4906-5-07 HEALTH AND SAFETY, LAND USE, AND REGIONAL DEVELOPMENT

(A) HEALTH AND SAFETY

(1) Compliance with Safety Regulations

The construction, operation, and maintenance of the Project will comply with the requirements of applicable state and federal statutes and regulations related to safety, including requirements specified in the NERC Mandatory Reliability Standards and the National Electrical Safety Code (NESC), as well as those adopted by PUCO. Applicant will also comply with applicable safety standards established by the Occupational Safety and Health Administration (OSHA).

(2) Electric and Magnetic Fields

In accordance with the OPSB requirements specified in OAC 4906-5-07(A)(2), the following subsections provide an analysis of the electromagnetic field (EMF) associated with the Project.

(a) Calculated Electric and Magnetic Field Strength Levels

The following calculations provide an approximation of the magnetic and electric fields strengths of the proposed 138 kV transmission line at particular locations associated with the Project. The calculations provide an approximation of the electric and magnetic field levels based on specific assumptions utilizing the Electric Power Research Institute (EPRI) EMF Workstation 2015 program software.

Factors that affect the level of magnetic and electric fields that are considered in the modeling include variance in the daily and projected long-term transmission line loading, operating voltage, contingency operations, phase configuration, direction of current flows, conductor sag, ground elevation, unbalance conditions, and other nearby magnetic field sources or conductors of neutral current including water mains, metallic fences, and railroad tracks. Electric field computations used for this modeling also assume that shrubs, trees, buildings, and other objects are not in close proximity to the facilities, as they produce significant shielding effects. Finally, other transmission or distribution facilities near the transmission line will also affect the calculated fields. For example, a double-circuit loop configuration, with current flows in opposite directions, results in a partial reduction (cancellation) of the magnetic field levels.

The model and calculations used in this Application also include a number of assumptions including the following:

- Current flows are assumed in the direction expected under normal system operating conditions
- The location of transmission line poles, attached conductors and static wire, and line phasing are based on preliminary engineering layouts

- The calculated field levels assume a reference point approximately 3 feet (1 meter) aboveground.

Using these assumptions, three loading conditions were modeled for the proposed transmission line: 1) the winter normal conductor rating, 2) emergency line loading, and 3) normal maximum loading. The winter normal conductor rating represents the maximum current flow that the conductor can withstand during winter conditions. It is not anticipated that the transmission line would be operated at the winter normal conductor rating level of current flow. The emergency maximum loading represents the maximum current flow in the transmission line under unusual circumstances and only for a short period of times. The normal maximum loading represents the routine maximum loading that the transmission line would be operated. Daily current load levels would fluctuate below this level.

The transmission line loadings used in the calculations are presented in **Table 7-1**. The conductor configurations and right-of-way width are the same over the entire lengths of the Preferred and Alternate Routes. Field strengths were modeled for all configurations under consideration for the portions of both routes that would be within 100 feet of a residential structure, or would occupy more than 10% of the respective proposed route.

TABLE 7-1
Transmission Line Loadings

Line Name	Winter Conductor Rating (Amps)	Emergency Loading (Amps)	Normal Loading (Amps)
Midway-Brim 138-kV Transmission Line	1052	388.8	130.9
Lemoyne-Brim 138-kV Transmission Line	1052	392.3	328.8

One conductor configuration, the typical tangent (Exhibit 5-1A) - tangent (Exhibit 5-1A) configuration, is common to both routes and is present within 100 feet of an occupied residence. The calculated electric and magnetic fields for these configurations are shown in Table 7-2 and Table 7-3.

TABLE 7-2
EMF Calculations for a Typical Tangent (Exhibit 5-1A)-Tangent (Exhibit 5-1A) Span Configuration on the Wood County 138-kV Reinforcement Project Preferred Route (Midway-Brim)

Line EMF Calculations		Electric Field (kV/meter)	Magnetic Field (mGauss)
Normal Loading	Under Lowest Conductors	0.487	5.49
	At Right-of-Way Edge	0.283 / 0.351	3.77 / 3.98
Emergency Loading	Under Lowest Conductors	0.487	16.31
	At Right-of-Way Edge	0.283 / 0.351	11.21 / 11.85
Winter Rating	Under Lowest Conductors	0.487	44.14
	At Right-of-Way Edge	0.283 / 0.351	30.33 / 31.95

TABLE 7-3
EMF Calculations for a Typical Tangent (Exhibit 5-1A)-Tangent (Exhibit 5-1A) Span Configuration on the Wood County 138-kV Reinforcement Project Alternate Route (Lemoyne-Brim)

Line EMF Calculations		Electric Field (kV/meter)	Magnetic Field (mGauss)
Normal Loading	Under Lowest Conductors	0.487	13.8
	At Right-of-Way Edge	0.283 / 0.351	9.48 / 9.98
Emergency Loading	Under Lowest Conductors	0.487	16.46
	At Right-of-Way Edge	0.283 / 0.351	11.31 / 11.95
Winter Rating	Under Lowest Conductors	0.487	44.14
	At Right-of-Way Edge	0.283 / 0.351	30.33 / 31.95

The Preferred Route includes one other conductor configuration that is present within 100 feet of an occupied residence, the tangent (Exhibit 5-1A) – deadend (Exhibit 5-1D) configuration. The calculated electric and magnetic fields for these configurations are shown in Table 7-4.

TABLE 7-4
EMF Calculations for a Typical Tangent (Exhibit 5-1A)-Deadend (Exhibit 5-1D) Span Configuration on the Wood County 138-kV Reinforcement Project Preferred Route (Midway-Brim)

Line EMF Calculations		Electric Field (kV/meter)	Magnetic Field (mGauss)
Normal Loading	Under Lowest Conductors	0.651	5.99
	At Right-of-Way Edge	0.228 / 0.398	4.01 / 4.61
Emergency Loading	Under Lowest Conductors	0.651	17.81
	At Right-of-Way Edge	0.228 / 0.398	11.92 / 13.80
Winter Rating	Under Lowest Conductors	0.651	48.18
	At Right-of-Way Edge	0.228 / 0.398	32.25 / 37.25

The Alternate Route includes the same conductor configuration detailed in Table 7-3 that is present for more than 10% of the overall transmission line length. The calculated electric and magnetic fields for this configuration are shown the Table 7-5.

TABLE 7-5
EMF Calculations For a Typical Tangent (Exhibit 5-1A)-Deadend (Exhibit 5-1D) Span Configuration on the Wood County 138-kV Reinforcement Project Alternate Route (Lemoyne-Brim)

Line EMF Calculations		Electric Field (kV/meter)	Magnetic Field (mGauss)
Normal Loading	Under Lowest Conductors	0.651	15.06
	At Right-of-Way Edge	0.228 / 0.398	10.08 / 12.25
Emergency Loading	Under Lowest Conductors	0.651	17.97
	At Right-of-Way Edge	0.228 / 0.398	12.03 / 13.85

Winter Rating	Under Lowest Conductors	0.651	48.18
	At Right-of-Way Edge	0.228 / 0.398	32.25 / 37.25

Typical cross section profiles of the normal calculated electric fields and magnetic fields at normal loading, emergency loading and winter conductor rating for all scenarios considered are shown in **Exhibits 7-1 through 7-24 (Appendix 7-1)**.

(b) Current State of EMF Knowledge

Electric and magnetic fields are naturally occurring in the environment and can be found in the Earth's interior and in the human body. They are generated essentially anywhere where there is a flow of electricity, including electrical appliances and power equipment. Electric fields are associated with the voltage of the source; magnetic fields are associated with the flow of current in a wire. The strength of these fields decreases rapidly with distance from the source. EMFs associated with electricity use are not disruptive to cells like x-rays or ultraviolet rays from the sun. EMF fields are thought to be too weak to break molecules or chemical bonds in cells. Scientists have conducted extensive research over the past several decades to determine whether EMFs are associated with adverse health effects, at this time there is no firm basis to conclude that EMFs from transmission lines cause adverse health effects. A number of independent scientific panels have reviewed the research and have stated that there is no basis to conclude that EMFs cause adverse health effects nor has it been shown that levels in everyday life are harmful.

As part of the National Energy Policy Act of 1992, the Electric and Magnetic Fields Research and Public Information Dissemination (EMF RAPID) program was initiated within the 5-year effort under the National EMF Research Program. The culmination of this 5-year effort was a final RAPID Working Group report, which was released for public review in August 1998. The Director of the National Institutes of Environmental Health Sciences (NIEHS) then prepared a final report to Congress after receiving public comments. The NIEHS' Director's final report, released to Congress on May 4, 1999, concluded that extremely low frequency electric and magnetic fields (ELF-EMF) exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. The Director further stated that the conclusion of this report is insufficient to warrant aggressive regulatory concern.

The following websites sponsored by federal agencies or other organizations provide additional information on EMF:

- Centers for Disease Control/National Institute for Occupational Safety and Health: http://www.cdc.gov/niosh/topics/emf/
- NIEHS: http://www.niehs.nih.gov/health/topics/agents/emf/

(c) Line Design Considerations

To minimize the EMFs associated with the construction of the Project, ATSI uses design considerations to reduce the strength of EMFs. For instance, the strength of EMFs can potentially be reduced by installing the transmission line conductors in a compact configuration. Additionally, for multiple circuit transmission lines such as proposed in this Project, selecting certain conductor phasing configurations can reduce the field strengths.

For this Project, ATSI plans to complete final engineering of the facilities according to the requirements of the NESC. The pole heights and configuration were chosen based on NESC specifications, engineering parameters, and cost and should help minimize EMF strength. It is also ATSI's typical practice, as proposed in the new construction portions of this Project, to install 138 kV transmission lines primarily on wood tangent structures supported on horizontal post insulators, which is a form of compact design that reduces EMF field strengths in comparison to other installations.

(d) EMF Public Inquiries Policy

Information on EMF was available at the Public Information Meeting held for the Project on September 26, 2018. This information included a discussion of basic information on electric magnetic field theory, scientific research activities and EMF levels in everyday life. **Appendix 6-2** contains copies of this information. Similar materials will be available upon request to persons along the Project routes.

(3) Estimate of Radio, Television, and Communications Interference

No radio or television interference is expected to occur from the operation of the proposed transmission line along either the Preferred or Alternate Routes. During the operation of transmission lines, gas type discharges (corona) could result in either radio frequency interference (RFI) noise and television interference (TVI) noise under certain conditions. However, large corona levels are typically not encountered at 138 kV, so these types of interference do not generally occur. Consequently, for this Project the potential for radio or television interference is very low.

Further, although radio frequency noise level of the transmission line during heavy rain is greater than the fair weather noise level, the quality of radio reception under typical heavy rain conditions is affected more by atmospheric conditions than by operation of transmission lines. Therefore, the construction of the Project is not expected to increase radio frequency noise levels.

Finally, the gas-type (corona) discharges that can produce RFI and TVI are typically localized effects, resulting primarily from defective hardware (ball and socket hardware in insulators, hardware-to-hardware, line to hardware, etc.) and may be easily and quickly detected. Once detected, the hardware will be repaired or replaced, thus eliminating the interference source.

(4) Noise from Construction, Operations, and Maintenance

(a) Blasting Activities

Blasting will not be necessary during construction of the Project.

(b) Operation of Earth Moving and Excavating Equipment

Applicant expects that excavation and earth moving will be limited to drilling auger holes for the poles. A vehicle-mounted auger will be used to bore holes and each wood pole will be direct embedded in an approximately 3-foot diameter hole, 9 to 17 feet deep. In the few select locations where steel poles are needed, an excavator will dig a circular area approximately 10 feet in diameter, and approximately 35 feet deep for the concrete foundation. This activity will result in a temporary increase in noise in the vicinity of the Project. Construction activity will generally be limited to daylight hours and will conform to Occupational Safety and Health Administration (OHSA) noise standards. Thus, noise effects are anticipated to be localized, minimal and of short duration.

(c) Driving of Piles, Rock Breaking or Hammering, and Horizontal Directional Drilling

No driving of piles, rock breaking or hammering, or horizontal directional drilling is anticipated during construction of the Project.

(d) Erection of Structures

Pole structures will be installed by vehicle-mounted cranes or equivalent equipment. Self-supporting steel poles will require delivery of concrete for foundation construction, including excavation work for the foundation. The noise associated with these activities will be localized, temporary and generally not louder than the noise generated by earth moving equipment.

(e) Truck Traffic

An increase in truck traffic is anticipated during the construction of the Project for equipment access and equipment delivery. No other additional traffic is anticipated for the Project beyond infrequent, ongoing maintenance.

(f) Installation of Equipment

The equipment will be installed using standard practices and equipment. The noise associated with this activity will be localized, temporary and generally not louder than the noise generated by earth moving equipment.

(B) LAND USE

(1) Map of the Site and Route Alternatives

A description of each route alternative and the existing and planned land uses along both routes is provided in the following sections.

A map at 1:24,000-scale, including the area 1,000 feet on either side of the centerline, is presented as **Figure 7-1** (refer to Section 4906-5-05) and includes the following information:

- Centerline and ROW for each transmission line route being proposed
- Existing substation locations
- Land use types
- Road names
- Structures
- Incorporated areas and population centers

(2) Impact on Identified Land Uses

Land use in the Project Area (i.e., within 1,000 feet of each transmission line) consists of agriculture, industrial/commercial, residential, existing roadway right-of-way, and institutional (i.e. charitable organization, publicly owned lands, etc.). Comparisons of the various land use types and land use features for both proposed routes are included in **Tables 7-6 through 7-8**. The estimates of each land use type being crossed by the transmission line or land use within the 60-foot wide permanent ROW (linear feet, acreage, and percentages) were determined using geographic information system (GIS) software.

The potential disturbance area during construction activities (vegetation clearing, pole installations, etc.) is limited to the 60-foot wide permanent ROW. The ROW will be restored through soil grading, seeding, and mulching; thus the permanent impact to the ROW will be limited to the removal of existing trees and other vegetation. Property owners may continue to utilize most of the ROW area for general uses that will not affect the safe and reliable operation of the transmission line such as lawn maintenance, crop cultivation, and livestock.

TABLE 7-6
Length and Percent of Land Uses Crossed by Route Alternatives

Land Use	Preferred Route		Alternate Route	
	Linear Feet	Percent	Linear Feet	Percent
Agricultural	30,941.9	96.5	28,077.4	88.3
Industrial/Commercial	474.4	1.5	455.6	1.4
Residential	654.9	2.0	3,209.9	10.1
Road/Railroad Right-of-Way	0.0	0.0	60.0	0.2
Total	**32,071.2**	**100.0**	**31,802.9**	**100.0**

TABLE 7-7
Acreage and Percent of Land Uses within ROW of Route Alternatives

Land Use	Preferred Route		Alternate Route	
	Acreage	Percent	Acreage	Percent
Agricultural	42.0	95.3	38.6	88.2
Industrial/Commercial	0.7	1.5	0	0
Residential	1.4	3.2	4.0	9.0
Road/Railroad Right-of-Way	0	0	0.6	1.3
Total	**44.1**	**100.0**	**43.8**	**100.0**

TABLE 7-8
Number of Land Use Features Near the Route Alternatives

	Route Alternatives	
	Preferred	Alternate
Length (in miles)	6.1	6.0
Features within the Potential Disturbance Area of Route Alternatives		
Threatened and Endangered Species (ODNR records)[c]	8	8
Historic Structures (OHI)	0	0
Previously Identified Archaeological Sites	0	1
NWI Wetlands	0	0
Residences	0	0
Commercial/Industrial Properties	0	0
Other Sensitive Land Uses[b]	0	0
Features within 1,000 feet of Route Alternatives (centerline)		
Threatened and Endangered Species (ODNR records)[c]	8	8
Historic Structures (OHI)	0	0
National Register of Historic Places	0	0
Archaeological Sites	1	4
NWI Wetlands	7	12
Residences	83	104
Commercial/Industrial Properties	0	25
Other Sensitive Land Uses[b]	0	0

Notes:
[a] Potential disturbance area is defined as the construction workspace (in this case 60-ft wide ROW)
[b] Other sensitive land uses include airports, parks, state forests, schools, hospitals, churches, golf courses, and

TABLE 7-8
Number of Land Use Features Near the Route Alternatives

	Route Alternatives	
	Preferred	**Alternate**

cemeteries.

[c] Current ODNR feedback indicates one species is present within 1-mile of the proposed route and seven species are considered to be within range; however, their presence/absence within 1,000-ft is unknown and is pending further information from ODNR. For purposes of this submission the presence of eight species is assumed within 1,000-ft pending further information from ODNR. Additional discussion regarding these species and information from ODNR is found in 4906-5-08 (C)(1)(a).

(3) Impact on Identified Nearby Structures

(a) Structures within 200 Feet of Proposed Right-of-Way

There are 24 structures (buildings) within 200 feet of the Preferred Route ROW, including 17 residential structures. These range from 55 to 190 feet from the nearest edge of the ROW. There are 27 structures within 200 feet of the Alternate Route ROW, including 19 residential structures. These structures range from 35 to 191 feet from the ROW.

(b) Destroyed, Acquired, or Removed Buildings

The potential removal of structures within the proposed ROW was mitigated during the route selection studies of the Preferred and Alternate Routes through the placement of route centerlines. It is not anticipated that construction of the Preferred or Alternate Routes will require the removal of any structures.

(c) Mitigation Procedures

Mitigation for use restrictions on the ROW, vegetative clearing, and maintenance activities for the transmission line, will be determined as part of ATSI's acquisition of the ROW for this Project, as part of the negotiated settlement between ATSI and the property owner, or as determined in appropriation proceedings. If an existing septic system located in the transmission ROW is impacted by construction, operation, or maintenance of the proposed Project, the septic system will be repaired or replaced by ATSI as necessary to meet the appropriate installation requirements.

(C) AGRICULTURAL LAND IMPACTS

The potential impacts of the Project on agricultural land use include potential damage to crops that may be present, disturbance of underground field drainage systems, compaction of soils, and potential for temporary reduction of crop productivity. Agricultural land used for crop cultivation within the Preferred and Alternate Route ROWs is estimated at 42.0 acres and 39.6 acres, respectively.

Soil compaction resulting from construction activities is typically a temporary issue and is resolved within a few seasons of plowing and tilling the land. ATSI will also work with the

landowners of agricultural land to resolve conflicts with drainage tiles and irrigation systems that are affected by the Project, where necessary.

(1) Agricultural Land Map

Agricultural land use categories and Agricultural District lands are depicted on **Figure 7-2** for both the Preferred and Alternate Routes.

(2) Impacts to Agricultural Lands and Agricultural Districts

The Wood County Auditor's Office was contacted on October 26, 2018 to obtain information on current Agricultural District parcel records. As of October 26, 2018, there were 54 Agricultural District parcels within 1,000 feet of the Preferred and Alternate Routes. The provided data fulfills the requirement of Admin. Code Rule 4906-5-07 (C)(1)(b), which states this data must be collected not more than 60 days prior to submittal.

(a) Acreage Impacted

Table 7-5 provides the acreage impacted that is in current agricultural land use (crop cultivation, Agricultural District lands, and pasture or open land. The agricultural land use determination was based on aerial imagery and field observations.

(b) Evaluation of Construction, Operation, and Maintenance Impacts

The following subsections provide an evaluation of the impact of the construction, operation, and maintenance of the proposed transmission line on the land, agricultural facilities and agricultural practices within the Project area, where present.

(i) Field Operations

Agricultural field operations such as plowing, planting, cultivating, spraying, and harvesting of cultivated crops will only be interrupted for a portion of one growing season or a portion of one dormant season during construction of the Project. Property owners will be compensated for crop damages resulting from ATSI's construction activities. Additionally, no significant impacts to livestock operations or grazing areas are anticipated. Property owners may continue to utilize most of the ROW area for general uses after construction, such as lawn maintenance, crop cultivation, and livestock, contingent upon the use having no adverse impact on the safe and reliable operation of the transmission line.

(ii) Irrigation

There are no known irrigation systems within the proposed ROW for either route. ATSI will identify the presence of any such systems through contact with landowners once the final route is approved. ATSI will coordinate with any landowner if an irrigation system must be relocated to minimize impacts to the irrigation system's operation. ATSI will ensure that the relocation of any irrigation systems will be at no cost to the landowner.

(iii) Field Drainage Systems

Damage to field tile systems is unlikely given the installation of mostly wood pole structures and the relatively short construction duration. ATSI will coordinate with landowners of agricultural land to minimize impact to field tile systems and to restore damaged systems to their pre-construction condition, where necessary.

(iv) Structures Used for Agricultural Operations

There are no structures within 200 feet of the ROW that will be adversely affected by the construction and operation of the transmission line.

(v) Agricultural Land Viability for Agricultural Districts

Both the Preferred and Alternate Routes cross a number of Agricultural District parcels, and portions of these parcels are currently being used for crop cultivation. Agricultural District parcels within the Preferred and Alternate Route ROWs is 35 parcels (38.4 acres) and 20 parcels (42.3 acres), respectively. As property owners will be able to continue to utilize most of the ROW area within an Agricultural District for general uses, such as crop cultivation, no significant impacts on the viability of the Agricultural District land are anticipated.

(c) Mitigation Procedures

Mitigation for damage to existing crops and the compaction of soils is provided as compensation to the property owner in the easement for the ROW. The specific terms of the easement regarding crop damage or soil compaction are determined as part of ATSI's acquisition of the ROW for the Project, as part of the negotiated settlement between ATSI and the property owner, or as determined in appropriation proceedings. Additionally, ATSI and the contractors hired to work on the Project have extensive experience in transmission line construction. Both ATSI and the selected contractors will work to minimize agricultural impacts during construction of the Project.

(i) Avoidance or Minimization of Damage

In order to minimize impacts to agricultural operations, ATSI has considered pole placement where the Preferred and Alternate Routes must cross agricultural fields. Where reasonable, poles have been located at the edges of agricultural fields. Where poles are located within agricultural fields, the single wooden poles will cause minimal disruption to agricultural activities. In instances where there is permanent disruption or damage in the ROW, compensation for this limited impact will be provided to the property owner.

(ii) Field Tile System Damage Repairs

Concerns over interference with field tile drainage systems will be addressed on a case-by-case basis with the individual property owner. In general, ATSI will provide mitigation for damage to underground drainage systems resulting from construction, operation, and maintenance activities by repairing or replacing damaged sections of the drainage systems as necessary.

(iii) Segregation and Restoration of Topsoil

Excavated topsoil will be segregated and stockpiled where necessary to maintain long-term agricultural uses. Topsoil will also be de-compacted and restored to original conditions, unless otherwise agreed to by the landowner.

(D) LAND USE PLANS AND REGIONAL DEVELOPMENT

This section of the Application provides information regarding land use plans and regional development.

(1) Impacts to Regional Development

This Project is expected to support regional development in Wood County through increased reliability and availability of electric power to residential, commercial, institutional, and industrial users throughout the region. No negative impacts on regional development are foreseen for this Project. A more detailed discussion of the need for this Project and how it will affect regional development is included in Section 4906-5-03 of this Application.

(2) Compatibility of Proposed Facility with Current Regional Land Use Plans

Mr. David Steiner, Director at the Wood County Planning Commission was contacted on November 26, 2018 regarding compatibility of the proposed transmission lines with regional land use plans. Mr. Steiner indicated that both the Preferred and Alternate Routes are compatible with Wood County's current land use plan. As such, the Project is compatible with the current regional land use plan and will support its implementation by allowing for further economic development in the Project area.

(E) CULTURAL AND ARCHAEOLOGICAL RESOURCES

Research on cultural resources in the Project area were conducted on behalf of ATSI. This research has included a records check and literature review for both the Preferred and Alternate Routes using the Ohio History Connection (OHC) online mapping database. A summary of this effort will be submitted to the OHPO and OPSB under separate cover.

(1) Cultural Resources Map

Based on the cultural resources desktop study, there are five sites recorded in the Project Area with one, 33WO0408, recorded within the Alternate Route ROW. These sites are recorded from local artifact collections and their significance has not been officially established or evaluated. These sites were identified on sandy, former beach deposits that are scattered in this area. There are no sites recorded in the vicinity of the Preferred Route.

There are no recreational areas or trails, scenic rivers, scenic routes or byways, or registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within 1,000 feet of the proposed routes.

(2) Cultural Resources in Study Corridor

The cultural resources review has involved background research utilizing data files from the OHPO online mapping database for both the Preferred and Alternate Routes.

For background research, a 1-mile buffer was used around both the Preferred and Alternate Routes to locate previously identified cultural resources and to provide information on the probability of identifying cultural resources within the Project area. The OHPO online mapping database included a review of the Ohio Archaeological Inventory (OAI), the Ohio Historic Inventory (OHI), Determination of Eligibility (DOE) files, the National Register of Historic Places (NRHP), historic cemeteries, historic bridges, National Historic Landmarks (NHLs), and previous cultural resources surveys.

There is one previously recorded archaeological site 33WO0408 located within the Project area for the Alternate Route. This is a site that was recorded from inspection of an amateur collection and is not likely to be significant.

No known cultural resources or cultural resources investigations were identified within the Project area of the Preferred Route from the desktop review. A summary of resources and studies within 1-mile of the proposed Project was completed and will be submitted to the OHPO and OPSB under separate cover.

(3) Construction, Operation, and Maintenance Impacts on Cultural Resources

Based on the results of the cultural resources background research within 1-mile of the proposed Project, impacts to known cultural resources associated with the construction, operation, and maintenance of the proposed Project are not anticipated.

(4) Mitigation Procedures

Based on the results of the cultural resources investigations, no significant impacts to historic properties are anticipated as a result of the Project; therefore, no mitigation is proposed.

(5) Aesthetic Impact

(a) Visibility of the Proposed Facility

Both the Preferred and Alternate Routes will be visible from residences and other vantage points and landmarks. However, as the area is mostly active farmland with pockets of residential developments dating from the late 19th and early 20th century, many roads in the area are paralleled by wood poles supporting distribution lines, as well as mature trees, and existing 138 kV electric transmission lines occur in parts of the Project area. The addition of the proposed Project is not expected to have a significant negative visual impact.

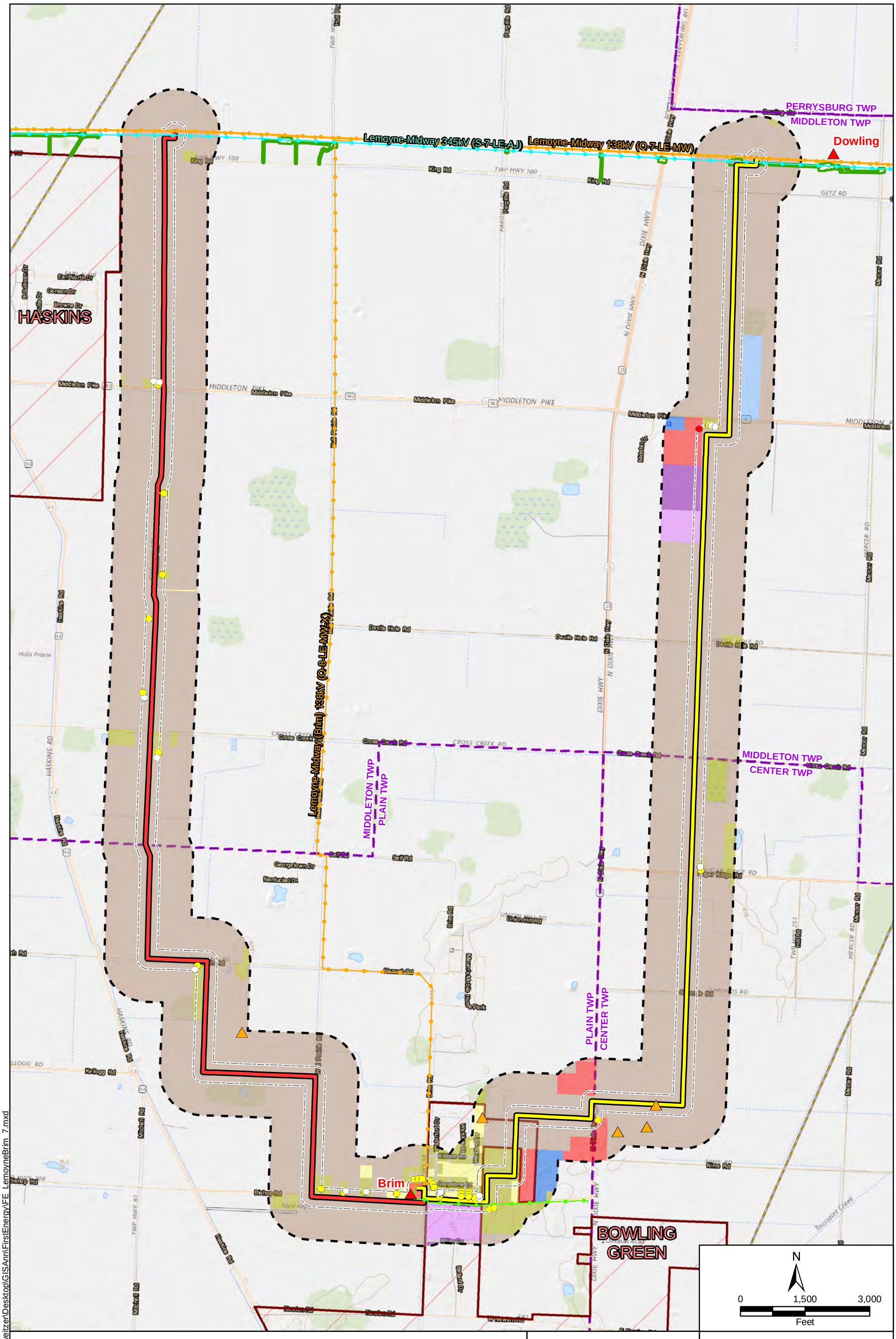
(b) Facility Effect on Site and Surrounding Area

To the extent the construction of the proposed transmission line has any effect on the existing visual aesthetics of the area, the impacts will result primarily from the introduction of a new

man-made element in the landscape. The degree of visual impact of any new man-made element will vary with the viewer and the setting and such impacts can be partially evaluated by comparing the amount of contrast resulting from the construction of the new element and the existing landscape. For example, if the transmission line were screened from view, then the aesthetic impact would be comparatively less than if the transmission line were placed in an existing open area, depending on the viewer. In areas where the transmission line follows similar facilities, the aesthetic impact would be further reduced, because it would create only an incremental change in the existing visual setting.

(c) Visual Impact Minimization

The ability to minimize the visual impacts of the proposed transmission line is constrained by engineering requirements, existing land use, and the Project length. ATSI has limited the potential aesthetic impacts of the transmission line to the extent possible through the route selection process, and where practical, paralleling or overbuilding existing transmission and distribution lines and modern transportation infrastructure.



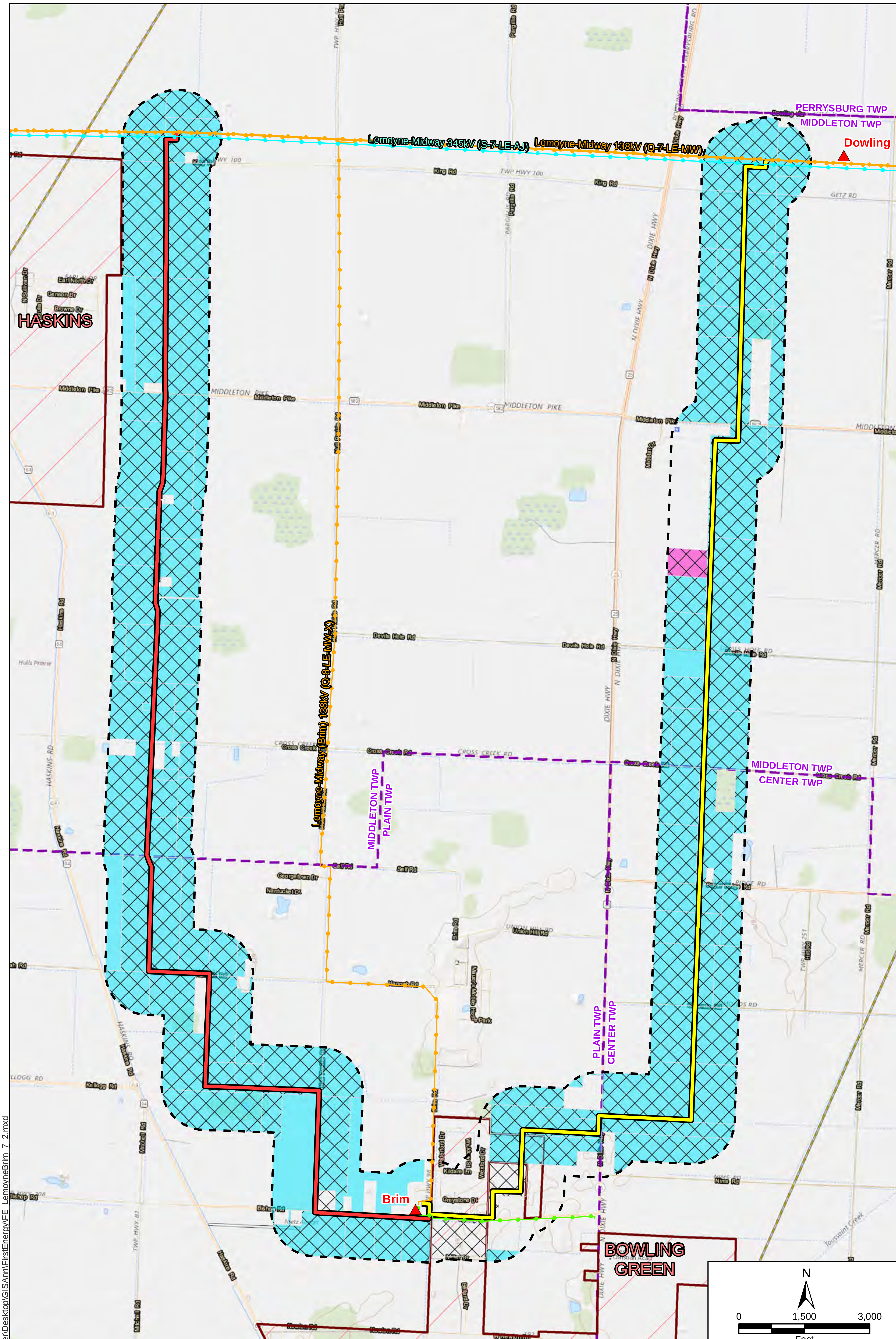
GPD Group
Path: C:\Users\aschweitzer\Desktop\GISAnn\FirstEnergy\FE_LemoyneBrim_7.mxd

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

Figure 7-1
Land Use Map

Wood County 138kV
Reinforcement Project

Issued: November 28, 2018



Existing Substation
Preferred Route
Alternate Route
1,000 Foot Buffer
Existing 69kV Tranmission Line
Existing 138kV Tranmission Line
Existing 345kV Tranmission Line
Agricultural District
Cultivated Land
Orchard
Township
City

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

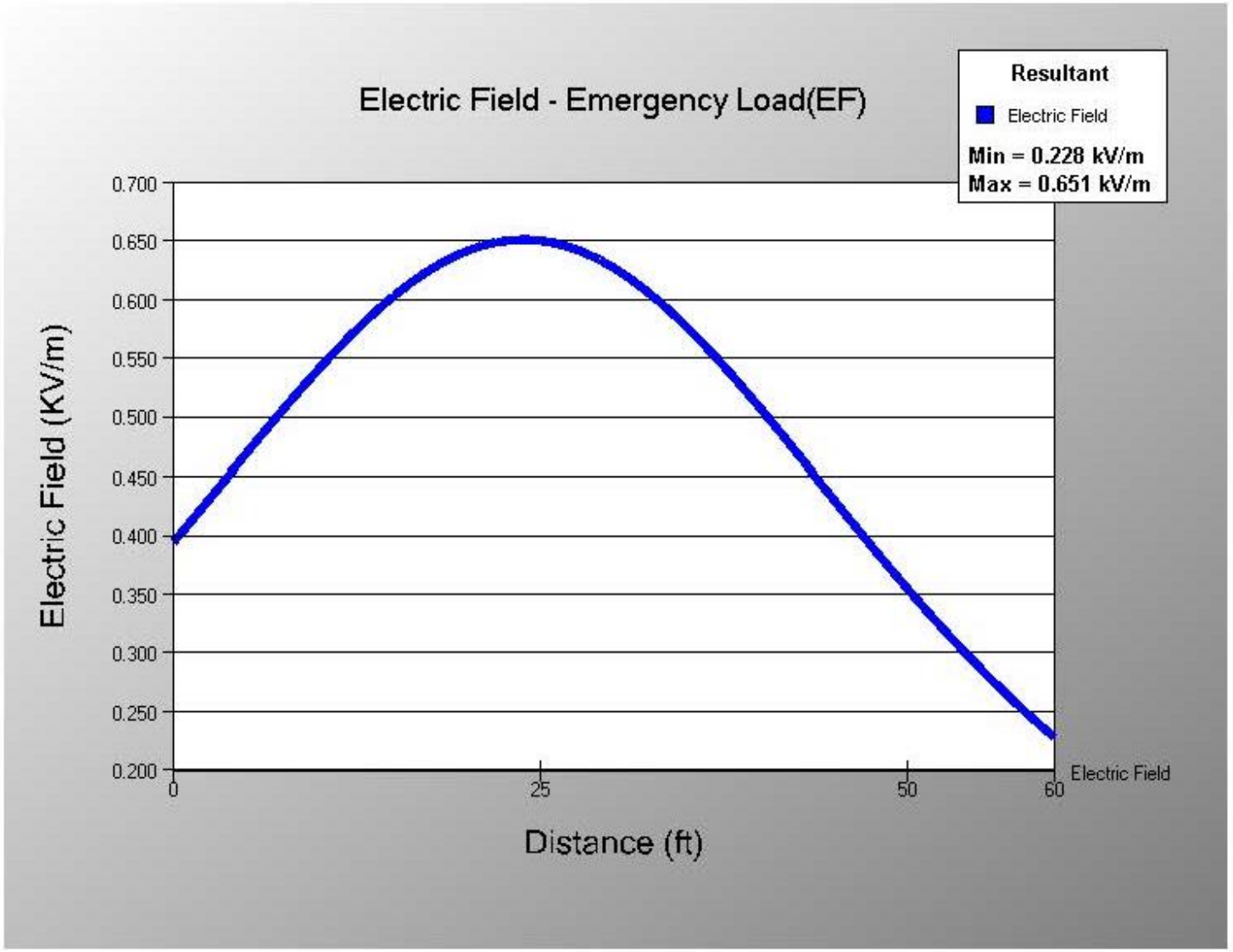
Figure 7-2
Agricultural Land Use Map

Wood County 138kV
Reinforcement Project

Issued: November 27, 2018

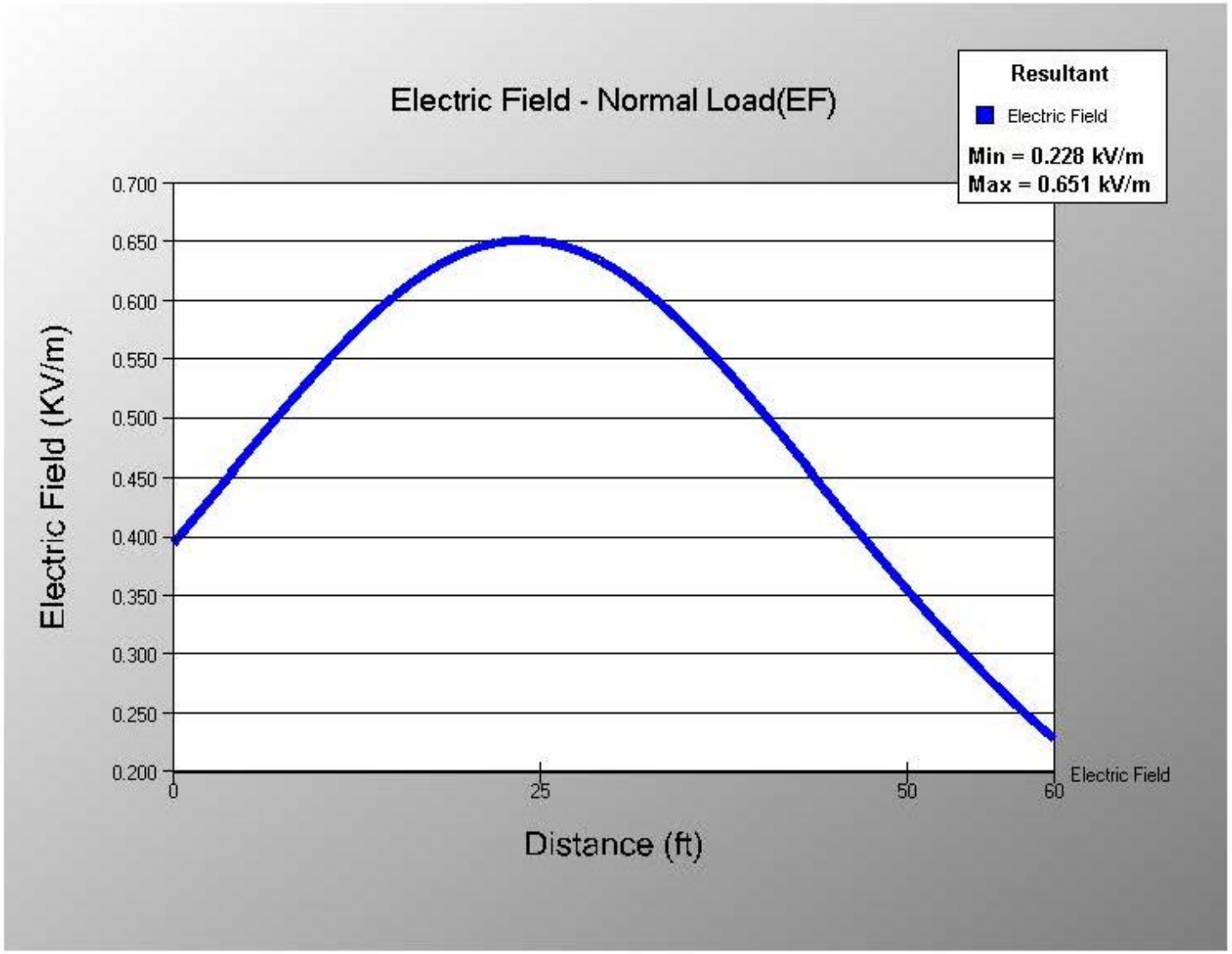
GPD Group
Path: C:\Users\aschweitzer\Desktop\GISAnn\FirstEnergy\FE_LemoyneBrim_7_2.mxd

Electric Field, Midway-Brim (Preferred), Deadend



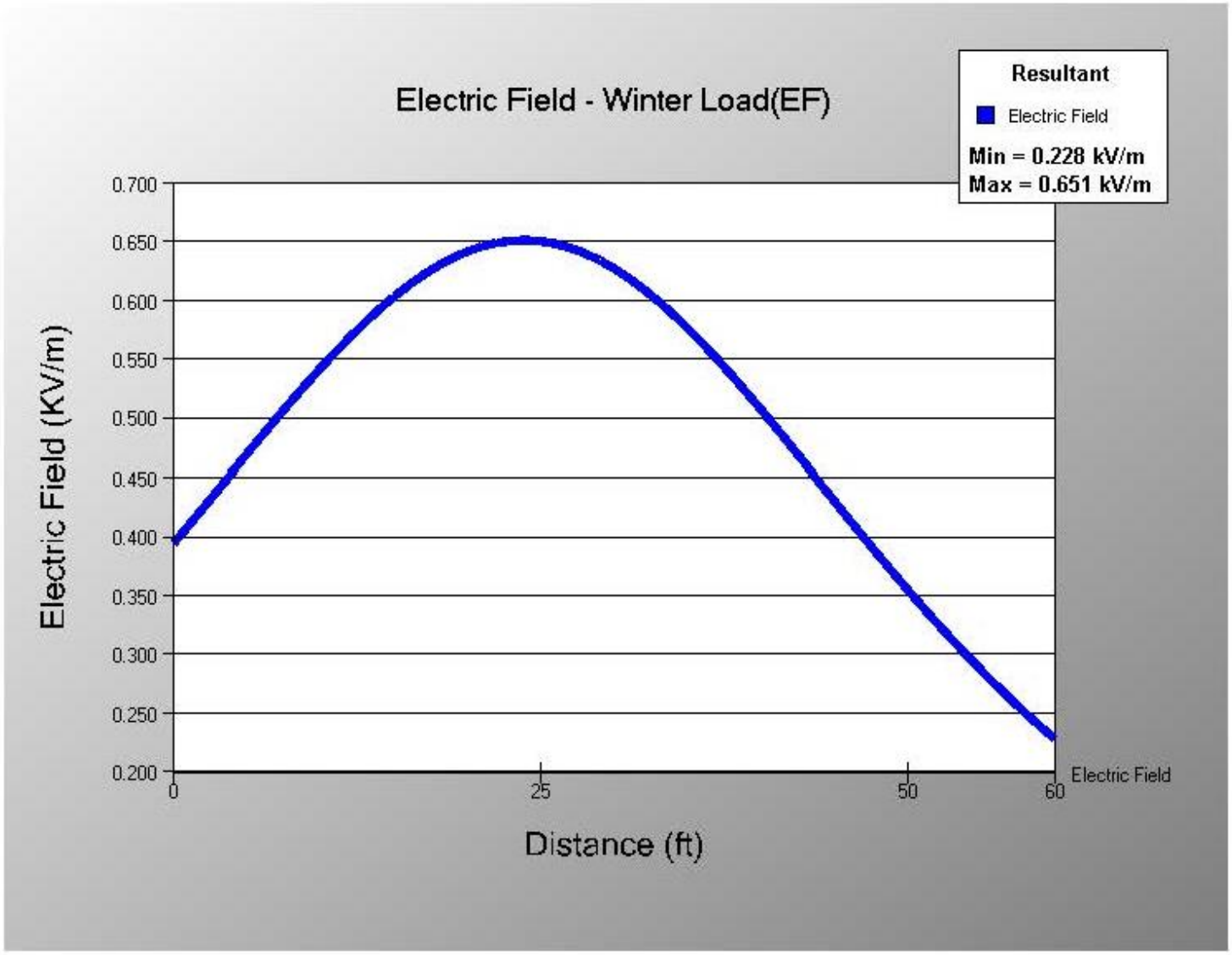
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD EMERGENCY LOAD	
EXHIBIT 7-1	

Electric Field, Midway-Brim (Preferred), Deadend



ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD NORMAL LOAD	
EXHIBIT 7-2	

Electric Field, Midway-Brim (Preferred), Deadend



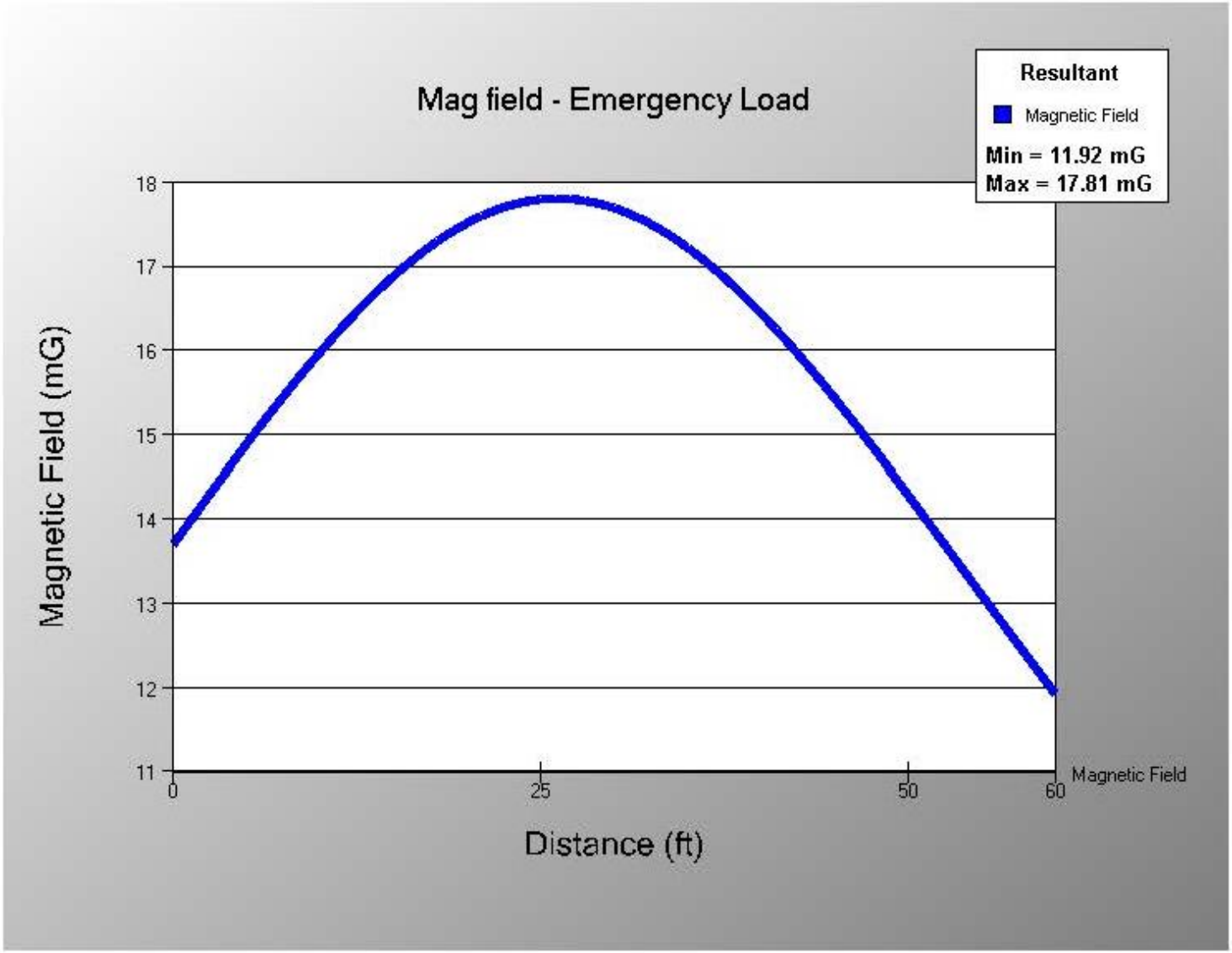
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

ELECTRIC FIELD WINTER LOAD

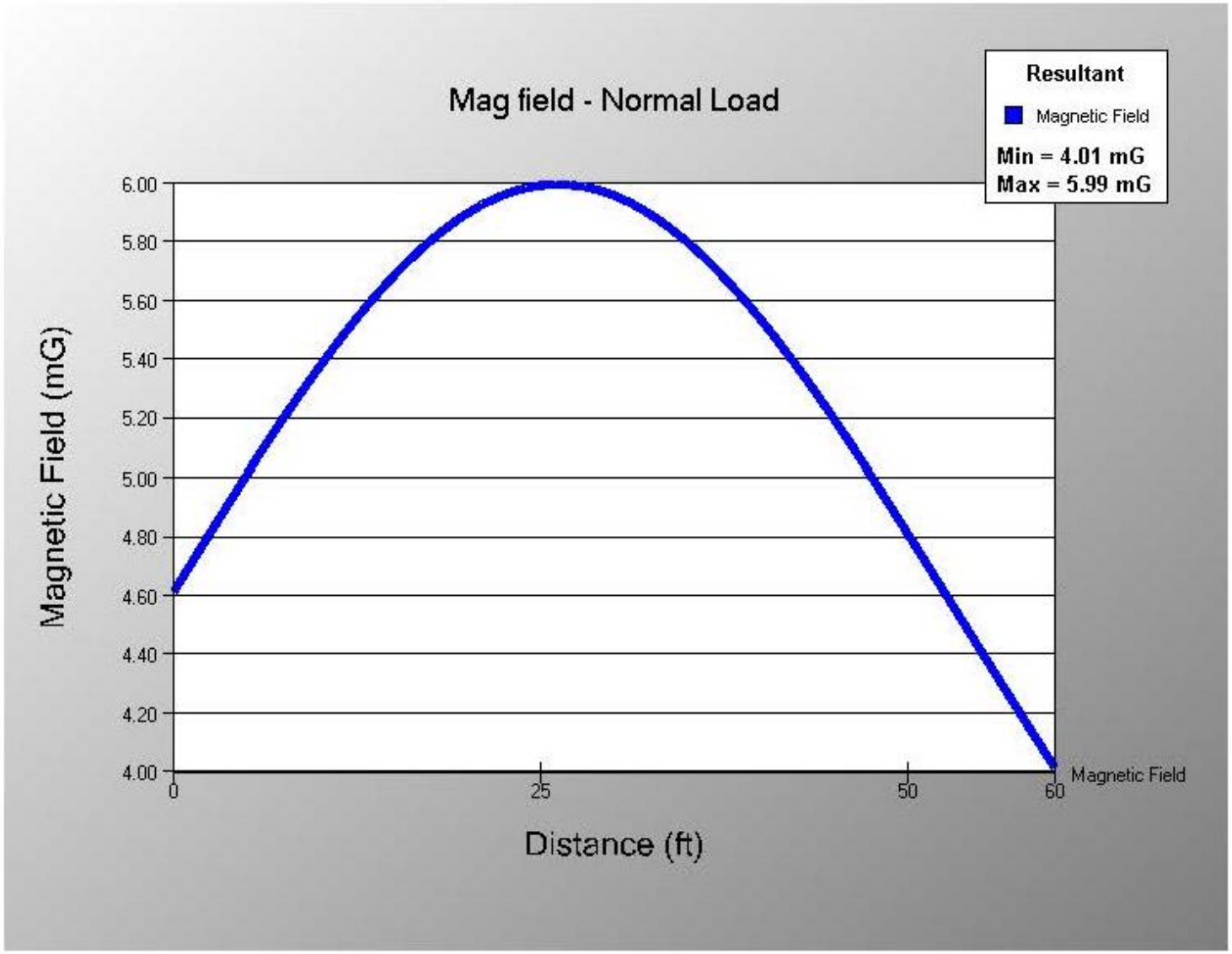
EXHIBIT 7-3

Magnetic Field, Midway-Brim (Preferred), Deadend



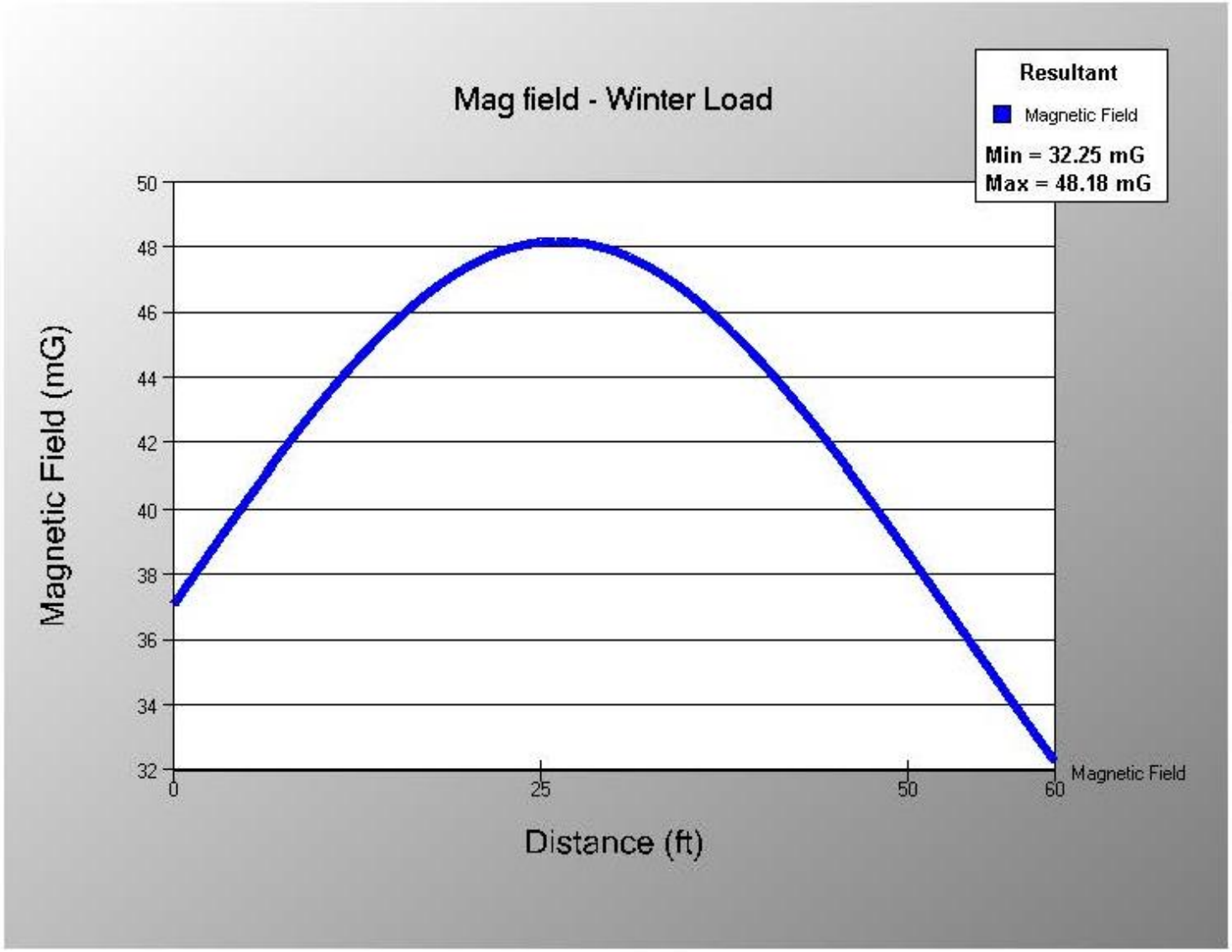
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGNETIC FIELD EMERGENCY LOAD	
EXHIBIT 7-4	

Magnetic Field, Midway-Brim (Preferred), Deadend



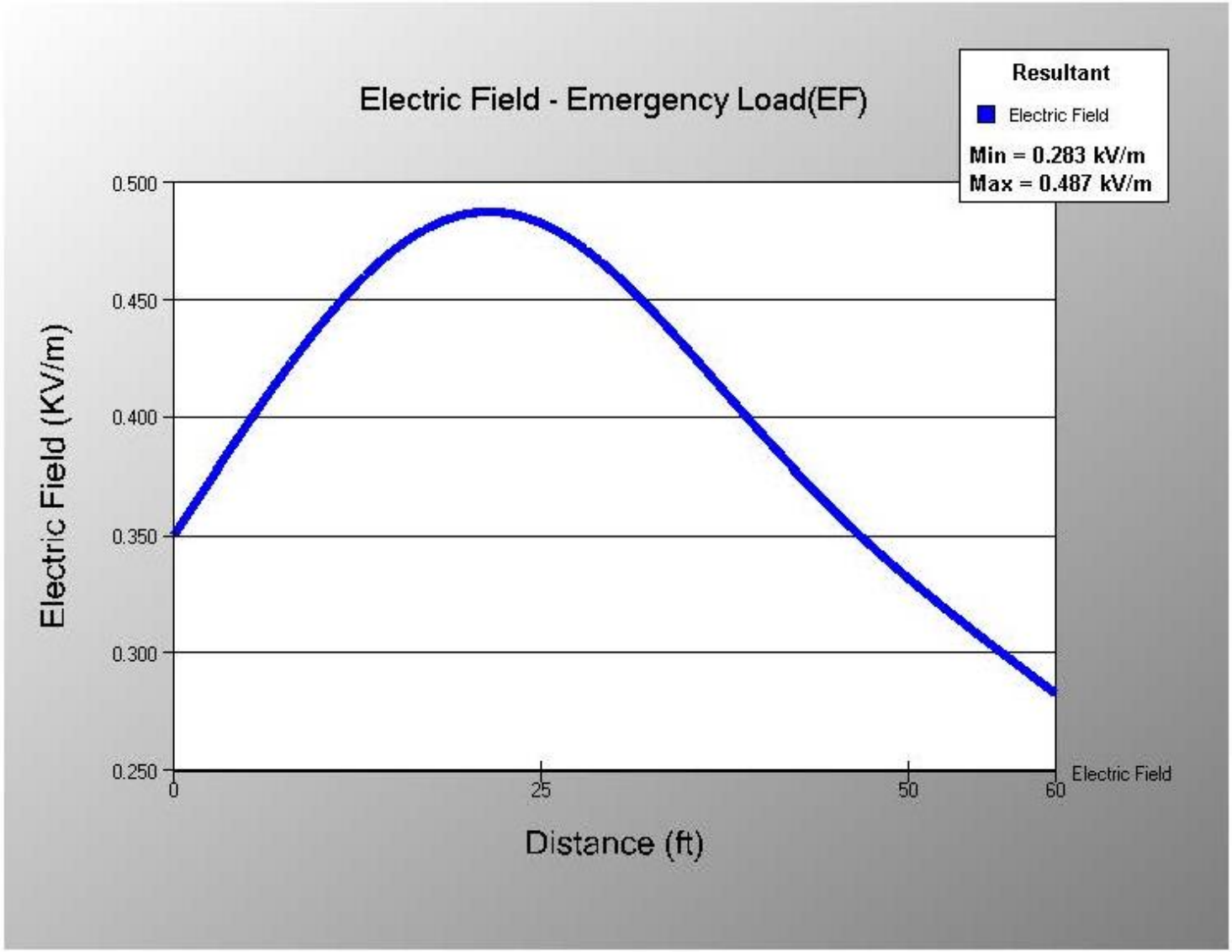
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENTIC FIELD NORMAL LOAD	
EXHIBIT 7-5	

Magnetic Field, Midway-Brim (Preferred), Deadend



ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENTIC FIELD WINTER LOAD	
EXHIBIT 7-6	

Electric Field, Midway-Brim (Preferred), Tangent



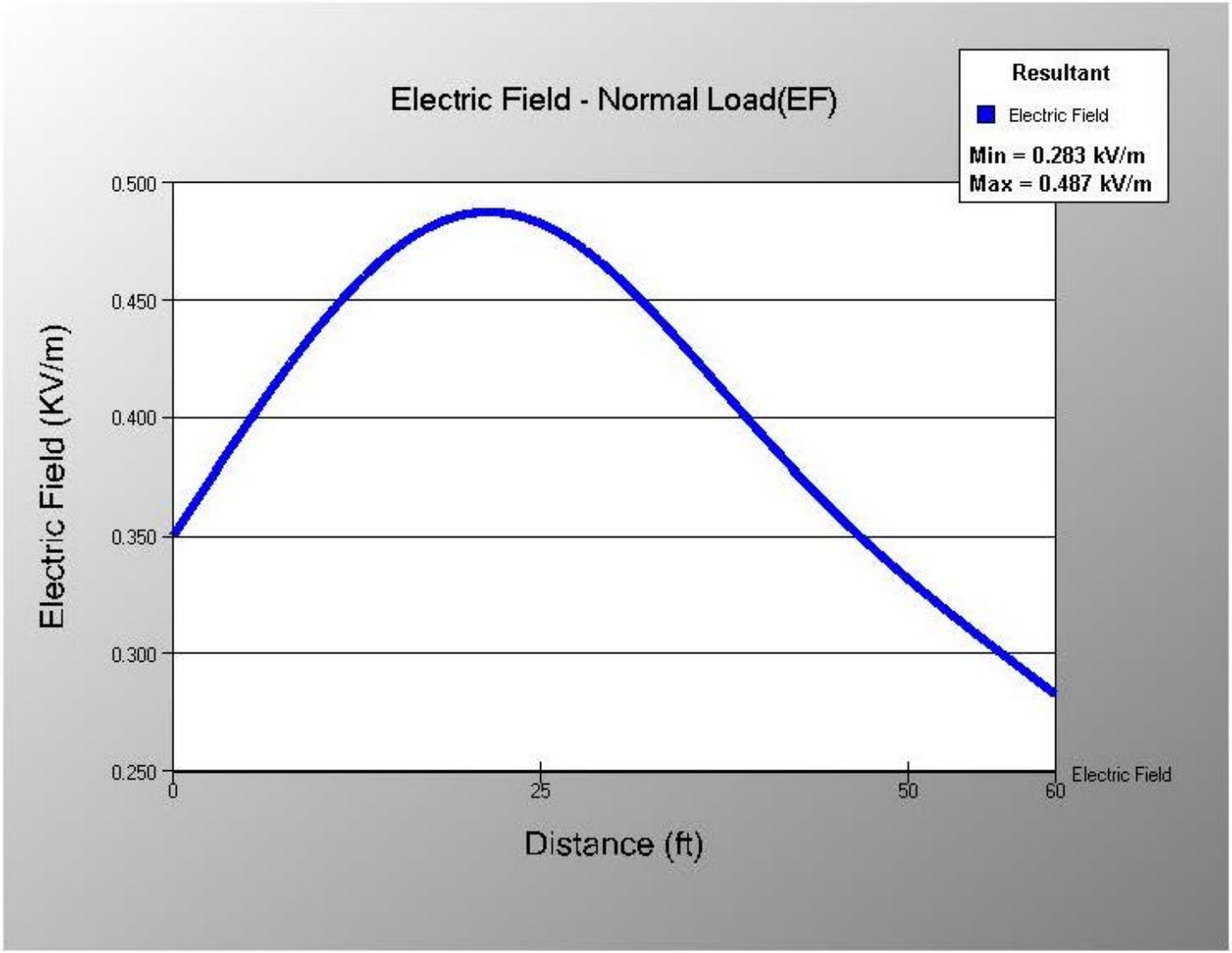
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

ELECTRIC FIELD EMERGENCY LOAD

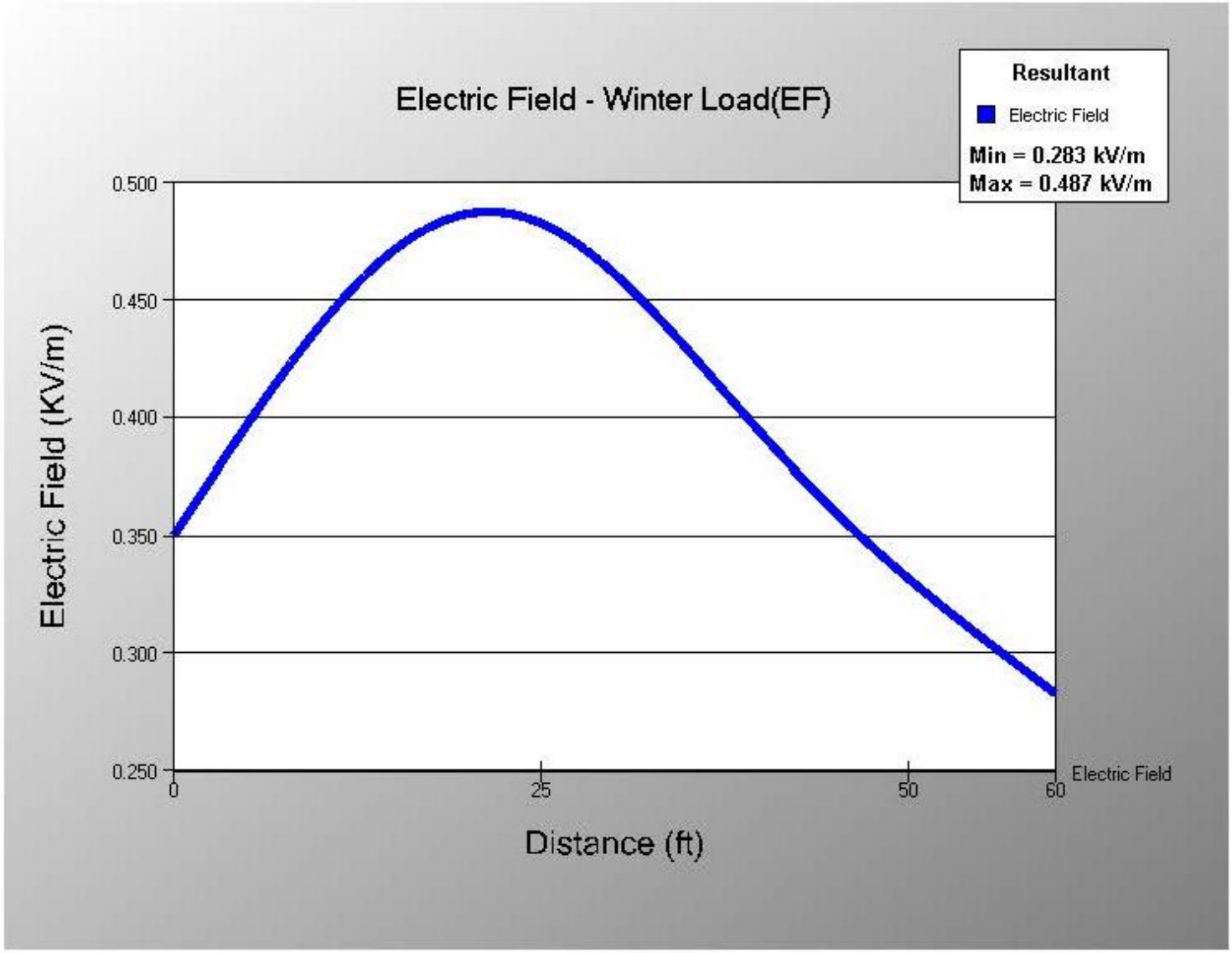
EXHIBIT 7-7

Electric Field, Midway-Brim (Preferred), Tangent



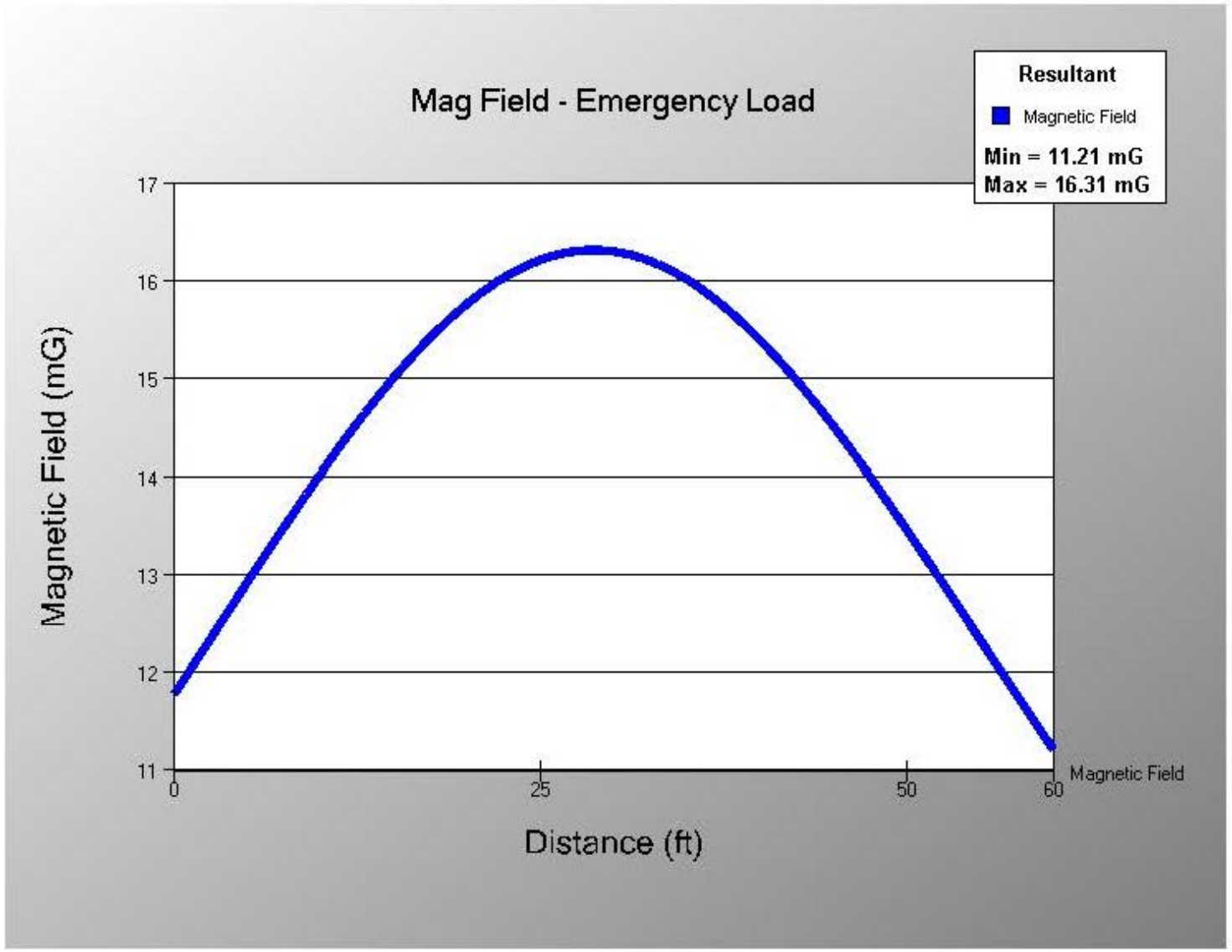
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD NORMAL LOAD	
EXHIBIT 7-8	

Electric Field, Midway-Brim (Preferred), Tangent



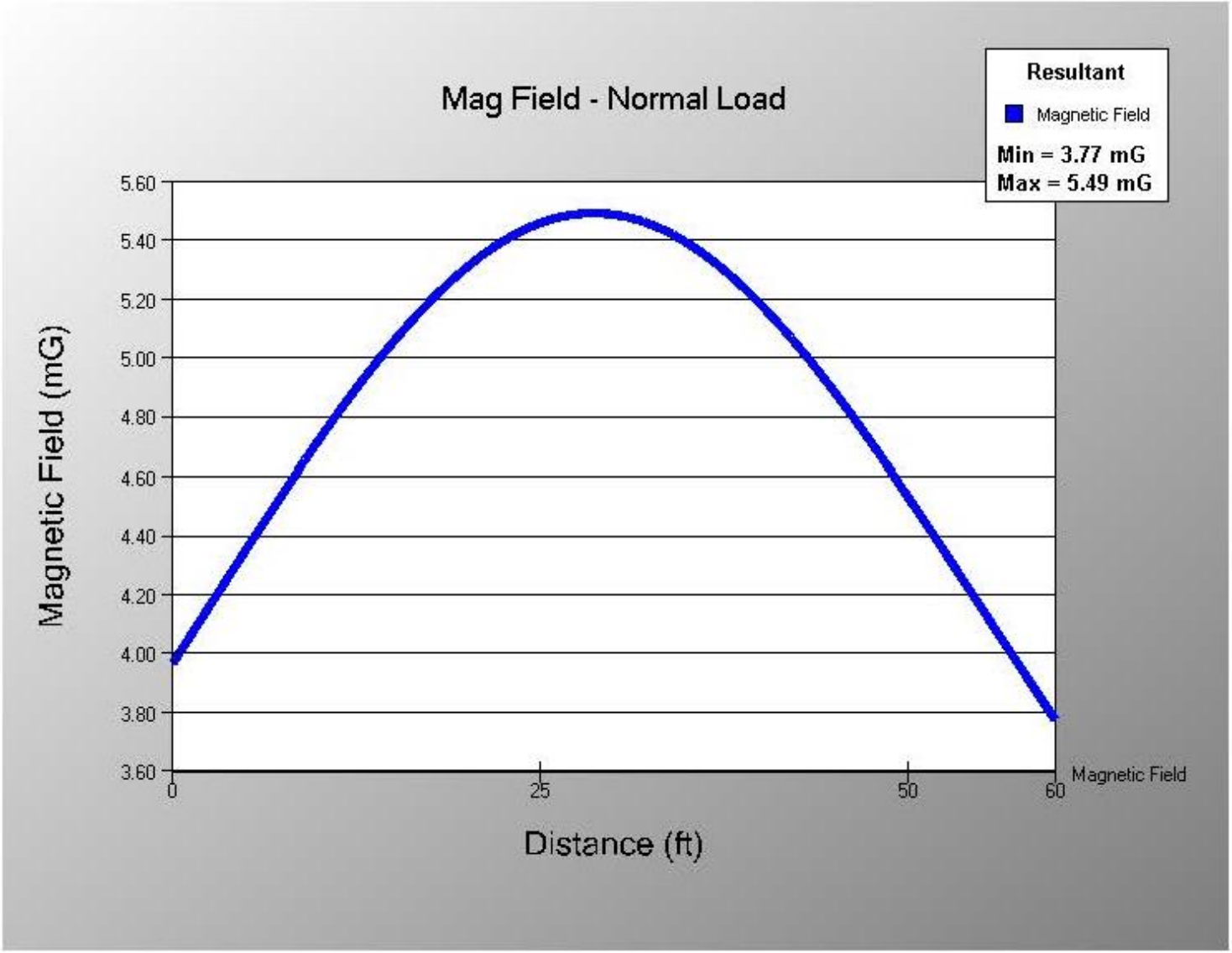
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD WINTER LOAD	
EXHIBIT 7-9	

Magnetic Field, Midway-Brim (Preferred), Tangent



ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENETIC FIELD EMERGENCY LOAD	
EXHIBIT 7-10	

Magnetic Field, Midway-Brim (Preferred), Tangent



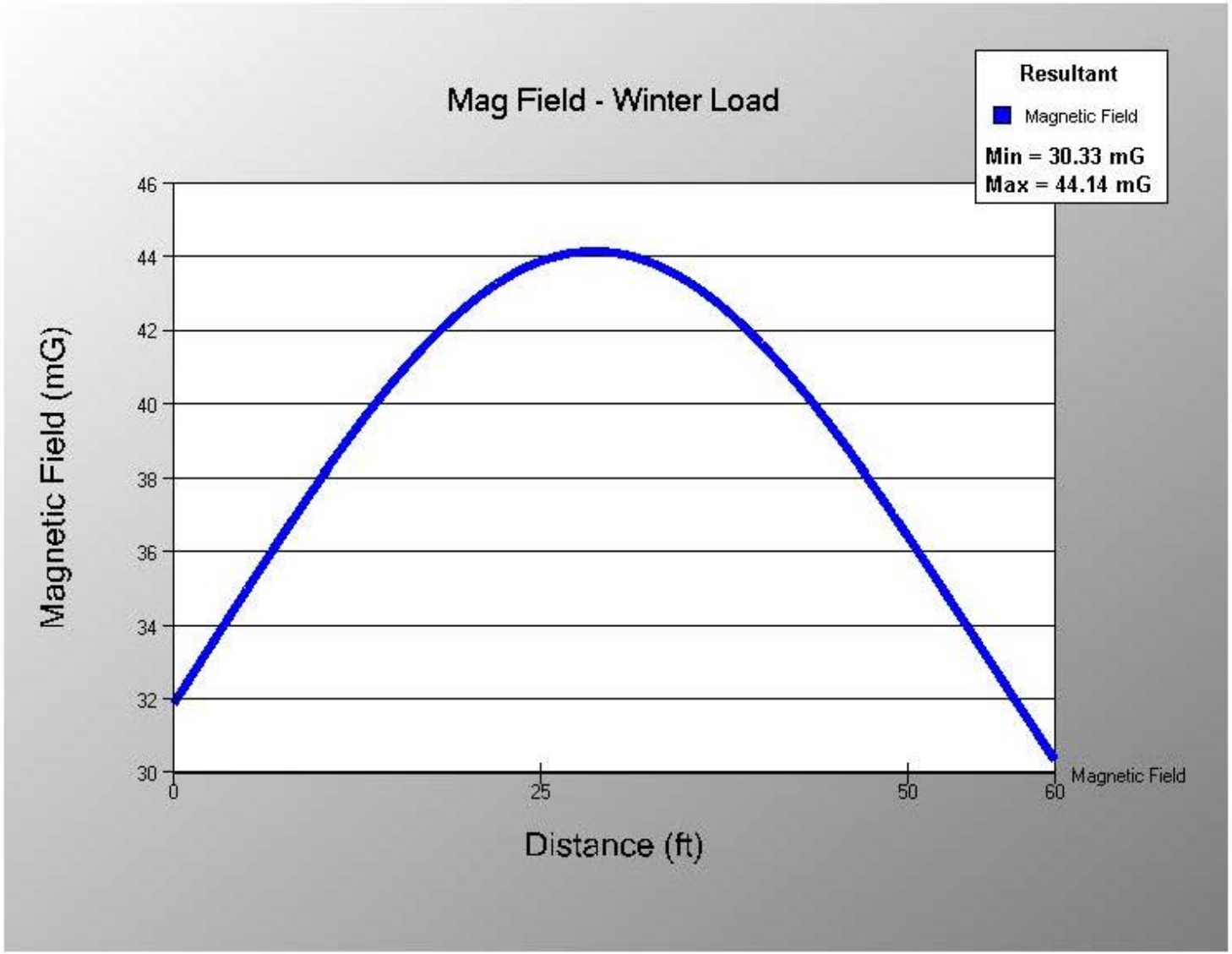
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

MAGENETIC FIELD NORMAL LOAD

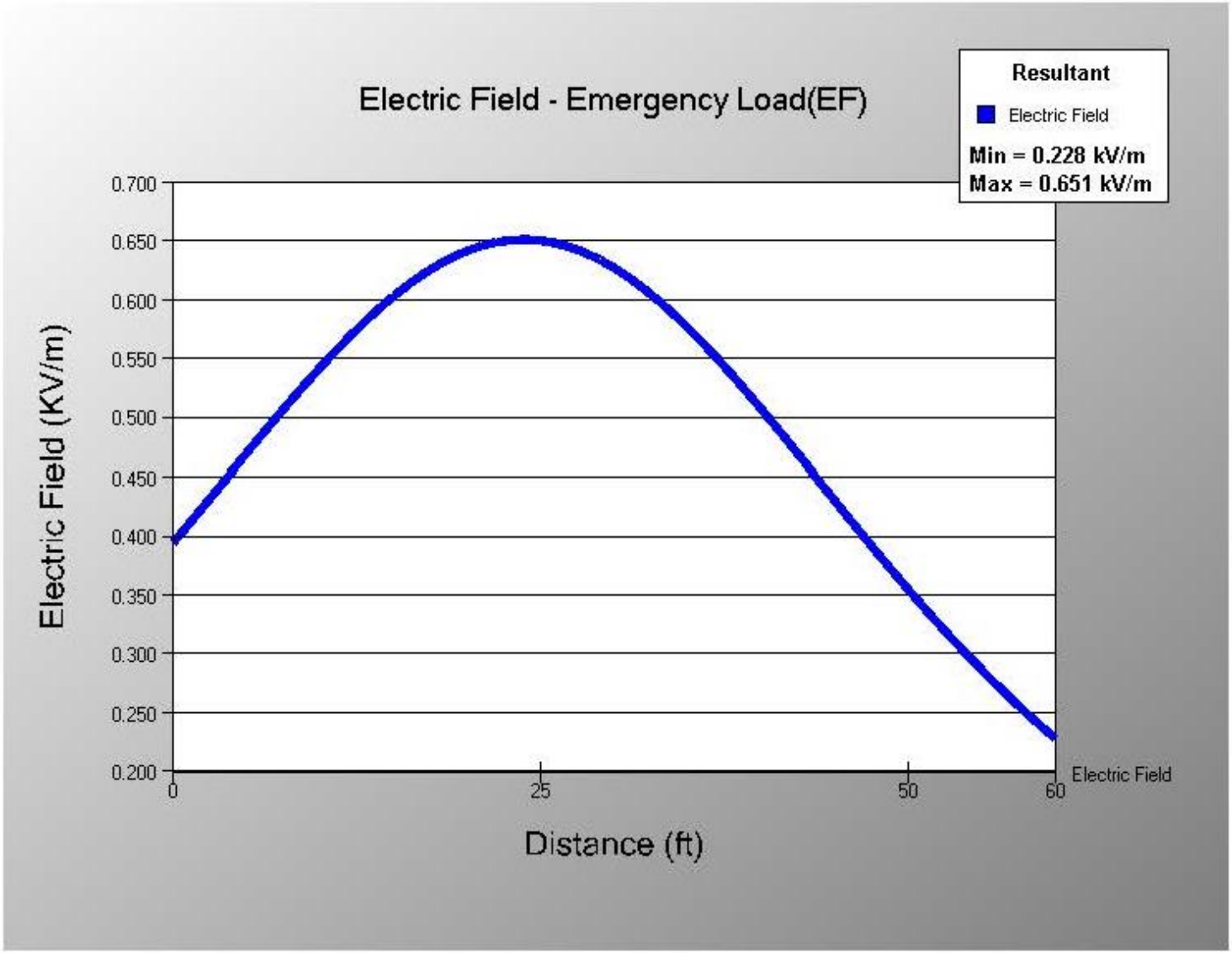
EXHIBIT 7-11

Magnetic Field, Midway-Brim (Preferred), Tangent



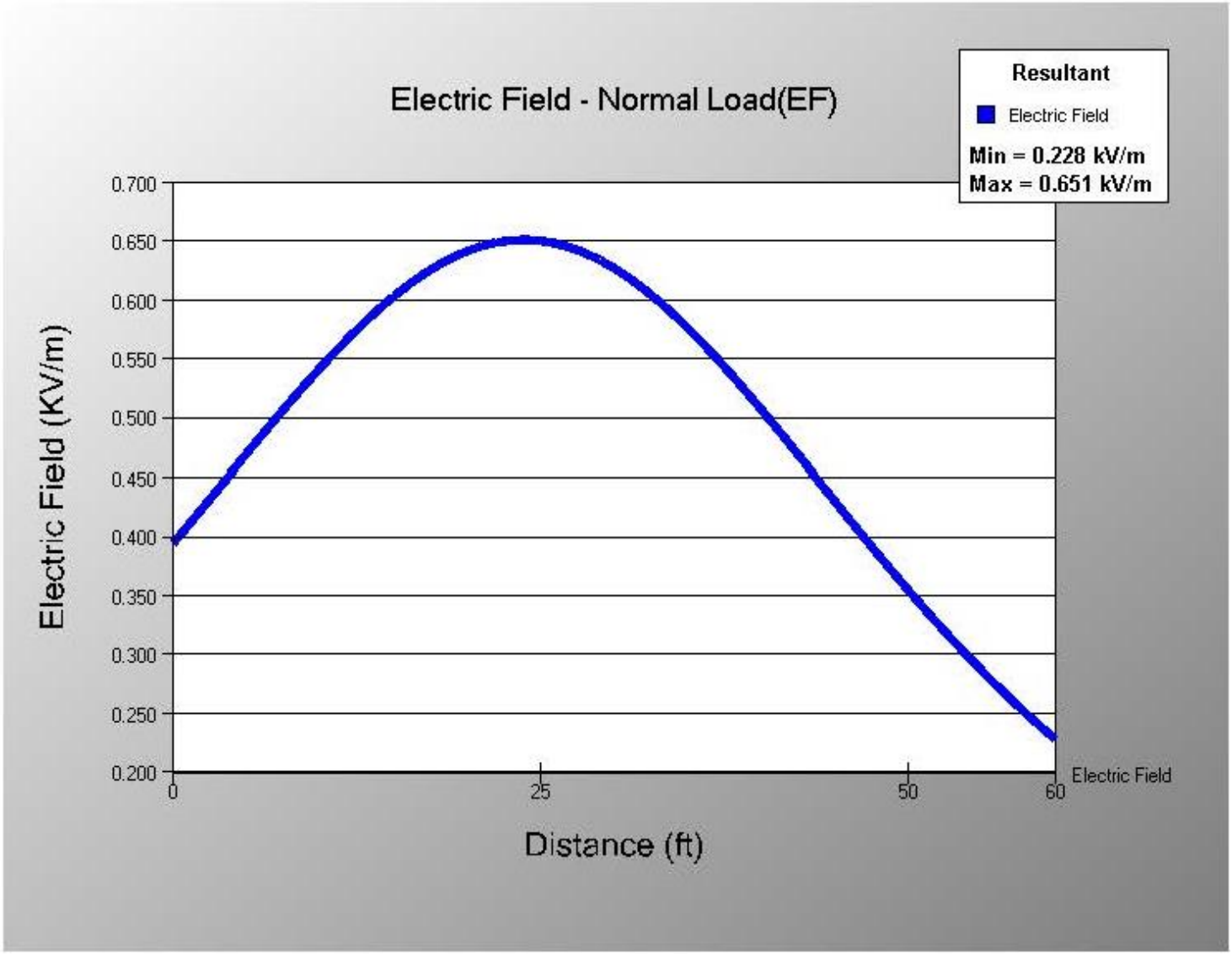
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENETIC FIELD WINTER LOAD	
EXHIBIT 7-12	

Electric Field, Lemoyne-Brim (Alternate), Deadend



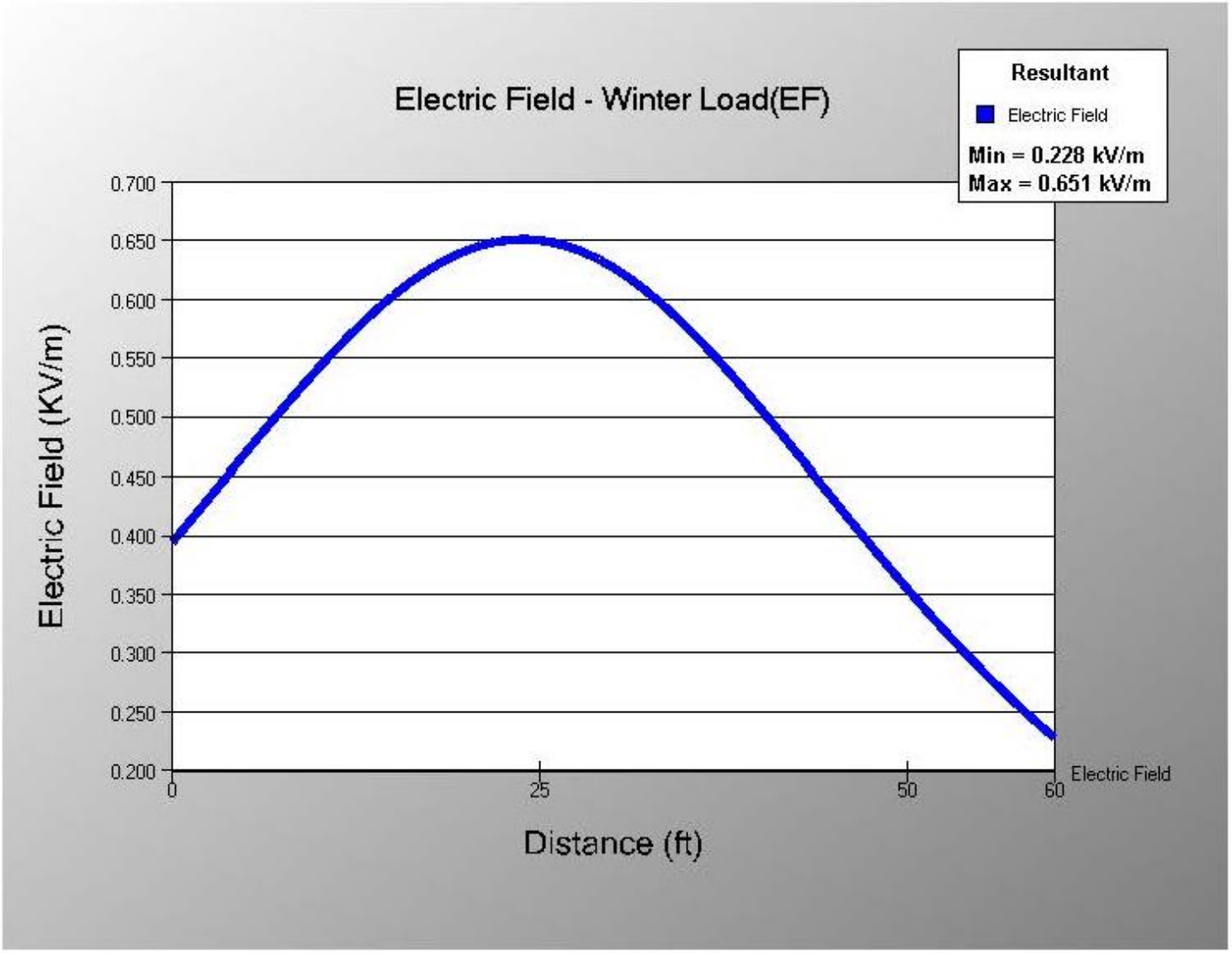
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD EMERGENCY LOAD	
EXHIBIT 7-13	

Electric Field, Lemoyne-Brim (Alternate), Deadend



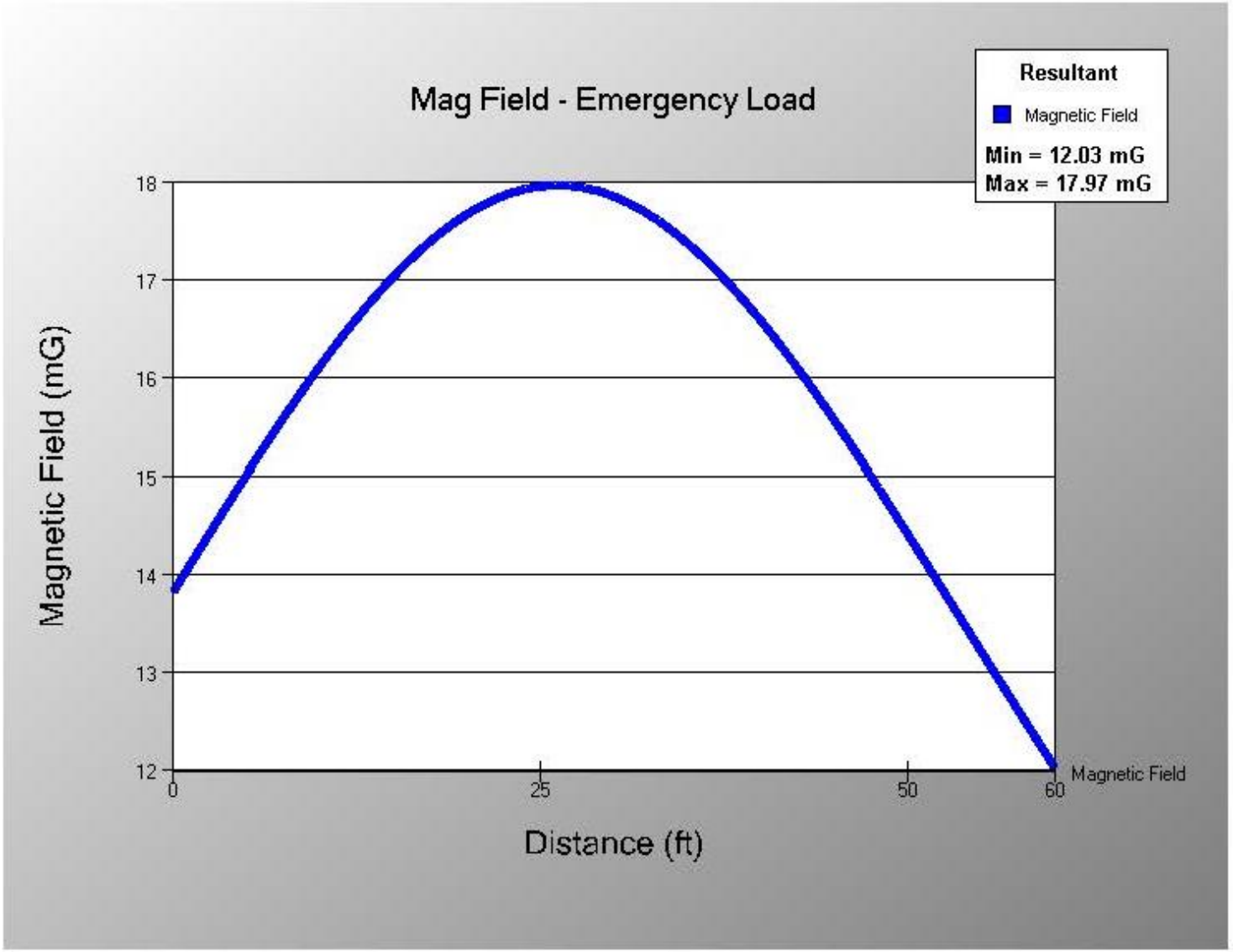
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD NORMAL LOAD	
EXHIBIT 7-14	

Electric Field, Lemoyne-Brim (Alternate), Deadend



ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
ELECTRIC FIELD WINTER LOAD	
EXHIBIT 7-15	

Magnetic Field, Lemoyne-Brim (Alternate), Deadend



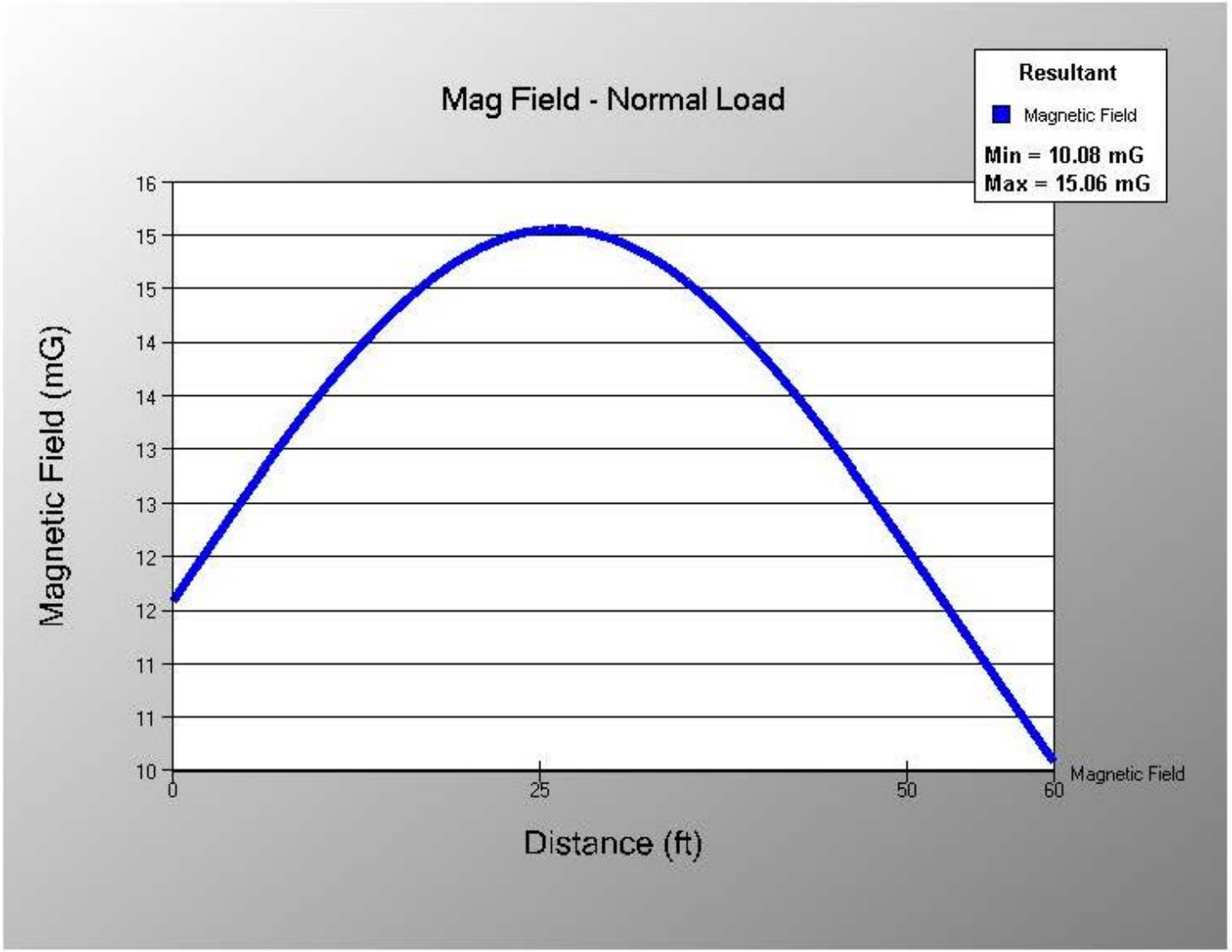
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

MAGENTIC FIELD EMERGENCY LOAD

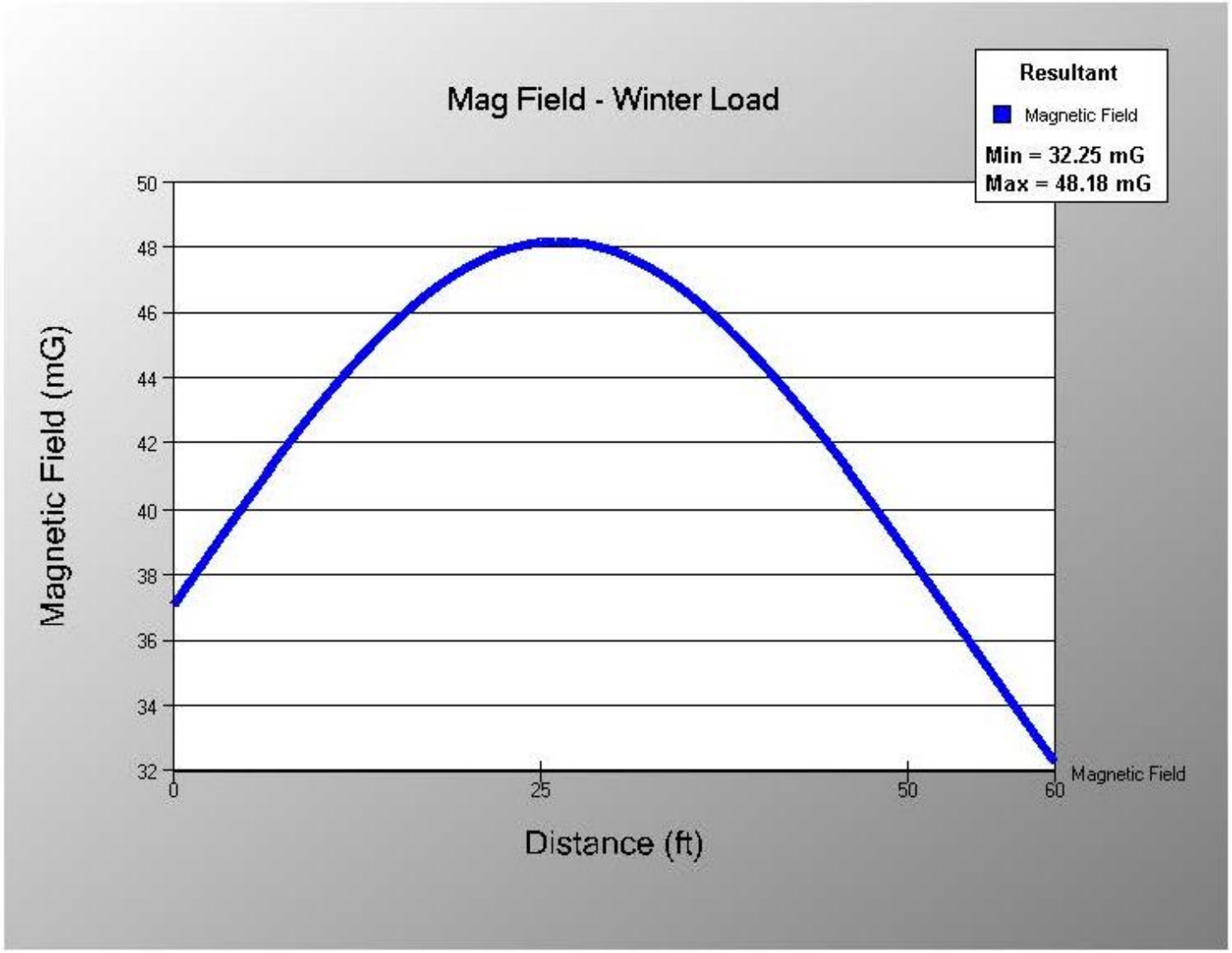
EXHIBIT 7-16

Magnetic Field, Lemoyne-Brim (Alternate), Deadend



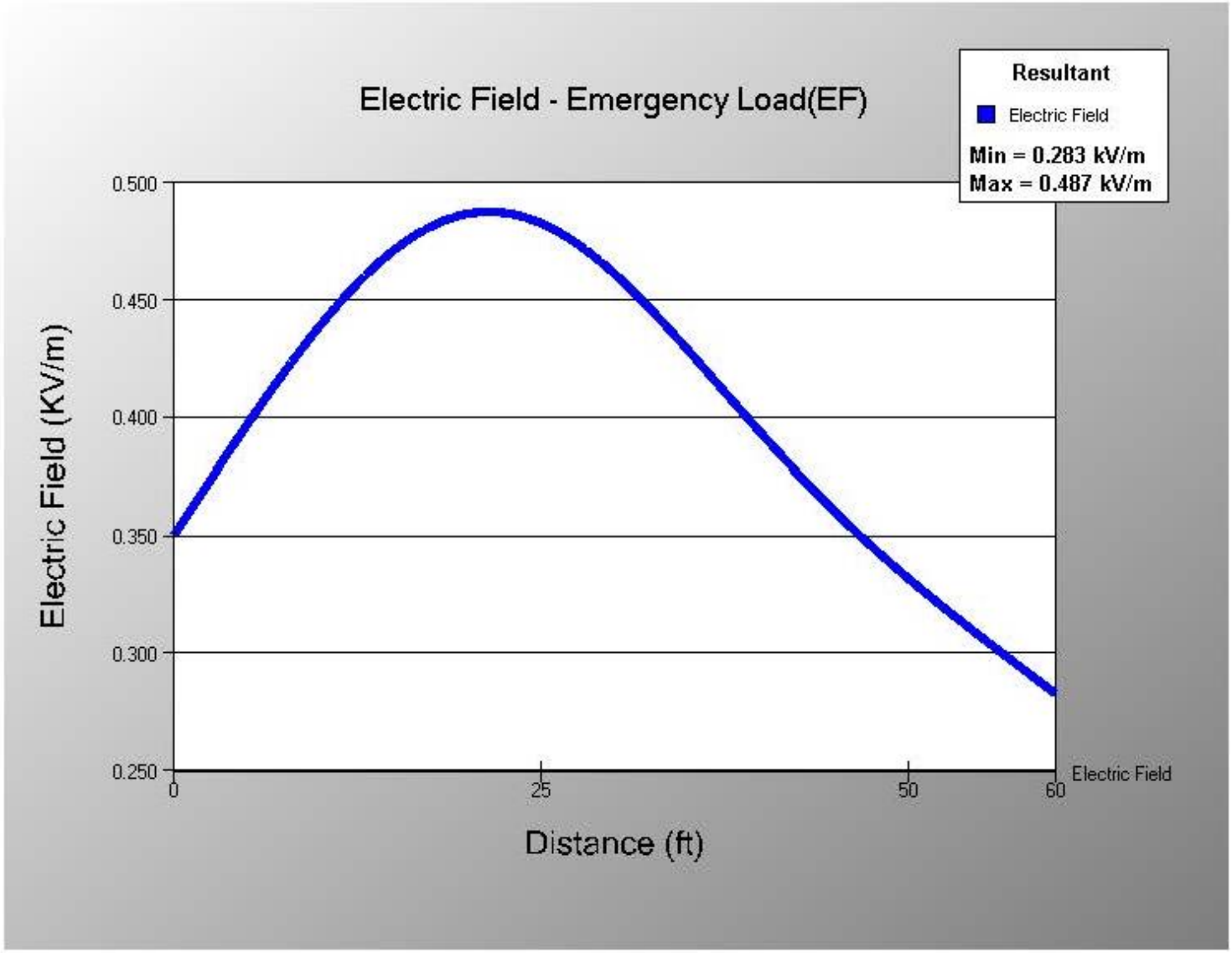
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENTIC FIELD NORMAL LOAD	
EXHIBIT 7-17	

Magnetic Field, Lemoyne-Brim (Alternate), Deadend



ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.	WOOD COUNTY 138-kV REINFORCEMENT PROJECT
MAGENTIC FIELD WINTER LOAD	
EXHIBIT 7-18	

Electric Field, Lemoyne-Brim (Alternate), Tangent



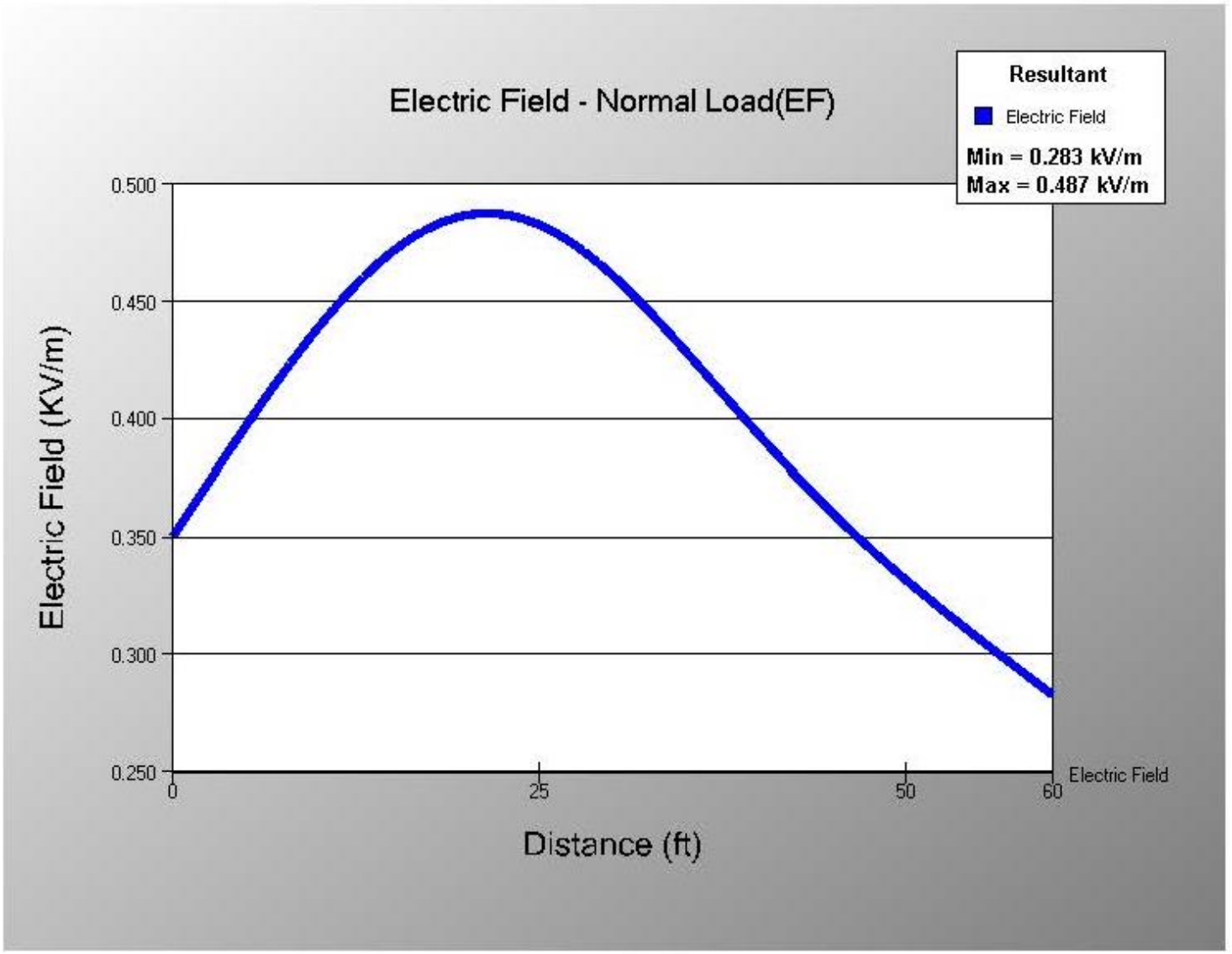
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

ELECTRIC FIELD EMERGENCY LOAD

EXHIBIT 7-19

Electric Field, Lemoyne-Brim (Alternate), Tangent



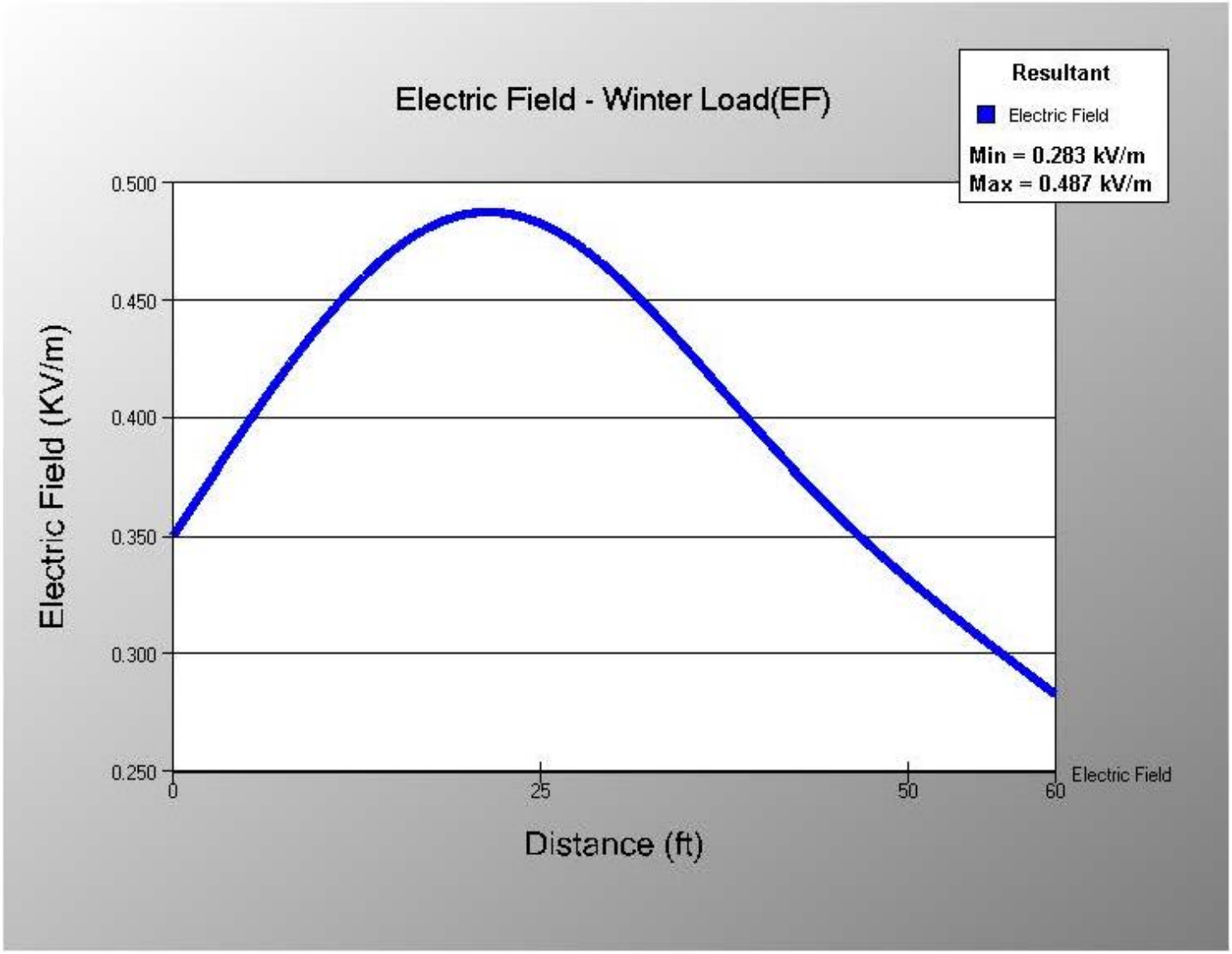
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

ELECTRIC FIELD NORMAL LOAD

EXHIBIT 7-20

Electric Field, Lemoyne-Brim (Alternate), Tangent



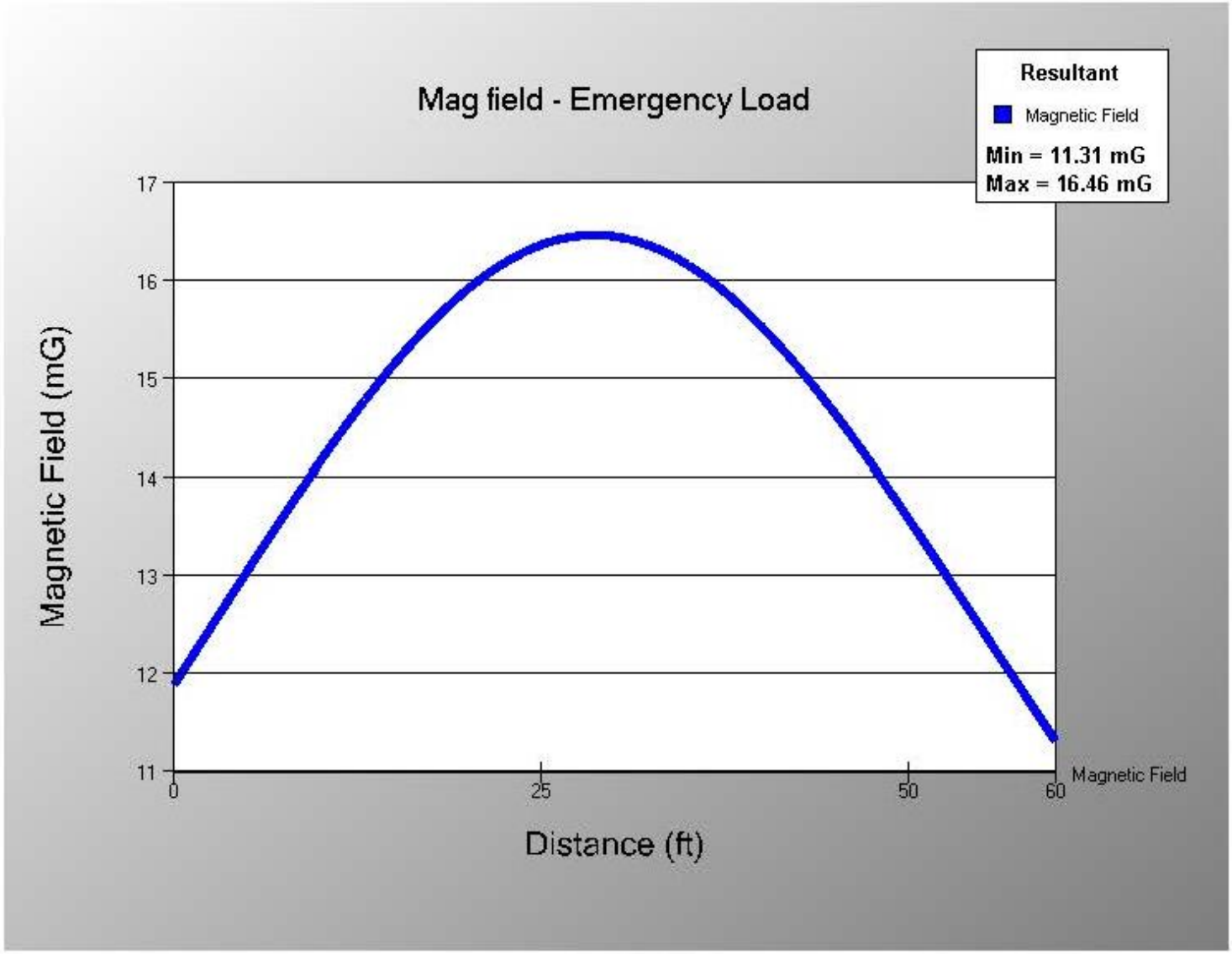
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

ELECTRIC FIELD WINTER LOAD

EXHIBIT 7-21

Magnetic Field, Lemoyne-Brim (Alternate), Tangent



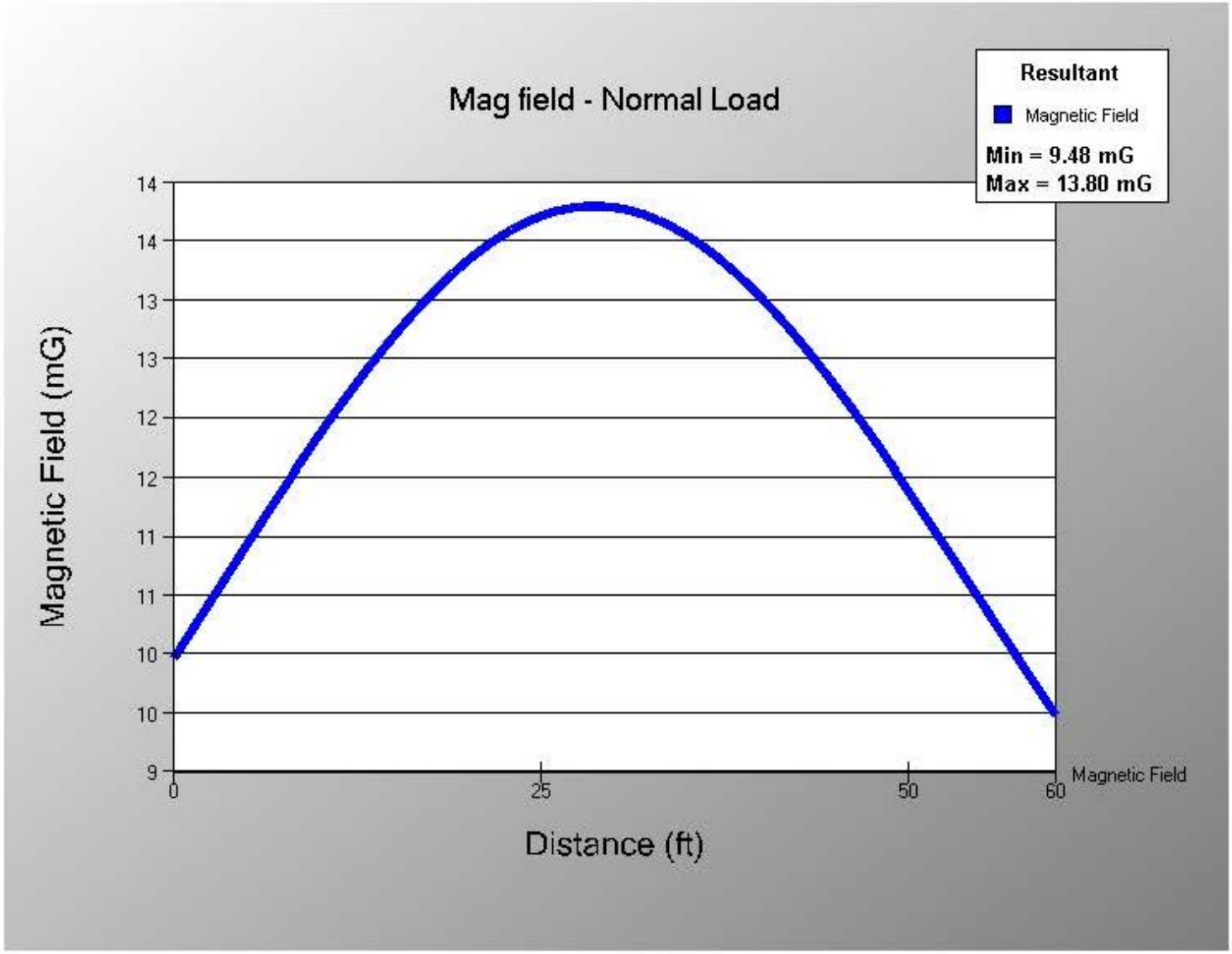
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

MAGENTIC FIELD EMERGENCY LOAD

EXHIBIT 7-22

Magnetic Field, Lemoyne-Brim (Alternate), Tangent



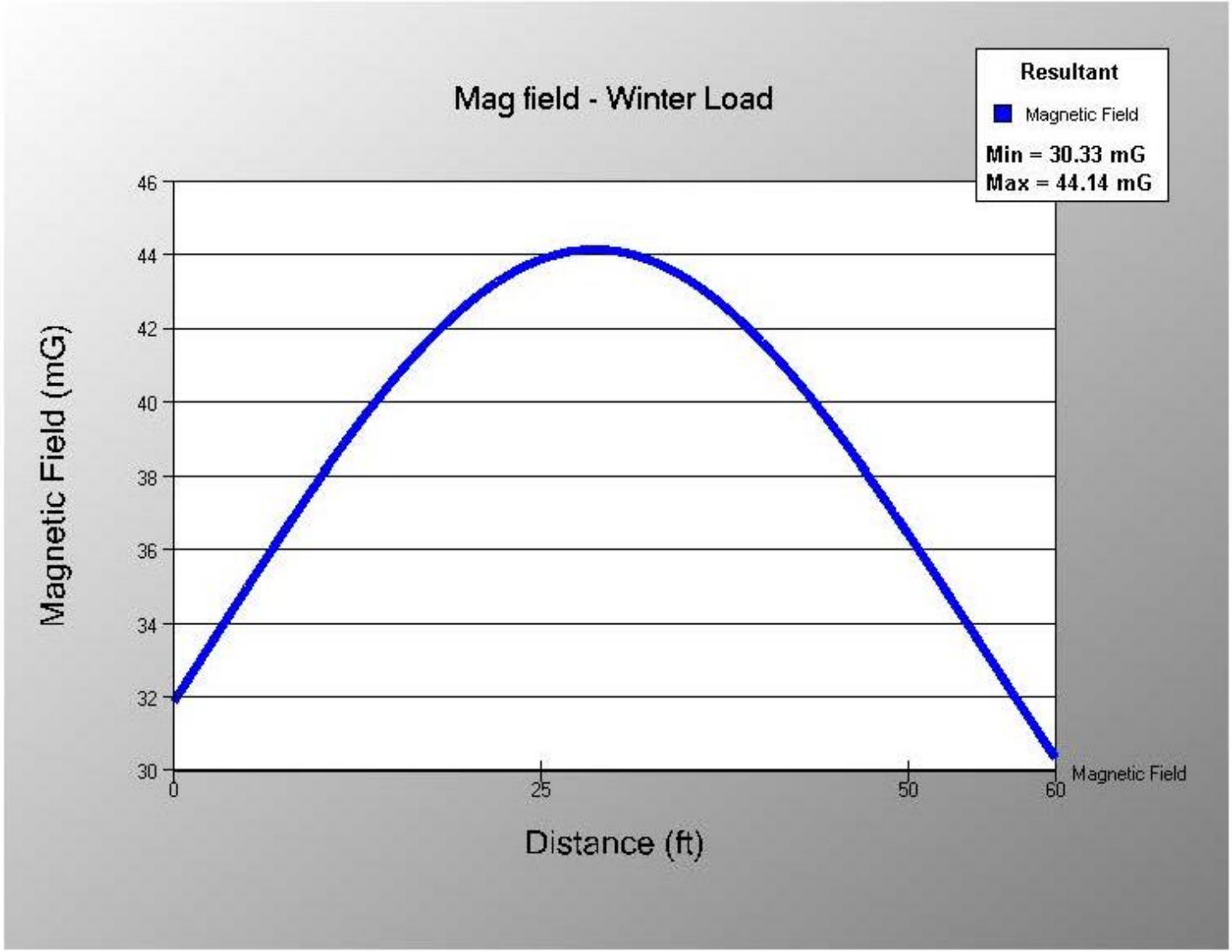
ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

MAGENTIC FIELD NORMAL LOAD

EXHIBIT 7-23

Magnetic Field, Lemoyne-Brim (Alternate), Tangent



ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

WOOD COUNTY 138-kV
REINFORCEMENT PROJECT

MAGENTIC FIELD WINTER LOAD

EXHIBIT 7-24

4906-5-08 ECOLOGICAL INFORMATION AND COMPLIANCE WITH PERMITTING REQUIREMENTS

Following the identification of the primary route options for the Project, and in conjunction with the identification of the Preferred and Alternate Routes as described in the Route Selection Study (**Appendix 4-1**), in the fall of 2018, an iterative study to assess the potential ecological impacts of the Project was conducted. This study included an initial map and literature review of a 1,000-foot corridor on either side of the centerline of what were ultimately determined to be the Preferred and Alternate Routes as well as the assessment of other ecological features within the Project area and other route options being considered at the time. Following the further refinement of route options for the Project, a field survey of ecological habitat and features was performed within 130 feet on either side of the anticipated ROW for both the Preferred and Alternate Route ("field survey area").

Information in the following sections provide the detailed findings of this ecological study as applied to only the Preferred and Alternate Routes.

(A) ECOLOGICAL MAP

Maps at a scale of 1:24,000 (1 inch = 2,000 feet) including the corridor 1,000 feet either side of the centerline (referred to as the 2,000-foot corridor) of the Preferred and Alternate Routes are presented as **Figure 7-1**. These maps depict the transmission line alignments, substation location, and land use classifications, including vegetative cover. Features within 1,000 feet of the proposed routes were identified from published data and, where accessible, verified by the field ecological survey.

An ecological overview map is provided as **Figure 8-1**. More detailed maps at 1:6,000 scale depicting field-delineated water features, lakes, ponds, reservoirs, highly erodible soils and slopes of 12 percent or greater, wildlife areas, nature preserves, and conservation areas within the 2,000-foot corridor are provided as **Figures 8-2A through 8-2E** (Preferred Route) and **Figures 8-3A through 8-3E** (Alternate Route).

(B) FIELD SURVEY REPORT FOR VEGETATION AND SURFACE WATERS

The ecological survey of both the Preferred and Alternate Routes, consisting of the 260-foot wide field survey area, was conducted in the fall of 2018. The field survey was preceded by review of published mapping, aerial photography, protected federal and state-listed species (e.g., threatened or endangered), and ecological information for at least 1,000 feet on either side of the Preferred and Alternate Routes centerlines. Map sources included USGS 7.5-minute quadrangle topographic maps, U.S. Fish and Wildlife Service (USFWS) NWI maps, and U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey maps.

Published information regarding existing flora and fauna was requested from the ODNR - Division of Wildlife (ODNR-DOW) Ohio Natural Heritage Program. This request included records of state-listed species within 1 mile of the Project area. The information provided by the ODNR-

DOW indicated one record of federal or state threatened or endangered species, within 1,000 feet of the Preferred and Alternate Routes. More detail on the data provided by the ODNR-DOW is provided in Section 4906-5-08(C)(1).

(1) Vegetative Communities, Wetlands, and Streams in Study Area

(a) Vegetative Communities

Vegetative communities and land use types within the field survey area include agricultural fields, residential land, and existing utility ROW. Habitat descriptions are provided below. Details on the anticipated impacts from construction of the proposed Project are provided in Section 4906-5-08(B)(3)(a) and in Table 8-4.

(i) Agricultural Fields

Portions of both routes pass through fields used for agricultural fields. Open fields planted in soybeans, corn, and wheat were observed along both route options.

(ii) Residential

There are 83 and 103 residences located within 1,000 feet of the Preferred and Alternate Routes, respectively. Vegetation identified on residential property includes areas of grasses and other herbaceous species, such as fescue (*Festuca* spp.), common dandelion (*Taraxacum officinale*), groundivy (*Glechoma hederacea*), English plantain (*Plantago lanceolata*), Fuller's teasel (*Dipsacus fullonum*), great plantain (*Plantago major*), white clover (*Trifolium repens*), and red clover (*Trifolium pratense*).

(iii) Roadway ROW

These areas are mostly located along roadways that are routinely mowed. Dominant herbaceous vegetation in these areas consists of fescue, common dandelion, white clover, English plantain, red clover, and ground ivy, maintained through mowing.

(b) Wetlands

According to the U.S. Army Corps of Engineers (USACE), a wetland is defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation (hydrophytic) typically adapted for life in saturated (hydric) soil conditions.

The onsite methodology described in the 1987 Technical Report Y-87-1, USACE Wetlands Delineation Manual and subsequent guidance documents including the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) was used for this Application. Additionally, each identified wetland was evaluated in accordance with the Ohio Rapid Assessment Method (ORAM) developed by Ohio Environmental Protection Agency (OEPA; Mack, 2001). Wetland categorizations were conducted in accordance with the latest quantitative score calibration procedure (OEPA, 2001). To identify whether potential wetlands exist along the Preferred and Alternate Routes, a desktop study of

available resources was performed prior to the field wetland delineations including a review of USFWS NWI maps and the NRCS soil survey and hydric soil list for Wood County.

(i) Summary of National Wetlands Inventory Data

USFWS NWI data, including freshwater wetlands and riverine areas, were mapped within 1,000 feet of the Preferred and Alternate Routes, and reviewed to guide the field ecological survey as one factor in identifying potential wetland locations (USFWS, 2018). The NWI-mapped areas are shown on **Figures 8-2A through 8-2E** and **Figures 8-3A through 8-3E** for the Preferred and Alternate Route, respectively. **Table 8-1** summarizes the NWI data by wetland classification and habitat type. The actual extent and type of field-delineated wetlands along the routes are discussed in the next section.

TABLE 8-1
NWI Wetlands Within 1,000 feet of the Preferred and Alternate Routes

Wetland Type	NWI Code	NWI Habitat Type*	Total Number of Each Habitat Type Preferred/ Alternate
Freshwater Forested/ Shrub Wetland	PFO1A	Palustrine Forested Broad-leaf Deciduous, Temporary Flooded	0 – Preferred 1 – Alternate
Freshwater Forested/ Shrub Wetland	PFO1C	Palustrine Forested Broad-leaf Deciduous, Seasonally Flooded	0 – Preferred 1 – Alternate
Freshwater Forested/ Shrub Wetland	PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous, Seasonally Flooded	0 – Preferred 1 – Alternate
Freshwater Pond	PUBG	Palustrine Unconsolidated Bottom	2 – Preferred 1 – Alternate
Freshwater Pond	PUBGx	Palustrine Unconsolidated Bottom, Intermittently Exposed Excavated	6 – Preferred 8 – Alternate
Riverine	R5UBFx	Riverine Unknown Perennial Unconsolidated Bottom, Semipermanently Flooded Excavated	8 – Preferred 6 – Alternate
Riverine	R5UBH	Riverine Unknown Perennial Unconsolidated Bottom, Permanently Flooded	1 – Preferred 0 – Alternate
		Total Number of Preferred Route NWI Wetlands:	**17**
		Total Number of Alternate Route NWI Wetlands:	**18**

* USFWS, 2018. Total number of R = 15, PSS = 1, PFO = 2, PUB = 17

(ii) Field-Delineated Wetlands

ATSI's planned ROW is 60 feet wide centered along the transmission line route. The planned construction work activities (workspace) and soil surface disturbance will be limited to this 60-foot wide corridor. During the field survey, no wetlands were identified within the Preferred Route ROW or the Alternate Route ROW.

(c) Waterbodies

(i) Field-Delineated Streams

Streams and drainage channels were delineated and assessed during the ecological survey.

The OEPA's Headwater Habitat Evaluation Index (HHEI) can be used to evaluate streams with a drainage area less than or equal to one square mile, and maximum pools depths less than or equal to 40 cm (OEPA, 2012). When used, the HHEI is typically used to assess Primary Headwater Habitat (PHWH) streams that fall under the classification of first or second-order streams. The HHEI rates a stream based on its physical habitat and uses that information to estimate the biological potential of the stream. The physical habitats scored for the HHEI are substrate type, pool depth, and bank full width. Within the context of the HHEI, streams can be classified generally as Class I PHWH Streams for scores from 0 to 29.9; Class II PHWH Streams for scores from 30 to 69.9; an Class III PHWH Streams for scores from 70 to 100. A "Modified" qualifier may be added as a prefix to any of these classes if evidence of anthropogenic alterations, such as channelization and bank stabilization, are observed. A higher PHWH class corresponds with a more continuous flow regime. The flow regime determines the physical habitat of the stream and is therefore indicative of the biological communities it can support. Streams with scores between 30 and 69 may be classified as potential rheocrene habitat, depending on substrate type, watershed size, and stream flow. The PHWH class for these potential rheocrene streams is then identified by evaluating the biology (fish, salamanders, and benthic macroinvertebrates).

Four streams were evaluated using the HHEI method (identified in **Table 8-2**). Three of these streams were identified along the Preferred Route field survey area and one along the Alternate Route field survey area.

Streams identified during the ecological survey on the Preferred and Alternate Routes are shown on **Figures 8-2A through 8-2E and Figures 8-3A through 8-3E**, respectively. Detailed information on each delineated stream is included in **Table 8-2**.

The Preferred Route centerline crosses three steams for a total of four crossings. The length of streams located within the Preferred Route field survey area is approximately 19,774 linear feet. The Alternate Route centerline crosses one stream only one time. The total length of streams located within the field survey area of the Alternate Route is approximately 260 linear feet. Details of these features are provided in **Table 8-2** and further discussed in Section 4906-5-08(B)(3)(c).

Approximately 14,038 linear feet of streams are located within the planned Preferred Route ROW, while approximately 60 linear feet are located within the planned Alternate Route ROW.

TABLE 8-2
Streams within the Preferred and Alternate Route Environmental Field Survey Area and ROW

Stream ID Waterbody Name	Route	Figure	Flow Regime	Top of Bank Width (feet)	Maximum Pool Depth (inches)	Form	Score	OEPA Aquatic Life Use Designation	PHWH Class (HHEI)/ Narrative Rating (QHEI)	Crossed by Centerline	Length (linear feet) within Field Survey Area [a]	Length (linear feet) within ROW [b]
Preferred Route												
Stream 1 (1011-11)	Preferred	2A-B	Perennial	20	2	HHEI	27	NA	Modified Class I PHWH	Yes	13,284	7,896
Stream 2 (1011-10)	Preferred	2C	Perennial	20	7	HHEI	51	NA	Modified Class II PHWH	Yes	826	692
Stream 3 (1010-03)	Preferred	2E	Perennial	25	8	HHEI	48	NA	Modified Class II PHWH	Yes	5,664	5,450
										Total	**19,774**	**14,038**
Alternate Route												
Packer Creek (1024-01)	Alternate	3B	Perennial	15	4	HHEI	39	NA	Modified Class II PHWH	Yes	260	60
										Total	**260**	**60**

Notes:

a The width of the field survey area was 260 feet.

b The width of the construction workspace and the final maintained ROW is planned to be 60 feet.

(ii) Lakes, Ponds, and Reservoirs

No lakes or reservoirs were observed in the field survey area for either the proposed Preferred or Alternate Routes.

One pond with 0.03-acre surface area was identified during the field evaluation within the field survey area along the Preferred Route. Three ponds totaling 0.97-acre surface area were identified within the field survey area along the Alternate Route. Ponds within the field survey area are shown on **Figures 8-2A through 8-2E** and **Figures 8-3A through 8-3E** and are summarized in **Table 8-3**.

Impacts to ponds from construction, operation, or maintenance of the proposed transmission line are not anticipated. Best management practices (BMPs) to control soil erosion and sedimentation, including utilization of silt fencing, filter sock, etc., will be used as appropriate during construction to minimize runoff siltation.

TABLE 8-3
Delineated Ponds within the Preferred Route and Alternate Route Environmental Field Survey Area

Report Name	Route	Figure	Acreage within Field Survey Area	Acreage within ROW	Linear Feet Crossed by Centerline
Preferred Route Ponds					
Pond 1	Preferred	2E/3E	0.03	0 [b]	not crossed
		Total:	**0.03**	**0**	**0**
Alternate Route Ponds					
Pond 1	Alternate	2E/3E	0.25	0 [b]	not crossed
Pond 2	Alternate	2E/3E	0.38	0 [b]	not crossed
Pond 3	Alternate	3B	0.34	0 [b]	not crossed
		Total:	**0.97**	**0**	**0**

Notes:

a All measurements listed as <0.01 were assumed to be 0.01 for calculations.

b "0" indicates the pond is not within the ROW.

(2) Map of Facility, Right-of-Way, and Delineated Resources

Detailed maps at 1:6,000 scale depicting the delineated features, field survey area, and proposed ROW are provided as **Figures 8-2A through 8-2E and Figures 8-3A through 8-3F** for the Preferred and Alternate Route, respectively.

(3) Construction Impacts on Vegetation and Surface Waters

(a) Construction Impacts on Vegetation

The construction impacts on woody and herbaceous vegetation along both the Preferred and Alternate Routes will be limited to the initial clearing of vegetation within the 60-foot ROW for the proposed transmission line and access roads. Specific locations for access roads will be identified at the time of ATSI's transmission line easement acquisition process. Trees adjacent to the proposed transmission line ROW, that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe operation of the transmission line. Vegetative wastes (such as tree limbs and trunks) generated during the construction phase will be windrowed or chipped and disposed of appropriately depending on individual landowner requests, and applicable permit requirements. The approximate vegetation impacts along the Project ROW are provided in **Table 8-4**.

TABLE 8-4
Approximate Vegetation Impacts Along the ROW

Land Use Type	Length of Route (in feet)	Length of Route (in miles)	Acreage within ROW
Preferred Route			
Agricultural	30,941.9	5.9	42.0
Residential	654.9	0.1	1.4
Alternate Route			
Agricultural	28,077.4	5.3	38.6
Residential	3,209.9	0.6	4.0
Roadway ROW	60.0	<0.1	0.6

(b) Construction Impacts on Wetlands

Impacts to wetlands are not anticipated by the construction, operation, or maintenance of the proposed transmission line. BMPs, including utilization of silt fence or filter sock, will be used as appropriate during construction to minimize runoff siltation.

(c) Construction Impacts on Waterbodies

The Preferred Route centerline crosses three streams a total of four times. The Alternate Route centerline crosses one stream one time. The length of these streams within the ROW are reported in **Table 8-2** and further discussed in Section 4906-5-08(B)(3)(c).

Approximately 14,038 linear feet of streams are located within the Preferred Route ROW, while approximately 260 linear feet are located within the planned Alternate Route ROW.

ATSI will not conduct mechanized clearing within 25 feet of any stream, and will only clear those trees in this area that are tall enough to or have the potential to interfere with safe construction and operation of the transmission line. No streams will be filled or permanently impacted. Some

streams may have to be crossed by construction vehicles. Access paths to proposed pole locations will be evaluated when final engineering design is completed and landowner negotiations completed. If a new stream crossing is necessary, Applicant will use one of the following three proposed methods to cross streams:

- Temporary stream ford
- Temporary culvert stream crossings
- Temporary access bridge

Temporary stream fords are proposed for crossing low quality ephemeral and intermittent streams with a drainage basin less than 1 square mile during periods of low flow. This will involve minimum clearing necessary to gain access to the stream and for passage of construction vehicles.

- Disturbance of the stream will be kept to a minimum, stream bank vegetation will be preserved to the maximum extent practical, and the stream crossing width will be kept as narrow as possible. Any necessary clearing will leave stumps and roots in-place to aid stabilization and to accelerate re-vegetation.

- Sediment-laden runoff will be prevented from flowing from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fences will be used as needed according to local topographic conditions.

- Following completion of the work, the areas cleared for the temporary access crossing will be stabilized in accordance with the stormwater pollution prevention plan (SWPPP) approved for the Project.

Culvert stream crossings may be proposed for crossing marginal quality perennial, ephemeral, and intermittent streams with a drainage basin of less than 1 mile. These crossings may be removed or remain in place if needed to provide maintenance access to the transmission line to ensure reliable service. All necessary permits will be secured prior to installation.

- Disturbance of the stream will be kept to a minimum, stream bank vegetation will be preserved to the maximum extent practical, and the stream crossing width will be kept as narrow as possible. Any necessary clearing will leave stumps and roots in place to aid stabilization and to accelerate re-vegetation.

- Sediment laden runoff will be controlled to minimize flow from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fence will be used as needed according to local topographic conditions.

- Culvert pipes will be embedded into the existing streambed to avoid a drop or waterfall at the downstream end of the pipe, which would be a barrier to fish migration. Crossings will be placed in shallow areas rather than pools.

- Culverts will be sized to be at least three times the depth of the normal stream flow at the crossing location. The minimum diameter culvert that will be used is 18 inches.

- There will be a sufficient number of culvert pipes to cross the stream completely with no more than a 12-inch space between each one.

- Stone, rock, or aggregate of ODOT number 1 as a minimum size will be placed in the channel, and between culverts. To prevent washouts, larger stone may be used with gabion mattresses. No soil will be placed in the stream channel.

- After completion of construction, culvert crossings will either be removed completely and restored, or left in place for future maintenance access.

- Stream banks will be stabilized as appropriate.

Temporary access bridges or culvert stream crossings will be used for higher quality perennial, ephemeral, and intermittent streams and streams with a drainage basin greater than 1 square mile.

- Disturbance of the stream will be kept to a minimum, stream bank vegetation will be preserved to the maximum extent practical, and the stream crossing width will be kept as narrow as possible. Any necessary clearing will leave stumps and roots in place to aid stabilization and to accelerate re-vegetation.

- Sediment laden runoff will be controlled to minimize flow from the access road directly into the stream. Diversions and swales will be used to direct runoff to stormwater management locations. Silt fence will be used as needed according to local topographic conditions.

- Bridges will be constructed to span the entire channel. If the channel width exceeds 8 feet, then a floating pier or bridge support may be placed in the channel. No more than one pier, footing, or support will be allowed for every 8 feet of span width. No footings, piers, or supports will be allowed for spans of less than 8 feet.

- No fill other than clean stone, free from soil, will be placed within the stream channel.

These crossings will be addressed in the Project SWPPP. Some of the access routes may be left in place for maintenance activity. Details regarding proposed access road stream crossing methods will be provided to the OPSB separately, if deemed necessary.

Impacts to ponds are not anticipated by the construction, operation, or maintenance of the proposed transmission line. BMPs, including utilization of silt fence or filter sock, will be used as appropriate during construction to minimize runoff siltation.

(4) Operation and Maintenance Impacts on Vegetation and Surface Water

During operation of the transmission line along either of the proposed routes, the impacts on vegetation are anticipated to be minor. Undeveloped non-forested land not significantly disturbed by construction should retain its current vegetation composition. Periodic cutting along the proposed 60-foot-wide transmission line ROW is not expected to result in a significant environmental impact to the vegetation in these types of areas.

The potential impacts on woody and herbaceous vegetation along either of the proposed routes will be limited to maintenance activities along the proposed transmission line ROW and access roads for safe and reliable operation of the transmission line. Trees adjacent to the proposed transmission line ROW, that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe operation of the transmission line. Vegetative waste (such as tree limbs and trunks) that is generated during the construction phase will be windrowed or chipped and managed appropriately.

Once the transmission line is in operation, no significant impacts to streams or drainage channels are anticipated. Only periodic selective removal of vegetation that interferes with the operation of the transmission line will be required. No major lakes, ponds, or reservoirs should be affected by the operation or maintenance of the Preferred or Alternate Routes.

ATSI does not anticipate wetland impacts from the operation or maintenance of the Preferred and Alternate Routes. Vegetation that occurs within wetland areas may require periodic cutting. It is not anticipated that such activities would result in erosion or water quality degradation. Maintenance cutting of woody vegetation in wetland areas would be hand-cut by chain saws or other non-mechanized techniques.

(5) Mitigation Procedures

The following mitigation procedures will be used during construction, operation, and maintenance of the proposed Project to minimize the impact on vegetation and surface waters. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented as required under the applicable surface water permits and will be made available onsite during Project construction. Future maintenance activities will be implemented in accordance with all applicable regulations.

(a) Site Restoration and Soil Stabilization

A SWPPP will be developed specifically for the Project and specified BMPs will be implemented during construction to control erosion and sedimentation. Areas where soil has been disturbed will be seeded and mulched to prevent soil erosion and sedimentation. Experience shows that seeding in non-wetland and non-agricultural areas is advantageous to control erosion on areas disturbed by construction activities. In lightly disturbed wetland areas, existing seed banks are quite often capable of quickly reestablishing vegetation that is compatible with the surrounding wetland. If any unanticipated significant disturbance occurs in wetlands, topsoil will be segregated and replaced so that the existing seed banks will be allowed to revegetate the areas initially.

Additional seeding will only take place if the existing seed bank does not repopulate an area. These measures should preserve the aesthetic qualities along the ROW, prevent erosion, and promote habitat diversity.

Construction access routes and staging areas will be selected to minimize impacts to wetlands and streams to the extent practical. Following construction, pole locations, material storage sites, and temporary access roads will be seeded with a suitable grass seed mixture as specified in the SWPPP for restoring these disturbed areas.

(b) Frac-out Contingency Plan for Horizontal Direction Drill Stream and Wetland Crossings

The Project does not include a stream or wetland crossing by horizontal direction drill. Therefore, a detailed frac-out contingency plan will not be required for the Project.

(c) Demarcation and Protection Methods

Wetlands, streams, and any other environmentally sensitive areas will be clearly staked, flagged, or fenced in accordance with the SWPPP prior to the commencement of any clearing in order to minimize incidental impacts. BMPs such as utilization of silt fences and construction matting will be implemented as required during construction.

(d) Procedures for Inspection and Repair of Erosion Control Measures

Procedures for inspection and repair of erosion control measures, especially after rainfall events, will be outlined in the SWPPP.

(e) Stormwater Runoff Measures

BMPs, including utilization of silt fence or filter socks, will be used as appropriate during construction to minimize runoff and sedimentation of streams and wetlands. Measures to divert stormwater runoff away from fill slopes and other exposed surfaces will be outlined in the SWPPP.

(f) Vegetation Protection Methods

Cutting of woody vegetation in wetlands and near stream banks will be limited to removal of only the cut back required to safely perform construction and continue operation of the transmission line. ATSI will adhere to permit requirements and conditions that will be obtained or authorized for the Project, including specifying that no mechanized clearing of vegetation be performed within a wetland or waterbody as discussed below.

(g) Clearing Methods

ATSI will not conduct mechanized clearing within 25 feet of any stream and will only clear those trees in this area that are tall enough to or have the potential to interfere with safe and reliable construction and operation of the transmission line. Trees adjacent to the proposed transmission line ROW that are dead, dying, diseased, leaning, significantly encroaching, or prone to failure may require clearing to allow for safe and reliable operation of the transmission line. Vegetative waste (such as tree limbs and trunks) that is generated during the construction

phase will be windrowed or chipped and managed in accordance with applicable permit requirements.

(h) Expected Use of Herbicides

Herbicide use on the Project will be in accordance with applicable state and federal regulations and will be applied in accordance with the manufacturer instructions, which include requirements related to the suitability of a particular herbicide for use near surface water. Only appropriate mixtures and selective methods of application including low-volume foliar and cut stump treatment will be used to support the construction of the Project. The application of a stump herbicide treatment consists of applying herbicide to the cambium layer of the stump and associated root flares. A low-volume foliar application method targets specific incompatible vegetation by applying the herbicide directly on the foliage of the target vegetation, while minimizing potential overspray.

The herbicides used during construction of the Project work on enzymes found only within plants, not people or animals. These compounds enter through leaves, stems, and stumps and control plant growth from the inside of the plant. The products used have undergone years of testing and will be used only as approved by appropriate government agencies. The U.S. Environmental Protection Agency (EPA) approves such products for use only after determining that they will not adversely affect human health or the environment when properly applied. The crews that apply herbicides will follow strict usage guidelines in accordance with the labeling and application requirements. Workers who apply herbicides must hold a pesticide applicator license from the state of Ohio or work under the direct supervision of a certified applicator.

(C) LITERATURE SURVEY OF PLANT AND ANIMAL LIFE POTENTIALLY AFFECTED

The Project area is primarily rural with few residences and businesses located on larger lots. The developed areas are dominated by residences and existing utility or road ROW. The rural areas are mostly comprised of fields, pastures, woodlots, residences, and existing road and utility ROW. Both the Preferred and Alternate Routes have potential habitat for wildlife species. Lists of commercial and recreational species were created utilizing professional experience and the ODNR-DOW 2018-2019 Hunting and Trapping Regulations (ODNR-DOW, 2018a).

Lists of protected species are based on information showing their range within Wood County, as reported in correspondence from the ODNR-DOW (ODNR-DOW, 2018b) and the review of USFWS county species distribution lists (USFWS, 2018a). Details on the expected impacts of construction, operation, maintenance, and mitigation procedures can be found following the threatened and endangered, commercial, and recreational species descriptions that follows.

(1) Project Vicinity Species Descriptions

(a) Protected Species

Coordination with ODNR-DOW was initiated in March 2018 to obtain Ohio Natural Heritage Database records within a 1-mile area around the Project area for the preferred and the

alternate routes. A database records search of a larger area allows for potential shifts in the alignments to remain covered by the initial requested area. Although ODNR records of state and federally listed species were provided in March 2018, prior to route selection, the Preferred and Alternate Routes were located entirely within the area covered by the data request. ODNR data indicated that one protected species is known to occur within 1-mile of the Preferred and Alternate Routes and seven species are within the range of the project location. Presence of the species listed within range is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Current information on a species list obtained from USFWS county lists and the ODNR-DOW Ohio Natural Heritage Database is provided in **Tables 8-5 and 8-6**.

A consultation request was submitted to the USFWS on November 12, 2018. A response letter was received dated November 19, 2018. The USFWS confirmed that two federally listed bat species listed in **Table 8-5** may occur in the field survey area, as in Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. The USFWS also recommended winter tree clearing to avoid take of these species. ATSI will coordinate any habitat assessments or surveys with the USFWS. The USFWS does not anticipate adverse effects to federally endangered, threatened, proposed, or candidate species due to the project type, size, and location.

Likewise, a consultation request was submitted to the ODNR-DOW on November 12, 2018. To date, a response has not been received. When received, OPSB will be notified of the response.

TABLE 8-5
Federally Listed Species potentially within 1,000 feet of Proposed Routes

Common Name/Species Name [a]	Federal Status [b, c]	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in Project Area
Vertebrate Animals				
Indiana bat / *Myotis sodalis*	Endangered	Hibernacula = Caves and mines Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.[d]	Wood County, Ohio[c]. No ODNR records in vicinity of the Project area[b].	No
Northern long-eared bat / *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.[d]	Wood County, Ohio[c]. No ODNR records in vicinity of the Project area[b].	No

Sources:

a NatureServe Explorer, 2018 b ODNR-DOW, 2018b c USFWS, 2018a d USFWS, 2018b e ODNR, 2018c f ODNR, 2008

TABLE 8-6
State-listed Species within 1,000 feet of Proposed Routes

Common Name/Species Name [a]	State Status [b]	General Habitat Notes	Recorded Location within Project Vicinity [b]	Potential Habitat in Project Area
Vertebrate Animals				
Indiana bat / *Myotis sodalis*	Endangered	Hibernacula = Caves and mines Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests. [d]	Range is within Wood County, Ohio.	No
Western banded killifish / *Fundulus diaphananus menona*	Endangered	Found in areas with an abundance of rooted aquatic vegetation, clear waters, and with substrates of clean sand or organic debris free of silt. [e]	Range is within Wood County, Ohio.	No
Spotted turtle / *Clemmys guttata*	Threatened	Prefers shallow, sluggish waters of ditches, small streams, marshes, bogs, and pond edges where vegetation is abundant. It occasionally wanders away from water and lives in wet woods and meadows. [e]	Range is within Wood County, Ohio.	Yes
Northern Harrier / *Circus cyaneus*	Endangered	Hunt low over grasslands. A common migrant and winter species; nesters are much rarer, although they occasionally breed in large marshes and grasslands. [e]	Range is within Wood County, Ohio.	No
Lark sparrow / *Chondestes gramacus*	Endangered	Nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. [e]	Range is within Wood County, Ohio.	Yes
Upland sandpiper / *Bartramia longicauda*	Endangered	Breed in grasslands, pastures, and unkempt agricultural land with a mosaic of old fields and crop lands, and sometimes the grassy expanses of airports. [e]	Range is within Wood County, Ohio.	Yes
Invertebrate Animals				
Pondhorn / *Uniomerus tetralasmus*	Threatened	Inhabits slow-moving, shallow waters of sloughs, borrow pits, ponds, ditches, and streams. Tolerant of poor water conditions and can be found in a substrate of fine silt and/or mud. [a]	Range is within Wood County, Ohio.	Yes

TABLE 8-6
State-listed Species within 1,000 feet of Proposed Routes

Common Name/Species Name [a]	State Status [b]	General Habitat Notes	Recorded Location within Project Vicinity [b]	Potential Habitat in Project Area
Plants				
Bushy horseweed / *Conyza ramosissima*	Potentially Threatened	Dry, open, often disturbed areas: prairie remnants, fields, grazed pastures, along roadsides and railroads and in waste places. [f]	ODNR records within 1-mile of the Preferred and Alternate Routes.	Yes

Sources:

a NatureServe Explorer, 2018 b ODNR-DOW, 2018b c USFWS, 2018a d USFWS, 2018b e ODNR, 2018c f ODNR, 2008

(b) Commercial Species

The commercially important species along the proposed routes consist of those hunted or trapped for fur or other products, include the following species. This information was obtained from the ODNR-DOW 2018-2019 Hunting and Trapping Regulations (ODNR-DOW, 2018a) and the ODNR-DOW Species Guide Index (ODNR-DOW, 2018c).

Beaver (*Castor canadensis*): Beavers occur in forested ponds, lakes, and rivers. In rivers, beavers make burrows with an underwater entrance in the riverbank. However, in streams, lakes and ponds, beavers usually build dams that incorporate a lodge. Based on the habitat present along the routes, this species is unlikely to inhabit locations along the route. This species was not observed during the field investigations.

Coyote (*Canis latrans*): Historically, coyotes prefer open territory, but in Ohio, they have adapted to various habitat types, including forests, clearcuts, and woodlots in rural and urban areas. Coyotes are a very adaptable species that has prospered despite the expanding presence of human impact. This species is likely found near or within the Project, but was not observed during field investigations.

Gray Fox (*Urocyon cinereogentus*): The gray fox prefers wooded areas and partially open brush land with little human presence. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations. However, they are nocturnal animals.

Least Weasel (*Mustela nivalis)*: The least weasel inhabits open areas such as meadows, marshes, brushy areas and agricultural fields. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations. However, they are generally nocturnal animals.

Long-tailed Weasel (*Mustela frenata*): The long-tailed weasel is an adaptable animal that can be found in terrestrial habitats near water. Based on habitat present along the routes, this species is likely found near or within the Project, but was not observed during field investigations. However, they are generally nocturnal animals.

Mink (*Mustela vison*): Mink are usually found near water, both running and standing. Minks prefer wooded or brushy areas. This species was not observed during the field investigations.

Muskrat (*Ondatra zibethicus*): The muskrat is a large freshwater rodent. This species was not observed during the field investigations, but it could inhabit select locations along the Routes.

Raccoon (*Procyon lotor*): The raccoon is widespread in Ohio, even in many suburban and urban areas. Raccoons prefer wooded areas with water nearby. This species is likely found near or within the Project, but was not observed during field investigations.

Red Fox (*Vulpes vulpes*): The red fox inhabits a wide range of habitats. This generally nocturnal species was not observed during the field investigations, but it could inhabit select locations along both the Preferred and Alternate Routes.

River Otter (*Lontra canadensis*): River otters live in aquatic habitats such as rivers, lakes, and marshes. They prefer tributaries of large, clean drainages where there is minimal human disturbance. Based on the habitat present along the routes, this species is unlikely to inhabit locations along the route. This species was not observed during the field investigations.

Striped Skunk (*Mephitis mephitis*): The skunk is an adaptable animal that occupies both rural and suburban areas. Their dens may be located under buildings, in open fields, on hillsides, or under logs in the woods, which may have been self-created or formerly used by other animals. This species is likely found near or within the Project, but was not observed during field investigations.

Virginia Opossum (*Didelphis virginiana*): This marsupial's preferred habitat is an area interspersed with woods, wetlands, and farmland; however, they are an adaptable animal that can also be found in urban and suburban areas. This species is likely found near or within the Project, but was not observed during field investigations.

(c) Recreational Species

Recreational species consist of those hunted as game. Recreational species expected to inhabit areas along the proposed ROW include the following. This information was obtained from the ODNR-DOW 2018-2019 Hunting and Trapping Regulations (ODNR-DOW, 2018a) and the ODNR-DOW Species Guide Index (ODNR-DOW, 2018c).

(i) Fowl

American Crow (*Corvus brachyrhynchos*): The American crow is found in all Ohio counties. They prefer habitats with open fields and trees. American crows were observed during the field investigations along both of the routes.

American Woodcock (*Scolopax minor*): Woodcock prefer open, interspersed, early successional habitats, brushy pastures, and woodland borders with moist loam soils. The largest populations occur in northeast, north-central, and central regions of Ohio. This species could inhabit select locations along the routes. No American woodcocks were observed during the field investigations.

American Coot (*Fulica Americana*): Coots inhabit the shallows of freshwater lakes, ponds, or marshes. It is unlikely that this species would exist along the proposed routes because they are found mostly in Lake Erie marshes. This species was not observed during surveys.

Geese: Several geese species can be found in Ohio, although typically during migration: snow geese (*Chen caerulescens*), greater white-fronted geese (*Anser albifrons*), cackling geese (*Branta hutchinsii*), and brant (*Branta bernicla*). The Canada goose (*Branta canadensis*) is commonly found throughout Ohio, both as residents and migrants. Habitat for Canada geese was observed along the routes. No Canada geese were observed during the field investigations.

Mourning Dove (*Zenaida macroura*): Mourning doves are found near rural and suburban residences, nesting in shrubs and trees. They are also frequent in rural farmlands nesting in fencerows and edge habitats. Habitat for this species is present throughout the routes. This species was observed frequently during field surveys.

Mergansers: Several merganser species can be found in Ohio, such as the common merganser (*Mergus merganser*), red-breasted merganser (*Mergus serrator*), and hooded merganser (*Lophodytes cucullatus*). Mergansers are found in deep, open waters of lake and rivers. Habitat for these species is not present along the routes. This species was not observed during field surveys.

Northern Bobwhite Quail (*Colinus virginianus*): The northern bobwhite quail is a forest edge species. This species could exist in select locations along the routes; however, it was not observed during field surveys.

Rail: Several rail species can be found in Ohio, such as Yellow rail (*Coturnicops noveboracensis*), black rail (*Laterallus jamaicensis*), king rail (*Rallus elegans*), and Virginia rail (*Rallus limicola*). Rails are found in densely vegetated wetlands and marshes. Habitat for these species is not present along the routes. This species was not observed during field surveys.

Ring-necked Pheasant (*Phasianus colchicus*): This species can be found primarily along agricultural edges. Pheasants succeed where farming is intensive if there is adequate undisturbed cover for nesting, and sufficient food and cover during winter. This species likely inhabits various locations along the routes; however, no pheasants were observed during field surveys.

Ruffed Grouse (*Bonasa umbellus*): Grouse habitat includes mixed hardwood shrub and forest stands. Habitat for these species is not present along the routes. This species was not observed during field surveys.

Teal: Several teal species could be found in Ohio. The cinnamon teal (*Anas cyanoptera*), green-winged teal (*Anas crecca*), and blue-winged teal (*Anas discors*) are waterfowl. They are usually birds of fresh, shallow marshes and rivers instead of large lakes and bays. Habitat for these species is not present along the routes. This species was not observed during field surveys.

Various duck species: Various duck species can be found in Ohio, most of which only during migration. The American black duck (*Anas rubripes*), redhead (*Aythya americana*), greater scaup (*Aythya marila*), lesser scaup (*Aythya affinis*), canvasback (*Aythya valisineria*), and northern pintail (*Anas acuta*) are usually only found in Ohio during migration and could be found near the proposed routes at that time. The mallard (*Anas platyrhynchos*) and wood duck (*Aix sponsa*) are two duck species that regularly reside and migrate through Ohio.

- Mallard: Most mallards occupy extensive wetlands; however, they are very adaptable. Mallards can be found inhabiting small farm ponds, ditches with flowing water, streams, lakes, and ponds in urban areas. Although this species was not observed during field surveys, habitat for this species does exist throughout the routes.

- Wood Duck: The wood duck prefers mature riparian corridors, quiet backwaters of lakes, ponds bordered by large trees, and secluded wooded swamps. Habitat for this species is not present within the vicinity of select locations along the routes. This species was not observed during field surveys.

Wild Turkey (*Meleagris gallopavo*): Wild turkeys are adaptable animals. Although they prefer mature forests, they can thrive in areas with as little as 15 percent forest cover. Although this species was not observed during the field surveys, it is likely present throughout the routes.

(ii) Mammals

Eastern Cottontail Rabbit (*Sylvilagus floridanus*): This species is found in both rural and urban areas. They prefer open areas bordered by thickets or brush areas. This species prefers habitat found throughout the routes and the species and its habitat was observed during the field surveys.

Feral Swine (*Sus scrofa*): Feral swine (wild boar) are not native to Ohio, but have established breeding populations in several locations, occupying a wide variety of habitats, including forests, cropland, and shrubland. Distribution maps (ODNR, 2016) indicate that feral swine have not been recorded in the vicinity of the Project Area.

Squirrel (Gray, Red, and Fox) (*Sciurus carolinensis, Tamiasurius hudsonicus,* and *Sciurus niger*, respectively): The fox squirrel is primarily an inhabitant of isolated woodlots 10 to 20 acres in size with a sparse understory. The eastern gray squirrel prefers more extensive woodland areas. The red squirrel prefers coniferous and mixed forests. Squirrels were observed during the field surveys along the routes.

White-tailed Deer (*Odocoileus virginianus*): White-tailed deer are found in rural and suburban areas. Indirect evidence and several sightings of this species were observed during the field surveys along the routes.

Woodchuck (*Marmota monax*): Woodchucks (groundhogs) live in open grasslands, pastures, and woodlands. This species was observed during field surveys and is likely present throughout the routes.

(iii) Game Fish

Based upon the hydrologic connectivity and the nature of the surface water habitats present within the field survey area, game fish species may inhabit some of the streams that are crossed by the Routes. A list of game fish known to occur in Ohio was obtained from ODNR-DOW's Sport Fish of Ohio Identification Guide (ODNR-DOW, 2012). The list was narrowed to fish most likely to be found in streams located within the field survey area based on professional judgment and experience, and as such, the list of species presented in this section is not an exhaustive list of all species potentially present in the field survey area. The listed species are known to be regionally common and may occur within the surface water features proposed to be impacted.

Bluegill (*Lepomis macrochirus*): Bluegill are found throughout the state, preferring clear ponds and lakes with rooted vegetation. This species is likely to occur in streams along the routes.

Common Carp (*Cyprinus carpio*): Carp can be found in throughout the state, preferring turbid waters rich in organic matter. It is likely that common carp are present in streams along the routes.

Green Sunfish (*Lepomis cyanellus*): Green sunfish are present in most lakes and streams throughout the state and are tolerant of turbid water. They are regularly associated with some type of structure such as brush, vegetation, or rocks. This species is likely to occur in streams along the routes.

Largemouth Bass (*Micropterus salmoides*): Largemouth bass are found in ponds, lakes, and slow sluggish streams throughout the state. This species is likely to occur in streams along the routes.

Longear Sunfish (*Lepomis megalotis*): Longear sunfish are found in streams and lakes throughout the state. They prefer sluggish, clear streams of moderate size with beds of aquatic vegetation. This species may occur in streams along the routes.

Redear Sunfish (*Lepomis microlophus*): Redear sunfish are not native to Ohio. They are found primarily in clear, warm waters with vegetation. This species may occur in streams along the routes.

White Crappie (*Pomoxis annularis*): White crappie can be found in larger ponds, lakes, and rivers. White crappie can tolerate a wide variety of habitats and conditions. This species is regularly found near structures such as fallen trees, stumps, docks, rocks, and aquatic vegetation. This species may occur in streams along the routes.

(2) Construction Impacts on Identified Species

Based on the nature of the proposed Project and habitat characteristics of the surrounding vicinity, the potential for construction impacts to spotted turtles will need to be further evaluated. ATSI will coordinate with USFWS and ODNR to avoid or minimize construction impacts to the associated habitat of the spotted turtle to the extent possible. The construction impact to other identified species (recreational and commercial) is expected to be minor because equivalent habitat to habitat that may be impacted during construction exists immediately adjacent to the construction ROW, and the identified species are mobile.

(3) Operation and Maintenance Impacts on Identified Species

Minimal impacts are anticipated to wildlife during operation and maintenance of the transmission line as agricultural row crops comprise a majority of the area along both routes. ATSI will not conduct mechanized clearing within 25 feet of any stream, and will only clear those trees in this area that are tall enough to have the potential to interfere with safe construction and reliable operation of the line. Operational activities and periodic maintenance of the ROW are not anticipated to impact wildlife significantly because of the minimal permanent ground disturbance and available adjacent habitat available.

(4) Mitigation Procedures

Consultation will be performed with the USFWS and ODNR to determine if the Preferred Route, and Alternate Route, or portions of these routes, contain areas due to the presence of specific

habitat or other factors that would require the use of special mitigation measures for the aforementioned affected wildlife. If such conditions are recognized in the consultation process, the condition will be mitigated appropriately on an site by site basis for the individual species.

(D) SITE GEOLOGY

(1) Site Geology

Both routes fall within the Maumee Lake Plains region of the Central Lowlands physiographic province. The underlying geology of both routes consists primarily of Pleistocene-age silt, clay, and wave-planed clayey till over Silurian and Devonian-age carbonate rocks and shales. Approximately 67.8 percent of the area within 1,000 feet of the Preferred Route occurs within the Lockport Dolomite Formations, 21.7 percent within Tymochtee Dolomite, and lastly 10.5 percent within Greenfield Dolomite. 100 percent of the area within 1,000 feet of the Alternate Route occurs within Lockport Dolomite Formations.

(2) Slopes and Foundation Soil Suitability

No soils with slopes exceeding 12 percent, obtained from the U.S. Department of Agriculture, Natural Resource Conservation Service, were identified within 1,000 feet of the Preferred or Alternate Routes. As a result, no erosional impacts resulting from slopes exceeding 12 percent are expected.

The bedrock geologies consisting primarily of shales and overlaying soils consisting of primarily silt loams and silty clay loams, present along both routes, are generally expected to be suitable for foundation construction. However, bedrock geologies of carbonate rock, such as limestone and dolostone, can be affected by dissolution in the presence of circulating, slightly acidic groundwater. If deemed necessary to obtain further site-specific details on the suitability of the soils for foundation construction, ATSI will conduct soil tests using a drop hammer to drive a sampler tube. Soil bearing capacity is tested by the number of blows required to drive the tube 12 inches into the ground. Soil samples taken with a split-spoon at 5-foot intervals will be used to determine soil type. Typically, the testing will be performed to a depth of between 20 to 40 feet. If rock is encountered, a carbide-tipped bit will be used to drill an exploratory boring 5 to 10 feet into the rock.

(E) ENVIRONMENTAL AND AVIATION REGULATION COMPLIANCE

(1) Licenses, Permits, and Authorizations Required for the Facility

ATSI will submit a Notice of Intent for coverage under the OEPA General National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities. If the Project requires structural encroachment of jurisdictional waterbodies, coverage under the USACE's Nationwide Permit 12 for wetland and waterbody impacts associated with Utility Line Activities may also be required. It is also anticipated that multiple highway and railroad crossing permits will be necessary.

(2) Construction Debris

As construction proceeds, the ROW will be kept clean of all rubbish and debris. Debris associated with construction of the proposed transmission line is expected to consist of conductor scrap, construction material packaging including cartons, insulator crates, conductor reels and wrapping, and used stormwater erosion control materials. Clearance poles, conductor reels and other materials with salvage value will be removed from the construction area for reuse or salvage. It is estimated that approximately 400 cubic yards of construction debris could be generated from the Project. Construction debris will be disposed of in accordance with state and federal requirements in an OEPA-approved landfill or other appropriately licensed and operated facility.

Where trees must be cleared from the ROW, the resulting brush will be chipped or wind-rowed along the edge of the ROW, and marketable timber will generally be cut into appropriate lengths for sale or disposition by the landowner. Generally, stumps will be left in place.

(3) Stormwater and Erosion Control

A SWPPP will be prepared, BMPs implemented to minimize soil erosion and sedimentation and other pollutant discharges, and will be made available onsite during Project construction. The SWPPP will include the following general provisions, at a minimum:

Erosion and Sediment Controls

Implementation of erosion and sediment control practices will be based on the methods and standards described in the ODNR Rainwater and Land Development Manual (ODNR, 2014); and the OEPA NPDES Permit Program for the discharge of stormwater from construction sites.

Wetlands, streams, and other environmentally sensitive areas will be clearly marked before the start of clearing or construction. No construction or access will be permitted in these areas unless clearly specified in the SWPPP.

No impacts to streams or headwaters are anticipated. No poles are anticipated to be located in streams and no permanent stream crossings are anticipated. Streams, including beds and banks, if disturbed during construction, will be re-stabilized immediately after in-channel work is completed.

Although grubbing activities are not anticipated, sediment basins, traps, and perimeter sediment controls will be implemented within 7 days of any potential grubbing activities. Sediment controls will continue to function until disturbed areas are permanently stabilized.

Silt Fence: Silt fencing or other appropriate BMPs (as used below, “silt fence” includes silt fencing and/or other equivalent BMPs) for erosion control will be installed as needed before ground-disturbing work begins. Silt fence will be installed according to the methods recommended in the Rainwater and Land Development Manual (ODNR, 2014) before upslope land disturbance begins. In general, silt fence will be used where there is the possibility that

sheet flow will carry sediment-laden water into downstream creeks or wetlands. Other methods will be used where flow in ditches, channels or gullies is anticipated. The following installation guidelines will be followed:

- Silt fence will be constructed before upslope land disturbance begins.
- All silt fences will be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
- Ends of the silt fences will be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
- Silt fences will be placed on the flattest area available.
- Where possible, vegetation will be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it will be reestablished within 7 days from the installation of the silt fence.
- The height of the silt fence will be a minimum of 16 inches above the original ground surface.
- The silt fence will be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench will be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
- The silt fence will be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile will be below the ground surface. Excess material will lay on the bottom of the 6-inch deep trench. The trench will be backfilled and compacted on both sides of the fabric.
- Seams between sections of silt fence will be spliced together only at a support post with a minimum 6-inch overlap prior to driving into the ground.

Soil Stabilization: Disturbed areas that remain unworked for more than 21 days will be stabilized with seed and mulch no later than 14 days after the last construction in that area.

Maintenance and Inspection: Erosion and sediment control practices will be inspected at least once every 7 days and within 24 hours after any storm event greater than 0.5 inches of rain per 24-hour period.

ATSI will maintain erosion control measures in good working order. If a repair is necessary, it will be initiated within 24 hours of report. Silt fencing will be inspected for depth of sediment, for tears, for assurance fabric is securely attached to the fence posts, and to ensure that the fence posts are firmly in the ground. Seeded areas will be inspected for evidence of bare spots or washouts. Permanent records of the maintenance and inspection must be maintained throughout the construction period. Records will include, at a minimum, the name of the

inspector, major observations, date of inspection, certification of compliance, and corrective measures taken.

(4) Disposition of Contaminated Soil and Hazardous Materials

All materials stored onsite will be kept in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure. Products will be kept in their original containers with the original manufacturer's label. Manufacturer's recommendations for proper use and disposal will be followed. Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) will be retained and available onsite at all times.

The following general provisions will also be included in the SWPPP to address disposition of contaminated soil and hazardous materials generated or encountered during construction:

Spill Prevention

The following spill prevention methods and procedures are proposed:

- All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled.
- Secondary containment will be provided for all onsite fuel storage tanks required during construction.
- All sanitary waste will be collected in portable units and emptied regularly by a licensed sanitary waste management contractor, as required by local regulations.
- All spills will be cleaned up immediately after discovery. Manufacturer's recommended methods for spill cleanup will be followed. Materials and equipment necessary for spill cleanup will be kept in a designated storage area onsite.
- Spills will be reported to the appropriate government agency as required.
- Suspected hazardous materials encountered during construction will be reported to the regional environmental coordinator by the transmission construction representative. In addition, the project manager will be notified.

(5) Maximum Height of Above Ground Structures

The height of the tallest anticipated aboveground structure and construction equipment is expected to be approximately 150 feet. The nearest airport is located in Wood County (private airport) approximately 3.1 miles west of the western terminus of the proposed transmission lines.

The Federal Aviation Administration (FAA) Form 7460-1, "Notice of Proposed Construction or Alteration," is used for FAA notification. This can be filed electronically or by standard U.S. Mail.

A 7.5-minute quadrangle topographic map showing the proposed construction must be attached to the completed Form 7460-1. The Form 7460-1 must be submitted 45 days prior to the proposed start of construction.

Additionally, a permit from the ODOT, Office of Aviation, must be obtained prior to the start of any construction on or near airports in Ohio that are open to the public. A duplicate of the federal filing fulfills the state permit application requirements as set forth in OAC 5501:1-10-06.

(a) Filing Criteria

The FAA Form 7460-1 must be filed for any construction or alteration of more than 200 feet in height. Additionally, any construction or alteration extending outward and upward in excess of one of the following slopes requires filing:

- 100 to 1 slope for a horizontal distance of 20,000 feet from the nearest public use runway greater than 3,200 feet in length, excluding heliports
- 50 to 1 slope for a horizontal distance of 10,000 feet from the nearest public use runway less than 3,200 feet in length, excluding heliports
- 25 to 1 slope for a horizontal distance of 5,000 feet from the nearest landing and takeoff area of a public use heliport

Upon completion of the final design, ATSI will review the need for any permitting with the FAA and will follow recommendations made by the FAA.

(6) Dusty or Muddy Conditions Plan

Dust Control

The site and surrounding areas will be kept free from dust nuisance resulting from site activities. During excessively dry periods of active construction, dust suppression will be implemented where necessary through irrigation, mulching, or application of tackifier resins.

Excessive Muddy Soil Conditions

Construction entrances will be established and maintained to a condition that will prevent tracking or flowing of sediment onto public ROW. Accumulated sediment spilled, dropped, washed, or tracked onto public ROWs will be removed as soon as practical.

REFERENCES

Braun, L.E. 1987. The Monocotyledoneae of Ohio. The Ohio State University Press, Columbus, Ohio.

Brown, Lauren. 1979. Grasses an Identification Guide. Houghton Mifflin Company, New York, New York.

Cowardin, et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.

Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterway Experiment Station, Vicksburg, Mississippi.

Environmental Laboratory. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0). ERDC/EL TR-12-9, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Federal Interagency Committee for Wetland Delineation (FICWD). 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington D.C. Cooperative Publication.

Knobel, Edward. 1980. Field Guide to the Grasses, Sedges and Rushes of the United States. Dover Publications, Inc., Toronto, Ontario.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Mack, John J. 2001. *ORAM v. 5.0 Quantitative Score Calibration*. Ohio Environmental Protection Agency. Columbus, Ohio.

Natural Resources Conservation Service (NRCS). 2017. *Web Soil Survey*. Soil surveys for Soil surveys for Wood County, Ohio. U.S. Department of Agriculture. Accessed October 2, 2018. http://websoilsurvey.nrcs.usda.gov.

NatureServe Explorer. 2018. An Online Encyclopedia of Life. Accessed November 29, 2018. http://www.natureserve.org/explorer/.

Newcomb, Lawrence. 1977. Newcomb's Wildflower Guide. Little Brown and Company, Boston, Massachusetts.

Ohio Department of Natural Resources (ODNR). 2014. Rainwater and Land Development. Division of Water Resources. Accessed December 2, 2018. http://water.ohiodnr.gov/portals/soilwater/pdf/stormwater/Intro_11-6-14.pdf.

Ohio Department of Natural Resources - Division of Wildlife (ODNR-DOW). 2012. *Sport Fish of Ohio Identification Guide.* Accessed December 2, 2018. https://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/id%20guides/pub334.pdf.

Ohio Department of Natural Resources - Division of Wildlife (ODNR-DOW). 2018a. Hunting and Trapping Regulations. Accessed December 2, 2018. http://www.eregulations.com/ohio/hunting/.

Ohio Department of Natural Resources - Division of Wildlife (ODNR-DOW). 2018b. *Ohio Natural Heritage Database Request.* March 5, 2018.

Ohio Department of Natural Resources - Division of Wildlife (ODNR-DOW). 2016c. Species Guide Index. Accessed December 2, 2018. http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index.

Ohio Environmental Protection Agency (OEPA). 2001. *Ohio Rapid Assessment Method for Wetlands Version 5.0: User's Manual and Scoring.* February 2001.

Ohio Environmental Protection Agency (OEPA). 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).* OEPA Technical Bulletin EAS/2006-06-1.

Ohio Environmental Protection Agency (OEPA). 2012. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams.* Version 3.0. January 2012.

Ohio Environmental Protection Agency (OEPA). 2017. State of Ohio Water Quality Standards. Chapter 3745-1 of the Administrative Code. (Standards and Technical Support Section). Division of Surface Water, Columbus, Ohio.

Rankin, Edward, T. 1989. The Qualitative Habitat Evaluation Index Rationale, Methods, and Application. Ohio EPA, Ecological Assessment Division, Columbus, Ohio.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Accessed October 2, 2018. http://websoilsurvey.nrcs.usda.gov/

Tiner, R.W. 1988. Field Guide to Nontidal Wetland Identification. Maryland Department of Natural Resources, Annapolis, Maryland and the U.S. Fish and Wildlife Service, Newton Corner, Massachusetts.

U.S. Department of Agriculture – Natural Resources Conservation District. 2009. Soil Survey Geographic (SSURGO) database for Wood County, Ohio. Accessed October 2, 2018. https://www.nrcs.usda.gov/wps/portal/nrcs/site/soils/home/

U.S. Department of Agriculture – Soil Conservation Service. Midwestern Wetland Flora, Field Office Guide to Plant Species. Midwest National Technical Center, Lincoln, Nebraska.

U.S. Geological Service. Bowling Green North, Ohio. 7.5-Minute Topographic Quadrangle Map. U.S. Department of the Interior, Geological Survey.

U.S. Geological Survey. 2012. The StreamStats program. Accessed October 2, 2018. http://streamstats.usgs.gov

U.S. Fish and Wildlife Service. November 2018. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

U.S. Fish and Wildlife Service (USFWS). 2018a. *Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species.* Revised October 2018.

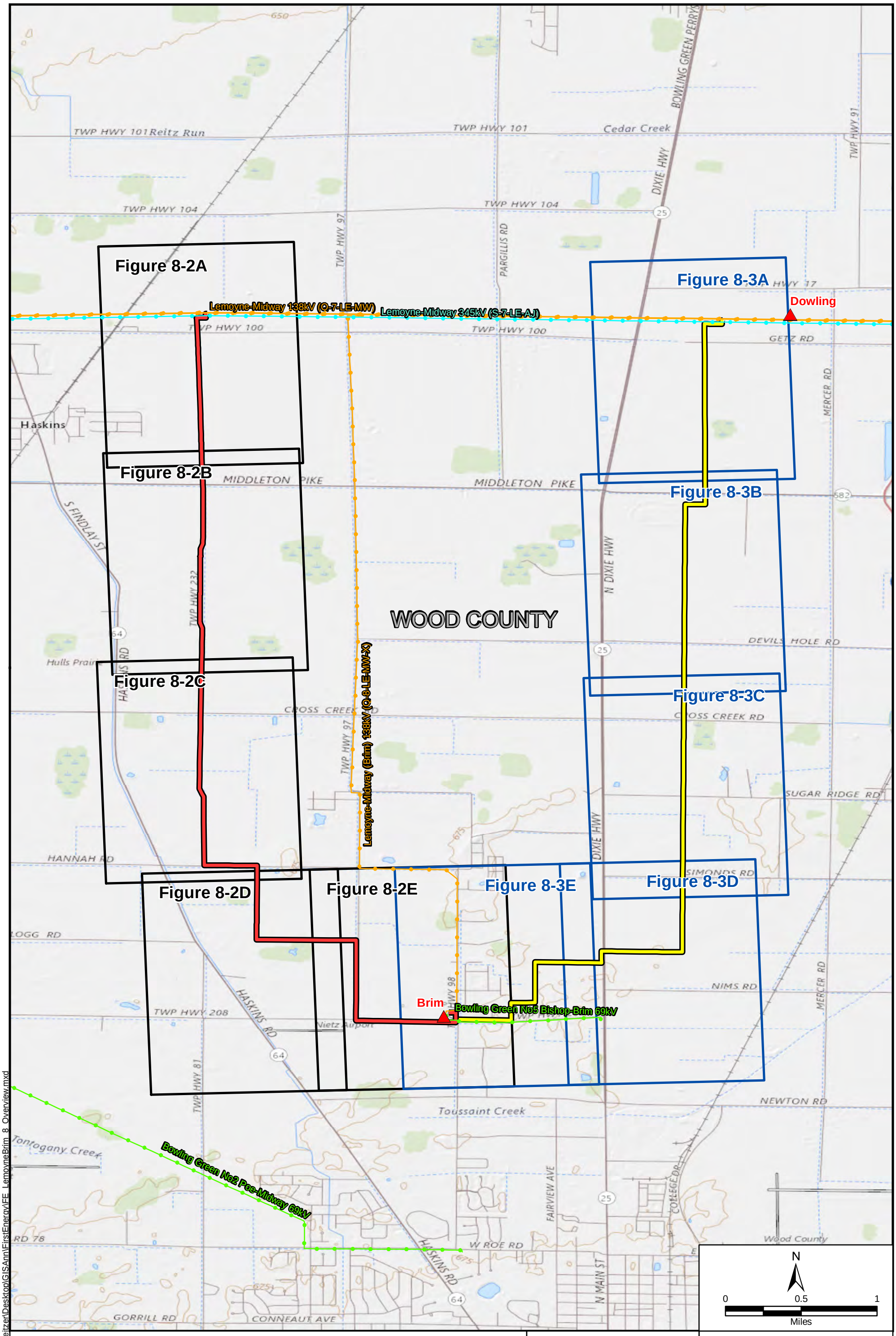


Figure 8-2A
Figure 8-2B
Figure 8-2C
Figure 8-2D
Figure 8-2E
Figure 8-3A
Figure 8-3B
Figure 8-3C
Figure 8-3D
Figure 8-3E
Lemoyne-Midway 138kV (Q-7-LE-MW)
Lemoyne-Midway 345kV (S-7-LE-AJ)
Lemoyne-Midway (Erin) 138kV (Q-7-LE-MW-X)
Bowling Green No2 Poe-Midway 69kV
Bowling Green No5 Bishop-Brim 69kV
Dowling
Brim
WOOD COUNTY
Haskins
Hulls Prairie
Reitz Airport
Cedar Creek
Toussaint Creek
Tontogany Creek
TWP HWY 101
TWP HWY 104
TWP HWY 100
TWP HWY 97
TWP HWY 232
TWP HWY 208
TWP HWY 81
TWP HWY 98
TWP HWY 91
PARGILIS RD
DIXIE HWY
N DIXIE HWY
BOWLING GREEN PERRYS
MIDDLETON PIKE
CROSS CREEK RD
HANNAH RD
DEVILS HOLE RD
SUGAR RIDGE RD
SIMONDS RD
GETZ RD
MERCER RD
NIMS RD
NEWTON RD
W ROE RD
N MAIN ST
FAIRVIEW AVE
COLLEGE DR
HASKINS RD
S FINDLAY ST
GORRILL RD
CONNEAUT AVE
Wood County
0
0.5
1
Miles
Existing Substation
Preferred Route
Alternate Route
Existing 69kV Tranmsission Line
Existing 138kV Tranmsission Line
Existing 345kV Tranmsission Line
Figure Key for 8-2
Figure Key for 8-3
County
ATSI
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.
Figure 8-1
Overview Map
Wood County 138kV
Reinforcement Project
GPD Group
Path: C:\Users\aschweitzer\Desktop\GIS Ann\FirstEnergy\FE_LemoyneBrim_8_Overview.mxd
Issued: November 16, 2018

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/19/2018 12:22:48 PM

in

Case No(s). 18-1335-EL-BTX

Summary: Application for a Certificate of Environmental Compatibility and Public Need (Part 2 of 8) electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.