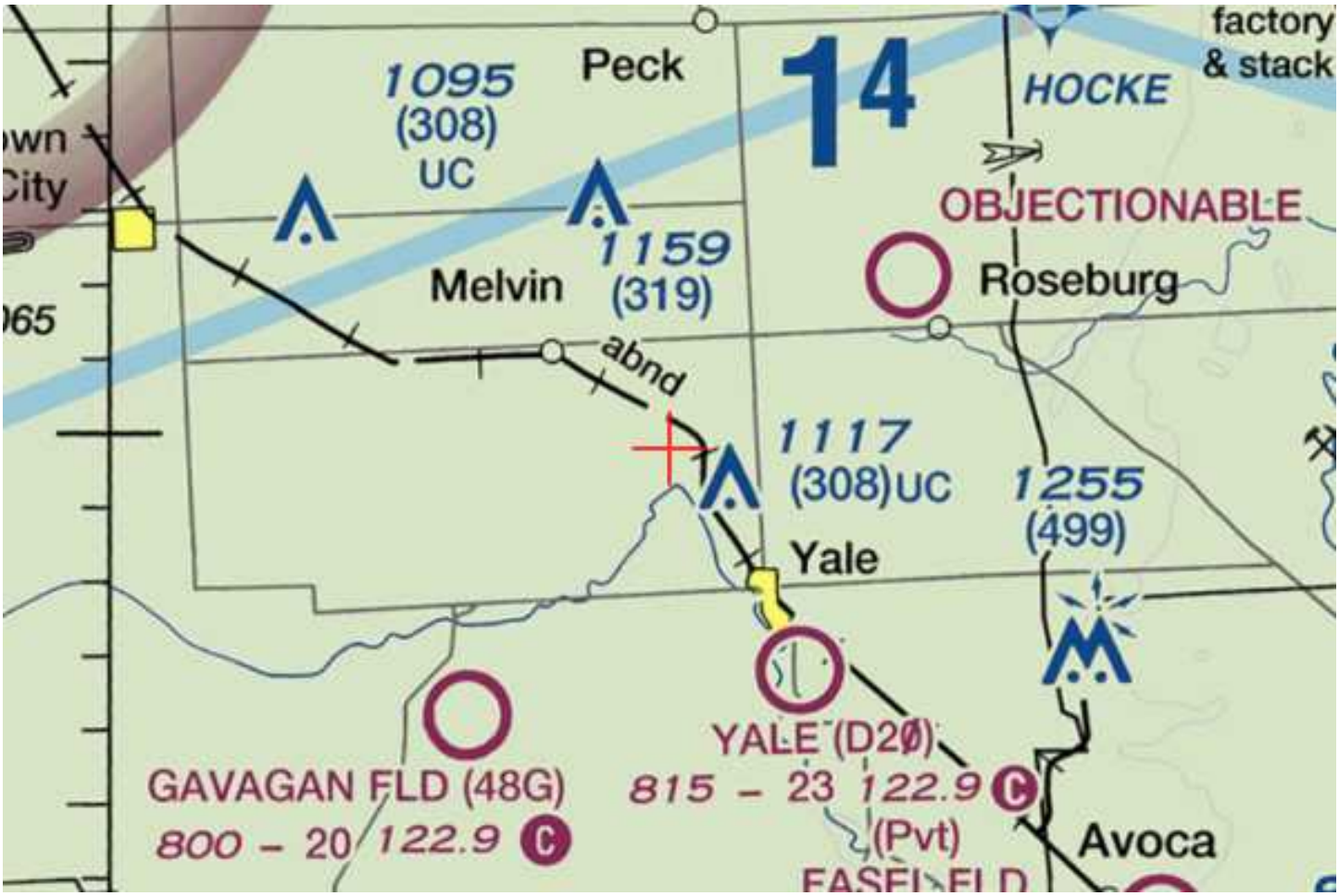
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1250-OE



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Aeronautical Study No.
2023-WTE-1251-OE
Prior Study No.
2021-WTE-5519-OE

Issued Date: 12/08/2023

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

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

Structure:	Wind Turbine OPB-29
Location:	Peck, MI
Latitude:	43-09-50.85N NAD 83
Longitude:	82-45-51.13W
Heights:	786 feet site elevation (SE)
	656 feet above ground level (AGL)
	1442 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1442 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1251-OE.

Signature Control No: 577887966-606709203 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

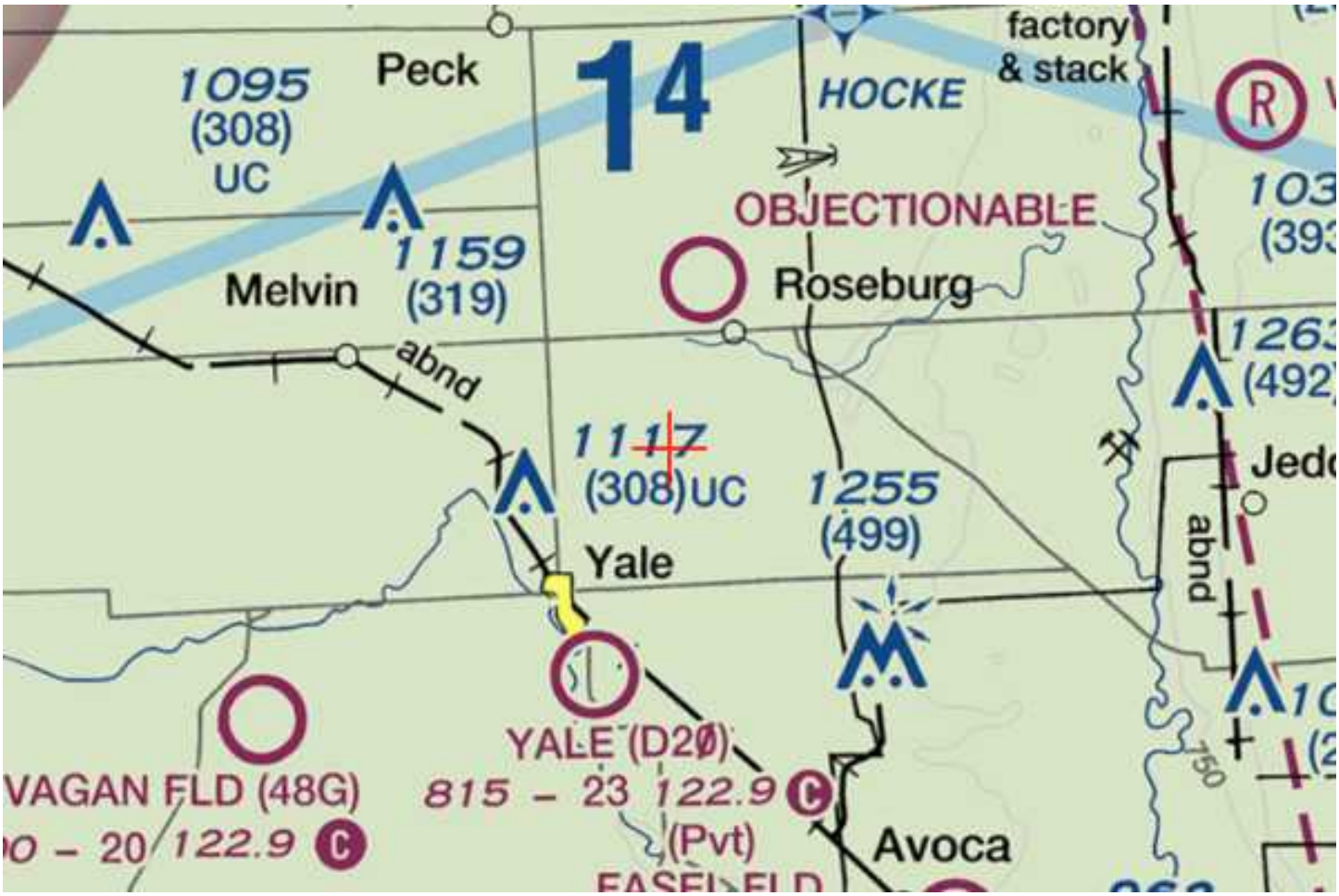
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1251-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1253-OE
Prior Study No.
2021-WTE-5522-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-32
Location:	Peck, MI
Latitude:	43-14-19.52N NAD 83
Longitude:	82-48-07.22W
Heights:	798 feet site elevation (SE)
	656 feet above ground level (AGL)
	1454 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1454 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1253-OE.

Signature Control No: 577887971-606709214 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
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2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
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2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

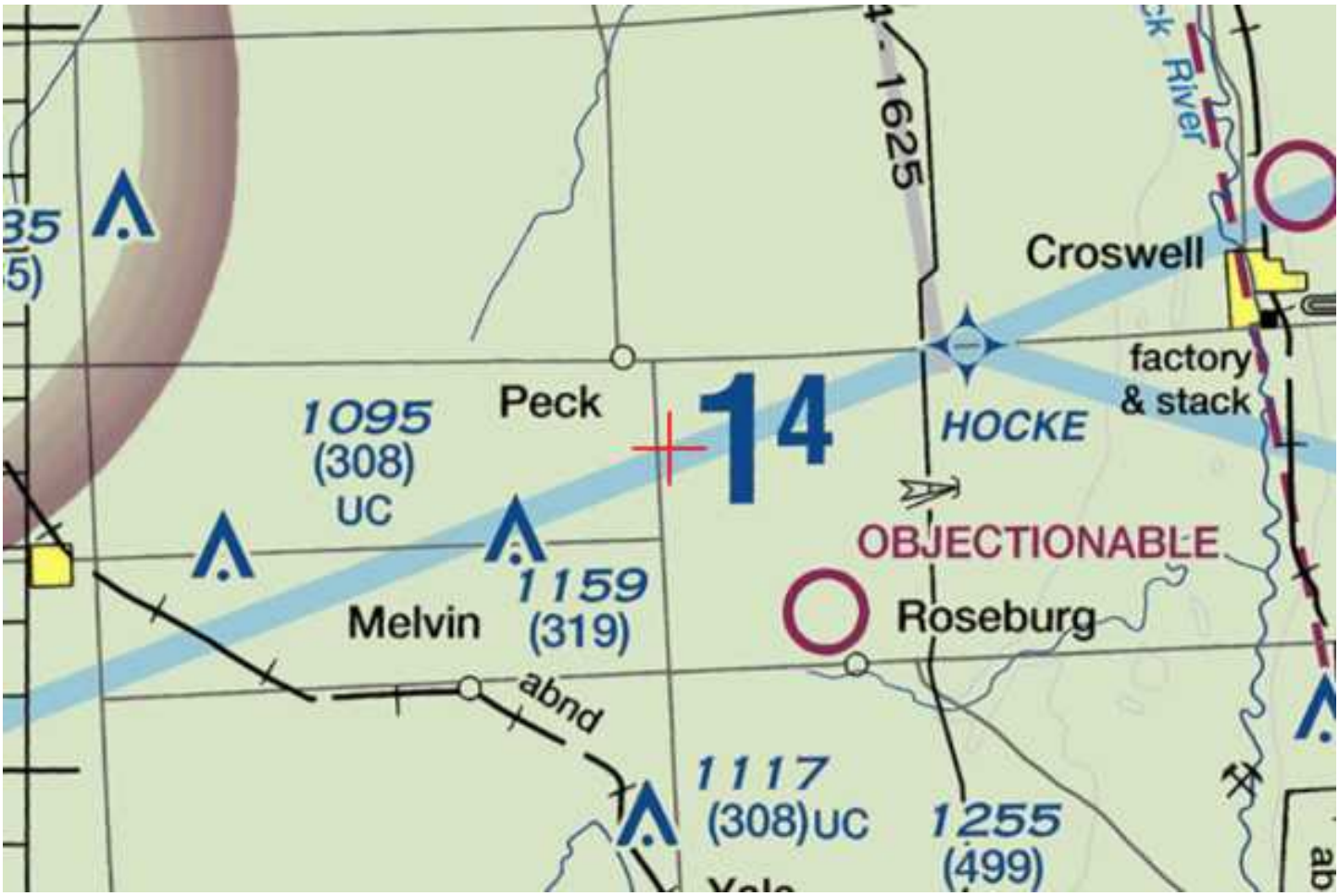
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1253-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1255-OE
Prior Study No.
2021-WTE-5524-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-34
Location:	Peck, MI
Latitude:	43-13-15.99N NAD 83
Longitude:	82-48-35.13W
Heights:	806 feet site elevation (SE)
	656 feet above ground level (AGL)
	1462 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1462 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1255-OE.

Signature Control No: 577887974-606709215 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
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2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

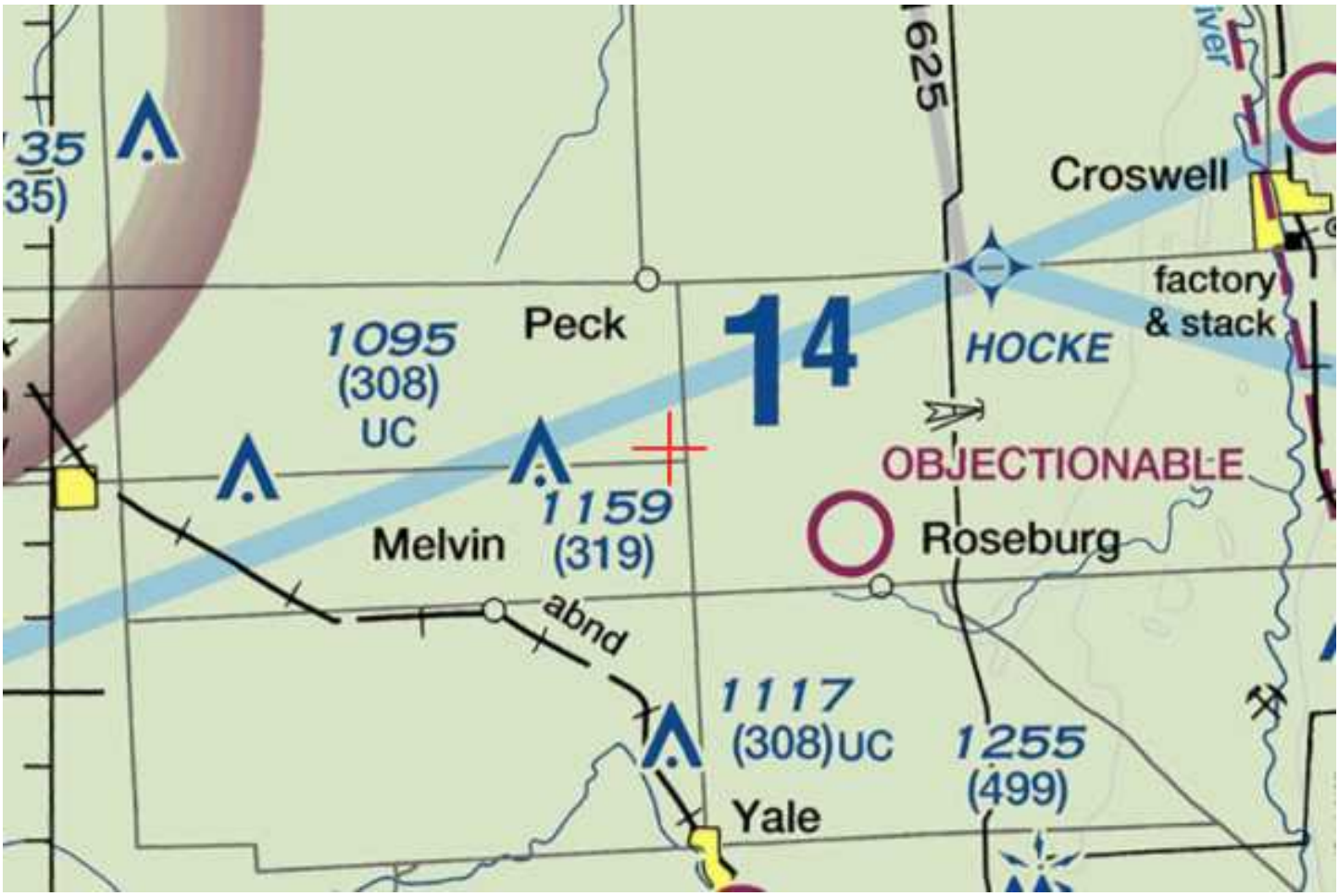
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1255-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1256-OE
Prior Study No.
2022-WTE-1655-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-35
Location:	Peck, MI
Latitude:	43-12-35.11N NAD 83
Longitude:	82-41-40.89W
Heights:	758 feet site elevation (SE)
	656 feet above ground level (AGL)
	1414 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1414 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1256-OE.

Signature Control No: 577887975-606709216 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
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a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
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2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1256-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1258-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-38
Location:	Peck, MI
Latitude:	43-09-59.48N NAD 83
Longitude:	82-46-16.74W
Heights:	794 feet site elevation (SE)
	656 feet above ground level (AGL)
	1450 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1450 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1258-OE.

Signature Control No: 577887979-606709222 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

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2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

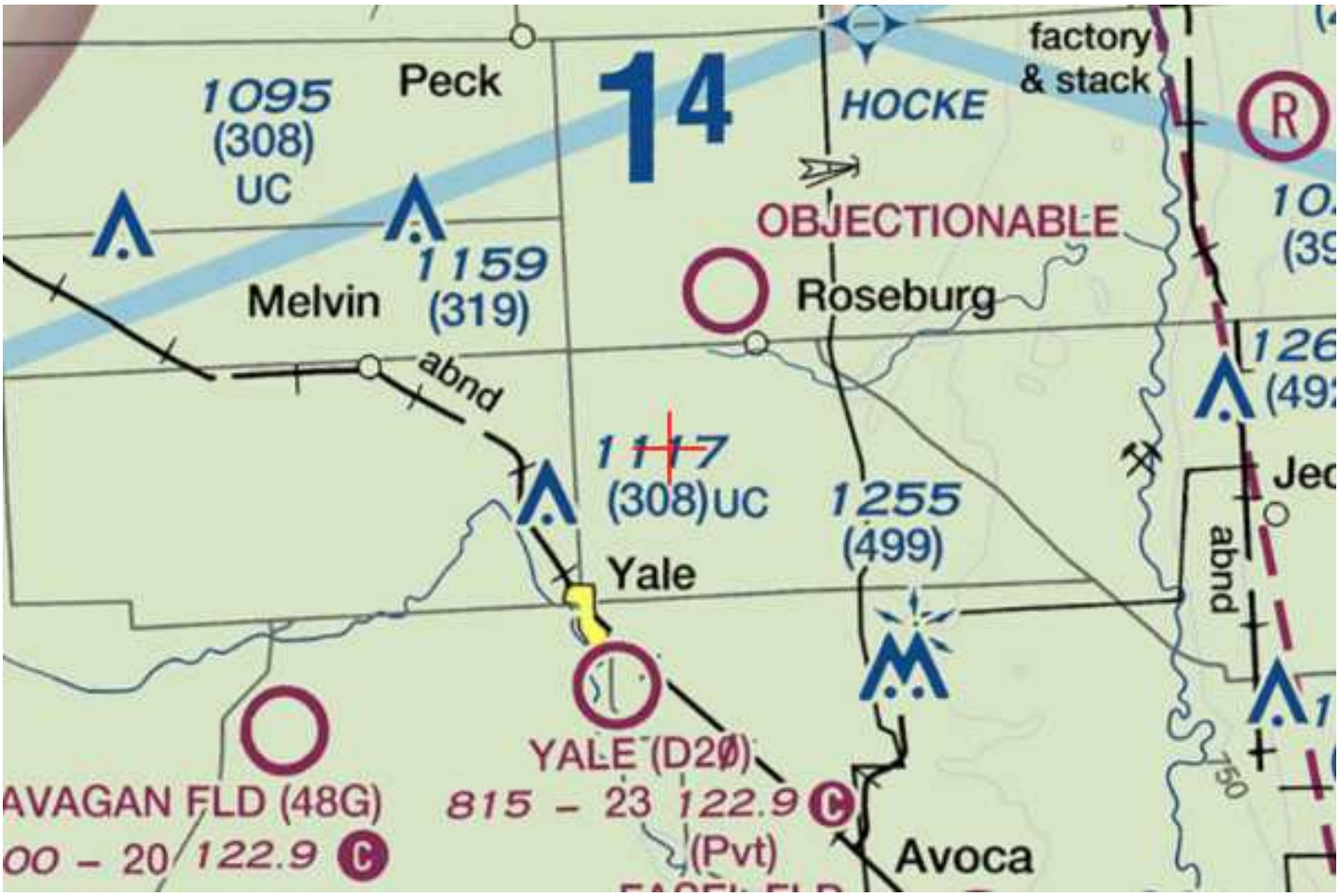
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1258-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1261-OE
Prior Study No.
2021-WTE-5531-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-41
Location:	Peck, MI
Latitude:	43-09-59.84N NAD 83
Longitude:	82-50-42.95W
Heights:	804 feet site elevation (SE)
	656 feet above ground level (AGL)
	1460 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1460 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1261-OE.

Signature Control No: 577887982-606709227 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/ AGL	/ AMSL	/ LAT	/ LONG
2023-WTE-1229-OE	/ 656	/ 1481	/ 43-10-52.93N	/ 82-50-13.18W
2023-WTE-1230-OE	/ 656	/ 1472	/ 43-10-08.21N	/ 82-46-41.48W
2023-WTE-1231-OE	/ 656	/ 1403	/ 43-13-00.50N	/ 82-39-38.47W
2023-WTE-1232-OE	/ 656	/ 1407	/ 43-14-22.90N	/ 82-39-29.62W
2023-WTE-1233-OE	/ 656	/ 1414	/ 43-12-55.98N	/ 82-41-38.99W
2023-WTE-1234-OE	/ 656	/ 1404	/ 43-12-38.39N	/ 82-40-17.23W
2023-WTE-1235-OE	/ 656	/ 1461	/ 43-10-12.01N	/ 82-51-06.52W
2023-WTE-1236-OE	/ 656	/ 1468	/ 43-11-18.18N	/ 82-52-19.58W
2023-WTE-1237-OE	/ 656	/ 1420	/ 43-12-02.92N	/ 82-42-43.67W
2023-WTE-1238-OE	/ 656	/ 1416	/ 43-13-25.05N	/ 82-43-01.97W
2023-WTE-1239-OE	/ 656	/ 1407	/ 43-13-01.34N	/ 82-40-28.95W
2023-WTE-1240-OE	/ 656	/ 1467	/ 43-13-11.53N	/ 82-50-16.19W
2023-WTE-1241-OE	/ 656	/ 1414	/ 43-13-53.00N	/ 82-40-48.78W
2023-WTE-1242-OE	/ 656	/ 1419	/ 43-12-34.82N	/ 82-42-57.23W
2023-WTE-1243-OE	/ 656	/ 1414	/ 43-10-48.19N	/ 82-43-47.41W
2023-WTE-1244-OE	/ 656	/ 1472	/ 43-10-17.65N	/ 82-47-08.65W
2023-WTE-1245-OE	/ 656	/ 1405	/ 43-11-49.72N	/ 82-39-12.93W
2023-WTE-1246-OE	/ 656	/ 1424	/ 43-13-47.80N	/ 82-42-45.28W
2023-WTE-1247-OE	/ 656	/ 1435	/ 43-14-25.16N	/ 82-50-59.33W
2023-WTE-1248-OE	/ 656	/ 1403	/ 43-13-53.33N	/ 82-39-34.76W
2023-WTE-1249-OE	/ 656	/ 1461	/ 43-09-49.80N	/ 82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

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AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
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IAP, Instrument Approach Procedure
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LAT, Latitude
LNAV, Lateral Navigation
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LP, Localizer Performance
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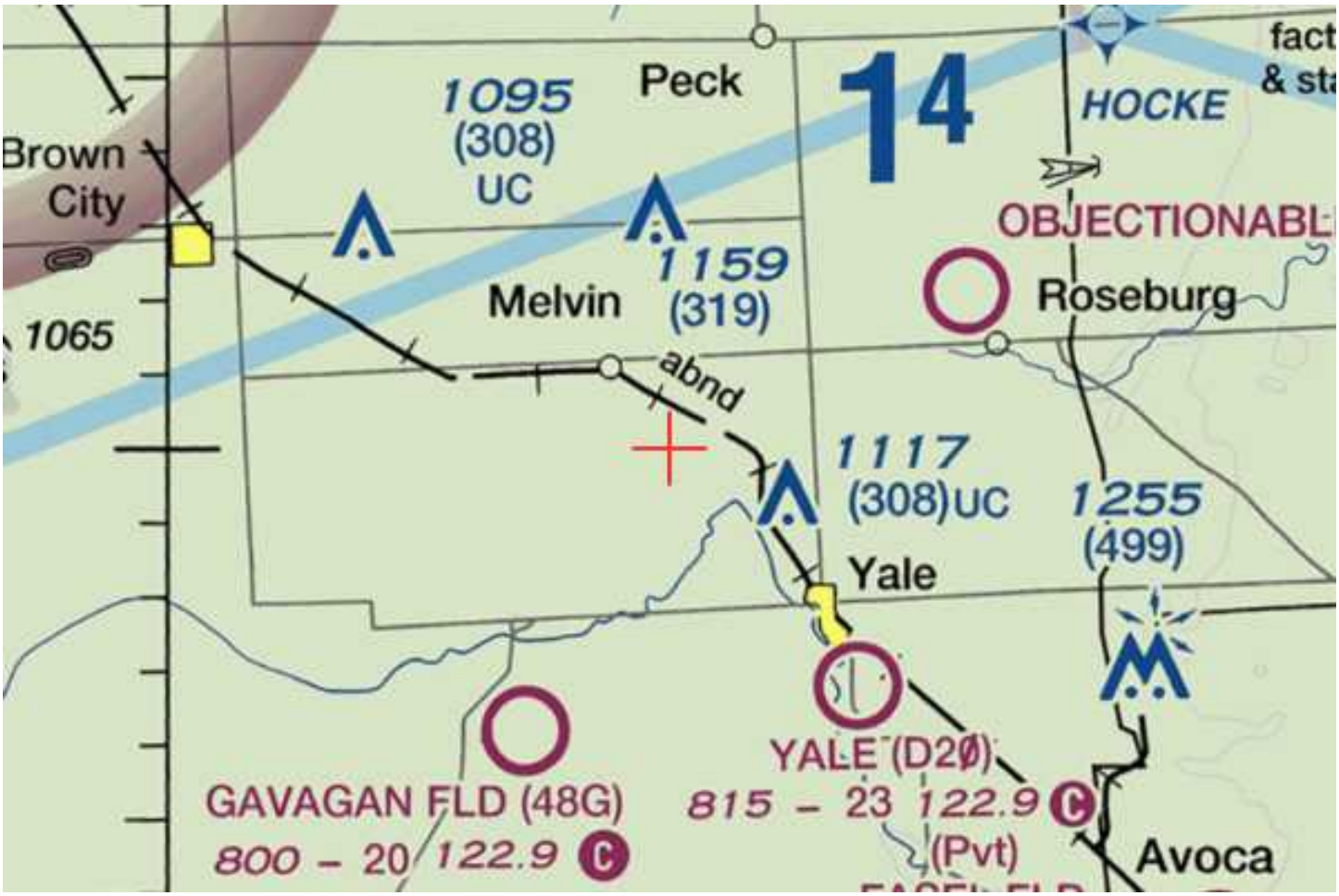
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1261-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1262-OE
Prior Study No.
2022-WTE-1659-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-42
Location:	Peck, MI
Latitude:	43-12-09.39N NAD 83
Longitude:	82-40-35.33W
Heights:	748 feet site elevation (SE)
	656 feet above ground level (AGL)
	1404 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1404 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1262-OE.

Signature Control No: 577887983-606709230 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

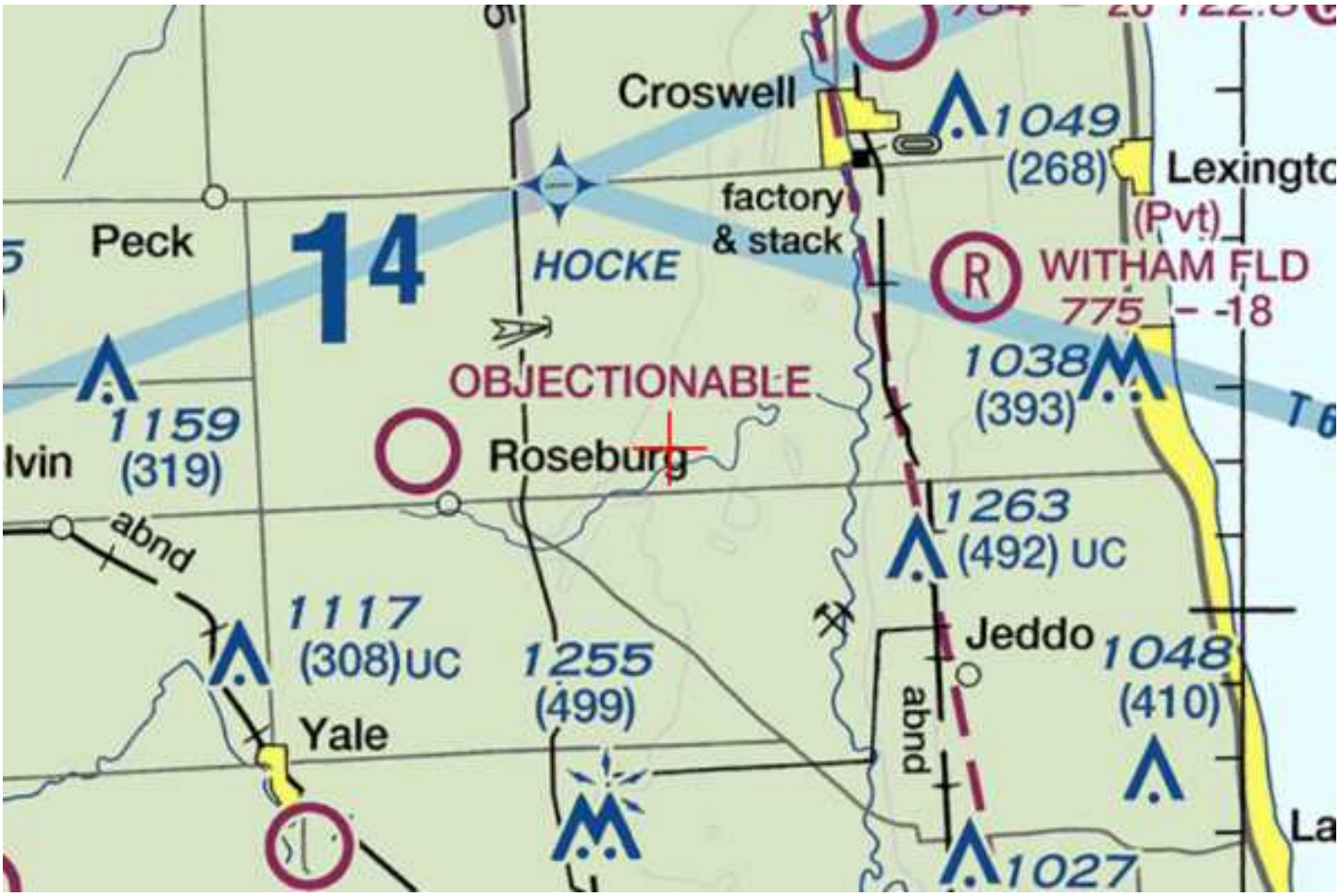
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1262-OE



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Aeronautical Study No.
2023-WTE-1263-OE
Prior Study No.
2021-WTE-5533-OE

Issued Date: 12/08/2023

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

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

Structure:	Wind Turbine OPB-43
Location:	Peck, MI
Latitude:	43-14-40.99N NAD 83
Longitude:	82-39-38.89W
Heights:	753 feet site elevation (SE)
	656 feet above ground level (AGL)
	1409 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1409 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1263-OE.

Signature Control No: 577887984-606709231 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

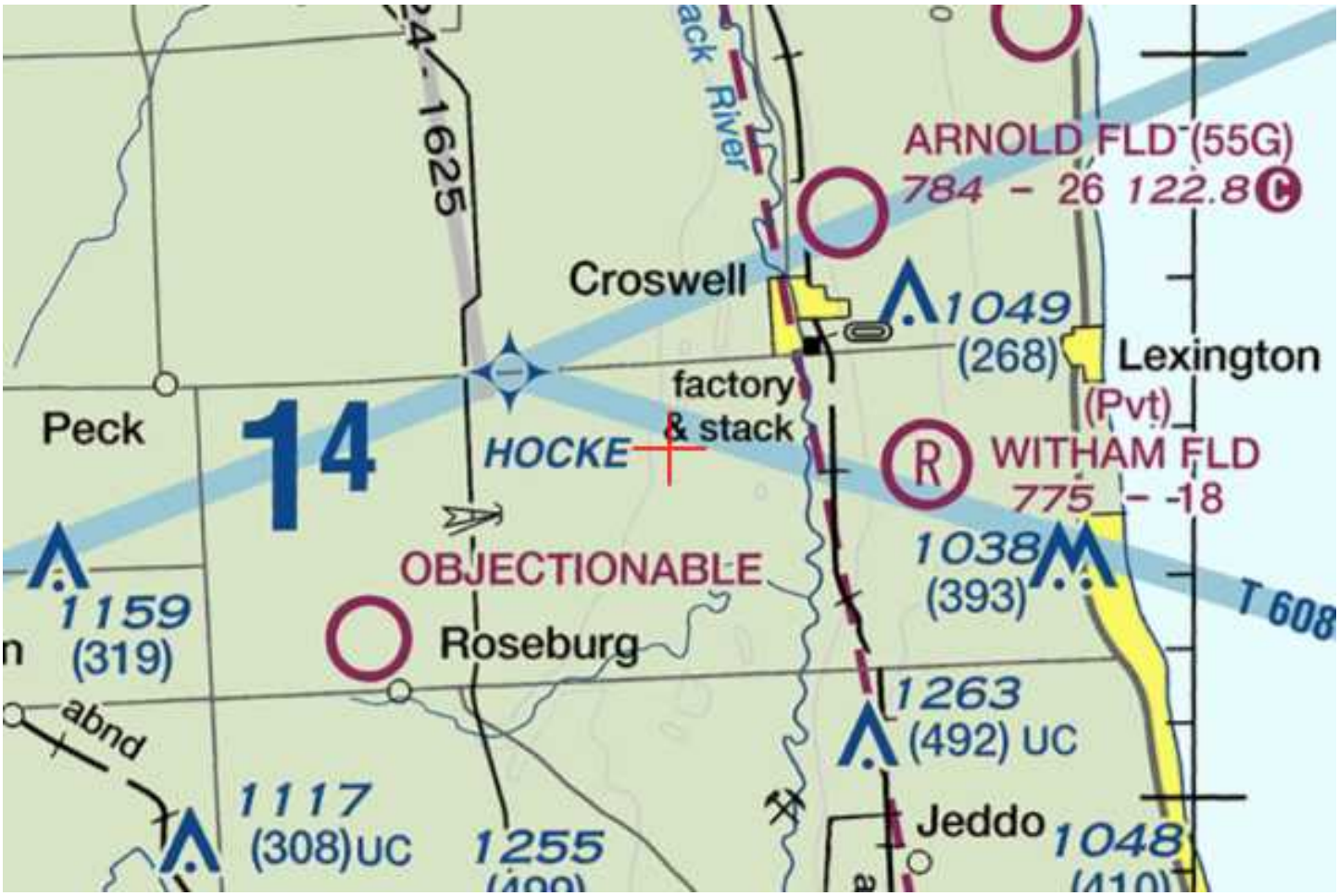
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1263-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1264-OE
Prior Study No.
2021-WTE-5534-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-44
Location:	Peck, MI
Latitude:	43-14-32.89N NAD 83
Longitude:	82-40-25.40W
Heights:	762 feet site elevation (SE)
	656 feet above ground level (AGL)
	1418 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1418 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1264-OE.

Signature Control No: 577887987-606709232 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

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1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
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2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

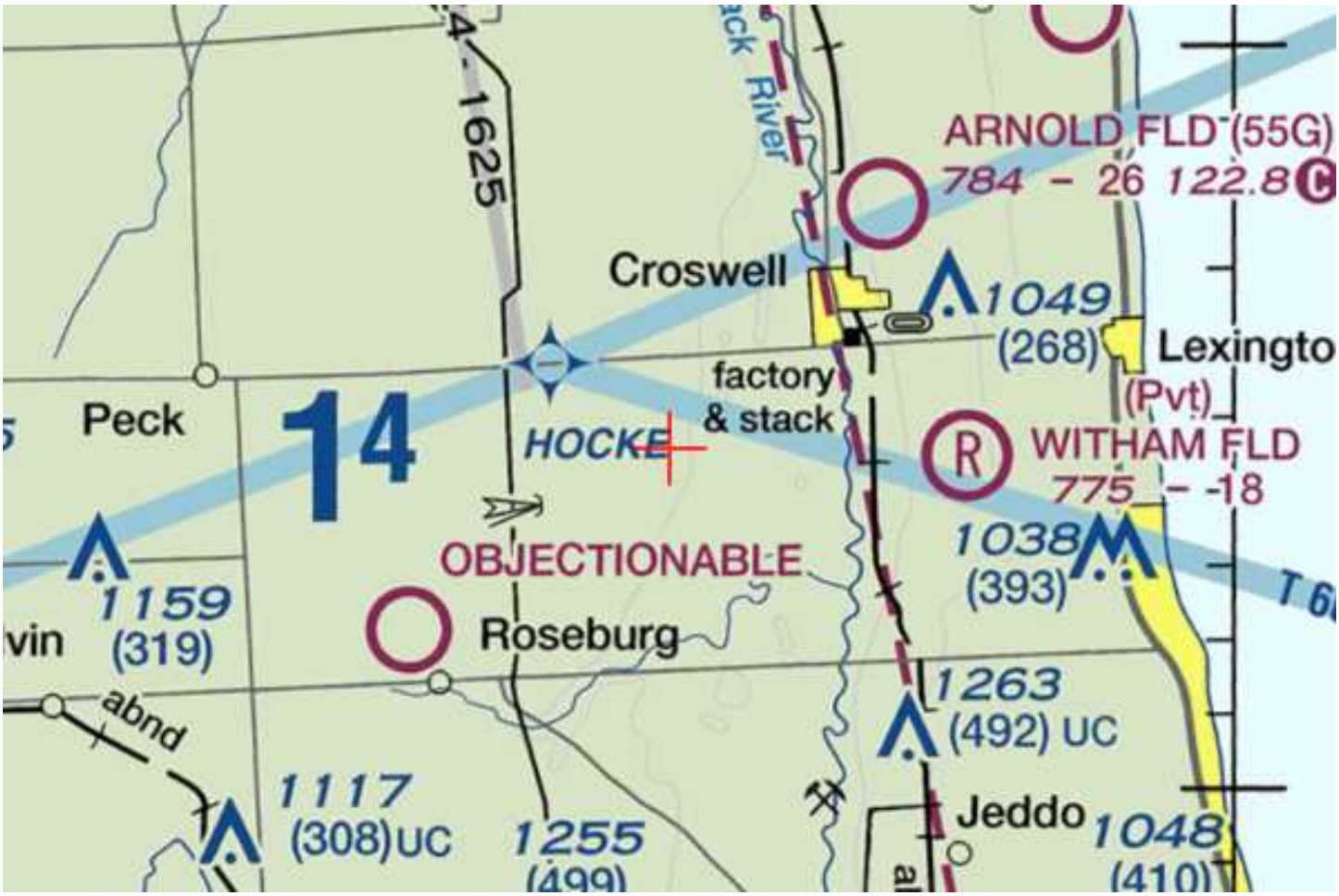
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1264-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1265-OE
Prior Study No.
2021-WTE-5535-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-45
Location:	Peck, MI
Latitude:	43-13-35.42N NAD 83
Longitude:	82-39-08.78W
Heights:	745 feet site elevation (SE)
	656 feet above ground level (AGL)
	1401 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1401 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1265-OE.

Signature Control No: 577887988-606709235 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

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2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
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2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
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2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

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3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

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4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

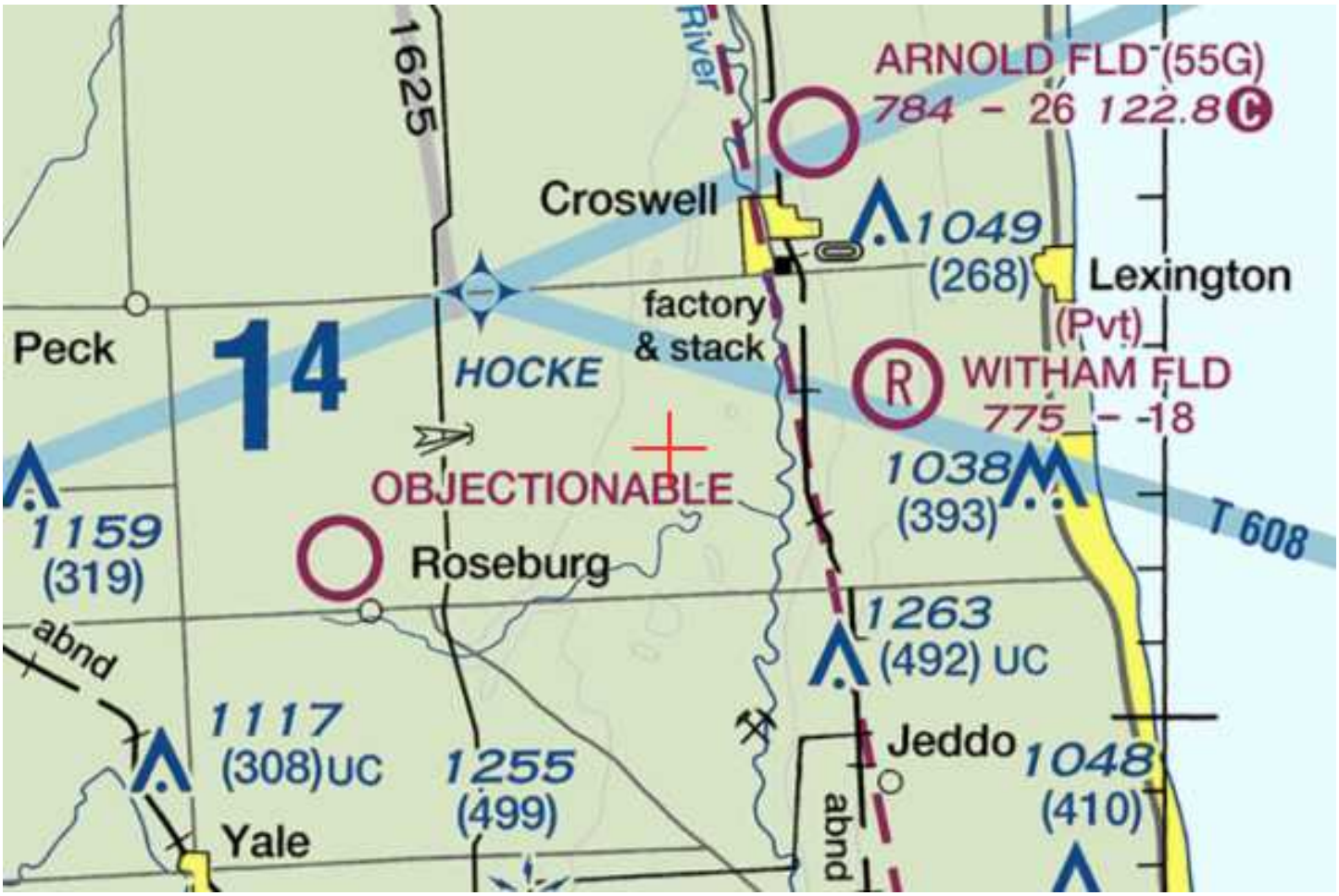
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1265-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1266-OE
Prior Study No.
2021-WTE-5538-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-48
Location:	Peck, MI
Latitude:	43-10-32.98N NAD 83
Longitude:	82-50-04.63W
Heights:	821 feet site elevation (SE)
	656 feet above ground level (AGL)
	1477 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1477 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1266-OE.

Signature Control No: 577887989-606709236 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
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2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
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2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
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2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
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a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1266-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1268-OE
Prior Study No.
2021-WTE-5495-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-5
Location:	Peck, MI
Latitude:	43-13-28.47N NAD 83
Longitude:	82-41-36.25W
Heights:	764 feet site elevation (SE)
	656 feet above ground level (AGL)
	1420 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1420 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1268-OE.

Signature Control No: 577887991-606709252 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

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2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1268-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1269-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Wind Turbine OPB-6
Location:	Peck, MI
Latitude:	43-12-28.54N NAD 83
Longitude:	82-52-26.97W
Heights:	798 feet site elevation (SE)
	656 feet above ground level (AGL)
	1454 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1454 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1269-OE.

Signature Control No: 577887992-606709254 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

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ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
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MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
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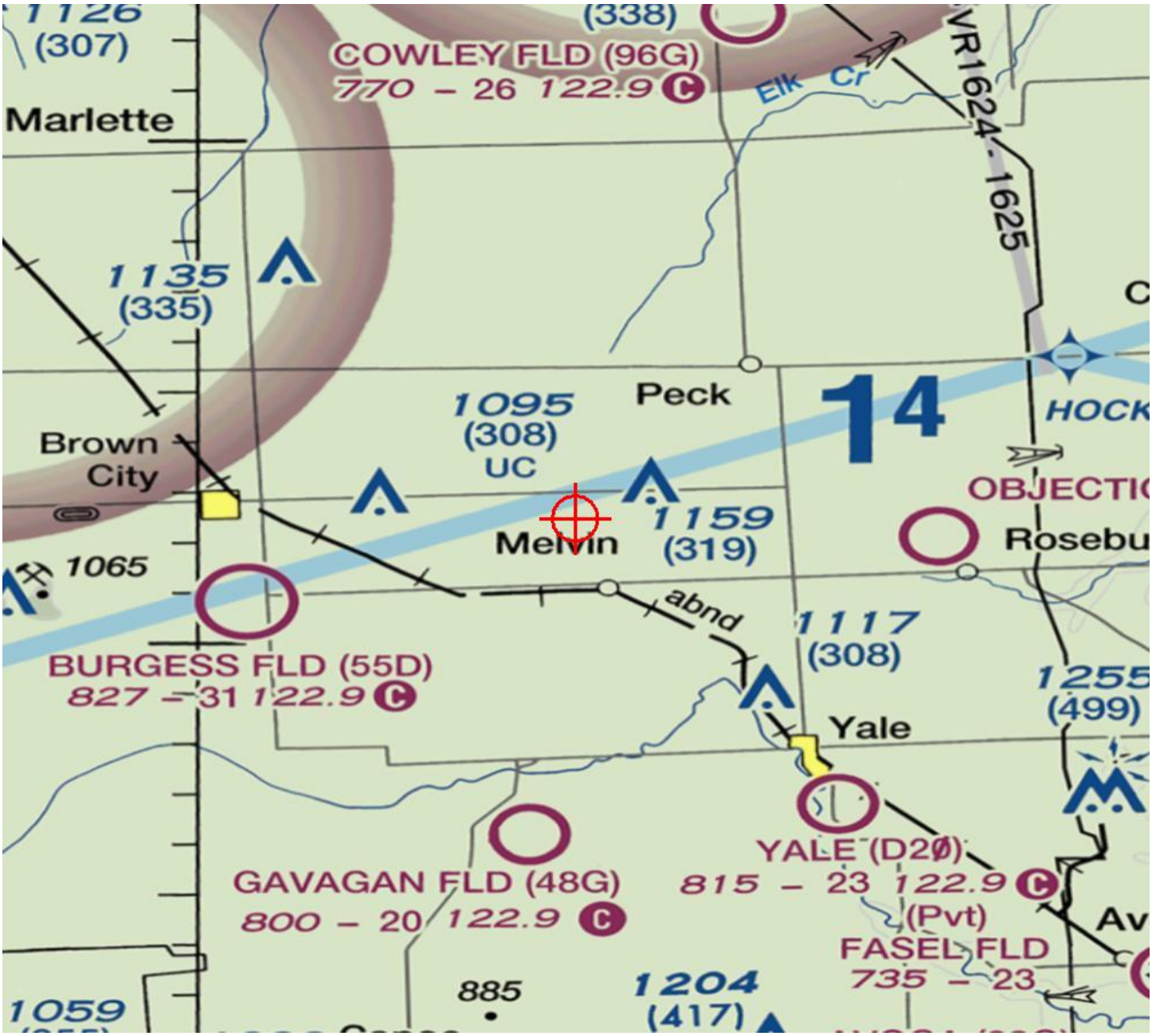
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1269-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1270-OE
Prior Study No.
2021-WTE-5497-OE

Issued Date: 12/08/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

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

Structure:	Wind Turbine OPB-7
Location:	Peck, MI
Latitude:	43-09-44.49N NAD 83
Longitude:	82-52-02.02W
Heights:	809 feet site elevation (SE)
	656 feet above ground level (AGL)
	1465 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1465 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1270-OE.

Signature Control No: 577887993-606709270 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

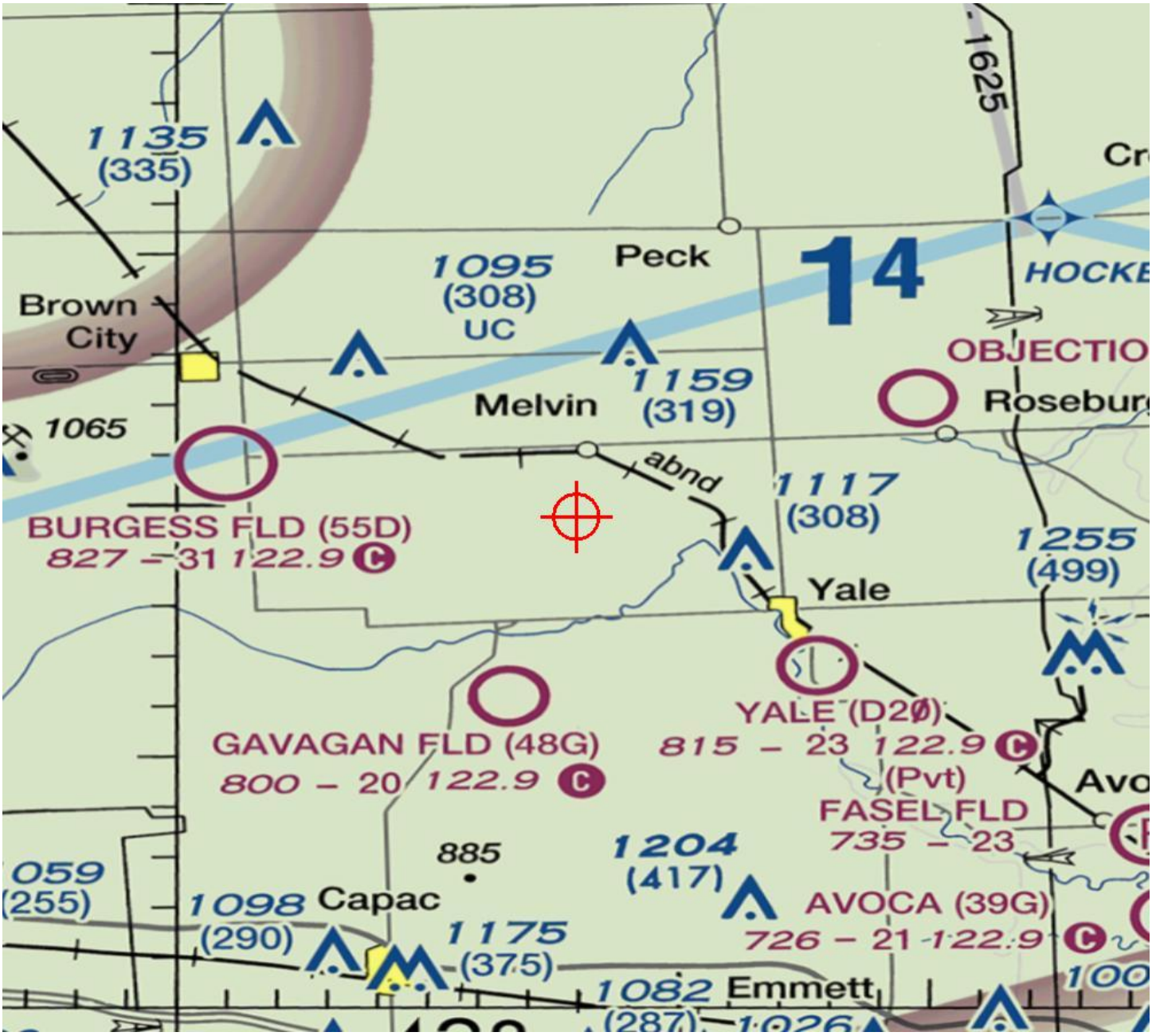
****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1270-OE



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Aeronautical Study No.
2023-WTE-1271-OE

Issued Date: 12/08/2023

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354 Davis Rd
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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

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

Structure:	Wind Turbine OPB-9
Location:	Peck, MI
Latitude:	43-13-10.61N NAD 83
Longitude:	82-52-08.79W
Heights:	796 feet site elevation (SE)
	656 feet above ground level (AGL)
	1452 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/synchronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 60 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 656 feet above ground level (1452 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 06/08/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 07, 2024. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager, Rules and Regulations Group via email at OEPetitions@faa.gov, or via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW., Washington, DC 20591. FAA encourages the use of email to ensure timely processing.

This determination becomes final on January 17, 2024 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. Any questions regarding your petition, contact Rules and Regulations Group via telephone (202) 267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to

contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact Lan Norris, at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1271-OE.

Signature Control No: 577887994-606709273 (DNH -WT)
David Maddox
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

All FAA determinations and circularized cases are public record and available at the FAA's public website; https://oeaaa.faa.gov. The distribution for proposals circularized for public comments includes all "known" aviation interested persons and those who do not have an aeronautical interest but may become involved with specific aeronautical studies. Notification includes both postcard mailers and email notifications to those with registered FAA accounts. The FAA does not have a database for all persons with an aeronautical and non-aeronautical interest. Therefore, the public is encouraged to re-distribute and forward notices of circularized cases to the maximum extent possible. Additionally, it is incumbent upon local state, county and city officials to share notice of circularized cases with their concerned citizens.

A list of commonly used acronyms and abbreviations is available at the end of this document. A full list is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

1. PROPOSAL DESCRIPTION

Re-filed are 43 proposed wind turbines as a part of a previously studied and determined wind farm proposal filed under 61 Aeronautical Study Numbers (ASN) 2021-WTE-5491-OE through 2021-WTE-5540-OE and 2022-WTE-1652-OE through 2022-WTE-1662-OE. The proposed wind farm would be located approximately 11 nautical miles (NM) to 21 NM southeast of the airport reference point for Marlette Township Airport (77G) Marlette, MI.

For the sake of efficiency, all proposed wind turbines in this project have similar impacts are included in this narrative. The proposed wind turbines' described heights and locations are expressed in Above Ground Level (AGL) height, Above Mean Sea Level (AMSL) height and latitude (LAT)/longitude (LONG).

ASN	/	AGL	/	AMSL	/	LAT	/	LONG
2023-WTE-1229-OE	/	656	/	1481	/	43-10-52.93N	/	82-50-13.18W
2023-WTE-1230-OE	/	656	/	1472	/	43-10-08.21N	/	82-46-41.48W
2023-WTE-1231-OE	/	656	/	1403	/	43-13-00.50N	/	82-39-38.47W
2023-WTE-1232-OE	/	656	/	1407	/	43-14-22.90N	/	82-39-29.62W
2023-WTE-1233-OE	/	656	/	1414	/	43-12-55.98N	/	82-41-38.99W
2023-WTE-1234-OE	/	656	/	1404	/	43-12-38.39N	/	82-40-17.23W
2023-WTE-1235-OE	/	656	/	1461	/	43-10-12.01N	/	82-51-06.52W
2023-WTE-1236-OE	/	656	/	1468	/	43-11-18.18N	/	82-52-19.58W
2023-WTE-1237-OE	/	656	/	1420	/	43-12-02.92N	/	82-42-43.67W
2023-WTE-1238-OE	/	656	/	1416	/	43-13-25.05N	/	82-43-01.97W
2023-WTE-1239-OE	/	656	/	1407	/	43-13-01.34N	/	82-40-28.95W
2023-WTE-1240-OE	/	656	/	1467	/	43-13-11.53N	/	82-50-16.19W
2023-WTE-1241-OE	/	656	/	1414	/	43-13-53.00N	/	82-40-48.78W
2023-WTE-1242-OE	/	656	/	1419	/	43-12-34.82N	/	82-42-57.23W
2023-WTE-1243-OE	/	656	/	1414	/	43-10-48.19N	/	82-43-47.41W
2023-WTE-1244-OE	/	656	/	1472	/	43-10-17.65N	/	82-47-08.65W
2023-WTE-1245-OE	/	656	/	1405	/	43-11-49.72N	/	82-39-12.93W
2023-WTE-1246-OE	/	656	/	1424	/	43-13-47.80N	/	82-42-45.28W
2023-WTE-1247-OE	/	656	/	1435	/	43-14-25.16N	/	82-50-59.33W
2023-WTE-1248-OE	/	656	/	1403	/	43-13-53.33N	/	82-39-34.76W
2023-WTE-1249-OE	/	656	/	1461	/	43-09-49.80N	/	82-51-26.66W

2023-WTE-1250-OE	/	656	/	1501	/	43-09-47.06N	/	82-49-38.75W
2023-WTE-1251-OE	/	656	/	1442	/	43-09-50.85N	/	82-45-51.13W
2023-WTE-1252-OE	/	656	/	1428	/	43-14-20.42N	/	82-46-17.42W
2023-WTE-1253-OE	/	656	/	1454	/	43-14-19.52N	/	82-48-07.22W
2023-WTE-1254-OE	/	656	/	1459	/	43-13-16.31N	/	82-49-40.65W
2023-WTE-1255-OE	/	656	/	1462	/	43-13-15.99N	/	82-48-35.13W
2023-WTE-1256-OE	/	656	/	1414	/	43-12-35.11N	/	82-41-40.89W
2023-WTE-1257-OE	/	656	/	1473	/	43-10-35.35N	/	82-47-24.57W
2023-WTE-1258-OE	/	656	/	1450	/	43-09-59.48N	/	82-46-16.74W
2023-WTE-1259-OE	/	656	/	1432	/	43-13-20.62N	/	82-46-06.42W
2023-WTE-1260-OE	/	656	/	1451	/	43-13-28.98N	/	82-50-27.49W
2023-WTE-1261-OE	/	656	/	1460	/	43-09-59.84N	/	82-50-42.95W
2023-WTE-1262-OE	/	656	/	1404	/	43-12-09.39N	/	82-40-35.33W
2023-WTE-1263-OE	/	656	/	1409	/	43-14-40.99N	/	82-39-38.89W
2023-WTE-1264-OE	/	656	/	1418	/	43-14-32.89N	/	82-40-25.40W
2023-WTE-1265-OE	/	656	/	1401	/	43-13-35.42N	/	82-39-08.78W
2023-WTE-1266-OE	/	656	/	1477	/	43-10-32.98N	/	82-50-04.63W
2023-WTE-1267-OE	/	656	/	1477	/	43-10-52.89N	/	82-47-52.46W
2023-WTE-1268-OE	/	656	/	1420	/	43-13-28.47N	/	82-41-36.25W
2023-WTE-1269-OE	/	656	/	1454	/	43-12-28.54N	/	82-52-26.97W
2023-WTE-1270-OE	/	656	/	1465	/	43-09-44.49N	/	82-52-02.02W
2023-WTE-1271-OE	/	656	/	1452	/	43-13-10.61N	/	82-52-08.79W

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

a. Section 77.17(a)(1); exceeds a height of 499 feet AGL at the site of the object. All proposed wind turbines would exceed this standard by 157 feet.

b. Section 77.17(a)(3); a height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria).

Clair County International/Port Huron Airport (PHN) - The proposed wind turbines would increase the Minimum Safe Altitude (MSA) for the NDB RWY 4 approach, 145 radial inbound, clockwise to 285 radial inbound, from 2300 ft. to 2500 ft.

c. Section 77.17(a)(4); a height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

T616 - The following would increase the MOCA from HOCKE to RAKAP from 2100 ft. to 2500 ft.

2023-WTE-1231-OE
2023-WTE-1232-OE
2023-WTE-1233-OE
2023-WTE-1234-OE
2023-WTE-1237-OE
2023-WTE-1238-OE
2023-WTE-1239-OE
2023-WTE-1241-OE

2023-WTE-1242-OE
2023-WTE-1246-OE
2023-WTE-1248-OE
2023-WTE-1252-OE
2023-WTE-1256-OE
2023-WTE-1259-OE
2023-WTE-1262-OE
2023-WTE-1263-OE
2023-WTE-1264-OE
2023-WTE-1265-OE
2023-WTE-1268-OE

Cleveland, Ohio ARTCC (ZOB) - All proposed wind turbines would increase the Minimum IFR Altitude (MIA) for ZOB_TAV_2022, Sector CJOC38 from 2400 ft. to 2500 ft.

d. Section 77.19(b); the conical surface as applied to Para Field (4Y8), Yale, MI. The following would exceed this standard by 317 ft.

2023-WTE-1259-OE

3. TITLE 14 CFR PART 77 - EFFECT ON AERONAUTICAL OPERATIONS

a. Section 77.29 (a)(1); the impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules. At a height greater than 499 feet AGL, the proposed wind farm would extend into airspace normally used for VFR en route flight and may be located within 2 statute miles (SM) of potential VFR Routes as defined by FAA Order 7400.2, Section 6-3-8. The turbines within 2 SM of a VFR Route would have an adverse effect upon VFR air navigation. Further study was required to determine whether the proposed structures would have a substantial adverse effect on VFR operations.

b. Section 77.29 (a)(3); impact on existing and planned public use airports. The following would exceed the Traffic Pattern Airspace (TPA) conical surface as applied to 4Y8 by 317 ft.

2023-WTE-1259-OE

4. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

This proposal was not circularized to the public for comment. In accordance with FAA Order 7400.2, Chapter 6-3-17, paragraph a.2.(b), circularization is not necessary for a structure that would be located on a site in proximity to another previously studied structure, would have no greater effect on aeronautical operations and procedures, and the basis for the determination issued under the previous study could be appropriately applied. The associated wind farm project was previously studied and circularized for public comment under 2021-WTE-5500-OE on 08/03/2022.

5. BASIS FOR DETERMINATION

a. IFR Effects - The aeronautical study identified IFR effects for PHN, T616 and ZOB. Minimum Obstruction Clearance Altitudes (MOCA) assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 NM of the associated VOR navigational facility. For that portion of the route segment beyond 22 NM from the VOR, where the MOCA is lower than the Minimum

Enroute Altitude (MEA) and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Further study found that only the MOCA is effected in the area and there would not be substantial adverse effect on operations for PHN or along T616. Minimum IFR Altitudes (MIA) are solely used by ATC, not published for public use and therefore are not circulated for public comment. A review by the controlling facility determined that increasing the altitude in the sector would ensure the required obstacle clearance is maintained and therefore would not have a substantial adverse effect on air traffic operations for ZOB. The proposed structures would have no effect on any other existing or proposed arrival, departure, or en route IFR operations or procedures.

b. VFR Effects - Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. There would be several proposals within the traffic pattern airspace for 4Y8, turf runway (RWY) 06/24 as applied to approach categories (CAT) A, B, C and D aircraft. Airport records identify RWY 06/24 as a utility runway with visual approach "A(V)" which supports regular and continuous CAT A operations. Additionally, available traffic data and the latest Airport Master Record, FAA Form 5010, did not identify a significant volume of VFR traffic. Therefore, the proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations for 4Y8 or any other known public use or military airports. At 656 ft. AGL, the structures would penetrate altitudes commonly used for en route VFR flight. In coordination with ATC, an analysis of potential VFR Routes and available traffic data indicated that a substantial amount of VFR traffic would not be affected by the proposed wind farm. Therefore, it is determined they will not have a substantial adverse effect on en route VFR flight operations.

c. NAVAIDs/Radar Effects - The aeronautical study identified no effect on ATC radar, direction finders, ATC tower line-of-sight visibility, air navigation, communication facilities, and other surveillance systems for any known public-use or military airports.

d. Cumulative Effect - The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any substantial adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

e. Military Airspace - The aeronautical study included a review by the Army, Navy, Air Force, Department of Defense (DOD) and Department of Homeland Security (DHS). In accordance with JO 7400.2, Par. 6-3-6-f., military personnel are responsible for evaluating the effect on airspace and routes used by the military. The DOD and Air Force identified the proposals as being located within the confines or near a military training route or military training area. All structures must be constructed within the terms of the Mitigation Agreement on file with the Military Aviation and Installation Assurance Siting Clearinghouse.

6. DETERMINATION

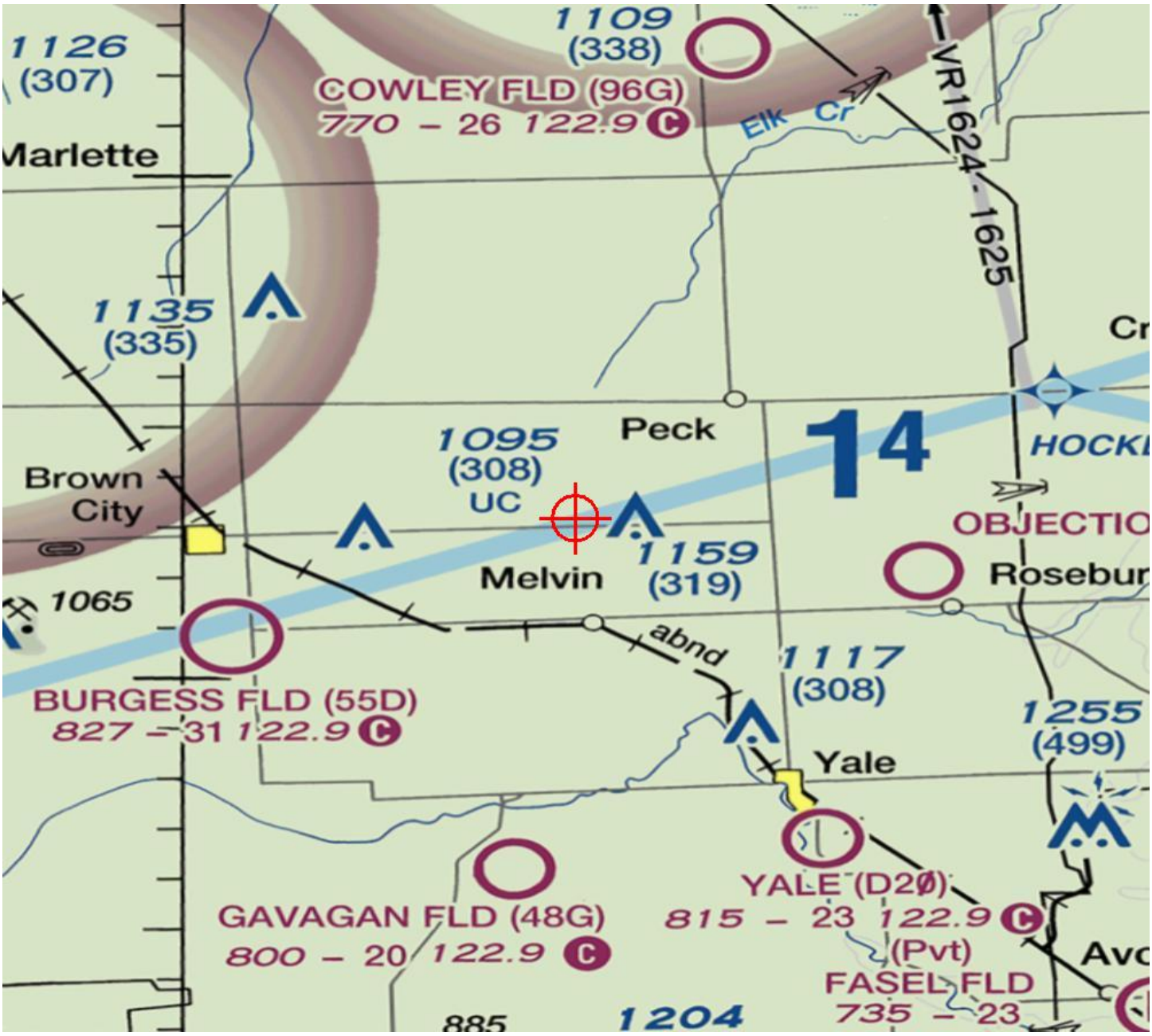
It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

****

ACRONYMS & ABBREVIATIONS

AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude
DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System
TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1272-OE

Issued Date: 07/27/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met1
Location:	Peck, MI
Latitude:	43-10-07.94N NAD 83
Longitude:	82-51-23.36W
Heights:	806 feet site elevation (SE) 391 feet above ground level (AGL) 1197 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 01/27/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

If we can be of further assistance, please contact our office at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1272-OE.

Signature Control No: 577894800-594861714 (DNE -WT)
Bill Kieffer
Specialist

Attachment(s)
Additional Information
Map(s)

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1272-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Met Tower (w/WT Farm) Met1
Location:	Peck, MI
Latitude:	43-10-07.94N NAD 83
Longitude:	82-51-23.36W
Heights:	806 feet site elevation (SE) 391 feet above ground level (AGL) 1197 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 08/19/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1272-OE.

Signature Control No: 577894800-647899680 (EXT -WT)
Lan Norris
Specialist

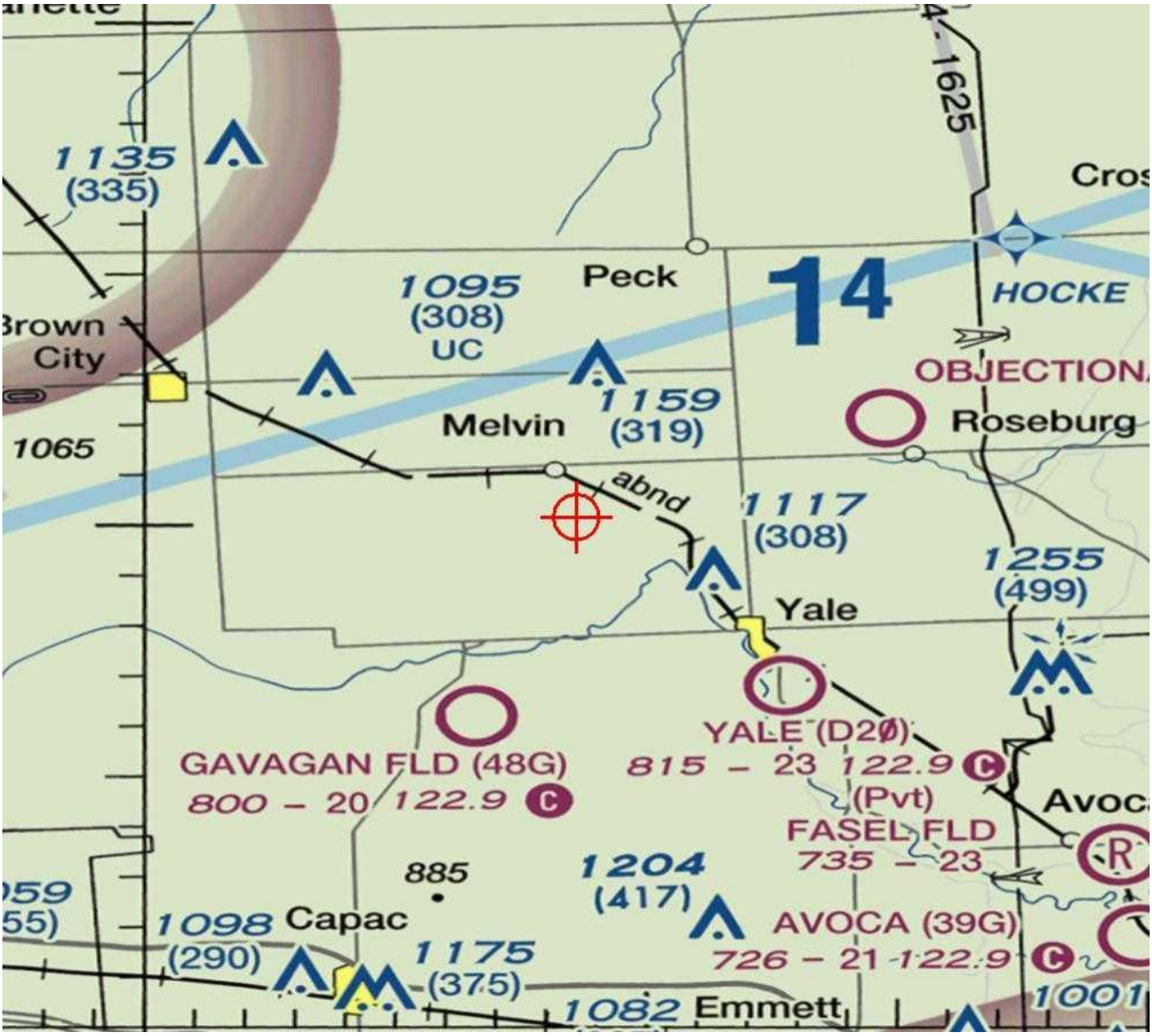
Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2023-WTE-1272-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1273-OE

Issued Date: 08/02/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met2
Location:	Peck, MI
Latitude:	43-14-30.11N NAD 83
Longitude:	82-46-23.64W
Heights:	773 feet site elevation (SE)
	391 feet above ground level (AGL)
	1164 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 02/02/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before September 01, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on September 11, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1273-OE.

Signature Control No: 577894801-595346385 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

1. PROPOSAL DESCRIPTION

The proposed MET towers would be located approximately 17.2 NM east/southeast of the airport reference point for the Marlette Township Airport (77G), Marlette, MI.

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

Section 77.17(a)(4): A height that increases a Minimum Obstruction Clearance Altitude (MOCA) (en route criteria):

The proposed met towers would increase MOCA from HOCKE to RAKAP intersections on T616 from 2100 to 2200 ft. AMSL.

3. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The met towers were not circularized to the public because structures only increasing a MOCA need only to be coordinated with the overlying Air Traffic facility. Air Traffic has responded that they do not use the MOCA a significant amount of the time and that raising the MOCA would be acceptable.

5. BASIS FOR DETERMINATION

a. IFR EFFECTS

The proposed met towers would increase the MOCA in the area. However other proposed taller structures in the area would increase the MOCA even more.

There are no other IFR effects.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have an adverse effect on any existing or proposed arrival or departure VFR operations or procedures. The proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 391 ft. AGL, the structures would have no effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

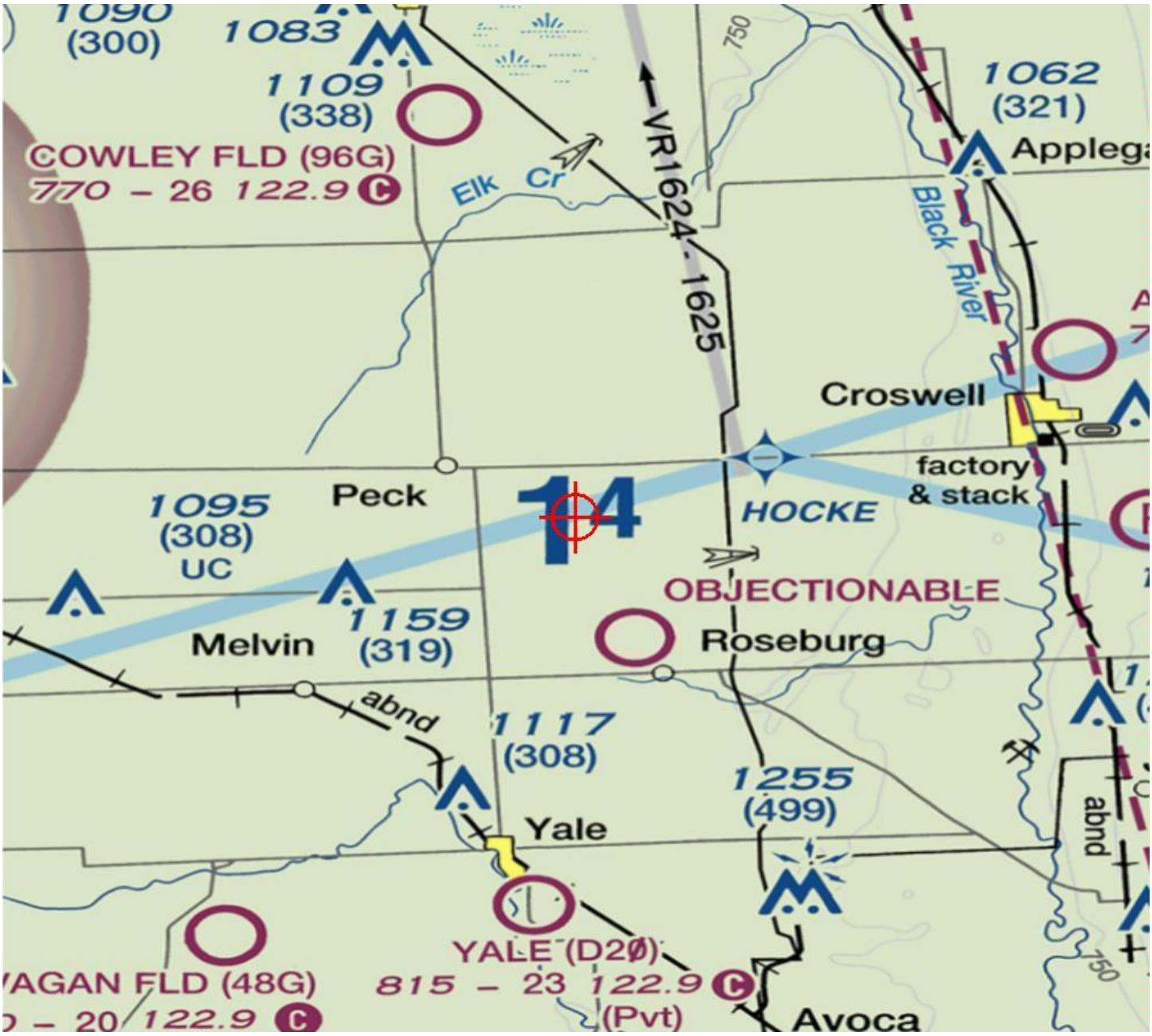
Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude

DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System

TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West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Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1273-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Met Tower (w/WT Farm) Met2
Location:	Peck, MI
Latitude:	43-14-30.11N NAD 83
Longitude:	82-46-23.64W
Heights:	773 feet site elevation (SE) 391 feet above ground level (AGL) 1164 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 08/19/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1273-OE.

Signature Control No: 577894801-647899676 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

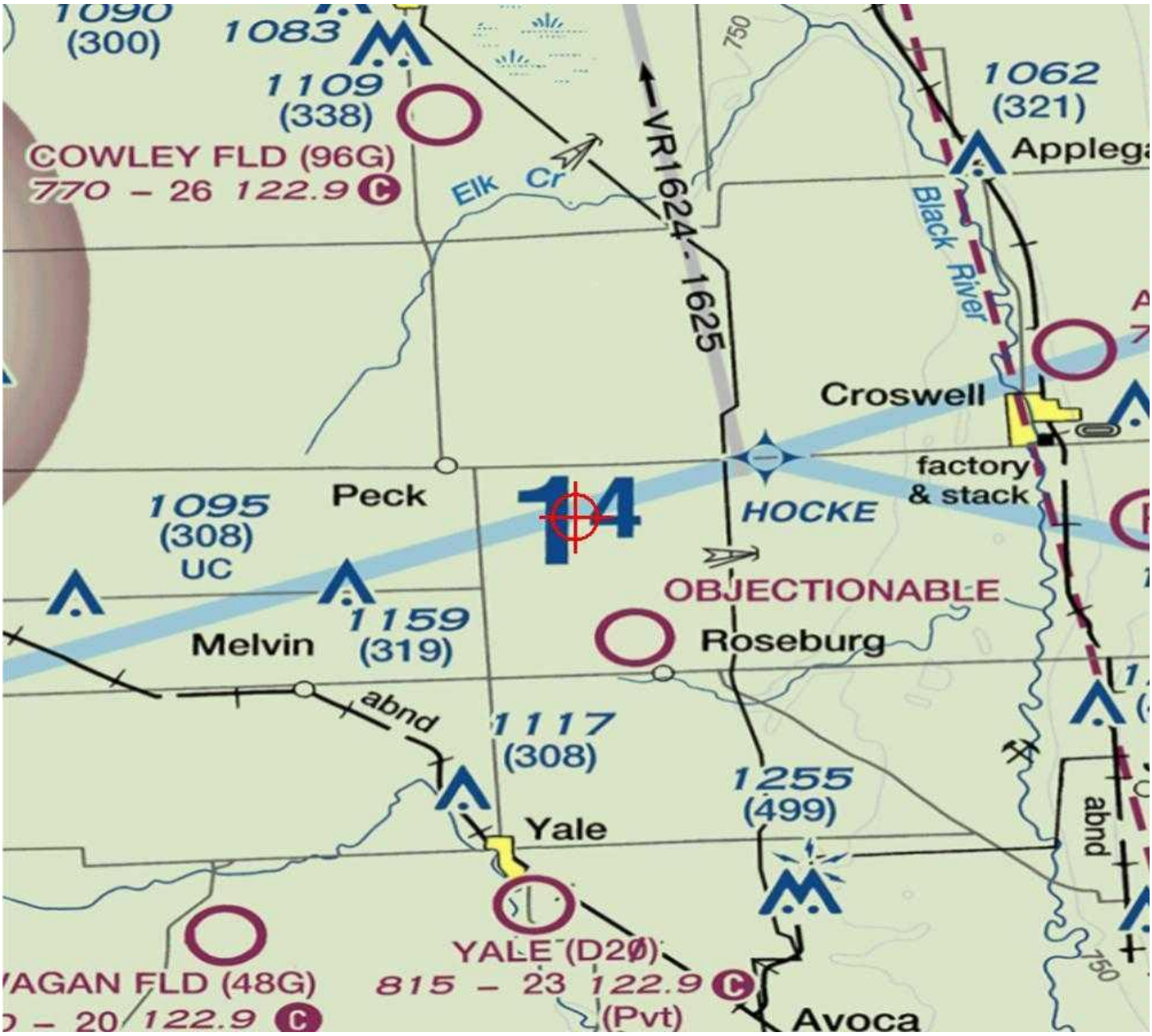
Additional information for ASN 2023-WTE-1273-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).

Sectional Map for ASN 2023-WTE-1273-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1274-OE

Issued Date: 07/27/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met3
Location:	Peck, MI
Latitude:	43-13-17.32N NAD 83
Longitude:	82-50-28.78W
Heights:	798 feet site elevation (SE)
	391 feet above ground level (AGL)
	1189 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 01/27/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

If we can be of further assistance, please contact our office at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1274-OE.

Signature Control No: 577894802-594861713 (DNE -WT)
Bill Kieffer
Specialist

Attachment(s)
Additional Information
Map(s)

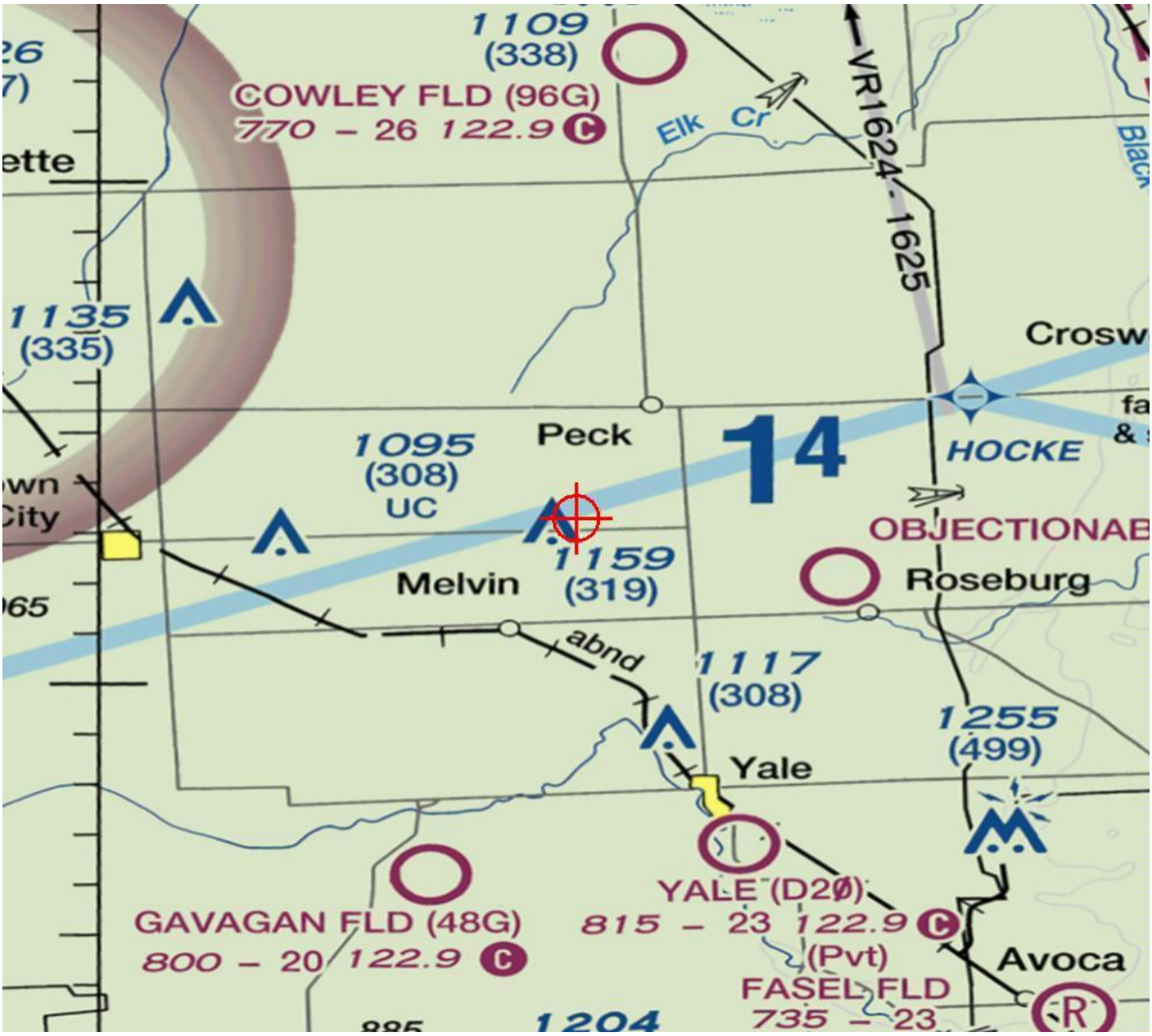
Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1274-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Met Tower (w/WT Farm) Met3
Location:	Peck, MI
Latitude:	43-13-17.32N NAD 83
Longitude:	82-50-28.78W
Heights:	798 feet site elevation (SE) 391 feet above ground level (AGL) 1189 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 08/19/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1274-OE.

Signature Control No: 577894802-647899678 (EXT -WT)
Lan Norris
Specialist

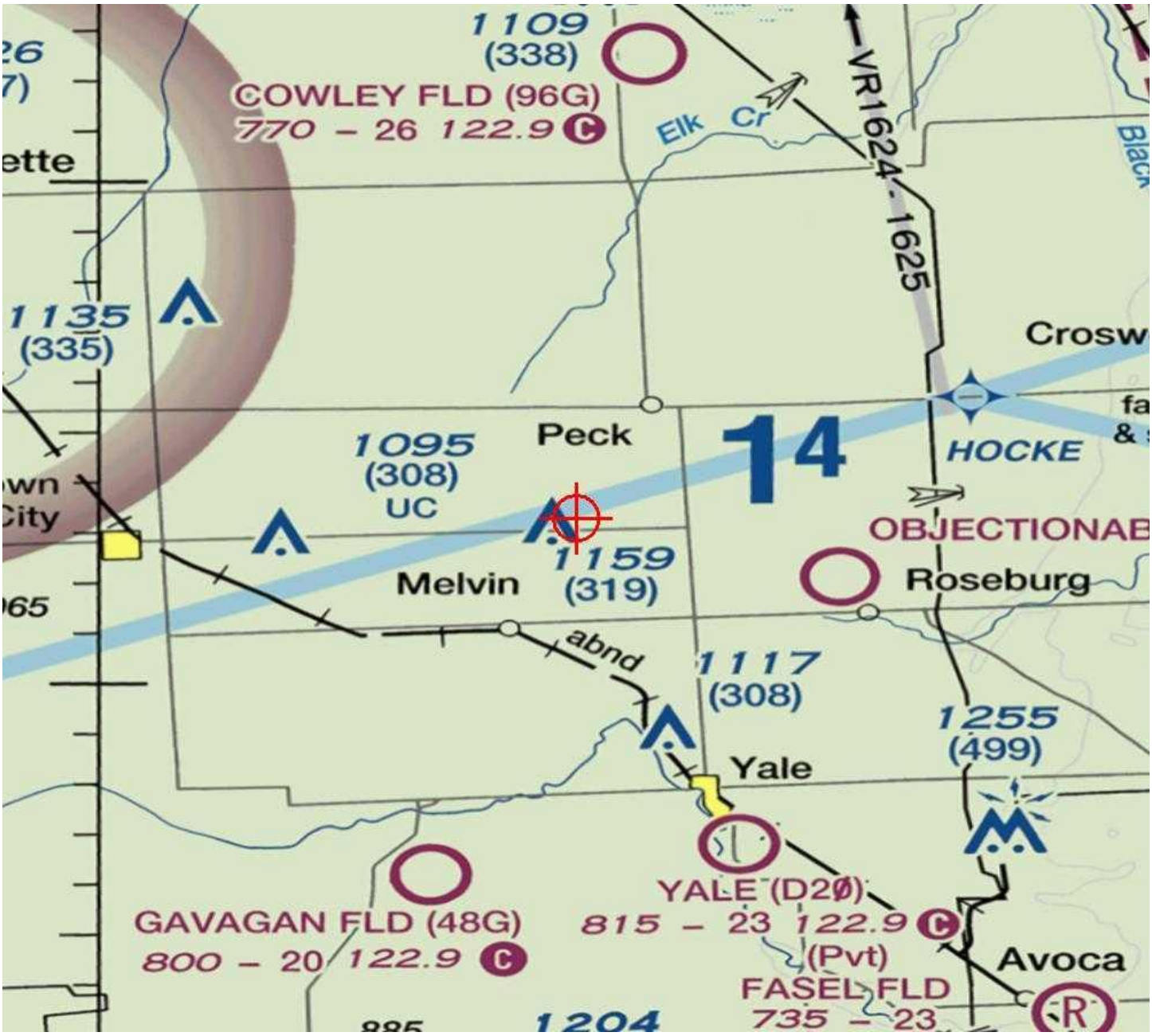
Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2023-WTE-1274-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1275-OE

Issued Date: 08/02/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met4
Location:	Peck, MI
Latitude:	43-13-40.95N NAD 83
Longitude:	82-43-03.08W
Heights:	764 feet site elevation (SE)
	391 feet above ground level (AGL)
	1155 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 02/02/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before September 01, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on September 11, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1275-OE.

Signature Control No: 577894803-595346383 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

1. PROPOSAL DESCRIPTION

The proposed MET towers would be located approximately 17.2 NM east/southeast of the airport reference point for the Marlette Township Airport (77G), Marlette, MI.

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

Section 77.17(a)(4): A height that increases a Minimum Obstruction Clearance Altitude (MOCA) (en route criteria):

The proposed met towers would increase MOCA from HOCKE to RAKAP intersections on T616 from 2100 to 2200 ft. AMSL.

3. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The met towers were not circularized to the public because structures only increasing a MOCA need only to be coordinated with the overlying Air Traffic facility. Air Traffic has responded that they do not use the MOCA a significant amount of the time and that raising the MOCA would be acceptable.

5. BASIS FOR DETERMINATION

a. IFR EFFECTS

The proposed met towers would increase the MOCA in the area. However other proposed taller structures in the area would increase the MOCA even more.

There are no other IFR effects.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have an adverse effect on any existing or proposed arrival or departure VFR operations or procedures. The proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 391 ft. AGL, the structures would have no effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude

DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System

TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

Sectional Map for ASN 2023-WTE-1275-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1275-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Met Tower (w/WT Farm) Met4
Location:	Peck, MI
Latitude:	43-13-40.95N NAD 83
Longitude:	82-43-03.08W
Heights:	764 feet site elevation (SE) 391 feet above ground level (AGL) 1155 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 08/19/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1275-OE.

Signature Control No: 577894803-647899681 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2023-WTE-1275-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).

Sectional Map for ASN 2023-WTE-1275-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1276-OE

Issued Date: 08/02/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met5
Location:	Peck, MI
Latitude:	43-12-51.93N NAD 83
Longitude:	82-42-59.09W
Heights:	763 feet site elevation (SE)
	391 feet above ground level (AGL)
	1154 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 02/02/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before September 01, 2023. In the event an interested party files a petition for review, it must contain a full statement of the basis upon which the petition is made. Petitions can be submitted to the Manager of the Rules and Regulations Group via e-mail at OEPetitions@faa.gov, via mail to Federal Aviation Administration, Air Traffic Organization, Rules and Regulations Group, Room 425, 800 Independence Ave, SW, Washington, DC 20591, or via facsimile (202) 267-9328. FAA encourages the use of email to ensure timely processing.

This determination becomes final on September 11, 2023 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

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

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

If we can be of further assistance, please contact Bill Kieffer, at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1276-OE.

Signature Control No: 577894804-595346384 (DNH -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

1. PROPOSAL DESCRIPTION

The proposed MET towers would be located approximately 17.2 NM east/southeast of the airport reference point for the Marlette Township Airport (77G), Marlette, MI.

2. TITLE 14 CFR PART 77 - OBSTRUCTION STANDARDS EXCEEDED

Section 77.17(a)(4): A height that increases a Minimum Obstruction Clearance Altitude (MOCA) (en route criteria):

The proposed met towers would increase MOCA from HOCKE to RAKAP intersections on T616 from 2100 to 2200 ft. AMSL.

3. TITLE 14 CFR PART 77 - FURTHER STUDY AND PUBLIC COMMENTS

The met towers were not circularized to the public because structures only increasing a MOCA need only to be coordinated with the overlying Air Traffic facility. Air Traffic has responded that they do not use the MOCA a significant amount of the time and that raising the MOCA would be acceptable.

5. BASIS FOR DETERMINATION

a. IFR EFFECTS

The proposed met towers would increase the MOCA in the area. However other proposed taller structures in the area would increase the MOCA even more.

There are no other IFR effects.

b. VFR EFFECTS

Aeronautical study for possible visual flight rules (VFR) effect disclosed that the proposed structure would not have an adverse effect on any existing or proposed arrival or departure VFR operations or procedures. The proposals would not conflict with airspace required to conduct normal VFR traffic pattern operations at any known public use or military airports. At 391 ft. AGL, the structures would have no effect on en route VFR flight operations.

c. CHARTING AND CUMULATIVE EFFECT

The proposed structures would be charted on VFR sectional aeronautical charts and appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

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

6. DETERMINATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

ACRONYMS & ABBREVIATIONS
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ARP, Airport Reference Point
ARSR, Air Route Surveillance Radar
ARTCC, Air Route Traffic Control Center
ASN, Aeronautical Study Number
ASR, Airport Surveillance Radar
ATC, Air Traffic Control
ATCT, Air Traffic Control Tower
CARSR, Common Air Route Surveillance Radar
CAT, Category
CFR, Code of Federal Regulations
CG, Climb Gradient
DA, Decision Altitude

DME, Distance Measuring Equipment
FAA, Federal Aviation Administration
FUS, Fusion
GPS, Global Positioning System
IAF, Initial Approach Fix
IAP, Instrument Approach Procedure
ICA, Initial Climb Area
IFR, Instrument Flight Rules
INT, Intersection
LAT, Latitude
LNAV, Lateral Navigation
LOC, Localizer
LONG, Longitude
LP, Localizer Performance
LPV, Localizer Performance with Vertical Guidance
MDA, Minimum Descent Altitude
MEA, Minimum En route Altitude
MET, Meteorological Evaluation Tower
MIA, Minimum IFR Altitude
Min, Minimum
MOCA, Minimum Obstruction Clearance Altitude
MSA, Minimum Safe Altitude
MSL, Mean Sea Level
MVA, Minimum Vectoring Altitude
NA, Not Authorized
NAS, National Airspace System
NAVAID, Navigational Aid
NDB, Non-Directional Radio Beacon
NEH, No Effect Height
NM, Nautical Mile
NOTAM, Notice to Airmen
NPF, Notice of Preliminary Findings
OCS, Obstacle Clearance Surface
OE, Obstruction Evaluation
OEG, Obstruction Evaluation Group
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace.
P-NOTAM, Permanent Notice to Airmen
RLOS, Radar Line of Sight
RNAV, Area Navigation
RNP, Required Navigation Performance
RWY, Runway
S-, Straight-in
SE, Site Elevation
S-LOC, Straight-in Localizer
SM, Statute Miles
Std., Standard
TAA, Terminal Arrival Area
TACAN, Tactical Air Navigation System

TERPS, Terminal Instrument Procedures
TPA, Traffic Pattern Airspace
TRACON, Terminal Radar Approach Control
V, Victor Airway
VFR, Visual Flight Rules
VHF, Very High Frequency
VOR, VHF Omnidirectional Radio Range System
VORTAC, VOR/TACAN System
WTE, Wind Turbine East
WTW, Wind Turbine West

(338)
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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1276-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Met Tower (w/WT Farm) Met5
Location:	Peck, MI
Latitude:	43-12-51.93N NAD 83
Longitude:	82-42-59.09W
Heights:	763 feet site elevation (SE) 391 feet above ground level (AGL) 1154 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 08/19/2026 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1276-OE.

Signature Control No: 577894804-647899677 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2023-WTE-1276-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

2. One extension is authorized for up to 18 months. If construction has not started or completed prior to the expiration date of this extension letter, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Construction or Alteration" at the FAA public website https://oeaaa.faa.gov.

3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).

Sectional Map for ASN 2023-WTE-1276-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1277-OE

Issued Date: 07/27/2023

Roberto Caputo
Algonquin Power (Riverbend Wind) LLC
354 Davis Rd
Suite 100
Oakville, L6J 2X1

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

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

Structure:	Met Tower (w/WT Farm) Met6
Location:	Peck, MI
Latitude:	43-10-07.98N NAD 83
Longitude:	82-39-20.90W
Heights:	749 feet site elevation (SE) 391 feet above ground level (AGL) 1140 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, paint/red lights-Chapters 3(Marked),4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 01/27/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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

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

If we can be of further assistance, please contact our office at (816) 329-2526, or bill.kieffer@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1277-OE.

Signature Control No: 577894805-594861715 (DNE -WT)
Bill Kieffer
Specialist

Attachment(s)
Additional Information
Map(s)

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

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Sectional Map for ASN 2023-WTE-1277-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-WTE-1277-OE

Issued Date: 02/19/2025

Irene Bezuidenhout
Algonquin Power (Riverbend Wind) LLC
575 5th Ave
Suite 2501
New York, NY 10017

**** Extension ****

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If we can be of further assistance, please contact our office at (404) 305-6645, or Lan.norris@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-WTE-1277-OE.

Signature Control No: 577894805-647899679 (EXT -WT)
Lan Norris
Specialist

Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2023-WTE-1277-OE

1. All conditions and instructions outlined in the FAA determination apply under this extension. If there are any changes to the coordinates of one second or more and/or increase in the overall AMSL height, the sponsor will be required to E-file a new FAA Form 7460-1 "Notice of Proposed Construction or Alteration" at the website https://oeaaa.faa.gov.

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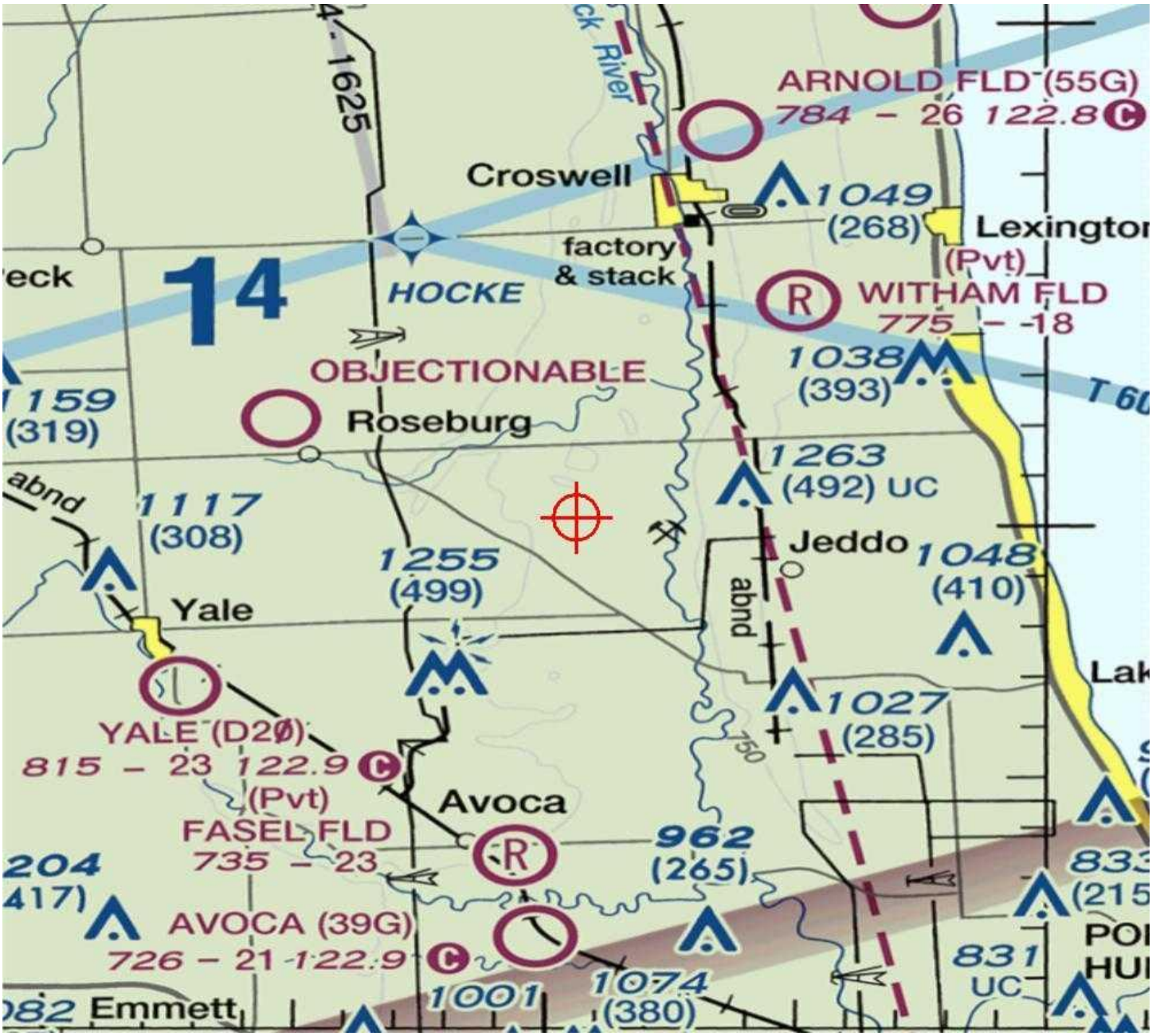
3. It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).

Sectional Map for ASN 2023-WTE-1277-OE



Federal Aviation Administration

« OE/AAA

Project Submission Success
Project Name: ALGON-000903288-24

Project ALGON-000903288-24 has been submitted successfully to the FAA.

Your filing is assigned Aeronautical Study Number (ASN):

2024-WTE-11527-OE
2024-WTE-11528-OE
2024-WTE-11529-OE
2024-WTE-11530-OE
2024-WTE-11531-OE
2024-WTE-11532-OE
2024-WTE-11533-OE
2024-WTE-11534-OE
2024-WTE-11535-OE

Please refer to the assigned ASN on all future inquiries regarding this filing.

Please return to the system at a later date for status updates.

It is the responsibility of each e-filer to exercise due diligence to determine if coordination of the proposed construction or alteration is necessary with their state aviation department. Please use the link below to contact your state aviation department to determine their requirements:
State Aviation Contacts

To ensure e-mail notifications are delivered to your inbox please add noreply@faa.gov to your address book. Notifications sent from this address are system generated FAA e-mails and replies to this address will NOT be read or forwarded for review. Each system generated e-mail will contain specific FAA contact information in the text of the message.

Michigan Department of Agriculture and Rural Development

Benjamin Sanford

From: Benjamin Sanford
Sent: Thursday, August 7, 2025 1:42 PM
To: MDARD-ConsultationsMPSC@michigan.gov
Cc: Irene Bezuidenhout; Rob Nadolny; Sebastian Tejada; Nelson Moleiro; Jill Collins; Timothy Jones
Subject: Riverbend Wind - MDARD Consultation
Attachments: T24006759_Figure5_StateSiting_PA116.pdf; Farmland and Open Space Preservation Program Parcels Table.pdf; Riverbend Wind_MDARD-PA-233-Consultation-Form_Complete.pdf; T24006759_Figure1_StateSiting_SiteLocation.pdf

Good afternoon,

This email is to formally notify you of the Riverbend Wind Energy Facility (the project), proposed by MI Energy Developments, LLC, which is intended to be developed in accordance with the new Michigan Public Service Commission (MPSC) guidelines for Michigan Public Act 233 (PA 233) "Renewable Energy or Storage Siting Certificate". As part of the MPSC application process, Exhibit A-4.4 (Summary of Agency Consultations) requires consultation with the Michigan Department of Agriculture and Rural Development (MDARD).

The Riverbend Wind project is a proposed 300-megawatt (MW) wind farm located within Fremont, Speaker and Elk townships, Sanilac County, Michigan. A map of the current project area is attached to this email for your reference.

To determine which parcels within our project area are currently enrolled in Farmland and Open Space Preservation Program (formerly known as PA 116), we have reviewed the legal descriptions of the current Equalization Report and have identified the parcels included in the attached Farmland and Open Space Preservation Program Parcels table. Please also refer to the attached map 'Figure 5 – PA116' depicting these parcels in relation to the proposed infrastructure.

We are requesting your review of this list and ask for a response providing concurrence or corrections on each parcel's enrollment status.

Finally, we have also attached the completed MDARD PA 233 Consultation Form which displays the prime farmland, specialty crops, and farmland calculation estimations for our project area, as well as each affected local unit. For the general "farmland" column of the consultation form, we based our calculation on the combined acreages of the Planted/Cultivated class of land cover types (cultivated crop and pasture/hay) from the U.S. Geological Survey and Multi-Resolution Land Characteristics (MRLC) Consortium's National Land Cover Database (NLCD). Please note that there are no soils designated by U.S. Department of Agriculture National Resource Conservation Service as "unique farmlands" within the Project Area, which the PA 233 guidance document defines as "specialty crops". As such, the requested affidavit has been attached to the consultation form attesting to this.

If you have any questions or would like to discuss this issue or anything pertaining to the project further, please don't hesitate to reach out and we can get a meeting scheduled.

Thank you for your time and consideration.

Benjamin Sanford
Project Manager

ATWELL, LLC
248.447.2000 Office
517.648.7082 Mobile
Two Towne Square | Suite 700 | Southfield, MI 48076
www.atwell.com
Local Solutions | National Presence

The purpose of this document is to serve as evidence of consultation between an Applicant and the Michigan Department of Agriculture and Rural Development (MDARD), to maximize the efficacy of that consultation and produce information to supplement an application to the MPSC.

Consultation Guidance

Applicant should follow the below prompts and submit a completed version of this questionnaire, along with associated documentation, to MDARD through the following email address: MDARD-ConsultationMPSC@michigan.gov.

Questionnaire

1. Do you seek to site your project on any areas of prime farmland, as defined in Attachment B of the Application Filing Instructions and Procedures (AFIP) for PA 233 cases? This can be determined by inputting parcels into the USDA NRCS Soil Survey Geographic Database (USA SSURGO tool).

   (Yes) No

   *If Yes: Attach to this form complete maps of the project area showing municipal boundaries and all areas of prime farmland within the facility and within 1,000 feet of the project perimeter (*see *AFIP Sec. 7.2(a)(1) and (3)).*

   If No: Produce an affidavit attesting that the project does not site on prime farmland and attach it to this form. You may skip the "Prime Farmland" portion of the table in Question 3.

2. Do you seek to site your project on any areas of farmland dedicated to the cultivation of specialty crops, as defined in Attachment B of the AFIP?

   Yes (No)

   *If Yes: Attach to this form complete maps of the project area showing municipal boundaries and all areas of farmland dedicated to the cultivation of specialty crops within the facility and within 1,000 feet of the project perimeter (*see *AFIP Sec. 7.2(a)(1) and (3)).*

   If No: Produce an affidavit attesting that the project does not site on farmland dedicated to the cultivation of specialty crops, and attach it to this form. You may skip the "Specialty Cropland" portion of the table in Question 3.

3. Fill out the below table for each jurisdiction (township/city/village or county) containing any portion of the proposed project, subject to the above questions. Additionally, attach to this form complete maps of the project area showing jurisdictional boundaries and all

areas of farmland within the facility and within 1,000 feet of the project perimeter (*see* AFIP Sec. 7.2(a)(1) and (3)).

In the case of a project contained entirely within a single township/city/village and a single county, jurisdiction 1 is that township/city/village and jurisdiction 2 is the entire county. If the proposed project would span more than two jurisdictions (J.), create and attach a spreadsheet version of the below table containing the requested information for all jurisdictions (do not fill out the below table). Please note: Elk Township does not include any above ground infrastructure.

J.1: Fremont Township

J.2: Speaker Township

Scope	Prime Farmland		Specialty Cropland		Farmland		Overall
	acres	*%*	*acres*	*%*	*acres*	*%*	*acres*
Facility within J.1	<1 [a]	1% [a]/[b]	0	0	51	96%	50 [b]
J.1	1,179	6%	0	0	14,688	78%	15,867
Facility within J.2	3	12%	0	0	25	95%	25
J.2	2,848	14%	0	0	11,207	73%	14,055
Facility Footprint	4	5%	0	0	76	96%	79

Michigan Department of AGRICULTURE & Rural Development

Attestation

By signing below, the Applicant or their representative attests that the information contained within this document and all attached materials are true, accurate, and complete, to the best of their knowledge.

X Date: August 6, 2025

Printed Name: Ben Sanford

Title/Affiliation: Project Manager, Consultant for MI Energy Developments, LLC

This Section reserved for MDARD review.

The MDARD representative attests that the information contained within this document and all attached materials are present.

X _____ Date: _____

Printed Name: _____

Title/Affiliation: _____

Village of Peck
Elk Township
Speaker Township
Sheridan Line Rd
State Hwy 19
School Rd
Melvin Rd
Mortimer Line Rd
W Burns Line Rd
State Hwy 90
Burns Line Rd
Mowerson Rd
Arendt Rd
Jordan Rd
Duquette Rd
Speaker Township
Fremont Township
Bricker Rd
Gardner Line Rd
Kilgore Rd
Todd Rd
Fargo Rd
Cribbins Rd
Project Area (~34,860 acres)
Village of Melvin
Galbraith Line Rd
Brown Rd
W Wellman Line Rd
Brockway Rd
E Wellman Line Rd
Sanilac County
St. Clair County
Fisher Rd
Comstock Rd

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 4,000
Feet

- Project Area (~34,860 acres)
- 1,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- All areas are prime farmland

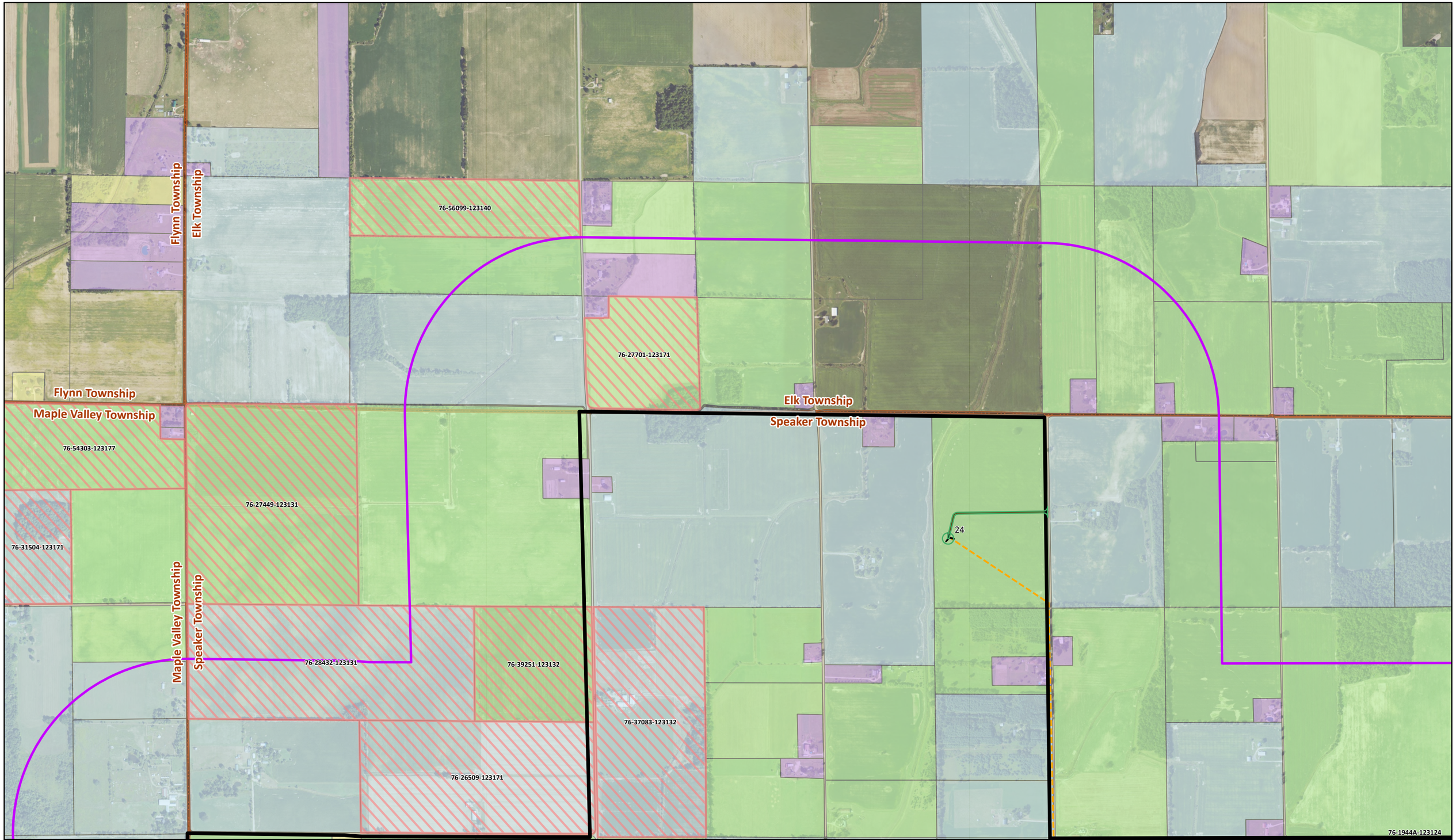
Source: National Agriculture Imagery Program (2022)

Figure 4
Prime Farmland Map (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

Benjamin Sanford, being first duly sworn and deposed, states under oath as to the following:

1. The statements made in this affidavit are based on personal knowledge and I make this statement voluntarily and under oath I further affirm that the foregoing is true and correct to the best of my knowledge, information, and belief and I can competently testify to the same.
2. I understand that these statements are made for the purpose of being included in an official affidavit and may be used in legal or administrative proceedings.
3. I am a Project Manager with Atwell, LLC and have been engaged by MI Energy Developments, LLC to assist in siting the Riverbend Wind Energy Facility in Fremont, Elk, and Speaker Townships in Michigan ("Project").
4. MI Energy Development, LLC has instructed that I fill out Michigan Department of Agriculture and Rural Development's ("MDARD") consultation form, and provide this affidavit, prior to submission of the Project's application as evidence of consultation with MDARD, pursuant to Section 225(1)(k) of Public Act 233 of 2023 ("PA 233").
5. MDARD's consultation form for utility-scale renewable energy applicants under PA 233 requires an affidavit that a proposed project will not be on "any areas of farmland dedicated to the cultivation of specialty crops, as defined in Attachment B of the AFIP."
6. The PA 233 Michigan Public Service Commission's Application Filing Instructions and Procedures adopts the definition of "specialty crops" from the United States Department of Agriculture Natural Resource Conservation Service's ("USDA NRCS") definition of "unique farmland," which is not mapped within the Project's site plan Area.
7. Based on data obtained from the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS), and to the best of my knowledge, information, and belief, there is no farmland within the Project's site plan Area that is currently used for the cultivation of "specialty crops."

Further Affiant saith not.



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

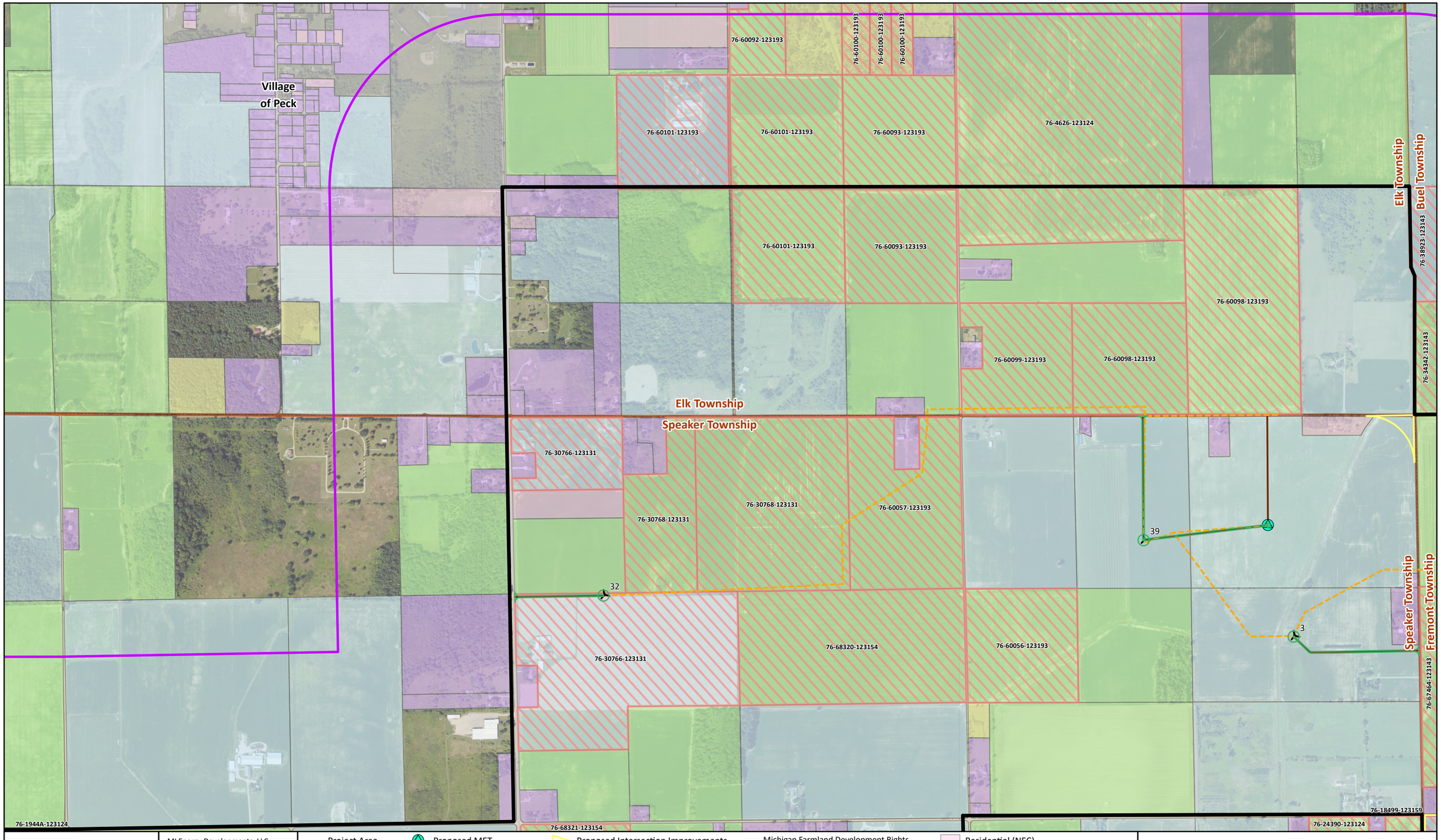
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 1 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

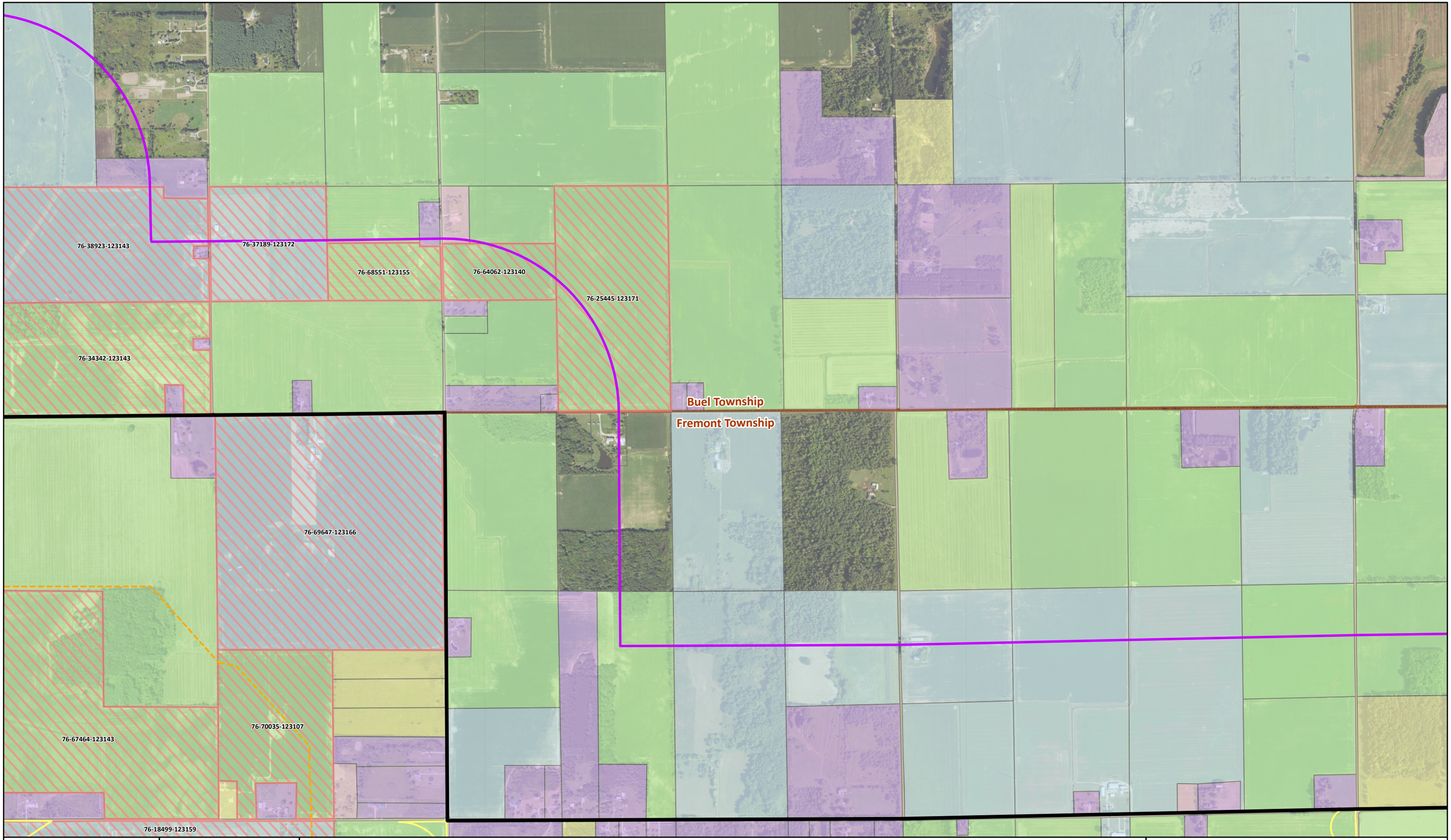
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 2 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

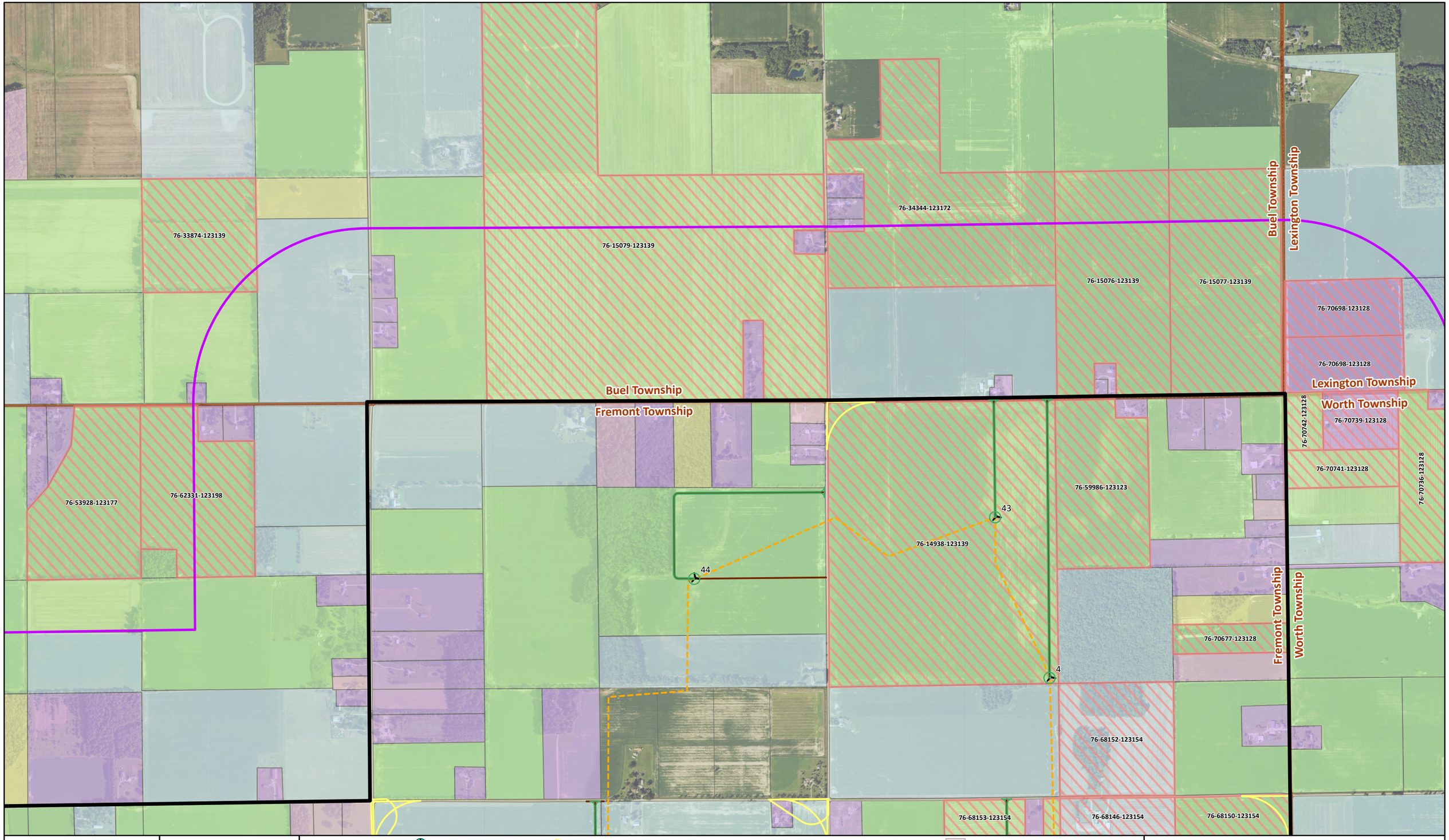
Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 3 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

G:\Jobs2400\T24006759_Riverbend_SanilacCo_MI\Projects\ProjectTemplate\T24006759_Riverbend.aprx 8/1/2025



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 4 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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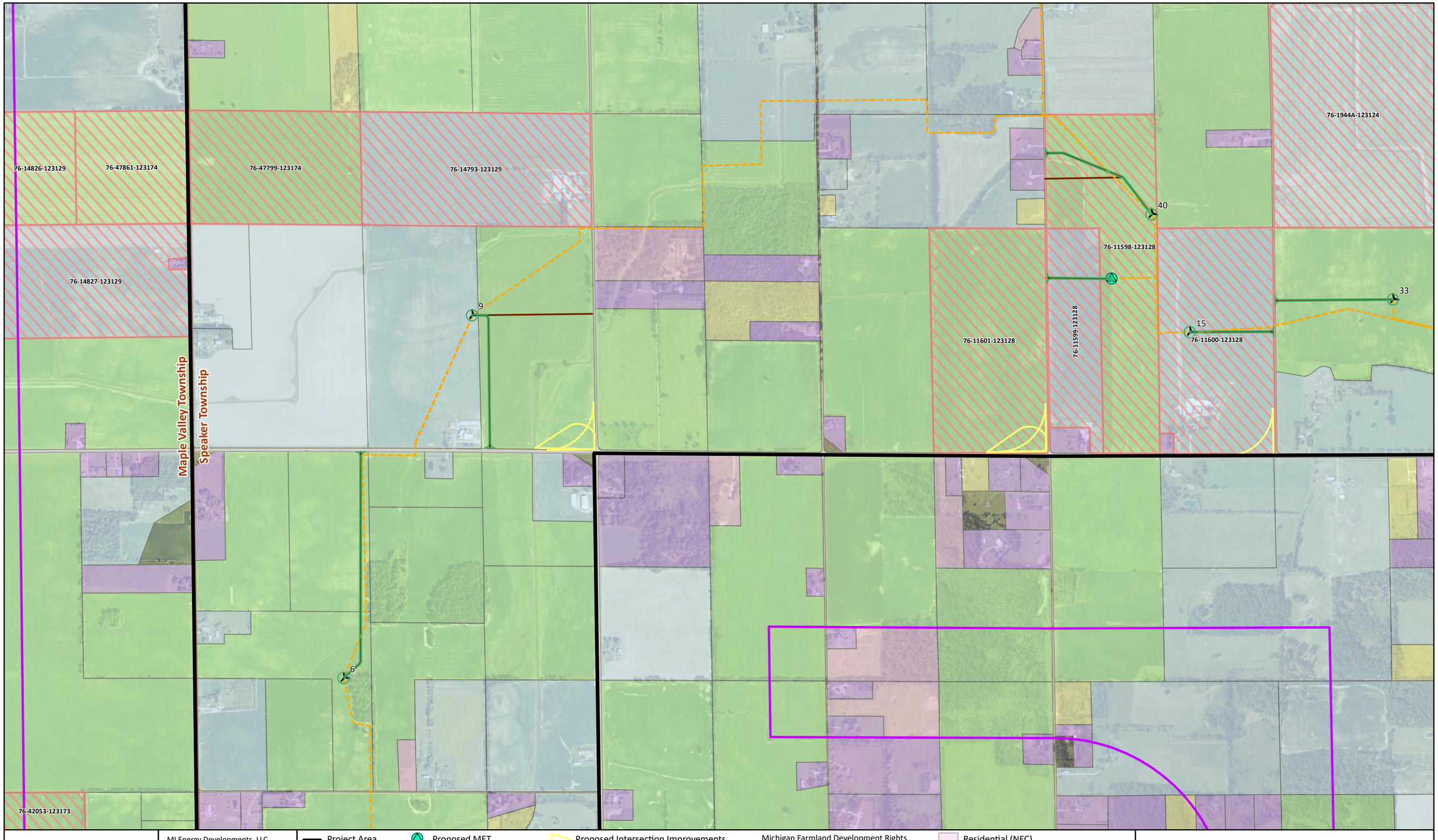


ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

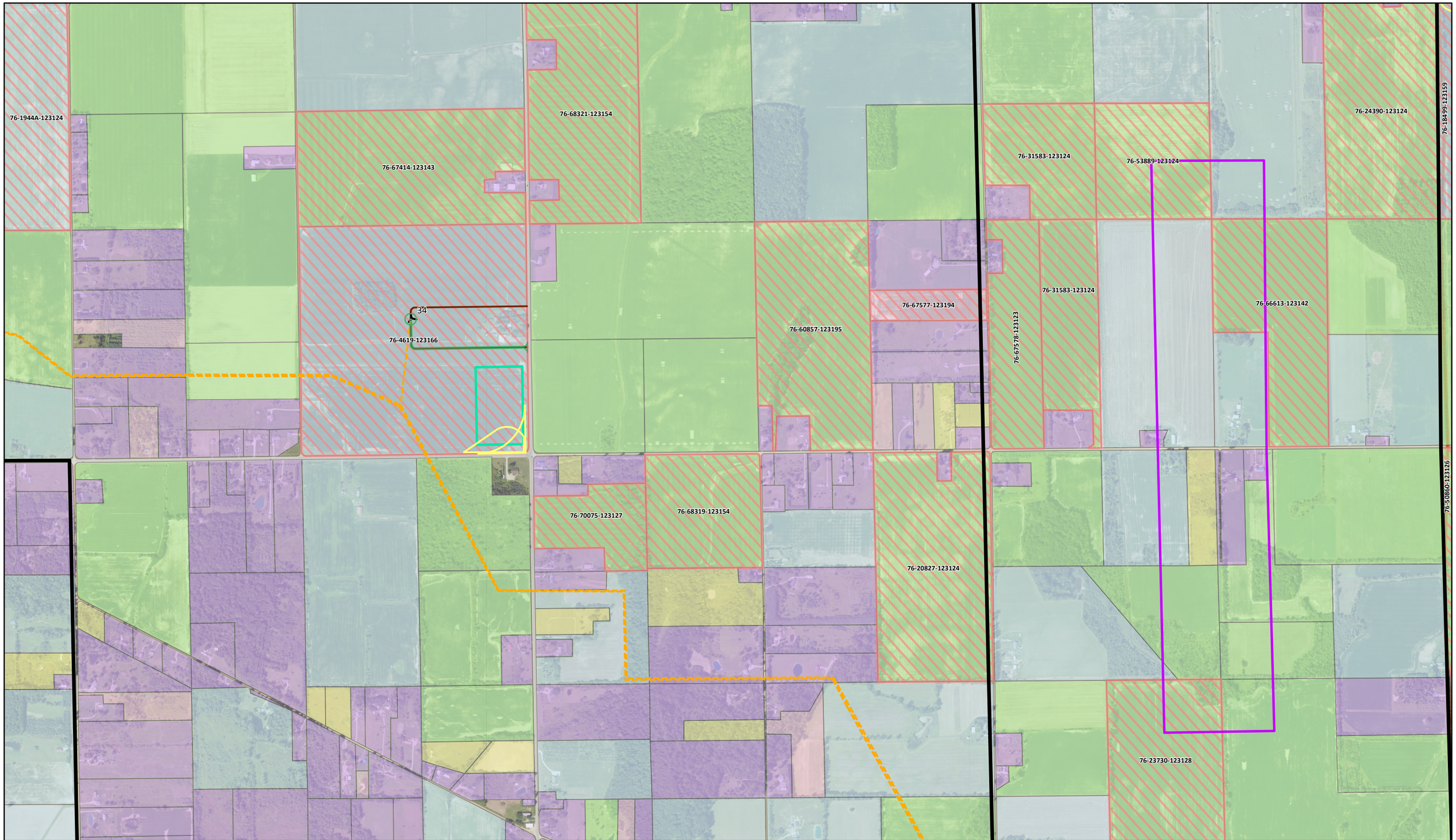
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 5 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 6 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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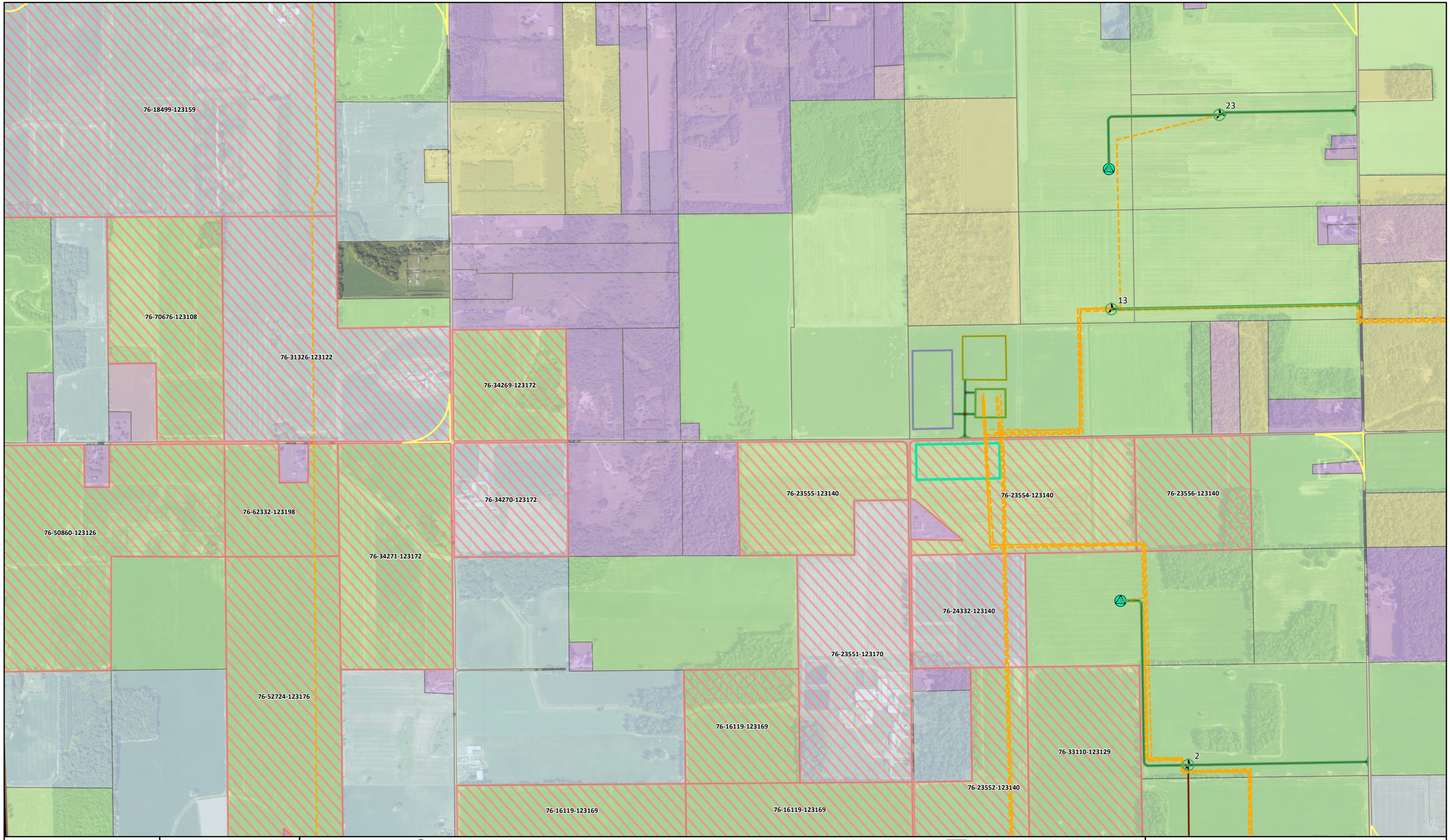

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 7 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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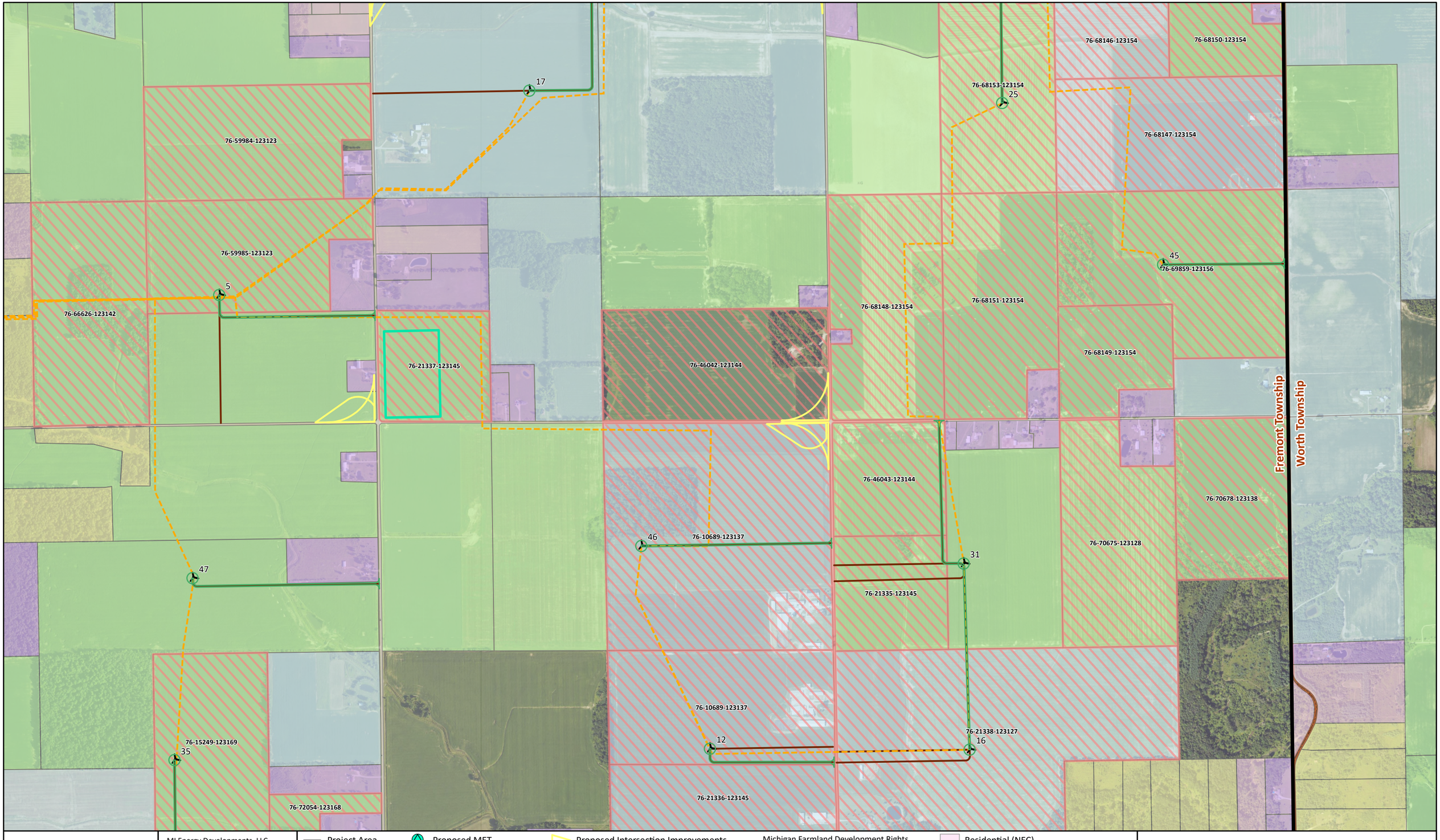


ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

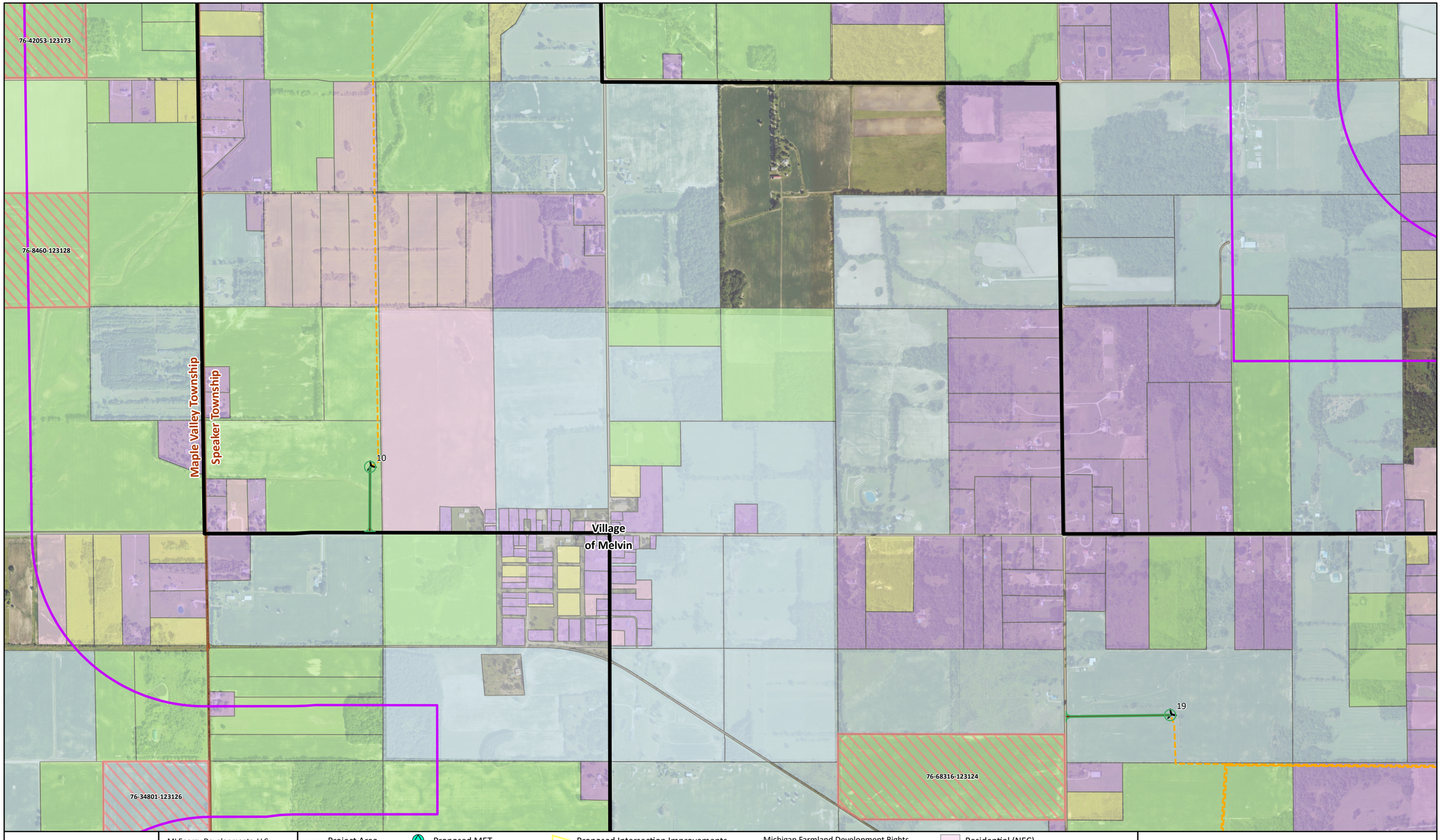
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 8 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 9 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

G:\Jobs2400\T24006759_Riverbend_SanilacCo_MI\Projects\ProjectTemplate\T24006759_Riverbend.aprx 8/1/2025

76-23730-123128

76-65882-123131

76-65880-123146

49

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 10 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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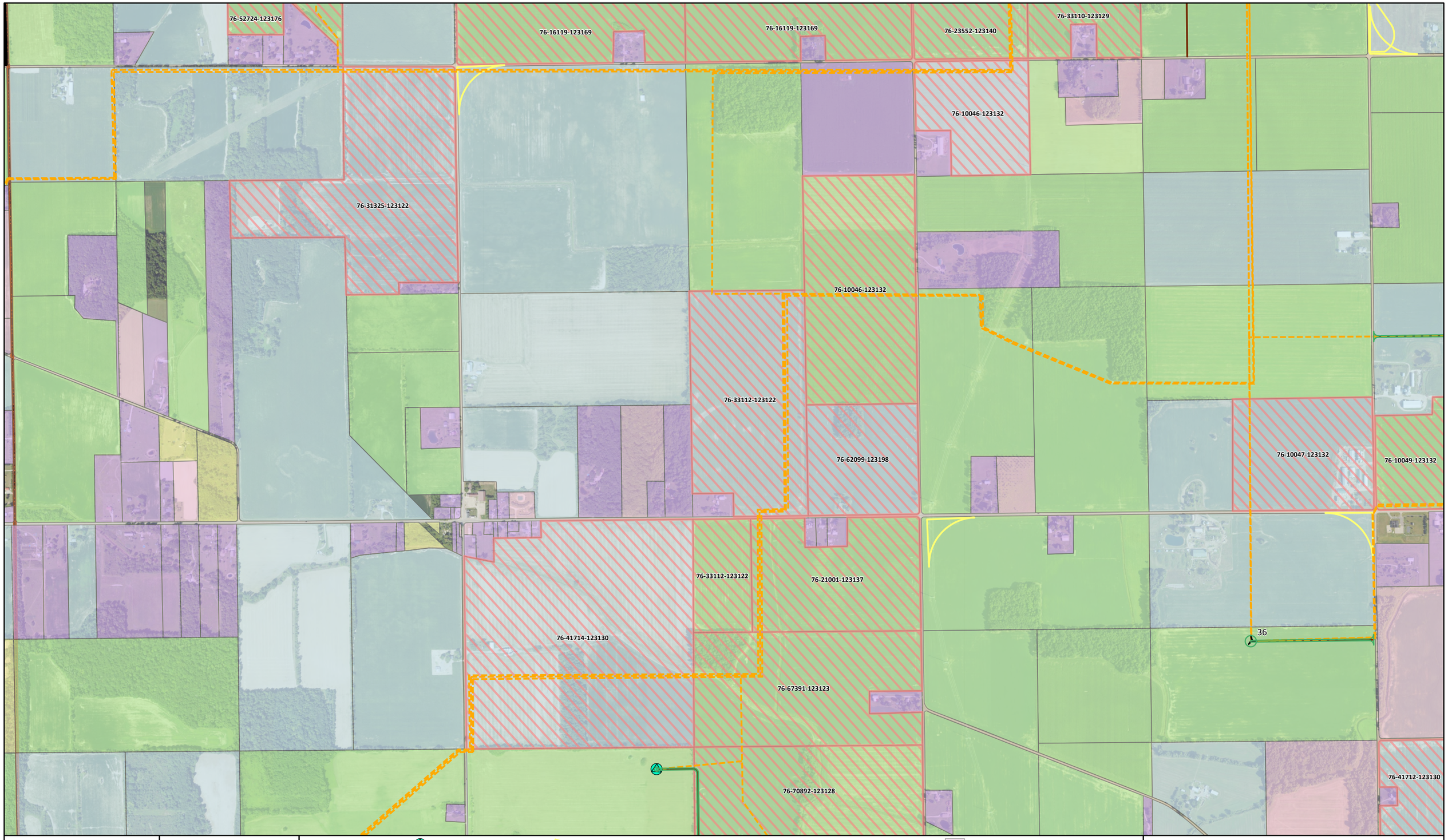


ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

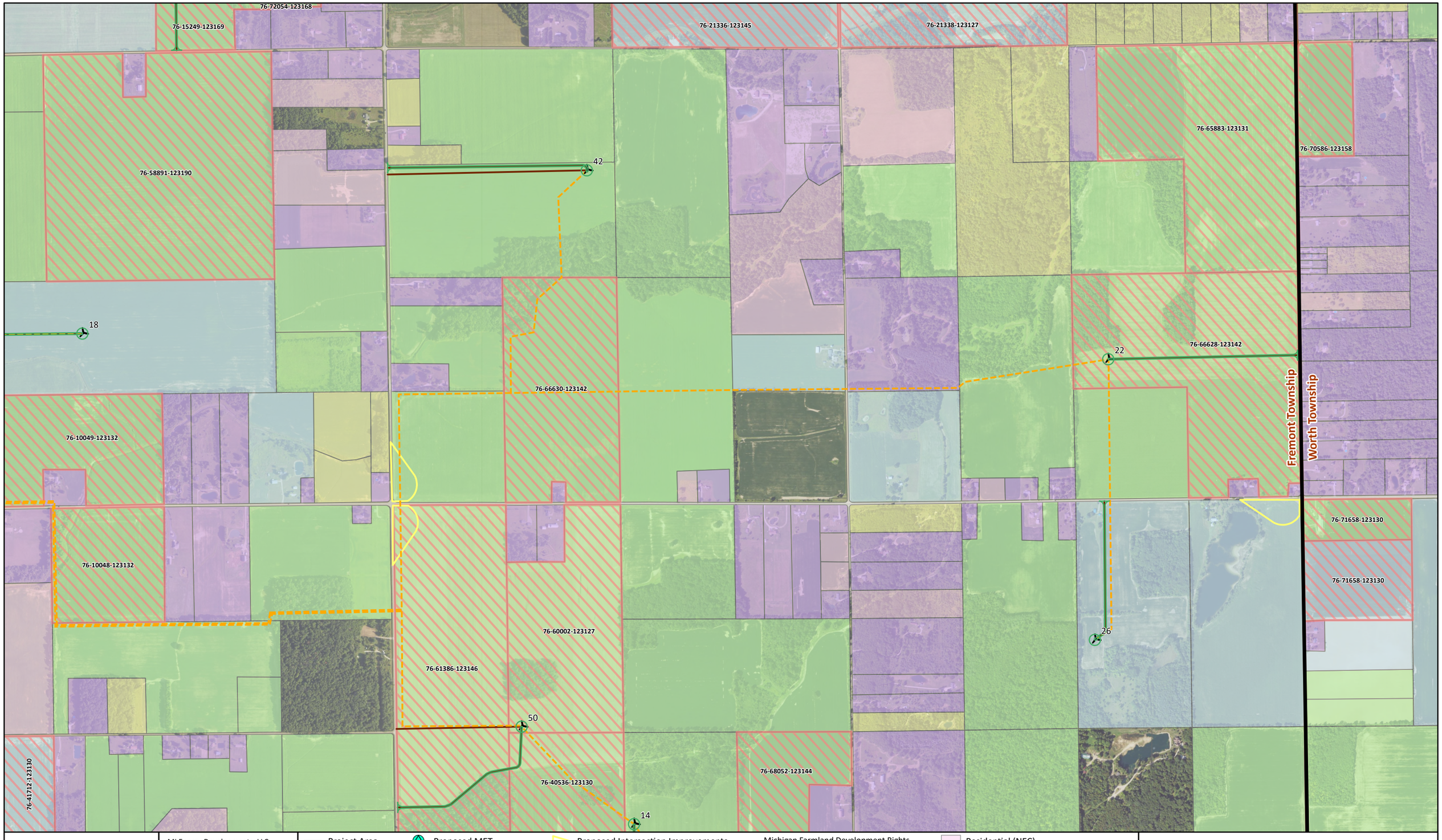
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 11 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

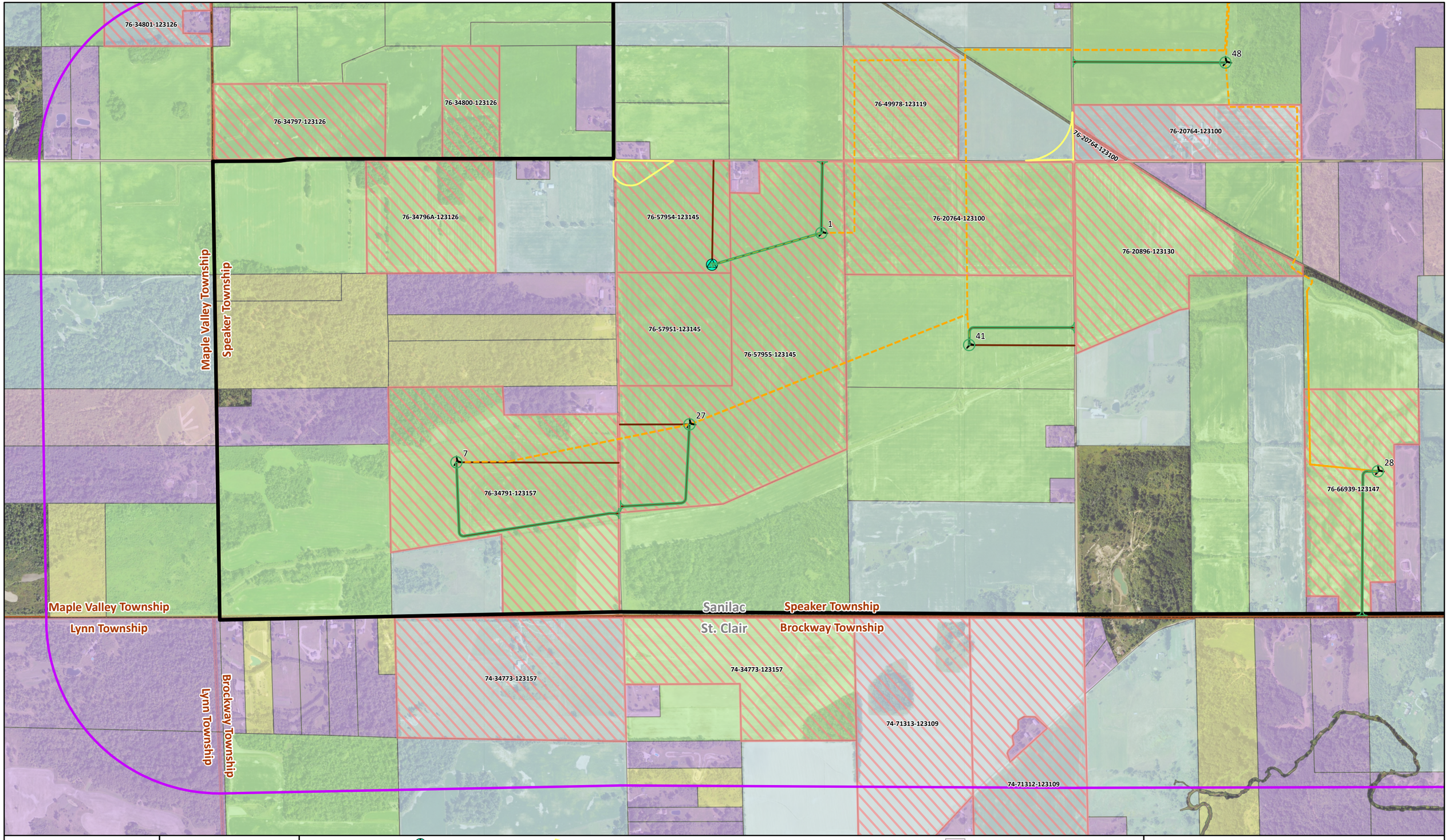
- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 12 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 13 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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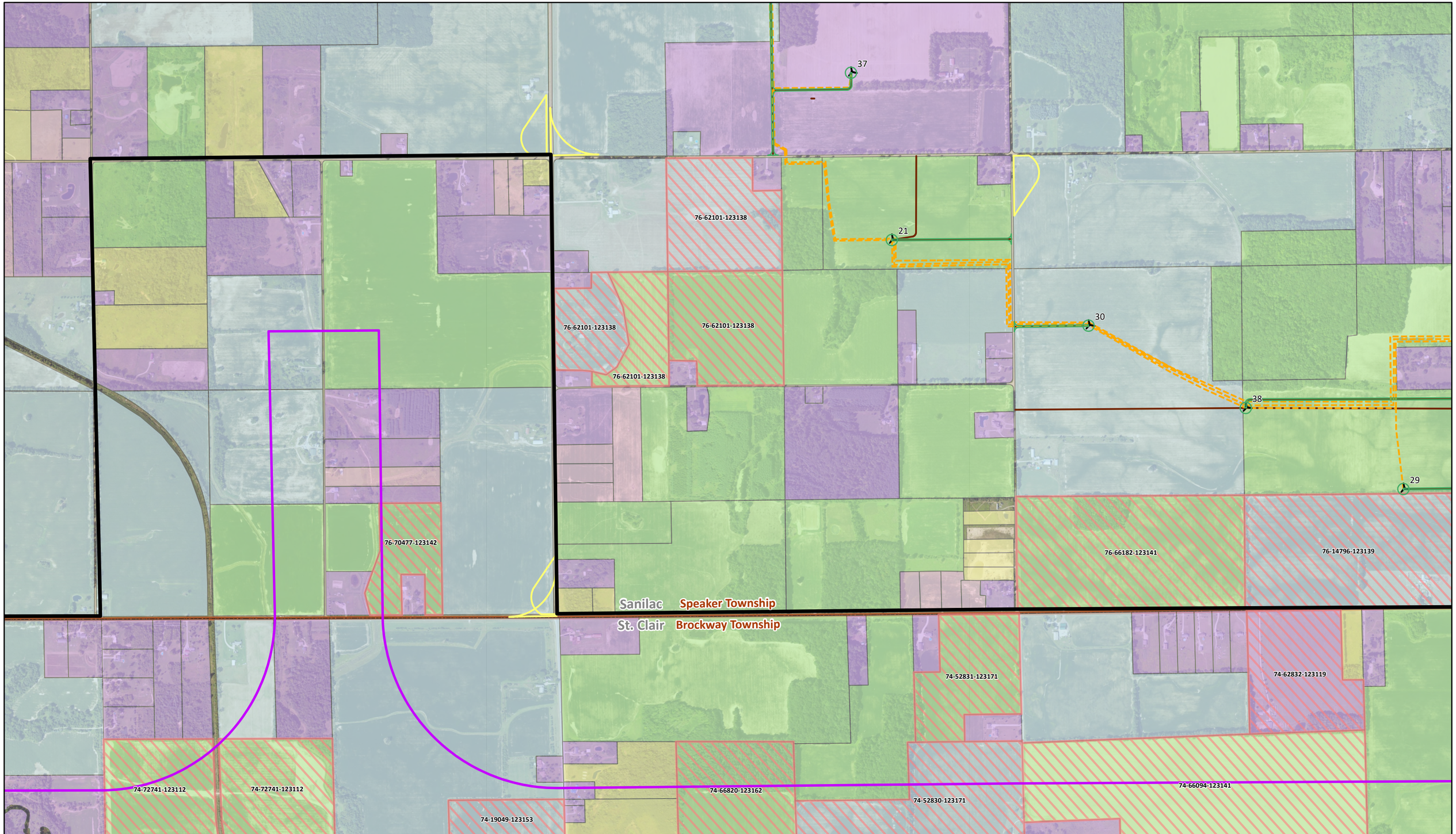

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 14 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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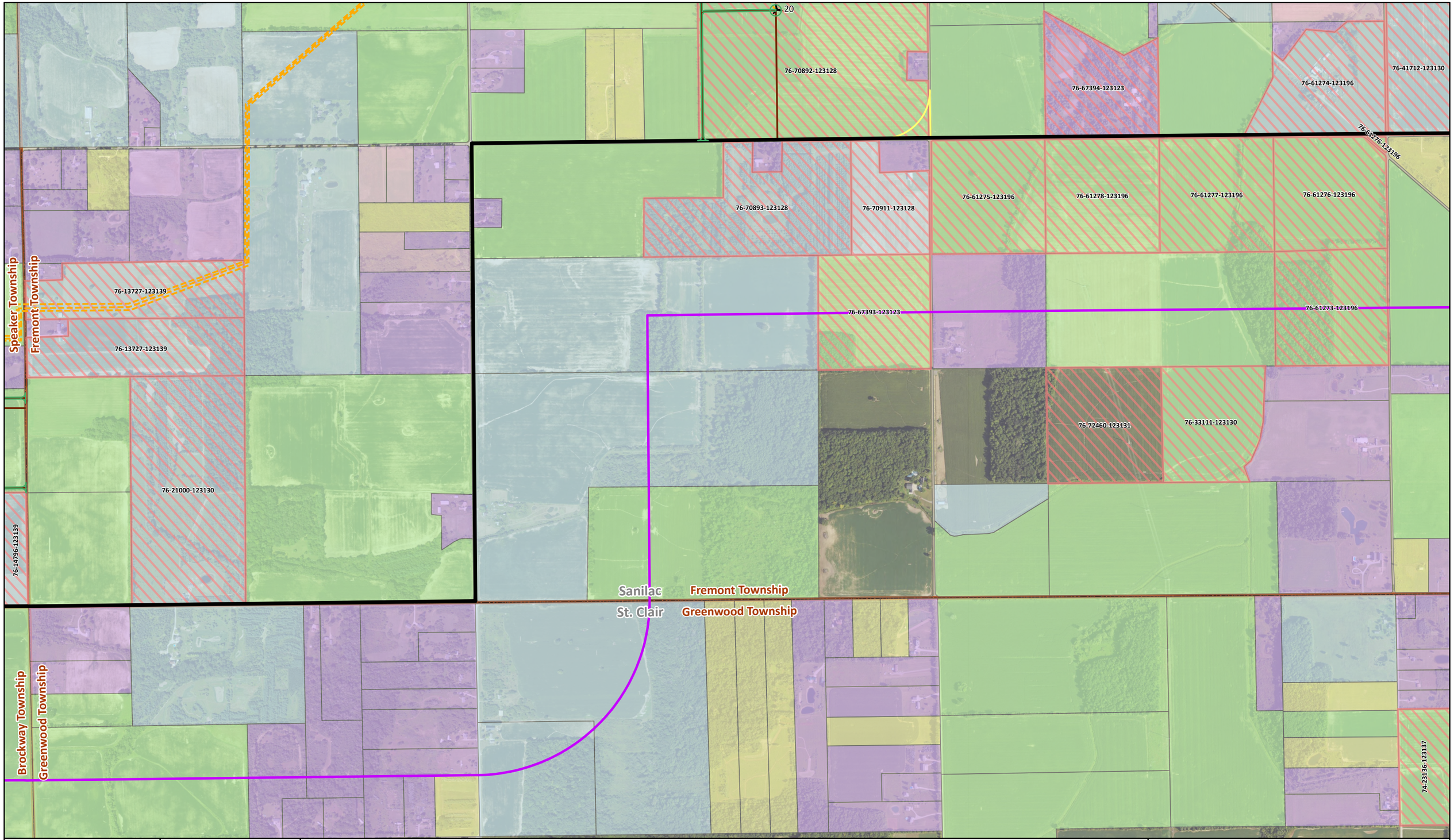

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000
Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 15 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

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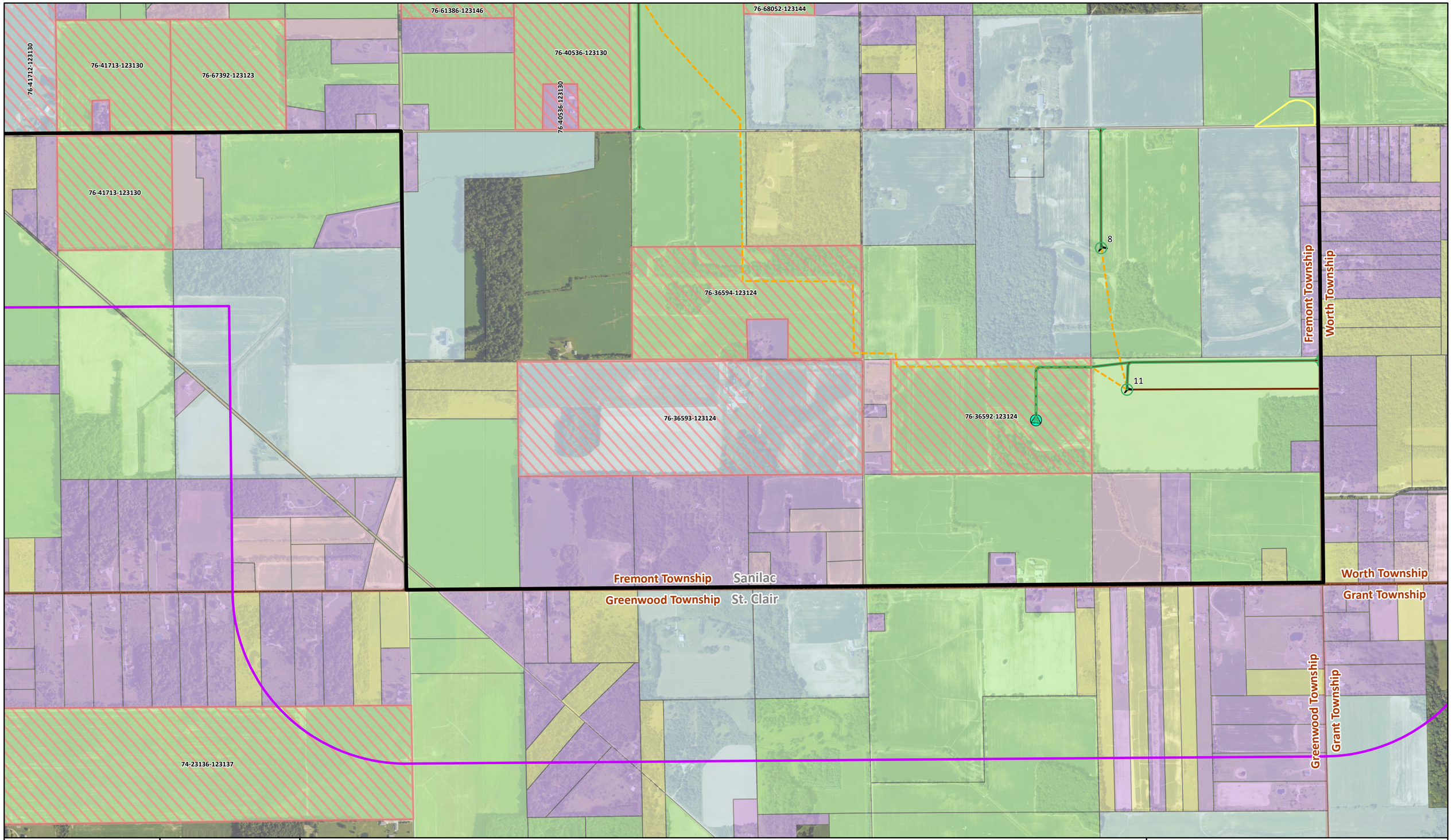

ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
August 01, 2025
Preliminary

0 1,000 Feet

- Project Area (~34,860 acres)
- 2,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Michigan Farmland Development Rights Agreement (Formerly PA 116, lands identified by MDARD 2024 Annual Equalization Report)

Land Use:

- Agricultural Land
- Farms
- Residential (NEC)
- Residential Acreage
- Single Family Residence
- Undefined

Source: National Agriculture Imagery Program (2022)

Figure 5
PA 116 Map 16 of 16 (*Exhibit A-1.2*)
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

G:\Jobs2400\T24006759_Riverbend_SanilacCo_MI\Projects\ProjectTemplate\T24006759_Riverbend.aprx 8/1/2025

Riverbend Wind Energy Facility - PA116 Parcels	
Parcel ID	**MDARD Agreement**
070-036-300-060-00	76-60098-123193
070-036-300-030-00	76-60099-123193
220-028-300-020-00	76-20764-123100
220-031-400-010-00	76-34791-123157
220-032-100-010-00	76-20764-123100
220-032-200-020-00	76-57954-123145
220-033-200-010-00	76-20896-123130
120-022-300-020-01	76-10049-123132
120-011-400-020-00	76-46042-123144
120-023-300-010-00	76-66630-123142
120-001-200-010-00	76-14938-123139
220-002-100-010-00	76-60057-123193
220-009-300-010-00	76-11600-123128
120-006-400-010-03	76-70035-123107
120-007-100-010-00	76-18499-123159
220-029-400-010-00	76-49978-123119
220-002-200-010-00	76-30768-123131
220-032-200-010-00	76-57955-123145
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120-016-100-010-02	76-23556-123140
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120-016-200-020-00	76-24332-123140

Riverbend Wind Energy Facility - PA116 Parcels	
Parcel ID	**MDARD Agreement**
120-016-300-020-03	76-23552-123140
120-018-100-020-01	76-62332-123198
120-019-100-010-00	76-31325-123122
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120-035-100-030-01	76-36594-123124
120-029-100-010-00	76-21001-123137
120-036-300-040-00	76-36592-123124
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120-029-200-010-00	76-41714-123130
120-029-400-030-00	76-70892-123128
120-031-200-040-00	76-13727-123139

State Historic Preservation Office

Benjamin Sanford

From: Kolokithas, Kathrine (LEO) <KolokithasK1@michigan.gov>
Sent: Wednesday, July 16, 2025 9:20 AM
To: Peter Regan; Slagor, Scott (LEO)
Cc: Benjamin Sanford; Susan Trexler
Subject: RE: Riverbend Wind - State Siting Architectural History Survey Requirements

Hi Peter,
Scott and I discussed this a lot and think we have two options that would satisfy our identification needs and not sure which option works best for you all so I'll present both and you can choose what works best for you all.

1. Do the thematic approach we discussed below as planned
2. Reduce the survey footprint to 1 mile from each turbine and survey everything within that range.

Please let us know which is your preferred method, we do believe both will get us what we need to feel confident with the review. If you have any questions or want to discuss further please let us know.

Thank you,

Katie Kolokithas
Survey Coordinator
State Historic Preservation Office
Office: 517.335.9840 Cell: 517.285.9248

From: Peter Regan <pregan@atwell.com>
Sent: Tuesday, July 15, 2025 1:05 PM
To: Slagor, Scott (LEO) <SlagorS2@michigan.gov>; Kolokithas, Kathrine (LEO) <KolokithasK1@michigan.gov>
Cc: Benjamin Sanford <bsanford@atwell.com>; Susan Trexler <strexler@atwell.com>
Subject: Re: Riverbend Wind - State Siting Architectural History Survey Requirements

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Good afternoon, Scott and Katie,

I wanted to follow up on my May 5 email (below) regarding our proposed approach to satisfying the architectural history component of the PA 233 SHPO consultation application for the Riverbend Wind project. You may recall that Atwell, SHPO, and REV Renewables met on April 29 to discuss an initial desktop approach to help guide a subsequent field survey effort. The approach we discussed is summarized in the email below, and we were hoping to get your confirmation that this approach is still suitable. If you have any revision requests or additional recommendations, please let us know.

I also learned recently that the PA 233 SHPO consultation application instructions for wind projects may be changing in light of the recent Deerfield 2 site visit. Am I correct in understanding that the architectural history survey area may be reduced from a 5-mile radius around each turbine to a 2-mile radius? If there are any other changes you envision and are comfortable sharing, I would be grateful to know so as to better guide other developers. If there is any further assistance or information we can provide that may facilitate those revisions, please do not hesitate to reach out, we're always happy to help.

Thank you both,

Pete

Peter Regan
Associate Director
ATWELL, LLC
410.504.3473 Mobile

From: Peter Regan <pregan@atwell.com>
Sent: Monday, May 5, 2025 6:38 AM
To: Slagor, Scott (LEO) <SlagorS2@michigan.gov>; Kolokithas, Kathrine (LEO) <KolokithasK1@michigan.gov>
Cc: Benjamin Sanford <bsanford@atwell.com>; Susan Trexler <strexler@atwell.com>
Subject: Re: Riverbend Wind - State Siting Architectural History Survey Requirements

Good morning, Scott and Katie,

Thank you again for last week's discussion about the architectural history survey approach to the Riverbend Wind project. Please see below for a summary of the methodology we discussed and our understanding of the workflow as it relates to submitting the PA 233 consultation application. We welcome your revisions and any further recommendations you would like to share. (Please note this is only for architectural history; we acknowledge there are separate archaeology requirements that factor into PA 233 consultation.)

Step 1. Historic Map and Aerial Photograph Review
Review electronically available historic maps and historic aerial photographs to identify built features at least 50 years old within the survey area.

Step 2. Previously Recorded Resources Review
Review SHPO and NRHP data on previously recorded aboveground resources within the survey area. Previously recorded resources will be targeted in subsequent field surveys

Step 3. Thematic Context Development
Create thematic historical contexts for evaluating aboveground resources' significance. Resources associated with the thematic contexts will be targeted in subsequent field surveys.

Step 4. Submit PA 233 Consultation Application
Submit the PA 233 application, which will include the following:

- Summary of the results of the historic map and aerial review

- Summary of previously recorded aboveground resources
- Thematic contexts
- Proposed architectural history survey methods, which may include:
    - Standard resource surveys, which will document resources sufficient for formal reporting and SHPO form preparation. Standard surveys will be focused on the following resources:
        - Those that appear to be at least 50 years old at the time of survey and which ARE key resources representing the identified thematic contexts
        - Previously recorded resources (including districts)
        - Cultural landscapes
    - Cursory resource surveys, which will include a photograph and brief narrative description sufficient for basic tabular reporting, but SHPO forms will not be prepared. Cursory surveys will be focused on the following resources:
        - Those that appear to be at least 50 years old at the time of survey and which ARE NOT associated with identified thematic
        - Those that appear to be at least 50 years old at the time of survey and which may represent the identified thematic contexts but are not the key resources, e.g., those which have lesser integrity or lesser connection to the associated theme
    - Resources that appear to be fewer than 50 years old will not be surveyed

Step 5. Architectural History Survey
Coordinate with SHPO to finalize the survey methodology and conduct the survey after receiving comments on the PA 233 application.

Please let us know if the outline above accurately reflects your understanding of the approach we discussed, or if there are any changes you would like us to incorporate.

Thank you,

Pete

Peter Regan
Associate Director
ATWELL, LLC
410.504.3473 Mobile

From: Slagor, Scott (LEO) <SlagorS2@michigan.gov>
Sent: Wednesday, April 23, 2025 2:50 PM
To: Peter Regan <pregan@atwell.com>
Cc: Benjamin Sanford <bsanford@atwell.com>; IBezuidenhout@revrenewables.com <IBezuidenhout@revrenewables.com>; STejada@revrenewables.com <STejada@revrenewables.com>; RNadolny@revrenewables.com <RNadolny@revrenewables.com>; NMoleiro@revrenewables.com <NMoleiro@revrenewables.com>; Kolokithas, Kathrine (LEO) <KolokithasK1@michigan.gov>
Subject: RE: Riverbend Wind - State Siting Architectural History Survey Requirements

Hi Pete,

Katie and I talked about this. Our 5-mile radius was selected based on other states' requirements, however if Atwell has a reliable viewshed analysis tool, we are open to seeing what you propose foe a survey area. Targeted contexts will be really important, historic narratives for the communities impacted (townships, villages, cities). Agricultural and ethnic contexts may be necessary too. We're going to do some research on our end on the best way to receive this volume of survey data. We aren't opposed to the table being used, however it will need to be supplemented with readable photos- no more than two to a page, and actual inventory forms for things that are eligible.

Katie and I are available to meet:

4/29 9-10, 3-4
4/30 9-10, 1-3
5/1 9-10.

Let me know if any of those work and you would like to meet. Thank you.

Scott Slagor (he/him)
Cultural Resource Protection Manager
State Historic Preservation Office
300 N. Washington Square
Lansing, MI 48913
Direct: 517.285.5120
michigan.gov/shpo

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From: Peter Regan <pregan@atwell.com>
Sent: Tuesday, April 22, 2025 10:29 AM
To: Slagor, Scott (LEO) <SlagorS2@michigan.gov>
Cc: Benjamin Sanford <bsanford@atwell.com>; IBezuidenhout@revrenewables.com; STejada@revrenewables.com; RNadolny@revrenewables.com; NMoleiro@revrenewables.com
Subject: Re: Riverbend Wind - State Siting Architectural History Survey Requirements

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Good morning, Scott,

I hope you had a good weekend and that last week's meeting with MPSC went well. I just wanted to check in with you about the AH survey requirements for the Riverbend Wind project discussed in the email chain below. If it would be easier to discuss in a call, please let me know some days and times that work for you and I'll gladly set up a Teams meeting.

Thanks so much,

Pete

Peter Regan
Associate Director
ATWELL, LLC
410.504.3473 Mobile

From: Peter Regan <pregan@atwell.com>
Sent: Friday, April 11, 2025 9:48 AM
To: Slagor, Scott (LEO) <SlagorS2@michigan.gov>
Cc: Benjamin Sanford <bsanford@atwell.com>; IBezuidenhout@revrenewables.com <IBezuidenhout@revrenewables.com>; STejada@revrenewables.com <STejada@revrenewables.com>; RNadolny@revrenewables.com <RNadolny@revrenewables.com>; NMoleiro@revrenewables.com <NMoleiro@revrenewables.com>
Subject: Re: Riverbend Wind - State Siting Architectural History Survey Requirements

Hi Scott,

Thanks for your reply, it is quite the survey area indeed. A follow-up late next week would be great, and here's hoping for a productive meeting with MPSC.

Have a great weekend, Scott, I look forward to catching up next week.

Best,

Pete

Peter Regan
Associate Director
ATWELL, LLC
410.504.3473 Mobile

From: Slagor, Scott (LEO) <SlagorS2@michigan.gov>
Sent: Friday, April 11, 2025 9:36 AM
To: Peter Regan <pregan@atwell.com>
Cc: Benjamin Sanford <bsanford@atwell.com>; IBezuidenhout@revrenewables.com <IBezuidenhout@revrenewables.com>; STejada@revrenewables.com <STejada@revrenewables.com>; RNadolny@revrenewables.com <RNadolny@revrenewables.com>; NMoleiro@revrenewables.com <NMoleiro@revrenewables.com>
Subject: RE: Riverbend Wind - State Siting Architectural History Survey Requirements

Hi Peter,

Thank you for reaching out. That is quite the survey area! I actually have a meeting next week with MPSC staff about the cultural resource end of the PA233 reviews, which may dictate how we go forward. If it's alright with you, I would like to follow up late next week.

Scott Slagor (he/him)
Cultural Resource Protection Manager
State Historic Preservation Office
300 N. Washington Square
Lansing, MI 48913
Direct: 517.285.5120
michigan.gov/shpo

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From: Peter Regan <pregan@atwell.com>
Sent: Friday, April 11, 2025 9:21 AM
To: Slagor, Scott (LEO) <SlagorS2@michigan.gov>
Cc: Benjamin Sanford <bsanford@atwell.com>; IBezuidenhout@revrenewables.com; STejada@revrenewables.com; RNadolny@revrenewables.com; NMoleiro@revrenewables.com
Subject: Riverbend Wind - State Siting Architectural History Survey Requirements

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Good morning Scott,

I'm writing to you today for your guidance on the architectural history survey requirements for a 300 MW wind project in Sanilac and St. Clair Counties that will require a state siting application. Per your office's PA233 state siting consultation application instructions, we understand that an architectural history survey must be completed within a 5-mile radius of each turbine location before submitting the application for SHPO consultation. Based on the proposed project layout, a 5-mile radius around each of the proposed 50 turbine locations results in a 288-square-mile architectural history survey area. This area likely encompasses hundreds or thousands of potential resources, including the cities of Yale and Croswell (map attached for reference).

I note on page 9 of the SHPO consultation application instructions that applicants should "consult with SHPO staff prior to completing identification forms to develop a plan appropriate to the scope of work" if more than 25 previously unidentified resources are anticipated. Since we are anticipating substantially more than 25 previously unidentified resources, we wanted to first consult with your office on the best approach to meeting this consultation application requirement.

We would be grateful for your guidance, and if you like, I would be glad to schedule a virtual meeting to discuss. Please let me know at your convenience if there are days/times this week or next that work for your schedule, and I will send a Teams invitation.

Thank you in advance for your input, Scott, I look forward to hearing from you.

Best,

Pete

Peter Regan

Associate Director
ATWELL, LLC
410.504.3473 Mobile
11721 Woodmore Road | Suite 200 | Mitchellville, MD 20721
www.atwell.com
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Meeting

Project Name: Riverbend Wind | **Notes by: Ben Sanford**

Project Number: 21003645 | **Location: Virtual Teams Meeting**

Subject: State Historic Preservation Office | **Date/Time: April 29, 2025 3:00 PM**

☒ Meeting ☐ Phone Conversation ☐ Incoming Call ☐ Outgoing Call

Attendee | Phone | Email

☒ Copies to Attendees (check all that apply)

☒ Scott Slager – SHPO

☒ Katherine Kolokithas – SHPO

☒ Peter Regan – Atwell

☒ Susan Trexler – Atwell

☒ Ben Sanford – Atwell

☒ Sebastian Tejada – REV Renewables

☒ Irene Bezuidenhout – REV Renewables

Discussion Topics:

Introductions

Project Overview:

- 50 proposed turbines – 5-mile buffer per SHPO requirements would result in a nearly 290 square mile survey area.
- Atwell performed viewshed analysis using both a bare earth model which yielded an approximately 280 square mile survey area, and a forested model which yielded an approximately 208 square mile survey area.

Atwell Notes:

- Focus of survey area and visual impact on historical resources should address cumulative impact on overall community.
- Per similar surveys and studies in other states, the proposed survey could focus on historical agricultural trends as well as ethnic context to identify themes that would be the emphasis of reported historical structures.
- Brief example of methodology could include collecting representational resources of agricultural and ethnic themes, do a photo of representative theme vs individual form. Would still have to physically drive the visual APE and document areas but save in-depth analysis for areas that meet certain criteria.

- There is no definitive database of parcels potentially hosting structures that would be 50 years or older. Project could perform an analysis of historic aerials/maps (i.e. aerial coverage dating back to at least 1975 – DTE may have aerial data for project area) to identify where structures were present to then focus survey on.
- Architectual assessment for consultation could be methodology as well as initial aerial review results, this would not require the survey to be performed prior to filing consultation form with SHPO.
- There is no recurring communication between SHPO and MPSC, MPSC may only request to see letter from SHPO as proof of consultation and would not necessarily be interested in survey results.

Sanilac County Drain Commission

Craig Kantola

From: Craig Kantola
Sent: Thursday, December 12, 2024 10:19 AM
To: 'dsweet@sanilaccounty.net'; 'akramer@sanilaccounty.net'
Subject: Sanilac County Drain and Stormwater Permit requirements - wind energy project
Attachments: PA 233 Application Checklist (1).pdf; Typical Wind Turbine Site.pdf; Sanilac County Drain Crossing Permit.pdf

SCDC,
Good morning, this is a general request for information regarding stormwater requirements for a proposed wind energy project in Sanilac County. As part of the newly adopted State of Michigan MPSC PA233 State Siting application package (Checklist Exhibit A-6.4 - attached), consultation with the County Drain office is required to document the stormwater design and permitting requirements. The project could consist of approximately 50 wind turbines in Fremont and Speaker Townships. Similar to other wind energy facilities in the area, each turbine would typically be located on land currently farmed for crop production and would be accessed by a gravel driveway. The second attachment shows an existing typical turbine site in the area for reference.

Our experience on these types of projects has been that the County Drain Commissioners have jurisdiction and require permits for the following activities:

- Crossing County Drain with an access driveway
    - **Drain Crossing Permit** - Culvert sizing to comply with County Drain authority requirements – See Note 1 below
    - EGLE Part 31 where tributary area exceeds 2 square miles
- Crossing County Drain with electrical lines
    - **Drain Crossing Permit** - Depth and length of burial is subject to County drain authority - See Note 2 below
- General overall turbine site & driveway
    - **Soil erosion control permit** for excavation, foundation construction, temporary construction disturbance and restoration - See Note 3 below
    - Stormwater detention has not been required due to the small footprint and distributed placement of the wind turbines with minimal gravel / impervious area - See Note 4 below

We would like to request your confirmation and input for our understanding of the County Drain stormwater review and permit process regarding the questions listed below:

1. Is the attached Drain Crossing permit application applicable to culvert installation or just utilities? Is there a document that provides guidance for County Drain crossing culvert sizing (i.e. 10-year, 25-year, methodology, etc.)? At this time we're not sure if any will be necessary as the site design typically seeks to avoid larger drain crossings, but having the proper requirements would be necessary if required for the Project.
2. Depth of burial is provided on the permit application – is that depth required for the bottom bank width, top bank width or entire easement? (This isn't really a stormwater-specific issue but will be helpful for the overall design and permitting understanding)
3. Confirmation that SCDC is not the permitting authority (looks like there's a separate Sanilac County Dept of Construction SESC Agency), and wouldn't be part of the formal SESC review.
4. Permanent stormwater management (i.e. detention or retention basins) wouldn't be necessary for the turbine sites. This is based on a review of existing sites and our experience on other projects in the area. For larger areas of permanent disturbance with impervious surfacing (i.e. maintenance facility with parking lot), additional stormwater runoff mitigation design could be required. At this time it's not determined but would like to understand what requirements may apply if a maintenance building or similar facility is proposed.

Your assistance and guidance regarding the SCDC stormwater design and permitting procedures is greatly appreciated, and if it would be beneficial to set up a call or meeting to discuss in more detail please let me know your availability and we can arrange that.
Thanks in advance for your time!

Craig Kantola, PE
Senior Project Engineer
ATWELL, LLC
734.994.4000 Office
517.672.9456 Mobile
311 N. Main Street | Ann Arbor, MI 48104
www.atwell.com
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Benjamin Sanford

From: Doug Sweet <dsweet@sanilaccounty.net>
Sent: Wednesday, February 19, 2025 9:10 AM
To: Benjamin Sanford; Michael W. Quaine; Ross Bower
Cc: Irene Bezuidenhout; Angela Kramer
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

Mr. Sanford,

We need to get the Cooperation Agreement signed and returned along with a deposit, then we can get working on getting the easement information for you. Ross Bower, our drain attorney, was going to get the agreement over to you soon.

Thanks,

Doug Sweet
Sanilac County Drain Commissioner
810-648-4900, ext. 3

From: "Benjamin Sanford" <bsanford@atwell.com>
Sent: 2/14/25 3:13 PM
To: "Michael W. Quaine" <mquaine@bmjinc.com>, Doug Sweet<dsweet@sanilaccounty.net>, Ross Bower <rbower@fsbrlaw.com>
Cc: Irene Bezuidenhout <IBezuidenhout@revrenewables.com>
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

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Good afternoon,

Hope all has been well since we last talked. Attached you will find a KMZ of the preliminary layout for the Riverbend Wind project (please note it is preliminary in nature and is likely to change, particularly ancillary infrastructure). Also, I've attached a table that lists the drains we currently propose crossing.

Would it be possible to get easement widths for the drains listed as we will need to incorporate them into our site plans per MPSC requirements. Please let me know if you need any additional information in order to provide that data.

Have a great weekend!

Regards,

Benjamin Sanford
Project Manager
ATWELL, LLC
248.447.2000 Office
517.648.7082 Mobile

From: Michael W. Quaine <mquaine@bmjinc.com>
Sent: Monday, January 6, 2025 4:47 PM
To: Craig Kantola <ckantola@atwell.com>; Benjamin Sanford <bsanford@atwell.com>
Cc: Doug Sweet <dsweet@sanilaccounty.net>; Ross Bower <rbower@fsbrlaw.com>
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

Per our conversations. These are the only contacts I have for this project. Please forward to those requiring a copy

Regards,

Michael W. Quaine, P.E.

Senior Project Engineer

mquaine@bmjinc.com

BMJ Engineers and Surveyors, Inc.

519 Huron Avenue

Port Huron, MI 48060

Ph: (810) 984-5596

Fax: (810) 984-8760

Visit our website *www.bmjinc.com (-> linkprotect.cudasvc.com)*

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From: Angela Kramer <akramer@sanilaccounty.net>
Sent: Wednesday, December 18, 2024 9:04 AM
To: Amanda M. Pentico <apentico@bmjinc.com>
Cc: Doug Sweet <dsweet@sanilaccounty.net>; Michael W. Quaine <mquaine@bmjinc.com>; Ross Bower <rbower@fsbrlaw.com>; Craig Kantola <ckantola@atwell.com>; bsanford@atwell.com
Subject: Re: Sanilac County Drain and Stormwater Permit requirements - wind energy project

Amanda, can you send us a link and invite for the meeting via Teams or Zoom? 1/6/25 at 2 pm. Everyone on this e-mail chain should get the link and invite.

Thanks,

Angela Kramer

Deputy Drain Commissioner / Drain Assessment Clerk

810-648-4900, ext. #1

From: "Ross Bower" <rbower@fsbrlaw.com>
Sent: 12/18/24 8:53 AM
To: "akramer@sanilaccounty.net" <akramer@sanilaccounty.net>
Cc: Doug Sweet <dsweet@sanilaccounty.net>, Michael Quaine<mquaine@bmjinc.com>, "Amanda M. Pentico" <apentico@bmjinc.com>, Michael Quaine <mquaine@bmjinc.com>
Subject: Re: Sanilac County Drain and Stormwater Permit requirements - wind energy project

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Yes, teams or zoom at 2pm on 1/6 will work for me - thank you!

-Ross

517.974.2390

Sent from my iPhone

> On Dec 18, 2024, at 8:45 AM, Angela Kramer <akramer@sanilaccounty.net> wrote:
>
> Ross,
>
> Does January 6 at 2 pm work for you to do a kick off meeting via Teams or Zoom? This is for Speaker & Fremont Twp. wind farm. If this works, I will have Amanda set up a link for the meeting.
>
> Thanks,
>
> **Angela Kramer**
>
> Deputy Drain Commissioner / Drain Assessment Clerk

810-648-4900, ext. #1

From: "Doug Sweet" <dsweet@sanilaccounty.net>
Sent: 12/17/24 10:51 AM
To: "Michael W. Quaine" <mquaine@bmjinc.com>, "akramer@sanilaccounty.net"<akramer@sanilaccounty.net>, Ross Bower <rbower@fsbrlaw.com>
Subject: RE: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

All,

Lets plan on 1-6 at 2.

Doug Sweet

Sanilac County Drain Commissioner

810-648-4900, ext. 3

From: "Michael W. Quaine" <mquaine@bmjinc.com>
Sent: 12/17/24 10:39 AM
To: "akramer@sanilaccounty.net" <akramer@sanilaccounty.net>, Ross Bower<rbower@fsbrlaw.com>, Doug Sweet <dsweet@sanilaccounty.net>
Subject: RE: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

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I'll be in your office on January 6. That would be best. We could do the meeting after lunch, say 2 pm. I will not be available January 7. January 8, 9 , 10 that week would be open too. Drain school is 1/9 – 1/10?

Michael W. Quaine, P.E.

Senior Project Engineer

mquaine@bmjinc.com

BMJ Engineers and Surveyors, Inc.

519 Huron Avenue

Port Huron, MI 48060

Ph: (810) 984-5596

Fax: (810) 984-8760

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From: Angela Kramer <akramer@sanilaccounty.net>
Sent: Tuesday, December 17, 2024 10:15 AM
To: Ross Bower <rbower@fsbrlaw.com>; Michael W. Quaine <mquaine@bmjinc.com>; Doug Sweet <dsweet@sanilaccounty.net>
Subject: FWD: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

Hello,

When would you be available for a zoom or teams meeting for the wind project in Fremont and Speaker Townships? Please see e-mails below.

Angela Kramer

Deputy Drain Commissioner / Drain Assessment Clerk

810-648-4900, ext. #1

From: "Craig Kantola" <ckantola@atwell.com>
Sent: 12/17/24 9:26 AM
To: "dsweet@sanilaccounty.net" <dsweet@sanilaccounty.net>,"akramer@sanilaccounty.net" <akramer@sanilaccounty.net>
Cc: Benjamin Sanford <bsanford@atwell.com>
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

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Doug,

Thanks for the response. I'll be back on January 2 & 3 but assume that many will still be out so let's shoot for a time that works for all early the following week – here are my openings:

Monday 1/6: 10AM to 4PM

Tuesday 1/7: 8AM to 4PM

If those don't work, the rest of week is open for me also:

Wed-Thu: 8AM to 4PM

Per the MPSC application checklist, we are preparing a Stormwater Mitigation Plan that "***Describes measures to minimize, mitigate, and repair any drainage impacts***" (this plan should address guidance from consultation with the County Drain Commissioner). Ideally if there was a published document we would reference specific sections of the document and get your confirmation of their applicability to the proposed project, along with the permitting process. Without a document to reference, we'd like to understand how the County will be involved in the review and permitting process so the Mitigation Plan for MPSC will be consistent with SCDC stormwater requirements.

We appreciate your assistance and look forward to discussing with you in 2025.

Happy Holidays,

Craig Kantola, PE
Senior Project Engineer
ATWELL, LLC
734.994.4000 Office
517.672.9456 Mobile

From: Doug Sweet <dsweet@sanilaccounty.net>
Sent: Tuesday, December 17, 2024 8:38 AM
To: Craig Kantola <ckantola@atwell.com>; akramer@sanilaccounty.net
Cc: Benjamin Sanford <bsanford@atwell.com>
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

Craig,

Good Morning, I've reached out to my Engineer and Legal team and we would like to set up a Teams meeting for after the first of the year to discuss your project. Will you provide me with a couple of dates and times that work for you.

Thanks

Doug Sweet

Sanilac County Drain Commissioner

810-648-4900, ext. 3

From: "Craig Kantola" <ckantola@atwell.com>
Sent: 12/17/24 7:01 AM
To: "dsweet@sanilaccounty.net" <dsweet@sanilaccounty.net>,"akramer@sanilaccounty.net" <akramer@sanilaccounty.net>
Cc: Benjamin Sanford <bsanford@atwell.com>
Subject: RE: Sanilac County Drain and Stormwater Permit requirements - wind energy project

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Good morning,

I will be taking time off for the holidays starting tomorrow and wanted to check back in to see if there are any questions or comments related to the request below. We are hoping to have SCDC feedback and guidance for use in preparing a summary in early January so any information you can provide prior to the holidays would be very helpful and greatly appreciated.

Copied to this email is Ben Sanford who is also working on this project, for coordination while I'm out of office.

Thanks again for your assistance and enjoy the holidays,

Craig Kantola, PE
Senior Project Engineer
ATWELL, LLC
734.994.4000 Office
517.672.9456 Mobile

From: Craig Kantola
Sent: Thursday, December 12, 2024 10:19 AM

To: 'dsweet@sanilaccounty.net' <dsweet@sanilaccounty.net>; 'akramer@sanilaccounty.net' <akramer@sanilaccounty.net>
Subject: Sanilac County Drain and Stormwater Permit requirements - wind energy project

SCDC,

Good morning, this is a general request for information regarding stormwater requirements for a proposed wind energy project in Sanilac County. As part of the newly adopted State of Michigan MPSC PA233 State Siting application package (Checklist Exhibit A-6.4 - attached), consultation with the County Drain office is required to document the stormwater design and permitting requirements. The project could consist of approximately 50 wind turbines in Fremont and Speaker Townships. Similar to other wind energy facilities in the area, each turbine would typically be located on land currently farmed for crop production and would be accessed by a gravel driveway. The second attachment shows an existing typical turbine site in the area for reference.

Our experience on these types of projects has been that the County Drain Commissioners have jurisdiction and require permits for the following activities:

- Crossing County Drain with an access driveway
  - **Drain Crossing Permit** - Culvert sizing to comply with County Drain authority requirements – See Note 1 below
  - EGLE Part 31 where tributary area exceeds 2 square miles
- Crossing County Drain with electrical lines
  - **Drain Crossing Permit** - Depth and length of burial is subject to County drain authority - See Note 2 below
- General overall turbine site & driveway
  - **Soil erosion control permit** for excavation, foundation construction, temporary construction disturbance and restoration - See Note 3 below
  - Stormwater detention has not been required due to the small footprint and distributed placement of the wind turbines with minimal gravel / impervious area - See Note 4 below

We would like to request your confirmation and input for our understanding of the County Drain stormwater review and permit process regarding the questions listed below:

1. Is the attached Drain Crossing permit application applicable to culvert installation or just utilities? Is there a document that provides guidance for County Drain crossing culvert sizing (i.e. 10-year, 25-year, methodology, etc.)? At this time we're not sure if any will be necessary as the site design typically seeks to avoid larger drain crossings, but having the proper requirements would be necessary if required for the Project.
2. Depth of burial is provided on the permit application – is that depth required for the bottom bank width, top bank width or entire easement? (This isn't really a stormwater-specific issue but will be helpful for the overall design and permitting understanding)
3. Confirmation that SCDC is not the permitting authority (looks like there's a separate Sanilac County Dept of Construction SESC Agency), and wouldn't be part of the formal SESC review.
4. Permanent stormwater management (i.e. detention or retention basins) wouldn't be necessary for the turbine sites. This is based on a review of existing sites and our experience on other projects in the area. For larger areas of permanent disturbance with impervious surfacing (i.e. maintenance facility with parking lot), additional stormwater runoff mitigation design could be required. At this time it's not determined but would like to understand what requirements may apply if a maintenance building or similar facility is proposed.

Your assistance and guidance regarding the SCDC stormwater design and permitting procedures is greatly appreciated, and if it would be beneficial to set up a call or meeting to discuss in more detail please let me know your availability and we can arrange that.

Thanks in advance for your time!

Craig Kantola, PE
Senior Project Engineer
ATWELL, LLC
734.994.4000 Office
517.672.9456 Mobile
311 N. Main Street | Ann Arbor, MI 48104
www.atwell.com (-> linkprotect.cudasvc.com) (-> linkprotect.cudasvc.com) (-> linkprotect.cudasvc.com)
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MEETING NOTES:

PROJECT NAME:	Riverbend Wind	**NOTES BY:**	Ben Sanford
PROJECT #:	24006759	**LOCATION:**	TEAMS (Virtual)
SUBJECT:	County Stormwater Requirements	**DATE/TIME:**	January 6, 2025, 2:00PM ET

☒ Meeting ☐ Phone Conversation ☐ Incoming Call ☐ Outgoing Call

ATTENDEE | PHONE | EMAIL:

Copies to attendees (check all that apply)

☒	Ben Sanford (Atwell)	☒	Doug Sweet (Sanilac County)
☒	Craig Kantola (Atwell)	☒	Angela Kramer (Sanilac County)
☒	Gabriella Kovacs (Liberty)	☐	Amanda Pentico (BMJ Inc.)
☐	Nelson Moleiro (Liberty)	☒	Michael Quaine (BMJ Inc.)
☒	Rob Nadolny (Liberty)	☒	Ross Bower (FSBR Law)
☒	Irene Bezuidenhout (Liberty)		

TOPICS DISCUSSED:

- Wind turbines and access roads, County may consider on a case-by-case basis allowing access roads within the drain right of way. May require additional matching easement from property owner for width of road – determined also case-by-case.
- Instead of individual permits, one agreement per drainage district for large projects with multiple of crossings. Blanket agreement for all crossings of a particular drain.Temporary and permanent crossings could be included on the same agreement.
  - Includes: Permanent (road crossings, culverts, utilities) and Temporary (crane walk and delivery turning radii roads & culverts that will be removed).
- Will have to plan for the possibility of landowners wanting access roads/improvements that were initially intended to be temporary become permanent (i.e. crane walk culverts)
  - Permanent structures will have a maintenance fee – amount TBD; temporary would not

- Intercounty drains would be subject to review/approval by intercounty drain board.
  - 2 Intercounty drains in area include Jackson Creek and Willey Drain
- Could potentially assume a standard setback distance for placement of infrastructure.
- Sanilac County will share stormwater development rules via email. Use as guidance for stormwater design, however due to limited impact of wind turbine gravel roads there should be no onerous stormwater management required. Mainly will need to comply with NPDES / construction SESC requirements. In cases where drain tile is impacted by the project (moving, etc), would need to comply with SCDC regulations.
- 10 feet below designed bottom of drain for underground collection crossings. Depth should be maintained for the width of the right of way. SCDC has a detail for this condition.
- SCDC requested a schematic map of the project area / turbine locations. Liberty OK'd to provide noting that they are still preliminary at this stage and subject to change.
- Two types of agreements are anticipated:
  - Cooperation Agreement
  - Drain Crossing / Impact Agreement – Liberty requested a template and SCDC can provide

Sanilac County Drain Commissioner
60 W. Sanilac Avenue, Room 201, Sandusky, MI 48471 (810) 648-4900

PERMIT FOR CROSSING A COUNTY DRAIN AND/OR COUNTY DRAIN EASEMENT

NAME OF DRAIN				APPLICATION DATE	
PERMIT NUMBER		DATE ISSUED		CONSTRUCTION EXPIRATION DATE	
MUNICIPALITY		SECTION		PARCEL ID AFFECTED	
FEE PAID		DEPOSIT PAID		RECEIPT #	

AUTHORITY IS HEREBY GRANTED TO:

PERMITTEE / OWNER:		**CONTRACTOR / ENGINEERS**	

SCOPE OF WORK SUMMARY:

APPROVED PLAN REFERENCE:

WORK TO BE DONE UNDER AUTHORITY OF THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:

1.	Permittee/Owner agrees that Work shall not commence on the Drain or in the Drain Easement without payment of the **$250.00 permit application fee** and prior notice of at least ten (10) business days to the Sanilac County Drain Commissioner's Office.
2.	Permittee/Owner shall not commence the Work within the Drain without a Sanilac County Drain Office inspector present. Permittee/Owner is responsible for all costs incurred by the Drain Commissioner for the inspection. A **$1,000.00 deposit** shall be placed with the Drain Commissioner prior to the commencement of the Work. The Drain Commissioner may require an additional deposit prior to the acceptance of the Work if the costs incurred exceed the initial deposit amount. Any unused portion of the deposit shall be returned to Permittee/Owner one (1) year after completion and acceptance of the Work. Checks shall be made out to the Drainage District.
3.	Permittee/Owner shall post at the entrance of the work site, a copy of the issued Permit, which shall be available for inspection at all times during the course of the Work on the Drain or within the Drain Easement.
4.	Permittee/Owner agrees to provide the Drain Commissioner with one copy of *as-built drawings* of the Work performed on the Drain and in the Drain Easement within 30 days after the Work in this Permit is completed. The as-built drawings shall be sealed by a professional engineer licensed in the State of Michigan and shall indicate location and elevations of any Drain crossings, show the Drain Easement, and all other relevant information for the authorized encroachment of the Drain Easement. The as-built drawings shall be submitted on paper and in digital format (CD/AutoCAD). If Permittee/Owner fails to provide the as-built drawings within the required time, the Drainage District are authorized to have the as-built drawings prepared, and the Permittee/Owner agrees to be responsible for all costs involved.
5.	Permittee/Owner agrees to hold harmless, indemnify and pay the costs to defend the Drainage District, the Drain Commissioner and their agents, employees and/or contractors from any and all actual damages arising out of the Work and the existence of the Utility within the Drain Easement and all actual damages or claims for damages to person or property arising from the Work on and/or use of the Utility in the Drain Easement.
6.	Permittee/Owner shall be responsible for payment of the application fee, together with any costs incurred by the Drainage District arising from this Permit, including but not limited to, engineering, inspection, legal, enforcement and administrative fees, incurred in the preparation of this Permit, and any services rendered attendant thereto. Payment shall be due upon receipt of invoices.
7.	***This Permit does not waive the necessity for Permittee/Owner to obtain all other required federal, state, or local permits, specifically including any Soil Erosion and Sedimentation Control permits issued by***

the Sanilac County Department of Construction SESC Agency. May require permission from land owner(s).

8. ***Specific conditions to the Permit include the following:***

A. Permittee/Owner will install proposed utility **10'** below the side slope and historic bottom of an open drain and/or **10'** below the bottom of a culvert or tile drain.

B. All construction work and restoration shall meet the soil erosion and sedimentation requirements of the Soil Erosion & Sedimentation Control Agency. All work shall be done in accordance with the Michigan Association of County Drain Commissioner's Soil Erosion and Sedimentation Control, Authorized Public Agency Procedures Manual.

C. Restoration of open drains shall be done using non-woven filter fabric and plain stone rip-rap stone to protect the trench from erosion. Rip rap shall meet MDOT specifications.

9. Permittee/Owner shall contact Michigan MISS DIG SYSTEM prior to the commencement of Work and shall follow all MISS DIG SYSTEM requirements in performing the Work. The MISS DIG SYSTEM date of call and docket number shall be furnished to the Drain Commissioner's Office before the Work commences.

10. There is to be no obstruction of flow of water in the Drain as defined in Sections 421 and 422 of the Drain Code, MCL 280.421 and 280.422, during performance of the Work unless specifically authorized by the Drainage District in writing consistent with the approvals granted under this Permit.

11. Upon completion of the Work by Permittee/Owner, Permittee/Owner shall notify the Drain Commissioner. Prior to approval of the Work as complete, Permittee/Owner agrees to perform any restoration activities required by the Drain Commissioner. If, in the Drain Commissioner's discretion, the Work is complete, the Drain Commissioner shall notify Permittee/Owner of the acceptance of the Work as complete.

12. Unless specified by this Permit, Permittee/Owner shall not make any other improvements, or perform any other activities, on the Drain or in the Drain Easement, without the prior written consent of the Drain Commissioner.

13. Permittee/Owner shall furnish the Drainage District with evidence of liability insurance in the amount of at least One Million Dollars ($1,000,000.00) per occurrence covering the Work performed by Permittee/Owner under this Permit, which may be accomplished by way of excess or umbrella policies. The insurance shall be written by a company rated by A.M. Best Company requiring an "A-" or better rating. The Certificate of Insurance shall be provided to the Drain Commissioner before the commencement of any Work. The insurance policy shall provide for a ten (10) day "Prior Notice Termination" provision in favor of the Drainage District. The Drainage District, the Sanilac County Drain Commissioner, and Sanilac County shall be named as additional insureds on the policy. Such insurance may be only be terminated upon written approval of the Drain Commissioner.

14. Permittee/Owner agrees that should the Drain require maintenance or improvement in the future that requires the relocation of the Utility within the Drain or the Drain Easement, the Utility shall be relocated in a timely manner upon the written request of the Drain Commissioner at the sole cost of Permittee/Owner, unless the Permittee/Owner and the Drain Commissioner otherwise agreed to by the Drain Commissioner. The Permittee/Owner shall pay for all additional costs incurred by the Drainage District for the maintenance and improvement of the Drain as a result of the Utility's location within the Drain and/or Drain Easement.

15. Permittee/Owner is responsible for any increased costs to the Drainage District for the operation, maintenance or improvement of the Drain due to the existence of the Encroachments in the Drain Easement. Permittee/Owner further agrees that should the Drain require maintenance or improvement in the future that requires the relocation of the Encroachments or the Drain Easement, the Encroachments shall be relocated in a timely manner upon the written request of the Drain Commissioner at the sole cost of Permittee/Owner.

16. This Permit is binding on Permittee/Owner, its heirs, assigns, and successors in interest. This Permit is not assignable without the written consent of the Drain Commissioner, which shall not be unreasonably withheld.

17. Violation of any of these specified terms and conditions shall constitute a breach of this Permit to which the Drainage District and/or the Drain Commissioner may direct the relocation or reconstruction of the Work within the Drain Easement to comply with the terms of this Permit, with all reasonable and necessary costs, including but not limited to construction, engineering, legal, inspection and enforcement, to be paid by Permittee/Owner.

18. The commencement of the Work under this Permit shall constitute an acceptance by Permittee/Owner of the terms and conditions set forth in this Permit.

DATE	DOUG SWEET, DRAIN COMMISSIONER

Sanilac County Road Commission

Benjamin Sanford

From: Robb Falls <rfalls@sanilacroads.com>
Sent: Wednesday, March 12, 2025 7:22 AM
To: Benjamin Sanford
Subject: RE: Meeting for Riverbend Wind

Good Morning,
Yes, I am available Tuesday the 18th .

Robb

From: Benjamin Sanford <bsanford@atwell.com>
Sent: Monday, March 10, 2025 12:02 PM
To: Robb Falls <rfalls@sanilacroads.com>
Subject: RE: Meeting for Riverbend Wind

> You don't often get email from bsanford@atwell.com. Learn why this is important

Good morning Robb,

I received some additional feedback from the rest of my team. Would you potentially be available for a meeting the morning of Tuesday the 18th? I think anytime between 9am-11am would work well.

Please let me know.

Thanks,

Benjamin Sanford
Project Manager
ATWELL, LLC
248.447.2000 Office
517.648.7082 Mobile

From: Robb Falls <rfalls@sanilacroads.com>
Sent: Friday, March 7, 2025 1:08 PM
To: Benjamin Sanford <bsanford@atwell.com>
Subject: RE: Meeting for Riverbend Wind

We could meet Wednesday the 19th.

From: Benjamin Sanford <bsanford@atwell.com>
Sent: Friday, March 7, 2025 12:58 PM
To: Robb Falls <rfalls@sanilacroads.com>
Subject: Meeting for Riverbend Wind

> You don't often get email from bsanford@atwell.com. Learn why this is important

Robb,

Thanks again for reaching back out regarding setting up a meeting to discuss the Riverbend Wind project. In talking with my client they would like to try to schedule something the week of March 17th, would any of those days that week work for you? I believe in general the availability on my side would be any day Wednesday – Friday (19th-21st).

Let me know what works for you and I will coordinate with my client and team.

Thanks and have a great weekend.

Benjamin Sanford
Project Manager
ATWELL, LLC
248.447.2000 Office
517.648.7082 Mobile
Two Towne Square | Suite 700 | Southfield, MI 48076
www.atwell.com (-> www.atwell-group.com)
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Agenda

Project Name: Riverbend Wind | **Notes by: Ben Sanford**

Project Number: 21003645 | **Location: 100 S. Elk Street, Sandusky, MI**

Subject: Sanilac County Road Commission Update | **Date/Time: March 18, 2025 10:00 AM**

☒ Meeting ☐ Phone Conversation ☐ Incoming Call ☐ Outgoing Call

Attendee | Phone | Email

☐ Copies to Attendees (check all that apply)

☐ Robb Falls – SCRC

☐ Bob Armstrong – SCRC

☐ Andrew Palmer – Atwell

☐ Timothy Jones – Atwell

☐ Ben Sanford – Atwell

☐ Sebastian Tejada – REV Renewables

☐ Irene Bezuidenhout – REV Renewables

Discussion Topics:

Introductions

Project Overview:

- Project located in Fremont, Speaker & Elk Townships
- 50 proposed turbines, as well as ancillary infrastructure including access roads, underground collection, laydown yard, substation & switch yard, MET towers, as well as a crane walk path.

Project Status:

- Project currently in the process of completing an application for the new state siting application process per PA 233 with an anticipated filing date of August 2025.
- Targeted Construction in 2026.
- Targested COD in 2027.
- As part of the state siting process, the project is seeking to kick off consultation with the County Road Commission to establish requirements for permitting.

Next Steps:

- County Road requirements for access road entrances, underground collection crossings & crane walk crossings.
- Road Use Agreement for haul route.

Atwell Notes:

- Sanilac County Road Commission indicated that they would not consider a permit for any infrastructure running parallel within the ROW.
- Sanilac would like to consider a proactive road conditioning up front before construction starts – identifying main traveled roads and installing edge drain to promote better drainage.
    - Sanilac expressed concern regarding the amount of work that could be required up front for road repairs prior to delivery.
    - This could include an initial payment/bond for initiating work.
    - Bond payment would need to be cash.
- Sanilac County would like to use 22A gravel for gravel surface grading
- Frost laws typically start March 1 through May 1 and no loads will be allowed during these times annually. Actual dates vary depending on average temperatures.
- Sanilac has indicated they would like culverts designed to handle a 100-year storm even flow rate
- Borings shall be at least 6' below lowest point (road or ditch bottom) through the entire length of the Sanilac County Road ROW.
- Sanilac County Road Commission will perform all work based on the rates provided.
- Sanilac County would handle traffic management – this includes removal of existing signage, and potentially directing traffic during major delivery activities and cranewalk crossings. (would require coordination with EPC/delivery contractor).

DTE Energy

Benjamin Sanford

From: Michelle A Riley <michelle.riley@dteenergy.com>
Sent: Thursday, May 29, 2025 9:00 AM
To: Timothy Jones
Cc: Jill Collins; Benjamin Sanford; Karen L Bourdage
Subject: Re: [EXTERNAL] Riverbend Wind - DTE Crossing Locations
Attachments: REQUEST FOR INFORMATION - PROCESS GRANT OF EASEMENT ON DTE PROPERTY 2024 v4.pdf

Hi Tim,

Can we set up a team's meeting to discuss your request? I started this request with Jason Alexander of Algonquin Power and then that same year worked with Phil Pavlov of Liberty Power. It was determined that DTEE does still own the RR line that you need to cross. In 2024, I did a preliminary circulation and found no objections from our business units at that time. However, once you determine the exact locations to cross the RR line, I will need to do a formal circulation. We also went back and forth on the type of document to use for the crossings (license or non-exclusive easement with sunset provision); however, no document was submitted by either power company.

Attached is the Request for information Sheet for an easement grant from DTEE. This is the information I will need to do for the formal circulation. However, please submit all when you receive approvals for the wind park and know the exact locations for the collection lines. I also see that the client on the survey is Nextera....is this now the developer of Riverbend Wind Park and the entity that would be the grantee on the license or easement?

Thank you,

Michelle

Michelle A. Riley
Real Estate Associate
DTE ENERGY | Corporate Real Estate

Michelle.riley@dteenergy.com
(313) 235-7119 Office
(248) 496-6504 Cell

From: Timothy Jones <tjones@atwell.com>
Sent: Wednesday, May 28, 2025 3:14 PM
To: Michelle A Riley <michelle.riley@dteenergy.com>

Cc: Jill Collins <jcollins@revrenewables.com>; Benjamin Sanford <bsanford@atwell.com>
Subject: [EXTERNAL] Riverbend Wind - DTE Crossing Locations

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Good Afternoon Michelle,

REV Renewables is currently in the process of permitting a wind project known as Riverbend Wind located in Sanilac County. The project is in the process of submitting into State Siting via PA233 and as part of that process, early initial coordination is encouraged with local electrical distribution companies. As this is still very early in the approval process, we wanted to inform you of our intention to cross likely a year from now and at which point we should have more exact locations after approvals and engineering designs have progressed. We are not looking to start a crossing consent agreement at this time. We would like to start initial review to make sure there are not any issues for a future crossing at these two areas.

There are two proposed underground electrical crossing locations as depicted in the attached draft easement documents (21003645EA-01.pdf & 21003645EA-02.pdf). This is a unique situation where we will be asking for consent to cross a DTE owned parcel that was previously a 66' wide railroad parcel (PIN 220-028-029-030-22). Major crossroads near these two locations are W. Wellman Line Rd. & Arendt Rd. in Speaker Township, Sanilac County, MI. Please let us know what other information you may need to be provided to vet the locations. We can also provide the $500 processing fee if this is required at this time.

Regards,

Timothy Jones
Development Manager, Renewables
ATWELL, LLC
248.447.2000 Office
734.341.3719 Mobile
Two Towne Square | Suite 700 | Southfield, MI 48076
www.atwell.com
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REQUEST FOR INFORMATION
(DTE as Grantor)

DTE would be pleased to review your request for a permanent easement on DTE property. We will circulate this request within the various DTE departments and ask that the below points of information be submitted to assist in properly evaluating the grant of an easement.

1. A letter stating in detail the purpose of your request to DTE (what is the customer asking for).

2. A land survey, architectural/engineering drawing or a sketch (in a digital file format "PDF"). The survey or drawing should show the dimensions of the requested easement, location, outline of the easement area where it will cross DTE property and the location of the property (including major cross roads) that will be enhanced, including address and Tax ID number. (i.e. show the property in relationship to what the customer is requesting).

3. If the request involves underground utilities facilities, please include the depth, width, height and material being used.

4. Submit a survey for each easement that is being requested on DTE property, in a recordable form, complete with legal description of the easement area and property.

5. Submit a draft of the easement document for review by DTE Legal.

6. A check for $500.00 as a processing fee. Check should be made payable to DTE Electric Company and sent via overnight service to One Energy Plaza, Detroit, MI 48226 ATTN: Daijah Heron, Accounting – 1160 WCB. A copy of the check should be sent electronically to Michelle Riley at michelle.riley@dteenergy.com.

7. Contact information from requesting party.

Please send the information electronically (PDF format) to Michelle Riley at michelle.riley@dteenergy.com.

Once all information is received from the customer, a package will be submitted to various departments within DTE for review and determination. The review process can take between 2 to 4 weeks, depending on current work assignments.

If the easement request is granted and/or approved, there will be a valuation statement prepared and the cost of the easement area requested will be sent to the requesting party.

If you have any questions, please contact Michelle Riley at 313-235-7119.

ITC Holdings Corp.

Benjamin Sanford

From: Benjamin Sanford
Sent: Friday, June 20, 2025 2:46 PM
To: Guevara, Fernando
Cc: Sebastian Tejada; Irene Bezuidenhout; Timothy Jones
Subject: Riverbend Wind Energy Facility - Project Introduction
Attachments: Riverbend Wind_ ITC Consultation Letter_FINAL.pdf; T24006759 _Utilities_ITCHoldingCorp.pdf

Good afternoon,

Please see the attached letter and map regarding the proposed Riverbend Wind Energy Facility located in Sanilac County, MI. Please review and respond with any questions.

Thanks,

Benjamin Sanford
Project Manager
ATWELL, LLC
248.447.2000 Office
517.648.7082 Mobile
Two Towne Square | Suite 700 | Southfield, MI 48076
www.atwell.com
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June 20, 2025

ITC Holdings Corp.
27175 Energy Way
Novi, MI 48377

RE: Riverbend Wind Energy Facility

To Whom It May Concern,

MI Energy Developments, LLC is proposing to develop an approximately 300 MW wind energy facility in Sanilac County, Michigan known as Riverbend Wind Energy Facility ("the Project"). The Project intends to file an application for Michigan Public Service Commission ("MPSC") approval of a Certificate for siting a wind energy facility under Michigan Public Act 233 of 2023. In accordance with the MPSC requirements, we are engaging with the owners of major facilities for electric, gas, and telecommunication infrastructure that may be affected by the Project. As part of our preliminary due diligence, we are providing a map of the proposed project layout, which also includes potential easement locations owned by ITC Holdings Corp. (ITC). We ask you to please review the map and confirm if whether the ITC owned infrastructure shown is correct.

Prior to the commencement of construction, the Project intends to seek a Consent and Crossing Agreement from ITC to accommodate the construction of the project.

Please let us know if you have any questions or would like to schedule a time to discuss this further. You can contact me at bsanford@atwell.com or (517) 648-7082.

Respectfully,

ATWELL, LLC

Southfield, MI

Ben Sanford
Project Manager

Village of Peck
Elk Township
Speaker Township
Sheridan Line Rd
Mortimer Line Rd
Burns Line Rd
School Rd
Melvin Rd
Mowerson Rd
W Burns Line Rd
State Hwy 90
Brockway Rd
State Hwy 19
Duquette Rd
Arendt Rd
Jordan Rd
ITC Holdings Corp
Village of Melvin
Speaker Township
Fremont Township
Bricker Rd
Gardner Line Rd
ITC Holdings Corp
Kilgore Rd
Todd Rd
Fargo Rd
Cribbins Rd
Galbraith Line Rd
Brown Rd
E Wellman Line Rd
W Wellman Line Rd
Sanilac County
St. Clair County
Fisher Rd
Comstock Rd
10
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ATWELL

MI Energy Developments, LLC
Riverbend Wind Energy Facility
24006759
June 17, 2025
Preliminary

0 4,000 Feet

- Project Area (~34,860 acres)
- 1,000-foot Buffer
- Town/Village
- Township
- County
- Proposed MET
- Proposed Turbine
- Proposed Collection Route
- Proposed Access Road
- Proposed Intersection Improvements
- Proposed Laydown Yard
- Proposed O&M Facility
- Proposed Switching Station
- Proposed Substation
- Transmission (Velocity Suite)

Source: National Agriculture Imagery Program (2022)

ITC Holding Corp
Utilities Map
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan

G:\Jobs2400\T24006759_Riverbend_SanilacCo_MI\Projects\ProjectTemplate\T24006759_Riverbend.aprx 6/17/2025

SEMCO Energy Natural Gas

June 30, 2025

SEMCO Energy Gas Company
1411 Third Street, Suite A
Port Huron, MI 48060

RE: Riverbend Wind Energy Facility

To Whom It May Concern,

MI Energy Developments, LLC is proposing to develop an approximately 300 MW wind energy facility in Sanilac County, Michigan known as Riverbend Wind Energy Facility ("the Project"). The Project intends to file an application for Michigan Public Service Commission ("MPSC") approval of a Certificate for siting a wind energy facility under Michigan Public Act 233 of 2023. In accordance with the MPSC requirements, we are engaging with owners of major facilities for electric, gas, and telecommunication infrastructure that may be affected by the Project. As part of our preliminary due diligence, we are providing a map of the proposed project layout, which also includes potential easement locations owned by SEMCO Energy Gas Company ("SEMCO"). We ask you to please review the map and confirm if whether the SEMCO owned infrastructure shown is correct.

Prior to the commencement of construction, the Project intend to seek a Consent and Crossing Agreement from SEMCO to accommodate the construction of the project.

Please let us know if you have any questions or would like to schedule a time to discuss this further. You can contact me at bsanford@atwell.com or (517) 648-7082.

Respectfully,

ATWELL, LLC

Southfield, MI

Ben Sanford
Project Manager

Benjamin Sanford

From: Ryan Cameron <ryan.cameron@semcoenergy.com>
Sent: Thursday, July 10, 2025 3:00 PM
To: Benjamin Sanford
Cc: Dustin Youngs; Jason Livingston; Nathan Armstrong; Patrick Hurd
Subject: RE: Atwell, LLC Wind Development Notice
Attachments: Riverbend Wind Energy Project.docx

This message was sent securely using Zix®

Ben,
Attached is a map of our gas facilities within the proposed Riverbend Wind Energy Facility area. Once the proposed crossings are determined I will do a more in-depth search for any SEMCO owned properties and easements. I will be the point of contact for any further information you may need.
Thank you,
Ryan

SEMCO Energy Gas Company
Ryan Cameron
Engineer III
1411 Third Street, Ste A
Port Huron, MI 48060
810-531-3690
Ryan.Cameron@semcoenergy.com

From: Jason Livingston <jason.livingston@semcoenergy.com>
Sent: Wednesday, July 9, 2025 1:44 PM
To: Ryan Cameron <ryan.cameron@semcoenergy.com>; Nathan Armstrong <nathan.armstrong@semcoenergy.com>
Cc: Dustin Youngs <dustin.youngs@semcoenergy.com>
Subject: Atwell, LLC Wind Development Notice

Hello,

Forwarding on this notice of a wind development project.

I'm looking at the info from a Thumb Reinforcement impact, but they are asking that we confirm SEMCO infrastructure locations on this map as well. Can you guys please reach out to Ben Sanford, contact info on the letter?

Thanks,

Jason Livingston PE
Engineering Lead
SEMCO Energy
(810)294-9546

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External Email: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

ATWELL

June 30, 2025

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1411 Third Street, Suite A
Port Huron, MI 48060

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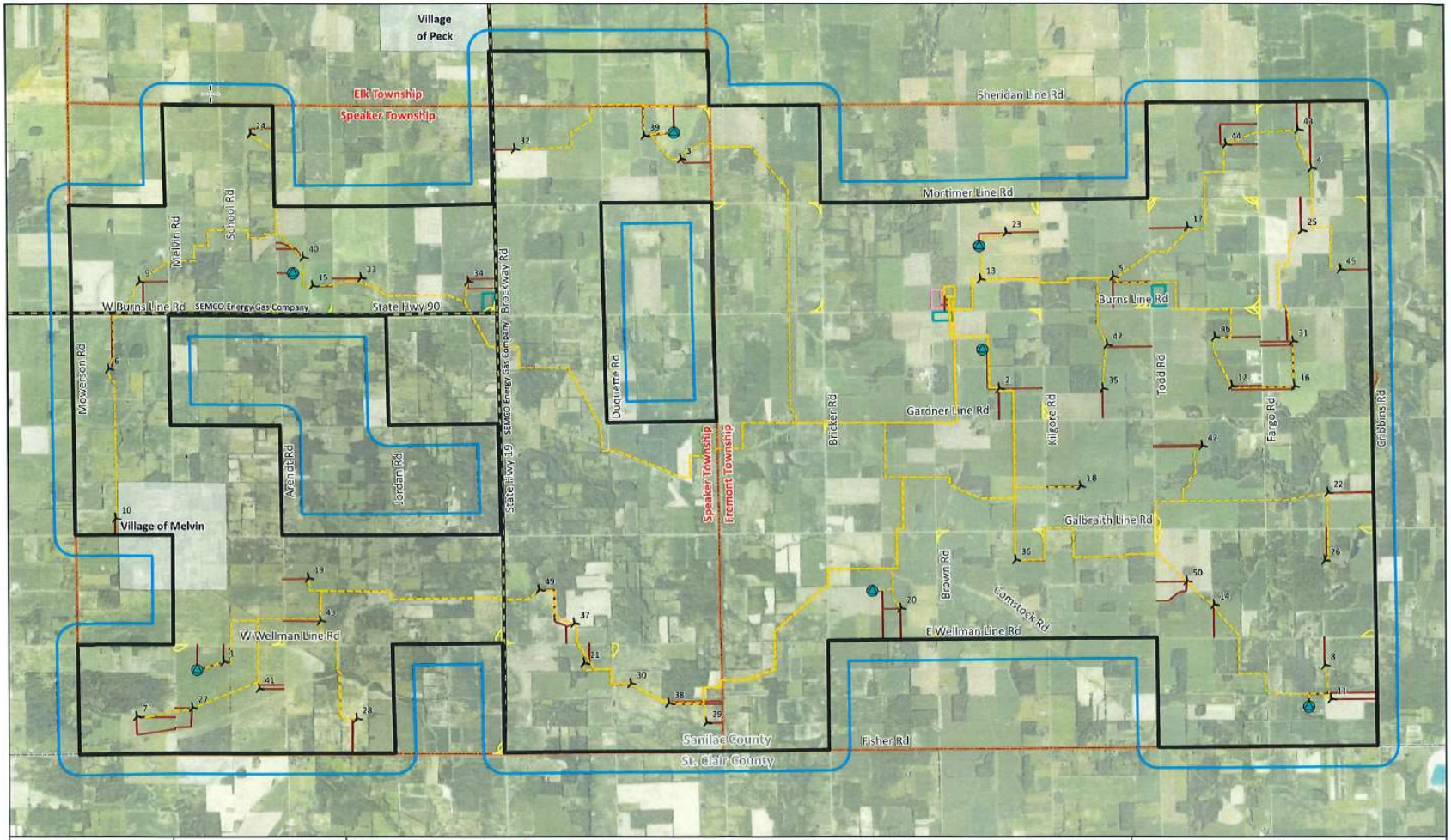
Respectfully,

ATWELL, LLC

Southfield, MI

Ben Sanford
Project Manager


Village of Peck
Elk Township
Speaker Township
Sheridan Line Rd
Mortimer Line Rd
Burns Line Rd
Gardner Line Rd
Galbraith Line Rd
E Wellman Line Rd
W Wellman Line Rd
W Burns Line Rd
SEMCO Energy Gas Company
State Hwy 90
State Hwy 19
Brockway Rd
Melvin Rd
School Rd
Mewerson Rd
Arendt Rd
Jordan Rd
Duquette Rd
Bricker Rd
Kilgore Rd
Todd Rd
Fargo Rd
Gribbins Rd
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St. Clair County
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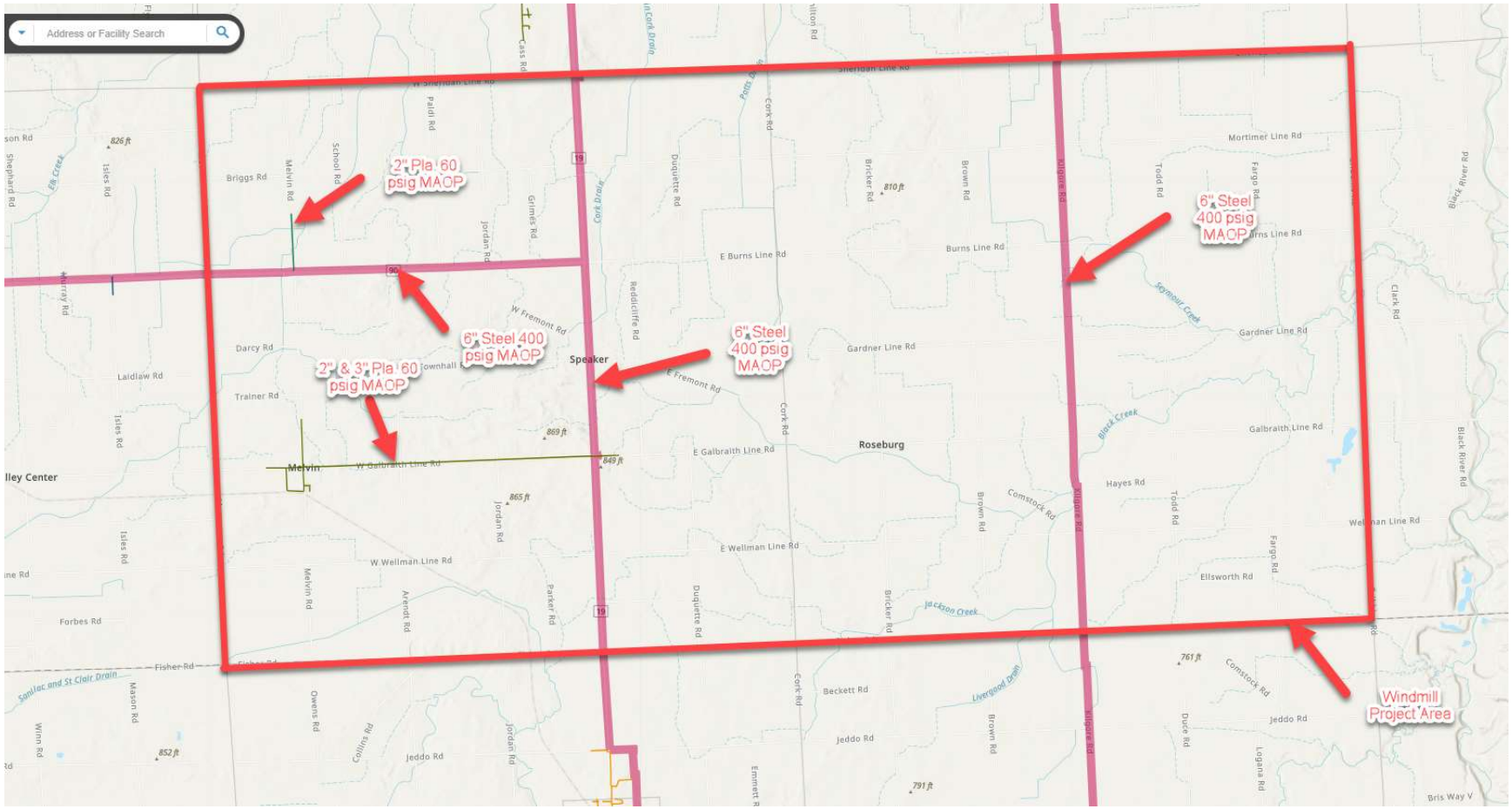
Proposed Laydown Yard
Proposed O&M Facility
Proposed Switching Station
Proposed Substation
Natural Gas Pipeline (Rextag)
Source: National Agriculture Imagery Program (2022)
SEMCO Energy Gas Company
Utilities Map
Elk, Speaker, and Fremont Townships
Sanilac County, Michigan



Project area

- North Boundary – Sheridan Line Rd
- South Boundary – Fisher Rd
- West Boundary – Mowerson Rd
- East Boundary – Gibbons Rd