Application For
PSCW Certificate of Public Convenience and Necessity

NORTHERN LIGHTS INTERCONNECTION PROJECT

PSCW Docket No. 137-CE-189

October 2018

AMERICAN TRANSMISSION COMPANY®

SECTION **PAGE**

ATC	American Transmission Company
BMPs	Best Management Practices
BVP	Best Value Planning
CPCN	Certificate of Public Convenience and Necessity
Commission	Public Service Commission of Wisconsin
CTH	County Trunk Highway
DATCP	Department of Agriculture, Trade and Consumer Protection
ECI	Electrical Consultants, Inc.
EMF	Electromagnetic field
ER	Endangered Resources
FCC	Federal Communications Commission
FPP	Farmland Preservation Program
GIS	Geographic Information System
LIRF	Load Interconnection Request Form
MW	megawatt
MISO	Midcontinent Independent System Operator
NHI	Wisconsin Natural Heritage Inventory
OPGW	Optical Ground Wire
PSCW	Public Service Commission of Wisconsin (Commission)
ROW	Right-of-way
WDNR	Wisconsin Department of Natural Resources
WPL	Wisconsin Power and Light
WPDES	Wisconsin Pollution Discharge Elimination System
XLPE	Cross Linked Polyethylene

APPLICATION FOR PSCW CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY[1]

1.0 PROJECT OVERVIEW

Description

In the Northern Lights Interconnection Project (Project), ATC proposes to construct a new 138 kV substation, to be called the Northern Lights Substation, and a new double-circuit 138 kV transmission line, approximately 1.3 miles and almost entirely underground, between the existing Cross County Substation and the new Northern Lights Substation.

In addition, approximately 2.25 miles of new optical ground wire (OPGW) will be installed on the existing 13898 transmission line to replace an existing shield wire between structure 121810 and the Pleasant View Substation.

Need

The Project is needed to reliably serve Epic Systems' (Epic) projected load forecast.

Cost

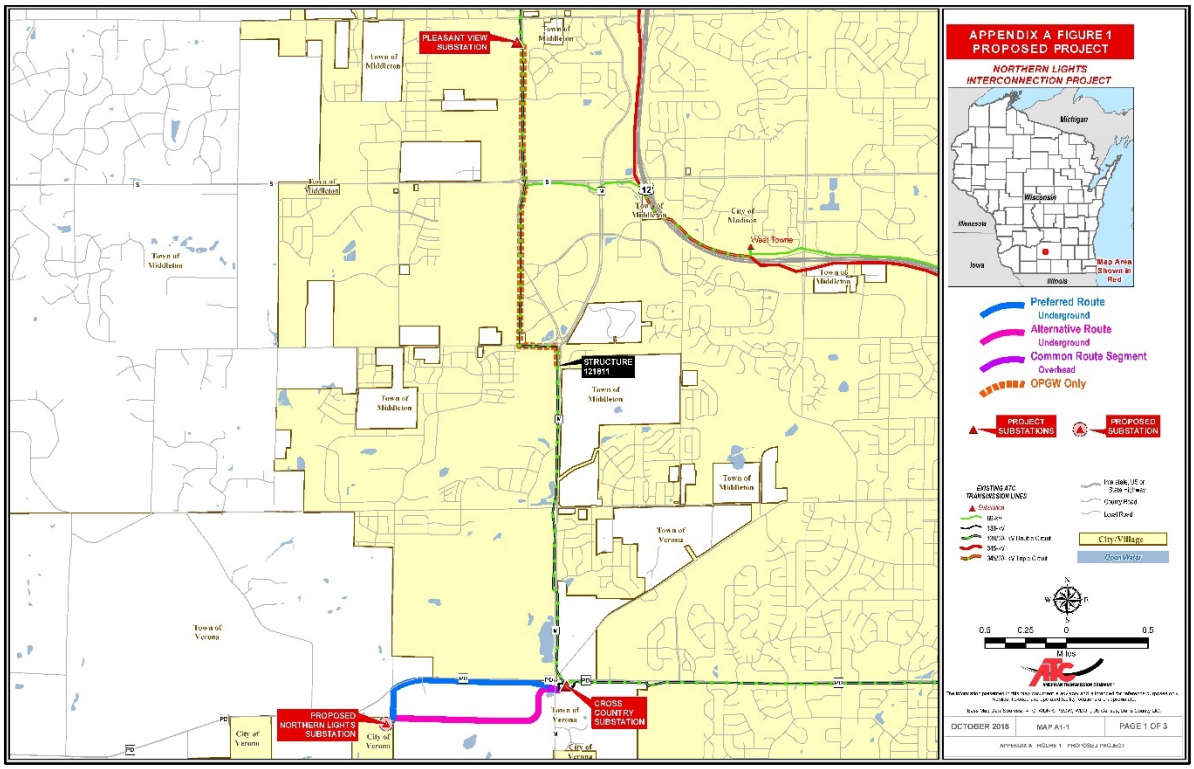
ATC estimates that the Project will cost $21,235,700 for the Preferred route and $21,397,000 for the Alternative Route. Detailed cost information is provided in Section 4.0.

Schedule

Pending Commission authorization, construction is scheduled to begin in November 2019. The facilities are scheduled to be placed in service in June 2021.

[1] This Application was prepared in accordance with the PSCW and WDNR *Application Filing Requirements Transmission Line Projects*, Version October 2017, and the *Application Filing Requirements Substation Projects*, Version October 2017 (collectively referred to as the Application Filing Requirements).

Route and Location



1.1 Owners and Investors

American Transmission LLC and ATC Management Inc., its corporate manager (collectively ATC), W234 N2000 Ridgeview Parkway Court, Waukesha, Wisconsin 53188, propose to construct the Project, which will be 100% owned by ATC.

1.2 Agreements

ATC has entered into a contractual agreement with Wisconsin Power and Light Company (WPL) to finance the elective facilities identified in Section 4.0. ATC will file an application for Commission approval of the elective facilities agreement as an affiliated interest agreement in a separate Commission docket.

1.3 Project Location and Endpoints

The Project is located in Dane County. Beginning at the existing Cross Country Substation located at the intersection of County Trunk Highway (CTH) M and CTH PD, ATC will construct a new double-circuit 138 kV transmission line, almost entirely underground and approximately 1.3 miles in length, to the new ATC Northern Lights Substation.

ATC will also install approximately 2.25 miles of new OPGW on the existing 13898 transmission line between structure 121810 and the Pleasant View Substation in the city of Madison.

1.4 Impacted Cities, Villages, and Townships

The Project is located partially in the Town of Verona, and the cities of Verona and Madison, Dane County, Wisconsin.

1.5 PSCW Review

1.5.1 Type of Application

Pursuant to the requirements of Wis. Stat. §§ 1.11, 1.12, 196.025, 196.49 and 196.491, and Wis. Admin. Code chs. PSC 4, 111 and 112, ATC hereby applies (Application) to the Commission for a Certificate of Public Convenience and Necessity (CPCN) together with any other authorization needed to construct the proposed Project as set forth in further detail below.

1.5.2 Type of Commission Action

The Project is categorized as a Type II action pursuant to Wis. Admin. Code § PSC 4.10(2). Information necessary for the initial preparation of an Environmental Assessment is provided as part of this Application.

By this filing, ATC confirms its understanding that, through the pre-application process provided for in Wis. Stat. § 30.025(1m), the Wisconsin Department of Natural Resources (WDNR), the PSCW, and ATC have conferred and made a preliminary assessment of the Project's scope and alternatives and have identified potentially interested persons. ATC is also aware, in accordance with Wis. Stat. §§ 30.025(1m)(b) & (c), of the information that it is required to provide and the required timing for the information submissions.

1.5.3 Certificate of Public Convenience and Necessity (CPCN) Exemption

This Project does not qualify for a CPCN exemption under Wis. Stat. § 196.491(4)(c).

1.5.4 Expedited Review

ATC is not seeking an expedited review of this Project.

1.6 Project Details and Project Area Information

1.6.1 Location of Routes and Associated Facilities

The Project begins at the existing Cross Country Substation located at the southeast corner of the intersection of CTH M and CTH PD in Dane County, Wisconsin. A new double-circuit 138 kV transmission line will exit the Cross Country Substation at structure 121784 and cross CTH M in

an overhead configuration for one span. This new line will terminate at two new riser structures on the west side of CTH M which will transition the two 138 kV circuits from overhead to underground. This overhead span is a common segment to both the Preferred and Alternative Routes as described below.

The Preferred Route extends underground from the riser structures west for approximately 1.0 mile following CTH PD. The Preferred Route turns south near the junction of Woods Road and CTH PD, follows the western edge of the Denner property for approximately 0.2 miles, and terminates at riser structures within the proposed new Northern Lights Substation.

The Alternative Route extends underground from the riser structures west for approximately 0.1 miles then turns south for approximately 0.2 miles. At the northern border of the Midthun property, the Alternative Route turns west for approximately 0.9 miles before terminating at the riser structures located in the proposed new Northern Lights Substation.

Approximately 2.25 miles of new OPGW will also be installed on the existing 13898 transmission line to replace an existing shield wire between structure 121810 and the Pleasant View Substation. An existing wood pole (structure 121821) on line 13898 will be replaced with a steel monopole as part of this OPGW work.

A map of the proposed Project is provided in **Appendix A, Figure 1**.

1.6.2 The Footprints of Associated Facilities

The new Northern Lights Substation will be located on property owned by the city of Verona. ATC will obtain an easement from the city of Verona for access to the site and placement of its substation and transmission line facilities. All site grading and stormwater management will be the responsibility of Epic.

The Project includes relay upgrades and balance authority metering changes at the existing Pleasant View and Cross Country Substations as described in Section 5.8.1.

1.6.3 Generalized Geology, Topography, Land Cover and Land Use

Generalized Geology

According to the 2006 Natural Resource Conservation Service Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin publication, the Project area is in Major Land Resource Area 95B: Southern Wisconsin and Northern Illinois Drift Plain of Land Resource Region: Northern Lake States Forest and Forage Region. Within this region, the Project is located within the Central Lowland Province of the Interior Plains which is characterized by gently sloping round moraines, lake plains, outwash plains, drumlin fields, end moraines, flood plains, swamps, and marshes. Most of the area has belts of morainic hills and

ridges and nearly level outwash terraces. Local relief is mainly 25 feet, but moraines, drumlins, and bedrock escarpments rise 80 to 330 feet above the adjacent lowlands. The area is almost entirely covered with glacial drift as it is part of the eastern extent of what is known as the "Driftless Area" in southwest Wisconsin. Most of the bedrock consists of Ordovician shale, limestone, and dolomite in the southern portions of this region and Cambrian sandstone, limestone, and shale beds underlie the glacial deposits along the northern parts of the region. Bedrock units are exposed in locations neighboring the "Driftless Area," primarily occurring along its southwestern margins.

Topography

The Project area consists of rolling topography ranging from 1,100 feet above sea level in the northwest to 1,000 feet above sea level in the southeast.

Land Cover

Land cover in the Project area is predominantly agriculture with developed urban and residential roadsides. Upland forest is present in the northwest corner.

Land Use

The primary land use in the Project area is non-specialty agricultural crop land and scattered residential. Upland forest is located primarily in the northwest Project area.

1.6.4 Special or Unique Natural or Cultural Resources

No special or unique natural or cultural resources are present within the Project area.

1.6.5 Areas of Residential Concentrations and Urban Centers

Both the Preferred and Alternative Routes are located in a rural area in the Town of Verona, approximately 0.25-0.5 miles north of residential neighborhoods in the city of Verona. The proposed new Northern Lights Substation will be located in the city of Verona on a former quarry facility.

1.6.6 Transmission Configuration

The proposed double-circuit 138 kV transmission line will exit the Cross Country Substation at structure 121784 and cross CTH M in an overhead configuration for one span. This double-circuit line will terminate at two new riser structures on the west side of CTH M which will transition the two 138 kV circuits from overhead to underground. A drawing showing the two riser structures is provided in **Appendix C, Figure 1**. The two 138 kV lines will run underground from the two riser structures to the Northern Lights Substation. The two circuits will be installed in a common duct bank to facilitate construction. Both circuits will utilize 2,500 kcmil extruded dielectric cross linked polyethylene (XLPE) cables. The XLPE cables will be

installed in individual 6-inch PVC conduits placed in a duct bank encased with thermal concrete. Fluidized thermal fill will be placed over the duct bank as backfill. An underground transmission line cross-section view is provided in **Appendix C, Figure 2.**

1.6.7 Proposed Project ROW

Along Segment A, which is an overhead segment common to both the Preferred and Alternative Routes, the ROW width for the 0.1-mile span varies from 80 feet to 115 feet.

For the Preferred Route, the ROW width for the new underground line will vary from 20 to 40 feet. A major portion of this route will be located in CTH PD public road ROW along the proposed bike path. The proposed bike path is part of the planned CTH PD expansion project to be constructed by the city of Verona.

For the Alternative Route, a 40-foot-wide ROW is proposed for the entire length of the new underground line.

Additional temporary construction zones will be required and vary by location, as discussed in Section 5.6.

1.7 Other Agency Correspondence, Permits and Approvals

1.7.1 Agency Correspondence

Copies of ATC's correspondence with all government agencies concerning the Project are included in **Appendix G, Exhibits 1** and **2.**

1.7.2 State and Federal Permits/Approvals Required

All state and federal permits and approvals required for this Project and their status are listed below.

Federal			
Agency	**Activity**	**Permit**	**Status**
Federal Aviation Administration	Erection of tall structures near airports/heliports	FAA Notice Criteria Tool and Form 7460-1	FAA correspondence is provided as **Appendix G, Exhibit 1**. See Section 7.7.

State			
Agency	**Activity**	**Permit**	**Status**
DATCP	Potential use of eminent domain on more than 5 acres of any farm	Agricultural Impact Notification/ Agricultural Impact Statement	Agricultural Impact Notification is being provided to DATCP concurrent with the filing of this application.
WDNR	Soil disturbance, Transmission line construction only	Stormwater/Erosion Control – NR 216	The NR 216 permit application will be submitted to the WDNR following PSCW Order
WDNR	Dewatering, Transmission line construction only	WPDES General Permit	Application for WPDES coverage will be included in the NR 216 permit application (above)

1.7.3 Local Permits

Upon issuance of a CPCN, local ordinances that would preclude or inhibit the Project would be preempted by Wis. Stat. §§ 196.491(3)(i). However, ATC generally applies for those permits and other authorizations governed by local ordinances (county, town, village or city) that involve matters of public safety. Because ordinances of the local units of government vary, each construction project may involve different local permits or authorizations. As an example, the public safety-related permits or authorizations that ATC applies for generally include road crossing permits, road weight limits, noise abatement ordinances (usually involving hours or times of construction), building permits (for such construction as control houses), and other similar public safety concerns for which permits or authorizations may be required by local ordinance.

Local ordinances often address siting and location issues for the construction of utility facilities or land use issues including recreational uses and aesthetics. These types of authorizations would require conditional use permits, zoning permits or variances, which often involve quasi-judicial proceedings and the exercise of discretion on the part of the local unit of government on whether the authorization or permit may be granted. Because the

Commission's statutory obligation is to address the siting of proposed utility facilities and to address land use, recreational use and aesthetics in the siting and route selection for transmission lines, ATC does not apply for these types of permits or authorizations. However, ATC will supply the involved local governments with information and will respond to requests the local unit of government provide the PSCW and ATC relative to comments or concerns regarding the siting and location of the proposed Project.

The following local permits and ordinances would apply to the proposed Project absent the provisions of Wis. Stat. § 196.491(3)(i):

- City of Verona building permit;
- Dane County Highway Department to occupy highway ROW.

1.7.4 Railroad

Neither the Preferred nor the Alternative Route cross or share railroad ROW.

1.7.5 Pipeline

Neither the Preferred nor the Alternative Route cross or share pipeline ROW.

1.7.6 WisDOT

Neither the Preferred nor the Alternative Route cross or share WisDOT ROW.

1.8 Construction Schedule

1.8.1 Construction Schedule

ATC anticipates constructing the Project according to the following schedule:

Project Activity	Date
Submittal of PSCW CPCN Application	October 2018
PSCW CPCN Approval and Order - Anticipated	June 2019
Start Construction*	November 2019
Project In-Service	June 2021

*The date for starting construction could vary depending on the route ordered by the PSCW. If the Preferred Route is ordered, construction activities will be coordinated with the CTH PD expansion project to reduce impacts.

1.8.2 Outage Constraints

ATC has not identified any generation or transmission outage constraints for the Project.

1.9 Project Maps

A set of Project maps is provided in **Appendix A, Figures 1-7.** The maps showing the Preferred and Alternative Routes and other Project data are provided on aerial photographs and include environmental, parcel, land use, and existing utility/infrastructure data. ATC is providing separately to the Commission, in electronic format on discs, Geographic Information System (GIS) data files supporting the mapping.

1.10 ESRI ArcGIS Data Files

All Project maps were created using ESRI ArcGIS Version 10.5.1. A spreadsheet of each GIS file, including the description of the data, the data source, and the date when the data was generated or collected is provided as part of the GIS data disc.

1.11 Mailing Lists

The Mailing Lists are provided in Microsoft Excel format separately to the Commission on disc.

The information used to compile the mailing lists was derived from the Dane county tax parcel data. Data regarding local officials is available from the applicable counties and municipalities. ATC expects that this information is reasonably accurate but recognizes that changes in personnel occur over time.

2.0 PROJECT NEED AND ENGINEERING

2.1 Project Need

WPL notified ATC in February 2016 of a new load interconnection via the Load Interconnection Request Form (LIRF) #40395. The Northern Lights Best Value Planning (BVP) Report in **Appendix D, Exhibit 1**, in conjunction with information supplied by WPL, was used to determine the best value solution for the area.

Epic projects their energy demand to surpass 22 megawatts (MW) by 2022 and grow to 30 MW by 2028. Due to this load growth, Epic requested another connection to the grid to provide backup in the event their primary source fails. Epic is currently served by a 24.9 kV line that runs 2.6 miles from the Cross Country Substation. A pair of distribution solutions and transmission solutions were studied. ATC determined that the transmission solution that looped in Epic from the Cross Country to Pleasant View Line was the best value among all the alternatives.

2.2 Transmission Network Alternatives

ATC considered two alternatives to address the load interconnection needs. Alternative #1 is the preferred solution. It is a loop through configuration from the Cross Country to the Pleasant View 138 kV line. Alternative #2 is a loop through configuration directly from the Cross Country Substation. This alternative would require expanding the Cross Country Substation to add line terminals and breakers and would be more expensive.

Both alternatives will loop in a new Northern Lights Substation on property provided by Epic. This substation will have two distribution transformers and provisions for a third 138 kV line. The transmission lines to the Northern Lights Substation will be underground and a bus tie breaker will be added at the substation. The underground lines and the bus tie breaker are elective facilities as described in Section 4.0.

The power flow analysis performed for the transmission solutions demonstrated that the addition of the proposed Northern Lights Substation will not impact the power flow performance of the transmission system. The performance was evaluated against NERC Reliability TPL categories P0 through P7. No violations were found that required mitigation. The details of the analysis can be found in the Northern Lights BVP Report attached in **Appendix D, Exhibit 1**. The transmission solution also will not negatively impact distribution performance in the area.

2.3 Local Transmission, Distribution, and Distributed Resource Alternatives

2.3.1 Studied Alternatives

There were no local alternatives studied by ATC.

2.4 Non-transmission Options

Two distribution options were considered. The first option would install another transformer in the Cross Country Substation and another 2.6-mile underground line parallel to the existing line that serves Epic. The second option would upgrade a transformer in the Verona Substation and run a 5.7-mile line from the Verona Substation to Epic's existing primary metering point. Both distribution options do not meet WPL's criteria for contingency capacity, protection coordination, and distribution back up. Therefore, they were deemed unacceptable and rejected. (See WPL's Energy Report in Appendix K of the Northern Lights BVP Report.)

2.4.1 Noncombustible Renewable Energy Resources

Epic owns 2.2 MW of solar on-site and an additional 9.6 MW of wind off-site that is not directly connected to their load. Epic is continually looking at their renewable energy options, but the demand from the grid still exists.

2.4.2 Combustible Renewable Energy Resources

None.

2.4.3 Nonrenewable Combustible Energy Resources:

Epic has 40 MW of diesel generation that is intended to support critical load in the event they lose power from the grid. These are emergency generators and are not used to offset their load.

2.5 No-build Options

WPL is required to serve load in their service territory. The "No-Build" option would not allow WPL to serve all Epic's forecasted load. Therefore, the "No-Build" option is not a viable option.

2.6 Energy Conservation and Efficiency, and Load Response

Epic is an active Focus On Energy participant. They have already installed LED lights and have a large geothermal system to help with energy consumption. However, energy conservation, efficiency, and load response programs are not considered a feasible solution to adequately interconnect this customer. Therefore, no detailed description of existing WPL load response programs have been compiled since it would not add value to the discussion.

2.7 Market Efficiency Projects

The need for the proposed Project is not based on market efficiency. Therefore, a market efficiency study was not performed.

2.8 Modeling Information

Data files containing power flow modeling information described in **Appendix D, Exhibit 1** are being provided separately with a request for confidentiality. ATC used PSSE models for the load flow analysis included in the Northern Lights BVP Report.

2.9 Area Load Information

WPL provided the load forecast for the Northern Lights and Cross Country Substations in its LIRF #40395. Neighboring substation loads reflect those provided through the annual 10-Year Assessment load forecast performed by the Local Distribution Companies. The WPL load forecast from the LIRF can be found in **Appendix D, Exhibit 1**.

2.10 Regional Transmission Organization Information

ATC provides transmission service under the terms of the MISO Open Access Transmission and Energy Markets Tariff, which is administered by MISO. The proposed project is an MTEP 17 approved Reliability Project, and therefore the cost will be allocated to ATC's transmission customers.

3.0 MAGNETIC FIELDS

Magnetic fields are present whenever current flows in a conductor and are not dependent on the voltage of the conductor. Magnetic field strength decreases with distance from the source. Unlike electric fields, common materials have little shielding effect on magnetic fields. Magnetic field strength is a function of both the current on the conductor and the design of the system. The unit of measurement for magnetic fields is called Gauss. For lower levels normally associated with transmission lines the unit used is milliGauss.

With an underground transmission line, a magnetic field occurs in the proximity of the cables. In contrast, the electric field is completely contained within the cables by their metallic sheath and does not exist outside of the cables.

Because underground cables are in close proximity to each other, the magnetic field diminishes rapidly in relation to the horizontal distance from the centerline of the underground circuit. The magnetic field created by an underground transmission line is typically higher directly over the trench, but significantly lower at the edge of right-of-way.

3.1 Magnetic Field Profiles

The two new 138 kV underground lines will be placed in a common duct bank to facilitate construction. Each of the new 138 kV underground lines will consist of three (3) 2,500 kcmil extruded dielectric XLPE cables which will be installed in three individual 6-inch PVC conduits. The PVC conduits for the same circuit will be vertically stacked within the duct bank. A set of three spare PVC conduits will be installed between the two circuits to facilitate future maintenance. All PVC conduits within the duct bank will be encased with thermal concrete.

Fluidized thermal fill will be placed over the duct bank as backfill. The depth from ground to the top of duct bank will be a minimum of 30 inches. See **Appendix C, Figure 2** for an underground transmission line cross section exhibit.

Magnetic field profiles are calculated for each distinct cross-section where the electromagnetic field (EMF) profile within 300 feet of the transmission line varies. Unique EMF cross-sections are created for variations in trench configuration, existence of parallel transmission and distribution circuits, load flow projections and phasing. The proposed line routes are broken up into segments as applicable to account for all cross-section variations including existing and future distribution line contributions. The EMF study for this project consists of multiple EMF cross-sections that cover the two proposed routes for the proposed lines. The cross-section locations, figures, and EMF tables are listed in the EMF study report included in **Appendix E, Exhibit 1**.

3.2 Magnetic Field Scenario

EMF cross-section figures and tables of calculated magnetic field strength include the effects of parallel distribution lines within 300 feet of the proposed transmission centerline. Inputs on line configuration, wire size, and load flow for specified years were provided by WPL for all distribution lines within the EMF cross-sections. Load flow data for the proposed 138 kV transmission lines were provided by ATC. Magnetic field levels for the transmission line facilities (1) at system peak and (2) under normal (defined as 80% of system peak), intact system conditions, are provided in the EMF study report for the planned in-service year of 2021 and 9 years following, year 2030.

Magnetic field calculations for underground transmission lines were performed using COMSOL Multiphysics Version 5.3 via finite element analysis. The magnetic field results are tabulated in the report included in **Appendix E, Exhibit 1**. The values are root mean square resultant and are calculated at 1 meter (3.28 feet) above the ground.

3.3 Assumptions

Magnetic field modeling assumptions are provided in the EMF study report included in **Appendix E, Exhibit 1**. Information for the cross-sections includes the dimensions of conductor locations, conductor size, conductor horizontal spacings, phase ID and phase angles, and the depth to ground surface for any underground circuits. Phasing of the proposed 138 kV circuits is assumed and is arranged in the duct bank in such a way as to minimize magnetic field strength.

3.4 Overhead Line Magnetic Fields

This project consists of installing one new span of overhead transmission lines across CTH M between structure 121784 and the two new riser structures. A magnetic field calculation was performed for this new overhead span using Power Line Systems Inc.'s PLS-CADD software. The results are included in the EMF study report included in **Appendix E, Exhibit 2**.

3.5 Substations

Magnetic field measurements were taken at the existing Cross Country and Pleasant View Substations. Their field measurements are provided on the diagrams of the substations included in **Appendix E, Exhibit 2, Attachments B.1 and B.2.**

4.0 PROJECT COSTS

The following table provides the total cost estimate of each route alternative and substation site combination. The costs are based on the projected in-service year of 2021.

Category	Preferred Route	Alternative Route
Underground Transmission Facilities		
Material	$4,241,700	$4,090,000
Labor	$9,798,000	$9,651,000
Other	$230,000	$690,000
Subtotal, Underground	**$14,269,700**	**$14,431,000**
Cross Country Substation		
Material	$49,000	$49,000
Labor	$163,000	$163,000
Subtotal, Cross Country Substation	**$212,000**	**$212,000**
Pleasant View Substation		
Material	$28,000	$28,000
Labor	$168,000	$168,000
Subtotal, Pleasant View Substation	**$196,000**	**$196,000**
Northern Lights Substation		
Material	$1,428,000	$1,428,000
Labor	$2,640,000	$2,640,000
Subtotal, Northern Lights Substation	**$4,068,000**	**$4,068,000**
OPGW Installation and Route Segment A		
Material	$216,000	$216,000
Labor	$1,081,000	$1,081,000
Other	$236,000	$236,000
Subtotal, OPGW Installation and Route Segment A	**$1,533,000**	**$1,533,000**
Pre-certification	**$957,000**	**$957,000**
TOTAL PROJECT COST	**$21,235,700**	**$21,397,000**
ATC has an agreement with WPL to get fully reimbursed for the Elective Facilities Work (which is based on the diffference between the actual costs for the Underground Facilities and Overhead Transmission Facilities cost estimate.		
Elective Facilities Work		
Underground Facilities	**$14,269,700**	**$14,431,000**
Bus-Tie Breaker in Northern Lights Substation (Customer request for increased reliability)	**$385,000**	**$385,000**
Overhead Facilities (NOT Proposed for Construction)		
Material	$721,000	$732,000
Labor	$2,555,000	$2,306,000
Other	$1,134,000	$1,460,000
Subtotal, Overhead	**$4,410,000**	**$4,498,000**
TOTAL Elective Facilities Work Cost Estimate	**$10,244,700**	**$10,318,000**
TOTAL = Underground Facilities Cost plus the Bus-Tie Breaker Costs less the Overhead Facilities Cost		

5.0 ROUTE, SITE, AND CONSTRUCTION INFORMATION

5.1 Routing and Siting Factors

To determine the routes identified in this Application, ATC utilized a multi-stage routing and siting process that involved (1) following the transmission line siting priorities established in Wis. Stat. § 1.12(6), (2) refining possible transmission line routes using additional criteria, (3) soliciting input from local landowners, public officials and other stakeholders to identify issues and concerns with potential transmission line corridors, and (4) consulting with applicable municipal, county, and state agencies including the city of Verona, the PSCW, and WDNR.

As described in Section 1.0, this Project involves connecting the proposed new Northern Lights Substation to ATC's transmission system at the existing Cross Country Substation. Because the endpoints for the Project are relatively close together, just over one-mile apart, the study area is fairly small and is shown, along with the previously studied corridors on the map in **Appendix A, Figure 2**.

ATC identified potential route corridors between the established end points following the siting priorities established in Wis. Stat. § 1.12(6) and balancing a number of factors, including economic and engineering considerations, reliability of the electric system, and protection of the environment. The statutory priorities are listed below in order of priority:

- Existing utility corridors;
- Highway and railroad corridors;
- Recreational trails to the extent the facilities may be constructed below ground and do not significantly impact environmentally sensitive areas;
- New corridors.

Potential routes were refined using additional criterial, to the extent practical. These criteria included the following, which are not listed in order of priority nor assigned weighted values.

- Location of existing linear infrastructure;
- Use of existing ROWs to minimize the need for additional facility ROW (corridor sharing);
- Locations of cemeteries, schools, daycare facilities, and hospitals;
- County and state road expansion plans;
- Community and landowner impacts, including proximity to residences;

- Environmental and natural resource impacts, including impacts to wetlands, waterways, and woodlands;
- Archeological and historic resource impacts;
- Avoidance of high-residential areas
- Conformance with existing and proposed land-use patterns;
- Design modifications and/or construction practices necessary to overcome terrain or other physical challenges; and
- Compatibility with local agricultural practices.

At various stages in the routing and siting process, ATC solicited input from local landowners, public officials and other stakeholders to identify issues and concerns with potential transmission line corridors and routes. These outreach efforts are described in Section 7.1.

Proposed Routes

Based on the considerations discussed above, ATC identified two routes, designated Preferred and Alternative, between the existing Cross Country Substation and the proposed Northern Lights Substation as shown in **Appendix A, Figure 1**.

ATC selected the Preferred Route as the best route for the Project because it shares more existing ROW by area when compared to the Alternative Route and impacts less new ROW area in agricultural and undeveloped lands, or lands identified for future development.

5.2 Changes to Existing Easements

There are no existing transmission line easements in the proposed Project ROW. ATC anticipates acquiring easements for the Project.

ATC anticipates no changes to existing easements in the OPGW work area.

5.3 Route Segments

The Project has four segments (A, B, C, and D). A map of the segments is provided in **Appendix A, Figure 2**, and the proposed length and ROW widths of each segment are shown in **Appendix B, Table 1**.

ATC performed preliminary engineering to determine the materials and configurations suitable for each of the segments. The underground cables are proposed to be 2,500 kcmil extruded dielectric XLPE cables. The two circuits will be installed in a common duct bank. A typical cross-section view of the underground lines is shown in **Appendix C, Figure 2.** Open cut trench

installation method is proposed for the entire length of underground transmission lines. The segment characteristics are summarized in the following table.

Table 5.3.1-1 Project Route Characteristics

Segment	Segment Length (miles)	Route	Installation Type	Transmission Configuration	Conductor Type
A	0.1	Common segment on Preferred and Alternative Routes	Steel monopoles, 85' to 100' Tall	138 kV Double-Circuit Overhead	Twisted Pair (TP) 477 kcmil 26/7 ACSR "Hawk"
B	1.0	Preferred	Duct Bank	Underground	2,500 kcmil Copper XLPE Cable
C	0.2	Preferred	Duct Bank	Underground	2,500 kcmil Copper XLPE Cable
D	1.2	Alternative	Duct Bank	Underground	2,500 kcmil Copper XLPE Cable

5.4 Impact Tables

The following tables are included in **Appendix B**.

Table 1 – General Route Impacts

Table 2 – Land Cover

Table 3 – Federal, State, Local, and Tribal Lands

Table 4 – Distances of Schools, Daycare Centers, and Hospitals from ROW Centerline

Table 5 – Distances of Residential Buildings from ROW Centerline

Table 6 – Route Impact Summary

In general, the information contained within these tables was developed from a combination of sources including available reference data, aerial imagery, and field observations along the Project routes. These sources were utilized to quantify impacts using GIS software. ATC has acquired Pictometry aerial imagery, which is a licensed, imagery-based system that provides high resolution traditional orthophography and two- or four-way oblique views of the ground surface. National Agriculture Imagery Program imagery, acquired in 2017, was also used.

Impact tables display the Preferred and Alternative Routes. These routes were divided into multiple segments to facilitate analysis. The Preferred Route is comprised of segments A, B, and C. The Alternative Route consists of Segments A and D. The overhead OPGW installation along existing transmission line 13898 and work at the Cross Country and Pleasant View Substations are not included in these impact tables. These portions of the Project will occur completely within existing overhead transmission line ROW and facility footprints. Further detail related to land cover is provided in its respective section, below.

The Project route characteristics are included **Appendix B, Tables 1-6**, and are discussed in detail below.

Table 1 – General Route Impacts

The general ROW requirements and ROW sharing characteristics for the Project are presented in **Appendix B, Table 1**. GIS software was used to determine segment lengths and widths. The type and extent of existing ROW was determined from aerial photography review and field observations. In summary, the Preferred and Alternative Routes contain 60% and 0% Shared ROW Area, respectively.

- Segment A: This segment consists of an averaged Project Total ROW Width (97.5 feet) of two circuits. The Length is calculated down the middle of the two circuits. The ROW at the eastern extent of the segment is 80 feet wide and gradually widens to 115 feet wide at the western extent. The two centerlines diverge from a common point at the eastern extent to 35 feet apart at the western extent where the circuits transition to underground at proposed riser structure locations. This segment totals approximately 0.62 acres, all of which is considered New ROW Area.

  Although much of this segment (84%) overlaps existing ROW features, these features occur perpendicular to the proposed route. These features include (1) an existing transmission line, (2) the existing and proposed extent of CTH M, and (3) a distribution line crossing. Because these features cross perpendicular to the segment they are not included in the Existing ROW calculations.

- Segment B: The Project Total, Existing, and Shared ROW Widths vary between 20-40 feet along this 1.0 mile segment. Therefore, widths have been averaged (24 feet). The required ROW for this segment is generally 20 feet wide where it occurs within the proposed CTH PD expansion project, 30 feet wide around proposed manhole locations, and 40 feet wide elsewhere. This segment totals approximately 2.90 acres, of which 2.75 is considered Shared ROW Area.

- Segment C: This segment is 40 feet wide over a length of 0.2 miles. This segment consists of completely new ROW for an area of approximately 1.04 acres.

- Segment D: This segment is generally 40 feet wide over a length of 1.2 miles. This segment consists of completely new ROW for an area of approximately 5.73 acres.

Table 2 – Land Cover

Land cover along the proposed routes was identified using a combination of aerial imagery, proposed CTH PD and M datasets, and field observations where access was available. Field observations of the route included surveys completed during separate mobilizations in April, June, July, and December 2017. Fieldwork included wetland delineations and direct land cover observations. Land cover was digitized into a GIS layer to quantify the area by category within the proposed project ROW. The land cover categories correspond to those specified in **Appendix B, Table 2.** The acreages of each land cover type were quantified within the Project ROW corridors. The resulting acreages are summarized within the table by land cover category for each segment.

Land cover for the Preferred Route is predominantly non-specialty agricultural crop land (39.47%). This is followed by, in order from greatest to least percent land cover, developed/urban (28.51%), upland forest (26.97%), grasslands (4.82%), and non-forested wetland (0.44%).

Land cover for the Alternative Route consists of a higher ratio of non-specialty agricultural crop land (73.43%) and significantly less developed/urban (6.76%) land cover. Other land cover along this route includes upland forest (10.06%), grassland (9.43%), and non-forested wetland (0.31%).

In summary, the Preferred Route and Alternative Route contain 4.56 and 6.36 acres of land, respectively. The Preferred Route contains approximately 2.87 less acres of non-specialty agricultural crop land, 0.87 acres more of urban/developed land, and 0.59 acres more of upland forest than the Alternative Route. Grassland cover is similar between the two route options and non-forested wetland cover is the same.

Table 3 – Federal, State, Local and Tribal

The State of Wisconsin Version 3.0.0 Parcel Dataset was used to identify federal, state, local, and tribal lands along the Project ROW. Road ROW was not included in this evaluation.

Land currently owned by the city of Verona is present on a portion of the Preferred (Segment C) and Alternative (Segment D) routes. This information is provided in **Appendix B, Table 3.**

Table 4– Distances of Schools, Daycare Centers and Hospitals from ROW Centerline

The presence of sensitive receptors (schools, daycare centers, nursing homes, and hospitals) within 300 feet of the Preferred and Alternative Route centerlines were determined using GIS measurements and field verification methods.

No schools, daycare centers, or hospitals occur within 300 feet of the proposed Project's centerlines. This information is provided in **Appendix B, Table 4**.

Table 5 – Distances of Residential Buildings from ROW Centerline

Residential building types (homes and apartments) and the distance of these buildings from the centerline were determined using GIS measurements on aerial/streetview photography and are provided in **Appendix B, Table 5.** Building counts were field verified during 2017 field visits. Residential buildings were tallied according to five distance categories from the ROW centerline: 0–25 feet, 26–50 feet, 51–100 feet, 101–150 feet, and 151–300 feet.

No residential buildings were present within 300 feet of Segments A, C, and D.

Ten total homes were present within 300 feet of Segment B. Of these, two homes occur within 0-25 feet, four homes within 51-100 feet, and four homes within 151-300 feet. ATC assumes that the two residential buildings present within the 0-25 foot buffer will be cleared prior to project initiation related to the CTH PD road expansion project.

In summary, ten total homes and no multi-family buildings are currently within 300 feet of the Preferred Route. It is anticipated that this number will be reduced to eight. No residential buildings are within 300 feet of the Alternative Route. The Project will be designed and constructed to comply with state and federal electrical codes.

Table 6 – Route Impact Summary

Appendix B, Table 6 presents a summary of impacts along the Preferred and Alternative Routes. Total route length and ROW acreage, upland and wetland acreage within the Project ROW, and residential buildings within 300 feet of the route centerline are provided in this table. No new analyses were performed to complete this table as it simply summarizes **Appendix B, Tables 1-5**. Thus, the methodologies are the same as those described within previous table descriptions.

5.5 Construction Impacts

5.5.1 Construction Sequence

Construction of the transmission line requires several different activities at any given location. Section 5.5.2 generally describes the major construction activities and approximate sequence for the overhead portion segment A and OPGW installation, along with the anticipated impacts associated with each activity. Section 5.5.3 generally describes the major construction activities and approximate sequence for the underground transmission line portion of the Project.

5.5.2 Construction Impacts by Phase

Surveying and staking of ROW

This activity will have minimal impact, typically completed by a two-person crew travelling by foot, ATV, or pickup truck.

Clearing of ROW

To facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line, all vegetation will be cleared for the full width of the ROW. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, harvesters, or by hand. Root stocks will generally be left in place, except in areas where stump removal is necessary to facilitate the movement of construction vehicles or required by the landowner. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth.

Temporary staging of poles and other materials along ROW

This activity will have minimal impact. Trucks, loaders, and cranes are needed to unload poles and other materials near each work location.

Installation of erosion control Best Management Practices (BMPs)

BMPs will be location specific and installed prior to all anticipated ground disturbance. Where unexpected ground disturbance occurs, BMPs will be installed immediately after the disturbance occurs.

Foundation installation and/or excavation for transmission structures

Excavation or drilling is required for all structures whether they are direct-embedded or reinforced concrete foundations.

In general, the excavated holes for each type of foundation will range from 6 to 9 feet in diameter and may be 20 to 30 feet in depth or greater depending on soil conditions. The

method of installation, diameter, and depth of the foundation will vary depending on the soil capability and structure loadings.

- For direct-embedded poles (no concrete foundation required), a hole is excavated to the appropriate depth. The base of the structure is placed into the excavated hole, and the area around the pole is backfilled with clean granular fill.

- For structures requiring a reinforced concrete foundation, a hole is drilled or excavated, and a rebar cage and anchor bolts are placed into the excavation. The excavation is then filled with concrete to a point where the rebar cage and anchor bolts are covered leaving a typical one to two feet reveal of the foundation above-grade with exposed threaded anchor bolts. The complete caisson is allowed to cure.

Structure setting

After the direct-embed base is set or the foundation is cured, the remainder of the steel pole structure (or sections) is mounted to the base. Typical equipment used for this phase of construction includes cranes, bucket trucks, pickup trucks and dump trucks.

Wire stringing and clipping and OPGW installation

After all the structures within a wire pull segment are set (applied to both wire and OPGW installation), the wires are pulled and clipped into place. This requires access to each structure and is typically done by a bucket truck. Wire set up areas containing reel trailers, wire pullers, and related equipment are located at each end of the wire pull. In the location where the OPGW installation is occurring, the existing shield wire will be placed in dollies and then used to pull in the new OPGW.

Cleanup and Restoration of ROW

Upon completion of construction, cleanup and site restoration is completed. This includes removing construction mats, and other material or debris from the ROW, and any necessary seedbed preparation and seeding. Typical equipment for these activities includes mat trucks, bobcats, pickup trucks and other light duty vehicles.

Transmission line construction will be confined to the ROW, the access routes, and the laydown and staging areas. ATC will utilize existing roads or ROW and arranged access locations where roadways are not present. Most disturbances will likely occur in the area immediately surrounding transmission line structures. In areas where access cannot be gained from existing roads, some disturbance from vehicular traffic may also occur. Disturbance at these areas may include clearing of vegetative cover, soil compaction, vehicular tracking, and some topsoil disturbance.

5.5.3 Unique Construction Methods (Underground Line Construction)

Surveying and staking of ROW

This activity will have minimal impact, typically completed by a two-person crew travelling by foot, ATV, or pickup truck.

Clearing of ROW

To facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line, all vegetation will be cleared for the full width of the ROW. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, harvesters, or by hand. Root stocks will generally be left in place, except in areas where stump removal is necessary to facilitate the movement of construction vehicles or required by the landowner. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth.

Installation of erosion control BMPs

BMPs will be location specific and installed prior to all anticipated ground disturbance. Where unexpected ground disturbance occurs, BMPs will be installed immediately after the disturbance occurs.

Grading, Matting, Trench excavation, Duct bank installation and Backfill

Grading is needed to prepare for the installation of the duct bank. Initially topsoil will be stripped and stockpiled in windrows adjacent to the work area. The topsoil will be used during trench backfill and restoration. Matting will be installed in the area where the trench excavator is working and some grading may occur to create level area for working road for dump truck and concrete truck traffic. Additional matting is installed where needed.

The trench is typically excavated to a six foot depth and six foot width to allow for the installation of the duct bank. The trench is maintained open long enough to install the duct bank package by use of shore boxes. De-watering may be needed during rain events or if high groundwater is encountered. The material excavated will be hauled away and properly managed for disposal. Backfill occurs in tandem with the trench excavation, thereby minimizing the amount of open trench at any one time.

Backfill material is typically an engineered material and is topped with a stored topsoil and used for restoration.

Grading, trench excavation and backfill is typically performed with dozers, excavators, dump trucks, graders, concrete trucks, bobcats, and other equipment.

Temporary staging of trench box and other materials along ROW

This activity will have minimal impact. Trucks, loaders, and cranes are needed to unload shore boxes, PVC ducts, spacers, and other materials near each work location. Materials are stored for a minimal time and typically placed directly in the trench when they are used.

Access manhole installation

Access manholes are installed at locations primarily where it is necessary to install and splice conductors. The factors contributing to necessity and location of access manholes along the route are: allowable pulling tension on the conductor, sidewall pressure on the cable in traversing a bend and maximum cable footage that can be transported on a reel (width, height and weight).

Manhole locations are excavated, and subsoils removed from the site to allow for installation of the manholes. A structural gravel base is installed. The pre-cast concrete access manhole is brought to the site in sections and lowered into the excavation and assembled in place. Once the access manhole is assembled, the excavation around the access manhole is filled with an appropriate clean granular material (or lean concrete mix) and the subsurface and surface material replaced.

Cable Installation and Testing

Following the installation of duct banks and access manholes, the XLPE cables are installed inside the 6-inch-diameter PVC conduits. The cable is typically pulled from access manhole to access manhole along the route until the cables are installed in the entire duct bank between the riser structure and the substation. The conductors are pulled through the access manhole into the PVC conduits to the next access manhole by means of a puller, which is sized for the conductor being pulled and tension required on the installed conductor. Once all (or a segment of) cables are installed, the individual cable segments are spliced together at the access manhole locations, creating the individual circuit phases. An area around the access manhole will be blocked off during cable splicing to complete the cable splices.

A field jacket integrity test will be performed to verify the outer jacket was not damaged during cable pulling. After the splices and terminations are complete, a partial discharge (PD) test with a maximum of a potential of 1.7 times nominal line-to-ground voltage will be performed for each cable. The partial discharge level monitoring will be made at all cable accessory locations including joints and terminators. A 24-hour AC cable soak test at rated voltage may also be performed.

Cleanup and Restoration of ROW

Upon completion of construction, cleanup and site restoration is completed. This includes removing construction mats, and other material or debris from the ROW, and any necessary

seedbed preparation and seeding. Typical equipment for these activities includes mat trucks, bobcats, pickup trucks and other light duty vehicles.

Transmission line construction will be confined to the ROW, temporary ROW, the access routes, and the laydown and staging areas. ATC will utilize existing roads or ROW and arranged access locations where roadways are not present. Most disturbances will likely occur in the area immediately surrounding the trenched duct bank, manholes, and riser structures. In areas where access cannot be gained from existing roads, some disturbance from vehicular traffic may also occur. Disturbance at these areas may include clearing of vegetative cover, soil compaction, vehicular tracking, and some topsoil disturbance.

5.5.4 Substation Construction Impacts

All work at the Cross Country and Pleasant View Substations will occur within the existing fence line.

Northern Lights Substation Impacts

All site grading and stormwater management will be the responsibility of Epic.

Construction within the newly created substation pad will consist of drilled pier foundations ranging in size from three to five feet in diameter and 10 to 25 feet deep, which will be installed to support transmission line termination structures, static masts, and bus and equipment supports. Slabs-on-grade that are up to two feet thick and eight feet square will be used for circuit breakers, and the 24 foot by 36 foot control building will be supported by a perimeter wall up to five feet deep set on a spread footer with pier supports, if required. Conduits for control and communication cables and grounding conductor will be installed prior to the placement of the final layer of crushed rock surfacing. The ground grid will be installed 24 inches below-grade throughout the substation pad.

5.6 Staging Areas and Temporary Work Space

Staging Areas

ATC has identified six potential construction laydown (staging) areas for the Project. A site map of the laydown areas is provided in **Appendix A, Figure 6**. These areas were chosen because of their proximity to the Project ROW and known availability. All proposed laydown yards are located within urban/developed land use within either existing graveled areas or are located at existing ATC substation facilities. If additional laydown areas are required, ATC will notify the Commission of these new construction locations and will submit the necessary information to the PSCW prior to establishing any such areas in accordance with Wis. Admin. Code § PSC 111.71.

The following laydown areas are proposed:

- Laydown 1: 2400 Erb Road
- Laydown 2: Pleasant View Substation
- Laydown 3: Cross Country Substation
- Laydown 4: Proposed Northern Lights Substation
- Laydown 5: 602 Northern Lights Road
- Laydown 6: 4373 N. Pleasant View Road

Temporary Work Space

To successfully complete underground line construction, temporary work space beyond the proposed ROW is required. This temporary work space generally extends approximately 75 feet south of Segments B and D, and 100 feet east of Segment C. In certain circumstances, the temporary work space is extended north to the existing road ROW or its width narrowed for limited distances to prevent further disruption of residential homes and intact forested lands.

These widths are necessary to allow for construction vehicle traffic, material storage, and segregated topsoil stockpiles. The additional 25 feet required along Segment C is due to the presence of steep slopes, rocky outcroppings, and forested land that may present work space constraints. All required temporary construction zones are identified on **Appendix A, Figure 4A**.

Temporary work spaces consist of the following land cover types: non-specialty agricultural row crop (16.63 acres, 65.6%), upland forest (3.28 acres, 12.9%), developed/urban (3.98 acres, 15.7%), and grassland (1.46 acres, 5.8%).

No temporary work spaces are required for the overhead portions of Segment A and the OPGW.

5.7 Off ROW Access Roads

Based on a preliminary field review of the Project corridor, ATC has not identified any locations where access from outside the Project ROW and its proposed temporary work space will be required. ATC intends to access the Project along these proposed work areas directly from public roads that intersect the Project, unless the contractor can arrange for voluntary alternative access that minimizes cost, environmental impacts, or landowner impacts. If required off-ROW paths are identified, ATC will complete an environmental review of these paths and submit the necessary information to the PSCW prior to establishing any such areas in accordance with Wis. Admin. Code § PSC 111.71.

If off-ROW access routes are obtained, they will be restored to pre-construction conditions following construction. Depending upon landowner negotiations and requirements, any improvements made to the access paths may be left in place.

5.8 Substation Site Information

5.8.1 Description, Diagrams, Graphics

Northern Lights Substation

The new 138 kV transmission-distribution substation will be constructed using a 138 kV segmented straight bus scheme consisting of a bus tie circuit breaker and two line circuit breakers. This will be constructed inside a fenced area measuring 305 feet by 235 feet. The proposed layout for the substation equipment and vertical profile drawings are provided in **Appendix C, Figures 3** and **4,** respectively.

The existing line 13898 from Pleasant View to Cross Country will be cut near the Cross Country Substation and transition underground for the route to the Northern Lights Substation and retain the designation 13898.

The new circuit, Line X-121, will run underground back toward Cross Country Substation where it will transition back to overhead via a riser structure before terminating at the substation.

ATC will provide two 138 kV transmission bus connections to Epic's facilities; design and installation of all other Epic owned facilities will be the responsibility of Epic.

An interior fence will separate the ATC transmission and Epic facilities.

In addition, the following facilities will be installed:

- Two underground riser structures with foundations to terminate the feed lines with space reserved for a future third;
- A new control building on the north side of the yard complete with auxiliary systems to house all necessary protection and control, communication and SCADA equipment;
- Protection and control panels for the two line terminal breakers, breaker protection and bus protection;
- Underground fiber-optic communications and SCADA equipment for system protection, remote control, and monitoring of the substation;
- Disconnect switches, bus work, lightning protection structures, instrument transformers, surge arresters, and all appurtenances for a complete substation installation.

Cross Country Substation

The existing power line carrier equipment, including the protection panel, wave trap and line tuner, will be removed.

A new protection and control panel will be installed to replace the existing Line 13898 panel to protect the new Line X-121 to the Northern Lights Substation.

A new fiber optic communications path to the Northern Lights Substation will be installed for network and relay communications.

Pleasant View Substation

The existing power line carrier equipment, including the wave trap and tuner, will be removed.

New OPGW will be installed between the Pleasant View and Northern Lights Substations for network and relay communications.

The existing wall mount IT cabinet will be replaced with a new freestanding IT cabinet.

6.0 NATURAL RESOURCE IMPACTS

6.1 Forested Land

6.1.1 Impacted Woodlands

Forested areas along the routes were quantified as part of the impact analysis (Section 5.4) and the resulting acreages are provided in the Land Cover table (**Appendix B, Table 2)**. Forested lands are defined as areas where mature trees are present forming mostly closed stands (>20% canopy cover and trees with diameter at breast height (dbh) of six inches or more). Narrow tree lines (i.e., wooded fence rows or windbreaks) are not included as forested cover.

All forested land impacts associated with the Project occur in upland areas. In summary, these impacts include 0.50 acres along Segment B, 0.73 acres along Segment C, and 0.64 acres along Segment D.

The following tree size classification system was used:

- Saplings refer to live trees from one to five inches dbh;
- Pole timber ranges from five to nine inches dbh (softwoods) and from five to 11 inches dbh (hardwoods);
- Saw timber is greater than nine inches dbh (softwoods) and greater than 11 inches dbh (hardwoods).

Along Segments B and C, the forested land is comprised of spruces (*Picea* spp.), oaks (*Quercus* spp.), red pine (*Pinus resinosa*) and black cherry (*Prunus serotina*), primarily of pole timber size. The understory is comprised of weedy and invasive shrubs including honeysuckle (*Lonicera* spp.) and common buckthorn (*Rhamnus cathartica*). All woodland is contained on private property as the roadside has been maintained free of woody vegetation. It does not appear that the landowners conduct any silvicultural activities on their properties.

Along Segment D the dominant tree species is burr oak (*Quercus macrocarpa*) with a significantly invaded understory of honeysuckle and common buckthorn. These oak species range in size from pole timber to saw timber classification. All woodland is contained on private property. Due to the age and open growth of oak species it does not appear that the landowners conduct any silvicultural activities on their properties.

6.1.2 Managed Forest Law and Forest Crop Law

ATC obtained information from the WDNR identifying quarter-quarter (40-acre) sections in which all or some portion of the land is enrolled in the Managed Forest Land or the Forest Crop Law programs. According to this information, no parcels located on route segments are enrolled in either of these programs.

6.1.3 Mitigating/Minimizing Construction Impacts in and Around Forested Lands

The Project will require the clearing of woody vegetation within the Project's ROW and temporary work locations. Woody vegetation that may interfere with safe construction and safe and reliable operation of the transmission line (both above- and below-grade) will be removed as needed within the ROW for construction of the Project and managed through the operational life of the facility. Woody vegetation that must be removed for temporary workspace requirements will be allowed to revegetate naturally.

Section 6.5 (Rare Species and Natural Communities) explains recommended timing restrictions that ATC has committed to following to avoid impacts to rare species. Section 6.6 (Invasive Species) explains tree clearing timing restrictions and slash management procedures to prevent the spread of invasive species and disease-causing organisms.

6.2 Grasslands

6.2.1 Grasslands Impacted by the Project

Grasslands are classified as any undeveloped landscape dominated by herbaceous (non-woody) vegetation, including prairie, pasture, old field, etc. Grassland areas along the Project segments were quantified as part of the impact analysis (Section 5.4) and the resulting acreages are provided in the Land Cover table in **Appendix B, Table 2**. In summary, grasslands cover 0.19 acres along Segment A, 0.02 acres along Segment B, and 0.40 acres along Segment D.

All grasslands to be impacted by the Project are associated with non-wooded agricultural fence rows (private) and maintained roadsides (public). These grasslands would be considered old field community types where their use is for marking the edge of a parcel or aesthetic.

Dominant species in these grasslands include cool season grasses dominated by smooth brome (*Bromus inermis*), bluegrasses (*Poa pratensis, P. compressa*), and fescues (*Festuca* spp.). The dominant flowering plants include wild parsnip (*Pastinaca sativa*), Queen Anne's lace (*Daucus carota*), and other weedy species.

6.2.2 Mitigating and Minimizing Construction Impacts in and Around Grasslands

Grassland impacts may be minimized by using carefully planned access routes and use of tracked equipment or matting. Section 6.6 (Invasive Species) explains best management practices that will be followed to prevent the spread of invasive species. Section 6.9 (Restoration of Disturbed Areas) explains post-construction practices that will occur to facilitate successful restoration.

6.3 Wetlands

6.3.1 Proposed Wetland Crossings

A Wetland Delineation Report published in April 2018 was provided to the WDNR Office of Energy staff for concurrence that the wetland boundaries as depicted in the report accurately represent the conditions in the Project area. Further, the report demonstrates that the Project, as proposed, will not impact wetlands or waterways. On April 17, 2018, ATC received concurrence from the WDNR Office of Energy that no wetlands or waterways will be impacted by project activities. This correspondence is provided as **Appendix G, Exhibit 2**.

ATC determined that 0.02 new ROW acres of non-forested wetland (a seasonally flooded, agricultural basin) occurs along Segment A. This wetland will not be impacted, but this segment's right-of-way will include a portion of it.

Additional wetlands and one waterway are located within the vicinity of the Project but are not located along the Project's proposed ROWs. No project activities, including access or use of bridges, are proposed at these locations.

6.3.2 Structures within Wetlands

No temporary or permanent structures are proposed within wetland boundaries. No temporary or permanent wetland impacts, including access or temporary work areas, are proposed. As stated in Section 6.3.1, concurrence of the wetland delineation report by the WDNR Office of Energy was received on April 17, 2018. This correspondence is provided as **Appendix G, Exhibit 2**.

6.3.3 Mitigating Construction Impacts In and Near Wetlands

The Project will avoid all wetland impacts, per the wetland delineation report reviewed and concurred with by the WDNR Office of Energy. Portions of the Project do occur in proximity to wetland and waterway areas. Erosion control BMPs and ATC's standard environmental protection practices will be used to mitigate the risk of sedimentation into these resources.

6.3.4 "Significant" or "High-Quality" Wetlands

No "significant" or "high-quality" wetlands are present along the proposed project routes. No wetlands will be permanently or temporarily impacted by the proposed Project.

6.4 Waterbodies/Waterways (See Section 8.0 for additional information)

No waterbodies or waterways are present within the proposed Project limits.

6.5 Rare Species and Natural Communities

An Endangered Resources (ER) Review was submitted to and reviewed by the WDNR Bureau of Natural Heritage Conservation on July 16, 2018 (ER Log #17-640). Due to the confidentiality requirements for the Wisconsin Natural Heritage Inventory (NHI) data, a redacted copy of the

ER Review is included in **Appendix F, Exhibit 1**. The ER Review summarizes all state-listed rare species, natural communities, and other natural features with element occurrence records within one mile of the Project corridor for terrestrial and wetland occurrences, and within two miles for aquatic occurrences. In addition to providing an inventory of rare species and communities, the ER Review also outlines the required follow-up actions necessary to protect threatened and endangered animal species, federally-listed plants and animals, as well as the recommended follow-up actions to help conserve rare species, communities, or other natural features that are not legally protected or are exempt from protection (i.e. special concern animal species, threatened, endangered, and special concern plant species, and natural communities).

The finalized ER review for this project does not contain any required actions. Recommended actions include:

- Seed non-managed (i.e. cropland, road ROWs) project areas with native flowering species during restoration;
- Limit ground disturbance wherever practicable; and
- Clear/trim any required trees outside of the June 1 – August 15 timeframe.

See Section 9.0 for further discussion.

6.6 Invasive Species (Uplands and Wetlands)

6.6.1 Invasive Species/Disease-Causing Organisms

Project areas were evaluated for invasive plant species during field investigations conducted during the 2017 growing season. The general location and composition of dominant invasive plant species present along Project areas were identified and noted on field maps during wetland delineations and associated natural resource field surveys.

Invasive plant species were commonly observed along the Project's roadsides and fence rows. Overall, nine invasive plant species were noted, all falling into the "Restricted" category of Wis. Admin. Code ch. NR 40. There were no "Prohibited" species identified. The observed species include:

- Black locust (*Robinia pseudoacacia*);
- Canada thistle (*Cirsium arvense*);
- Common buckthorn (*Rhamnus cathartica*);
- Crown vetch (*Coronilla varia*);
- Garlic mustard (*Alliaria petiolata*);

- Honeysuckle (*Lonicera* spp.);
- Leafy spurge (*Euphorbia esula*);
- Multiflora rose (*Rosa multiflora*);
- Wild parsnip (*Pastinaca sativa*).

The Project's location within Dane County is located within established Oak wilt (*Ceratocystis fagacearum*), quarantined Emerald ash borer (*Agrilus planipennis*), and quarantined Gypsy moth (*Lymantria dispar*) areas. Oak species were identified along Segments B, C, and D where upland forest impacts have been noted on **Appendix B, Table 2 – Land Cover**.

6.6.2 Mitigation Methods

BMPs will be used to comply with Wis. Admin. Code ch. NR 40 and Commission requirements. The intent of these practices is to prevent the introduction of invasive species to uninfected areas and limit the spread of invasive species already present onsite. Additionally, these practices will minimize the potential introduction, spread or transport of invasive species to off-site locations. General BMPs that may be used during construction are presented below.

- Avoidance through construction timing and alternative access;
- Proper management of construction vehicles and materials (i.e. storage, cleaning);
- Minimizing ground disturbance;
- Placing a barrier between construction vehicles and plants (i.e. construction matting);
- Proper storage and disposal of plant materials; and
- Promoting native regeneration.

To minimize the spread of oak wilt, ATC will avoid cutting or pruning oak trees during the restricted times outlined in Wis. Admin. Code § PSC 113.051 (April 15 – July 1). To maintain compliance with a rare species, ATC will extend this time period to August 15.

If encountered, ATC will follow standard practices that minimize the spread of emerald ash borer, including avoiding the movement of ash wood from emerald ash borer quarantine areas to non-quarantine areas, as per Wis. Admin. Code § ATCP 21.17. Similarly, standard practices to avoid the spread of the gypsy moth include avoiding movement of wood from gypsy moth quarantine areas to non-quarantine areas, as per Wis. Admin. Code § ATCP 21.10. If cut vegetation cannot be left on-site, alternative plans will be developed to meet the requirements.

6.7 Historic Resources

6.7.1 Construction Location List

The Project areas are located within the cities of Madison and Verona, and the Town of Verona, Dane County, Wisconsin. The proposed routes (Segments A-D) are located in T6N, R8E, Sections 9 and 10. The proposed Line 13898 activities are located in T7N, R8E, Sections 22, 27, and 34.

The Project construction location list is provided in **Appendix A, Exhibit 1**.

6.7.2 Wisconsin Historic Preservation Database Results

Pursuant to Wis. Stat. § 44.40, a review of the Project area and its one-mile buffer was conducted to determine the potential presence of archaeological and historic sites. ATC contracted Cardno, Inc. to conduct an archival and literature review of cultural resources, architectural/historic resources, and previously recorded archaeological and burial sites along the proposed route segments, existing transmission line corridor, and laydown yard portions of the Project. To assess the potential effects of the Project on archaeological sites, cemetery or burial sites, and architectural/historic resources, the Archaeological Site Inventory, the Architecture and History Inventory and associated files, and the national and state registers of historic places were reviewed.

According to this review, two known archaeological resource sites are located within the proposed project area:

- Site 1: The site is considered not eligible for inclusion in the National Register of Historic Places. This site has been largely or completely destroyed by a 2012 Phase II trenching project. Therefore, the site is not likely to be negatively impacted by the Project.

- Site 2: The site is considered to not be impacted by the Project as all work activities within the proposed laydown yard will be conducted on existing, paved surfaces. Markings and barricades will be placed in the field to warn contractors to avoid all access off paved surfaces.

According to this review, no known historic architectural sites are located within the one-mile buffer of the proposed routes. Historic buildings do occur within the buffer of the existing Line 13898 transmission line, however, modifications to the existing transmission line will not impact these resources.

A copy of the Historic Resources Review conducted by Cardno, Inc. has been submitted to the PSCW Historic Preservation Officer under separate cover.

6.7.3 Project Impacts and Mitigation Measures

Of the two historical resources identified within the Project area, only one is considered still present. To avoid impacts to this resource, all work activities will be conducted on existing, paved surfaces. Markings and barricades will be placed along the paved lot's edges to prevent

contractors from entering avoidance areas. This site will be routinely inspected by ATC's environmental monitor to ensure compliance, and contractors will receive training prior to project activities.

6.8 Conservation Easements

No conservation easements have been identified based on a review of conservation easement data available from the National Conservation Easement Database, Protected Areas Database of the United States, The Nature Conservancy Lands, the Wisconsin Department of Natural Resources and the Wisconsin Department of Agriculture Natural Resources Conservation Service Easements.

The title search information has not been completed for the Project. Upon receipt of a PSCW Decision and Order, title searches will be completed. If additional information regarding conservation easements is discovered during the easement acquisition process, ATC will work with the landowner to accommodate the existing agreement or make them whole.

6.9 Restoration

Type of Re-vegetation Proposed

Site restoration, including re-vegetation where necessary, will be completed as soon as practicable upon completion of transmission line construction. The actual restoration activities completed will depend on post-construction site conditions and landowner concerns. In areas where seed is needed to facilitate re-vegetation, the seed mix used will be appropriate to the surrounding area and similar to pre-construction conditions, and the seedbed will be adequately prepared to promote successful germination. Seed mixes will not contain invasive species.

In some cases, re-growth of vegetation in disturbed areas may be allowed to occur without supplemental seeding. Areas that are currently in agricultural production will not be seeded and may be closed out following soil conditioning to remove compaction.

Vegetative Monitoring Criteria

During active construction, inspections will be conducted to monitor re-vegetation and restoration activities in accordance with Wis. Admin. Code Ch. NR 216 and the Wisconsin Pollution Discharge Elimination System (WPDES) general permit conditions. Documentation of the inspection will be maintained describing the re-vegetation progress and corrective measures taken, if applicable. Upon completion of restoration, ATC will monitor each work location and access route to ensure stabilization and re-vegetation occurs. If regulated by Wis. Admin. Code ch. NR 151, monitoring will continue until vegetative cover reaches 70% of pre-existing coverage conditions.

Invasive Species Monitoring and Management (see Section 6.6)

The invasive species located along the Project corridor, and the BMPs to avoid the spread of invasive species, are discussed in Section 6.6.2.

7.0 COMMUNITY IMPACTS

7.1 Communication with Potentially Affected Public

Throughout the early portions of Project development, ATC held multiple in-person meetings with various stakeholders to elicit feedback on different routing options and potential impacts. Because of the short distance for the Project and comparatively small number of potentially impacted landowners, and given ATC's advanced outreach efforts, no open houses or public information meetings were held for the Project.

ATC sent letters and study area maps to all potentially impacted landowners on the Preferred and Alternative routes, including those landowners within 300 feet of either route centerline. The letters were sent with an invitation to meet with those landowners at a time and place convenient for them to discuss the project. (see **Appendix H, Exhibit 1**, for copies of the letters and map)

No written public comments were elicited or received from any Project stakeholders at the time of filing this Application. As of the filing, all stakeholders who communicated with ATC have expressed appreciation for the intent to place this line underground and have all favored the Preferred Route option while expressing various concerns for the Alternative Route due to current and future impacts to their property.

7.2 Community Issues

ATC is not aware of any specific community issues. However, the company will monitor concerns throughout the Project and respond accordingly. ATC anticipates that any issues, if raised, will largely relate to construction traffic, property access, and restoration. ATC will work with all stakeholders for the duration of the Project to address and minimize the impacts of these issues.

7.3 Land Use Plans

Existing land use plans are provided in **Appendix A, Figure 7.**

7.4 Agriculture

7.4.1 Type of Farming

Agricultural farming types by route segment are noted in Appendix B, Table 2 – Land Cover. No specialty agricultural land use is present along the proposed project routes.

Segment A contains approximately 0.14 acres of non-specialty, agricultural cropland. Segment B contains approximately 1.59 acres of non-specialty, agricultural cropland, the majority of which will be impacted by the expansion of CTH PD that is occurring in alignment with the proposed Project. Segment C contains approximately 0.07 acres of non-specialty, agricultural cropland. Segment D contains approximately 4.53 acres of non-specialty, agricultural cropland.

7.4.2 Agricultural Practices affected by the Project

All route segments and the existing Line 13898 contain portions of land use that are currently within non-specialty agricultural row crop. No irrigation systems are present within the proposed project areas. Drainage tile may be present but has not been confirmed. Temporary impacts during construction may include crop loss, soil compaction, and damages to drainage tiles. ATC will work with landowners to address drain tile concerns post-construction.

A majority of the Preferred Route will not impact agricultural practices as it aligns with the expansion of CTH PD.

The only permanent impact to agriculture will occur along Segment A where two new riser structures on foundations are proposed to be installed within an agricultural field.

7.4.3 Farmland Preservation Program

The number and size of parcels enrolled in the Farmland Preservation Program (FPP) along each route were identified from a database obtained from DATCP. The database lists landowners who have voluntarily filed an individual FPP agreement with DATCP.

No parcels with individual FPP agreements exist along either of the two routes associated with this Project. The project is located in areas that do not have farmland preservation zoning.

7.4.4 Mitigation of Construction Impacts – Agricultural Lands

As a standard practice, ATC seeks to minimize construction impacts on agricultural lands. ATC accomplishes this by using the following techniques: completing construction during dry or frozen conditions; the use of equipment with low ground pressure tires or tracks; placement of construction matting to help minimize soil and vegetation disturbances and distribute axle loads over a larger surface area; or the use of ice roads.

Because underground construction activities require a significant amount of ground disturbance, topsoil segregation will be required. Soils will be side cast within the temporary disturbance work limits along Segments B and C, or D, during which topsoil will be separated and replaced following construction.

7.4.5 Agricultural Impact Statement; Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP)

ATC has consulted with representatives from DATCP and is submitting an Agricultural Impact Notification to DATCP concurrent with the filing of this Application.

7.4.6 Neutral-to-Earth and Induced Voltage

There are no confined animal dairy operations located within 0.5 mile of the Preferred or Alternative Route centerlines.

There are no active agricultural buildings located within 300 feet of the Preferred or Alternative Route centerlines.

Stray voltage testing is not needed as part of this Project. No induced voltage impacts are expected.

7.5 Residential and Urban Areas

There are 10 homes located within 300 feet of the ROW centerline on the Preferred Route and no homes within 300 feet of the ROW centerline on the Alternative Route. See **Appendix B**, **Table 5**.

Anticipated impacts to residences and the planned mitigation are described below:

Noise

A majority of the proposed transmission line is located in non-residential areas. The equipment noise levels of the laydown yards will be consistent with local truck traffic and equipment. The construction noise levels along the transmission line route including the substation sites will be equivalent to highway traffic and truck equipment throughout the remaining Project route.

Noise will be intermittent and not out of the ordinary for general truck traffic. Most truck and equipment noise will be from 7:00 am to 6:00 pm, Monday through Friday.

When undertaking construction activities around residences, ATC and its contractor will be cognizant of the residents and will limit work hours in that area, specifically during the early morning hours.

Dust

ATC and its contractor will be performing trench excavation along with other excavations and storing topsoil in windrows and using typical construction methods to reduce impacts from dust. In addition, ATC and its contractors will clean up daily any dirt or mud that may be tracked onto private driveways, access roads, local roads or the highway.

Duration of Construction

Depending on the PSCW Order date and route selected, construction is anticipated to begin in November 2019 and end several months after the Project is energized in the summer of 2021.

Time-of-Day Construction

Construction work will generally occur Monday through Friday during daylight hours. Weekend work is also a possibility. No night work is anticipated at this time.

Road Congestion

Construction vehicles will use public roads to access the ATC ROW. There may be occasions when construction vehicles are parked on roads during construction. ATC will minimize the number and amount of time vehicles are parked on roads. ATC will use appropriate current traffic control measures while equipment is on a public roadway.

Impacts to Driveways

The only driveways ATC and its contractor anticipate using are driveways for which ATC receives specific landowner permission to travel or park equipment. ATC will ensure residence driveways are not blocked with equipment.

7.6 Aesthetic Impacts

No photo simulations for the Project are being provided as a part of this Application. No scenic roads were identified within the Project area.

7.7 Parks and Recreation Areas

No park or recreational areas will be impacted by the Project. However, during construction, the proposed bike path may need to be temporarily closed near the intersection of CTH M during wire pulling activities.

7.8 Airports

7.8.1 Location of Private and Public Airstrips

ATC identified two public and private airports located within four miles of the Project area. A list of the airports/airstrips and their corresponding locations are provided in Table 7.8.1-1 below.

Table 7.8.1-1 Airport Information

Airport Name	Distance from Centerline (miles)	Type Airport / Use	City
Verona Airport (W19)	2.1	Airport / Private	Verona
Middleton Municipal Airport – Morey Field (C29)	2.9	Airport / Public	Middleton

7.8.2 Description of Airports

- The Verona Airport (W19) is a privately-owned airport in Verona, Wisconsin. The latitude/longitude of the airstrip is 42.9894667 N/89.5094778 W at an elevation of 960 feet. There are two runways. Runway 3/21 is a turf surface and is 2,190 feet long. Runway 4/22 is also a turf surface and is 1,897 feet long.

- The Middleton Municipal Airport - Morey Field (C29) is a publicly-owned airport in Middleton, Wisconsin. The latitude/longitude of the airstrip is 43.1142699 N/89.5315336 W at an elevation of 928 feet. There are two runways. Runway 10/28 is an asphalt surface and is 4,000 feet long. Runway 1/19 is a turf surface and is 2,000 feet long.

7.8.3 Impact to Aircraft Safety

After an evaluation of the three new above-ground transmission structures that will be installed for the Project, an FAA Notice of Proposed Construction or Alteration Form 7460-1 was filed with the FAA for the proposed structures. The FAA returned "No Hazard" results for all three structures (see **Appendix G, Exhibit 1**). The FAA aeronautical study revealed that none of the structures exceeds obstruction standards. None of the proposed structures will be a hazard to air navigation.

7.8.4 Potential Construction Limitations and Permit Issues

As described in the previous section, the FAA aeronautical study of the proposed structures returned a "No Hazard" determination. The structure heights filed with the FAA included an additional 30 feet of crane height for the Project. While the FAA determination did not include temporary construction equipment such as cranes, such equipment will not exceed the overall heights that were filed with the FAA application.

7.8.5 FAA Documentation

The FAA aeronautical studies were completed under Aeronautical Study Numbers 2018-AGL-13293-OE, 2018-AGL-13294-OE and 2018-AGL-13295-OE. The FAA study results are provided in **Appendix G, Exhibit 1.**

7.9 Communication Towers

The proposed underground transmission lines (on either the Preferred or Alternative Routes) are below ground and will have no impact to communication towers.

For the new overhead span (including riser structures) outside the Cross Country Substation and the proposed OPGW work on Line 13898, a communication tower interference study was performed by Electrical Consultants, Inc. (ECI). The study report is included in **Appendix D, Exhibit 2**. The following paragraphs summarize the interference study and the results.

To determine the types of communication towers near the project area, a search of available Federal Communications Commission (FCC) databases was conducted and all communication towers located within a 10 km (6.2 mile) range were identified. A location map showing all communication facilities within the 10 km range and accompanying tables which indicate facility type, owner, location, and distance to the proposed overhead line work can be found in **Appendix D, Exhibit 2**.

The type of communication tower/facility use and the condition of the high voltage transmission line determine the kinds of interference communication towers can encounter. Based on the types of communication facilities that were found within 10 km of the proposed transmission line routes, ECI concluded that interferences to communication facilities are not anticipated to be a concern as a result of the proposed transmission line work.

7.10 Community Income

This section is not applicable to this Project because the proposed facilities are designed for operation at less than 345 kV.

8.0 WDNR PERMITS AND APPROVALS

8.1 WDNR Tables for Wetlands and Waterways

On April 17, 2018, ATC received concurrence from the WDNR Office of Energy that no wetlands or waterways will be impacted by Project activities. Therefore, no WDNR Tables for Wetlands and Waterways are provided as a part of this Application. This correspondence is provided in **Appendix G, Exhibit 2.**

8.2 Wetland Practicable Alternatives Analysis

On April 17, 2018, ATC received concurrence from the WDNR Office of Energy that no wetlands will be impacted by project activities. Therefore, a Wetland Practicable Alternatives Analysis is not required.

8.3 Wetland Delineations

A Wetland Delineation Report published in April 2018 was provided to the WDNR Office of Energy staff for concurrence that the wetland boundaries as depicted in the report accurately represent the conditions in the Project area. Further, the report demonstrates that the Project, as proposed, will not impact wetlands or waterways. On April 17, 2018, ATC received concurrence from the WDNR Office of Energy that no wetlands or waterways will be impacted by Project activities. This correspondence is provided as **Appendix G, Exhibit 2**.

8.4 Mapping Wetland and Waterway Crossings

A Wetland Delineation Report published in April 2018 was provided to the WDNR Office of Energy staff for concurrence that the wetland boundaries as depicted in the report accurately represent the conditions in the Project area. Further, the report demonstrates that the Project, as proposed, will not impact wetlands or waterways. On April 17, 2018, ATC received concurrence from the WDNR Office of Energy that no wetlands or waterways will be impacted by project activities. This correspondence is provided as **Appendix G, Exhibit 2**.

Segment A's ROW includes 0.02 acres of non-forested wetland (a seasonally flooded, agricultural basin). This wetland will not be impacted by the Project.

Additional wetlands and one waterway are located within the vicinity of the Project but are not located along the Project's ROWs. No Project activities, including access or use of bridges, are proposed at these locations.

9.0 ENDANGERED, THREATENED, SPECIAL CONCERN SPECIES AND NATURAL COMMUNITIES

9.1 WDNR Endangered Resources (ER) Review

An ER Review was submitted to the WDNR Bureau of Natural Heritage Conservation on July 16, 2018 and approved on July 19, 2018 (ER Log #17-640). Due to the confidentiality requirements for the Wisconsin NHI data, a redacted copy of the ER Review is included in **Appendix F, Exhibit 1.**

9.2 NHI Occurrences

Appendix F, Exhibit 1, contains a redacted copy of the Certified ER Review that discusses all NHI element occurrence records based on a query of the WDNR NHI database on July 16, 2018.

A total of nine element occurrences were queried from the NHI database and are included in the ER Review. These records include one endangered plant species, one threatened mammal species, one threatened plant species, one special concern insect, one special concern mammal, one special concern reptile, one natural community type, one “other”, and one high potential zone for a special concern insect.

Based on the approved ER Review, no actions are required by ATC to comply with state and/or federal endangered species laws. Recommended measures and subsequent actions by ATC include:

- Seeding areas of disturbance within the insect high potential zone with a native flowing seed mix to support the species’ population;
- Limit vehicular access and below-ground disturbance as much as practicable in uncultivated fence rows near agricultural fields to prevent harm to the special concern mammal;
- Clear/trim any required trees outside of the June 1 – August 15 timeframe to prevent take of threatened mammal species
- Exclusion fencing and/or time-of year restrictions for the special concern reptile.

9.3 Results of Habitat/Natural Community Assessments and Biological Surveys

Field habitat characterization of Project areas was conducted in 2017. In addition to these field efforts, desktop resources were used to evaluate potential impacts to rare species as a result of this Project. ATC anticipates following the recommended actions outlined above in Section 9.2.