

INFORMATION SHEET

PRESIDING: Chair Mitchell; and Commissioners Clodfelter and Duffley

PLACE: Via Videoconference

DATE: Wednesday, October 27, 2021

TIME: 10:04 a.m. – 10:54 a.m.

DOCKET NOS.: EMP-118, Sub 0 and Sub 1

COMPANY: Timbermill Wind, LLC

DESCRIPTION: Application for CPCN to Construct a Merchant Plant Wind Energy Facility in Chowan County, NC and Registration as a New Renewable Energy Facility; and Application for a CECPCN to Construct a Transmission Line in Chowan County, NC

VOLUME NUMBER: 2

APPEARANCES

See Attached

WITNESSES

See Attached

EXHIBITS

See Attached

CONFIDENTIAL COPIES OF TRANSCRIPTS AND EXHIBITS ORDERED BY: Ms. Ross, Ms. Parrott, Mr. Josey and Ms. Coxton

REPORTED BY: Kim Mitchell

TRANSCRIBED BY: Kim Mitchell

DATE FILED: November 19, 2021

TRANSCRIPT PAGES: 55

PREFILED PAGES: 60

TOTAL PAGES: 115

1 PLACE: Via Videoconference
2 DATE: Wednesday, October 27, 2021
3 TIME: 10:00 a.m. - 10:54 a.m.
4 DOCKET NO: EMP-118, Sub 0 and Sub 1
5 BEFORE: Chair Charlotte A. Mitchell, Presiding
6 Commissioner Daniel G. Clodfelter
7 Commissioner Kimberly W. Duffley
8

9 IN THE MATTER OF:

10 EMP-118, Sub 0

11 Application of Timbermill Wind, LLC, for a Certificate
12 of Public Convenience and Necessity to Construct a
13 Merchant Plant Wind Energy Facility in Chowan County,
14 North Carolina and Registration as a New Renewable
15 Energy Facility

16 and

17 EMP-118, Sub 1

18 Application of Timbermill Wind, LLC, for a Certificate
19 of Environmental Compatibility and Public Convenience
20 and Necessity to Construct a Transmission Line in
21 Chowan County, North Carolina

22
23 VOLUME 2
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A P P E A R A N C E S:
FOR TIMBERMILL WIND, LLC:
Katherine E. Ross, Esq.
E. Merrick Parrott, Esq.
Parker Poe Adams & Bernstein LLP
301 Fayetteville Street, Suite 1400
Raleigh, North Carolina 27601

FOR THE USING AND CONSUMING PUBLIC:
Robert B. Josey, Esq.
Reita D. Coxton, Esq.
Public Staff - North Carolina Utilities Commission
4326 Mail Service Center
Raleigh, North Carolina 27699-4300

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: October 27, 2021 DOCKET NO.: EMP-118, Subs 0 & 1

ATTORNEY NAME and TITLE: Katherine E. Ross; Attorney

FIRM NAME: Parker Poe Adams & Bernstein LLP

ADDRESS: 301 Fayetteville Street, Suite 1400

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: Timbermill Wind, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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Email: katherineross@parkerpoe.com

SIGNATURE: 

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NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE October 27, 2021 DOCKET #: EMP-118 Subs 0 & 1

PUBLIC STAFF MEMBER Robert B. Josey and Reita D. Coxtton

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **E-MAILED** TO THE PUBLIC STAFF - PLEASE INDICATE YOUR DIVISION AS WELL AS YOUR E-MAIL ADDRESS BELOW:

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LEGAL robert.josey@psncuc.nc.gov
CONSUMER SERVICES _____

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1 Number of copies of confidential portion of regular transcript (assuming a confidentiality agreement has been signed). Confidential pages will still be received in paper copies.

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/s/Robert B. Josey
Signature of Public Staff Member

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: October 27, 2021 DOCKET NO.: EMP-118, Subs 0 & 1

ATTORNEY NAME and TITLE: E. Merrick Parrott; Attorney

FIRM NAME: Parker Poe Adams & Bernstein LLP

ADDRESS: 301 Fayetteville Street, Suite 1400

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: Timbermill Wind, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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To receive an electronic **CONFIDENTIAL** transcript, please complete the following:

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Email: merrickparrott@parkerpoe.com

SIGNATURE: 

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-118 SUB 0

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

| | |
|---------------------------------------|----------------------------------|
| In the Matter of the Application of) | APPLICATION FOR A CERTIFICATE OF |
| Timbermill Wind, LLC for a) | PUBLIC CONVENIENCE AND |
| Certificate of Public Convenience) | NECESSITY FOR A MERCHANT PLANT |
| and Necessity and Registration as a) | AND REGISTRATION AS A NEW |
| New Renewable Energy Facility) | RENEWABLE ENERGY FACILITY |

Timbermill Wind, LLC (“Timbermill” or the “Applicant”), through counsel, hereby applies to the North Carolina Utilities Commission (the “Commission”) pursuant to G.S. § 62-110.1 and Commission Rule R8-63 for a Certificate of Public Convenience and Necessity authorizing construction of a merchant plant wind energy facility with a capacity up to 189 MW_{AC} to be located in Chowan County (the “Facility”). The Applicant also submits its Registration as a New Renewable Energy Facility pursuant to Commission Rule R8-66.

APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR A MERCHANT PLANT

In support of its application, Timbermill provides the Commission the attached four exhibits and CPCN Application Addenda 1 through 5 in compliance with Rule R8-63.

REGISTRATION AS A NEW RENEWABLE ENERGY FACILITY

In support of its registration as a New Renewable Energy Facility pursuant to R8-66, Timbermill submits the required form, included as Application Exhibit 4, and states the following:

1. The Applicant incorporates by reference each of the foregoing sections, including all subsections, in support of its Registration as a New Renewable Energy Facility.

2. Dominion Energy North Carolina (“DENC”) will read the energy production meter for the purpose of REC issuance.

3. The Applicant anticipates participating in the North Carolina Renewable Energy Tracking System.

4. The Applicant certifies that it is in substantial compliance with all applicable federal and state laws, regulations and rules for the protection of the environment and conservation of natural resources.

5. The Applicant certifies that the Facility satisfies the requirements of G.S. § 62-133.8(a)(5) as a New Renewable Energy Facility and will continue to be operated as a New Renewable Energy Facility.

6. The Applicant certifies that any renewable energy certificates (whether or not bundled with electric power) sold to an electric power supplier to comply with G.S. § 62-133.8 have not, and will not, be remarketed or otherwise resold for any other purpose, including another renewable energy portfolio standard or voluntary purchase of renewable energy certificates in North Carolina or any other state or country, and that the electric power associated with the certificates will not be offered or sold with any representation that the power is bundled with renewable energy certificates.

7. The Applicant certifies that it consents to the auditing of its books and records by the Public Staff in so far as those records relate to transactions with North Carolina electric power suppliers and agrees to provide the Public Staff and the Commission access to those books and records, wherever they are located, and access to the Facility.

WHEREFORE, Timbermill Wind, LLC respectfully requests that the Commission:

(i) issue a Certificate of Public Convenience and Necessity pursuant to G.S. § 62-110.1 and Commission Rule R8-63 for the Facility, as more specifically described herein; and

(ii) accept the Registration of the Facility as a New Renewable Energy Facility pursuant to G.S. § 133.8 and Commission Rule R8-66.

Respectfully submitted this 14th day of June, 2021.

By: Katherine E. Ross
Katherine E. Ross
N.C. State Bar No. 38468
E. Merrick Parrott
N.C. State Bar No. 47999
Parker Poe Adams & Bernstein LLP
PNC Plaza
301 Fayetteville Street, Suite 1400
Raleigh, North Carolina 27601
Tel. 919-828-0564
Fax 919-834-4564
Email: katherineross@parkerpoe.com
merrickparrott@parkerpoe.com

Attorneys for Timbermill Wind, LLC

**Timbermill Wind, LLC
Application Exhibit 1**

1. The Applicant's full and correct name, business address, and business telephone number are:

Timbermill Wind, LLC
310 4th Street NE
Suite 300
Charlottesville, VA 22902
(434) 282-2105

The electronic mailing address for purposes of this filing is:
Jimmy.merrick@apexcleanenergy.com with copy to Kate.heins@apexcleanenergy.com
and katherineross@parkerpoe.com.

2. Timbermill Wind, LLC is a Delaware limited liability company with its principal place of business in Charlottesville, Virginia. Timbermill was formed January 31, 2012. Timbermill has obtained authority from the North Carolina Secretary of State to conduct business in North Carolina. A true and correct copy of the Application for Certificate of Authority is included as **CPCN Application Addendum 1**. As a single-member managed limited liability company, Timbermill does not have officers or directors.

Timbermill is an indirect subsidiary of Apex Clean Energy Holdings, LLC ("Apex"). Apex is an independent renewable energy company based in Charlottesville, Virginia. Since its founding in 2009, Apex has become one of the fastest-growing companies in the industry. Apex has one of the nation's largest, most diversified portfolios of renewable energy resources, capable of producing more than 18 GW of clean electricity. Apex has completed and sold 24 commercial wind and solar facilities in North America (totaling more than 5 GW), with five additional wind facilities under construction and several more under development. Apex serves as the operator for 11 commercial wind and solar facilities across North America (totaling an operating capacity of over 2 GW). Apex serves a wide range of utilities and load serving entities.

Correspondence, documents, and filings regarding this application should be sent as follows:

Attn: Jimmy Merrick, Development Manager
 Apex Clean Energy, Inc.
 310 4th Street NE
 Suite 300
 Charlottesville, VA 22902
Jimmy.merrick@apexcleanenergy.com
 (434) 282-2107

with copies to:

Attn: Kate Heins, Associate General Counsel
 Apex Clean Energy, Inc.
 310 4th Street NE
 Suite 300
 Charlottesville, VA 22902
Kate.heins@apexcleanenergy.com

and (not for purposes of service):

Katherine E. Ross
 Parker Poe Adams & Bernstein LLP
 301 Fayetteville Street, Suite 1400
 Raleigh, North Carolina 27601
katherineross@parkerpoe.com

3. A copy of Apex's most recent balance sheet and income statement are being provided under seal because they constitute confidential and proprietary information within the scope of G.S. § 132.1.2 and have been labeled **Confidential CPCN Application Addendum 2.**

4. Apex operates the following facilities in the Southeastern Electric Reliability Council region:

| Facility Name | Location | Status | Type of Facility | Capacity (MW _{AC}) | COD |
|------------------|----------------------------|--------------------|------------------|------------------------------|-----------|
| Hoopeston Wind | Vermilion County, Illinois | Operating | Wind | 98 | 2014 |
| Altavista Solar | Campbell County, Virginia | Under Construction | Solar | 80 | Exp. 2021 |
| Rocky Forge Wind | Botetourt County, Virginia | In Development | Wind | 77 | Exp. 2022 |

| Facility Name | Location | Status | Type of Facility | Capacity (MW_{AC}) | COD |
|----------------------------|--------------------------------|----------------|-------------------------|-----------------------------------|------------|
| Carvers Creek Solar | Gloucester County, Virginia | In Development | Solar | 150 | Exp. 2022 |
| Rivanna Solar | Albemarle County, Virginia | In Development | Solar | 12.5 | Exp. 2022 |
| Swallowtail Solar | Baldwin County, Georgia | In Development | Solar | 150 | Exp. 2022 |
| Moody Creek Solar | Charlotte County, Virginia | In Development | Solar | 150 | Exp. 2023 |
| Red Brick Solar | Lunenburg County, Virginia | In Development | Solar | 130 | Exp. 2023 |
| Riverstone Solar + Storage | Buckingham County, Virginia | In Development | Solar | 200 | Exp. 2023 |
| Peach Blossom Solar | Glynn County, Georgia | In Development | Solar | 280 | Exp. 2023 |
| Island Creek Solar | Jones County, North Carolina | In Development | Solar | 80 | Exp. 2024 |
| Pinewood Wind | Pulaski County, Virginia | In Development | Wind | 150 | Exp. 2024 |
| Spruce Run Wind | Randolph County, West Virginia | In Development | Wind | 300 | Exp. 2024 |

Timbermill Wind, LLC Application Exhibit 2

The Facility

1. The Facility will be situated on approximately 6,300 acres of privately held property in Chowan County, which includes the Transmission Corridor and the property on which the Interconnection Switching Station will be sited, as those Facility components are defined below (the "Project Area"). As reflected in the site layout included as **CPCN**

Application Addendum 3, the Facility will consist of:

- Up to 45 wind turbine generators, each anticipated to have a nameplate capacity of 4.2 MW;
- Underground 34.5 kilovolt ("kV") electrical collector lines connecting the turbines to each other and to the collector substation;
- A 34.5kV to 230kV collector substation owned by Timbermill;
- An approximately 6 mile above-ground 230kV transmission line;
- A 230kV interconnection switching station owned by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina ("DENC");
- Access roads to each turbine;
- An operations and maintenance ("O&M") building; and
- Meteorological towers.

2. The Facility will utilize the Vestas V150-4.2MW turbine, or a turbine model with a substantially similar profile (i.e. height, capacity, construction material). Each turbine consists of three major components: the tower, the nacelle, and the rotor. These components are mounted on a foundation to provide structural support to the assembled turbine. The height of the tower, or "hub height" (height from the base of the tower to the center of the rotor hub on top of the tower), will be a maximum of 345 feet. The nacelle sits atop the tower, and the rotor hub is mounted on a drive shaft that is connected to the

gearbox and generator contained within the nacelle. The total turbine height (the height at the highest blade tip position) will be a maximum of 599 feet.

Tower – The tubular towers proposed for the Facility will be conical steel structures. Each tower has a lockable access door, internal lighting, and an internal ladder and lift to access the nacelle. The towers will be painted off-white to ensure that the structures are less visually obtrusive and in accordance with FAA regulations.

Nacelle – The main mechanical and electrical components of the turbine are housed in the nacelle. The nacelle is mounted on a sliding ring that allows it to rotate, or “yaw,” into the wind to maximize energy capture. The nacelle components include the drive train, gearbox, generator, and generator step-up transformer. The nacelle is housed in a steel-reinforced fiberglass shell that protects internal machinery from the environment. The housing is designed to allow for adequate ventilation to cool internal machinery. It is externally equipped with an anemometer and a wind vane to measure wind speed and direction. The generated electricity is conducted through cables within the tower to a switch enclosure mounted at the base of the turbine tower. Attached to the top of select nacelles, per FAA specifications, will be a single, medium-intensity aviation warning light. There will be red flashing lights that will be operated in accordance with FAA requirements. The FAA will determine lighting specifications and which turbines must be equipped with lights.

Rotor – A rotor assembly is mounted on the drive shaft and operates upwind of the tower. Electric motors within the rotor hub vary the pitch of each blade according to wind conditions to maximize turbine efficiency at varying wind speeds.

3. Existing public roads, private roads, and field paths will be utilized to the extent possible to access the Facility. The existing roads may require improvements before, during, or following construction. Where necessary, new access roads will be constructed between existing roadways and the Facility. The new and improved access roads will be

all-weather, gravel surfaced, approximately 20 feet in width. During construction, some access roads will be widened to accommodate movement of the turbine erection crane and turning of turbine components.¹ Temporary matting will be utilized where necessary to limit soil disturbance and establish sufficient bearing capacity to support the crane. The Facility will be accessed by a number of proposed points, as reflected on the site layout included as **CPCN Application Addendum 3**. All driveways will be engineered to NCDOT standards.

4. The electrical collector lines will consist of an underground cable system between the collector substation and the individual turbine locations. The cable system will be designed for operation at 34.5kV. The cables will be installed in a trench at a depth sufficient to avoid potential impact from the existing land uses. The cable will be installed at least 42 inches below ground as well as 42 inches below the bottom elevation of existing ditches and canals in order to allow for the landowners' routine maintenance of the ditches and canals. The cable will be buried with a fiber-optic cable and an additional separate ground wire. The fiber-optic cable will be used for telemetry, control, and communication purposes. Junction boxes will be installed as required for connections and splices.

5. The collector substation will consist of two substation transformers, circuit breakers, switching devices, auxiliary equipment, and a control enclosure containing equipment for proper control, protection, monitoring, and communications (the "Collector Substation"). The principal function of the Collector Substation is to increase the voltage from the collector circuits (34.5kV) to 230kV. A 230kV transmission line will transport the generated electricity of the entire Facility to the interconnection switching station (the "Timbermill Line"). The Collector Substation will be located within a fenced area. The

¹ Certain areas of several access roads will be widened to approximately 150 feet to allow for a turning radius for turbine components.

fence will be designed in accordance with industry standards to provide safety and security.

6. Associated with the Facility, but owned and operated by DENC, will be an interconnection switching station (the “Interconnection Switching Station”). The Interconnection Switching Station will serve as the electrical interconnection between the Facility and the regional transmission system. The Interconnection Switching Station will consist of 230kV circuit breakers, disconnect switches, bus conductors, auxiliary equipment, and a control enclosure containing equipment for proper control, protection, monitoring, and communications. The Interconnection Switching Station will be located within a fenced area. The fence will be designed in accordance with industry standards to provide safety and security.

7. Two temporary 60-meter (m) meteorological towers and 5 temporary sonic detection and ranging (“Sodar”) units have been installed within the Project Area to collect wind resource data. The first Sodar unit was installed on June 18, 2013, and the first met tower was installed on July 10, 2015. All of the temporary met towers and units have been removed. Up to 4 permanent met towers (the “Met Towers”) will be installed along with the Facility. These permanent Met Towers are used to obtain clean and unobstructed wind data for performance management. The permanent Met Towers will be self-supporting with heights not to exceed the hub height of the wind turbines and will be marked and lighted as required by the FAA. The locations of the Met Towers are included on the site layout included as **CPCN Application Addendum 3**.

8. Timbermill will be operated and maintained by a team of approximately 10 personnel, including facility managers, a site manager, and a certified crew of technicians. This team will work out of the O&M building during normal business hours and will perform routine checks, respond to issues, and optimize the performance of the Facility. The team will also have specified personnel on call 24 hours per day, should an issue arise outside

of normal business hours. The O&M building will be a 4,000-to-6,000 square-foot building, which will house operating personnel, offices, operations and communication equipment, parts storage and maintenance activities, and a vehicle parking area (the “O&M Building”). An area for outdoor storage of larger equipment and materials will also be included within a fenced area for safety and security.

9. During operations, the O&M staff will perform scheduled, preventative maintenance on the turbines. This is typically done in conjunction with representatives from the turbine manufacturer for the first one to three years to ensure that maintenance protocol for the specific turbine installed is completely understood by the O&M staff.

10. Timbermill will be built with many safety and control mechanisms in place. These mechanisms are generally monitored using a Supervisory Control and Data Acquisition (“SCADA”) system. SCADA allows for each turbine, which is connected via fiber-optic cable, to be monitored in real time by the O&M staff. Timbermill will also be built in a way that is capable of being remotely monitored, thus increasing the Facility oversight, as well as the performance and reliability of the turbines. Wind projects are designed this way to ensure repetitive and duplicated forms of control. Not only will the local O&M office have full control of the wind turbines, but a 24/7 remote operations facility will also have control of the individual turbines. These two teams coordinate to ensure that the wind turbines operate safely and efficiently. A third mechanism for safety and control is the turbines themselves. Each turbine monitors the wind speed and direction to ensure its current position is most efficient to produce electricity. This data is also used for feathering the blades, applying the brakes in high wind speeds or if there is ice build-up on the blades, and to tell the turbine when the wind is strong enough to begin turning the generator and producing electricity at the “cut-in” wind speed.

11. Included as **CPCN Application Addendum 3** is a color map showing the proposed boundary of the Project Area, the proposed layout, with all major equipment,

including the turbines, collector lines, planned and existing roads, and planned and existing electric facilities. Timbermill has site control over the private property within the Project Area for the Facility. Final site layout will be determined based on additional geotechnical and environmental studies and meteorological data. All components will be sited within the boundary of the Project Area as reflected in **CPCN Application Addendum 3.**

12. An e911 street address has not been assigned to the Facility at this time. The Applicant will notify the Commission of the e911 street address when it is received. The Facility is located east of Sandy Ridge Road, southwest of Center Hill Highway, and north of US Highway 17, in Chowan County. The GPS coordinates of the approximate center of the Facility are: Latitude: 36° 08' 45.6409"N; Longitude: 076° 35' 45.3715"W.

Construction and Commercial Operation

13. The anticipated beginning date for construction is November, 2022, beginning with access roads and continuing, in order, to turbine foundations, crane pads, turbine erection, electrical collection systems, substations, the O&M Building, and the Met Towers. After construction, only a small fraction of the Project Area will be occupied by the Facility. The proposed Project Area will continue to be used for traditional land uses, primarily agricultural and forestry. The expected commercial operation date is October, 2023. The expected operational life of the Facility is 30 years. The trend in the wind industry is to “repower” wind energy facilities by upgrading existing towers and other infrastructure with more efficient turbines and related equipment. Based on today’s market for renewable energy, it is likely that the Facility will be upgraded with more efficient equipment, and therefore, with future upgrades, could have a useful life of 35 years or longer. The estimated construction costs are being provided under seal because they constitute confidential and proprietary information within the scope of G.S. §132.1.2 and have been labeled **Confidential CPCN Application Addendum 4.**

Electricity Production

14. Wind is an intermittent resource; therefore, the dependable capacity is zero. Electricity production is dependent on the wind resource and design factors. Preliminary meteorological assessments of the wind resource within the Project Area indicate an expected net capacity factor of 27% - 30%. Based on current assessments, the 189 MW_{AC} Facility is predicted to have a net production of approximately 465,000 megawatt hours (“MWhs”) of electricity per year. The output of the Facility is estimated to equal the amount of electricity needed to power almost 40,000 homes in North Carolina.

15. The Facility is not a natural gas fired facility.

Permitting

16. The following federal, state and local approvals will be required for the Facility:

| Permitting Agency | Approval / Permit Required | Status |
|--|---|---|
| North Carolina Department of Environmental Quality | North Carolina Wind Energy Facility Permit | In progress. |
| North Carolina Department of Environmental Quality | Erosion and Sedimentation Control Approval | Not yet applied for. |
| North Carolina Department of Environmental Quality | Section 401 Water Quality Certification | In progress, contemporaneous to Section 404 permit noted below. |
| North Carolina Department of Transportation | Driveway Permits | Not yet applied for. |
| United States Army Corps of Engineers | Section 404, Individual Permit | In progress. |
| United States Environmental Protection Agency | National Pollutant Discharge Elimination System Permit | Not yet applied for. |
| Federal Aviation Administration | Determination of No Hazard to Air Navigation | In progress. Re-filed September 2020. |
| Chowan County | Conditional Use Permit | Granted on November, 16, 2016, as amended May 21, 2018. CPCN Application Addendum 5. |
| Chowan County | Zoning Permit Grading Permit Building Permit Electrical Permit | Not yet applied for. |

Timbermill anticipates filing for exempt wholesale generator status pursuant to Section 32 of the Public Utility Holding Company Act of 1935 (PUHCA), as amended by the Energy Policy Act of 1992, and will file a copy of any application for such status as required by Rule R8-63(b)(2)(v) contemporaneous with its submission to the Federal Energy Regulatory Commission.

17. The Applicant will obtain all permits and approvals required by applicable federal, state and local laws and regulations for construction and operation of the Facility. The Applicant does not anticipate any difficulty in demonstrating compliance with all applicable environmental regulations.

Interconnection

18. The Timbermill Line, an approximately 6-mile 230kV transmission line, will connect the Collector Substation to the Interconnection Switching Station and the existing 230kV Winfall-Mackeys transmission line (the “Winfall Line”) owned by DENC. The location of the Interconnection Switching Station and the Winfall Line are shown on **CPCN Application Addendum 3**. Timbermill has control of all property necessary for the Facility, including the Transmission Corridor and the Interconnection Switching Station and no additional easements are required to be obtained. Timbermill Wind will file for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Timbermill Line in Docket EMP-118 Sub 1.

**Timbermill Wind, LLC
Application Exhibit 3**

North Carolina Renewable Energy and Energy Efficiency Portfolio Standard

1. Under North Carolina’s Renewable Energy and Energy Efficiency Portfolio Standard (“REPS” or “Senate Bill 3”), investor-owned utilities in North Carolina are required to meet up to 12.5% of their energy needs through renewable energy resources or energy efficiency measures by 2021. Rural electric cooperatives and municipal electric suppliers have been subject to a 10% REPS requirement since 2018. G.S. § 62-133.8(8) defines wind as a renewable energy resource. The Facility will provide a significant source of RECs for use by Electric Power Suppliers to demonstrate compliance with Senate Bill 3. This Facility is expected to generate approximately 465,000 RECs annually. North Carolina has also shown a commitment to clean energy through its Clean Energy Plan finalized by the North Carolina Department of Environmental Quality in October 2019, which sets a statewide carbon neutrality goal by 2050.²

Dominion Energy

2. Dominion Energy, Inc. (“Dominion Energy”) has established a company-wide commitment to achieve net-zero carbon dioxide and methane emissions by 2050. Dominion Energy’s commitment is consistent with state-level requirements set by the Virginia General Assembly through the Virginia Clean Economy Act (“VCEA”), which became law on July 1, 2020. The VCEA establishes a mandatory renewable portfolio standard aimed at 100% clean energy from Dominion Energy’s generation fleet by 2045, requires the development of significant energy efficiency, solar, wind, and energy storage resources, and requires the retirement of all generation units that emit carbon dioxide by 2045 (unless such retirement would threaten grid reliability and security). Notably, the

² https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/NC_Clean_Energy_Plan_OCT_2019_.pdf

VCEA requires Dominion Energy to seek all necessary approvals for at least 16,100 MW of new solar or onshore wind resources by December 31, 2035.³

3. DENC's 2020 IRP, filed May 1, 2020,⁴ forecasts its load serving entity peak and energy requirements are estimated to grow at approximately 1.0% and 1.3% annually throughout the 15-year planning period.⁵ Each Alternative Plan in the IRP calls for a significant amount of retirement of coal-fired and inflexible, higher cost oil-and natural gas-fired generation, ranging from 3,030 MW to 3,183 MW over the 15-year planning period and 4,651 MW to 13,978 MW over the 25-year planning period.⁶ In an analysis of the annual assumed levelized cost of energy of select new renewable capacity options, "onshore wind resources reflect the most economic option in the near-term given the ability to take advantage of production tax credits."⁷ Further, DENC's IRP also states it anticipates it will soon become a full participant in the Regional Greenhouse Gas Initiative, a regional effort to cap and reduce CO2 emissions from the power sector.⁸

The PJM Region

4. In the event Timbermill does not contract RECs to an in-state utility, significant need still exists in the PJM Interconnection ("PJM") region to which the facility will be connected. PJM is a regional transmission organization ("RTO") that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. This region includes over 65 million people, and projections of load are increasing, as described in detail below.

³ Code of Virginia § 56-585.5(D)(2). The VCEA follows the Virginia General Assembly's passage of the Grid Transformation and Security Act of 2018, which found that up to an additional 5,000 MW of utility-scale electric generating facilities powered by solar and wind energy is in the public interest.

⁴ 2020 Integrated Resource Plan of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina, Docket No. E-100, Sub 165, May 1, 2020.

⁵ *Id.* at 25.

⁶ *Id.* at 5.

⁷ *Id.* Appendix 4Q – Overview of PJM REC Price Forecasting, p. 7.

⁸ *Id.* at 11-13.

5. Summer peak load in PJM is expected to grow by 0.6% per year over the next 10 years, and by 0.5% over the next 15 years.⁹ For the Dominion Virginia Power zone, summer peak load growth is expected to grow by 1.2% per year over the next 10 years, and 1.0% per year over the next 15 years.¹⁰ The anticipated 10-year summer peak load growth in the Dominion Virginia Power zone represents 4.6% growth over the January 2019 load forecast report.¹¹

6. Winter peak load growth in PJM is projected to average 0.4% per year over the next 10-year period, and 0.3% over the next 15 years.¹² Winter peak load growth for the Dominion Virginia Power zone is expected to grow by 1.4% per year over the 10 years, and 1.2% per year over the next 15 years.¹³ The anticipated 10 year winter peak load growth in the Dominion Virginia Power zone represents 15.7% growth over the January 2019 load forecast report.¹⁴ The PJM service area in Dominion Energy territory, including North Carolina, is expected to average between 1.2% and 1.4% per year over the next 10 years versus the PJM RTO load growth projections to average 0.6% over the next 10 years.¹⁵

Duke Energy

7. There is also a showing of need for the Facility in the Integrated Resource Plans of Duke Energy Progress, LLC (“DEP”) and Duke Energy Carolinas, LLC (“DEC”) (together, “Duke”), filed on September 1, 2020.¹⁶ Duke has a goal of net-zero carbon emissions by 2050 that will “require a diverse mix of renewable, and other zero-emitting, load following resources”, including onshore wind.¹⁷ Duke included multiple input

⁹ <https://www.pjm.com/-/media/library/reports-notices/load-forecast/2020-load-report.ashx?la=en> at 37-38.

¹⁰ *Id.*

¹¹ *Id.* at 32.

¹² *Id.* at 41-42.

¹³ *Id.*

¹⁴ *Id.* at 34.

¹⁵ <https://www.pjm.com/-/media/library/reports-notices/state-specific-reports/2019/2019-north-carolina-state-infrastructure-report.ashx?la=en> at 23.

¹⁶ 2020 Integrated Resource Plan of Duke Energy Progress, LLC (“DEP IRP”) and 2020 Integrated Resource Plan of Duke Energy Carolinas, LLC (“DEC IRP”), Docket No. E-100, Sub 165, September 1, 2020.

¹⁷ DEP 2020 IRP, p. 39, DEC IRP, p. 39.

assumptions regarding renewable energy in its 2020 IRPs, including “up to 150 MW of onshore Carolinas wind generation, assumed to be located in the central Carolinas, could be selected by the capacity expansion model annually to provide a diverse source of economic energy and capacity.”¹⁸ Duke also found that adding onshore wind would benefit winter peak demand, which drives the resource planning process.¹⁹

Corporate and Industrial

8. In addition, there remains a large demand for renewable energy capacity from corporate buyers. Renewable energy procurements from major corporations, including numerous Fortune 500 companies, is a large market and will likely increase as more corporations implement or further corporate sustainability goals. The generation of electricity with wind energy will diversify the resources used to meet energy needs. The Facility will provide greater energy security for North Carolina by the use of a truly indigenous and renewable resource available within the state.

Economic Investment

9. Granting this request will also encourage considerable private investment in North Carolina. Timbermill anticipates that the Facility will have the following impacts on North Carolina:

- \$246 million in private investment;²⁰
- \$33 million in cumulative Chowan County tax revenue;
- 152 one-time jobs resulting from construction of the Facility with an associated \$5.5 million in labor income, \$19.8 million in economic output, and \$505,103 in state and local tax revenue in Chowan County; and

¹⁸ DEP IRP p. 40, DEC IRP p. 40.

¹⁹ DEC IRP p. 136, DEP IRP p. 137.

²⁰ See Mangum Economics Timbermill Wind Economic and Fiscal Contribution to Chowan County, NC, available at:

https://d3n8a8pro7vhmx.cloudfront.net/timbermillwind/pages/1092/attachments/original/1617288073/Apex_Timbermill_Report_032521.pdf?1617288073

- Approximately 10 permanent jobs with an associated \$347,709 in annual labor income, and \$1.1 million in annual economic output in Chowan County.

10. Specifically, Timbermill will bring important economic development to Chowan County, which is a rural Tier 1 county. For example, the existing 208 MW Amazon Wind Farm (EMP-49 Sub 0) is the largest taxpayer in both Perquimans and Pasquotank counties, generates over \$620,000 in annual lease payments to landowners, and still allows local farmers to continue farming the land given the small permanent footprint. If Timbermill were added to the Chowan County tax base, it would anticipate having a similar beneficial impact. Timbermill's average assessed value of personal and real property investments of \$135.6 million would make it Chowan County's largest taxpayer, with an average assessed valuation equivalent to approximately 9.0% of the 2019 total countywide assessed valuation.

Environmental Benefits

11. The Facility will rely solely on the local wind resource to generate power. Wind is a form of energy that can be converted into electricity passively, without the need for fuel such as coal or natural gas. Thus, the Facility requires no off-site mining, drilling or transportation of fuel, produces electricity without emitting air pollution, uses virtually no water, and creates no hazardous or radioactive waste.

State of North Carolina
Department of the Secretary of State

APPLICATION FOR CERTIFICATE OF AUTHORITY
FOR LIMITED LIABILITY COMPANY

OFFICIAL COPY

Nov 19 2021

Pursuant to §57C-7-04 of the General Statutes of North Carolina, the undersigned limited liability company hereby applies for a Certificate of Authority to transact business in the State of North Carolina, and for that purpose submits the following:

1. The name of the limited liability company is Apex Atlantic Wind, LLC

and if the limited liability company name is unavailable for use in the State of North Carolina, the name the limited liability company wishes to use is _____

2. The state or country under whose laws the limited liability company was formed is: DELAWARE

3. The date of formation was JANUARY 27, 2012; its period of duration is: PERPETUAL

4. Principal office information: (Select either a or b.)

a. The limited liability company has a principal office.

The street address and county of the principal office of the limited liability company is:

Number and Street 310 4th St. NE SUITE 200
City, State, Zip Code CHARLOTTEVILLE, VA 22902 County ALBEMARLE

The mailing address, if different from the street address, of the principal office of the corporation is:

244 EAST High Street, CHARLOTTEVILLE, VA 22902

b. The limited liability company does not have a principal office.

5. The street address and county of the registered office in the State of North Carolina is:

Number and Street 1700 MIMM LAKE COURT, SUITE 100
City, State, Zip Code RALEIGH, NORTH CAROLINA 27605 County WAKE

6. The mailing address, if different from the street address, of the registered office in the State of North Carolina is:

7. The name of the registered agent in the State of North Carolina is: NATIONAL CORPORATE RESEARCH, LTD

APPLICATION FOR CERTIFICATE OF AUTHORITY

Page 2

8. The names, titles, and usual business addresses of the current managers of the limited liability company are:
(use attachment if necessary)

| Name | Business Address |
|--------------------------------|---|
| APEX WIND ENERGY HOLDINGS, LLC | 310 1 st STREET NE SUITE 200, CHARLOTTESVILLE, VA 22902 |
| | |
| | |
| | |

9. Attached is a certificate of existence (or document of similar import), duly authenticated by the secretary of state or other official having custody of limited liability company records in the state or country of formation. The Certificate of Existence must be less than six months old. A photocopy of the certification cannot be accepted.

10. If the limited liability company is required to use a fictitious name in order to transact business in this State, a copy of the resolution of its managers adopting the fictitious name is attached.

11. This application will be effective upon filing, unless a delayed date and/or time is specified: _____

This the 3 day of July, 2013

APEX ATLANTIC WIND, LLC
Name of Limited Liability Company

Gordon J. Trousdale
Signature of Manager

GORDON TROUSDAL, MEMBER
Type or Print Name

Notes:

1. Filing fee is \$150. This document must be filed with the Secretary of State.

OFFICIAL COPY
NOV 19 2021

Delaware

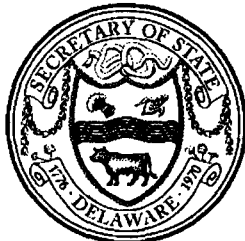
PAGE 1

The First State


I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "APEX ATLANTIC WIND, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE THIRTIETH DAY OF MAY, A.D. 2013.

5103461 8300

130699791



You may verify this certificate online
at corp.delaware.gov/authver.shtml


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 0471617

DATE: 05-30-13

OFFICIAL COPY

NOV 19 2021

State of North Carolina
 Department of the Secretary of State

APPLICATION FOR AMENDED CERTIFICATE OF AUTHORITY
 FOR LIMITED LIABILITY COMPANY

Pursuant to §57C-7-05 of the General Statutes of North Carolina, the undersigned limited liability company hereby applies for an Amended Certificate of Authority to transact business in the State of North Carolina, and for that purpose submits the following statement.

1. The name of the limited liability company is: Apex Atlantic Wind, LLC
2. The name the limited liability company is currently using in the State of North Carolina is:
Apex Atlantic Wind, LLC
3. The state or country of formation is: Delaware
4. The date the limited liability company was authorized to transact business in the State of North Carolina is:
June 18th, 2013
5. The changes being made are as follows:
Name amended to: Timbermill Wind, LLC
6. Attached is a certificate of existence (or document of similar import), duly authenticated by the Secretary of State or other official having custody of limited liability company records in the state or country of formation. The certificate of existence must be less than six months old. A photocopy of the certification cannot be accepted.
7. This application will be effective upon filing, unless a date and/or time is specified: _____

This the 17th day of July, 20 13

Timbermill Wind, LLC

Name of Limited Liability Company

Christian Payne
 Signature

Christian Payne, Member

Type or Print Name and Title

Notes:

1. Filing fee is \$50. This application must be filed with the Secretary of State.

Delaware

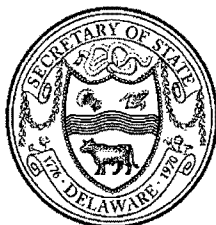
PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "TIMBERMILL WIND, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE SEVENTEENTH DAY OF JULY, A.D. 2013.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "TIMBERMILL WIND, LLC" WAS FORMED ON THE THIRTY-FIRST DAY OF JANUARY, A.D. 2012.


AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN PAID TO DATE.



5103461 8300

130889393

You may verify this certificate online
at corp.delaware.gov/authver.shtml


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 0593593

DATE: 07-17-13

OFFICIAL COPY

Nov 19 2021

Timbermill Wind, LLC
CPCN Application Addendum 5

**ORDER GRANTING AMENDMENT TO TIMBERMILL WIND, LLC'S
CONDITIONAL USE PERMIT (CC-CUP-16-02)**

I. DECISION:

Approved with conditions. On May 21, 2018, the Chowan County Board of Commissioners ("BOC") voted to approve an amendment with conditions to the conditional use permit for a Wind Energy Facility Large approved by the BOC on November 4, 2016, and which was the subject of the Order Granting Timbermill Wind LLC's Conditional Use Permit dated November 16, 2016 (the "CUP").

II. SUMMARY OF PROCEEDINGS:

1. On March 14, 2018, Timbermill Wind, LLC ("Timbermill Wind" or "Applicant") filed an application with the Chowan County ("County") Planning Department for an amendment to the CUP (the "CUP Amendment") to add a collection substation, an interconnection switching station and a 230kV overhead transmission line (collectively the "Transmission Facilities").
2. Timbermill Wind is a wholly owned subsidiary of Apex Clean Energy Holdings, LLC ("Apex").
3. By agreement with the County, on March 29, 2018, and May 7, 2018, Timbermill Wind submitted additional materials as part of the CUP Amendment.
4. The County Planning Board held a properly noticed public meeting on April 17, 2018, to review the CUP Amendment.
5. On May 17, 2018, the BOC held a properly noticed quasi-judicial hearing to consider the CUP Amendment.
6. Timbermill Wind was represented by Henry C. Campen, Jr and Katherine E. Ross of Parker Poe Adams & Bernstein LLP ("Parker Poe").
7. The County was represented by Lauren Arizaga-Womble of The Twiford Law Firm ("County Attorney").
8. The County received into evidence the hearing notice and the Staff Report dated May 17, 2018.
9. Don Giecek, Senior Development Manager for Timbermill Wind, testified in support of Timbermill Wind's CUP Amendment. Thereafter, Timbermill Wind offered the expert testimony of: Tracy Butler, Lead Engineer for Timbermill, and Drew Silverman, Senior Manager of Resource Assessment for Timbermill Wind.

10. Timbermill Wind qualified, and the BOC recognized Tracy Butler as an expert in the field of civil engineering and Drew Silverman as an expert in sound modeling for wind farms.
11. The BOC admitted County Exhibit 100 and Timbermill Wind's hearing exhibits numbered 1 – 8 into evidence.
12. No party appeared in opposition to the CUP Amendment.
13. The evidentiary hearing was closed on May 17, 2018.
14. After deliberations, the BOC approved the CUP Amendment, with conditions, with a vote of five (5) in favor and one (1) against.
15. In support of its decision, and based on all of the evidence received by the BOC during the hearing, the arguments of counsel for Timbermill Wind and all applicable County ordinances, plans, policies, and other applicable law, the BOC makes the following Findings of Fact:

III. **FINDINGS OF FACT:**

1. Each witness appearing before the BOC on May 17, 2018, was duly sworn and available for cross-examination.
2. The hearing held by the BOC on May 17, 2018, was properly noticed and advertised in accordance with the requirements of the County Zoning Ordinance (the "Zoning Ordinance") and other applicable law.
3. Section 3.12 H of the Zoning Ordinance requires that the BOC shall approve the requested permit, unless it concludes, based upon information submitted at the hearing, that:
 - a. The requested permit is not within its jurisdiction according to Section 5.01, Table of Permitted Uses; or
 - b. The application is incomplete, or
 - c. If completed as proposed in the application, the development will not comply with one or more requirements of the Zoning Ordinance.
4. Section 3.12 of the Zoning Ordinance states that, even if the BOC finds that a CUP application complies with all other provisions of the Zoning Ordinance, the BOC may still deny the Amendment if it concludes, based upon the information submitted at the hearing, that if completed as proposed, the development, more probably than not:
 - a. Will materially endanger the public health or safety; or
 - b. Will substantially injure the value of adjoining or abutting property; or
 - c. Will not be in harmony with the area in which it is to be located; or

- d. Will not be in general conformity with the land use plan or other plans and policies officially adopted by the BOC.
5. The CUP Amendment and all supporting documentation were admitted into evidence.
6. The real property subject to the CUP Amendment (the "Properties") is zoned A-1-Agricultural ("A-1").
7. Timbermill Wind has entered lease and easement agreements with Chowan County property owners for the Transmission Facilities, all of which are necessary components for a "Wind Energy Facility, Large".
8. "Wind Energy Facilities, Large" is among the uses permitted on the Properties pursuant to the section 5.01 – Table of Permitted Uses, of the Zoning Ordinance.
9. The County Planning Board reviewed the CUP Amendment and recommended approval with conditions by unanimous vote. No citizens appeared in opposition of the CUP Amendment.
10. The CUP Amendment Application is complete.
11. Timbermill Wind is actively working with the USACE to minimize impacts through design and to permit impacts in compliance with Clean Water Act Section 404.
12. The components proposed in the CUP Amendment, with recommended conditions, meet or exceed the minimum requirements of the Zoning Ordinance.
13. The Transmission Facilities meet all required setback distances.
14. Audible sound from the Wind Energy Facility approved by the CUP, including the Transmission Facilities which are the subject to the CUP Amendment, will not exceed fifty-five (55) dBA, as measured at any Occupied Building or Residence on the property of a Non-Participating Landowner, as those terms are defined in the Zoning Ordinance.
15. The Transmission Facilities conform to relevant and applicable local, state, and national codes.
16. The Transmission Facilities meet all of the development standards for Utility Related Appurtenances, Substations in Section 8.100 of the Zoning Ordinance.

In light of the foregoing findings of fact, the BOC makes the following conclusions of law:

IV. **CONCLUSIONS OF LAW**

1. The CUP Amendment is within the jurisdiction of the BOC.
2. The CUP Amendment Application is complete.
3. If completed as proposed, the Transmission Facilities, meet all required conditions and specifications of the Zoning Ordinance.
4. The use will not materially endanger the public health or safety if located where proposed and approved.
5. The use will not substantially injure the value of adjoining or abutting property.
6. The location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the plan of development for Chowan County.
7. Having considered the expert testimony presented by Timbermill Wind, the BOC hereby concludes that Timbermill Wind's expert testimony and evidence was competent, substantial, material and sufficient to support granting the CUP Amendment.
8. The following conditions apply to the approval of the Amendment:
 - a. Final civil site design (including new road location and building specifications) shall be reviewed by County staff at a subsequent TRC meeting to ensure compliance with state and local building standards.
 - b. Throughout the permit process, the Applicant shall promptly notify Chowan County of any proposed changes to the information contained in the permit application that would materially alter the impact of the project.
 - c. Transmission lines and substations owned by Timbermill shall be decommissioned with the rest of the Project.
 - d. The Applicant shall obtain all applicable NCDOT permits required for any additional access to state-maintained roads.
 - e. All details/improvements shall be installed/constructed according to Chowan County Development Code requirements.

- d. Applicant shall require a North Carolina licensed engineer to design the transmission line in accordance with the National Electrical Safety Code and applicable portions of the N.C. Building Code ("Codes). The engineer will confirm in writing to the County that the transmission line as designed complies with the Codes.
- e. The CUP Amendment is subject to all applicable conditions in the Order Granting Timbermill Wind, LLC's Conditional Use Permit dated November 16, 2016.

V. **ORDER**

Based upon the foregoing Findings of Fact and Conclusions of Law, it is hereby ordered that the CUP Amendment is approved as submitted, subject to the conditions set forth above.

This the 2nd day of July 2018.

By: Gregory Bonner
Vice Chairman, Chowan County
Board of Commissioners

**ORDER GRANTING TIMBERMILL WIND, LLC'S
CONDITIONAL USE PERMIT (CC-CUP-16-02)**

I. DECISION:

Approved with conditions. On November 4, 2016, the Chowan County Board of Commissioners ("BOC") voted to approve the conditional use permit request with conditions.

II. SUMMARY OF PROCEEDINGS:

1. On May 9, 2016, Timbermill Wind, LLC ("Timbermill Wind" or "Applicant") filed a conditional use permit application ("CUP Application") with the Chowan County ("County") Planning Department.
2. Timbermill Wind is a wholly owned subsidiary of Apex Clean Energy Holdings, LLC ("Apex").
3. By agreement with the County, on June 21, 2016, Timbermill Wind submitted additional materials as part of the CUP Application.
4. The County Planning Board held a public meeting on July 19, 2016 on the CUP Application.
5. The County engaged the engineering firm HDR to serve as a consultant to the County in reviewing the CUP Application.
6. HDR submitted a report on the CUP Application to the County on July 20, 2016. The Applicant submitted to the County responses to two items on which HDR requested clarification in its review of the CUP Application. On August 2, 2016, HDR submitted a memo stating Apex's responses provide sufficient information to answer HDR's comments on the application.
7. On August 22, 2016, the BOC held a properly noticed quasi-judicial hearing to consider the CUP Application.
8. Timbermill Wind was represented by Henry C. Campen, Jr., Steven D. Weber and Katherine E. Ross of Parker Poe Adams & Bernstein LL ("Parker Poe"). William J. Brian, Jr. and Megan Germunder of Morningstar Law Group ("Morningstar") appeared for Renewable Energy Reform of Chowan County, Inc. and Patrick and Belinda Flynn ("Flynn").
9. The County was represented by John Morrison and Lauren Arizaga-Womble of The Twiford Law Firm (collectively, "County Attorney").
10. Morningstar moved to stay the hearing. Parker Poe called as witnesses on the motion to stay Elizabeth Bryant, the County Planner, and Thomas

Blackwell, an environmental scientist employed with HDR. At the conclusion of this testimony and after arguments of counsel, the BOC denied the motion to stay.

11. The County received into evidence the hearing notice, the Staff Report dated August 22, 2016 and related materials.
12. The CUP hearing was recessed and resumed on August 23, September 26, 27, 28, and 29, October 17 and November 4, 2016.
13. Don Giecek, Senior Development Manager for Timbermill Wind, testified in support of Timbermill Wind's CUP. Thereafter, Timbermill Wind offered the expert testimony of: Tracy Butler, Senior Manager of Optimization and Civil Design with Apex Clean Energy; John Hecklau, of Environmental Design and Research; Robert O'Neal of Epsilon Associates; Dave Phillips, Director of Environmental Permitting with Apex Clean Energy; Chuck Moody of Realty Services of Eastern North Carolina; Kendra-Kallevig-Childers of DNV-GL; Mark Bastasch of CH2M; and Dr. Christopher Ollson of Ollson Environmental Health Management. In addition, the Applicant offered the non-expert testimony of Alissa Cale of Weyerhaeuser.
14. Timbermill Wind tendered and the BOC accepted Tracy Butler as an expert in the field of civil engineering in the wind industry; John Hecklau as an expert in the field of visual assessment of wind energy facilities; Robert O'Neal as an expert in utility scale wind turbine ice drop and throw and blade drop and throw; Dave Phillips as an expert in environmental requirements for utility scale wind projects; Chuck Moody as an expert in real estate valuation and impact analysis of proposed uses; Kendra-Kallevig-Childers as an expert in decommissioning of utility scale wind turbine decommissioning; Mark Bastasch as an expert in the field of acoustical analysis and shadow flicker analysis and Dr. Christopher Ollson as an expert in environmental health effects from wind turbines.
15. The BOC admitted County Exhibits 1-3, Timbermill Wind's hearing exhibits numbered 1-12, 14, 18-29, 32-36, 38, 100-102, 208-210 and 500, and Opponents' hearing exhibits 2 and 4-7 into evidence.
16. Opponents of the application (the "Opponents") qualified and the BOC recognized Christopher Mashburn as an expert real estate appraiser, Dr. Ronnie Heniger as an expert in agronomy and Dr. Pamela Dodds as an expert in hydrogeology. Opponents also offered the non-expert testimony of Patrick Flynn, Kimela White, Elizabeth Alons, Robert Kirby and Ethel Copeland.

17. The evidentiary hearing was closed on September 29, 2016. The BOC recessed the proceedings until October 17, 2016 for the sole purpose of setting a date for closing arguments and Board deliberations.
18. The BOC heard closing arguments of the parties on November 4, 2016. The BOC reopened the evidentiary hearing for the sole purpose of receiving into evidence a certification by the NC Division of Costal Management.
19. The BOC voted unanimously to approve the CUP Application with conditions.
20. In support of its decision, and based on all of the evidence received by the BOC during the hearing, the arguments of counsel for Timbermill Wind, the counsel for Renewable Energy Reform, Inc. for Chowan County, NC and Mr. Flynn, pro se, and all applicable County ordinances, plans, policies, and other applicable law, the BOC makes the following Findings of Fact.

III. FINDINGS OF FACT:

1. Each witness appearing before the BOC during the hearing sessions on the CUP Application was duly sworn and subject to cross-examination.
2. The hearing held by the BOC on August 22, 2016, and continued on August 23, September 26, 27, 28, and 29, October 17 and November 4, 2016, was properly noticed and advertised in accordance with the requirements of the County Zoning Ordinance (the "Zoning Ordinance") and other applicable law.
3. Section 3.12 H of the Zoning Ordinance requires that the BOC shall approve the requested permit, unless it concludes, based upon information submitted at the hearing, that:
 - a. The requested permit is not within its jurisdiction according to Section 5.01, Table of Permitted Uses; or
 - b. The application is incomplete; or
 - c. If completed as proposed in the application, the development will not comply with one or more requirements of the Zoning Ordinance.
4. Section 3.12 of the Zoning Ordinance states that, even if the BOC finds that the CUP application complies with all other provisions of the Zoning Ordinance, the BOC may still deny the CUP Application if it concludes, based upon the information submitted at the hearing, that if completed as proposed, the development, more probably than not:

- a. Will materially endanger the public health or safety; or
 - b. Will substantially injure the value of adjoining or abutting property; or
 - c. Will not be in harmony with the area in which it is to be located; or
 - d. Will not be in general conformity with the land use plan or other plans and policies officially adopted by the BOC.
5. The CUP Application and all supporting documentation were admitted into evidence.
 6. The consultant engaged by the county to review the CUP application, HDR, determined the application was complete.
 7. The real property parcels subject to the CUP Application (the "Properties") are zoned A-1-Agricultural ("A-1").
 8. Timbermill Wind has entered lease agreements with Chowan County property owners in order to develop a Large Wind Energy Facility (the "Project") on the Properties. The lease agreements were included as part of the CUP Application.
 9. "Wind Energy Facilities, Large" is among the uses permitted on the in the A-1 zoning district pursuant to the Section 5.01 – Table of Permitted Uses, of the Zoning Ordinance.
 10. On July 19, 2016, the County Planning Board reviewed the CUP Application and made recommendations to the BOC as required by the Zoning Ordinance.
 11. An Environmental Assessment as defined by in the Zoning Ordinance is not currently required for Timbermill Wind.
 12. The CUP Application is complete.
 13. The proposed Project, with recommended conditions, meets or exceeds the minimum requirements of the Zoning Ordinance.

SPECIFIC ORDINANCE REQUIREMENTS

14. The Project meets all required setback distances in the Zoning Ordinance based on a turbine model using the maximum potential height.
15. Audible sound from the Project will not exceed fifty-five (55) dBA, as measured at any Occupied Building or Residence on the property of a Non-Participating Landowner, as those terms are defined in the Zoning Ordinance.

16. Shadow Flicker on any Occupied Building or Residence on a Non-Participating Landowner's property caused by the Project will not exceed thirty (30) hours per year, as those terms are defined in the Zoning Ordinance.
17. The Project will conform to applicable industry standards, including those of the American National Standards Institute, taking into account local conditions.
18. All structural, electrical and mechanical components of the Project will conform to relevant and applicable local, state, and national codes.
19. Turbines used in the Project will be off-white in color.
20. Turbines used in the Project will not be artificially lighted except to the extent required by the Federal Aviation Administration.
21. Turbines used in the Project will not display advertising.

PUBLIC HEALTH AND SAFETY

22. Timbermill Wind will coordinate with local Emergency Management Services on emergency response plans.
23. Timbermill Wind's in-house construction management staff includes quality assurance inspectors and safety managers who will ensure that Project facilities are built in accordance with design specifications and that construction is performed in a safe and appropriate manner.
24. All engineering plans for Timbermill Wind will be stamped by North Carolina licensed professional engineers.
25. Timbermill has the managerial and technical expertise to safely undertake the construction and operation of the Project.
26. Existing field paths, private and public roads will be used during construction and operation of Timbermill Wind,
27. Timbermill Wind will improve existing field paths and roads, as needed prior to construction.
28. Roads that provide access to the Project will be maintained over the life of the project by Timbermill Wind to accommodate emergency equipment.
29. Timbermill Wind will coordinate with the North Carolina Department of Transportation and transportation consultants to have a transportation plan.

30. Underground electrical lines installed by Timbermill Wind in connection with this Project will be buried a minimum of forty-two inches (42") below ground.
31. At a depth of 42", underground electrical lines will not present safety issues and will not interfere with the maintenance of access roads or farming operations.
32. Underground yellow caution tape will be buried above the underground electrical lines in order to alert persons disturbing the earth as to the presence of the electrical lines beneath the caution tape.
33. Fiber optic cables will be buried with the electrical cable and will provide communications and control of each turbine and associated equipment, including meteorological towers.
34. The engineering firms performing structural and civil engineering work on the Project employ North Carolina-licensed professional engineers who are familiar with the North Carolina Building Code and experienced in constructing wind farms.
35. Turbines and other components of the Project will comply with the North Carolina Building Code.
36. Timbermill Wind is designed and will be constructed and operated to meet all applicable local, state, federal and safety standards.
37. Timbermill Wind will maintain a locally based staff to operate and maintain the Project during normal business hours and will have local personnel on call in the event of an after business hours emergency.
38. The Project will be monitored 24 hours a day, 7 days a week by an Operations Control Center.
39. At all times, the Project will be monitored by the automated Supervisory Control and Data Acquisition ("SCADA") system. The SCADA system monitors all metrics of the turbines used in the Project and can trip or shut down any turbine in the event a turbine is not operating within established parameters.
40. An Environmental Assessment as defined in the Zoning Ordinance is not currently required for Timbermill Wind.
41. There is no federal funding involved in the development of Timbermill Wind.
42. SEPA does not apply to the Project.

43. Timbermill Wind, using expert consultants, is conducting wetland studies and will coordinate with the United States Army Corps of Engineers (the "Corps") to determine what permit, if any is needed for compliance with Section 404 of the Clean Water Act.
44. In connection with its permit from the Corps, Timbermill Wind will apply for and receive Section 401 Water Quality Certification from the Division of Water Quality of the North Carolina Department of Environmental Quality ("DEQ")
45. Timbermill Wind is coordinating with the United States Fish and Wildlife Service concerning potential impacts to threatened and endangered species.
46. Timbermill Wind has conducted pre-construction surveys that determined that the Project has a low risk for potential avian impacts.
47. Timbermill Wind has coordinated, and will continue to coordinate, with the North Carolina Division of Coastal Management and the North Carolina Wildlife Resources Commission in its evaluation of applicable federal and state environmental requirements.
48. Timbermill Wind is conducting a review of cultural resources, which includes sampling for subsurface and surface evidence or artifacts and a detailed mapping of any sites of significance and a review of architectural resources on the site.
49. The applicable permits and Timbermill Wind's coordination with numerous federal and state agencies will ensure that the Project will not have a significant adverse impact to wildlife or the natural environment.
50. Timbermill will secure all required governmental approvals prior to applying for a building permit from Chowan County.

PROPERTY VALUES

51. There are 72 parcels within 150 feet of the Project, representing the adjoining and abutting property. The property adjoining and abutting the Project is primarily used for agriculture and forestry with sporadic improvements on approximately 19 of the 72 parcels.
52. The property adjoining and abutting the Project is not well suited for intensive development.
53. The siting of a turbine does not change or alter the use of adjacent land.
54. In December 2009, the Ernest Orlando Lawrence Berkeley National Laboratory published a study entitled *The Impact of Wind Power Projects*

on Residential Property Values in the United States: A Multi-State Hedonic Analysis by Ben Hoen, et al (the "Hoen Study").

55. The Hoen Study analyzed the impact of twenty-four (24) existing wind energy facilities on the property values of nearby residential properties.
56. Included among the wind energy facilities analyzed in the Hoen Report is the Mendota/GSG wind energy facility in Lee County Illinois.
57. In May 2010, Illinois State University published a study entitled *Wind Farm Proximity and Property Values: A Pooled Hedonic Regression Analysis of Property Values in Central Illinois* by Jennifer L. Hinman (the "Hinman Study").
58. The Hinman Study analyzed the impact of the Twin Groves wind energy facility in McLean County, Illinois on the property values of nearby residential properties.
59. A second study by the Ernest Orlando Lawrence Berkley National Laboratory in August 2013, by Hoen et al., entitled *A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States*, found no evidence that homes prices surrounding wind facilities are consistently, measurably and significantly affected by either the view of the wind facility or the distance between the home and the wind facility.
60. In January 2014, Carol Atkinson-Palombo and Ben Hoen authored a peer-reviewed article entitled *Relationship between Wind Turbines and Residential Property Values in Massachusetts*.
61. Timbermill Wind submitted the peer-reviewed studies by Hoen et al and Hinman with the CUP Application.
62. The peer-reviewed articles included with the CUP application found that the wind facilities studied did not substantially injure the value of adjoining or abutting property.
63. Cayuga Ridge is a large wind energy facility located in Livingston County, Illinois.
64. The area in the vicinity of the Timbermill Project site is similar in population, land use, geography, economic demographics, and residential property values to the areas in the vicinity of the Cayuga Ride facility located in Illinois and the facilities studied in the peer-reviewed articles included with the CUP application.

65. The conclusions reached in the Hoen Report and the Hinman Report, as well as the conclusions reached from a study of the Cayuga Ridge facility, are applicable to the Project.
66. The Project provides buffers between its wind turbine sites and occupied residential dwellings that will minimize the visual and noise impact of the Project.
67. Substantial portions of the area in the vicinity of the Project are wooded and will provide additional screening and buffer to mitigate potential noise and visual impacts.
68. A limited number of residential dwellings are located in the area in which the Project is to be located.
69. The property in the area of the proposed Project is prime farmland and the Project will preserve the land for agriculture use.

HARMONY

70. The Properties are zoned A-1 and large wind energy facilities are permitted in the A-1 zoning district with a conditional use permit.
71. The dominant land use on the Properties and in the vicinity of the Project is for agricultural crop and timber production.
72. A large proportion of the property on which Timbermill Wind will be constructed is timberland leased from Weyerhaeuser.
73. Turbines used in the Project have a small footprint post-construction and will cause a minimal amount of interference with agricultural or forestry activities.
74. The Project will maintain open land and will preserve agricultural land.
75. The Project is compatible with Weyerhaeuser's timber operations and with the surrounding rural agriculture land uses.
76. The Project will be substantially screened from a majority of visually sensitive sites.
77. The Project will be located in an area with large forested areas.
78. Existing woodlands and land uses will partially screen or completely obscure views of the Project from many vantage points in the vicinity of the Project.

79. The off-white color of turbines used in the Project will lessen the visual contrast of the turbines against the sky.
80. No advertising elements will appear on turbines or any of the Project's facilities.

LAND USE PLAN

81. The existing land use is agricultural and forestry. The land suitability classification is primarily low suitable and least suitable, some medium suitability.
82. The Project uses low/least to medium suitability land in a productive manner.
83. The future land use classification is residential agricultural. Approximately 91.6 percent of the total County land area is Residential Agricultural.
84. The Residential Agricultural classification and the underlying A-1 (Agricultural) zoning district allows commercial uses.
85. The Project promotes the purposes for which the district was established, including continued use of the land for agricultural, forestry and open space purposes and discourages use which creates premature or extraordinary public infrastructure and service demands.
86. The Project will allow continued active agricultural and forestry operations of the Properties and the area in the vicinity of the Project.

EXTRAORDINARY CIRCUMSTANCES FOR VARYING CONDITION

87. The Project is a very large, complex development covering 8,000 acres.
88. The Project requires extensive permitting from multiple agencies of the state and federal government. These include, among others:
 - a. A Wind Energy Permit from the North Carolina Department of Environmental Quality (DEQ). This permit cannot be granted until all other permits and certifications are received including a Conditional Use Permit from the County. The DEQ process will take over twelve (12) months to complete.
 - b. Potentially a Section 404 Individual Wetlands permit from the United States Army Corps of Engineers (USACE). The wetlands process will take up to two (2) years to complete.
 - c. Determinations of No Hazard from the Federal Aviation Administration (FAA). This determination requires collaboration with

the Department of Defense and the U.S. Navy. It is unknown how long this determination will take as the FAA will not issue a decision of No Hazard until the DOD collaboration has been completed.

- d. Consultations with U.S. Fish and Wildlife Services and North Carolina Wildlife Resources Commission on avian, bat and wildlife issues. It is unknown how long this process will take. The purpose of these consultations is to ensure that both agencies are satisfied that Timbermill has identified all potential impacts to birds, bats and other wildlife and has taken all appropriate steps to avoid, minimize and mitigate any such impacts.
89. All state and federal permitting must be complete prior to Timbermill receiving a building permit.
 90. Timbermill witnesses Don Giecek, Tracy Butler and Dave Phillips testified about the extensive state and federal permitting process and the length of time it will take to complete. The process will take well over a year. It is estimated it will take Timbermill approximately fifty-four (54) months to complete all required permitting.

In light of the foregoing findings of fact, the BOC makes the following conclusions of law:

IV. CONCLUSIONS OF LAW

1. The use meets all required conditions and specifications of the Zoning Ordinance.
2. The use will not materially endanger the public health or safety if located where proposed and approved.
3. The use will not substantially injure the value of adjoining or abutting property.
4. The location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the land use plan or other plans and policies officially adopted by the BOC.
5. Having considered the expert testimony presented by Timbermill Wind, the BOC hereby concludes that Timbermill Wind's expert testimony and evidence was competent, substantial, material and sufficient to support granting the CUP Application.
6. Extraordinary circumstances for a varying condition exist for The Project given the extensive and complex permitting required by multiple state and

federal agencies. A varying condition for an expiration period of fifty-four (54) months is justified.

7. The following conditions apply to the approval of the CUP Application:
- Final civil site design (including new road location and building specifications) shall be reviewed by County staff at a subsequent TRC meeting to ensure compliance with state and local building standards.
 - Throughout the permit process, the Applicant shall promptly notify Chowan County of any proposed changes to the information contained in the permit application that would materially alter the impact of the project.
 - Changes to the approved application that do not materially alter the initial site plan may be administratively approved by the Zoning Administrator. Major modifications to the approved Conditional Use Permit will require a new Application and approval by the Planning Board and Board of County Commissioners in the same manner as the original Conditional Use Permit. Major Modification is defined as an expansion of the project boundary or an increase in the number of turbines. A decrease in the number of turbines or the relocation of any turbine on the site plan within the project boundary is not a Major Modification so long as the turbine locations conform to development standards of the ordinance.
 - No turbine may be moved to any location outside of the blue grid, of Tab 18 of the Application, without subsequent permission of the Chowan County Board of Commissioners.
 - Decommissioning
 - a. The Wind Energy Facility Owner shall have twelve (12) months to complete decommissioning of the Wind Energy Facility if no meaningful amount of electricity is generated for a continuous period of twelve (12) months. For purposes of this Section, this twelve (12) month period shall not include delay resulting from Force Majeure.
 - b. Decommissioning shall include removal of Wind Turbines, buildings, cabling, electrical components, roads, and any other associated facilities down to thirty-six (36) inches below grade.
 - c. Disturbed earth shall be graded and re-seeded, unless the landowner requests in writing that the access roads or other land surface areas not be restored.

- d. Prior to the issuance of a building permit, the owner of a Medium or Large Wind Energy Facility shall provide a *cash bond* in favor of the County in an amount equal to the estimated removal cost of the Wind Energy Facility. The bond shall remain in full force and effect until any necessary site restoration is completed to restore the site to a condition comparable to that which existed prior to the issuance of the Conditional Use Permit. An every two years reassessment of the amount of the cash bond shall be established to ensure that the bond will cover the full cost of decommissioning completely and thereby protect the County's interest.
- The Applicant shall obtain all applicable NCDOT permits required for any additional accesses to state maintained roads.
 - If required by the US Army Corps of Engineers as part of a 404 Individual Permit, an Environmental Assessment must be completed and submitted to the County for review prior to any issuance of a Building/Zoning Permit.
 - All other required State and Federal Permits must be issued prior to any issuance of a Building/Zoning Permit from Chowan County.
 - All details/improvements shall be installed/constructed according to Chowan County Development Code requirements.
 - Applicant will engage in a sound monitoring program to be developed by the Applicant and Chowan County Planning and Zoning Staff prior to issuance of a building permit.
 - The CUP in this case shall expire if, within fifty-four (54) months from the date of issuance:
 - a. The use authorized by such permits has not commenced, in circumstances where no substantial construction, erection, alteration, excavation, demolition, or similar work is necessary before commencement of such use; or,
 - b. Less than ten percent of the total cost of all construction, erection, alteration, excavation, demolition, or similar work on any development authorized by such permits has been completed on the site; or,
 - c. Timbermill has not applied for a building permit.
 - The study of the impact of the Timbermill Project on natural resources and uses, including avian, bat, and endangered and threatened

species required by N.C.G.S. § 143-215.119(a)(10) must be provided to the County at the time Timbermill submits its Wind Permit Application to DEQ.

- Applicant will notify the County that it has applied for any State or Federal permits at the time Timbermill applies for the permit. Timbermill will also provide the notice of the agency decision to the County either approving or disapproving the permit application.

V. ORDER

Based upon the foregoing Findings of Fact and Conclusions of Law, it is hereby ordered that the CUP Application is approved as submitted, subject to the conditions set forth above.

This the 15th day of November, 2016.

By: *D. Keith Nixon*
 Vice-Chairman, Chowan County
 Board of Commissioners

NORTH CAROLINA
CHOWAN COUNTY

I, Susanne Stallings, a Notary Public for Gates County, North Carolina, do hereby certify that D. Keith Nixon personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal this the 15th day of November, 2016.



Susanne Stallings
 Notary Public

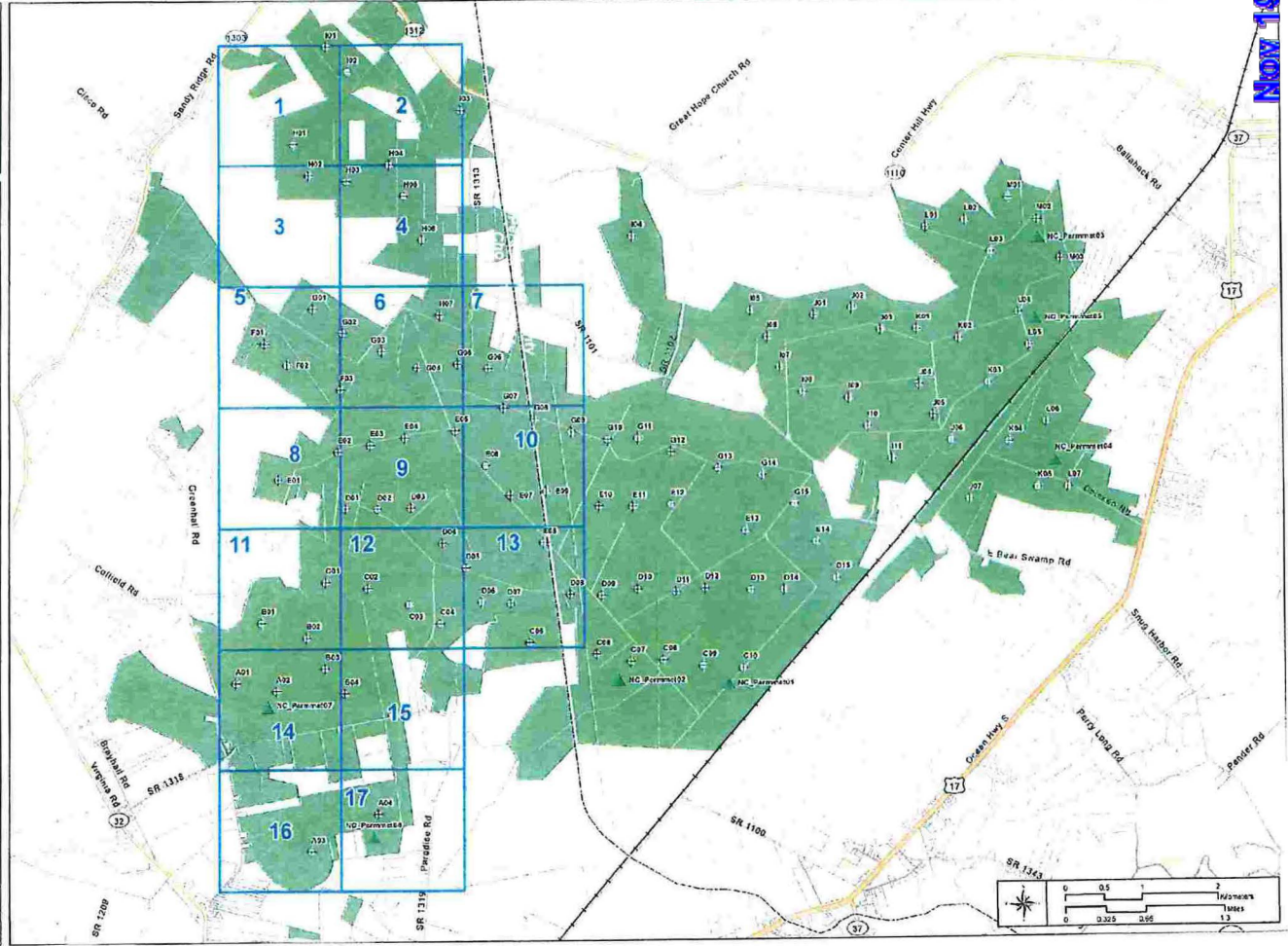
My commission expires June 26, 2021



Site Plan Mapbook: Timbermill Wind Project Chowan County

- Turbine Location (105)
- Proposed Permanent Met Tower
- Participating Parcel
- Nonparticipating Parcel
- Map Page
- County Boundary

15/26/2021 10:00 AM
 Created by: [Name]
 Project: [Name]
 Drawing: [Name]
 Date: [Date]



**Timbermill Wind, LLC
Application Exhibit 4**

DOCKET NO. EMP 118, SUB 0

Filing Fee Tendered \$ ²⁵⁰ _____

Registration Statement for the Registration of a Renewable Energy Facility or New Renewable Energy Facility – Commission Rule R8-66

Pursuant to G.S. 62-133.8 and Commission Rule R8-66, this form is required for use by the owner of a renewable energy facility that intends for the renewable energy certificates the facility earns to be eligible for use by an electric power supplier to comply with G.S. 62-133.8, or for its renewable energy facility to participate in the Competitive Procurement of Renewable Energy Program. This form may be accompanied by any exhibits or additional responses incorporated by reference thereto and attached to this form. This form must be accompanied by the required filing fee of \$250.00.

This form may be electronically filed. Please see www.ncuc.net for instructions.

If this form is filed by hard copy, the original plus 9 copies must be presented at the office of the Chief Clerk, or transmitted by the United States Postal Service or a designated delivery service authorized pursuant to 26 U.S. 7502(f)(2). Regardless of the method of delivery, this form is not deemed filed until it is received by the Chief Clerk, along with the required filing fee.

The mailing address is:

Chief Clerk
NC Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

| Required Statements | Response |
|---|--|
| Facility name: | Timbermill |
| Full and correct name of the owner of the facility: | Timbermill Wind, LLC |
| Business address: | 310 4th Street NE, Suite 300 Charlottesville, VA 22902 |
| Electronic mailing address: | jimmy.merrick@apexcleanenergy.com |
| Telephone number: | (434) 282-2107 |
| Owner's agent for purposes of | |

| | |
|---|---|
| this application, if applicable: | |
| Agent's business address: | |
| Agent's electronic mailing address: | |
| Agent's telephone number: | |
| | |
| The owner is: | <input type="checkbox"/> Individual <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation/LLC |
| If a corporation, provide the state and date of incorporation: | State <u>DE</u> Date <u>01/31/2012</u> |
| If a corporation that is incorporated outside of North Carolina, is it domesticated in North Carolina? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| If a partnership, the name and business address of each general partner. (Add additional sheets if necessary.) | N/A |
| | |
| Nature of the renewable energy facility: | |
| 1. Describe the facility, including its technology, and the source of its power and fuel(s). Thermal facilities should describe how its host uses the facility's thermal energy output. (Add additional sheets if necessary.) | <p>The facility will consist of up to 45 wind turbine generators, each with a nameplate capacity of 4.2 MW.</p> <p>The Facility will utilize the Vestas V150-4.2MW turbines, or a turbine model with a substantially similar profile.</p> |
| 2. Whether it produces electricity, useful thermal energy, or both. | Electricity |
| 3. Nameplate capacity in kW/MW (AC) and/or maximum Btu per hour for thermal facilities. | 189-MWac |

| | |
|---|---|
| 4. The facility's projected dependable capacity in kW AC or Btu/hour. | Wind is an intermittent energy source and therefore, the maximum dependable capacity is 0 kW. |
| 5. The E911 address of the facility. | The applicant will notify the Commission of the e911 street address when it is received. |
| 6. The county where the facility will be located. | Chowan |
| 7. GPS coordinates of the approximate center of the facility site to the nearest second or one thousandth of a degree. | 36.146 N; 76.596 W |
| 8. The location of the facility set forth in terms of local highways, streets, rivers, streams, or other generally known local landmarks. Attach a map, such as a county road map, with the location indicated on the map. | The Facility is located east of Sandy Ridge Road, southwest of Center Hill Highway, and north of US Highway 17, in Chowan County. |
| | |
| Site ownership: | |
| 1. Is the site owner other than the facility owner? If yes, who is the site owner? | See Attachment A. |
| 2. What is the facility owner's legal interest in the site? | The Applicant has entered into lease agreements and/or easement agreements with the participating landowners. |
| | |
| <p>Federal and State licenses, permits, and exemptions.</p> <p>Note: Responses in this section should provide all federal and state (not local) licenses, permits, and/or exemptions required for construction and operation of the facility and a statement of whether each has been obtained or applied for. A copy of those that have been obtained should be attached to this registration statements. Wind facilities with multiple turbines, where each turbine is licensed separately, may provide copies of approvals for one such turbine, but shall add an attestation that approvals for all of the turbines are available for inspection.</p> | |
| 1. Federal permits and licenses: | FAA Determination of No Hazard to Air Navigation, USACE Clean Water Act Section 404 Individual Permit, National Pollutant Discharge Elimination System Permit |
| 2. State permits and licenses: | NC Wind Energy Facility Permit, Erosion and Sedimentation Control Approval, Section 401 Water Quality Certification, NC DOT Driveway Permits |

| | |
|---|---|
| 3. Exemptions required for construction and operation of the facility: | N/A |
| 4. Statement of whether each has been obtained or applied for (attach copy of those that have been obtained with this application): | The FAA Determinations of No Hazard to Air Navigation were re-filed in September, 2020. All other applications have not yet been applied for. The Applicant will file a copy of the federal and state licenses, permits and exemptions if any are received, once they are obtained. |
| | |
| 1. If the facility has been placed into service, on what date did the facility begin operating? | N/A |
| 2. If the facility is not yet operating, on what date is the facility projected to be placed into service? | October, 2023 |
| | |
| 1. If the facility is already operating, what is the amount of energy produced by the facility, net of station use, for the most recent 12-month or calendar-year period? Energy production data for a shorter time period is acceptable for facilities that have not yet operated for a full year. | N/A |
| 2. What entity does (or will) read the facility's energy production meter(s) for the purpose of issuing renewable energy certificates? | Virginia Electric and Power Company d/b/a Dominion Energy North Carolina |
| 3. For thermal energy facilities, describe the method to be used to determine the facility's thermal energy production, in BTUs, that is eligible for REC issuance. | N/A |
| 4. Does the facility participate | |

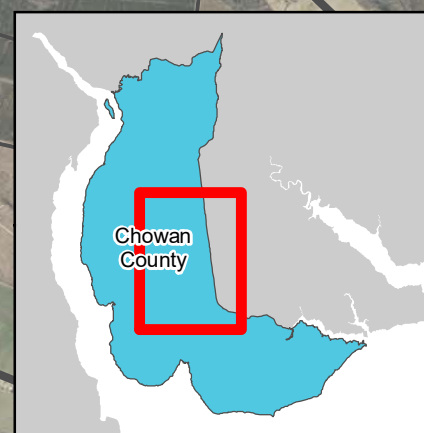
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| <p>in a REC tracking system and if so, which one? If not, which tracking system will the facility participate in for the purpose of REC issuance?</p> | <p>The facility will participate in NC-RETS for the purpose of REC issuance.</p> |
| <p>5. If this facility has already been the subject of a proceeding or submittal before the Commission, such as a Report of Proposed Construction or a Certificate of Public Convenience and Necessity, please provide the Commission Docket Number, if available.</p> | <p>N/A</p> |
| <p>If the facility is a combined heat and power system, the owner shall also include in its registration statement the following information:</p> | |
| <p>1. A narrative description and one-line diagram of the electrical and thermal generation systems to include Btu meters, boilers, steam pressures, valves, turbines, and ultimate uses of the steam. Also, include any crossover of steam, cross connections (even if by spool piece), or the ability to supply steam from other means or to other loads.</p> | |
| <p>2. A description of the parasitic electrical and parasitic thermal loads.</p> | |
| <p>3. Calculations for the parasitic electrical and parasitic thermal loads and supporting documents.</p> | |
| <p>4. A description of the method of collecting the waste heat from the electrical generating system.</p> | |
| <p>5. A description of the host(s) of the waste heat and an explanation of how the waste heat will be used and useful.</p> | |
| <p>6. Calculations of the percent of energy that is delivered to the steam host(s) but not used and useful.</p> | |
| <p>7. Confirmation if the proposed operation will have any pressure reducing valves operating simultaneously in parallel with any back pressure turbines.</p> | |
| <p>If the facility owner intends to earn multiple types of RECs by using a variety of fuels, the owner should include in its registration statement the following additional information:</p> | |
| <p>1. Example calculations for the energy production associated with each fuel used by the family as required by the Appendix C (Multi-fuel Generation) to the operating procedures for the North</p> | |

| | |
|---|--|
| Carolina Renewable Energy Tracking System. These calculations must ultimately show the electrical and thermal energy (if any) attributable to only the renewable fuels and how the number of renewable energy certificates is determined. | |
| 2. A description of each fuel to be used by the facility. | |
| 3. A description of how the heat content of each fuel was determined. | |

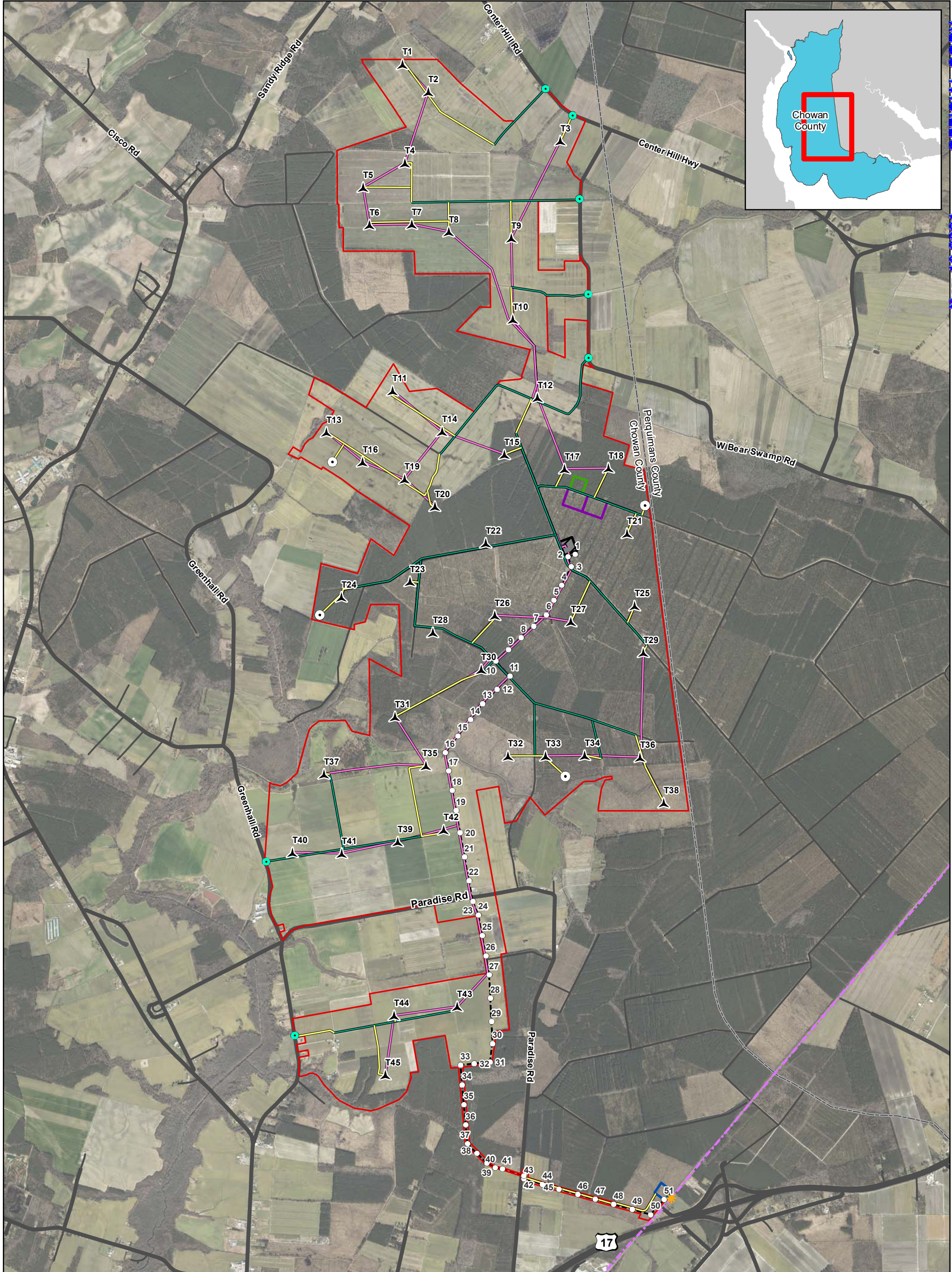
**Timbermill Wind, LLC
Registration Statement
Attachment A – List of Site Owners**

1. Weyerhaeuser Company
2. Larry S. Kilby and Cheryl H. Kilby
3. Adrien J Smith, Jr & Sons Inc.
4. Raymond Earl Davenport
5. Fenton T Eure, Jr. and Margie C. Eure
6. J. Wallace Goodwin, III
7. Wilson Edward Reid, Jr.
8. Thomas Brent Griffin and Meri Beth G. Griffin
9. Parrish Farms, Inc.
10. Jimmie M Parrish, Jimmie M Parrish, Jr., and Anne L. Parrish
11. Jacob Cameron Boyce, Jr. and James Robert Boyce
12. Sadie B. Eure
13. Eugene N. Jordan, Jr.
14. William A. Jordan
15. Robert E. Jordan and Jill C. Jordan
16. Eugene N. Jordan, Inc.
17. Keith Williams Jordan and Peggy Jordan
18. Walt Spruill, LLC
19. Sylvia Pierce Monds
20. Ruth Peele Monds
21. William Preston Monds
22. James K. Copeland, Jr. and Constance B. Copeland
23. James T. White
24. C. T. Mansfield

25. Ruth Boyce Mansfield
26. Judith A. Peele
27. Connie Monds Parrish Farm Partnership
28. W.J. Privott
29. Peggy Monds Spivey Farm Partnership



OFFICIAL COPY
NOV 19 2021



TIMBERMILL WIND

Scale: 0 1,000 2,000 3,000 Feet
1:38,000

merjent.

For Environmental Review Purposes Only
Preliminary Not for Construction

Location Map/Facility Overview

Timbermill Wind Project

Chowan County, North Carolina

| | |
|-------------------------------|----------------------------------|
| ▲ Turbine | ◻ Collector Substation |
| ● Access Point | ○ Transmission Structure |
| ★ Point of Interconnect | --- Alignment of Timbermill Line |
| ○ Permanent Met Tower | ▭ Switching Station |
| — Access Road | ▭ County Boundary |
| — Existing Access Roads/Paths | — State Maintained Road |
| — Collection Line | — Local Road |
| ▭ Project Area | --- Existing Transmission Line |
| ▭ O&M Area | |
| ▭ Laydown | |

The owner of the renewable energy facility shall provide the following attestations, signed and notarized:

1. Yes No I certify that the facility is in substantial compliance with all federal and state laws, regulations, and rules for the protection of the environment and conservation of natural resources.

2. Yes No I certify that the facility satisfies the requirements of G.S. 62-133.8(a)(5) or (7) as a: renewable energy facility, or new renewable energy facility, and that the facility will be operated as a: renewable energy facility, or new renewable energy facility.

3. Yes No I certify that 1) my organization is not simultaneously under contract with NC GreenPower to sell our RECs emanating from the same electricity production being tracked in NC-RETS; and 2) any renewable energy certificates (whether or not bundled with electric power) sold to an electric power supplier to comply with G.S. 62-133.8 have not, and will not, be remarketed or otherwise resold for any other purpose, including another renewable energy portfolio standard or voluntary purchase of renewable energy certificates in North Carolina (such as NC GreenPower) or any other state or country, and that the electric power associated with the certificates will not be offered or sold with any representation that the power is bundled with renewable energy certificates.

4. Yes No I certify that I consent to the auditing of my organization's books and records by the Public Staff insofar as those records relate to transactions with North Carolina electric power suppliers, and agree to provide the Public Staff and the Commission access to our books and records, wherever they are located, and to the facility.

5. Yes No I certify that the information provided is true and correct for all years that the facility has earned RECs for compliance with G.S. 62-133.8.

6. Yes No I certify that I am the owner of the renewable energy facility or am duly authorized to act on behalf of the owner for the purpose of this filing.

(Signature)

Ken Young

(Name - Printed or Typed)

COO of the sole member of the sole member of Timbermill Wind, LLC

(Title)

06/11/2021

(Date)

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-118, SUB 0


BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of the Application of)
Timbermill Wind, LLC for a Certificate)
of Public Convenience and Necessity)
and Registration as a New Renewable)
Energy Facility)

VERIFICATION

I, Ken Young, being duly sworn, do hereby declare that I am duly authorized to act on behalf of the Applicant, that I have made appropriate inquiries of the subject matter experts on whom I have reasonably relied to prepare the foregoing Application regarding the contents thereof, and that the same are true and correct to the best of my knowledge, information, and belief.

This 11th day of June, 2021.



Ken Young, COO of the manager of the sole member of the sole member of Timbermill Wind, LLC

Sworn and subscribed to before me this 11th day of June, 2021.

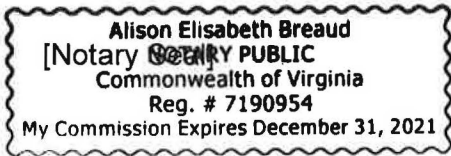


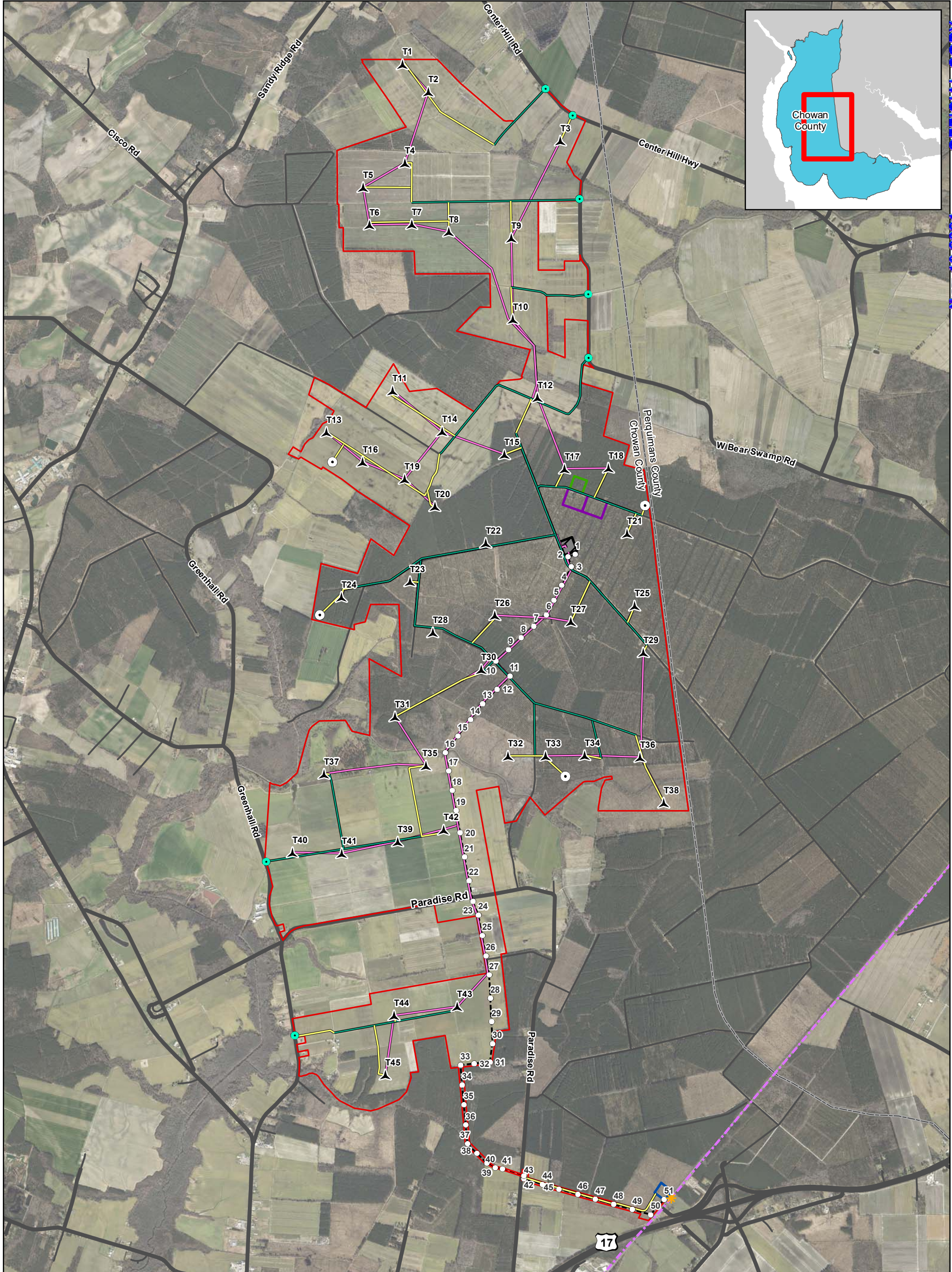
Notary Public [Signature of Notary Public]

ALISON E BREAUD

Name of Notary Public [typewritten or printed]

My Commission expires December 31, 2021





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NOV 19 2021

Location Map/Facility Overview
Timbermill Wind Project
Chowan County, North Carolina

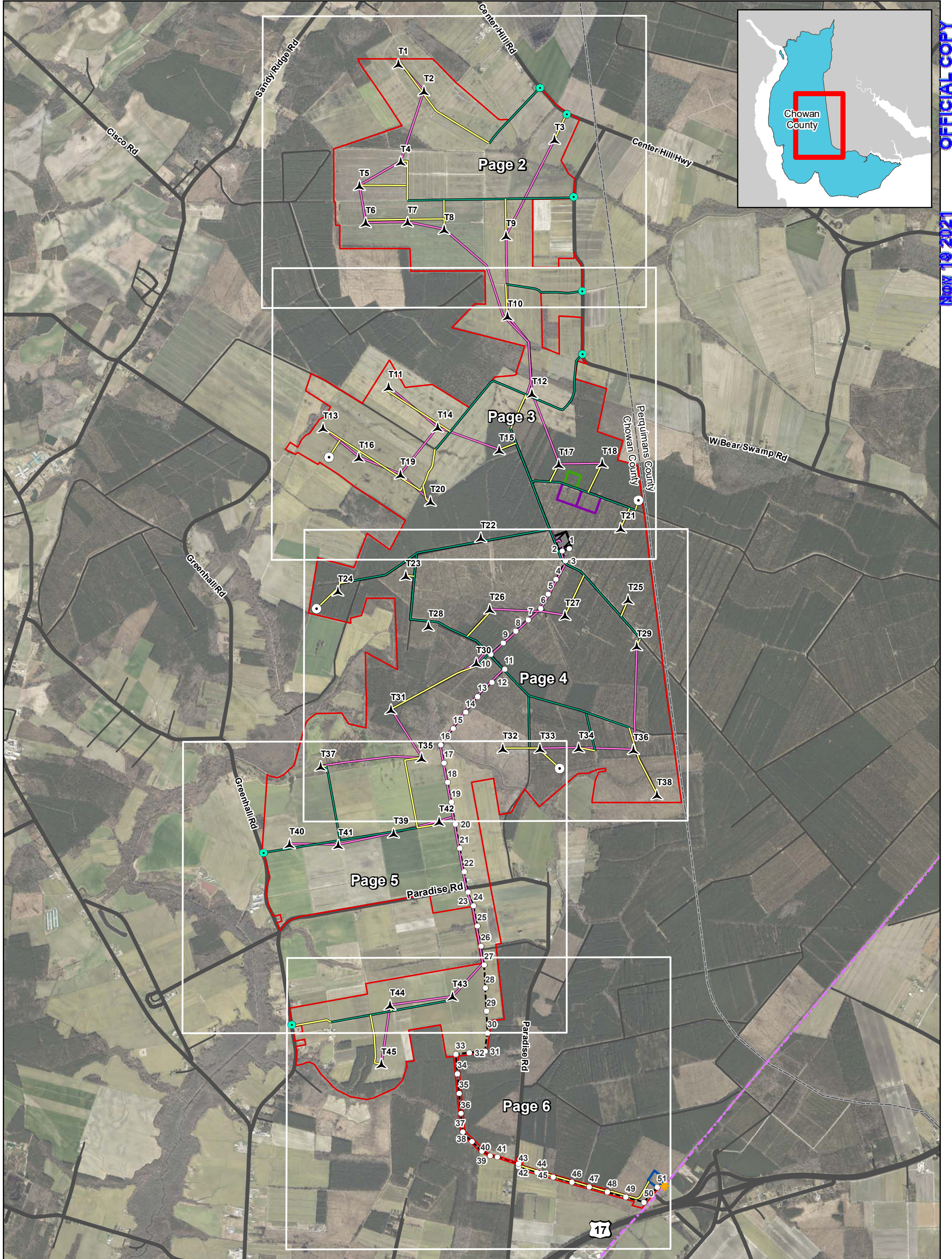
- Turbine
- Access Point
- Point of Interconnect
- Permanent Met Tower
- Access Road
- Existing Access Roads/Paths
- Collection Line
- Project Area
- O&M Area
- Laydown
- Collector Substation
- Transmission Structure
- Alignment of Timbermill Line
- Switching Station
- County Boundary
- State Maintained Road
- Local Road
- Existing Transmission Line




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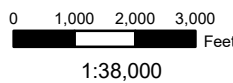


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





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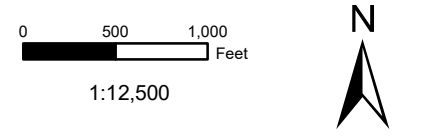
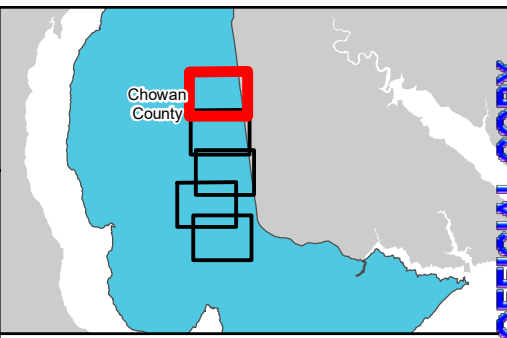
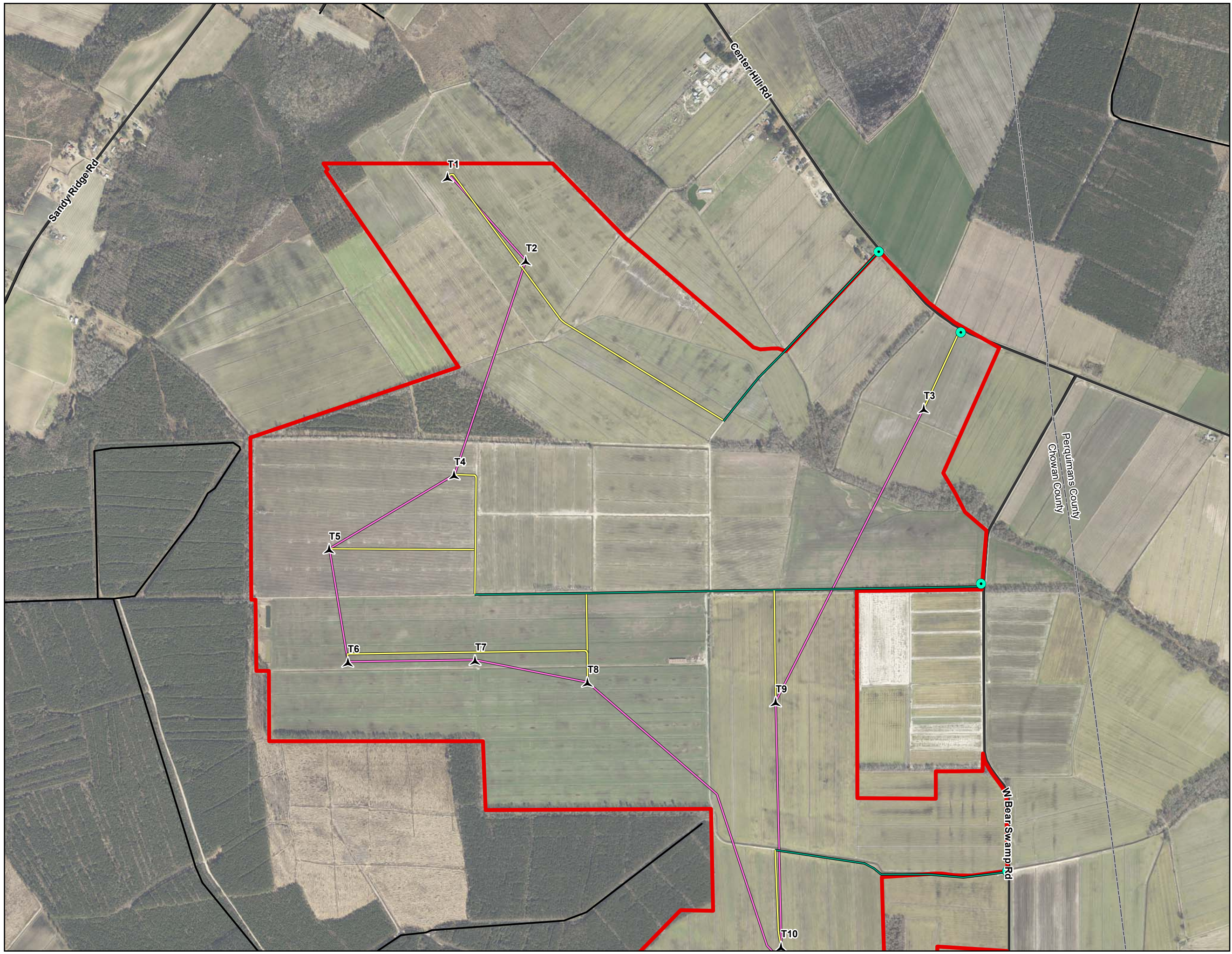
Site Plan

Timbermill Wind Project

Chowan County, North Carolina

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|  | Turbine |  | Collector Substation |
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|  | Access Road |  | County Boundary |
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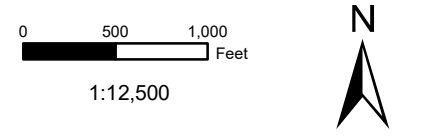
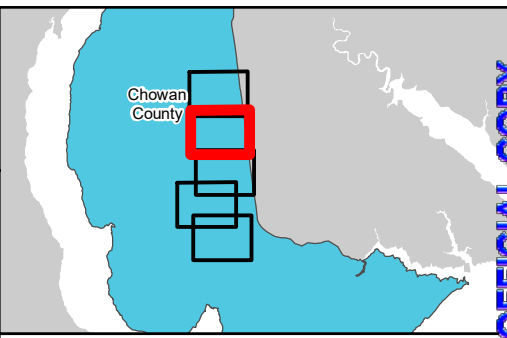
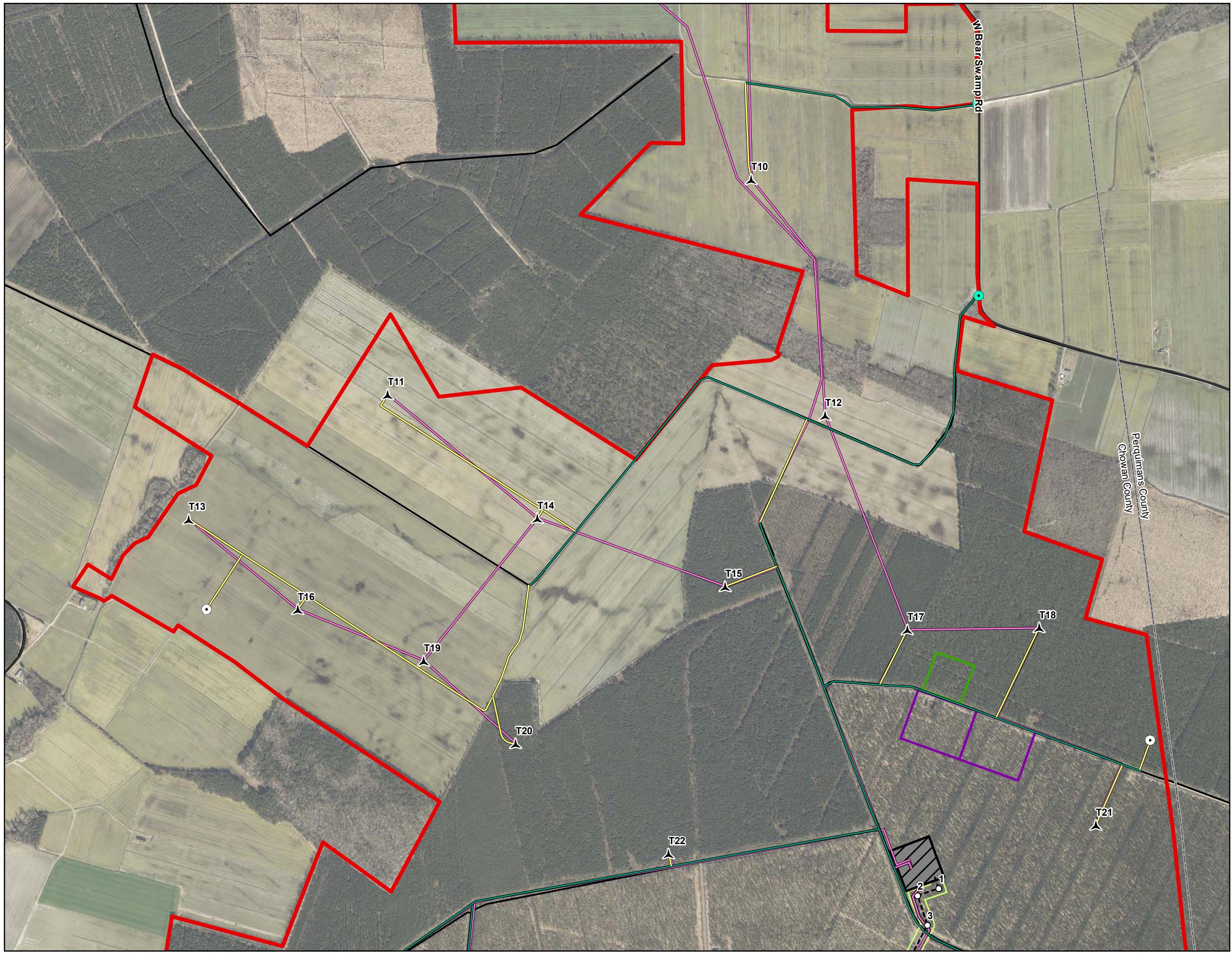
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Timbermill Wind Project
Chowan County, North Carolina



















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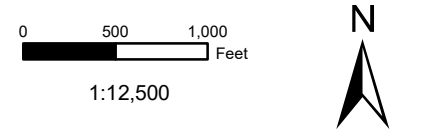
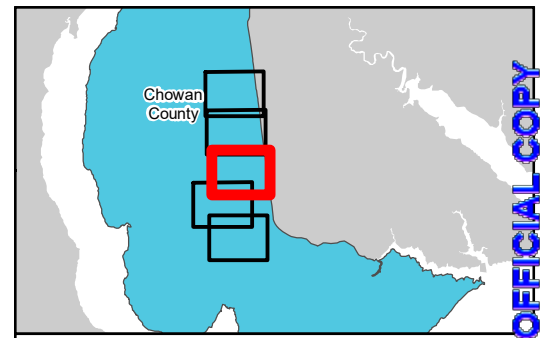
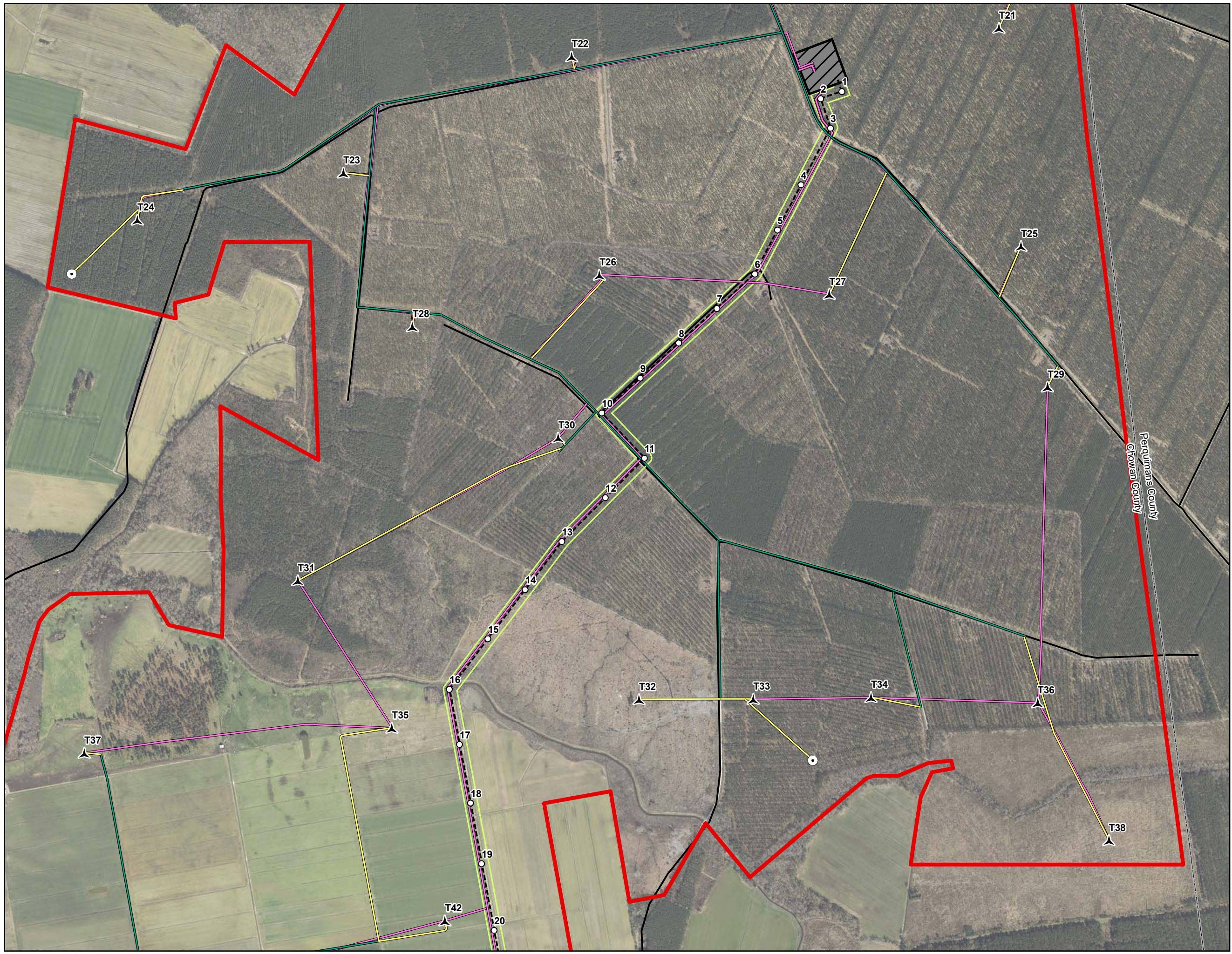
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Chowan County, North Carolina



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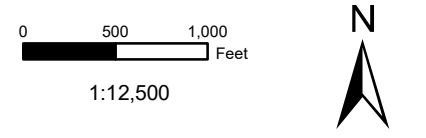
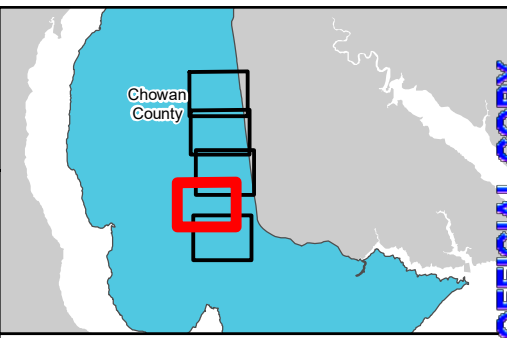
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Timbermill Wind Project
Chowan County, North Carolina
















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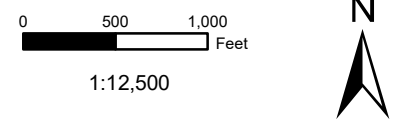
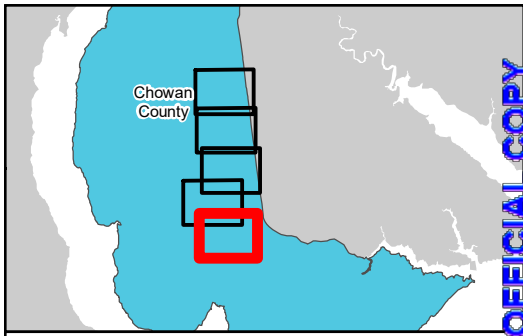
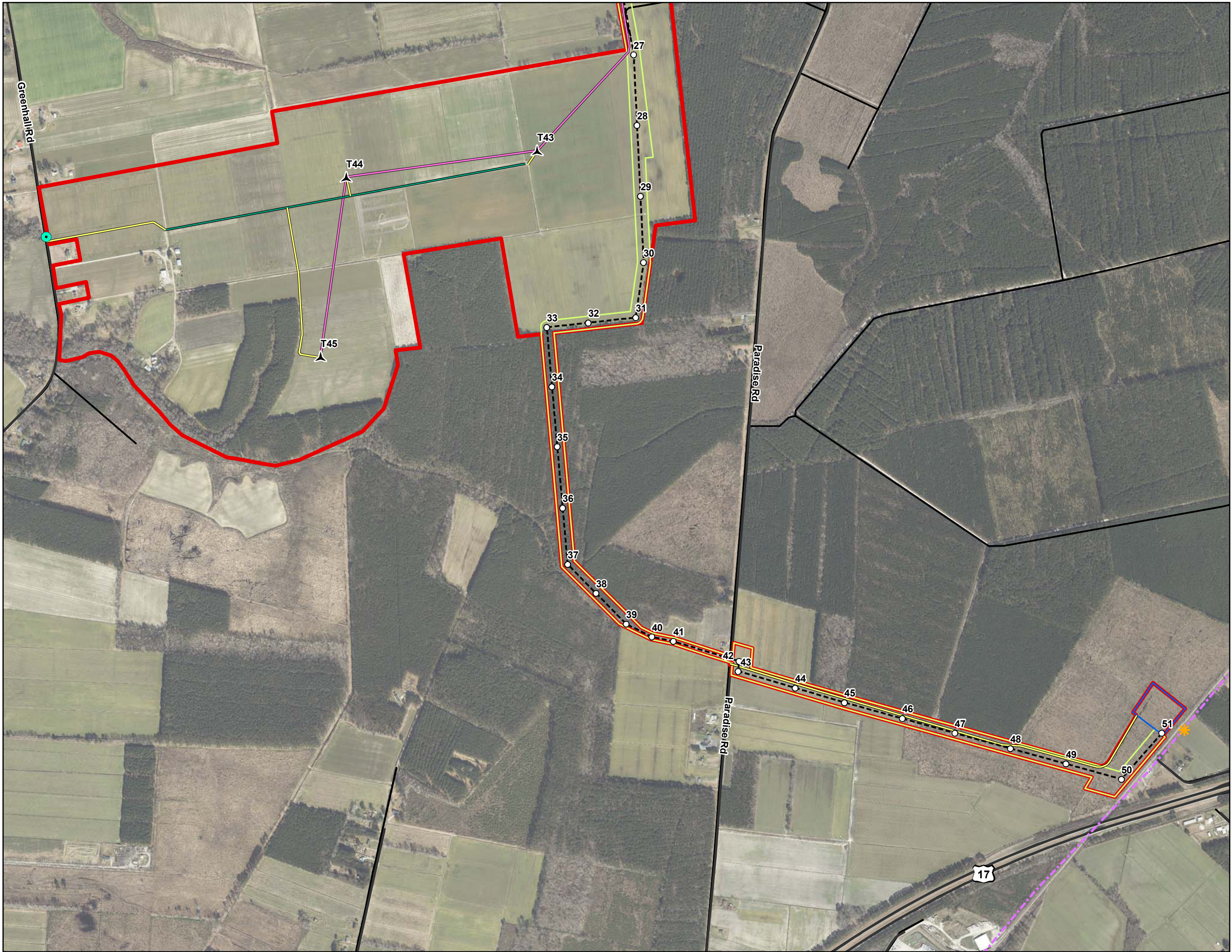
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





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Chowan County, North Carolina



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Chowan County, North Carolina



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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-118, SUB 1

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

| | | |
|---|---|------------------------------------|
| In the Matter of Timbermill Wind, |) | |
| LLC’s Application for a Certificate of |) | TIMBERMILL WIND, LLC’S APPLICATION |
| Environmental Compatibility and |) | FOR A CERTIFICATE OF ENVIRONMENTAL |
| Certificate of Public Convenience and |) | COMPATIBILITY AND PUBLIC |
| Necessity Pursuant to G.S. §§ 62-100 |) | CONVENIENCE AND NECESSITY |
| <i>et. seq.</i> to Construct a Transmission |) | |
| Line for a Proposed Generating |) | |
| Facility |) | |

Timbermill Wind, LLC (“Timbermill” or the “Applicant”), through counsel, and pursuant to G.S. §§ 62-101, 62-102 and 62-104 and Commission Rule R8-62, hereby applies to the North Carolina Utilities Commission (the “Commission”) for a Certificate of Environmental Compatibility and Public Convenience and Necessity (the “CEPCN Application”) to construct an approximately 6-mile 230kV transmission line (the “Timbermill Line”) to allow interconnection of Applicant’s proposed wind energy facility to be constructed in Chowan County (the “Facility”) to the existing 230kV Winfall-Mackeys transmission line (the “Winfall Line”) operated by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina (“DENC”). In support of its CEPCN Application, Timbermill shows the Commission as follows:

Applicant

1. The Applicant’s full and correct name, business address, and business telephone number are:

Timbermill Wind, LLC
310 4th Street NE
Suite 300
Charlottesville, VA 22902
(434) 282-2107

Correspondence, documents, and filings regarding this application should be sent as follows:

Attn: Jimmy Merrick, Development Manager
Apex Clean Energy, Inc.
310 4th Street NE
Suite 300
Charlottesville, VA 22902
Jimmy.merrick@apexcleanenergy.com
(434) 282-2107

with copies to:

Attn: Kate Heins, Associate General Counsel
Apex Clean Energy, Inc.
310 4th Street NE
Suite 300
Charlottesville, VA 22902
Kate.heins@apexcleanenergy.com

and (not for purposes of service):

Katherine E. Ross
Parker Poe Adams & Bernstein LLP
301 Fayetteville Street, Suite 1400
Raleigh, North Carolina 27601
katherineross@parkerpoe.com

2. Timbermill Wind, LLC is a Delaware limited liability company with its principal place of business in Charlottesville, Virginia. Timbermill is an indirect subsidiary of Apex Clean Energy Holdings, LLC (“Apex”).

3. Timbermill has obtained a Certificate of Authority from the North Carolina Secretary of State to conduct business in North Carolina. A true and correct copy of the Certificate of Authority is included as **CECPCN Application Exhibit 1**. As a single-member managed limited liability company, Timbermill does not have officers or directors.

Need for the Line

4. Timbermill has filed an application for a Certificate of Public Convenience and Necessity to construct the Facility (the “CPCN Application”).¹ As described in the CPCN Application, the Facility will include 34.5kV underground electrical collector lines connecting the turbines to each other and then to a Collector Substation. The principal function of the Collector Substation is to increase the voltage from the collector circuits from 34.5kV to 230kV. The Timbermill Line will exit the Collector Substation and transmit the electric output of the Facility to the Interconnection Switching Station and the point of interconnection on the Winfall Line. The Timbermill Line will terminate at the Interconnection Switching Station, which will be constructed, owned and operated by DENC. The Timbermill Line needs to be operational by October of 2023 based on the anticipated commercial operation date for the Facility.

Location of the Line

5. The Timbermill Line will be approximately 6 miles, running between the Collector Substation and the Interconnection Switching Station, and sited within easements on participating landowner property (the “Transmission Corridor”). A U.S. Geological Survey map showing the proposed Timbermill Line route is included as **CECPCN Application Exhibit 2**. Timbermill has established the Transmission Corridor through procurement of easements with landowners who desire to participate in the Facility. The siting of the Timbermill Line within the Transmission Corridor has taken into consideration natural resources to minimize environmental impacts, as described in more detail below. There is no alternative route for the Timbermill Line.

¹ See Docket EMP-118, Sub 0.

Description of the Timbermill Line

6. The Timbermill Line will have a voltage of 230kV. The Timbermill Line will be used exclusively for the output of the Facility and will have a minimum capacity sufficient for the Facility's 189 MW_{AC} output.

7. The Timbermill Line design uses three types of transmission structures:

- Dead end: used within the Collector Substation and Interconnection Switching Substation and at heavy angle turns (i.e., greater than 30 degrees) along the Timbermill Line route;
- Angle: used in locations where the alignment turns between 3 and 30 degrees along the Timbermill Line route; and
- Tangent: for in-line (straight) segments along the Timbermill Line route.

Between the Collector Substation and the Interconnection Switching Station, the Timbermill Line will be located within the Transmission Corridor, which is 150 feet wide, except for an approximately 950-foot span along the west side of Paradise Road that will be 75 feet wide. In the Transmission Corridor, the Timbermill Line will be supported by monopole transmission structures predominately made of wood (except the 950-foot span referenced above in which steel transmission structures will support the Timbermill Line). The transmission structures will be approximately 75 to 120 feet tall and typically 400 to 700 feet apart, based on preliminary engineering.

Within the fenced areas of the Collector Substation and the Interconnection Switching Station, the Timbermill Line will be supported by H-frame structures, which will also be approximately 75 to 120 feet in height based on preliminary engineering.

Generally, the transmission structures will be directly embedded into the ground, unless poor soil or geotechnical conditions necessitate concrete foundations. Timbermill anticipates all transmission structures, both wood and steel, will be embedded approximately 10 to 15 feet deep. Once the Timbermill Line has been erected, the Transmission Corridor will be graded and revegetated with herbaceous seed mix that

includes grasses. Once operational, general maintenance of the Transmission Corridor will consist of clearing vegetation within approximately 4 to 6 inches of the ground, unless an alternative land use is permitted to the landowner, such as agriculture activities.

8. The projected cost of the proposed Timbermill Line is approximately \$3,500,000.

Environmental Report and Factors Influencing Route Selection

9. Included as **CECPCN Application Exhibit 3** is an environmental report prepared by Merjent, Inc. (the “Environmental Report”). This report satisfies all requirements of G.S. § 62-102 and Commission Rule R8-62.

10. As described in the Environmental Report, the Transmission Corridor was identified through careful review and consideration of the natural features, with a goal of minimal environmental impacts, and through discussions with landowners in an effort to locate the Transmission Corridor in a manner that maximizes the owner’s continued use of the remainder of the property.

11. The anticipated permits for the Timbermill Line are found in Table 3.0-1 of the Environmental Report (pages 33-34). A copy of permits obtained for the Timbermill Line will be filed with the Commission promptly after receipt.

12. The information and data required to be filed by Commission Rule R8-62 is supported by the testimony of Jimmy Merrick, Jeremy Spaeth, Emmanuel Wemakoy, and Brie Anderson, which are being filed simultaneously with this CECPCN Application and incorporated herein by reference.

WHEREFORE, Timbermill Wind, LLC respectfully requests that the Commission issue a Certificate of Environmental Compatibility and Public Convenience and Necessity pursuant to G.S. §§ 62-101, 62-102 and 62-104 and Commission Rule R8-62 for construction of the Timbermill Line.

Respectfully submitted this 21st day of June 2021.

By: Katherine E. Ross

Katherine E. Ross
N.C. State Bar No. 38468
E. Merrick Parrott
N.C. State Bar No. 47999
Parker Poe Adams & Bernstein LLP
PNC Plaza
301 Fayetteville Street, Suite 1400
Raleigh, North Carolina 27601
Tel. 919-828-0564
Fax 919-834-4564
Email: katherineross@parkerpoe.com
merrickparrott@parkerpoe.com

Attorneys for Timbermill Wind, LLC

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Timbermill Wind, LLC CECPCN Table of Exhibits

1. Timbermill Wind, LLC's Certificate of Authority to Transact Business
2. U.S. Geological Survey Map Showing Proposed Location
3. Environmental Report prepared by Merjent

State of North Carolina
Department of the Secretary of State

APPLICATION FOR CERTIFICATE OF AUTHORITY
FOR LIMITED LIABILITY COMPANY

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Nov 19 2021

Pursuant to §57C-7-04 of the General Statutes of North Carolina, the undersigned limited liability company hereby applies for a Certificate of Authority to transact business in the State of North Carolina, and for that purpose submits the following:

1. The name of the limited liability company is Apex Atlantic Wind, LLC
and if the limited liability company name is unavailable for use in the State of North Carolina, the name the limited liability company wishes to use is _____

2. The state or country under whose laws the limited liability company was formed is: DELAWARE

3. The date of formation was JANUARY 27, 2012; its period of duration is: PERPETUAL

4. Principal office information: (Select either a or b.)
a. The limited liability company has a principal office.

The street address and county of the principal office of the limited liability company is:
Number and Street 310 4th St. NE SUITE 200
City, State, Zip Code CHARLOTTEVILLE, VA 22902 County ALBEMARLE

The mailing address, if different from the street address, of the principal office of the corporation is:
244 EAST High Street, CHARLOTTEVILLE, VA 22902

b. The limited liability company does not have a principal office.

5. The street address and county of the registered office in the State of North Carolina is:
Number and Street 1700 MIMM LAKE COURT, SUITE 100
City, State, Zip Code RALEIGH, NORTH CAROLINA 27605 County WAKE

6. The mailing address, if different from the street address, of the registered office in the State of North Carolina is:

7. The name of the registered agent in the State of North Carolina is: NATIONAL CORPORATE RESEARCH, LTD

APPLICATION FOR CERTIFICATE OF AUTHORITY

Page 2

8. The names, titles, and usual business addresses of the current managers of the limited liability company are:
(use attachment if necessary)

| Name | Business Address |
|--------------------------------|---|
| APEX WIND ENERGY HOLDINGS, LLC | 310 1 st Street NE SUITE 200, CHARLOTTESVILLE, VA 22902 |
| | |
| | |
| | |

9. Attached is a certificate of existence (or document of similar import), duly authenticated by the secretary of state or other official having custody of limited liability company records in the state or country of formation. The Certificate of Existence must be less than six months old. A photocopy of the certification cannot be accepted.

10. If the limited liability company is required to use a fictitious name in order to transact business in this State, a copy of the resolution of its managers adopting the fictitious name is attached.

11. This application will be effective upon filing, unless a delayed date and/or time is specified: _____

This the 3 day of April, 2013

APEX ATLANTIC WIND, LLC
Name of Limited Liability Company

Gordon J. Trousdale
Signature of Manager

GORDON TROUSDAL, MEMBER
Type or Print Name

Notes:

1. Filing fee is \$250. This document must be filed with the Secretary of State.

Delaware

PAGE 1

The First State

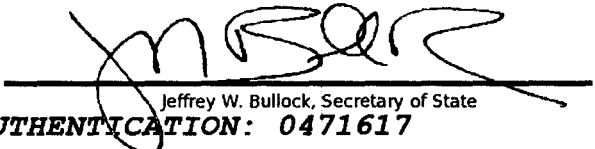
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "APEX ATLANTIC WIND, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE THIRTIETH DAY OF MAY, A.D. 2013.

5103461 8300

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You may verify this certificate online
at corp.delaware.gov/authver.shtml


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 0471617

DATE: 05-30-13

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State of North Carolina
 Department of the Secretary of State

APPLICATION FOR AMENDED CERTIFICATE OF AUTHORITY
 FOR LIMITED LIABILITY COMPANY

Pursuant to §57C-7-05 of the General Statutes of North Carolina, the undersigned limited liability company hereby applies for an Amended Certificate of Authority to transact business in the State of North Carolina, and for that purpose submits the following statement.

1. The name of the limited liability company is: Apex Atlantic Wind, LLC
2. The name the limited liability company is currently using in the State of North Carolina is:
Apex Atlantic Wind, LLC
3. The state or country of formation is: Delaware
4. The date the limited liability company was authorized to transact business in the State of North Carolina is:
June 18th, 2013
5. The changes being made are as follows:
Name amended to: Timbermill Wind, LLC
6. Attached is a certificate of existence (or document of similar import), duly authenticated by the Secretary of State or other official having custody of limited liability company records in the state or country of formation. The certificate of existence must be less than six months old. A photocopy of the certification cannot be accepted.
7. This application will be effective upon filing, unless a date and/or time is specified: _____

This the 17th day of July, 20 13

Timbermill Wind, LLC

Name of Limited Liability Company



Signature

Christian Payne, Member

Type or Print Name and Title

Notes:

1. Filing fee is \$50. This application must be filed with the Secretary of State.

Delaware

PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "TIMBERMILL WIND, LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE SEVENTEENTH DAY OF JULY, A.D. 2013.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "TIMBERMILL WIND, LLC" WAS FORMED ON THE THIRTY-FIRST DAY OF JANUARY, A.D. 2012.

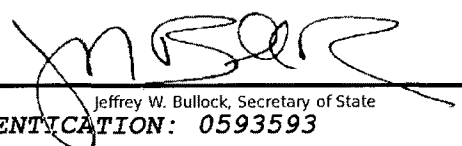
AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN PAID TO DATE.



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You may verify this certificate online
at corp.delaware.gov/authver.shtml


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 0593593

DATE: 07-17-13

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USGS Map

Timbermill Wind Project

Chowan County, North Carolina

- Transmission Structure
- Alignment of Timbermill Line
- Access Road
- ▭ Transmission Route
- ▭ Collector Substation
- ▭ Switching Station
- ▭ County Boundary
- State Maintained Road
- Local Road

USGS The National Map: Orthoimagery. Data refreshed October, 2020.



ENVIRONMENTAL REPORT
FOR THE
TIMBERMILL 230 kV TRANSMISSION LINE

PREPARED FOR:

TIMBERMILL WIND, LLC

310 4th Street NE, Suite 300
Charlottesville, Virginia 22902

JUNE 2021

PREPARED BY:



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Figure 5 Agriculture and Silviculture

Figure 6 Existing Infrastructure and Managed Lands

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ACRONYM LIST

| | |
|-----------------------|---|
| ACC | Archaeological Consultants of the Carolinas, Inc. |
| ACS | American Community Survey |
| APLIC | Avian Power Line Interaction Committee |
| BMP | best management practice |
| CAMA | Coastal Area Management Act |
| CRA | Cultural Resource Analysts, Inc. |
| CRP | Conservation Reserve Program |
| CREP | Conservation Reserve Enhancement Program |
| CUP | Conditional Use Permit |
| ESA | Endangered Species Act |
| ETJ | extraterritorial jurisdiction |
| FEMA | Federal Emergency Management Agency |
| FSA | Farm Service Agency |
| IAA | impact assessment area |
| IBA | Important Bird Area |
| IPaC | Information for Planning and Consultation |
| kV | kilovolt |
| MBTA | Migratory Bird Treaty Act |
| MW | megawatt |
| NA | not applicable |
| NAS | National Audubon Society |
| NCDWR | North Carolina Division of Environmental Quality, Division of Water Resources |
| NCNHP | North Carolina Natural Heritage Program |
| NCWRC | North Carolina Wildlife Resources Commission |
| NESC | National Electrical Safety Code® |
| NLCD | National Land Cover Database |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| OSA | Office of State Archaeology |
| POI | Point of Interconnection |
| Preliminary Alignment | Preliminary alignment of the proposed 230 kilovolt transmission line that is used in this Environmental Report to analyze potential environmental impacts. |
| Collector Substation | Approximately 5.5-acre facility that will transform and step up the power from the Wind Project collection lines from 34.5 kilovolt to 230 kilovolt; the start of the Timbermill Wind 230 kilovolt transmission line. |

| | |
|--------------------|---|
| ROW | Right-of-way; area for which Timbermill Wind has executed site control agreements for the Timbermill Line |
| SSURGO | Soil Survey Geographic Database |
| Switching Station | Approximately 4.3-acre facility at the terminal end of the Timbermill Wind 230 kilovolt transmission line prior to entering the existing transmission grid. |
| SWPPP | Stormwater Pollution Protection Plan |
| Tap Line | Approximately 150-foot 230 kilovolt Tap Line from the Switching Station to interconnect the Wind Project into the Winfall to Mackeys transmission line that would be designed, constructed, owned, and operated by Dominion Energy. |
| Timbermill Line | 6.1-mile 230 kilovolt transmission line and associated facilities in Chowan County, North Carolina |
| Timbermill Wind | Timbermill Wind, LLC |
| Transmission Route | 124.9-acre footprint of the transmission line right-of-way, Collector Substation, Switching Station, and access road |
| UDO | Unified Development Ordinance |
| USACE | U.S. Army Corps of Engineers |
| USC | U.S. Code |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| Wind Project | Timbermill Wind, LLC, an indirect wholly-owned subsidiary of Apex Clean Energy Holdings, LLC, is proposing to construct up to 189 megawatts of new wind energy north of the Town of Edenton in Chowan County, North Carolina |
| Wind Project Area | A 6,263-acre area in which the proposed Timbermill Wind Project will be sited. |

1.0 INTRODUCTION

Timbermill Wind, LLC (Timbermill Wind) is proposing to construct up to 189 megawatts (MWs) of new wind energy in Chowan County, North Carolina (Wind Project) north of the Town of Edenton. In addition, Timbermill is proposing to construct a 6.1-mile 230 kilovolt (kV) transmission line and associated facilities (Timbermill Line) to interconnect the Wind Project to the transmission grid (Figure 1 – Wind Project Location). This Environmental Report was prepared as part of the Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Timbermill Line in accordance with the requirements of Article 5A, Chapter 62 of the North Carolina Generate Statutes and North Carolina Utilities Commission Rule R8-62. Timbermill Wind retained Merjent, Inc to assist with environmental aspects of the line routing and preparation of this Environmental Report, the scope of which is limited to the Timbermill Line.

The Timbermill Line will include approximately 6.1 miles of new 230 kV transmission line between the proposed Timbermill Wind Collector Substation and the proposed Switching Station adjacent to the Point of Interconnection (POI) at the existing 230 kV Winfall to Mackeys (Virginia Electric and Power Company, dba Dominion Energy North Carolina Power; Dominion Energy) transmission line. At the POI, the Wind Project will interconnect to the existing Dominion Energy transmission line. Timbermill Wind has executed site control agreements for transmission facilities for the transmission line right-of-way (ROW). Additionally, Timbermill Wind has entered into purchase options for the proposed Collector Substation and Switching Station, facilities that have footprints of approximately 5.5 and 4.3 acres, respectively. From the Switching Station, there will be a short (approximately 150-foot) 230 kV Tap Line to interconnect the Wind Project into the Winfall to Mackeys transmission line that would be designed, constructed, owned, and operated by Dominion Energy. This Tap Line would require one transmission structure within the Switching Station and one approximately 150 feet southeast at the Winfall to Mackeys transmission line. Timbermill Wind will also construct a one mile 20-foot wide access road from Paradise Road to the Switching Station. Table 1.0-1 includes the footprint of each facility. Together, these facilities total 124.9 acres and represent the Transmission Route. Two-thirds (approximately 4.1 miles) of the Transmission Route length is within the Wind Project Area and approximately 2.0 miles of the Transmission Route extend south out of the Wind Project Area to the Switching Station.

**Table 1.0-1
 Summary of Timbermill Line Facilities (acres)¹**

| Timbermill Line Facility ¹ | Description of Footprint | Acres |
|---|---|------------------|
| Transmission ROW | The 75-foot to 150-foot width for which Timbermill Wind has easements for the transmission line | 112.7 |
| Collector Substation | Footprint of Facility | 5.5 |
| Switching Station | Footprint of Facility | 4.3 |
| Access Road ² | 20-foot-wide road from Paradise Road to the Switching Station (one mile) | 2.4 ¹ |
| Total | | 124.9 |
| <p>¹ The Tap Line is not included here because it will be designed by Dominion Energy and not require easements by Timbermill Wind. General statements about design are based on the Switching Station location and proximity to the Winfall to Mackey transmission line.</p> <p>² The access road to the Switching Station is partially within the transmission ROW. Therefore, the 2.4-acre footprint for this facility is partially within the 112.7 acres of transmission ROW and represents a small amount of overlap (2.1 acres).</p> | | |

The transmission ROW is generally 150 feet wide, except on one parcel on the west side of Paradise Road. For approximately 950 feet, the ROW is 75-feet wide. The Timbermill Line will consist of monopole transmission structures predominately made of wood, except for the narrower ROW, which will have steel structures. Within the Collector Substation and Switching Station, the dead end structures will be steel H-frame structures. The transmission design will use three types of transmission structures:

- Dead end: used within the Collector Substation and Switching Station and at heavy angle turns (i.e., greater than 30 degrees);
- Angle: used in locations where the alignment turns between 3 and 30 degrees; and
- Tangent: for in-line (straight) segments.

Transmission structures will be between 75 feet and 120 feet tall and typically 400 to 700 feet apart. Timbermill Wind is proposing longer spans in two areas to minimize the number of structures near residences. Heights and spans may vary depending on the design, terrain, or measures to mitigate potential impacts of the line. Generally, transmission structures would be directly embedded into the ground, unless poor soil or geotechnical conditions necessitate concrete foundations. For both wood and steel transmission structures, Timbermill Wind anticipates the diameter of the permanent impact will be approximately 6 feet wide with a 75-foot diameter workspace for a temporary impact. All structures will be buried between 10- and 15-feet deep.

2.0 ENVIRONMENTAL INFORMATION

The Transmission Route is geographically located in an area that was historically a portion of Bear Swamp. During the 1940's and 1950's most of the area was ditched and drained for the purpose of agricultural and silvicultural practices. The majority of the Transmission Route occurs in the historically converted cropland and actively managed planted pine communities and not in natural forested habitats.

This Environmental Report provides a general description of the environmental and human setting of the Transmission Route. Topics discussed in the following subsections include the natural environment – topography, geology and groundwater resources, soils, surface water resources, wetlands, vegetation, wildlife, and threatened and endangered species and human settlement – land use and development, transportation and utilities, managed lands and recreation areas, socioeconomics, cultural resources, and visual resources. Timbermill Wind evaluates resources that are known to occur or may potentially occur within the Transmission Route. Impacts have been defined by their duration, size, intensity, and location. This context is used to determine an overall resource-level impact. Impact levels are described using qualitative descriptors that are not intended as value judgement, but rather as a measure to ensure a common understanding among readers.

- **Minimal** – Minimal impacts do not considerably alter an existing resource condition or function. Minimal impacts may, for some resources and at some locations, be noticeable to an average observer. These impacts generally affect common resources over the short term.
- **Moderate** – Moderate impacts alter an existing resource condition or function and are generally noticeable or predictable for the average observer. Effects may be spread out over a large area, making them difficult to observe, but they can be estimated by modeling or other means. Moderate impacts may be long term or permanent to common resources, but are generally short to long term for rare and unique resources.
- **Significant** – Significant impacts alter an existing resource or condition or function to the extent that the resource is severely impaired or cannot function. Significant impacts are likely noticeable or predictable for the average observer. Effects may be spread out over a large area, making them difficult to observe, but can be estimated by modeling. Significant impacts can be of any duration and may affect common or rare resources.

In addition to identifying existing resources and the potential effects on those resources, measures that can be used to avoid, minimize, or mitigate effects were identified. These actions are collectively referred to as mitigation.

- **Avoid** – Avoiding an impact means that the impact is eliminated altogether by moving or not undertaking parts or all of a project.
- **Minimize** – Minimizing an impact means to limit its intensity by reducing the project size or moving a portion of the project from a given location.
- **Mitigate** – Impacts that cannot be avoided or minimized could be mitigated. Impacts can be mitigated by repairing, rehabilitating, or restoring the affected environment, or compensating for it by replacing or providing a substitute somewhere else.

Where specific, quantified impacts are discussed, the impacts are quantified based on the Preliminary Alignment shown on the included figures. The Preliminary Alignment was identified based on the best data available at the time of this Environmental Report. Potential impacts to natural and human resources were analyzed based on specific impact assessment areas (IAAs). The IAA for each resource is the geographic area within which the Timbermill Line may exert some influence and were developed based on a combination of the scale of data and past experience. These IAAs vary with the resource being analyzed and the potential impact and are summarized in Table 2.0-1.

The following IAAs will be used:

- **ROW.** The Timbermill Line has a variable ROW: 150 feet for the majority of the length of the transmission line except for approximately 950 feet for which the ROW is 75 feet wide. These distances are used as the IAA for analyzing topography and soils, geology and groundwater resources, surface water resources, wetlands, and vegetation.
- **One thousand feet.** A distance of 1,000 feet from each side of the Preliminary Alignment is used as the IAA for analyzing visual resource impacts. Impacts may extend outside of this 1000-foot distance, but are anticipated to diminish relatively quickly with distance from the line such that potential impacts outside this distance would be minimal.
- **One mile.** A distance of one mile from the Preliminary Alignment is used as the IAA for analyzing potential impacts to threatened and endangered species, cultural resources, and managed lands and recreation areas.
- **Project Study Area.** The Project Study Area, defined generally as Chowan County as a whole, is used as the IAA for analyzing potential impacts to land use and development, transportation and utilities, and socioeconomics. These are resources for which impacts may extend throughout communities in the Project Study Area.

| Type of Resource | Specific Resource/Potential Impact to Resource | Impact Assessment Area |
|---------------------|--|-------------------------|
| Natural Environment | Topography and Soils, Geology and Groundwater Resources, Surface Water Resources, Wetlands, Vegetation | ROW ¹ |
| | Threatened and Endangered Species | One Mile |
| Human Environment | Land Use and Development, Transportation and Utilities, Socioeconomics | Project Study Area |
| | Cultural Resources, Managed Lands and Recreation Areas | One Mile |
| | Visual Resources | 1,000 feet ² |
| ¹ | The ROW is 75 to 150 feet wide | |
| ² | On each side of the Preliminary Alignment, for a total of 2,000-foot area of analysis | |

2.1 Natural Environment

Transmission lines have the potential to impact natural resources through temporary, construction-related impacts and long-term impacts on topography, geology and groundwater, soils, water resources, vegetation, wildlife and threatened and endangered resources. Construction of the Timbermill Line would temporarily disturb soils and vegetative cover, which could affect water quality in adjacent water resources, and also could affect habitat for flora and fauna. Avian species could also be impacted by operation of the Timbermill Line through potential collisions with transmission line structures and conductors.

Potential impacts to natural resources as a result of the Timbermill Line are anticipated to be minimal. This conclusion is due to the fact that the Transmission Route is primarily sited within agricultural and silviculture land with limited natural resource diversity and those potential impacts to natural resources, to a great extent, can be avoided, minimized, and/or mitigated.

2.1.1 Topography and Soils

Topography

Chowan County is located in the Inner Coastal Plain physiographic province of northeastern North Carolina. The county is bounded on the west by the Chowan River and on the south by the Albemarle Sound. Topography in the county consists mostly of low, flat plains with ridges and slopes along drainages. Elevations in the county range between sea level along broad bottom lands to 45 feet above mean sea level in the northwestern part of the county (Tant, 1986). Topography within the Transmission Route ranges from 4 to 5 feet above mean sea level.

Soils

Soil characteristics in the Transmission Route were assessed using the U.S. Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO) (Soil Survey Staff, 2021). The SSURGO database is a digital version of the original county soil surveys developed by Natural Resources Conservation Service (NRCS) for use with Geographic Information Systems. It provides the most detailed level of soils information for natural resource planning and management. Table 2.1-1 provides soil map units and characteristics in the Transmission Route.

| Soil Map Unit | Acres | Farmland Classification | Hydric Soil | Slope Range |
|--|--------------|---|--------------------|--------------------|
| At - Augusta fine sandy loam | 10.1 | Prime farmland if drained | No | 0-5 |
| Cf - Cape Fear loam, 0 to 2 percent slopes, rarely flooded | 0.2 | Farmland of statewide importance | Yes | 0-5 |
| CO - Chowan silt loam | 1.6 | Prime farmland if protected from flooding or not frequently flooded during the growing season | Yes | 0-5 |
| Nm - Nimmo loamy fine sand | 4.3 | Farmland of statewide importance | Yes | 0-5 |
| Pt - Portsmouth loam | 56.0 | Prime farmland if drained | Yes | 0-5 |
| Ro - Roanoke silt loam | 13.4 | Farmland of statewide importance | Yes | 0-5 |
| To - Tomotley fine sandy loam | 39.3 | Prime farmland if drained | Yes | 0-5 |

| Table 2.1-1 Soil Characteristics by Transmission Route | | | | |
|---|--------------|-------------------------|-------------|-------------|
| Soil Map Unit | Acres | Farmland Classification | Hydric Soil | Slope Range |
| Timbermill Line Total | 124.9 | | | |
| Source: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. 2021. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/ . Accessed 3/2021. | | | | |

Of the soil characteristics included in Table 2.1-1, the characteristics most applicable for an assessment of the potential to impact soils during construction and operation are prime farmland and farmland of statewide importance, hydric soils, and slope. Soils categorized as prime farmland and farmland of statewide importance are protected under the Farmland Protection Policy Act because of their value for agricultural production, and a significant or irreversible loss of these high-quality farmlands could have local economic impacts for the agricultural industry (see Section 2.2.1.1). Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pasture, woodland, or other lands; USDA NRCS, 2021). Prime farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods, and is not subject to frequent or prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or protecting from flooding; USDA NRCS, 2021). Conversely, urbanized land and open water cannot be designated as prime farmland. Figure 2 – Soils displays the prime farmland in the Transmission Route.

The NRCS also recognizes farmlands of statewide importance, which are defined as lands other than prime farmland that are used for production of specific high-value food and fiber crops (e.g., citrus, tree nuts, olives, fruits, and vegetables; USDA NRCS, 2021). Farmlands of statewide importance have the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Farmland of statewide importance is similar to prime farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture. The methods for defining and listing farmland of statewide importance are determined by the appropriate State agencies, typically in association with local soil conservation districts or other local agencies.

All soils within the Transmission Route are classified as Prime farmland if drained (84.4 percent), Prime farmland if protected from flooding (1.3 percent), or Farmland of statewide importance (14.3 percent).

Hydric soils are soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA NRCS, 2021). Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some soils designated as hydric have phases that are not hydric depending on water table, flooding, and ponding characteristics. A combination of hydric soil, hydrophytic vegetation, and hydrologic properties define wetlands as described in the *National Food Security Act Manual* (Soil Conservation Service, 1994). Hydric soils are one of several indicators of wetlands. Approximately 114.8 acres (91.9 percent) of the Transmission Route is underlain by hydric soils or soils containing hydric inclusions.

As displayed in Table 2.1-1, slopes in the Transmission Route are generally flat, all between 0-5 percent.

2.1.1.1 Impacts and Mitigation

Topography

Clearing, construction, and operation of the Timbermill Line will not result in any significant impacts to the existing topography. The Timbermill Line will generally follow the existing contour of land, and extensive grading or earthwork will not be necessary. Land clearing will consist of tree and shrub removal in portions of the ROW and at the Collector Substation and Switching Station locations. Impacts to, topography, if any, from the use of heavy equipment will be localized, limited, and temporary in nature.

Soils

The Timbermill Line will result in temporary and minimal soil impacts within the ROW during construction. Due to the amount of forested areas and predominately silviculture (currently forested and recently harvested silviculture), within the ROW, stump removal and “grubbing” will occur at structure locations (6 foot diameter) and along a 20-foot wide corridor under the alignment for operations and maintenance access within the ROW (approximately 6.4 acres), except for areas within forested wetlands. This 20-foot wide corridor will be graded and revegetated with herbaceous seed mix that includes grasses. Outside the 20-foot wide corridor (i.e., generally within the other 130 feet of the ROW), the clearing practice will involve cutting vegetation within 4 to 6 inches of the ground. Stumps, low-growing vegetation, and root balls will be left in place and no “grubbing” or grading will occur. These areas will be allowed to revegetate naturally as described in Section 2.1.5. Some impacts to area soils will result from the use of heavy equipment and the excavation of soils required for installing the transmission structures. Construction activities, which are temporary in nature, can cause soil compaction, ruts, or tracks from vehicular movement that can mix the soil profile.

During construction of the Timbermill Line, a small portion of prime farmland will be temporarily taken out of agricultural production for temporary workspace associated with erecting structures along the ROW. As discussed in Section 1.0, the footprint of each structure measures approximately 6 feet in diameter. All 51 transmission structures are proposed in prime farmland, which would result in an estimated impact of 28.3 square feet per transmission structure location or 1,443.3 square feet (0.03 acres; 51 transmission structures x 28.3 square feet). This reduction is negligible and will not have a meaningful effect on the availability of prime farmland within the state of North Carolina or within Chowan County. Refer to Section 2.2.1.1 for additional information related to agricultural impacts.

For the permanent facilities such as the Collector Substation, Switching Station, and access road, there will be vegetation removal and grading. These facilities total approximately 12.2 acres.

Timbermill Wind will implement measures to reduce soil compaction and will commit to decompaction of soils during restoration of areas around structures and the ROW. Impacts to soils would be temporary and minor, and would be mitigated through the proper use and installation of best management practices (BMPs), such as matting, minimizing the number of vehicles and protection and maintenance of topsoil during ROW clearing and generation tie line construction. Timbermill Wind will also develop a Stormwater Pollution Prevention Plan (SWPPP)

that complies with North Carolina Sedimentation Pollution Control Act, thus controlling offsite sedimentation and avoiding potential soil run-off into area streams.

2.1.2 Geology and Groundwater Resources

The Transmission Route is located in the Coastal Plain physiographic province, which is characterized by flat land to gently rolling hills and valleys. Elevations range from sea level near the coast to about 600 feet in the Sandhills of the southern Inner Coastal Plain. The Geologic Map of North Carolina shows the bedrock geology in the Transmission Route is “Qp” – characterized by sand, clay, gravel, and peat deposited in marine, fluvial, eolian, and lacustrine environments (North Carolina Geological Survey, 1984).

Groundwater is provided from the Lower Cape Fear aquifer, which covers the northwest portion of the Coastal Plain physiographic province. This aquifer ranges from 23 to 2730 feet thick and is comprised of coarse sands (NCDWR, 2021a). The North Carolina Division of Environmental Quality, Division of Water Resources (NCDWR) actively monitors groundwater levels and quality at well locations throughout the state. There are no NCDWR monitoring wells in Chowan County; there are two NCDWR wells in adjacent Perquimans County (NCDWR, 2021b). Based on well data in 2020 for these two wells, water levels are approximately 17 to 75 feet below the land surface. Additionally, NCDWR maps water supply watershed protection areas; there are none in Chowan County. The closest water supply watershed associated with the Pasquotank River is in Pasquotank County.

2.1.2.1 Impacts and Mitigation

Timbermill Wind does not anticipate any impacts to bedrock during construction or operation of the Timbermill Line as the underlying geology is characterized by sand, clay, gravel, and peat deposits. Similarly, Timbermill Wind does not expect any impacts to groundwater resources as structure depths will be above aquifer levels based on the nearest available water level data. If shallow depths to groundwater resources are identified during geotechnical investigations, specialty structures requiring wider, but shallower, excavation for foundations may be used.

2.1.3 Surface Waters and Floodplains

The Timbermill Line is located in the Pasquotank River Basin. There are no surface waters in the Transmission Route. The closest surface water is Pollock Swamp, a stream east of the Transmission Route that flows south into Edenton Bay. As previously noted, the Transmission Route is within the area historically known as Bear Swamp, which was heavily ditched and drained in the 1940’s and 1950’s for the purpose of agricultural and silvicultural practices. As such, there are several ditches within the Transmission Route. Based on on-site wetland and stream delineations to determine potentially jurisdictional and non-jurisdictional water features, there are 82 ditches within the Transmission Route, 70 of which are potentially non-jurisdictional and 12 of which are potentially jurisdictional (see Figure 3 – Water Features).

A floodplain is flat, or nearly flat, land adjacent to a river or stream that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which includes areas covered by the flood but which do not experience strong current. Floodplains function to prevent damage by detaining debris, sediment, water, and ice. The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. The base flood that FEMA uses, known as the 100-year flood, has a one percent chance of occurring each year.

There are 1.4 acres of FEMA designated 100-year floodplain in the Transmission Route associated with an unnamed tributary to Pollock Swamp in the southern portion of the Transmission Route (see Figure 3 – Water Features).

2.1.3.1 Impacts and Mitigation

The Timbermill Line will have minimal impacts on surface water resources. Timbermill Wind will design the Timbermill Line to minimize or avoid impacts on surface water resources to the extent feasible. The Timbermill Line will be designed to span potentially jurisdictional and non-jurisdictional ditches. At the Collector Substation, there are two potential non-jurisdictional ditches that will be rerouted around the Collector Substation. There are no delineated waterbodies, potentially jurisdictional or non-jurisdictional, within the Switching Station. Ditches along the access road will be culverted to maintain flow and function.

Timbermill Wind is coordinating with the U.S. Army Corps of Engineers (USACE) related to impacts to potentially jurisdictional ditches. Timbermill Wind is in the process of submitting a request for an Approved Jurisdictional Determination and is in the process of submitting a Clean Water Act Individual Permit application for the Wind Project, which will include the Timbermill Line and associated facilities. Timbermill Wind will permit and mitigate temporary and permanent impacts to jurisdictional waterbodies, including required compensatory mitigation.

Construction of the proposed Timbermill Line could potentially impact water quality. Short-term, minimal, water quality impacts may occur during the construction of the Timbermill Line even though avoidance and minimization measures (i.e., BMPs) will be implemented to prevent sedimentation. The primary potential impacts would be associated with the soils from areas disturbed during construction being washed by stormwater into adjacent waters during rainstorm events. Therefore, increased turbidity and localized sedimentation of the stream bottom may potentially occur from the runoff. If any of these events occur, however, these impacts would be temporary and would not significantly alter water quality conditions due to the minimal soil disturbance that is expected to occur in any one location during construction of the Timbermill Line. As described above, Timbermill Wind will prepare a SWPPP that will identify BMPs to be implemented during construction to minimize erosion and sedimentation impacts to surface waters. Erosion and sedimentation abatement measures, for example, would be employed to decrease impacts to the hydrology. As an example, no fueling or maintenance of vehicles or application of herbicides would occur within 100 feet of streams, ditches, and waterways to protect against introduction of these materials into surface or groundwater systems. In addition, materials such as fuels, lubricants, paints, and solvents required for construction would be stored away from surface water resources according to appropriate regulatory standards. Lastly, any spills or leaks would be cleaned up immediately and leaking equipment removed from the area for proper maintenance.

All Timbermill Line facilities (transmission structures, Collector Substation, Switching Station, and access road) avoid the FEMA floodplain. The Collector Substation, Switching Station, and access road all avoid FEMA designated floodplains. However, as described in the Soils section (Section 2.1.1), there will be grubbing and grading of stumps within areas that are currently forested to provide access to structures during operation of the Transmission Line, which is where the FEMA designated 100-year floodplain occurs within the ROW. In these areas, and specifically the 100-year floodplain, there will not be a change to the elevation; the grubbed areas will be restored to pre-construction contours.

2.1.4 Wetlands

Wetlands are areas with hydric (wetland) soils, hydrophytic (water-loving) vegetation, and wetland hydrology (inundated or saturated much of the year). Wetlands are part of the foundation of water resources and are vital to the health of waterways and communities that are downstream. Wetlands detain floodwaters, recharge groundwater supplies, remove pollution, and provide fish and wildlife habitat. Wetlands are also economic drivers because of their key role in fishing, hunting, agriculture, and recreation. Wetlands vary widely due to differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors.

Based on on-site wetland and stream delineations to determine potentially jurisdictional and non-jurisdictional water features, there are 14 wetlands totaling 5.6 acres in the Transmission Route, 5.3 acres of which are potentially jurisdictional (4.3 percent of the Transmission Route). Wetlands are displayed on Figure 3 – Water Features.

2.1.4.1 Impacts and Mitigation

Wetlands located in the ROW will be spanned and placement of structures within wetlands will be avoided to the extent practicable. Based on preliminary design, Structures 14 and 15 will be sited in potentially jurisdictional wetlands that cannot be spanned. Where it is not possible to span a wetland, Timbermill Wind identified several mitigation strategies to minimize impacts to wetlands including:

- Use of all-terrain construction equipment that is designed to minimize soil impact in damp areas;
- Use of the shortest route to the pole location in the wetland; and
- Assembling structures in upland areas, when feasible, before they are brought to the site for installation.

The potentially jurisdictional wetland that cannot be spanned is also a forested wetland. As described in Section 2.1.1.1 (Impacts and Mitigation for Topography and Soils), in forested areas, a 20-foot wide corridor will be “grubbed” and reseeded with an herbaceous cover to facilitate access for operations and maintenance staff. However, this activity will not occur within the wetland. Instead, operations and maintenance staff will access these two structures from along the ROW from either side (not through) using temporary matting, as needed.

Wetlands impacted by construction will be restored as required by the USACE. As described above in Surface Waters, Timbermill Wind is coordinating with the USACE related to impacts to jurisdictional ditches. Timbermill Wind is in the process of submitting a request for an Approved Jurisdictional Determination and is in the process of submitting a Clean Water Act Individual Permit application for the Wind Project, which includes the Timbermill Line and associated facilities. Timbermill Wind will permit and mitigate temporary and permanent impacts to potentially jurisdictional waters, including required compensatory mitigation.

Wetlands can be also be impacted by soil erosion and sediment deposition during construction. Sedimentation and ground disturbance in wetlands can make them more susceptible to establishment of invasive plant species, such as reed canary grass, which could impact wetland function by reducing vegetative biodiversity and altering wildlife habitat. To address this, and as described in Section 2.1.1.1, Timbermill Wind will develop a SWPPP that complies with the North

Carolina Sedimentation Pollution Control Act that outlines BMP placement to control off-site sedimentation and avoid potential soil run-off into wetlands.

2.1.5 Vegetation

Most of the land within the Transmission Route is managed for agriculture and silviculture. Timber communities consist of planted Loblolly Pine that is planted in bedded and furrowed rows. Other areas have been recently timbered or clear cut; as such, vegetation is sparse and the ground cover is primarily woody debris from the recent harvests. Cultivated croplands are also interspersed throughout the Transmission Route with fields planted with soybean, peanut, and pumpkin. Although limited in scale, there are a few areas within the Transmission Route that still retain naturally occurring hardwoods. These areas typically include a canopy of sweetgum (*Liquidambar styraciflua*), loblolly pine, sweet bay (*Magnolia Virginiana*), and red maple (*Acer rubrum*). Additionally, these areas included woolgrass, pine barren goldenrod (*Solidago fistulosa*), Virginia chain fern, and bluestem (*Andropogon glomeratus*).

2.1.5.1 Impacts and Mitigation

The acreage of each land cover type within the Transmission Route is provided in Section 2.2.1 (refer to Table 2.2-1). Impacts on vegetation will primarily be associated with cultivated cropland areas within the ROW and silviculture areas. There are approximately 54.0 acres of cultivated cropland within the ROW and 55.6 acres of silviculture in the Transmission Route (based on 2020 aerial photography); see Section 2.2.1.1 for a discussion of impacts and mitigation measures that would be used in agricultural and silvicultural areas.

Construction of the Timbermill Line will result in short-term adverse impacts on existing vegetation, including localized physical disturbance and soil compaction. Construction activities, such as site preparation and installation of structures, are anticipated to impact approximately 0.1 acres of vegetation per structure (75-foot diameter around each structure). Construction activities involving establishment and use of access roads, staging, and stringing areas would also have short-term impacts on vegetation by concentrating surface disturbance and equipment use.

Construction would also result in long-term impacts on vegetation by permanently removing vegetation at each structure and within portions of the ROW that are currently dominated by forest or other woody vegetation. Timbermill Wind anticipates approximately 45.1 acres of forested land will need clearing (36 percent of the Transmission Route), 41.5 acres (92 percent) of which are in a commercial operation and actively managed as silviculture timber. Approximately 14.0 acres of silviculture within the Transmission Route have been recently harvested. There are approximately 3.6 acres of forest clearing of hardwood forest. Timbermill Wind would permanently convert forested areas and shrub lands to low-stature vegetation by clearing woody vegetation throughout the entire ROW and Collector Substation and Switching Station footprints where it occurs. As described in the Soils section, within forested areas and outside wetlands, Timbermill Wind will grub, grade, and revegetate with an herbaceous seed mix within a 20-foot wide corridor of the ROW to allow for operations and maintenance access. The other areas of the ROW will be left to naturally revegetate.

Construction of the Timbermill Line could lead to the potential introduction or spread of invasive species and noxious weeds. Construction activities that could potentially lead to the introduction of invasive species include ground disturbance that leaves soils exposed for extended periods, introduction of topsoil contaminated with weed seeds, invasion from existing patches, vehicles

importing weed seed from a contaminated site to an uncontaminated site, and conversion of landscape type, particularly from forested to open settings.

Impacts to vegetation can also be minimized by a number of strategies, including (1) routing the transmission line along existing corridors (roads) and parcel line edges, (2) placement of the alignment and of specific structures to avoid trees and other tall-growing species, (3) leaving or replanting compatible plants at the edge of the transmission line ROW, (4) limiting vehicle traffic to roads along the ROW, and (5) avoiding the introduction of invasive species and noxious weeds on equipment or through seeds or mulches. Timbermill Wind has routed the transmission line along roads and parcel line edges to minimize impacts to trees to the extent practicable. During construction, Timbermill Wind will limit vehicle traffic in an effort to avoid the introduction of invasive species.

Potential impacts due to invasive species and noxious weeds can be mitigated by:

- revegetating disturbed areas using weed-free seed mixes and using weed-free straw and hay for erosion control;
- removal of invasive species/noxious weeds via herbicide and manual means; and
- cleaning and inspecting construction vehicles to remove dirt, mud, plant, and debris from vehicles prior to arriving at and leaving construction sites.

2.1.6 Wildlife

The wildlife species that inhabit the vicinity of the Transmission Route are typical of those found in agricultural and silvicultural complexes within this ecoregion. Wildlife species that occur in open, wetland, riparian and/or forested areas may also be present in the vicinity of the Transmission Route. Species adapted to agricultural and silvicultural landscapes that likely occur in the vicinity of the Transmission Route are listed in Table 2.1-2 (NCWRC, 2021a).

| Table 2.1-2 Wildlife Species Common to the Transmission Route | |
|--|-------------------------------------|
| Common Name | Scientific Name |
| Mammals | |
| Red fox | <i>Vulpes vulpes</i> |
| Gray fox | <i>Urocyon cinereoargenteus</i> |
| Black bear | <i>Ursus americanus</i> |
| White-tailed deer | <i>Odocoileus virginianus</i> |
| Eastern cottontail | <i>Sylvilagus floridanus</i> |
| Raccoon | <i>Procyon lotor</i> |
| Eastern gray squirrel | <i>Sciurus carolinensis</i> |
| Striped skunk | <i>Mephitis mephitis</i> |
| Fox squirrel | <i>Sciurus niger niger</i> |
| Southern flying squirrel | <i>Glaucomys volans</i> |
| Long-tailed weasel | <i>Mustela frenata</i> |
| Virginia opossum | <i>Didelphis virginiana</i> |
| Nutria | <i>Myocaster coypus bonariensis</i> |
| Birds | |

| Table 2.1-2 Wildlife Species Common to the Transmission Route | |
|--|-------------------------------------|
| Common Name | Scientific Name |
| Wild turkey | <i>Meleagris gallopavo</i> |
| Northern bobwhite quail | <i>Colinus virginianus</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| Ruffed grouse | <i>Bonasa umbelius</i> |
| Eastern wild turkey | <i>Meleagris gallopavo</i> |
| Eastern bluebird | <i>Sialia sialis</i> |
| Red-tailed hawk | <i>Buteo jamaicensis</i> |
| Red-shouldered hawk | <i>Buteo lineatus</i> |
| Wood duck | <i>Aix sponsa</i> |
| Canada goose | <i>Branta canadensis</i> |
| Reptiles and Amphibians | |
| Eastern narrowmouth toad | <i>Gastrophryne carolinensis</i> |
| Fowler's toad | <i>Bufo (Anaxyrus) fowleri</i> |
| Eastern spadefoot | <i>Scaphiopus holbrookii</i> |
| Red-backed salamander | <i>Plethodon cinereus</i> |
| Eastern garter snake | <i>Thamnophis sirtalis sirtalis</i> |
| Eastern ribbon snake | <i>Thamnophis sauritus</i> |
| Eastern king snake | <i>Lampropeltis getula</i> |
| Ground skink | <i>Scincella lateralis</i> |
| Broad-headed skink | <i>Plestiodon laticeps</i> |
| Eastern box turtle | <i>Terrapene carolina carolina</i> |
| Source: NCWRC, 2021a | |

Migratory birds are protected by the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S. Code [USC] 703-712). The MBTA prohibits taking, killing, possession, transportation, and importation of migratory bird and their eggs, parts, and nests. Additionally, the Bald and Golden Eagle Protection Act (16 USC 668-668d) prohibits taking or possession of and commerce in bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), either alive or dead, or any egg, nest, or part of eagles.

Timbermill Wind previously conducted aerial surveys for bald eagle nests within the Wind Project Area, including the Transmission Route. No bald eagle nests have been identified or are currently known to occur within two miles of the Timbermill Line. Additionally, the North Carolina Natural Heritage Program (NCNHP) conducts and maintains an inventory of known locations of rare animals and plants in the state. The bald eagle is listed as threatened in North Carolina, and the NCNHP maintains records of documented bald eagle nests in the state database. Based on a review of the NCNHP data, there are no records of bald eagle nests within one mile of the Transmission Route.

Timbermill Wind also previously conducted avian use surveys for the Wind Project. Based on these surveys, waterfowl use was higher in the winter, particularly with tundra swans and Canada goose in the winter and species diversity was highest during spring migration and lowest during the winter.

Key bird habitats in the United States are designated by The National Audubon Society (NAS) as Important Bird Areas (IBAs). The goal of IBAs is to ensure that bird populations persist by identifying and conserving significant habitats. In North Carolina, 95 IBAs have been identified (NAS, 2021). The Transmission Route does not overlap with any IBAs. The nearest IBA to Transmission Route is the Chowan River Bottomlands IBA, which is approximately 10 miles northwest of the Preliminary Alignment. The Chowan River Bottomlands IBA is a global priority IBA in the riverine swamp forest along the Chowan River from Colerain to Parkers Ferry, and includes Merchants Millpond State Park, the Chowan Swamp Game Lands, and the Chowan River (NAS, 2021).

2.1.6.1 Impacts and Mitigation

Where possible, Timbermill Wind designed the Timbermill Line to avoid impacts to wildlife resources. The majority of the land use in the Transmission Route is in cultivation, either agricultural (i.e., crop land) or silvicultural. As such, Timbermill Wind anticipates that the potential impacts from construction and maintenance of the Timbermill Line on wildlife and wildlife habitat will be minimal. In addition, most impacts on wildlife habitat would be temporary with the exception of any necessary tree clearing. Potential impacts on wildlife during construction would be primarily related to temporary disturbance and displacement; however, wildlife may be acclimated to anthropogenic disturbance due to the agricultural and silvicultural activity in the vicinity of the Timbermill Line.

Broadly, the Facility is located within the Atlantic Flyway; more locally, the Facility is located approximately eight miles north of Albemarle Sound and approximately five miles east of the Chowan River. These larger waterbodies provide suitable stopover and wintering habitat for waterfowl. Most of the waterfowl observations during avian surveys occurred in the winter and were of tundra swan. Tundra swans have become increasingly common the North Carolina coast since the 1990s, and 90 percent of the Eastern Population of tundra swans (estimated 80,000 to 100,000 individuals) winters in Maryland, Virginia, and North Carolina, with North Carolina hosting more tundra swan than any state (Wilkins et al, 2010, NCWRC, 2021b). Further, North Carolina is one of six states that issue tundra swan hunting permits – with approximately 5,000 permits available annually (NCWRC, 2021b). In general, waterfowl, including tundra swans, use of the Project Area in winter is characterized by local movements from foraging to roosting areas and among foraging areas. Tundra swan use is likely to be primarily moving through the area with a smaller proportion on the ground likely foraging on agricultural crops.

To minimize potential collision risk for waterfowl including tundra swans, Timbermill Wind will install avian flight diverters on the transmission line in areas of cultivated cropland. These measures will follow the appropriate suggested practices on marker type and spacing to increase transmission line visibility and minimize collision risk, as outlined by Avian Power Line Interaction Committee's (APLIC)'s collision manual (APLIC, 2012). Timbermill Wind will also design and construct the Timbermill Line to avoid electrocution risk to perching birds (i.e., raptors), as the size and clearances associated with this voltage will be consistent with guidance to minimize this risk (APLIC, 2006). Additionally, lighting at the Collector Substation and Switching Station will be down-shielded to avoid potentially attracting birds.

2.1.7 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website was reviewed for a list of federal species and resources protected under the Endangered

Species Act (ESA; i.e., threatened and endangered species and designated critical habitat) and that may occur in the vicinity of the Transmission Route. The IPaC review also identifies species not currently protected under the ESA such as candidate species and species under review (USFWS, 2021). The NCNHP database was also reviewed for documented occurrences of federal- and state-listed species within one mile of the Transmission Route (NCNHP, 2021). This data provides information on the potential presence of protected species and designated critical habitat within the vicinity of the Timbermill Line (refer to Table 2.1-3).

| Common Name | Scientific Name | Habitat | Status ¹ | |
|-----------------------|---|--|---------------------|----------------------|
| | | | State ² | Federal ³ |
| Mammals | | | | |
| Eastern big-eared bat | <i>Corynorhinus rafinesquii macrotis</i> | Roosts in hollow trees, old buildings, and beneath bridges, usually near water. ² | SC | N/A |
| Birds | | | | |
| Rufa red knot | <i>Calidris canutus rufa</i> | In North Carolina, sandy beaches and salt marshes. ⁴ | T | T |
| Plants | | | | |
| False hop sedge | <i>Carex lupuliformis</i> | Moist bottomlands, especially in calcareous or mafic areas. ² | SR-P | N/A |
| ¹ | T = Threatened, SC = Special Concern, SR-P = Significantly Rare; Peripheral | | | |
| ² | NCNHP, 2021, based on Natural Heritage Program records within one mile of the Transmission Line | | | |
| ³ | USFWS, 2021, based on IPaC review | | | |
| ⁴ | Legrand et al. 2021a. | | | |

2.1.7.1 Federally listed species

According to the USFWS IPaC review, the rufa red knot is the only species federally listed as threatened under the ESA that may occur in the vicinity of the Transmission Route. Based on the USFWS IPaC review, no other federally endangered species, candidate species, species under review, or designated critical habitat have potential to occur.

Rufa Red Knot

The rufa red knot is a large sandpiper known for its long-distance migration between breeding grounds in the Canadian Arctic and several wintering areas in the Southern Hemisphere. Large numbers of rufa red knots migrate along the Atlantic coast of North America and winter in South America. Red knots may also winter in the Southeastern U.S. in Florida, South Carolina, Georgia, and Texas.

Generally speaking, the rufa red knot is an aquatic prober/gleaner that forages for marine invertebrates in sandy and muddy areas. Much of the year, they will also feed on small bivalves, including mussels and their larvae, clams, and cockles, but will also eat amphipods, gastropods, marine worms, chitons, shrimp, and tiny crabs. In spring, eggs of horseshoe crabs in the Delaware Bay are important food for birds preparing for migration (Cornell Lab of Ornithology, 2021). In North Carolina, the species can be found in coastal areas in winter and during migration. Rufa red knots forage in tidal waters, such as ocean and inlet beaches and sand flats, and in the

shallow waters of coastal impoundments and pools (LeGrand et al., 2021a). The rufa red knot was federally listed as threatened effective January 12, 2015.

2.1.7.2 State-listed species

A review of the NCNHP data identified one state species of special concern and one “significantly rare” species with documented occurrences within one mile of the Transmission Route (see Table 2.1-3). Neither record is located within the Transmission Route. Species of special concern are protected under the North Carolina State Endangered Species Act (G.S. 113-331 to 113-337). The significantly rare status is a NCNHP designation and is for species that exist in the state in small numbers and have been determined by the NCNHP to need monitoring. A brief summary of each species follows.

Eastern Big-eared Bat

The review of the NCNHP identified an historic record of the state special concern eastern big-eared bat (*Corynorhinus rafinesquii macrotis*) within one mile of the Transmission Route. The eastern big-eared bat is also known as Rafinesque's big-eared bat. In North Carolina, the species' range is bimodal: it is found in the mountains and foothills in the western part of the state and in the Coastal Plain in the eastern portion of the state, but is absent in nearly all of the Piedmont. The Coastal Plain population is the subspecies *C. rafinesquii macrotis*. The species is uncommon to rare in the Coastal Plain but can be found roosting in hollow trees under loose bark in swamps and bottomland forests, and can sometimes be found in warmer months roosting in old buildings and under bridges (LeGrand et al., 2021b). The species is non-migratory and hibernates in winter, although not much is known about hibernacula use in the Coastal Plain. The species may use hollow trees for cold weather, and possibly winter roosts (NatureServe, 2021).

False Hop Sedge

The review of the NCNHP identified a record of false hop sedge (*Carex lupuliformis*) within approximately 0.10-mile Transmission Route. This record is associated with the railroad corridor south of the Transmission Route. This species is rhizomatous and forms clumps or colonies in pools and open areas in moist bottomlands, and riparian marshes especially in calcareous areas (LeGrand et al., 2021c). In North Carolina, the species is considered rare in the Coastal Plain, and has been designated as a “significantly rare; peripheral” species by the NCNHP, meaning the species is at the periphery of its range in the state (NCNHP, 2021).

2.1.7.3 Impacts and Mitigation

Federally Listed Species

Construction activities associated with the proposed Timbermill Line will not have impacts on rufa red knots. Suitable stopover and foraging habitat are not present in the Transmission Route. The Timbermill Line may have the potential to impact individual red knots if birds were to collide with the lines during operation, but the overall risk of collision is minimal due to the lack of suitable habitats. As discussed in the Wildlife section, Timbermill Wind will implement avian flight diverters on the transmission line in areas of cultivated cropland consistent with APLIC guidance.

State-Listed Species

Based on review of NCNHP data, one record of a state species of special concern (eastern big-eared bat) and one record of a NCNHP-designated “significantly rare; peripheral” species (false hop sedge), are documented within one mile of the Preliminary Alignment. While significantly rare species are not protected under North Carolina state law, the state’s designation as a species of special concern affords the eastern big-eared bat protection under the North Carolina State Endangered Species Act (G.S. 113-331 to 113-337). The NCWRC requests that project proponents implement BMPs to avoid and minimize take to the maximum extent practicable and Timbermill Wind will take such measures.

Tree clearing activities will be minimized to the maximum extent practicable, and will be conducted outside the maternity roosting season when non-volant pups are most vulnerable (i.e., avoid tree clearing June 1 – July 31). Given the rarity of the species and the abundant availability of suitable habitat elsewhere in Chowan and neighboring counties, Timbermill Line construction and operation activities are anticipated to have minimal impacts on eastern big-eared bats.

Based on soil data, soils in Chowan County do not include the “Bk” soil horizon that typically support calcareous environments that are preferred by false hop sedge. Regardless, there is a record within one mile of the Transmission Route, identified in 2019. Suitable habitat for false hop sedge may be present within the Transmission Route; however, ground-disturbing activities in potentially suitable habitat are expected to be minimal. Therefore, minimal adverse impacts on the species are anticipated due to the fact that the species is rare in the Coastal Plain and that there will be minimal ground-disturbing activities in potentially suitable habitat.

2.2 Human Environment

Transmission lines have the potential to impact the human environment during construction and operation of the Timbermill Line. For example, transmission lines and conductors have the potential to be incompatible with existing land uses, zoning, or land management plans, displace homes or businesses, affect the aesthetics and socioeconomics of the Transmission Route, impact cultural resources, and impact existing utility infrastructure and transportation. Each of these resources related to the human environment and their potential impacts are discussed in more detail below.

Generally, the Transmission Route is a sparsely populated rural area with farmsteads located along roads, and away from population centers. The municipality nearest to the Wind Project, including the Timbermill Line, is the Town of Edenton which is approximately 0.3 mile from the southernmost end of the Timbermill Line. Figure 1 depicts the rural landscape in the Transmission Route.

2.2.1 Land Use and Development

Information about land use and zoning provides important insight into existing human settlement patterns and future development. Land use and county zoning information for Chowan County was reviewed to assess the Timbermill Line’s potential to impact existing land uses and to identify any additional routing constraints that should be considered for development of the transmission line. The transmission line crosses through a predominantly rural area with sparsely scattered rural residences, farmsteads, agricultural production and silviculture operations, and agricultural support facilities throughout.

Land Cover and Use

Information available from the 2016 National Land Cover Database (NLCD) was reviewed to identify existing land cover types and uses in the Transmission Route (Yang, et al., 2018). Table 2.2-1 presents details about the amount of each NLCD land cover type within the Transmission Route and this information is also displayed on Figure 4 – Land Cover/Land Use.

| NLCD Land Cover Category | Transmission Route | |
|---|--------------------|--------------|
| | Acres | Percent |
| Cultivated Crops | 54.0 | 43.2 |
| Deciduous/Evergreen/Mixed Forest | 47.3 | 37.9 |
| Woody Wetlands | 14.7 | 11.8 |
| Shrub/Scrub Land | 4.4 | 3.5 |
| Emergent Herbaceous Wetlands | 2.0 | 1.6 |
| Herbaceous Land | 1.4 | 1.1 |
| Developed Areas (i.e., low intensity, open space) | 1.1 | 0.9 |
| Total | 124.9 | 100.0 |

Source: Yang et al., 2018

The primary land cover type in the Transmission Route is cultivated cropland (54.0 acres). The second most common land cover types are deciduous/evergreen/mixed forest (47.3 acres) and woody wetlands (14.7 acres). According to the NLCD data, the Transmission Route also includes a small amount of shrub/scrub land, emergent herbaceous wetlands, herbaceous land, and developed land (collectively totaling about 8.9 acres). A detailed discussion of wetlands and herbaceous vegetation within the Transmission Route is presented in Sections 2.1.5 and 2.1.6, respectively.

In addition to reviewing the NLCD data, Timbermill Wind compared this data to more recent aerial imagery and noted that approximately 14.0 acres categorized as deciduous/evergreen/mixed forest and woody wetland in the NLCD data has been cleared of trees (i.e., timber harvest). The areas are at the Switching Station site and about 0.6 mile of the transmission line ROW leading up to the Switching Station, and between Structures 14 and 15. This reduces the amount of forested land within the Transmission Route by 14.0 acres.

Zoning

County zoning information for Chowan County was reviewed to identify any additional routing constraints for the proposed transmission line. As discussed further in the Residences section, National Electrical Safety Code® (NESC) standards require certain clearances between transmission line facilities and buildings for safe operation of the transmission line. Areas zoned as commercial, industrial, or residential are the most likely areas where future development of residences and other structures may occur. As demonstrated with the land use data, and generally throughout the Human Environment section, much of the Transmission Route is rural and agricultural.

Most of the Transmission Route is within the Chowan County A-1, Agricultural District, from the Collector Substation south to the second crossing of Paradise Road (Chowan County, 2021). According to the Chowan County Zoning Ordinance (2006), the goals for the A1, Agricultural District are to preserve agricultural land and encourage continued use of the land for agricultural production while allowing low-intensity commercial development that supports rural residents in these areas. Construction and operation of transmission lines is a permitted use in the A1, Agricultural District according to Article 5, Table 5-1 of the Chowan County Zoning Ordinance (2006). Timbermill Wind obtained a conditional use permit for the Wind Facility in 2016 (amended in 2018), and the permit includes approval for the Transmission Line.

Chowan County also has a Flood Hazard Overlay District that applies to all areas defined as within the FEMA-designated 100-year floodplain (refer to Article IV, Section 4.04(B) of the Chowan County Zoning Ordinance, 2006). As noted in Section 2.1.3, there are 1.4 acres of FEMA-designated 100-year floodplain within the Transmission Route and associated with an unnamed tributary to Pollock Swamp. Timbermill Wind will not place poles for the transmission line within the 100-year floodplains; therefore, the conditions of the Flood Hazard Overlay District will not apply to the Timbermill Line.

While the Transmission Route is not located within the municipal boundary of the Town of Edenton, Edenton zoning districts extend beyond the municipal boundary (referred to as extraterritorial jurisdiction or ETJ). Based on review of the Town of Edenton Official Zoning Map (2008), the Switching Station and the last mile of the ROW south of the second crossing of Paradise Road are within the RA District. Article 9 of the Town of Edenton Unified Development Ordinance (UDO; Town of Edenton; 2016) states that the RA District was established to preserve low-density and single-family residential development and agricultural land uses. Construction and operation of transmission lines is a permitted use in the RA District according to Article X, Section 146 Edenton UDO Table of Permitted Uses. On March 13, 2018, Chowan County passed a resolution accepting jurisdiction of the portion of the Transmission Route that is within the ETJ for the Town of Edenton, thereby accepting responsibility for all zoning-related discussions related to the proposed Timbermill Line.

Agriculture and Silviculture

According to the USDA's 2017 Census of Agriculture, there are 97 farms operating in Chowan County with an average farm size of 552 acres (USDA, 2017). Crop sales account for a larger percentage of total market value of agricultural products sold annually compared to livestock, at \$39 million vs. \$8 million, respectively. Soybeans, cotton, and peanuts are the dominant agricultural crops by acreage in Chowan County and poultry (broilers and other meat-type chickens sold) is the dominant livestock raised by farm inventory numbers. A discussion of prime farmland in the Transmission Route is presented in Section 2.1.1. Agricultural areas are displayed on Figure 5 – Agriculture and Silviculture.

The Conservation Reserve Enhancement Program (CREP) is an offshoot of the Conservation Reserve Program (CRP), which is a land conservation program established by the USDA and administered by the Farm Service Agency (FSA) that pays farmers a yearly rental fee for agreeing to take environmentally sensitive land out of agricultural production in an effort to improve environmental health and quality (USDA, undated). Enrollment in the CREP is voluntary and participation in the program comes with certain restrictions on the types of development allowed on parcels enrolled in the program if such development is inconsistent with the conservation goals of the program. No CREP parcels have been identified within the Transmission Route.

Specialty crops typically include nurseries, vineyards, orchards, citrus groves, dairies, aquaculture, and tree farms. If present within the Transmission Route, specialty crop farms (e.g., organic farms) or livestock operations may necessitate additional specific mitigation measures to minimize the effects of construction. To date, no farmland engaged in specialty crop production has been identified within the ROW for the Timbermill Line. Timbermill Wind will continue to work with individual landowners through the easement process to identify any specialty crops or livestock operations that may be impacted by the Timbermill Line. If any specialty crops or livestock operations are identified, Timbermill Wind will work with landowners to determine measures to avoid and minimize impacts to these resources.

According to an assessment of forestry impacts on North Carolina's economy, prepared by the NC State Extension Office, 51,649 acres of private timberland (i.e., silvicultural land) are present in Chowan County, or 47 percent of the total acreage in the county (NC State Extension, 2018). Forestry, logging, and forest products contributed about \$8.9 million in industry output to the state's economy and supported 82 jobs with a total payroll of approximately \$4.4 million (NC State Extension, 2018). As a result of landowner outreach, Timbermill Wind has identified three landowners with silviculture operations along the Transmission Route. Silviculture areas are displayed on Figure 5 – Agriculture and Silviculture.

Urban, Commercial, and Industrial Areas

The Transmission Route is in a predominantly rural area with sparsely scattered rural residences, farmsteads, row crop and silviculture operations, and agricultural support facilities throughout. According to the U.S. Census Bureau's Quick Facts website, population density in Chowan County is about 85.8 persons per square mile (U.S. Census Bureau, 2019a). The nearest municipality is the Town of Edenton, which is about 0.3 mile south of the Timbermill Line. The Transmission Route is not located within commercial or industrial areas.

Residences

Industry safety standards (i.e., NESC) require certain clearances between transmission line facilities and the ground, and between transmission line facilities and buildings for safe operation of the transmission line. To comply with NESC standards and allow sufficient space for transmission line maintenance, transmission lines are generally routed to avoid residences or other buildings within the ROW. Residences or other buildings located within a proposed ROW that cannot be avoided are generally removed or displaced. Displacements are relatively rare and are more likely to occur in heavily populated areas where avoiding all residences is not always feasible.

The Transmission Route is located in a sparsely populated rural area that is primarily used for agricultural and silvicultural production. Timbermill Wind primarily co-located the transmission line along existing roadways and property lines, where residences are typically not present, to minimize proximity to residences and other buildings. However, one residence is located within the ROW and two residences are located within 30 and 80 feet of the ROW, respectively (see Figures 7b and 7d of the Detailed Route Maps). These three residences are participating residences. No other residences are located within 350 feet of the Transmission Route.

2.2.1.1 Impacts and Mitigation

Land Cover and Use

Construction and operation of the Timbermill Line is not expected to have a significant impact on land use within Chowan County. Existing land uses within the Transmission Route will experience minimal, short-term impacts during the period of construction. Timbermill Wind sited the transmission line to be co-located with roads, property lines, or field edges for most of its length to minimize impacts to non-developed areas. The ROW for the proposed transmission line (about 112.7 acres total) predominantly crosses cultivated crop land (53.2 acres), deciduous/evergreen/mixed forest land (41.6 acres), and woody wetland (10.4 acres). However, as noted in the description of existing land cover and use, review of more recent aerial imagery indicates that about 14.0 acres of silvicultural land has been timbered since the NLCD data was compiled, which reduces the total impacts on forested categories (e.g., deciduous/evergreen/mixed forest and woody wetlands). Of these 14.0 acres, about 9.3 acres is within the ROW for the transmission line; the remaining 4.7 acres are within the Switching Station site (4.3 acres) and access road (0.4 acre) which are discussed below. The remaining NLCD land cover types within the ROW for the transmission line include shrub/scrub land (3.8 acres), herbaceous land (1.4 acres), emergent herbaceous wetlands (1.3 acres), and developed land (1.0 acre).

When construction is complete, Timbermill Wind will restore areas disturbed during construction and most land uses will be allowed to continue as before. The exception is forested land which will be converted to transmission line ROW and maintained as herbaceous land or naturally revegetated for the life of the Timbermill Line. No additional mitigation measures are proposed. A detailed discussion of vegetation impacts and mitigation measures is presented in Section 2.1.5.1 and a discussion of impacts and mitigation measures that will be used in agricultural and silvicultural land is presented below.

Construction of the Collector Substation will affect deciduous/evergreen/mixed forest land (5.3 acres) and shrub/scrub land (0.2 acre). As noted in Section 1.0, the Collector Substation will affect about 5.5 acres of land. For the purposes of this Environmental Report, Timbermill Wind conservatively assumed permanent impacts to the entire 5.5-acre area. After trees and other woody vegetation are cleared from the 5.5-acre area, the Collector Substation components will be mounted on concrete pads, the area within the Collector Substation will be graveled to maintain the area free of vegetation, and a fence will be installed to prevent unauthorized entry by individuals and wildlife.

As noted above, the 4.3-acre Switching Station footprint, 3.7 acres of which was categorized as woody wetlands in the NLCD data, has since been timbered. The NLCD data also indicates that 0.6 acre of emergent herbaceous wetland is present within the Switching Station site; however, wetland delineations confirm that the Switching Station site avoids wetlands. For the purposes of this Environmental Report, Timbermill Wind conservatively assumed permanent impacts to the entire 4.3-acre site. Similar to the Collector Substation, the Switching Station components will be mounted on concrete pads, the area within the Switching Station will be graveled to maintain the area free of vegetation, and a fence will be installed to prevent unauthorized entry by individuals and wildlife. A more detailed discussion of impacts and mitigation measures for wetlands is presented in Section 2.1.4.1.

As noted in Table 2.2-1, the access road between Paradise Road and the Switching Station is partially located within the 150-foot ROW for the transmission line; the acres of land cover types presented in Table 2.2-1 are inclusive of the access road. The access road would be about one mile in length and 20-feet-wide, or about 2.4 acres. Based on NLCD data, land cover types crossed by the access road include 0.8 acre of cultivated crop land, 0.6 acre of woody wetland, 0.4 acre of deciduous/evergreen/mixed forest land, 0.4 acre of shrub/scrub land, 0.1 acre of emergent herbaceous wetland, and less than one acre of developed land. Timbermill Wind will import fill to construct the road base and maintain the access road as a gravel road during operation of the Timbermill Line; construction of the access road would constitute a permanent impact on the land cover types it crosses, for the life of the Timbermill Line.

Zoning

The proposed Timbermill Line predominantly crosses areas zoned as agricultural by Chowan County and as RA by the Town of Edenton. Construction and operation of transmission lines is a permitted use in both the Chowan County Agricultural District and the Town of Edenton RA District. The Timbermill Line also crosses the Flood Hazard Overlay District in Chowan County. Timbermill received a Conditional Use Permit (CUP) from Chowan County for the Wind Project, including the Timbermill Line and associated facilities, in November 2016 and an amended CUP for the current configuration of the Wind Project, including the current configuration of the Timbermill Line and associated facilities, in May 2018.

Timbermill Wind will avoid placing transmission line structures in the Flood Hazard Overlay District by spanning the Timbermill Line over these areas. No areas zoned as commercial or industrial are crossed by the proposed Timbermill Line. Based on review of the zoning information for Chowan County, the likelihood of future residential, commercial, or industrial development within the proposed transmission line is low; therefore, no mitigation measures are proposed.

Agriculture and Silviculture

Construction of the Timbermill Line could cause minimal, temporary impacts on agricultural land from soil compaction and rutting, accelerated soil erosion, crop damage, temporary disruption to normal farming activities, and introduction of noxious weeds to the soil surface. As shown in Table 2.2-1, there are 54.0 acres of cultivated crop land within the Transmission Route; of these 54.0 acres, 53.2 are within the ROW for the proposed transmission line and 0.8 are crossed by the access road. The Collector Substation and the Switching Station are not sited in cultivated crop land.

Timbermill Wind will implement measures to reduce compaction, soil erosion, and the introduction of noxious weeds in actively cultivated crop land affected by the Timbermill Line. Construction impacts on farmland would be short term and minimal in nature and would be mitigated through the proper use and installation of BMPs, such as minimizing the number of vehicles and protection and maintenance of topsoil during ROW clearing and transmission line construction. Timbermill Wind will further mitigate impacts on agricultural production by coordinating with landowners or farm operators regarding the timing of construction to avoid peak growing season by constructing the Timbermill Line before spring planting or after harvest in the fall. If this is not possible, Timbermill Wind will compensate the landowner or farm operator for crop damage.

The Transmission Route was developed with attention to minimizing impacts on agricultural land; however, permanent impacts to agricultural land will occur where structures are placed in

cultivated fields. Based on review of NLCD data and preliminary design, approximately 24 structures will be located in cultivated crop land (i.e., agricultural land). Construction activities, such as site preparation and installation of structures, are anticipated to impact approximately 0.1 acres per structure (75-foot diameter around each structure), for a total of 2.4 acres of impact on cultivated crop land.

Structures in cultivated fields act as barriers and can hinder efficient operation of large machinery. The proposed transmission line follows roads, property lines, and field edges for most of its length. Timbermill Wind proposes to minimize impacts on agricultural land by placing structures along field edges, as closely as feasible from the edge of road rights-of-way or parcel lines. Furthermore, Timbermill Wind will make reasonable efforts to work with landowners to finalize the structure locations. The final spacing and location of structures will be designed to accommodate the movement of farm equipment within agricultural fields while still maintaining safety and design standards. Lastly, Timbermill Wind will implement monopole structures instead of H-frame structures, which occupy less space and are easier for farmers to maneuver around.

The proposed access road to the Switching Station, which would be partially located within the ROW for the transmission line, would cross 0.8 acre of cultivated crop land. Timbermill Wind will import fill for the road base and maintain this as a gravel road during operation of the Timbermill Line; construction of the access road would constitute an additional permanent impact on agricultural land for the life of the Timbermill Line.

Timbermill Wind has designed the Timbermill Line to avoid CREP parcels. Timbermill Wind identified one CREP parcel within 0.4 mile of the proposed transmission line, but this parcel will be avoided during construction and operation of the Timbermill Line. If additional CREP easements are identified during the easement and title clearance process and final design requires transmission line structures to be placed on parcels enrolled in the CREP program, Timbermill Wind will work with landowners and the USDA FSA to address potential impacts to these conservation easements and to fully compensate landowners for lost CREP revenue resulting from the placement of the line within a CREP easement.

Post-construction restoration efforts in agricultural land will include restoration of any temporary access modifications and deep plowing to remove compaction. Agricultural production activities will be able to continue around facilities after construction.

The Timbermill Line would impact 55.6 acres of land that is currently used for silvicultural production, 41.5 acres of which is forested and 14.1 acres that has been recently cleared. Of these 41.5 acres, 36.0 acres are within the ROW for the proposed transmission line and 5.5 are within the Switching Station site. Trees and other woody vegetation will be harvested from silvicultural land within the Transmission Route. To allow for safe operation of the Timbermill Line, the Transmission Route will be converted to herbaceous cover or naturally revegetated area for the life of the Timbermill Line. Timbermill Wind secured voluntary easement agreements with the owners of the silviculture operations that will compensate the owners via lease payments that will offset any loss of merchantable timber. No additional mitigation measures are proposed.

Urban, Commercial, and Industrial Areas

The Timbermill Line is not located in urban, commercial, or industrial areas; therefore, no impacts on these areas are anticipated and no mitigation measures are proposed.

Residences

As noted in the description of existing environment, Timbermill Wind primarily co-located the transmission line along existing roadways and property lines to avoid impacting residences, but one residence is located within the ROW for the proposed transmission line and two residences are located within 30 and 80 feet of the ROW, respectively.

One residence is located north of Paradise Road, about 1.3 miles east of the intersection of Paradise Road and Greenhall Road (Residence A on Figure 6 – Existing Infrastructure and Managed Lands). This residence is occupied and is approximately 30 feet east of the 150-foot ROW. The landowner has signed an agreement with Timbermill Wind. In addition to the residence, an outbuilding north of the residence on this parcel is located immediately adjacent to the 150-foot ROW. The Preliminary Alignment is on the adjacent parcel near this residence and outbuilding; only the ROW extends on the parcel with these buildings. Additionally, Timbermill Wind has designed a longer span of approximately 1,450 feet to avoid transmission structures adjacent to either building.

Two residences are located on adjacent parcels on the west side of Paradise Road, about one mile west/northwest of the Switching Station and U.S. Highway 17 (Residences B and C on Figure 6, respectively). To minimize impacts in this area, Timbermill Wind reduced the width of the ROW from 150 feet to 75 feet and increased the span between poles to 840 feet. One residence and an outbuilding are within the 75-foot ROW and another outbuilding is partially within the ROW. The landowner has confirmed that this residence has been vacant for several years and Timbermill Wind has an agreement with the landowner to demolish the residence and both outbuildings. The second residence on the adjacent parcel is about 80 feet north of the transmission line ROW. This residence is the homestead of a participating landowner.

2.2.2 Transportation and Utilities

Transmission line projects have the potential to affect local transportation networks such as roadways, railroads, airports, and airstrips. Use of heavy equipment during construction may damage existing road surfaces and local roadways could experience temporary road and/or lane closures during construction. In addition, the influx of construction contractors could increase traffic volumes on local roadways. Co-location of transmission lines with existing public roads could limit future roadway expansion or realignments, and could interfere with routine maintenance of roadways. In addition, if a transmission line is sited too close to an operating railroad, it could interfere with safe operation of the railroad.

Transmission line projects also have the potential to affect existing public utility infrastructure and the location of existing utilities is an important factor to be considered during transmission line routing and development. While co-location with existing utilities is encouraged, any co-location with existing utilities should be done in a way that avoids impacting the safe operation and routine maintenance of those utilities.

Online research was conducted to identify roadways, railroads, airports, airstrips, and existing utility infrastructure within the Transmission Route. The results of this review and a discussion of potential impacts to these features from construction and operation of the Timbermill Line is presented below.

2.2.2.1 Transportation

The Transmission Route does not cross any U.S. or state highways or interstates. The nearest highway is U.S. Highway 17, which is about 0.2 mile southeast of the Switching Station and the southern end of the transmission line. The remainder of the Transmission Route primarily crosses and is co-located with county and gravel roadways, such as Paradise Road, and private drives. U.S. Highway 17 extends southwest to northeast across southern Chowan County through the Town of Edenton in the Transmission Route. Paradise Road begins on the northeastern end of the Town of Edenton, travels north/northeast for just under three miles, then turns to the west for just under two miles before intersecting with Greenhall Road and New Road. The Timbermill Line crosses Paradise Road in two locations (see Figure 6 – Existing Infrastructure and Managed Lands).

There are no railroads in the Transmission Route. The Chesapeake & Albemarle Railroad travels north and east from the Town of Edenton, eventually crossing U.S. Highway 17 near the intersection of U.S. Highway 17 and N. Broad Street. After the railroad crosses the highway, it is adjacent to the southern end of the transmission line and the Switching Station for about 0.25 mile of its length (Figure 6 – Existing Infrastructure and Managed Lands).

There are no operating public-use airports or heliports within or within one mile of the Transmission Route. The nearest public airport is the Edenton Northeastern Regional Airport, located approximately 3.5 miles southeast of the Transmission Route and about two miles southeast of the Town of Edenton.

2.2.2.2 Existing Utilities

The primary electrical provider for the Transmission Route is Albemarle EMC (NC Electric Cooperatives, 2021). Within the Town of Edenton, electricity is provided by the city's Electric Department. Natural gas service in the Transmission Route is provided by Piedmont Natural Gas Company, Inc. (North Carolina Utilities Commission, 2018.).

An existing 230 kV transmission line (Winfall to Mackeys), and the existing Chowan Substation (a distribution level substation), both owned by Dominion Energy, are present at the south end of the Transmission Route. The 230 kV line parallels the south side of the Chesapeake & Albemarle Railroad in a northeast to southwest direction and is therefore parallel to the proposed Switching Station and the transmission line for about 0.2 mile. Existing Utilities are displayed on Figure 6 – Existing Infrastructure and Managed Lands.

Based on review of the National Pipeline Mapping System, there are no pipelines in the Transmission Route (National Pipeline Mapping System, 2021).

2.2.2.3 Impacts and Mitigation

Transportation

Construction activities are not expected to impact transportation in the Transmission Route permanently or significantly. Construction could create a minor increase in traffic from construction vehicles and material/equipment delivery along roadways within and in proximity to the Transmission Route; however, this increase would be temporary and traffic volumes would return to normal conditions after construction activities are completed. Line and construction maintenance at crossing locations could also cause temporary delays if maintenance vehicles are

present. To minimize overall impacts, Timbermill Wind will limit vehicle traffic to the Timbermill Line ROW and existing access points to the greatest extent feasible.

Temporary road or lane closures may occur during the construction process to ensure safety of the construction crews and the traveling public. While the line is being constructed, the electrical conductors will be strung on support structures using a pulley system or a tensioner mounted on the back of a digger/derrick truck. At road crossings, roads or lands may be temporarily closed for safety purposes when stringing electrical conductors between support structures. These closures could range in duration from minutes to hours based on the width of the road and the complexity of the crossing. Temporary closings are not expected to have significant impacts on transportation in the area because of the generally rural nature of the area and subsequent low traffic levels on most roads. Once an aerial crossing is completed, the road(s) will be reopened to allow normal traffic flow.

After the completion of construction, Timbermill Wind will ensure that local and county roads used for purposes of access during construction are returned to either the condition they were in, or better, before ROW clearing began. Timbermill Wind will meet with township road supervisors, city road personnel, or county highway departments to address any issues that arise during construction with roadways to ensure the roads are adequately restored, if necessary, after construction is complete.

Construction and operation of the Timbermill Line would not impact the Chesapeake & Albemarle Railroad. The Tap Line, to be designed, constructed, and owned by Dominion energy, will cross the Chesapeake & Albemarle railroad. Dominion Energy will obtain all necessary railroad crossing permits from Chesapeake & Albemarle for crossing the railroad with the Tap Line. Additionally, Dominion Energy will also coordinate with the appropriate railroad personnel during construction to schedule electrical conductor stringing near the rail line for the safety of construction personnel and rail line operations.

Timbermill Wind does not anticipate any impacts on public airports, heliports, or private landing strips because there are none present within one mile of the transmission line and the structures for the transmission line will be less than 200 feet in height.

Existing Utilities

The Timbermill Line is not expected to impact existing utilities. Timbermill Wind will coordinate with utility providers and authorities to determine the locations of facilities, appropriate safety precautions and standards, and measures to address these precautions and standards. Timbermill Wind will meet with utility providers and residents as needed to avoid direct and indirect impacts on their services.

The proposed Timbermill Line does not cross the existing 230 kV Winfall to Mackeys transmission line. As noted in Section 1.0, Timbermill Wind will construct the Switching Station for the Wind Facility adjacent to the existing 230 kV transmission line where the Timbermill Line will interconnect to the existing Dominion Energy transmission line (i.e., the POI for the Wind Facility). No impacts or interruptions of service to the Chowan Substation will be necessary to connect the Wind Project.

Activities could damage existing underground utilities during grading, but this is improbable. Prior to construction, Timbermill Wind will locate and mark underground utilities using the North Carolina 811 system. If crossings of an underground utility or other underground infrastructure

with heavy equipment is necessary during construction, Timbermill Wind will employ BMPs to protect the infrastructure, such as construction matting.

Because no impacts to existing utilities are anticipated, no additional mitigation measures are proposed.

2.2.3 Managed Lands and Recreation Areas

The Transmission Route is located entirely on privately owned land. Additionally, no federal-, state-, or county-managed lands occur within one mile of the Timbermill Line (refer to Figure 6 – Existing Infrastructure and Managed Lands). According to the Edenton-Chowan Recreation Department website, recreational opportunities in Chowan County include youth football, baseball, soccer, softball, and volleyball leagues as well as adult pickle ball, tennis, and volleyball leagues and numerous walking trails throughout the county (Chowan County, Undated).

2.2.3.1 Impacts and Mitigation

Because no managed lands or recreation areas are within one mile of the Transmission Route, no impacts on these resources would occur and no mitigation measures specific to managed lands or recreation areas are proposed.

2.2.4 Socioeconomics

Existing socioeconomic conditions within the Transmission Route are reported based on data from the U.S. Census Bureau’s QuickFacts and Explore Census Data websites. Data is provided at the county level to characterize the socioeconomic conditions in the Project Study Area and at the state level for the purpose of comparison. Table 2.2-2 provides income and employment information for North Carolina and Chowan County.

| Category | North Carolina | Chowan County |
|--|--|--------------------------------------|
| Population, Census, April 1, 2010 ¹ | 9,535,483 | 14,793 |
| ACS Population Estimates July 1, 2019 ¹ | 10,488,084 | 13,943 |
| Percent Change 2010 - 2019 ¹ | 10.0 | -5.7 |
| ACS 2019 Estimates Per Capita Income Level (in 2018 U.S. dollars) ² | \$30,783 | \$26,256 |
| ACS 2019 Estimates Unemployment Rate (%) ² | 5.6 | 7.7 |
| ACS 2019 Estimates Persons Living Below the Poverty Level (%) ² | 14.7 | 16.0 |
| Top 3 Industries ^{2,3} | E (22.9%), M (12.4%), and R (11.5%) | E (31.8%), R (11.1%) and M (9.7%) |
| Total Minority Population ^{1, 4} | 40.2 | 37.4 |
| Note: ACS = American Community Survey ¹ U.S. Census Bureau, 2019a ² U.S. Census Bureau, 2019b ³ Industries are defined under the 2012 North American Industry Classification System and abbreviated as follows: E = Educational, Health and Social Services; M = Manufacturing; and R = Retail Trade. ⁴ Total minority percentage equals the total population minus the percentage of white alone, not Hispanic or Latino. | | |

2.2.4.1 Demographics and Population Trends

Chowan County has very small population compared to the State of North Carolina as a whole, comprising about one percent of the state's total population. According to the U.S. Census Bureau's 2019 population estimates, the total population in North Carolina increased by 10.0 percent as compared to 2010 census data, while the estimated population in Chowan County has decreased during this same time period (U.S. Census Bureau, 2019a).

About 63 percent of the population in Chowan County identifies as white only, not Hispanic or Latino, which is slightly higher than the state level of about 60 percent. The largest minority group in North Carolina and in Chowan County is comprised of residents who identify as Black or African American alone.

2.2.4.2 Employment and Income

According to U.S. Census Bureau's 2019 American Community Survey 5-year Estimates, per capita income in Chowan County is similar, but approximately \$4,000 less than per capita income at the state level (see Table 2.2-2). The unemployment rate in Chowan County is about 2 percentage points higher than the state level and the percentage of persons living below the poverty level is slightly higher than the state level at 16.0 percent (see Table 2.2-2).

The top three industries of employment in the State of North Carolina are education, health, and social services at 22.9 percent, manufacturing at 12.4 percent, and retail trade at 11.5 percent (U.S. Census Bureau, 2019b). The top three industries of employment in Chowan County vary slightly from the state level, with employment in the education, health, and social services industry significantly higher than at the state level (31.8 percent vs. 22.9 percent, respectively), and manufacturing slightly lower than at the state level (9.7 percent vs. 12.4 percent, respectively). Employment in the retail trade industry is similar to the state level.

2.2.4.3 Impacts and Mitigation

Transmission line projects have the potential to impact the socioeconomic conditions of an area in the short term through an influx of non-local personnel, creation of construction jobs, purchases of construction material and other goods from local businesses, and expenditures on temporary housing for non-local personnel. In the long term, transmission line projects may beneficially impact the local tax base in the form of revenues generated from utility property taxes. Additionally, permanent job creation or relocation of project personnel to the area for operation of a transmission line project could affect area demographics.

Construction of the Timbermill Line would have minimal, short-term impacts on the existing socioeconomic conditions in the Transmission Route. The Timbermill Line would not result in long-term or significant changes in the population size or demographics, or significantly affect employment or income, in the Transmission Route. The construction and operation of the proposed Timbermill Line is not anticipated to create or remove jobs in the Transmission Route or result in the permanent relocation of individuals to or from the area.

The communities in the Transmission Route will likely experience short-term positive economic impacts related to the increase in expenditures during construction of the Timbermill Line. Construction of the Timbermill Line would take approximately 4 months and the construction work force would be approximately 30 workers. Construction personnel would likely commute to the Wind Project Area on a daily or weekly basis instead of relocating to the area. The influx of

additional construction personnel in the Transmission Route will have a small positive impact on the local economy from construction crew expenditures in the local community (e.g., lodging, fuel, food). Construction materials (e.g., lumber, concrete, aggregate) may be purchased from local vendors when feasible.

No additional permanent staff will be necessary for operation and maintenance of the proposed transmission line. Therefore, the Timbermill Line is not expected to have a long-term effect on population trends, economic conditions, or employment. However, the Wind Project, including the Timbermill Line, will have a long-term beneficial impact on the local tax base from the incremental increase in revenues generated by property taxes paid by Timbermill Wind. As the overall socioeconomic impact of the Timbermill Line is anticipated to be positive, no mitigation measures are proposed.

2.2.5 Cultural Resources

Cultural resources can be defined as physical evidence or place of past human activity and include archaeological and historic architectural resources that provide important information about the history of human occupation and alteration of the landscape over time. Archaeological resources include prehistoric and historic artifacts, structural ruins, and earthworks or rock art that are typically found either partially or completely below the ground surface. Historic architectural resources include standing structures, such as buildings and bridges, as well as historic districts and landscapes.

Timbermill Wind hired Archaeological Consultants of the Carolinas, Inc. (ACC) to conduct a background literature review and archaeological field survey for the Timbermill Line. Background research on known cultural resources was conducted by reviewing archaeological site forms at the Office of State Archaeology (OSA) and the Office of Survey and Planning's online portal, as well as reviewing previous cultural resource reports and historic maps of the Transmission Route. These sources were reviewed to identify the types of archaeological sites that may be encountered and landforms or geographic features that have a higher potential for containing significant cultural resources. The archaeological field investigation for the Timbermill Line followed a predictive model that was developed by Cultural Resource Analysts, Inc. (CRA) in 2016. The predictive model was reviewed and approved by OSA in 2018, prior to the start of field investigations for the Timbermill Line. Timbermill Wind also hired CRA to conduct a review of historic architectural resources in and within 0.5 mile of the Transmission Route.

2.2.5.1 Impacts and Mitigation

Transmission line projects have the potential to impact archaeological resources primarily through ground disturbing construction activities. Archaeological resources could be impacted by the disruption or removal of subsurface archaeological materials, structural remains, or earthworks during transmission line construction. Conversely, historic architectural resources may be potentially impacted by the placement of a transmission line within the established viewshed of an historic property, which could affect the integrity of the viewshed in a way that decreases the historic value of the resource.

Based on the predictive model used for the Timbermill Line, the transmission line is not located within an area that has high potential to contain archaeological sites. ACC recommends that no archaeological sites listed in or eligible for listing in the National Register of Historic Places (NRHP) would be affected by the proposed Timbermill Line. Both the background research and

archaeological field investigation did not identify archaeological sites that would be affected by the proposed transmission line, Collector Substation, Switching Station, or access road.

If archaeological resources are discovered during construction, measures will be implemented in accordance with the Unanticipated Discoveries Plan and may include halting construction and/or notification of the State Historic Preservation Office, if appropriate. Additionally, if unanticipated human remains or burial resources are discovered during construction, they will be reported to the State Archaeologist per North Carolina General Statutes, Chapter 70, Article 3, and construction will cease in that area until adequate mitigation measures have been developed between Timbermill Wind and the State Archaeologist.

The survey conducted by CRA to identify historic architectural resources identified 24 structures within 0.5 mile of the proposed transmission line. None of structures are recommended as eligible for listing in the NRHP, therefore the Timbermill Line will not affect historic architectural resources that are eligible for listing in the NRHP.

2.2.6 Visual Resources

As described in Section 2.1.1, topography within the Transmission Route is generally flat. In forested areas of the Transmission Route, the vegetative cover is tall and dense, limiting the extent of the field of view. In agricultural areas, the vegetation cover is uniformly low, making the topography vulnerable to visual disruptions. Viewsheds in this area are generally broad and uninterrupted in agricultural areas and limited in forested and silviculture areas. The settlements in the vicinity are residences and farm buildings (inhabited and uninhabited farmsteads) scattered along rural county roads generally surrounded by trees. The southern portion of the Transmission Route is also shaped by a built environment. Horizontal elements, such as highways and county roads, are consistent with the long and open viewsheds in agricultural areas in the Project vicinity. Vertical elements such as transmission lines are visible from considerable distances in the southern portion of the Transmission Route and are the tallest and often the most dominant visual feature on the landscape.

2.2.6.1 Impacts and Mitigation Measures

The Timbermill Line structures and conductors would create aesthetic impacts that are anticipated to be minimal to moderate. The Timbermill Line will result in an alteration of the current landscape through construction of wood and steel poles of 75 to 120 feet. Timbermill Wind has minimized aesthetic impacts by routing the transmission line in such a way that is most harmonious with the existing landscape, such as along roads and field edges. While the Timbermill Line will require tree clearing for the ROW and Collector Substation, these areas are generally away from public use areas such as roads and residences. Other minimization measures include avoiding placing structures directly in front of residences and using construction methods that minimize clearing of vegetation near the transmission line.

Construction of an up-to-5.5-acre Collector Substation in an existing silviculture area will present a minimal visual impact because the facility will be surrounded by trees accessed by local roads primarily used to access the timber tracts (i.e., not well-traveled public roads). The up-to-4.3-acre Switching Station will occur in a recently harvested silviculture tract that will be most visible from south of the Transmission Route. The structures within the Collector Substation and Switching Station will be up to 120 feet high at their highest for lighting protection, but will on average have the profile of a single-story building and will consist of high voltage electrical equipment. In

addition, down-shielded lighting will help to maintain security at these facilities while minimizing lighting impacts.

2.3 Summary of Environmental Information

The Timbermill Line has been sited to avoid and minimize natural and human environmental impacts. Table 2.3-1 provides a summary of quantitative impacts on each resource described throughout this Environmental Report. Detailed Route Maps (Figures 7a-7d) provide a detailed review of the Preliminary Alignment, preliminary structures, the transmission ROW, Collector Substation, Switching Station, and access road on 2020 aerial photography with environmental features.

| Table 2.3-1 Summary of Environmental Information | | | | |
|---|-----------------------------------|-----------------------------|--------------------------|--------------------|
| Environmental Feature | Transmission Line Facility | | | |
| | Transmission ROW | Collector Substation | Switching Station | Access Road |
| General | | | | |
| Length (miles) | 6.1 | NA | NA | 1.0 |
| Right-of-Way or Footprint (acres) | 112.7 | 5.5 | 4.3 | 2.4 |
| Prime Farmland | | | | |
| Total All Categories of Prime Farmland (acres) | 96.2 | 5.5 | 4.3 | 1.0 |
| Surface Waters and Floodplains | | | | |
| Jurisdictional Waterbody Crossings (number) | 11 | - | - | 1 |
| Non-Jurisdictional Waterbody Crossings (number) | 63 | 2 | - | 5 ¹ |
| 100-year Floodplain (acres) | 1.4 | - | - | - |
| Wetlands | | | | |
| Jurisdictional Wetlands (acres) | 5.3 | - | - | - |
| Non-Jurisdictional Wetlands (acres) | 0.3 | - | - | - |
| Transmission Structures in Jurisdictional Wetlands (number) | 2 | NA | NA | NA |
| Transmission Structures in Non-Jurisdictional Wetlands (number) | - | NA | NA | NA |
| Vegetation | | | | |
| Silviculture to be cleared (acres) | 36.0 | 5.5 | - | - |
| Silviculture, recently harvested (acres) | 9.3 | - | 4.3 | 0.4 |
| Hardwood Forest to be cleared (acres) | 3.6 | - | - | - |
| Land Use (NLCD, 2016) | | | | |
| Cultivated Crops | 53.2 | - | - | 0.8 |
| Deciduous/Evergreen/Mixed Forest | 41.6 | 5.4 | - | 0.4 |
| Woody Wetlands | 10.4 | - | 3.7 | 0.6 |

| Table 2.3-1 Summary of Environmental Information | | | | |
|---|---|-----------------------------|--------------------------|--------------------|
| Environmental Feature | Transmission Line Facility | | | |
| | Transmission ROW | Collector Substation | Switching Station | Access Road |
| Shrub/Scrub Land | 3.8 | 0.1 | - | 0.4 |
| Emergent Herbaceous Wetlands | 1.3 | - | 0.6 | 0.1 |
| Herbaceous Land | 1.4 | - | - | - |
| Developed Areas (i.e., low intensity, open space) | 1.0 | - | - | <0.1 |
| Proximity to Residences | | | | |
| Number of Residences within 0 to 75 feet from Preliminary Alignment or footprint of facility | 1 | - | - | - |
| Number of Residences within 76 to 150 feet from Preliminary Alignment or footprint of facility | 2 | - | - | - |
| Number of Residences within 151 to 300 feet from Preliminary Alignment or footprint of facility | - | - | - | - |
| Agricultural Impacts | | | | |
| Number of Structures in Cultivated Cropland (estimate) | 24 | NA | NA | NA |
| Transportation | | | | |
| Number of Road Crossings | 5 | NA | NA | - |
| Number of Railroad Crossings | 0 ² | NA | NA | - |
| Corridor Sharing | | | | |
| Roads and Railroads (miles) | 0.9 | NA | NA | - |
| Property and Field Lines (miles) | 3.3 | NA | NA | 0.85 |
| No Linear Feature Sharing (miles) | 1.9 | NA | NA | 0.15 |
| Total Linear Feature Sharing (miles) | 4.2 | NA | NA | 0.85 |
| Total Linear Feature Sharing (percent) | 68.8% | NA | NA | 85% |
| ¹ | The access road crosses five of the same non-jurisdictional waterbodies as the Transmission ROW; the access road does not cross any unique waterbodies. | | | |
| ² | The Tap Line, which will be designed, constructed, and owned by Dominion Energy, will cross the Chesapeake & Albemarle railroad. | | | |

3.0 REQUIRED FEDERAL, STATE, AND LOCAL APPROVALS

The Timbermill Line will require various regulatory permits, reviews, and approvals. Table 3.0-1 provides a summary of the required permits, approvals, and consultations for the Timbermill Line. All permits, licenses, approvals, or consultations which are required will be obtained in the applicable areas prior to construction beginning.

| Table 3.0-1 Status of Required Federal, State, and Local Approvals | | | |
|---|--|---|---------------|
| Authorization | Administering Agency | Details | Status |
| Federal | | | |
| Section 404 Clean Water Act | US Army Corps of Engineers | Section 404 Individual Permit application is in process and will be submitted to USACE. Anticipated submittal Q2 2021. | In progress |
| Section 106 of the National Historic Preservation Act | State Historic Preservation Office | Cultural and historic resource survey studies have been planned and completed in coordination with North Carolina Department of Cultural Resources and State Historic Preservation Office. Section 106 consultation requirements for the USACE Section 404 Individual Permit are ongoing. | In progress |
| Section 7 of the Endangered Species Act | US Fish & Wildlife Service | Timbermill Wind has completed voluntary wildlife surveys and coordinated with USFWS on protocols and survey results under Section 10 of the ESA. Section 7 consultation requirements for the USACE Section 404 Individual Permit are ongoing. | In progress |
| State of North Carolina | | | |
| Section 401 Clean Water Act | North Carolina Department of Environmental Quality – Division of Water Resources | 401 Water Quality Certification will be applied for in connection with the Section 404 Individual Permit. | In progress |
| Coastal Area Management Act (CAMA) | North Carolina Department of Environmental Quality – Coastal Management Division | Areas under Coastal Area Management Act (CAMA) jurisdiction are avoided by project design. No permit required. | Complete |
| Natural Resource Agency Consultation | North Carolina Wildlife Resources Commission | Study plans were developed, and results reviewed in coordination with North Carolina Wildlife Resources Commission (NCWRC) and NCWRC recommendations for impact avoidance, minimization and monitoring have been incorporated into project design and operations planning. | In Progress |

| Table 3.0-1 Status of Required Federal, State, and Local Approvals | | | |
|--|--|--|---------------|
| Authorization | Administering Agency | Details | Status |
| Cultural Resource Agency Consultation | Division of Cultural Resources; Office of Archives and History | Cultural resource studies have been planned in coordination with North Carolina Department of Cultural Resources and State Historic Preservation Office to meet State regulatory requirements. | In progress |
| Certificate of Environmental Compatibility and Public Convenience and Necessity | North Carolina Utilities Commission | Expect to submit application Q2 2021. Certificate for transmission facility. | In progress |
| Certificate of Public Convenience and Necessity | North Carolina Utilities Commission | Expect to submit application in Q2 2021. Certificate for generation facility. | In progress |
| North Carolina Wind Permit | North Carolina Department of Environmental Quality | House Bill 484 established a permitting program for the siting and operation of wind energy facilities. Expect to submit application materials Q2 2021. | In progress |
| Clean Water Act, Section 401 WQC and/or State Isolated Waters/Wetland Permit | North Carolina Department of Environmental Quality – Division of Water Quality | To be addressed via Section 404 compliance and in accordance with NC DEQ requirements. Anticipated submittal Q2 2021. | In progress. |
| National Pollutant Discharge Elimination System Permit for Storm Water Runoff – Construction Sites | North Carolina Department of Environmental Quality – Division of Water Quality | To be addressed via Stormwater Pollution Prevention Plan, which is required for the National Pollutant Discharge and Elimination System Permit. | Not begun |
| Local | | | |
| Conditional Use Permit, as Amended | Chowan County Board of Commissioners | Received Chowan County Conditional Use Permit in November 2016, amended in May 2018. | Complete |
| Building Permit | Chowan County Planning Division and Building Inspector | Applicant proposes to complete prior to construction. | Not begun |

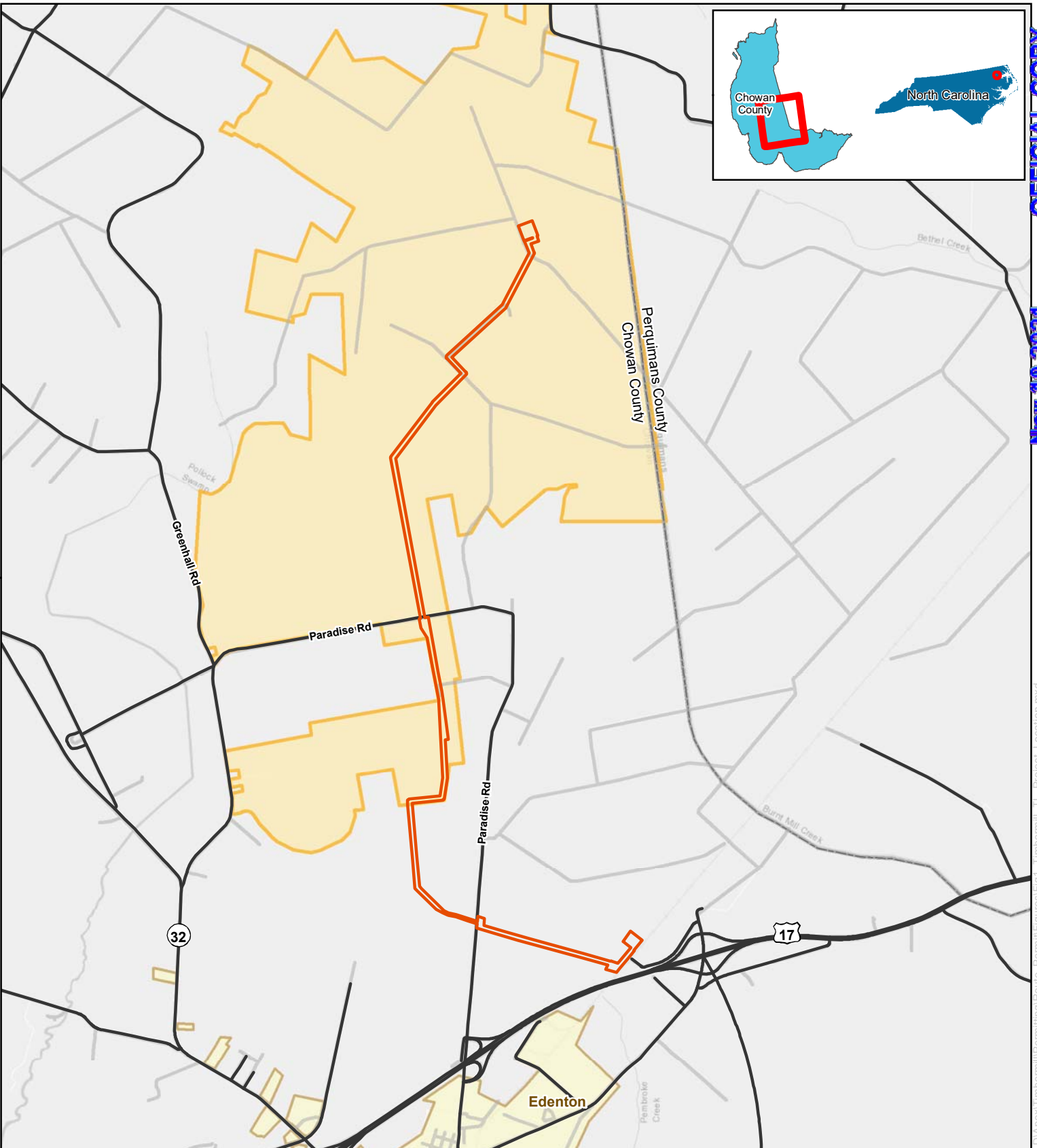
4.0 REFERENCES

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Figures









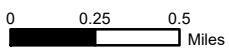
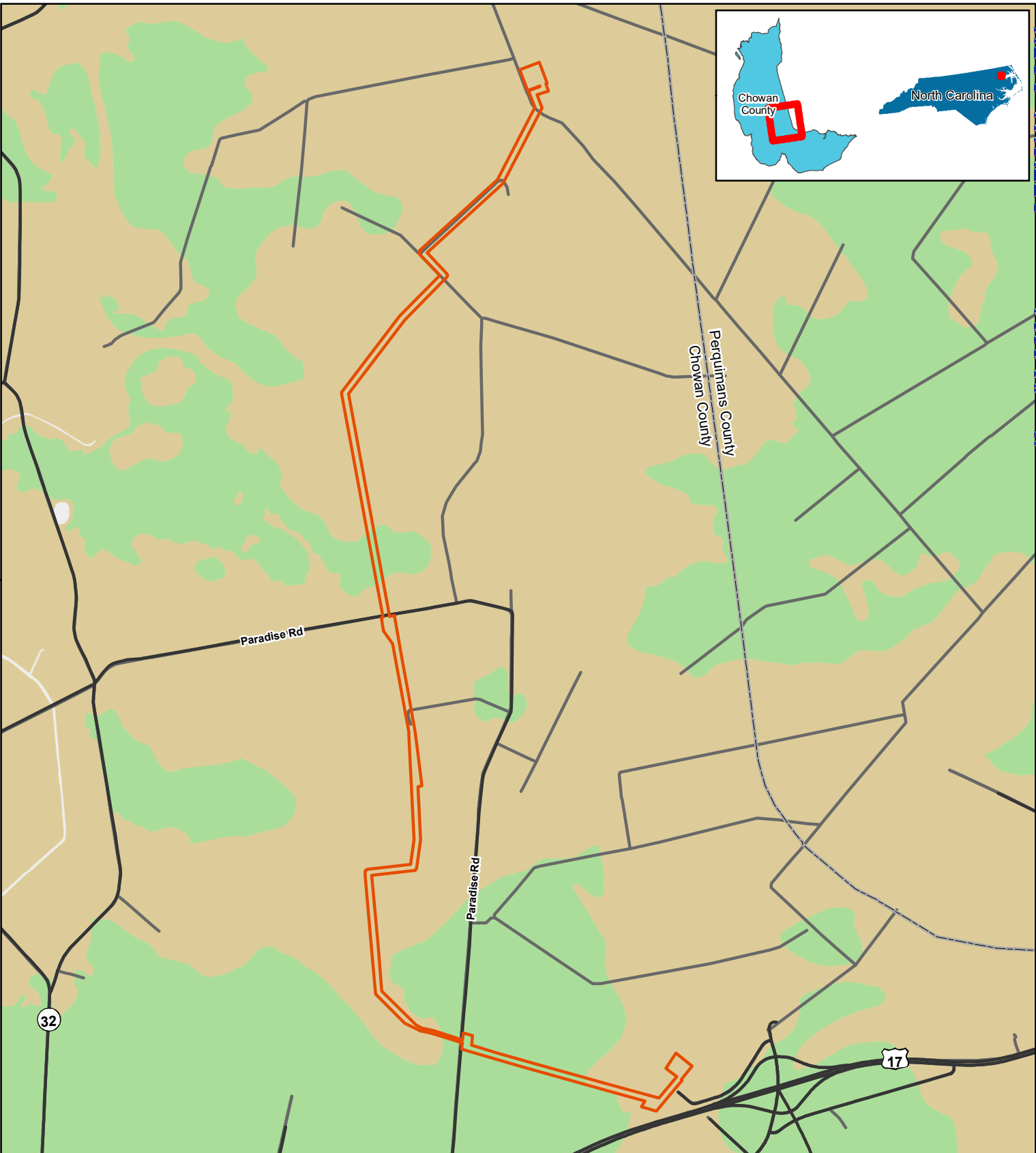
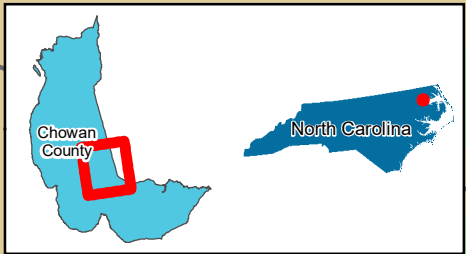
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Preliminary Not for Construction

Figure 1
Wind Project Location
Timbermill Wind Project
Chowan County, North Carolina







-  Transmission Route
-  Wind Project Area
-  City
-  County
-  State Maintained Road
-  Local Road

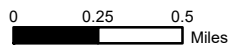
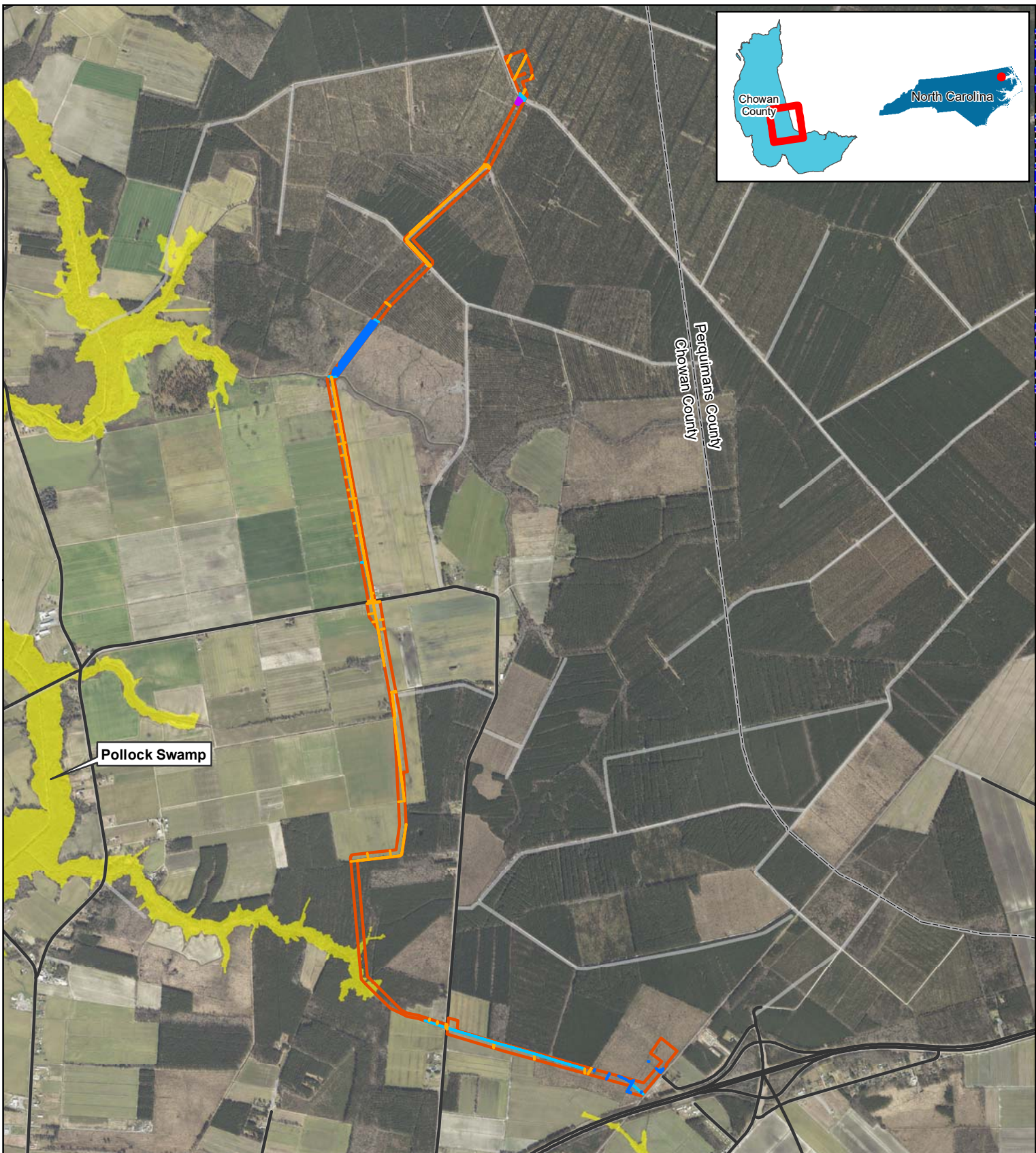


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Figure 2
Soils
Timbermill Wind Project
Chowan County, North Carolina

-  Transmission Route
-  State Maintained Road
-  Local Road
- Farmland Classification**
-  Prime Farmland
-  Farmland of Statewide Importance
-  Not prime farmland



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Figure 3
Water Features
Timbermill Wind Project
Chowan County, North Carolina

Field Delineated Wetland

Potential Jurisdictional Wetland (a)(4)

Non-Jurisdictional Wetland (b)(1)

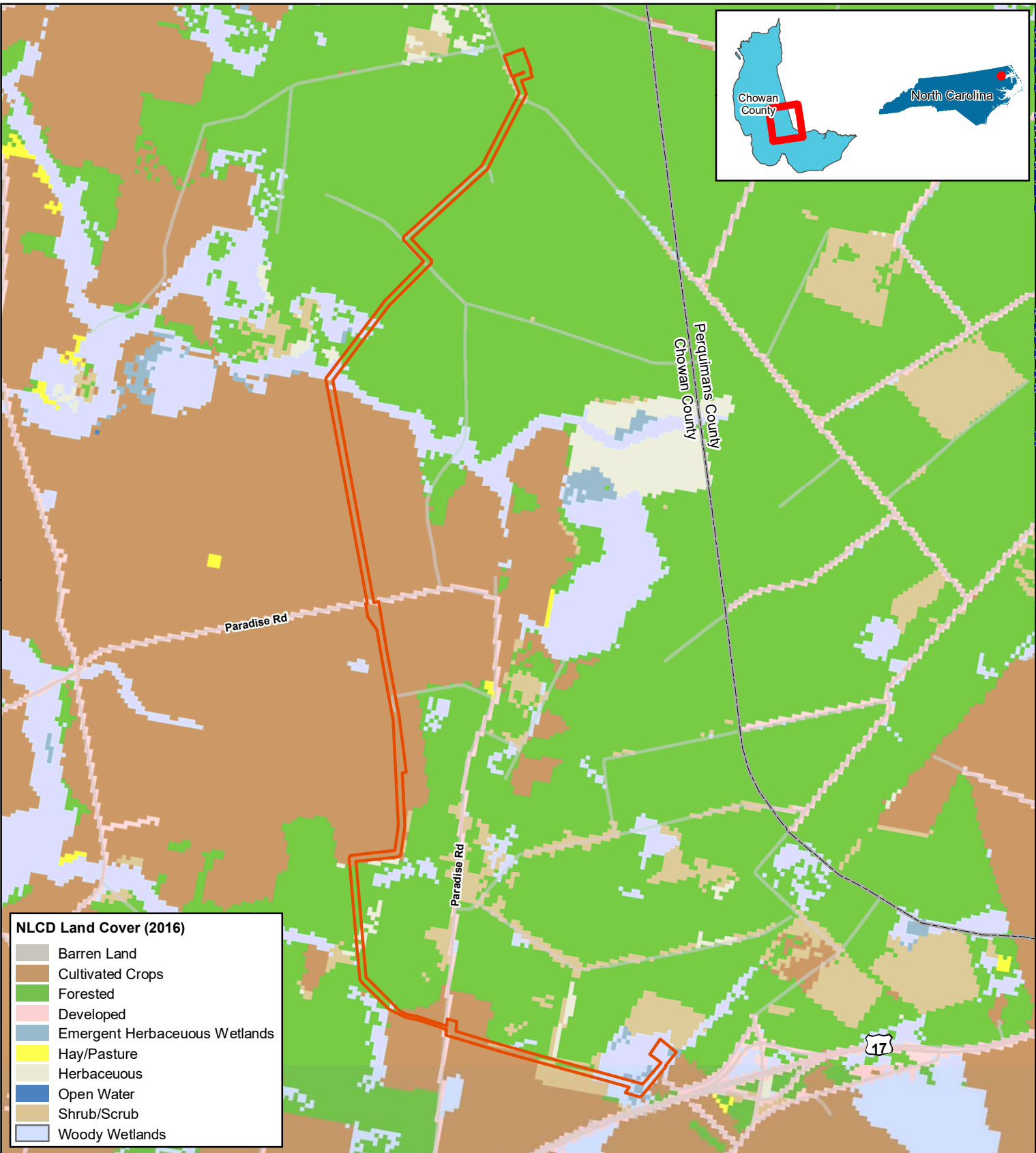
Field Delineated Waterbody

Potential Jurisdictional Ditch (a)(2)

Non-Jurisdictional Ditch (b)(5)

Transmission Route

100-Year Floodplain



NLCD Land Cover (2016)

- Barren Land
- Cultivated Crops
- Forested
- Developed
- Emergent Herbaceous Wetlands
- Hay/Pasture
- Herbaceous
- Open Water
- Shrub/Scrub
- Woody Wetlands

merjent.

TIMBERMILL WIND

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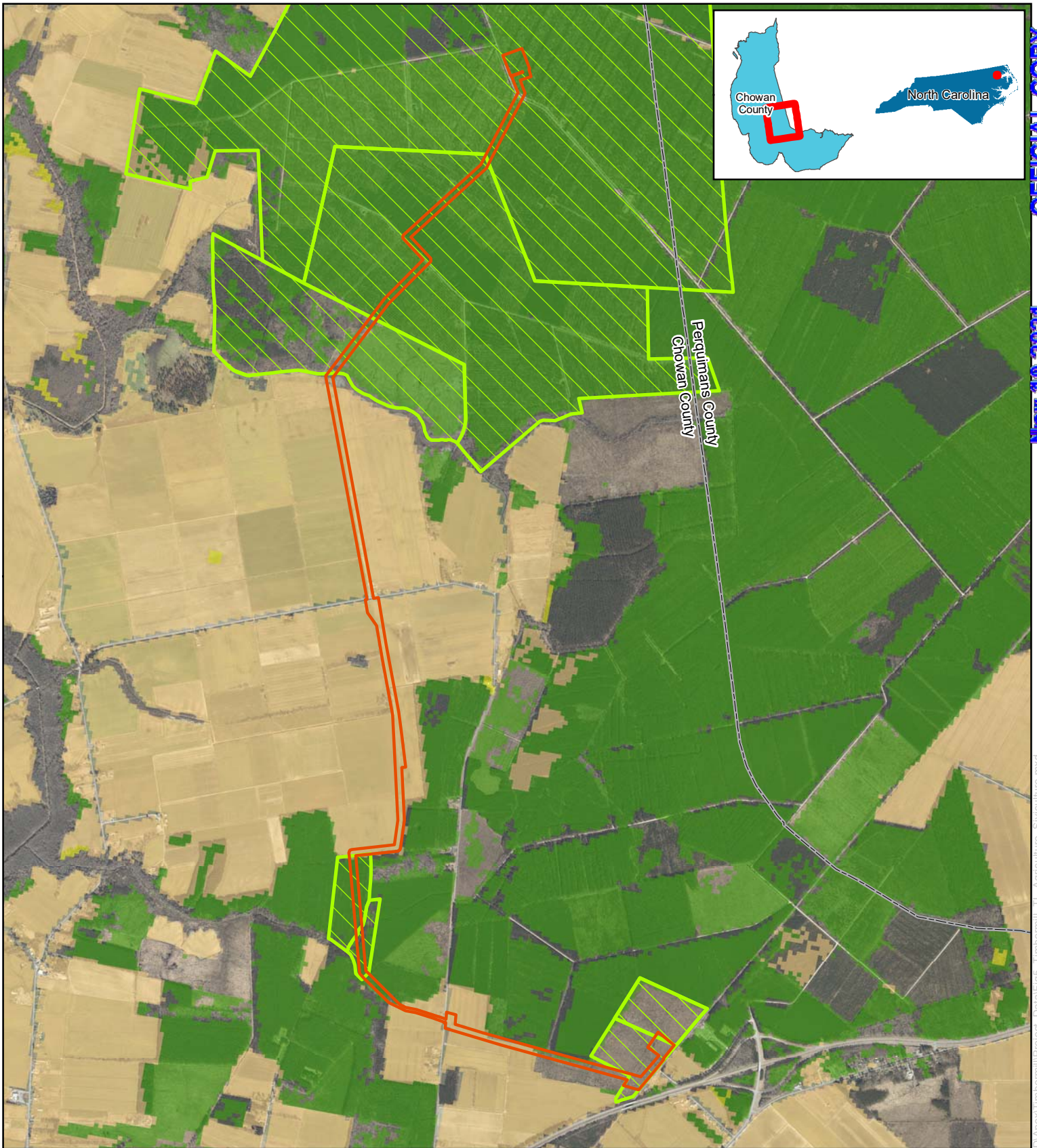
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Figure 4
Landcover
Timbermill Wind Project
Chowan County, North Carolina

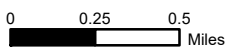
Transmission Route



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


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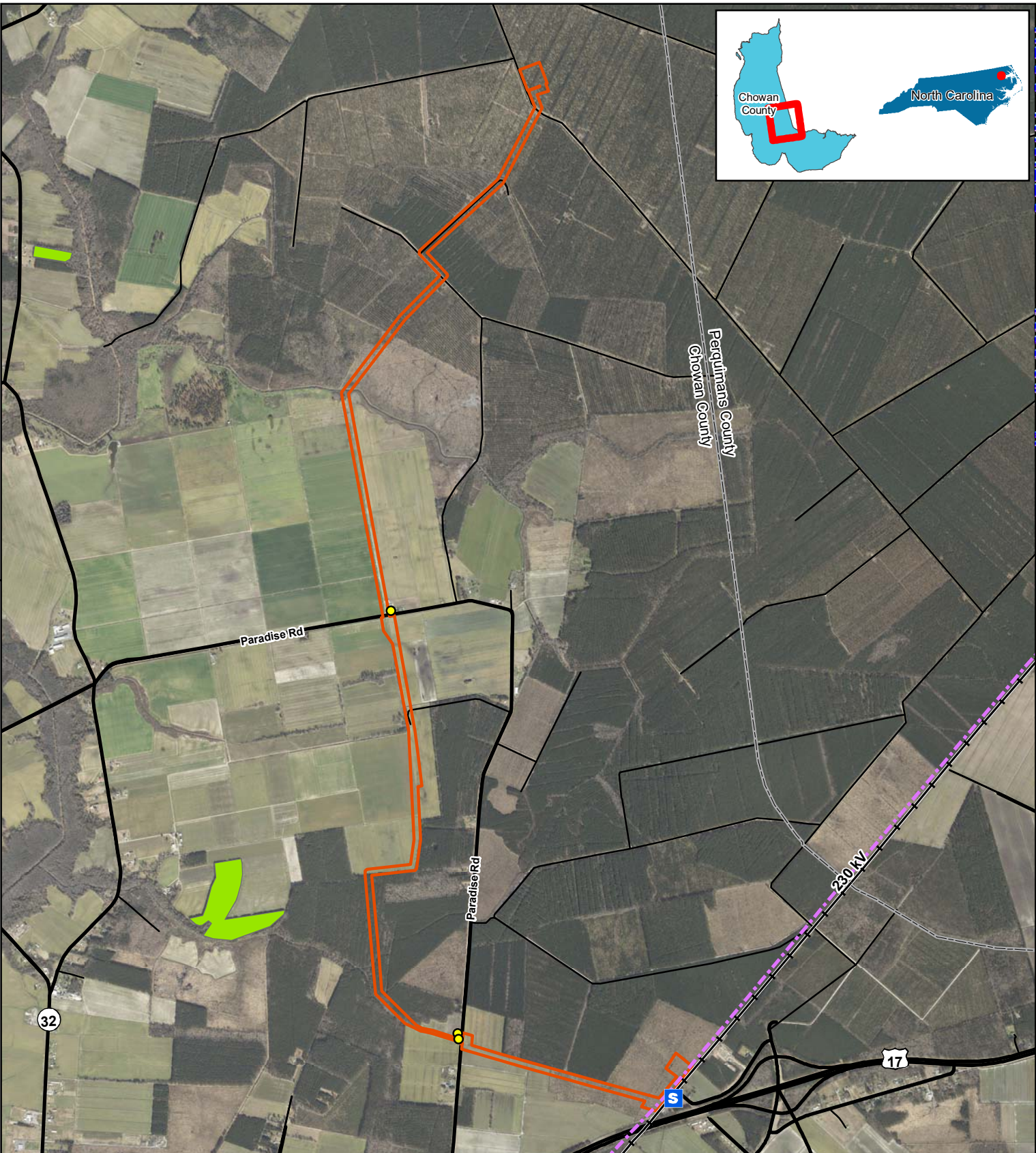


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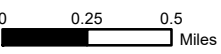
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Figure 5
Agriculture and Silviculture
Timbermill Wind Project
Chowan County, North Carolina

-  Transmission Route
-  Silviculture Parcels
- NLCD Land Cover (2016)**
-  Cultivated Crops
-  Forested
-  Hay/Pasture



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



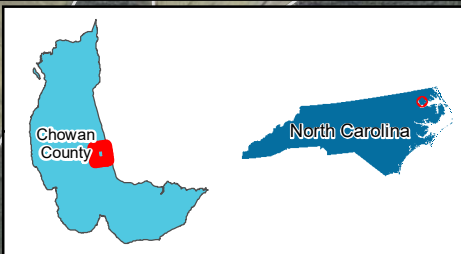
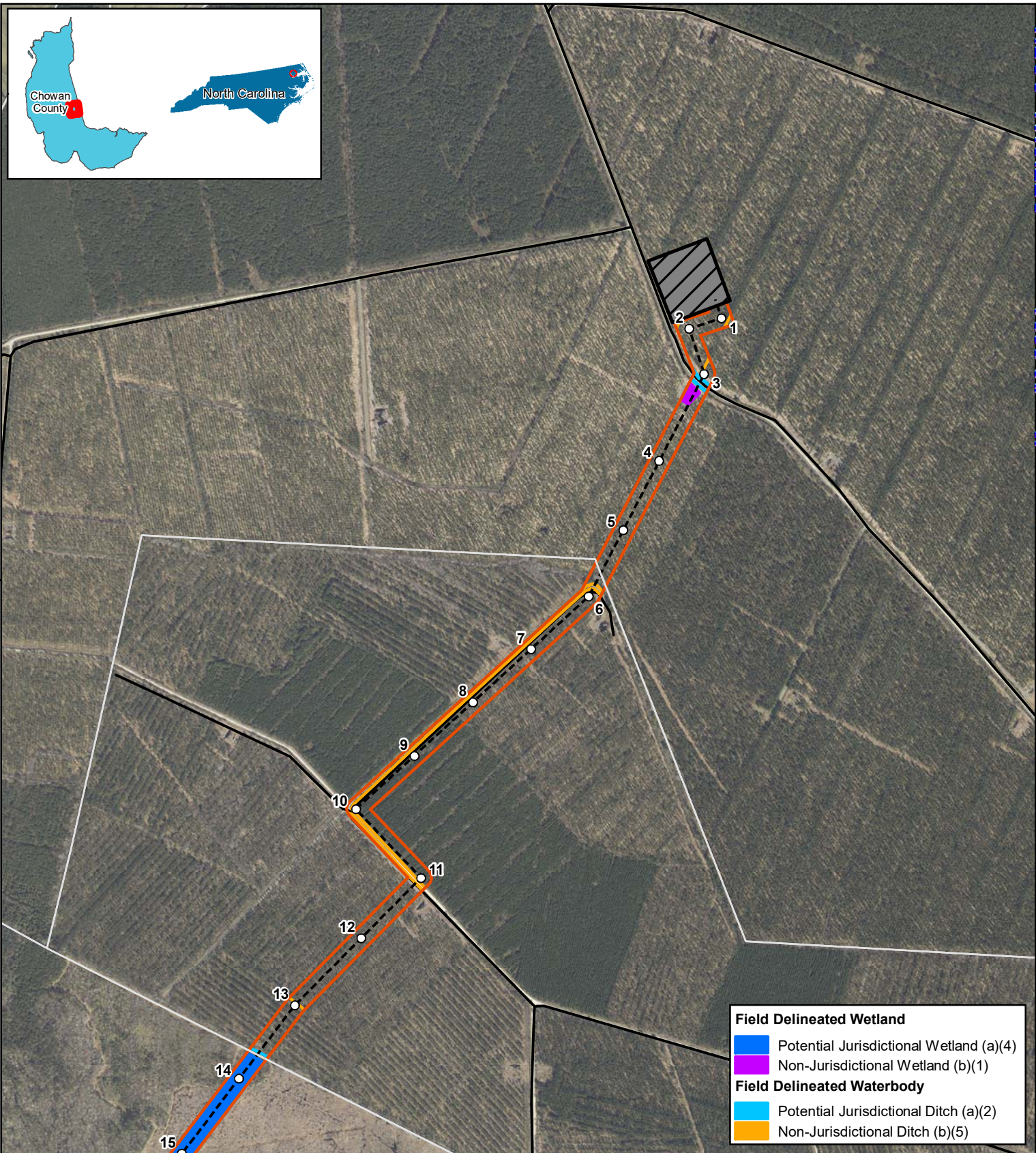


Figure 6
Existing Infrastructure and
Managed Lands
Timbermill Wind Project
Chowan County, North Carolina

-  Residence/Building
-  Existing Substation
-  Transmission Route
-  CREP Easement
-  Railroad
-  Existing Transmission Line
-  State Maintained Road
-  Local Road



| Field Delineated Wetland | |
|--|---|
| ■ | Potential Jurisdictional Wetland (a)(4) |
| ■ | Non-Jurisdictional Wetland (b)(1) |
| Field Delineated Waterbody | |
| ■ | Potential Jurisdictional Ditch (a)(2) |
| ■ | Non-Jurisdictional Ditch (b)(5) |

- Transmission Structure
- - - Alignment of Timbermill Line
- ▨ Collector Substation
- ▭ Transmission Route
- Local Road

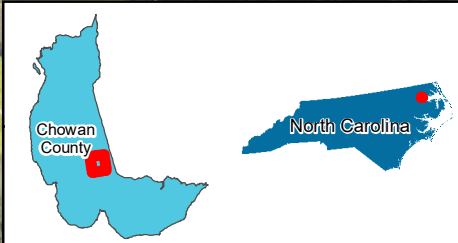
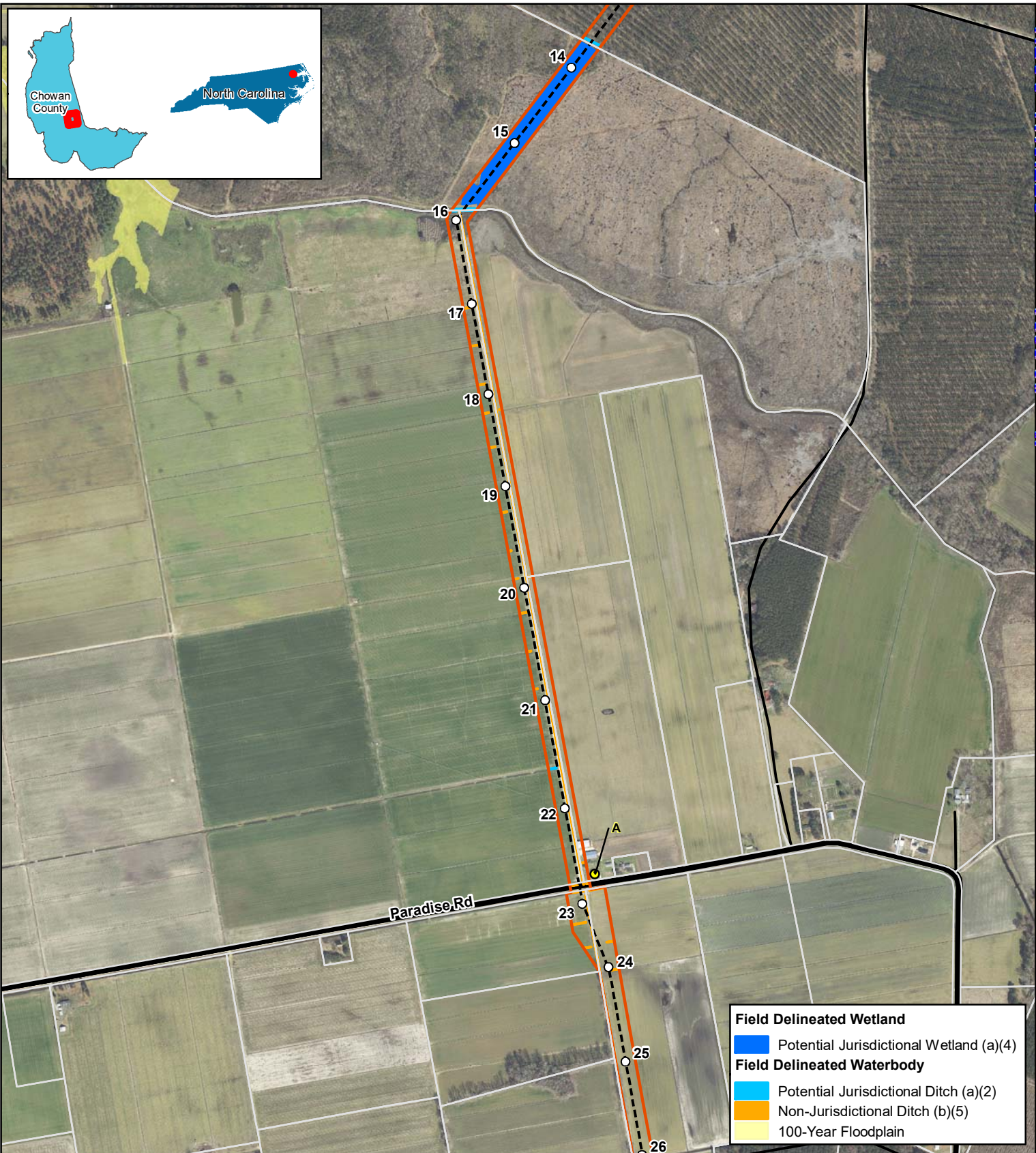
Figure 7a
Detailed Route Map
Timbermill Wind Project
Chowan County, North Carolina



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| Field Delineated Wetland | |
|--|---|
| | Potential Jurisdictional Wetland (a)(4) |
| Field Delineated Waterbody | |
| | Potential Jurisdictional Ditch (a)(2) |
| | Non-Jurisdictional Ditch (b)(5) |
| | 100-Year Floodplain |

- Transmission Structure
- Residence
- Alignment of Timbermill Line
- Transmission Route
- State Maintained Road
- Local Road

Figure 7b
Detailed Route Map
Timbermill Wind Project
Chowan County, North Carolina

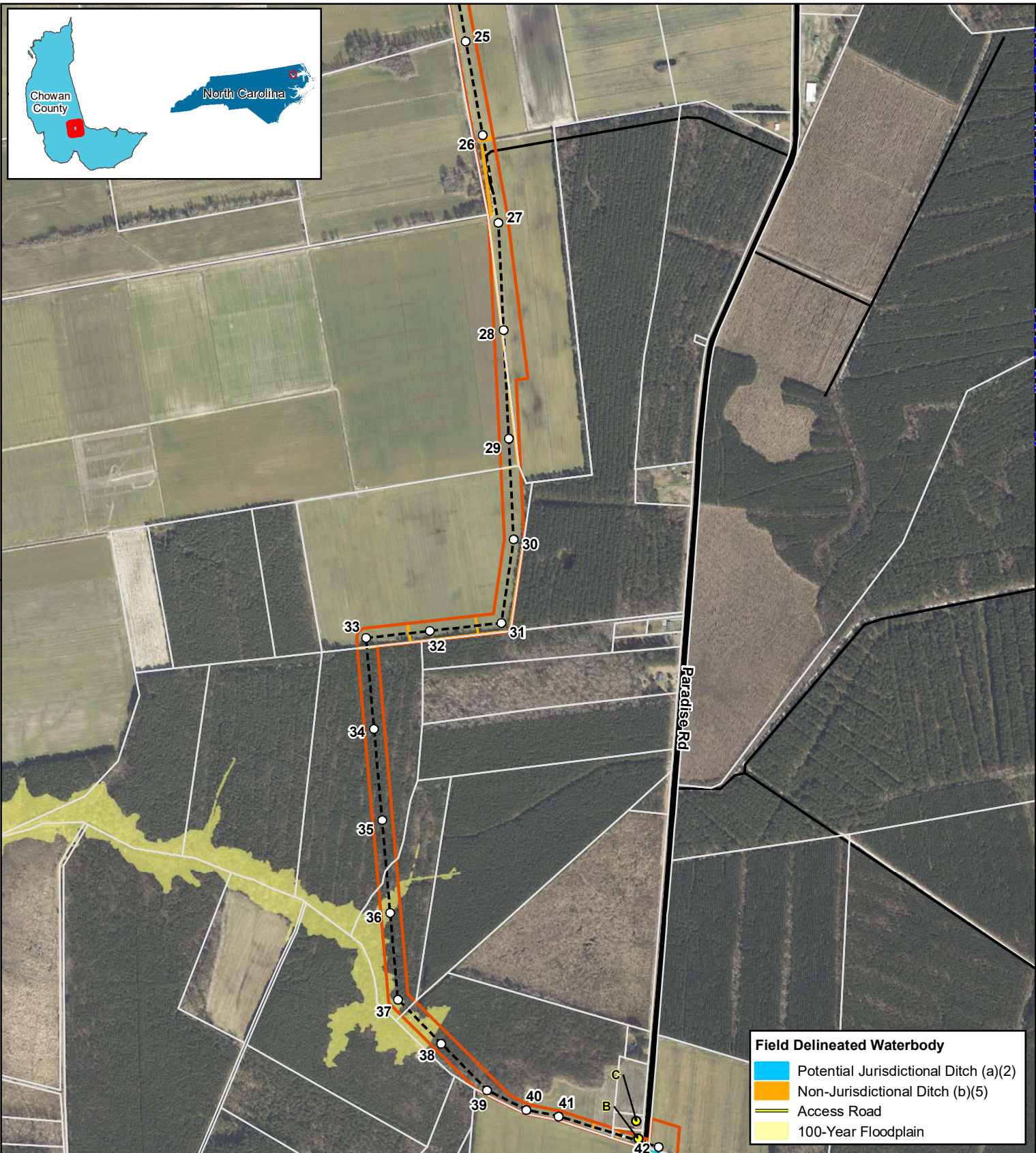


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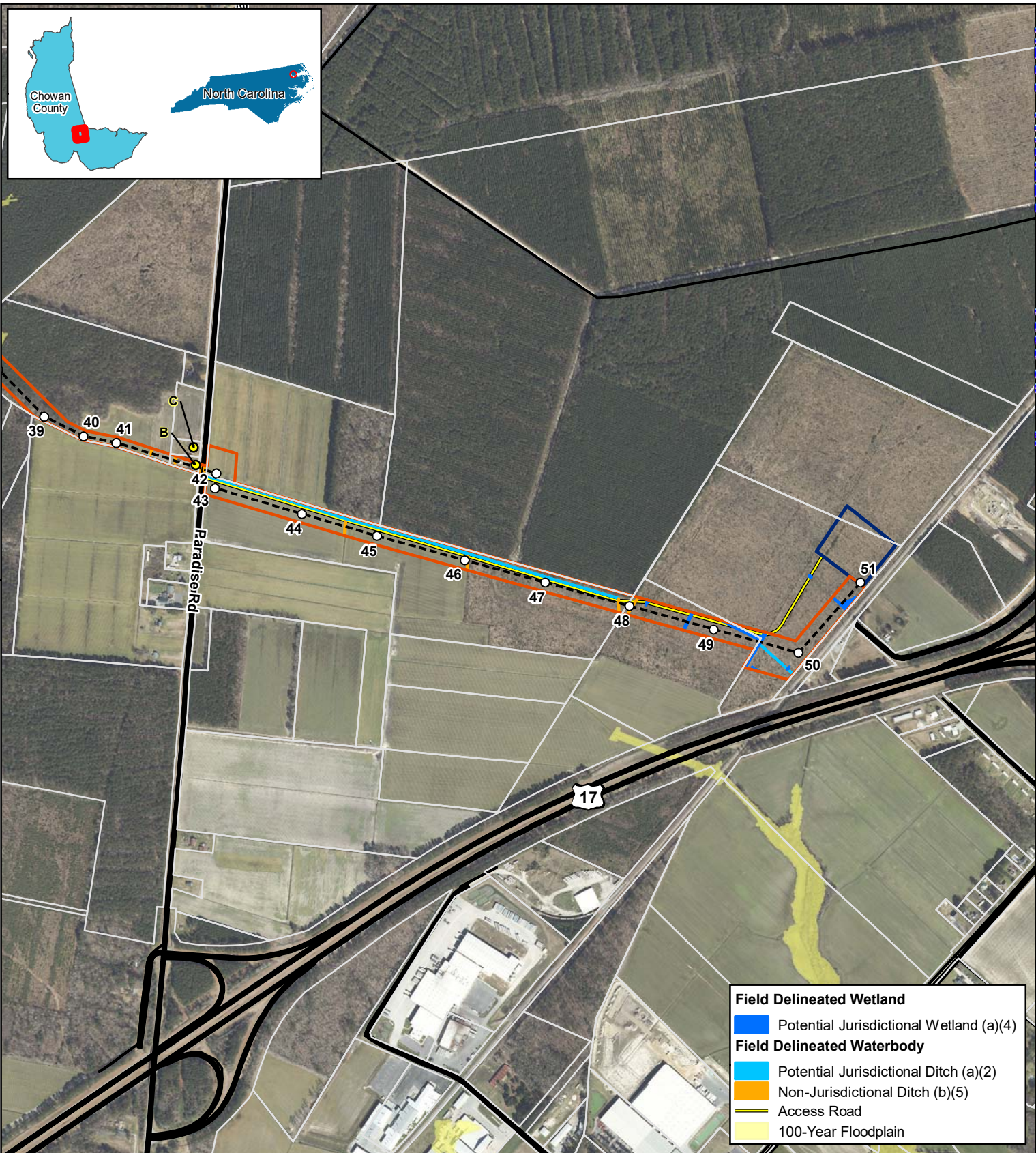
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Figure 7c
Detailed Route Map
Timbermill Wind Project
Chowan County, North Carolina

- Transmission Structure
- Residence
- Alignment of Timbermill Line
- Access Road
- ▭ Transmission Route
- ▬ State Maintained Road
- ▬ Local Road



Field Delineated Wetland

- Potential Jurisdictional Wetland (a)(4)

Field Delineated Waterbody

- Potential Jurisdictional Ditch (a)(2)
- Non-Jurisdictional Ditch (b)(5)
- Access Road
- 100-Year Floodplain

- Transmission Structure
- Residence
- - - Alignment of Timbermill Line
- Access Road
- Switching Station
- Transmission Route
- State Maintained Road
- Local Road

Figure 7d
Detailed Route Map
Timbermill Wind Project
Chowan County, North Carolina



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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-118, SUB 1

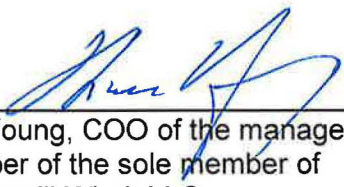
BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Timbermill Wind,)
LLC'S Application for a Certificate of)
Environmental Compatibility and)
Certificate of Public Convenience and)
Necessity Pursuant to G.S. §§ 62-100)
et. seq. to Construct a Transmission)
Line for a Proposed Generating)
Facility)

VERIFICATION

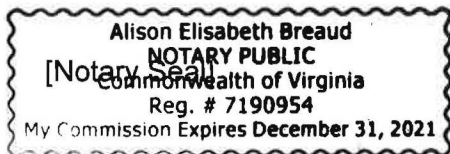
I, Ken Young, being duly sworn, do hereby declare that I am duly authorized to act on behalf of the Applicant, that I have made appropriate inquiries of the subject matter experts on whom I have reasonably relied to prepare the foregoing Application regarding the contents thereof, and that the same are true and correct to the best of my knowledge, information, and belief.

This 11th day of June, 2021.



Ken Young, COO of the manager of the sole member of the sole member of Timbermill Wind, LLC

Sworn and subscribed to before me this 11th day of June, 2021.





Notary Public [Signature of Notary Public]

ALISON E BREAUD

Name of Notary Public [typewritten or printed]

My Commission expires December 31, 2021