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Letter of Notification Application to the Ohio Power Siting Board
for a
Certificate of Environmental Compatibility and Public Need

Prepared for

American Transmission Systems, Incorporated,

a FirstEnergy Company

Ohio Power Siting Board Case Number 13-0224-EL-BLN

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BMcD Project No. 68043

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

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ACRONYM LIST

ATSI	American Transmission Systems, Incorporated
BES	Bulk Electric System
BMcD	Burns & McDonnell Engineering Company, Inc.
CEII	Critical Energy Infrastructure Information
CETL	Capacity Emergency Transfer Limit
dBA	A-weighted decibel
DR	Demand Response
DSM	Demand Side Management
EE	Energy Efficiency
EMF	electric and magnetic fields
ERAG	Eastern Reliability Assessment Group
FERC	Federal Energy Regulatory Commission
FES	FirstEnergy Solutions Corporation
kV	kilovolt
LON	Letter of Notification
MW	megawatt
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
ODNR	Ohio Department of Natural Resources
ODNR-DOW	Ohio Department of Natural Resources – Division of Wildlife
OEPA	Ohio Environmental Protection Agency
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
ORAM	Ohio Rapid Assessment Method
OSHA	Occupational Health and Safety Administration

PCLLRW	Post-Contingency Local Load Relief Warning
PJM	PJM Interconnection
PRD	Price Responsive Demand
PUCO	Public Utility Commission of Ohio
QHEI	Qualitative Habitat Evaluation Index
REC	Rural Electric Cooperative
ROW	Right-of-way
RPM	Reliability Pricing Model
RTEP	Regional Transmission Expansion Plan
RTO	Regional Transmission Organization
SVC	Static Var Compensators
TEAC	Transmission Expansion Advisory Committee
TO	Transmission Organization
TP	Transmission Planner
TPL	Transmission Planning Limits
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

11-01 (A) REQUIREMENTS

4906-11-01 (A) Requirements

A letter of notification filed with the board shall contain the information described in paragraphs (B) to (E) of this rule. If the applicant requests expedited processing of the letter of notification, in addition to filing the letter with the docketing department, the applicant shall also serve a copy of the letter of notification directly with the board's executive director or the executive director's designee at or before the filing of the expedited letter of notification by hand delivery or overnight courier service.

11-01 (A) REQUIREMENTS

The following information is being provided in accordance with the procedures delineated in Ohio Administrative Code (OAC) Section 4906-11-01 Letter of Notification Requirements of the Rules and Regulations of the Ohio Power Siting Board (OPSB).

11-01 (B) GENERAL INFORMATION

4906-11-01 (B) General information containing the following information:

(1) The name of the project and applicant's reference number, if any, names and reference number(s) of resulting circuits and a brief description of the project, and why the project meets the requirements for a letter of notification.

(2) If the proposed letter of notification project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

(3) The location of the project in relation to existing or proposed lines and stations shown on the maps and overlays provided to the public utilities commission of Ohio in the applicant's most recent long-term forecast report.

(4) The alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to impacts associated with socioeconomic, natural environment, construction, or engineering aspects of the project.

(5) The anticipated construction schedule and proposed in-service date of project.

(6) An area map of not less than 1:24,000 scale clearly depicting the facility's centerline with clearly marked streets, roads, and highways, and clearly written instructions for locating and viewing the facility.

(7) A list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

11-01 (B) GENERAL INFORMATION

(1) PROJECT DESCRIPTION

(a) Name and Reference Number

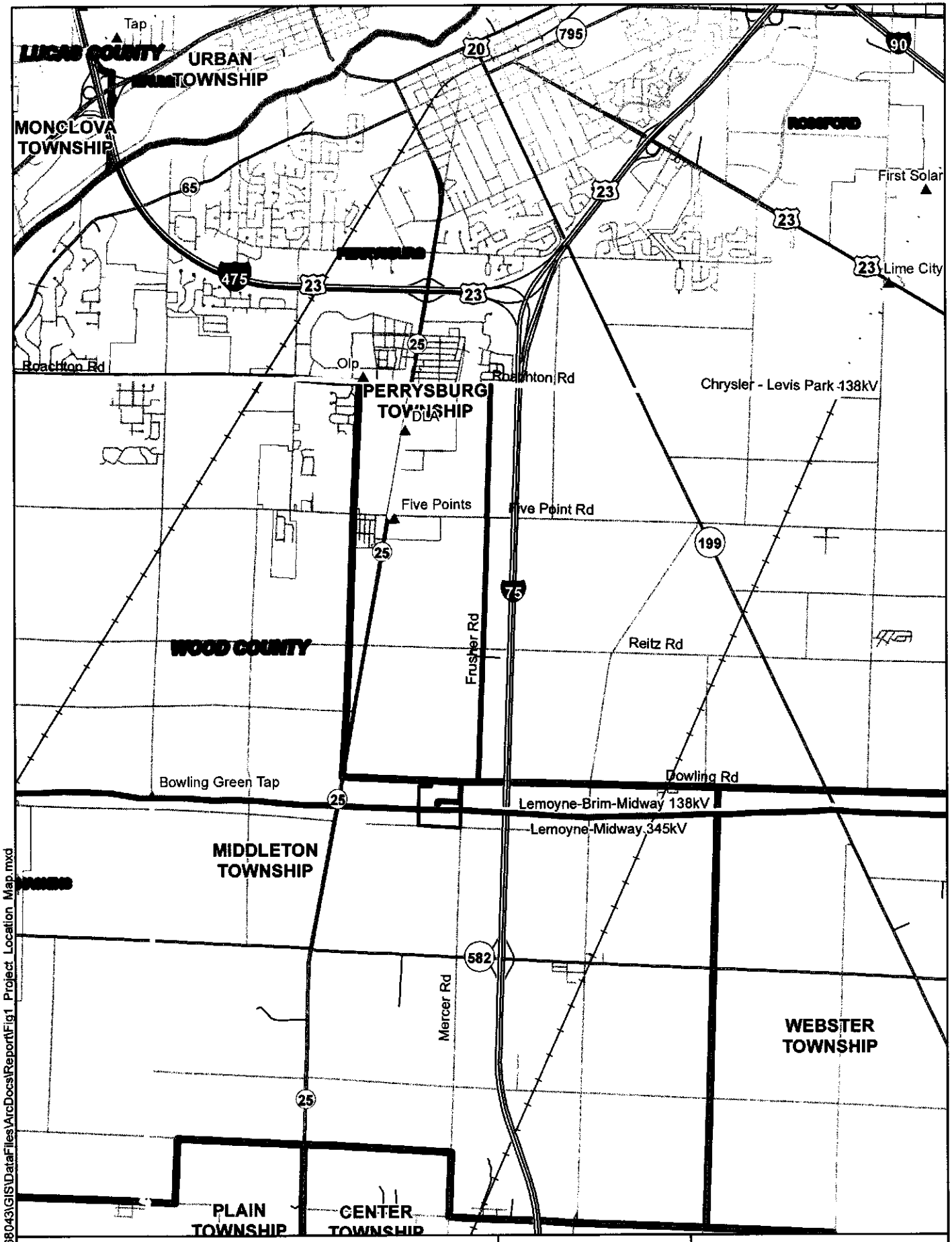
Name of Project: Fulton – Lemoyne 345 kilovolt ("kV"), Chrysler – Levis Park 138 kV and Lemoyne – Midway 138 kV Transmission Line Extensions to, and Installation of, Dowling Substation Project

2013 LTFR Reference: This Project is identified on pages 103 and 133 of Ohio Edison Company, The Cleveland Electric Illuminating Company, The Toledo Edison Company and American Transmission Systems, Incorporated's 2013 Electric Long-Term Forecast Report ("LTFR") submitted to the Public Utility Commission of Ohio in Case Number 13-0925-EL-FOR.

(b) Brief Description of Project

American Transmission Systems, Incorporated ("ATSI" or the "Applicant"), a FirstEnergy Company, is seeking a Certificate of Environmental Compatibility and Public Need ("Certificate") to construct the Fulton – Lemoyne 345 kV, Chrysler – Levis Park 138 kV and Lemoyne – Midway 138 kV Transmission Line Extensions to, and Installation of, Dowling Substation Project ("Project"). This Letter of Notification ("LON") application for the Project includes the construction of the Fulton – Lemoyne 345 kV, Chrysler – Levis Park 138 kV, and Lemoyne – Midway 138 kV transmission line extensions to the new Dowling Substation and construction of the new Dowling Substation.

As proposed and described in this LON application, the new Dowling Substation is proposed to be constructed in Middleton Township in Wood County, Ohio, and will transform voltage from 345 kV to 138 kV. The Project will extend a loop from the Fulton – Lemoyne 345 kV line approximately 150 feet to the new Dowling substation, creating Dowling – Fulton and Dowling – Lemoyne 345 kV circuits. The Project will also extend a loop from the Lemoyne – Midway 138 kV line approximately 150 feet to connect to the new Dowling Substation, creating Dowling – Lemoyne and Dowling – Midway 138 kV circuits. Finally, the Project will extend a loop from the existing Chrysler – Levis Park 138 kV transmission line approximately 3.5 miles south to the new Dowling Substation, creating Dowling – Levis Park and Chrysler – Dowling 138 kV circuits. The general location of the Project is shown in Figure 1. The routes for the extended Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission lines and the site of the new Dowling Substation are located on property acquired by ATSI for the Project.



Existing Substation
Proposed Extension
Existing 138kV
Existing 345kV
Substation Site
City Boundary
Township
County Boundary

N

0 0.5 1
Miles

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

Figure 1
Project Location Map
345kV & 138kV Transmission Line Extensions to
Dowling Substation Project
American Transmission Systems, Inc.

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The route for the extended Chrysler – Levis Park 138 kV transmission line will be located in new right-of-way ("ROW") being acquired for the Project. The extended Chrysler – Levis Park 138 kV transmission line route begins at the new Dowling Substation in Middleton Township and extends north for approximately 0.1 mile crossing the existing Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission lines. The route then turns east and extends parallel to the north side of the existing transmission lines, continuing for approximately 0.2 mile. The route turns north and continues on the Dowling Substation property along the west side of Mercer Road for approximately 0.2 mile. The route then turns east, crosses Mercer Road, and continues along the south side of Dowling Road for approximately 0.1 mile along new ROW acquired for the Project. The route then turns north, crosses Dowling Road, and extends for approximately one mile along ROW acquired for the Project along the east side of Frusher Road to Reitz Road in Perrysburg Township. Frusher Road is a dedicated road in the Wood County's records, but is generally an unimproved field access road with no defined ROW limits. One residence, located on the southern side of Reitz Road and within the proposed ROW for the Project, has been acquired by ATSI. At this residence, the unattached garage will be removed for construction of the transmission line. The route crosses Reitz Road and continues north along the east side of Frusher Road for approximately 0.5 mile along ROW acquired for the Project. The route continues along the east side of Frusher Road to Five Point Road for approximately 0.5 mile along ROW yet to be acquired for the Project. The route then crosses Five Point Road and extends north for approximately one mile along ROW also yet to be acquired for the Project to the existing Chrysler – Levis Park 138 kV line in the vicinity of Roachton Road, approximately 0.2 mile west of Interstate 75 ("I-75") on the border of Perrysburg Township and the City of Perrysburg. For the ROW yet to be acquired, ATSI will continue to seek easements.

Finally, this Project is being proposed in conjunction with a series of projects needed to reinforce ATSI's transmission system. Two projects in particular, the Fulton Substation and the Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project are closely associated with the Project. The Fulton Substation and the associated connections to the existing 345 kV transmission lines, was approved in Dockets 11-4711-EL-BSB and 12-2462-EL-BLN, and is currently under construction. ATSI expects to propose in the near future the Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project in a Letter of Notification application to be submitted to the Board in Docket 13-0224-EL-BLN. In the general area of the Project, the existing 345 kV transmission line path consists of a single circuit transmission line that is located on structures that have an open arm position that extend from the Allen Junction Substation, to and across the site of Fulton Substation, to Midway Substation, to and across the site of Dowling Substation and to Lemoyne Substation. The proposed Allen Junction – Lemoyne #2 345

kV Transmission Line Construction Project installs a new 345 kV transmission line on the open arm position of the existing 345 kV transmission line structures between these substations, and will configure the existing and new transmission lines between the substations to create Allen Junction-Fulton-Dowling-Lemoyne and Allen Junction-Midway-Lemoyne 345 kV transmission line paths. The Project connects to new transmission line being installed on the open arm position of the 345 kV transmission line structures located adjacent to Dowling Substation that will be part of the 345 kV path between the Allen Junction-Fulton-Dowling-Lemoyne substations.

(c) Why the Project Meets the Requirements for a Letter of Notification

The Project meets the requirements for a Letter of Notification because the Project is within the types of projects defined by Items (1)(a), (1)(c), and (1)(g) of the Interim Application Requirement Matrix for Electric Power Transmission Lines in the Finding and Order issued on September 4, 2012 in Case No. 12-1981-GE-BRO, as modified and expanded by the Second Finding and Order issued in that case on December 17, 2012, both of which modified Appendix A of Rule 4906-1-01 of the Ohio Administrative Code. These items state:

> *(1) Rerouting or extension or new construction of single or multiple circuit electric power transmission line(s) as follows:*
>
> > *(a) Line(s) three hundred kilovolts (kV) and above, and not greater than 0.1 mile in length.*
> >
> > *(c) Line(s) one hundred twenty-five kV and above, but less than three hundred kV, and not greater than 0.2 miles in length.*
> >
> > *(g) Line(s) that are necessary to maintain reliable electric service as a result of the retirement or shutdown of an electric generating facility located within the state.*

The proposed Project consists of the following:

1. Approximately 150 feet of new 345 kV line will be constructed as part of the Fulton – Lemoyne 345 kV transmission line extension to the new Dowling Substation, creating Dowling – Fulton and Dowling – Lemoyne 345 kV circuits.
2. Approximately 150 feet of new 138 kV line will be constructed as part of the Lemoyne – Midway 138 kV transmission line extension to the new Dowling Substation, creating new Dowling – Lemoyne and Dowling – Midway 138 kV lines.

3. Approximately 3.5 miles of new 138 kV line will be constructed to extend the Chrysler – Levis Park 138 kV transmission line south to the new Dowling Substation, creating new Dowling – Levis Park and Chrysler – Dowling 138 kV lines.
4. The Dowling Substation, a 345 to 138 kV Transmission Substation
5. The Project is being constructed to maintain reliable electric service as a result of the shutdown of electric generating facilities in Ohio.

(2) NEED FOR THE PROJECT

This section of the application provides an explanation of:

- Why it is necessary to construct the proposed Project;
- How the Project fits into the Applicants' recent long-term forecast and regional plans for the electric system; and
- How the Project serves the interest of the system economy and reliability.

Installation of the proposed Fulton – Lemoyne 345 kV, Chrysler – Levis Park 138 kV and Lemoyne – Midway 138 kV Transmission Line Extensions to, and installation of, Dowling Substation is needed to reinforce ATSI's Bulk Electric System ("BES") in the Project Study Area.

As explained in this Section, ATSI's 345 kV and 138 kV transmission system in the greater Toledo area and Northwest Ohio region (the "Project Study Area" and the "Project Area Transmission System") currently faces significant operating limitations including capacity shortage, the existence of thermal ratings constraints,[1] and low voltages on the electric transmission system. These issues will be exacerbated by the retirement of coal-fired generation around Lake Erie. This Project, in conjunction with others identified and directed by PJM Interconnection ("PJM"), the regional transmission operator responsible for bulk electricity transmission in the Project Study Area, is designed to correct these operating limitations and to ensure reliable energy delivery in the Project Study Area.

The Project Area Transmission System has been evaluated using the PJM 2013 and 2015 Load Forecasts from the forecast report dated January 26, 2012. These evaluations are discussed in more detail later in this Section, but they establish that the Project Area Transmission System will experience potential

[1] Exceeding thermal ratings results in wires overheating to the point that the electric system is damaged.

voltage violations under various planning scenarios for multiple contingency conditions (i.e. the loss of two or more facilities) – when all the previously announced generation units are deactivated. At this time, the area bounded by ATSI's Midway, Maclean, and Bayshore 138 kV substations in the Toledo Edison service area may experience severely low voltages following multiple contingency conditions. This could lead to forced load shedding via a Post-Contingency Local Load Relief Warning ("PCLLRW") Order issued by the PJM RTO to restore the remaining transmission system substation voltages to acceptable levels. The outage combinations of greatest concern are several NERC Category C3 "N-1-1" events, which involve losing independent pairs of transmission facilities. Critical contingency pairs include combinations of the following facility outages within ATSI: Lemoyne – Maclean 138 kV transmission circuit; Bayshore – Maclean 138 kV transmission circuit; Bayshore 345-138 kV transformer; Levis Park – Midway 138 kV transmission circuit, among others. Combining outage pairs of these critical facilities resulted in voltage violations within the Toledo Edison service territory. These results will be discussed in more detail later in the "Load Flow Studies" section, but in summary they highlight the need for the Project. The Project will provide the ability to reliably serve existing electrical loads, as well as facilitate future economic expansion in the region.

When compared to other alternatives, the proposed Project is the best option to resolve capacity limitations, thermal overloads and voltage violations based on existing infrastructure and to reinforce the ATSI transmission system. In addition, power losses on the high-voltage transmission system are reduced following installation of the Project. Based on the announced retirement of generation, and consistent with PJM requirements, the needed in-service date for the Project is June 1, 2015. Construction of the Project along with several other projects identified by PJM will provide a new, reliable electric supply to the Project Area Transmission System and thereby correct for the lost capacity resulting from generation retirement. PJM has considered this Project as part of its continuing review of the transmission system within the ATSI footprint and is found in the Transmission Expansion Advisory Committee ("TEAC") Recommendations to the PJM Board as summarized in the PJM Staff Whitepaper, dated May 2012, which can be found on the PJM website at http://www.pjm.com/committees-and-groups/committees/teac.aspx. The whitepaper contains additional information regarding the drivers and need for this Project and other projects within the ATSI footprint, which are being directed by PJM to address the condition of the BES in the Project Area. Moreover, the additional capacity provided to the Project Area from this Project, when considered with the other PJM identified projects, will support forecasted load growth and interconnection of potential new loads in the Project Area during the forecast period.

Project Need

ATSI's 345 kV and 138 kV transmission system, in the greater Toledo and Northwest Ohio area (the "Project Area Transmission System") is part of the regional transmission grid and – through various substations – provides electric supply to customers within The Toledo Edison service territory and to various Municipal & Rural Electric Cooperative (REC) entities located in the project Area. This area of Toledo Edison's service territory is referenced in this Section as the Project Study Area. Based upon current studies, the transmission system serving the south/south-east area of Toledo and surrounding communities, stretching south toward Bowling Green, is particularly strained voltage-wise after the retirement of certain generation facilities. New transmission infrastructure is needed to keep electrical circuit loading and electric system voltages within their prescribed limits in the Project Area. The Project had already been identified as a planned reinforcement for future year installation, due to borderline voltage and circuit loading concerns in this dense load pocket prior to the announced generation retirements. The announced generation retirement has resulted in significant reductions in power plant real and reactive power output in the Project Study Area, which has accelerated this Project to address immediate need for 2015 peak loading conditions.

Under the normal configuration, the Project Area Transmission System supplies distribution and retail transmission customer substations. The substations in Toledo Edison serve more than 308,000 customers in northwest Ohio, including a large number of industrial customers with heavy electrical loads for their manufacturing equipment. The Project Area Transmission System when installed was developed for area needs as they existed at that time (primarily residential and some industrial customers) and relied heavily on generating units located in close proximity to the load center. The 345 kV and 138 kV Project Area Transmission System was expanded over time to both accommodate growth in the Project Area, and to better integrate the Toledo Edison electric system into the larger interconnected transmission grid system. However, the Project Area Transmission System relies on generating units located inside and outside the load center to both meet local electrical demand and provide voltage stability through dynamic reactive power response. The amount of dynamic reactive power available in any area is defined as the difference between the actual reactive output of dynamic reactive devices (i.e. generating units, Synchronous Condensers, Static Var Compensators ("SVCs"), etc.) and the maximum capability of the dynamic reactive devices, which is commonly referred to as dynamic reactive reserve. When dynamic reactive reserve is exhausted, the Project Area Transmission Systems becomes at risk for low voltage and voltage collapse. The retirement of the three Bayshore units (2, 3, and 4) in the Toledo Edison service area most directly affect the voltage performance of substations within the Dowling Project Area. The retirement of units in the Cleveland area increase the power flowing from the Project Area Transmission System

toward the east. All generation retirements had negative impacts on the reliability of the Project Area Transmission System.

With the retirement of the three Bayshore coal-fired generating units, additional power from outside the local load center must be imported on the Project Area Transmission System to meet area needs, and the Project Area Transmission System will rely on static capacitor banks and transformation from higher voltage systems to maintain acceptable voltage stability. Much of the power imported into the Project Area Transmission System moves over the ATSI transmission system which ultimately connects to neighboring utilities. These facilities have import capacity limitations – imports that exceed these limitations result in thermal overloads on these facilities as well as within the Project Study Area being served. Additionally, with increased loading on the transmission lines that move power into the Project Study Area, there are increased power losses. These power losses also contribute to a reduction in dynamic reactive reserves in the Project Study Area, as reactive power is consumed by the transmission system.

The core issue identified by the studies conducted of the Project Area Transmission System is that unless a new high-voltage (345 kV) source of electric energy is brought into the Project Area, the existing Project Area Transmission System is unlikely to be able to support a reliable electric system capable of delivering needed electricity to Project Study Area businesses, homes and communities. In addition, little to no additional capacity will be available for new businesses in the area, placing a constraint on economic development opportunities in the region.

The Dowling Substation and associated transmission line reconfiguration projects are needed to support increases in electric load and maintain satisfactory voltage levels in the Toledo and surrounding Northwest Ohio region. Specifically, these projects are needed to reinforce the interconnected transmission system following the September 2012 retirement of three generators at the Bayshore power plant in the Project Study Area. Additionally there are other projects identified by PJM and FirstEnergy in the northern Ohio region that are also needed to ensure compliance with North American Electric Reliability Corporation ("NERC") planning criteria for the 345 kV and 138 kV transmission systems,

PJM planning criteria[2] and the FirstEnergy transmission planning criteria. Ultimately, the projects are needed to ensure continued provision of safe and reliable electric service in the Project Study Area.

The proposed Project will add a new high-voltage transformation source and pathways for energy flows within the Project Study Area. The Dowling substation will contain 345 kV to 138kV transformation, in order to serve the dense, industrial load pocket on the 138 kV path between Midway and Maclean substations. It will also involve extending two existing 138 kV circuits to create four new 138 kV circuits. This new high voltage 345 kV source into the Project Study Area will provide the following benefits to the Project Area Transmission System:

1. Make the Project Area Transmission System more reliable under contingency conditions, by adding voltage support from the 345 kV system;
2. Decrease flows on existing infrastructure, which consist of long 138 kV transmission circuits (24-26 miles, depending on circuit);
3. Reduce reactive power losses on transmission lines moving power into the Project Study Area, and in turn improve system voltages; and,
4. Increase short circuit strength in the Project Area Transmission System to maintain voltage stability and "stiffen" the system by creating a more reliable electrical grid, reducing the voltage impact of large motor starts ("voltage flicker")

Project Area

This section describes the facilities and equipment that comprise ATSI's transmission facilities located in the Project Study Area. Further it describes the existing violations of contingency planning and power flow criteria in the Project Study Area. Finally, this section describes the projected conditions on the system after the Project is placed in-service.

The Project Area Transmission System, in the Northwest Ohio area, just southeast of Toledo, is a part of the transmission grid and – through various substations – provides electric supply to portions of the Toledo Edison service territory. The area served by the Project Area Transmission System is referenced here as the Project Study Area.

---

[2] PJM's planning criteria utilizes the most stringent of the applicable NERC, PJM or local (transmission owner) criteria. PJM Manual 14-B at page 20.

The existing and future 345 kV transmission lines in the Project Area are:

- Lemoyne – Midway 345 kV (existing)

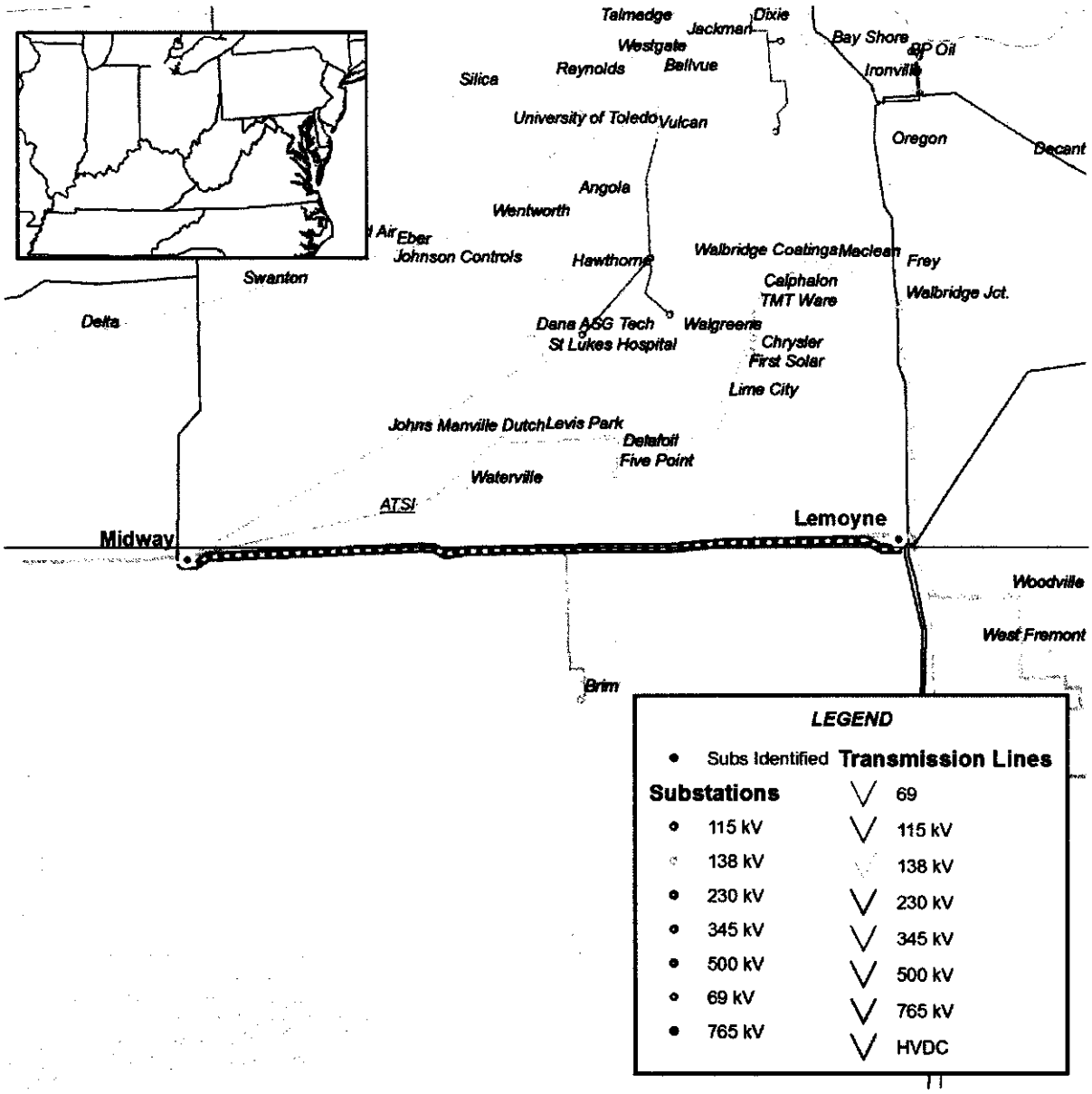
- ATSI expects to propose in the near future the Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project. The proposed Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project installs a new 345 kV transmission line on the open arm position of the existing 345 kV transmission line structures in the Project Area, and will configure the existing and new transmission lines between the substations to create Allen Junction-Fulton-Dowling-Lemoyne and Allen Junction-Midway-Lemoyne 345 kV transmission line paths. The Project connects to new transmission line being installed on the open arm position of the 345 kV transmission line structures located adjacent to Dowling Substation that will be part of the 345 kV path between the Allen Junction-Fulton-Dowling-Lemoyne substations.

The existing 138 kV transmission lines in the Project Area are:

- Lemoyne – Midway "Q-7" 138 kV
- Chrysler – Levis Park 138 kV

Assuming that the proposed Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project is approved and installed, the Dowling substation will be located on the Fulton – Lemoyne 345 kV line. In the event the Allen Junction – Lemoyne #2 345 kV Transmission Line Construction Project is not installed, the Dowling substation will be located on the Lemoyne – Midway 345 kV line as shown in Figure 2. The existing Lemoyne – Midway 345 kV line shares the same corridor as the existing 138 kV Lemoyne – Midway Q7 line.

Figure 2: Overview of the Project Area



System Conditions

Changes in the ATSI System – FirstEnergy Solutions ("FES") and neighboring generation owners have submitted to PJM plans to retire generation units in the ATSI footprint, specifically along Lake Erie. This affects transmission system performance in the Toledo Edison, Ohio Edison, and Cleveland Electric Illuminating Co. service territories. The PJM - FE Deactivation Report containing the entire list of deactivations can be found at http://pjm.com/planning/generation-retirements/~/media/planning/gen-retire/20120425-fe-jan-2012-generator-deactivation-request-study-results-required-upgrades.ashx.

The retirement of the generating units has and will create potential reliability issues for the Project Study Area and surrounding areas by 2015. The proposed Project will add a new 345-138 kV substation to more effectively serve a dense pocket of industrial and residential loads on the 138 kV pathway between ATSI's Midway and Maclean substations. The Project will therefore reduce dependence on the existing 138 kV facilities and improve system voltage performance following contingencies.

Under current conditions, any load growth will exacerbate capacity, voltage and thermal limitations in the ATSI footprint which includes the Project Study Area. Per the PJM 50/50 forecast, over a 10 year period, the forecast averages a one percent load growth per year[3]. Load growth in the ATSI footprint which includes the Project Study Area, per the PJM forecast, is projected to be approximately 1.5 percent per year over the next 3 years under current economic conditions. In addition, the steadily growing area south of Toledo, from Perrysburg toward Bowling Green has witnessed above-average industrial load growth over the last 5-10 years, and will continue to draw interest from prospective transmission customers. These conditions support the need for the Project irrespective of generation retirement.

Load served in the Project Study Area is closely tied to the observed voltage on the Project Area Transmission System. The relationship between load and voltage is analyzed using planning tools which simulate the response of system voltage to increases in system load under contingency conditions. Typically, voltage levels at monitored locations will decrease as system load is increased. Increases in load and subsequent increases in reactive power losses on transmission lines moving power into the study area will result in depletion of dynamic reactive reserves. The decrease in voltage due to increases in load and reactive power losses is gradual until dynamic reactive reserves are exhausted, at which point voltage decay accelerates and eventually collapses. Planning analysis performed on the Project Study Area indicates that low voltages on the 138 kV transmission system under contingency conditions are expected at PJM forecasted 2015 peak load levels, if no system reinforcements are implemented. The reinforcement projects, including this Project, directed by PJM in the TEAC Recommendations to the PJM Board, as described in the PJM Staff Whitepaper will ensure system voltage stability for forecasted system load levels.

[3] http://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process.aspx

System Conditions in the Project Area – ATSI's bulk transmission system in the Project Study Area consists of one east-to-west 345 kV circuit and several independent 138 kV circuits which are not networked to each other except at distant locations (ATSI's Lemoyne and Midway substations). There is a dense 138 kV load pocket to the north, stretching between ATSI's Midway and Maclean substations, a distance of roughly 26 miles. This continuous circuit path, served at the remote ends by Midway and Maclean substations, contains the following ATSI circuits: Levis Park – Midway 138 kV; Chrysler – Levis Park 138 kV; and Chrysler – Maclean 138 kV. Approximately 160 megawatts (MW) of load is served in this load pocket, including manufacturers in the automotive, solar, and chemical industries. Losing various transmission facilities in the region stresses the system, leading to the potential for low voltage violations.

The lines that comprise the 345 kV and 138 kV Project Area Transmission System are the "backbone" for electric delivery to the Project Study Area. Under normal operating conditions, and prior to the announced generation retirements, these 345 kV and 138 kV transmission lines, as well as the generation units situated outside the area, were the sole source of power for the Project Study Area and all the residential, commercial and industrial customers located in the Project Study Area. With the retirement of the generation units, there is a significant reduction in local generation which will no longer be available to provide voltage support and stability to the Project Study Area. It is therefore necessary, in order to provide additional voltage support and voltage stability to the Project Study Area to construct the Project.

System Load Conditions in the Project Area – The Project Area Transmission System under N-1-1 contingency conditions is currently loaded beyond the limits for which it was designed and constructed, when the recently announced generation deactivation requests are taken into consideration. In addition, the Project Area Transmission System will experience a shortage of reactive reserve margin. The reactive reserve margin is required to maintain voltage stability and prevent system voltage collapse under contingency conditions. Moreover, the Project Study Transmission System serves a large amount of transmission and distribution load and will become increasingly inadequate as load continues to grow during the coming years. The existing 138 kV infrastructure has limited capacity to support the Project Study Area loads under the various contingency tests placed upon it through PJM load flow studies. A new 345 kV to 138 kV source is needed in the Dowling area to resolve these voltage concerns. In summary, the 345 kV and 138 kV Project Area Transmission System must be reinforced so that business, homes and communities in the Project Study Area can continue receive safe and reliable electric service and expand in the future.

Planning Process

The following explanation of various contingency planning criteria is provided as context for the discussion of contingency planning criteria violations that will occur in the Project Study Area without the Project.

The transmission system, or "BES", is defined as all lines operated at voltages of 100 kV or higher, plus transformers with high-side and low-side winding voltages both greater than 100 kV. The ATSI transmission system must meet all applicable NERC, PJM, and FirstEnergy transmission planning criteria that apply to transmission systems. PJM Interconnection is a regional transmission organization ("RTO"), an entity authorized by the federal government to manage the reliability of the electric transmission system and the operation of the wholesale electricity market in a defined control area. PJM's Regional Transmission Expansion Planning process determines what changes and additions to the grid are needed to maintain reliability in the future. PJM is the registered Transmission Planner ("TP") for the ATSI system. ATSI is required to utilize the PJM Planning process to test for, and meet, all applicable BES criteria.

PJM Planning Process

PJM's Regional Transmission Expansion Plan ("RTEP") identifies transmission system upgrades and enhancements needed to support the operational, economic and reliability requirements of PJM customers. PJM's region-wide RTEP approach integrates transmission with generation and load response projects to meet load-serving obligations. PJM currently applies planning and reliability criteria to identify transmission constraints and other reliability concerns. Transmission upgrades to mitigate identified reliability criteria violations are then examined for their feasibility, impact and costs, culminating in one plan for the entire PJM footprint.

The rules and procedures for the RTEP process are set forth in Schedule 6 of the PJM Operating Agreement. In accordance with those rules, PJM prepares a plan for the enhancement and expansion of transmission facilities in the PJM region. Additionally, the PJM manuals describe the details of the RTEP process. In particular, PJM Manuals address PJM's regional planning process. PJM's RTEP Process preserves the reliability of PJM's interstate transmission system to ensure that power continues to flow reliably to customers and to ensure robust, competitive power markets.

PJM Reliability Assessment – The following overview is based on publicly available information, including information from the PJM and other PJM documents and data. To the extent that there is a

difference between this overview and the processes and procedures described the PJM Tariff or other PJM documents and data then the PJM Tariff or other PJM documents or data control.

The PJM Reliability Assessment Process consists of several tests to ensure all generation capacity is deliverable to load in PJM without violating any system thermal or voltage limits. If violations are found, mitigation projects are put in place to resolve the issue(s). Limits used in the analysis are consistent with the requirements of NERC standards FAC-010 and FAC-014. The methodology used to determine system operating limits is included in PJM Manual M-14B.

PJM conducts this detailed review annually for the near-term, which consists of a detailed reliability analysis review of the current year plus 5 years out. The study years prior to the 5-years out reliability assessment are considered the "in-close" years and have already had analyses conducted in previous years' study cycles. In addition, for each of these "in-close" years, PJM updates and issues addenda to address changes as necessary throughout the year. For example, planned generation modifications or changes in transmission topology can trigger restudy and the issuance of a baseline addendum. This is referred to as a "retool study" (e.g., generators which drop from the interconnection queue cause restudy and an addendum to be issued for affected baseline analyses).

Each year during the establishment of the assumptions for the new annual baseline analysis, updated assumptions of load, transmission topology and installed generation are assessed for the "in-close" range of years to validate the continued applicability of each of the "in-close" baseline analyses and resulting upgrades (including any addenda). Adjustments to the "in-close" analyses are performed as necessary. Consequently, PJM annually verifies the continued need for modification of past recommended upgrades through its retool studies, reassessment of current conditions and any needed adjustments to analyses. All criteria thermal and voltage violations resulting from the near term analyses are identified using power flow analysis.

PJM Reliability Review Steps – The seven steps in an annual near-term reliability review are as follows:

Develop a Reference System Power Flow Case that includes:

I. **Baseline Thermal**
II. **Baseline Voltage**
III. **Load Deliverability - Thermal**
IV. **Load Deliverability - Voltage**
V. **Generation Deliverability - Thermal**

VI. Baseline Stability Analysis

These reliability related steps are followed by a scenario analysis that ensures the robustness of the plan by looking at impacts of variations in key parameters selected by PJM. Each of these steps in the PJM RTEP process is described in more detail in PJM Manual M-14B Generation and Transmission Interconnection Planning (http://www.pjm.com/planning/rtep-development/expansion-plan-process.aspx)

I. Developing the Reference System Power Flow Case

The reference power flow case and the analysis techniques comprise the full set of analysis assumptions and parameters for reliability analysis. Each case is developed from the most recent set of Eastern Reliability Assessment Group ("ERAG") system models. PJM revises this model as needed to incorporate all of the current system parameters and assumptions. These assumptions include current loads, installed generating capacity, transmission and generation maintenance, system topology, and firm transmission transactions.

The results of capacity market auction(s) are used to help determine the amount and location of generation or demand side resources to be included in the reliability modeling. Generation or demand side resources that are cleared in the capacity market auction are included in the reliability modeling. Generation or demand side resources that either do not bid or do not clear in any capacity market auction are not included in the reliability modeling. All such modeling comports with the capacity construct provisions approved by the Federal Energy Regulatory Commission ("FERC").

PJM develops the final set of reliability assumptions presented to the PJM Transmission Expansion Advisory Committee ("TEAC") for review and comment, after which PJM finalizes the reliability review reference power flow case.

II. Baseline Thermal Analysis

The baseline thermal analysis is a thorough analysis of the reference power flow to ensure thermal adequacy based on normal (applicable to system normal conditions prior to contingencies) and emergency (applicable after the occurrence of a contingency) thermal ratings specific to the transmission organization ("TO") facilities being examined. It encompasses an exhaustive analysis of all NERC category A, B, and C events and the most critical common mode outages. Final results are supported with AC power flow solutions. The PJM Load Forecast uses a 50/50 distribution from the latest available PJM Load Forecast Report (50 percent probability that the actual load is higher or lower than the projected load) minus energy efficiency programs. Demand response programs are not considered in the Load Forecast.

For normal conditions (NERC category A), all facilities are loaded within their normal thermal ratings. For each single contingency (NERC Category B), all facilities are loaded within their emergency thermal ratings. After each single contingency and allowing phase shifter, re-dispatch and topology changes to be made, post-contingency loadings of all facilities are within their applicable normal thermal ratings.

For the more severe contingencies (NERC category C), along with only transformer tap and switched shunt adjustments enabled, post-contingency loadings of all facilities are within their applicable emergency thermal ratings as required by the PJM or the TO's planning criteria.

NERC Category C3 "N-1-1" analysis is also conducted as part of the annual RTEP process to determine if all monitored facilities can be operated:

1) Within normal thermal and voltage limits after N-1 (single) contingency assuming re-dispatch and system adjustments.
2) Within the applicable emergency thermal ratings and voltage limits after an additional single contingency ("N-1-1") condition.

The "N-1-1" study is conducted on a 50/50 non-diversified summer peak case. All BES single contingencies as defined in NERC category C3 as well as lower voltage facilities that are monitored by PJM Operations are included in the assessment. Non-BES contingencies, defined by TOs, are included to check for greater than 300 MW load loss. Non-BES facilities that are included in the assessment will also have corresponding contingencies defined.

Areas of the system that become radial post-contingency will be excluded from monitoring, with the following exceptions:

1) If the radial system contains greater than 300 MW of load, or
2) Specific local TO planning criteria require that it be monitored.

The PJM NERC Category C3 (or "N-1-1") thermal analysis will test the outage of every single contingency (N-1 condition) for thermal violations. All violations of the applicable thermal ratings are recorded and reported and solutions are developed.

III. Baseline Voltage Analysis

The baseline voltage analysis parallels the thermal analysis. It uses the same power flow and examines voltage criteria for the same NERC category A, B, and C events. Also, voltage criteria are examined for compliance. PJM examines system performance for both a voltage drop criteria (where

applicable) and an absolute voltage criteria. The voltage drop is calculated as the decrease in bus voltage from the initial steady state power flow to the post-contingency power flow. The post-contingency power flow is solved with generators holding a local generator bus voltage to a pre-contingency level consistent with specific TO specifications. In most instances, this is the pre-contingency generator bus voltage. Additionally, all phase shifters, transformer taps, switched shunts, and DC lines are locked for the post-contingency solution. Static var compensators ("SVCs") are allowed to regulate and fast switched capacitors are enabled.

The absolute voltage criteria is examined for the same contingency set by allowing transformer taps, switched shunts, and SVCs to regulate, locking phase shifters and allowing generators to hold steady state voltage criteria (generally an agreed upon voltage on the high voltage bus at the generator location.)

The N-1-1 voltage magnitude test procedure follows a similar method as the thermal test method, except all monitored facilities are monitored for the emergency low limit after the second contingency ("N-1-1" conditions.). Voltage collapse is considered to be a severe reliability violation and, consequently, each "N-1-1" condition that exhibits voltage collapse is investigated, validated, and resolved with remedial actions, or network upgrades.

IV. Load Deliverability Analysis - Thermal

The load deliverability tests are a unique set of analyses designed to ensure that the transmission system provides a comparable transmission function throughout the system. These tests ensure that the transmission system is adequate to deliver each load area's requirements from the aggregate of system generation. The tests develop an expected value of loading after testing an extensive array of probabilistic dispatches to determine thermal limits. A deterministic dispatch method is used to create imports for the voltage criteria test. The transmission system reliability criterion used is 1 event of failure in 25 years. This is intended to design transmission so that it is not more limiting than the generation system which is planned to a reliability criterion of 1 failure event in 10 years.

Each load areas' deliverability target transfer level to achieve the transmission reliability criterion is separately developed using a probabilistic modeling of the load and generation system. The load deliverability tests measure the design transfer level supported by the transmission system for comparison to the target transfer level. Transmission upgrades are specified by PJM to achieve the target transfer level as necessary. Details of the load deliverability procedure can be found in PJM Manual M-14B.

The thermal test examines each load deliverability area where the deliverability area is under the stressed conditions of a 90/10 summer load forecast (i.e., a forecast that only has a 10 percent chance of being exceeded) and demand response is implemented (energy efficiency is removed from all areas). The areas not under the test are at the conditions of a 90/10 summer load forecast. The transfer limit to the load is determined for system normal and all single contingencies (NERC category A and B criteria) under ten thousand (10,000) load study area dispatches with calculated probabilities of occurrence. The dispatches are developed randomly based on the availability data for each generating unit. This results in an expected value of system transfer capability that is compared to the target level to determine system adequacy. As with all thermal transmission tests conducted by PJM the applicable TO's normal and emergency ratings are applied. The steady state and single contingency power flows are solved consistent with the similar solutions described for the baseline thermal analyses.

V. Load Deliverability Analysis – Voltage

This testing procedure is similar to the thermal load deliverability test except that voltage criteria are evaluated and a deterministic dispatch procedure is used to increase study area imports. The voltage tests and criteria are the same as those performed for the baseline voltage analyses.

VI. Generation Deliverability Analysis – Thermal

The generator deliverability test for the reliability analysis ensures that, consistent with the load deliverability single contingency testing procedure, the transmission system is capable of delivering the aggregate system generating capacity at peak load (50/50 load level in all areas) with all firm transmission service modeled. Energy efficiency is removed from all areas and demand response is not exercised. The procedure ensures sufficient transmission capability in all areas of the system to export an amount of generation capacity at least equal to the amount of certified capacity resources in each area. Areas, as referred to in the generation deliverability test, are unique to each study and depend on the electrical system characteristics that may limit transfer of capacity resources. For generator deliverability, areas are defined with respect to each transmission element that may limit transfer of the aggregate of certified installed generating capacity. The cluster of generators with significant impacts on the potentially limiting element is the area for that element. The starting point power flow is the same power flow case set up for the baseline analysis. Thus the same baseline load and ratings criteria apply. The same contingencies used for load deliverability apply and the same single contingency power flow solution techniques also apply. Details of the generation deliverability procedure can be found in PJM Manual M-14B.

One additional step is applied after generation deliverability is ensured, consistent with the load deliverability tests. The additional step is required by system reliability criteria that call for adequate and secure transmission during certain NERC category C common mode outages. The procedure mirrors the generator deliverability procedure with somewhat lower deliverability requirements consistent with the increased severity of the contingencies.

The details of the generator deliverability procedure including methods of creating the study dispatch can be found in PJM Manual M-14B.

VII. Baseline Stability Analysis

PJM ensures generator and system stability during its interconnection studies for each new generator. In addition, analysis is performed on the RTEP baseline stability cases. These analyses ensure the system is transiently stable and that all system oscillations display positive damping. Generator stability studies are performed for critical system conditions, which include light load and peak load for three phase faults with normal clearing, plus single line to ground faults with delayed clearing. Also, specific TO designated faults are examined for plants on their respective systems. Finally, PJM also initiates special stability studies on an as needed basis. The triggers for such special studies commonly include, but are not limited to, conditions arising from operational performance reviews or major equipment outages or deactivations.

FirstEnergy Planning Process

Voltage Stability – FirstEnergy has determined that the FE transmission system will be developed to ensure that it can be operated at the expected peak and at lower load levels and maintain voltage stability with the most severe combination of a generating unit and a transmission line removed from service.

Voltage stability is analyzed by evaluating the relationship between the transmitted power (P) and the system voltage (V). PV analysis was used as the method of testing voltage stability. This analysis is performed using a system model with an initial load equal to the 50/50 load forecast, incrementing system load (incremental load is to be added at 0.85 power factor, simulating the contingency and then recording voltages at transmission buses. The process of incrementing load, simulating the contingency and recording voltages is repeated until the power flow will no longer converge. The 50/50 summer peak case represents a forecasted load level for ATSI in which there is a 50 percent chance that the actual summer peak load will be higher than the forecasted load, and a 50 percent chance the actual peak will be lower.

In order for the system to be considered stable, the system must not show voltage instability as load is incremented to the 90/10 forecasted peak. The 90/10 summer peak case represents a forecasted load level

for ATSI in which there is a 90 percent chance that the actual summer peak will be less than the forecasted load and only a 10 percent chance it will be higher.

Power Flow Criteria – FirstEnergy has developed power flow criteria for its transmission system that define the maximum normal and emergency rating for major pieces of equipment. The criteria for the major equipment elements of the system are summarized below:

Transmission Lines – FirstEnergy has developed criteria for its transmission system that establish that normal and emergency thermal ratings should not be exceeded during normal and contingency conditions, respectively. The ultimate transmission circuit capacity may be limited by either the line conductor itself or by other elements such as breakers, switches, or relays.

Bulk Power Transformers – FirstEnergy has developed criteria for its transmission system that establish that normal and emergency thermal ratings should not be exceeded during normal and contingency conditions, respectively. Bulk power transformers on ATSI's system typically have 345 kV "high side" and 138 kV "low side" nominal voltages. Normal load ratings for each specific bulk power transformer are developed based on seasonal conditions considering loss of life (i.e. shortens the useful life of the component) and thermal stresses and should not be exceeded during normal conditions. Transformers loaded above their rating are likely to become overheated which results in an acceleration of the breakdown of insulating materials in the transformer, which shortens the transformer operating life.

Emergency load ratings specific to each bulk power transformer are also based on seasonal assessments and should not be exceeded during contingency conditions. The emergency ratings are predicated on the peak permissible loading during the period when the emergency condition may occur and would result in increased transformer loading. Emergency condition time frames considered in this analysis may extend for several months to account for situations where the emergency condition is caused by the failure of another bulk transformer or other critical piece of equipment that would require a lengthy time period to repair or replace. Operating measures may be necessary in order to maintain transformer loadings within emergency ratings and might include interruptions to specific customers.

Area Transmission Transformers – FirstEnergy has developed criteria for its transmission system that establish the normal and emergency thermal ratings that should not be exceeded during normal and contingency conditions, respectively. Area transmission transformers on ATSI's system typically have 138 kV "high side" and 69 kV or less "low side" nominal voltages. Ratings specific to each

area transmission transformer are based on seasonal conditions considering loss of life and thermal stresses and should not be exceeded during normal conditions. Emergency ratings specific to each area transmission transformer are also based on seasonal conditions and should not be exceeded during contingency conditions. The emergency rating is tolerated up to 24 hours, assuming a mobile or spare transformer is available and can be installed while awaiting a permanent transformer repair or replacement. Otherwise the emergency rating applied corresponds to the period (months) utilized for bulk transformers. Operating measures may be necessary in order to maintain transformer loadings within emergency ratings and might include certain customer interruptions.

Bus Voltage Criteria – FirstEnergy has developed criteria for its transmission system that establish that normal substation bus voltages should range from 0.95 per unit to 1.05 per unit of nominal during on-peak and off-peak conditions. The minimum contingency voltage is 0.92 per unit for all 345 kV, 0.92 per unit for networked 138 kV, and 0.90 per unit for all remaining transmission voltages. The maximum pre-to-post contingency voltage change is 0.08 per unit for 345 kV transmission substations, and 0.10 per unit for the remaining transmission substations.

Planning Process – Project Analysis

Load Flow Analysis

ATSI and PJM conducted studies of the Project Area Transmission System for the PJM 2013 and 2015 Forecast summer peak load conditions, with varying amounts of generation available and with and without the proposed Project. These studies included evaluation of the effects of various contingency conditions such as an outage of a transmission line(s), transformer(s), multiple elements (N-2 + Contingency), and are described in the following cases.

Table 1 below lists the applicable system load levels evaluated in the load flow analysis.

Table 1: PJM Load Forecast

Year	Load Level	Applicable System
2013	13,435 MW	ATSI
2015	13,875 MW	ATSI

The process of identifying PJM required reinforcements to accommodate the announced generation retirements was a collaborative effort between the ATSI and PJM. The Project is part of the group of FirstEnergy projects required to meet all applicable FirstEnergy, PJM, and NERC criteria following the announced generation retirements. The Dowling substation was needed to address "N-1-1" contingency

events (NERC TPL Category C.3), which resulted in low voltage violations in PJM and FE's generation retirement load flow studies.

PJM, through various generator retirement studies, has determined that several system reinforcements are required to meet or exceed the applicable PJM and NERC criteria, including N-1-1 outages. The Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board, PJM Staff Whitepaper, dated May 2012 (http://www.pjm.com/committees-and-groups/committees/teac.aspx) contains a complete list of the transmission projects required to meet applicable planning criteria.

N-1-1 Conditions – Three of the most severe N-1-1 contingency voltage violations are shown in Table 2 below. For the three contingencies depicted, the resulting 138 kV voltage is below the limit of 92 percent of nominal, necessitating the need for system upgrades. These results were from the PJM Generation Retirement study, which studied the system without units 2, 3, and 4 running at the Bayshore power plant in Toledo, and other FE generators being out of service along Lake Erie. As shown, the local 138 kV system experiences a significant voltage boost up to 6-7 percent, which removes all of the voltage violations for 2015 peak loading conditions, after all projects have been completed. The left-most results are for 2015 Summer Peak, with none of the upgrades in place. The generation portfolio of projects, which includes Dowling substation, are depicted in the right-most column, and when completed, alleviate the N-1-1 voltage concerns, and provide additional system capacity to accommodate future load growth and economic expansion south of Toledo.

Table 2: N-1-1 Contingency Voltage Results

			2015 w/out any TE Upgrades		2015 w/ TE Upgrades	
Contingency #1	Contingency #2	Lowest Bus	Voltage (%)	# of Buses w/ Violations	Voltage (%)	# of Buses w/ Violations
Bayshore-Maclean 138kV line	Lemoyne-Maclean 138kV line	Maclean 138kV	89.1%	8	94.0%	0
Bayshore 345-138kV XFMR	Lemoyne-Maclean 138kV line	Maclean 138kV	90.9%	6	96.6%	0
Bayshore-Ironville 138kV	Lemoyne-Maclean 138kV line	Maclean 138kV	90.7%	6	94.1%	0

Regional Planning and Long Term Forecasting

Regional Planning – The FirstEnergy Solutions ("FES") generation retirement announcements were made on January 26, 2012, while neighboring generation owners announced retirement of additional generation in February and March of 2012. PJM formally presented the proposed portfolio of projects to mitigate the identified issues at a PJM TEAC meeting on April 27, 2012. Formal PJM Board of Directors approval of the upgrade project was received on May 17, 2012.

PJM, as the entity with responsibility under federal law for conducting independent regional planning for the electric transmission system at 100 kV and above, conducts an annual study of "needs" that exist or

that may come into existence on the regional electric transmission system. Where a need is identified, PJM stakeholders develop a transmission project that, if constructed, will address and resolved the identified need. The process for performing these studies is described in the PJM tariffs as the "Regional Transmission Expansion Plan" or RTEP. Each year PJM issues a report (the "RTEP report") that described all projects that have been identified through the RTEP process as necessary to resolve issues on the regional electric transmission system. This substation Project is currently a baseline RTEP project in PJM and is identified as RTEP Project Number b1927.

The Project will be constructed and operated in compliance with all applicable mandatory reliability standards or other standards that are promulgated by NERC.

Long Term Forecasting - FirstEnergy – The approved RTEP project for the Dowling 345-138 kV substation was included as part of FirstEnergy's 2013 Ohio LTFR (Long-Term Forecast Report) submitted to the Public Utilities Commission of Ohio (PUCO) in April 2013, Case No. 13-925-EL-FOR. It was part of the planned transmission lines and proposed substation lists provided in that Docket. The Project was proposed to ensure reliably in the Toledo Edison system, while maintaining compliance with NERC reliability standards, and make up for the loss of generation in Ohio.

Project Impact

Completion of the Project will resolve planning criteria violations on the Project Area Transmission System for the years studied thus far by PJM. ATSI has determined that bringing the Project on-line will not adversely impact any of ATSI's other existing transmission facilities, or the transmission facilities and equipment of neighboring utilities. Overall performance on the Project Area Transmission System will be improved significantly as a result of the construction of the Project and other proposed improvements.

Voltage violations will be corrected and the Toledo-area transmission system will be more interconnected by this Project, allowing ATSI greater flexibility to ensure safe, efficient and reliable electricity to its customers. In addition, system losses will be reduced, by offloading the local 138 kV system when the new 345 kV to 138kV source substation is installed, mitigating the impacts of the existing topology, which consists of long, continuous 138 kV paths with a source at each end. The Dowling project will add a 345 kV to 138 kV source in the middle of this 138 kV load center, reducing the resistive line losses on the 138 kV system. In addition, transmission system maintenance and switching procedures will be easier to facilitate with this Project. Substation equipment and transmission overhead lines are placed on routine inspection and maintenance schedules, to ensure proper reliability and reduce the chances of system outages.

(3) LOCATION RELATIVE TO EXISTING OR PROPOSED LINES

The location of the Project relative to existing or proposed transmission lines is described in reference to the FirstEnergy System Facilities map, included as the last page of Chapter 3 of the confidential portion of the Ohio Edison Company, The Cleveland Electric Illuminating Company, The Toledo Edison Company and American Transmission Systems, Incorporated's 2013 Long-Term Forecast Report, submitted to the Public Utility Commission of Ohio (PUCO) in Case No. 13-0925-EL-FOR under Rule 4901:5-5-04(C) of the Ohio Administrative Code. This map shows ATSI's 345 kV and 138 kV existing transmission lines and transmission substations and does not depict the proposed location of the Project. In reference to the map, the proposed Project is located in Wood County approximately 4 1/2 inches (11 by 17 inch printed version) from the left edge of the map box and 2 inches (11 by 17 inch printed version) from the top of the map box. The general location of the Project is shown in this Application as Figure 1.

(4) ALTERNATIVES CONSIDERED

In 2012, ATSI and PJM determined that loading and voltages in the Project Area Transmission System would exceed system limits due, in part, to the retirement of certain generating units within the ATSI footprint. In order to address this issue, ATSI and PJM initiated work on options for serving existing and projected load in the Project Area. This work included analysis of transmission and non-transmission alternatives. The results of this analysis are described below.

Analysis of Transmission Alternatives

ATSI and PJM surveyed a range of options and performed extensive analysis on those options that were both short-term fixes and longer-term fixes for the applicable area. Initial analysis established that completion of multiple projects are needed in order to resolve all of the capacity and voltage planning criteria violations on the ATSI 345 kV and 138 kV Systems. Moreover, there was not one transmission alternative which resolved these issues completely; rather it required a combination of several projects in order to meet the necessary results. Some of the options could not be completed within the desired time frame, other options were not cost effective, and did not mitigate all the violations. As such, these alternatives were rejected for a variety of reasons.

For this Project, transmission options analyzed include:

1. Dowling 138 kV switching station: this would involve tying two or three existing 138 kV circuits together through a new 138 kV switching substation. It would be similar to the Proposed Project, but would lack interconnection to the 345 kV EHV system and lack 345 kV to 138 kV transformation.

a. Due to the long circuit lengths on this area of the 138 kV system, there was not adequate voltage support for just a 138 kV switching station. Line losses and small conductor size on the existing 138 kV circuits would have led to significant voltage drop by the time the power reached the loads. A 345 kV source was needed to maintain voltages at an acceptable level after system contingencies.

Analysis of Non-Transmission Alternatives

Two different types of non-transmission alternatives were considered: (i) energy efficiency alternatives and (ii) demand-side management alternatives. As explained in the following paragraphs, although certain features of each non-transmission alternative were attractive, no single non-transmission alternative resolved all of the capacity, thermal and voltage violations on the 138 kV System. Accordingly, the non-transmission alternatives were rejected.

Energy Efficiency – Conservation and energy efficiency programs involve actions taken on the customer side of the meter that reduce the customers' overall energy requirements (Energy Efficiency). Energy Efficiency actions focus on using energy more efficiently without sacrificing customer comfort or convenience. These actions usually involve installing more efficient equipment or changing processes to conserve energy. Energy Efficiency and conservation programs usually provide financial incentives for customers to purchase and install energy efficient equipment and/or educate consumers on the efficient use of energy. Energy Efficiency also requires customer cooperation – a utility cannot force customers to participate in Energy Efficiency programs. The reduction in peak load would be less than what is necessary to relieve the capacity problems on the 345 kV and 138 kV Systems. Further, conservation and Energy Efficiency programs will not provide the transmission infrastructure that is needed throughout the greater Toledo area. New transmission lines and a substation, similar to the proposed Project, along with other projects identified by PJM in their analysis, would remain needed to solve the capacity constraint. Accordingly, this option is not sufficient.

Demand-Side Management – Demand-Side Management (DSM) programs generally involve actions taken on the customer side of the meter that have the intention and effect of reducing the customers' requirements during peak times. DSM programs typically involve utility incentives that are provided to consumers in exchange for reduction or curtailment of customer load at specific times (usually system peak times, but also can be used to address locational peak times). Load management and demand response incentives are most often provided and renewed on an annual basis. Further, DSM also requires customer cooperation – a utility cannot force customers to participate in DSM programs. DSM will not provide the needed transmission infrastructure needed in the greater Toledo area. This would leave the

Toledo area without a means of maintaining proper system voltages. New transmission lines and a substation, similar to the proposed Project, along with other projects identified by PJM in their analysis, would remain needed to solve the capacity constraint.

Given the circumstances that prevail on ATSI's 345 kV and 138 kV Systems, DSM would be effective only if it achieved a negative growth scenario. This represents an extremely ambitious objective when compared to other utilities' experiences. Although arguably possible for ATSI to develop and launch a large DSM program, the time frame to address current need, as well as the scale of the program required for success, is not consistent with the experience of those of utilities and others who have managed successful programs. It is clear that DSM can make only a small contribution—far less than what is necessary—to relieving the capacity problems on the 345 kV and 138 kV System. Accordingly this option is not sufficient.

PJM already incorporates Energy Efficiency (EE) and Demand Response (DR) into their forecast and analysis. PJM offers three types of Load Response:

- Emergency Capacity (DR)
- Emergency Energy Only
- Economic

Only the Emergency Capacity (DR) product is modeled in PJM planning studies. Demand Response is an emergency procedure initiated by PJM and compliance is mandatory

PJM anticipates that DR and EE resources that clear through the RPM process will be available for their committed planning year(s). Beyond the commitment period (3 years), DR and EE amounts are held constant. Forecasted DR and EE is summarized in the tables in the PJM Load Forecast Report

Forecast load levels across PJM are reduced by the amount of EE that cleared in Reliability Pricing Model ("RPM") for both load and generation deliverability tests. For DR and Price Responsive Demand ("PRD"), there is no impact on generation deliverability test (not an emergency condition). For the Capacity Emergency Transfer Limit ("CETL") calculation, the forecasted 90/10 load level in the area under test is reduced by the amount of DR and PRD that cleared in RPM, except in situations where 90/10 load minus DR and PRD would be less than 50/50 load. In those instances, 50/50 load levels will be used in the area under test.

New Generation – ATSI, as a transmission system operator, does not build or own generation and can only plan for transmission. In 2001, the State of Ohio made a policy decision to deregulate electric

utilities. Through this deregulation, the State of Ohio mandated that transmission and generation must remain in legally separate and independent companies. As such, ATSI does not build or own generation and can only plan for transmission.

PJM Interconnection is a RTO authorized by the federal government to manage the reliability of the electric transmission system and the operation of the wholesale electricity market in a defined control area. PJM's RTEP process determines what changes and additions to the grid are needed to maintain reliability in the future. The process systematically evaluates proposed transmission and generation projects to ensure that compliance with reliability criteria is maintained. The process also includes a mechanism to mandate necessary grid improvements. Under PJM agreements, transmission owners are obligated to build transmission projects that are needed to maintain reliability standards and that are approved by the board. Accordingly, the option for ATSI to construct generation is not appropriate.

To ensure the future availability of the generating capacity and other resources that will be needed to keep the regional power grid operating reliably for consumers, PJM developed and implemented the RPM. The PJM process does not include a mechanism to mandate new generation be constructed. The RPM system continues to follow a market approach to obtaining the capacity needed to ensure reliability, but includes incentives that are designed to stimulate investment both in maintaining existing generation and in encouraging the development of new sources of capacity – resources that include not just generating plants, but demand response and energy-efficiency programs. Investors need sufficient long-term price signals to encourage the maintenance and development of generation and other resources. The RPM plan, based on making capacity commitments three years ahead, creates long-term price signals to attract needed investments in reliability in the PJM region. Proposals to construct generation within the PJM market are submitted and reviewed by PJM as part of the Transmission Expansion Planning process defined in M-14 series of PJM manuals.

Project Selection

The Project was selected because it is the most efficient option to resolve the capacity, voltage, and thermal problems that exist on the 345 kV and 138 kV Systems in the Project Study Area. As noted, all of the other transmission and non-transmission alternatives either would not resolve all of the capacity and voltage problems or, if all such problems were resolved, the alternatives would: (i) cost more; (ii) have greater environmental and social impacts; or (iii) both.

The proposed Project substation utilizes a tract of land adjacent to an existing 345 kV and 138 kV transmission line corridor, which minimizes land use impacts. In addition, the dense area of 138 kV

transmission loads between the cities of Waterville, Perrysburg, and Walbridge is just several miles north of the proposed substation's property. This results in less new transmission line construction and right-of-way needed, compared to other project alternatives. The proposed substation site was chosen due to its close proximity to the areas needing electric system upgrades. Moving the substation elsewhere in the Toledo area would have greatly increased the distance of new transmission lines need to meet the Project objectives.

Construction of the Project will provide operating flexibility to eliminate contingency violations and chances of load shed through the PJM Planning process which incorporates NERC, PJM and the Applicants' planning criteria. Moreover, construction of the Project adds another source of power to the Project Study Area affording greater flexibility for future load growth and system maintenance. Finally, the addition of the Project provides the additional operational benefits that accrue by adding another power source from the south side of the Project Study Area, ensuring that the businesses, homes and communities in the southern Toledo metropolitan region will have ready access to safe and reliability energy. The 345 kV to 138 kV transformation provided by the proposed Dowling substation creates a more robust electrical grid in the greater Toledo region.

Alternative Substation Sites and Transmission Routes Considered

Dowling Substation – A siting study was conducted to identify potential sites of adequate size and suitability for the new substation within an area of approximately three miles east-west and 1.5 miles north-south around the existing Lemoyne – Midway 138 kV and 345 kV transmission line corridor. Eighteen sites were initially identified and evaluated as to the site's accessibility, proximity to the existing transmission corridor, distance to the existing Five Point Substation and existing Chrysler - Levis Park 138 kV transmission line, and the number of residences within 1,000 feet of the site. These initial sites were located on both the east and west sides of I-75. Land use of the sites was less of a factor due to the homogeneity of the land use in the area being primarily cropland. None of the sites identified would require the clearing of any trees. The sites were ranked and evaluated. The sites were then provided to ATSI Real Estate to investigate the land ownership of the sites. Inquiries with the property owners of the first and second sites indicated that they did not wish to sell. The third-ranked site is the proposed site for Dowling Substation. That property was scheduled for auction. ATSI participated in the auction and acquired the site for the new Dowling Substation. In addition to the availability of the site, the site has construction advantages. It is already crossed by the existing Midway – Lemoyne transmission corridor, thereby requiring less new transmission construction, and it is easily accessible from either Dowling or Mercer Roads.

Two potential substation layouts were developed on the 73-acre parcel. The existing Midway – Lemoyne 345 kV and 138 kV transmission lines extend east-west across the property. Site A was located north of the existing lines, and Site B was located south of the lines. Site A was located in the northeast portion of the 73-acre parcel and is closer to both Dowling and Mercer Roads compared to Site B, which is located in the southwest portion of the parcel. As such, an access drive to Site A would be shorter in length than to Site B. However, Site A is located closer to the residences along Dowling Road north of the property compared to Site B. Therefore, these residences could experience greater noise and visual impacts from construction of the substation at Site A than Site B. Site B is better from an electrical engineering perspective, because the location would allow for the new Lemoyne – Midway 138 kV transmission line extension to cross under the existing Midway – Lemoyne 345 kV line. Site B is also a better location for the new Fulton-Lemoyne 345 kV transmission line, which occupies the open arm position of the existing Lemoyne – Midway 345 kV line, to loop into the proposed Dowling Substation. Both Site A and B were presented to the public at the public information meeting. The comments received from the meeting indicated that there was no preference for either site. For these reasons, Site B was selected as the proposed substation site presented in this LON.

Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions – Routes for the Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions were developed to both Dowling Substation Site A and Site B. Because both sites are located adjacent to the existing Lemoyne – Midway 345 kV and 138 kV transmission lines, the extensions to the new Dowling Substation would only be approximately 150 feet in length. Therefore, only one route for the 345 kV extension and one route for the 138 kV extension was developed to each site. These routes were developed based on engineering considerations for the best tie-in locations to the new substation and existing lines, as well as considerations for crossing the existing transmission lines. The Fulton – Lemoyne 345 kV line extension would connect to the open arm position of the existing Lemoyne – Midway 345 kV line.

Chrysler – Levis Park 138 kV transmission line extension – A route selection study was conducted to develop and evaluate potential route alternatives for the Chrysler – Levis Park 138 kV transmission line extension. A proposed route was chosen based on the route selection process described below.

A study area was established for the route selection study based on the location of the potential sites for the proposed Dowling Substation, the potential locations for the extension along the existing Chrysler – Levis Park 138 kV line, and a preliminary review of possible constraints and opportunities in the area. The overall study area was approximately 3 miles east-west and 4 miles north-south and included the

existing Lemoyne – Midway 345 kV and 138 kV lines and the existing Chrysler – Levis Park 138 kV line.

Based on established routing principles, opportunities (existing linear features) and constraints (social or environmental) were first identified within the study area. Potential route segments were then developed that would minimize overall impacts to the human and natural environment, while taking into account the engineering and construction needs of the Project.

The routing study resulted in a network of approximately 60 segments that extended from the new Dowling Substation Site A or Site B north to the existing Chrysler – Levis Park 138 kV transmission line. All of the routes developed involve acquiring new ROW, though in some cases, ROW for existing transmission lines and roads could be shared to minimize the amount of new ROW required. Some of the identified routes included a segment that would require the rebuild of an existing 138 kV transmission line segment from the Chrysler – Levis Park 138 kV line to the existing Five Points Substation.

After the initial potential routes were identified, a field reconnaissance of the routes was conducted in October 2012 to identify residences, outbuildings, commercial buildings, and community facilities (e.g., cemeteries, churches, schools) along the routes. New developments under construction were also identified in the study area. Based on the field reconnaissance, modifications were then made to the route network to avoid identified constraints.

The potential route segments were presented to the public for comment during an open house meeting in Perrysburg, Ohio, in January 2013. Following the public input process, the routing team reviewed the comments collected at the public meeting and finalized the route network. Segments were combined to create 116 route alternatives to Site A and 53 route alternatives to Site B. The routing team performed an evaluation of the route network, using data compiled for each route based on impacts to homes, businesses, public facilities, land uses, wetlands and streams crossed, tree clearing, length along existing linear features, and engineering considerations. This process resulted in the identification of several top-ranking routes for consideration. In general, the top-most route followed Mercer Road north to Dowling Road, then east to Frusher Road, and then north about a half mile before turning east to then follow I-75 north to the existing Chrysler – Levis Park 138 kV transmission line. In particular, several comments received at the open house suggested the route should follow Frusher Road. Another comment received at the open house indicated that a home located on the southeast corner of Frusher Road and Reitz Road was for sale (which was the primary obstacle to a route in this vicinity). ATSI confirmed the availability of the home, purchased the home and pursued negotiations with landowners for a route along Frusher

Road to the north. Negotiations with landowners resulted in the route extending along Frusher Road and property lines due north to the existing Chrysler – Levis Park transmission line.

(5) CONSTRUCTION SCHEDULE

Construction on the Project is expected to begin on approximately February 1, 2014, and is expected to be completed and placed in-service by July 30, 2015.

(6) AREA MAP

Project Map

Figure 1 is a map depicting the general location of the Project. Figure 3 is a map showing the Dowling Substation and Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions in more detail. Figure 4 is a map showing the proposed Chrysler – Levis Park 138 kV transmission line extension.

Directions to the Project Area

To reach the proposed Dowling Substation site, from the Columbus, Ohio area, travel north on US-23 for approximately 67 miles past the US-23/I-270 interchange north of Columbus. Continue on OH-15 W for approximately 17 miles. Merge onto I-75 and continue north for approximately 30 miles. Take exit 187 for OH-582 toward Luckey/Haskins. Turn left onto OH-582 and go approximately 0.3 mile. Take the first right onto Mercer Road and go approximately one mile. The proposed Dowling Substation site is located on the left at the southwest corner of the intersection of Mercer Road and Dowling Road.

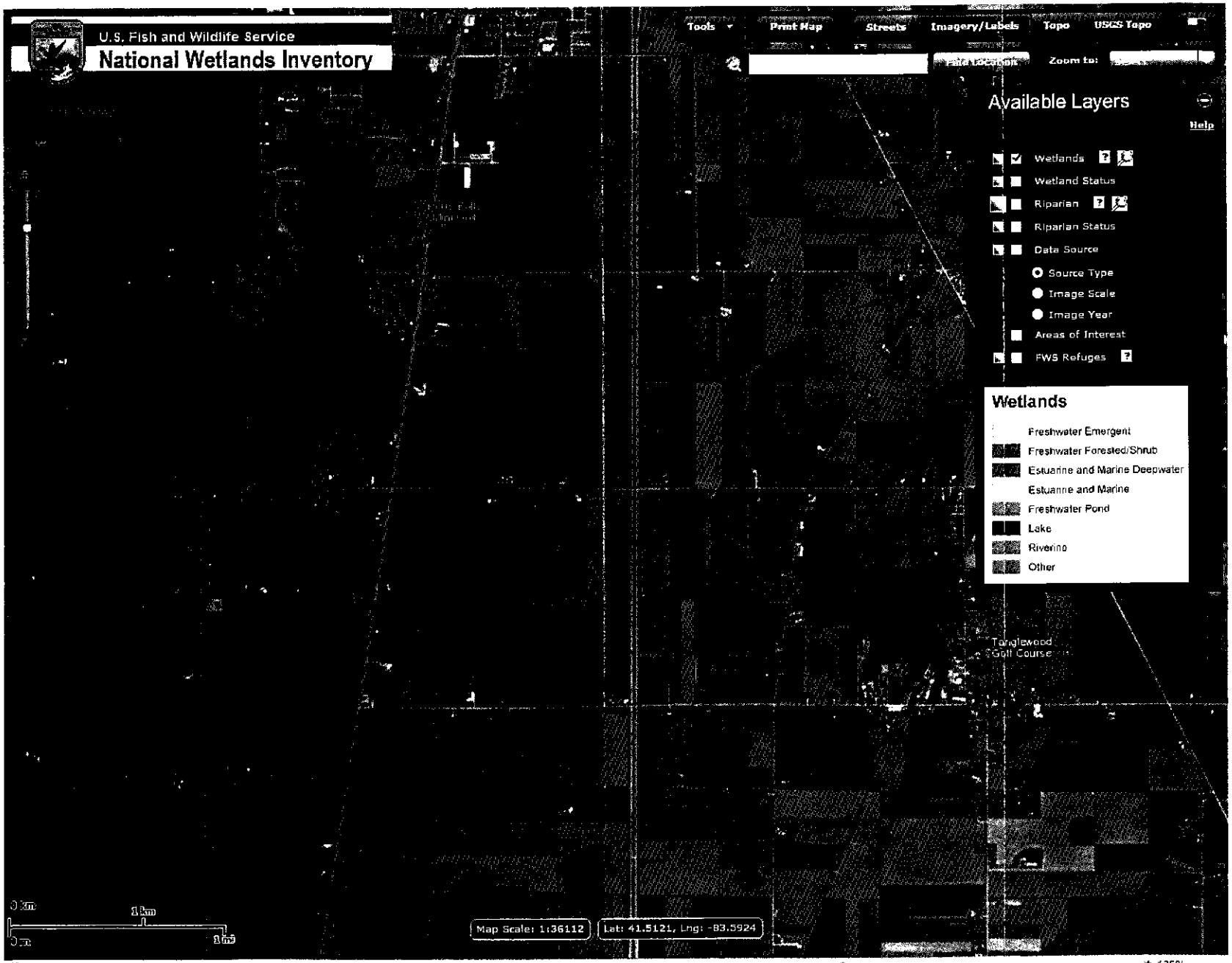
To reach the point where the Project extends from the existing Chrysler – Levis Park 138 kV transmission line, travel from the proposed Dowling Substation site north on Mercer Road. Turn left on Dowling Road and go approximately 0.9 mile. Turn right onto OH-25 and go 3.1 miles to Roachton Road. Turn right onto Roachton Road, and go approximately 0.6 mile to the point where the Project will extend from the existing Chrysler – Levis Park 138 kV line.

(7) PROPERTY OWNER LIST

The new Dowling Substation and the Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions will be constructed on property that was acquired by ATSI for the Project. New ROW will be acquired for the Chrysler – Levis Park 138 kV transmission line extension. Following is a list of the properties for which easements have been or still need to be obtained for construction of the Project.

Parcel Number	Name	Easement Obtained?
J36-611-17000001-6001	Jim & Florence Ryder	Yes
J36-611-17000001-6000	Bob & Florence Ryder	Yes
P60-400-32000000-8000	Dan & Janice Schimmoeller	Yes
P60-400-32000000-7000	Tom Teet	Yes
P60-400-29000000-7000	Scott Emch	Yes
P60-400-2000000-13000	Ella Kazmaier	Yes
P60-400-19000001-5000	John C Voland	No
P60-400-29000000-6000	Tom, Jim & Karen Voland	No
P60-400-2000000-12000 & -0900	Jim Voland	No
P60-400-19000000-1000	Jim Voland	No
J36-611-19000000-2500	Sally Meier	No

Figure 4: Route Map



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11-01 (C) TECHNICAL FEATURES OF THE PROJECT

4906-11-01 (C) <u>Technical features of the project. This description shall contain the following information:</u>

(1) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

(2) For electric power transmission lines, the production of electric and magnetic fields during the operation of the proposed electric power transmission line. The discussion shall include:

(a) Calculated electric and magnetic field strength levels at one meter above ground under the lowest conductors and at the edge of the right-of-way for:

(i) Normal maximum loading.

(ii) Emergency line loading.

(iii) Winter normal conductor rating.

(b) A discussion of the company's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

(3) The estimated cost of the project by federal energy regulatory commission account, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the capital costs classified in the accounting format ordinarily used by the applicant in its normal course of business).

11-01 (C) TECHNICAL FEATURES OF THE PROJECT

(1) OPERATING CHARACTERISTICS

The Project will be designed and constructed to transform voltage from 345 kV to 138 kV.

The proposed Fulton – Lemoyne 345 kV transmission line extension will have the following characteristics:

Voltage:	345 kV
Conductor:	2-954 kcmil 54/7 ACSR
Static Wire:	7 #8 Alumoweld
Insulators:	Porcelain
Potential Structure Types:	Figure A-1: 345 kV Steel DC Vertical
	Figure A-2: 345 kV Steel SC Vertical Deadend

The proposed Lemoyne – Midway 138 kV transmission line extension will have the following characteristics:

Voltage:	138 kV
Conductor:	336.4 kcmil 30/7 ACSR
Static Wire:	134.6 kcmil 12/7 ACSR
Insulators:	Porcelain
Potential Structure Types:	Figure A-3: 138 kV Wood SC H-Frame Suspension
	Figure A-4: 138 kV Wood SC 3-Pole Deadend
	Figure A-5: 138 kV Steel DC Tap Structure

The proposed Chrysler – Levis Park 138 kV transmission line extension will have the following characteristics:

Voltage:	138 kV
Conductor:	954 kcmil 54/7 ACSR
Static Wire:	7 #10 Alumoweld
Insulators:	Porcelain
Potential Structure Types:	Figure A-3: 138 kV Wood SC H-Frame Suspension
	Figure A-4: 138 kV Wood SC 3-Pole Deadend
	Figure A-6: 138 kV Wood SC Corner Dead End
	Figure A-7: 138 kV Wood DC Tangent

Figure A-8: 138 kV Wood DC Corner Dead End

The proposed Dowling Substation will have the following characteristics:

The proposed Substation will transform voltage from 345 kV to 138 kV. The Substation will be interconnected to the existing Lemoyne – Midway 138 kV transmission line, the existing Chrysler – Levis Park 138 kV line, and the open arm position of the existing Lemoyne – Midway 345 kV line, as presented in this application. The proposed Substation will contain the following major equipment within the fence line:

- One 345/140/13.2 kV 137/224/280 MVA ONAN/ONAF/ONAF autotransformer
- Three 345 kV, 3000 A circuit breakers
- Nine 345 kV, 2000 A manual group operated double end-break switches to serve as disconnect switches for the 345kV breakers
- One 345 kV, 2000 A motor operated double end-break switch to serve as the transformer high-side disconnect
- Three 209 kV MCOV surge arresters on each incoming 345 kV line position for a total of six
- Five 138 kV, 3000 A circuit breakers
- Eleven 138 kV, 2000 A manual group operated vertical break switches to serve as disconnect switches for the 138kV breakers
- One 138 kV, 2000A motor operated vertical break switches to serve as the transformer low-side disconnect
- Three 98 kV MCOV surge arresters on each incoming 138 kV line position for a total of twelve
- One prefabricated metal control building approximately 24-ft wide x 40-ft long to house all required relay panels, RTU, AC & DC distribution panels, 125V DC battery system, Human-machine interface (HMI), etc.

The tallest structures within the fence line of the Substation will include the 138 kV deadend structure and shield mast at approximately 60 feet in height and the 345 kV deadend structure and shield mast at approximately 90 feet in height.

Appendix B includes a preliminary grading plan for the substation property and includes the extent of grading required for construction of the Dowling Substation, the access road, and the

structures for the proposed transmission line extensions. Approximately 20 acres would be disturbed for the development of the substation. A rip rap spillway will need to be constructed to convey stormwater from the site to a drainage ditch located along the property line to the south of the substation site. The specific location of the spillway is continuing to be evaluated, and if it will be partially located on a small part of the neighboring property, ATSI will seek to obtain an easement with the property owner. The proposed Substation will require a minimum fenced area of approximately 512 feet wide by 474 feet long. The substation layout and grading plan have been designed to accommodate a future transformer and associated equipment within the fence line.

(2) ELECTRIC AND MAGNETIC FIELDS (EMF)

(a) Calculated EMF

The following calculations provide an approximation of the magnetic and electric fields ("EMF") strengths associated with installing the proposed Dowling Substation Project. This includes the associated transmission lines as they cross the substation fence. The 345 kV transmission lines that will connect to the Dowling Substation are the Dowling – Fulton 345 kV Transmission Line and the Dowling – Lemoyne 345 kV Transmission Line. The 138 kV transmission lines that will connect to the Dowling Substation are the Dowling – Midway 138 kV Transmission Line, Dowling – Lemoyne 138 kV Transmission Line, Dowling – Levis Park 138 kV Transmission Line and the Chrysler – Dowling 138 kV Transmission Line. The calculations are based on a model of the substation with the electric fields and magnetic fields calculated along the proposed substation fence line perimeter, including the transmission lines where they cross the substation fence line at locations shown on the Dowling Substation grading plan in Appendix B. The EMF calculations were performed using the Electric Power Research Institute ("EPRI") EMF Workstation 2009 program software.

Factors that affect the level of magnetic and electric fields include the variance in the footprint of the facility, daily and projected long-term transmission line and substation loadings, operating voltage, contingency operations, phase configuration, direction of current flows, conductor sag, ground elevation, unbalance conditions, and other nearby magnetic field sources or conductors on neutral current including water mains, metallic fences, and railroad tracks. Electric field computations assume that shrubs, trees, buildings, and other objects are not in proximity to the facilities, as they produce significant shielding effects. Other transmission or distribution facilities in the vicinity of the line may 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 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.
- Calculated field levels assume a reference point approximately 3 feet (1 meter) above ground.

Three loading conditions were modeled for the substation and are based on the transmission line loadings for: (1) normal maximum loading, (2) emergency line loading, and (3) the winter conductor rating. The normal maximum loading represents the routine maximum load at which the transmission line would be operated. Daily current load levels would fluctuate below this level. The emergency maximum loading represents the maximum current flow in the transmission line under unusual circumstances and only for a short period of time. The winter normal conductor rating represents the maximum current flow that the conductor used on the Dowling project can withstand during winter conditions.

The transmission line loadings used in the calculations are presented in Table 3. The model is based on both the significant substation equipment and the connecting 345 kV and 138 kV transmission lines. The model was used to approximate the electric and magnetic field strengths at the centerline of the transmission lines where they pass over the substation fence as well as around the entire perimeter of the substation fence. The electric and magnetic fields strengths, along the fence perimeter and in a clockwise direction, are shown in Appendix C.

Table 3: Transmission Line Loadings Used for EMF Calculations

Line Name	Normal Loading Amps	Emergency Loading Amps	Winter Rating Amps
Fulton – Dowling 345 kV	469	657	2922
Dowling – Lemoyne 345 kV	716	937	2922
Dowling – Midway 138 kV	388	496	754
Dowling – Lemoyne 138 kV	388	496	754
Dowling – Levis Park 138 kV	367	489	1356
Chrysler – Dowling 138 kV	340	541	1356

The calculated electric and magnetic fields are shown in Table 4.

Table 4: EMF Calculations

Transmission Lines	EMF Calculations		Electric Field kV/meter	Magnetic Field mGauss
West of Substation Fulton – Dowling 345 kV Midway – Lemoyne 345 kV Midway – Brim – Lemoyne 138 kV(Q8) Dowling – Midway)138 kV (Q7)	Normal Loading	Under Lowest Conductors	1.85	30.97
		At ROW Edges	0.7/0.6	13.2/26.3
	Emergency Loading	Under Lowest Conductors	1.85	39.44
		At ROW Edges	0.7/0.6	19.8/33.6
	Winter Rating	Under Lowest Conductors	1.85	101.95
		At ROW Edges	0.7/0.6	81.9/72.5

Transmission Lines	EMF Calculations		Electric Field kV/meter	Magnetic Field mGauss
East of Substation Dowling – Lemoyne 345 kV Midway – Lemoyne 345 kV Midway – Brim – Lemoyne 138 kV(Q8) Dowling – Lemoyne138 kV (Q7)	Normal Loading	Under Lowest Conductors	33.8	33.26
		At ROW Edges	4.3/11.2	20.1/23.3
	Emergency Loading	Under Lowest Conductors	33.8	42.44
		At ROW Edges	4.3/11.2	28/31
	Winter Rating	Under Lowest Conductors	33.8	108.30
		At ROW Edges	4.3/11.2	89.8/69.1
North of Substation Dowling – Midway 138 kV Chrysler – Dowling 138 kV	Normal Loading	Under Lowest Conductors	48.64	48.35
		At ROW Edges	22.8/29.1	22.9/28.5
	Emergency Loading	Under Lowest Conductors	48.64	71.14
		At ROW Edges	22.8/29.1	32.6/43.1
	Winter Rating	Under Lowest Conductors	48.64	184.93
		At Right-Of-Way Edges	22.8/29.1	88.3/112.2

(b) EMF Discussion

Background Information

Electric and magnetic fields ("EMFs") are naturally occurring in the environment and can be found in the Earth's interior and in the human body. EMFs are generated essentially anywhere 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. These fields are thought to be too weak to break molecules or chemical bonds in cells. Extensive research has been conducted over the past three decades to determine whether EMFs are associated with 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.

Developments

As a 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 five-year effort under the National EMF Research Program. The culmination of this five-year effort resulted in 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.

Sources for Additional Information

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/

- National Institute of Environmental Health Sciences ("NIEHS"): http://www.niehs.nih.gov/health/topics/agents/emf/index.cfm

(3) ESTIMATED COSTS

The following are the estimated capital costs by FERC Accounts for the proposed project:

Account		Cost
350	Land Rights	$ 591,000
353	Station Equipment	$ 7,850,000
355	Poles and Fixtures	$ 721,000
356	Overhead Conductors & Devices	$ 267,000
359	Right-of-way Clearing, Roads, Trails or Other Access	$ 100,000
	Total	$ 9,529,000

11-01 (D) SOCIOECONOMIC DATA

4906-11-01 (D) Socioeconomic data. Describe the social and ecological impacts of the project. The description shall contain the following information:

(1) A brief, general description of land use within the vicinity of the proposed project, including: (a) a list of municipalities, townships, and counties affected; and (b) estimates of population density adjacent to rights-of-way within the study corridor (the U.S. census information may be used to meet this requirement).

(2) The location and general description of all agricultural land (including agricultural district land) existing at least sixty days prior to submission of the letter of notification within the proposed electric power transmission line right-of-way, or within the proposed electric power transmission substation fenced-in area, or within the construction site boundary of a proposed compressor station.

(3) A description of the applicant's investigation (concerning the presence or absence of significant archeological or cultural resources that may be located within the area likely to be disturbed by the project), a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

(4) Documentation that the chief executive officer of each municipal corporation and county, and the head of each public agency charged with planning land use in the area in which any portion of the facility is to be located have been notified of the project and have been provided a copy of the letter of notification. The applicant shall describe the company's public information program used in the siting of the proposed facility. The information submitted shall include either a copy of the material distributed to the public or a copy of the agenda and summary of the meeting(s) held by the applicant.

(5) A brief description of any current or pending litigation involving the project known to the applicant at the time of the letter of notification.

(6) A listing of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

11-01 (D) SOCIOECONOMIC DATA

(1) LAND USE

The proposed Project is located in Middleton and Perrysburg Townships in Wood County, Ohio and on the border of the City of Perrysburg. Table 5 displays selected demographic data from the U.S. Census Bureau, 2010 Census and 2007-2011 American Community Survey 5-Year Estimates for Middleton Township, Perrysburg Township, the City of Perrysburg, Wood County, and the State of Ohio.

Table 5: Project Area Demographics

	Middleton Township	Perrysburg Township	City of Perrysburg	Wood County	Ohio
2010 Population	4,454	12,512	20,623	125,488	11,536,504
2011 Population	4,286	12,530	20,443	125,566	11,525,536
Percent Change 2000-2011	3.8%	-0.1%	0.9%	-0.1%	0.1%
Land area (square miles)	32.03	35.95	11.51	617.21	40,860.69
Population Density (persons per square mile)	134	349	1,776	203	282

Source: U.S. Census Bureau, 2010 Census, 2007-2011 ACS 5-Year Estimates, TIGER/Line Shapefiles

The Project area is located just south of the City of Perrysburg, Ohio, and at the southern end of the greater Toledo, Ohio metropolitan area. Between 2010 and 2011, the City of Perrysburg and Middleton Township experienced a slight increase in population, while the population of Perrysburg Township decreased slightly. Wood County also experienced a slight decrease in population over this same time period, while the State of Ohio as a whole experienced a slight increase in population. Population densities are lower in Middleton and Perrysburg Townships compared to the City of Perrysburg, and the population density of Wood County is lower compared to the state.

The Project area is primarily agricultural, but because the area is located on the edges of urban growth, there is a mix of land use in the area, with agricultural lands interspersed with residential and commercial development. The 73-acre parcel that will contain both the new Dowling Substation and the Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions is currently cropland. The existing Lemoyne – Midway 345 kV and Lemoyne – Midway 138 kV transmission lines extend through the property. Surrounding land uses include agricultural and rural residential. There is one residence located within 1,000 feet of the proposed Dowling Substation site. This house is located to the

southeast of the site on the east side of Mercer Road. Additional residences are located adjacent to the substation parcel to the north along Dowling Road.

Land use along the proposed route for the Chrysler – Levis Park 138 kV transmission line extension is agricultural, with a small portion of the route crossing a rural residential lawn. Near the northern end of the route, the transmission line will extend adjacent to a small wooded area that is surrounded by agricultural lands. There are 57 residences within 1,000 feet of the proposed route, seven residences within 300 feet, and one residence within 100 feet. This residence, located at the intersection of Reitz and Frusher Roads, has been acquired by ATSI for the Project and the unattached garage on the property will be demolished for construction of the transmission line. There are no businesses or public facilities located within 1,000 feet of the route. A portion of the proposed route will be constructed adjacent to the existing Lemoyne – Midway 138 kV transmission line. The majority of the route will be constructed adjacent to roads, including Mercer Road, Dowling Road, and Frusher Road. Structures will be placed just outside highway and road ROW to minimize impacts to adjacent agricultural fields, while also minimizing impacts to the use and maintenance of the roads.

(2) AGRICULTURAL LAND

The 73-acre parcel that will contain the new Dowling Substation is currently maintained as agricultural land and, according to data obtained from the Wood County Auditor's office, is classified as Agricultural District Land. The property was acquired by ATSI for the Project. Construction of the Project will convert approximately 5.5 acres of agricultural land to utility use for construction of the new substation. In addition, a new access road will be required on the property. The remaining land on the property is expected to be made available for agricultural uses following construction of the Project.

The Chrysler – Levis Park 138 kV transmission line will require new ROW on existing agricultural land for a majority of its length. Based on data obtained from the Wood County Auditor's office, the route crosses 11 Agricultural District Land parcels, including the parcel containing the Dowling Substation. The line has been routed to follow property lines and road ROW to minimize impacts to agricultural lands. Existing agricultural activities taking place within the transmission line ROW, including crop cultivation, are likely to experience temporary and localized interruptions during construction. Following construction, agricultural activities would largely be allowed to continue within the ROW.

(3) ARCHAEOLOGICAL OR CULTURAL RESOURCES

A review of archaeological and historical literature related to the Project area was conducted. The review included examination of the Ohio Historic Preservation Office ("OHPO") site inventory records for

identified cultural resources in and around the Project area. The review included information on properties listed on the National Register of Historic Places ("NRHP"), historic districts, previously identified archaeological sites and architectural resources, and cemeteries, as well as information on previous cultural resource investigations conducted in the area. No NRHP-listed properties, historic districts, or previously identified archaeological sites are located on or adjacent to the proposed Dowling Substation site or the proposed Chrysler – Levis Park 138 kV transmission line extension ROW.

ATSI submitted a letter to the OHPO on December 10, 2012, describing the Project, the results of the literature review, and requested OHPO comments on the recommended survey methodology for the Project. OHPO provided comments in a letter dated February 20, 2013 (see Appendix D). In the letter, OHPO agreed with the proposed survey methodology for the Dowling Substation.

A visual inspection of the 73-acre Project site was conducted on December 14 and 15, 2012, to identify existing cultural resources or evidence of the potential for discovering additional cultural resources. No evidence of cultural resources was found during the investigation. Based on recommendations from OHPO, additional subsurface investigations were conducted at the Dowling Substation site on April 4, 2013, to examine the area for potential abandoned stream channels that may pinpoint locations of prehistoric occupations. No evidence of abandoned stream channels was discovered during the investigations, which included soil cores and shovel tests.

On May 8 and 13 and September 6, 2013, a visual inspection was undertaken of the proposed Chrysler – Levis Park line. A portion of one historic archaeological site was found within the proposed transmission line ROW. The site area was under cultivation and no evidence of intact features was observed on the surface or in the shovel tests excavated at the site.

Fourteen architectural (over 45 to 50 years old) properties, including houses, barns, garages, a bridge, and two former rural schoolhouses are found near or within the Chrysler – Levis Park transmission line ROW. The proposed line crosses over one of the historic rural schoolhouses and immediately adjacent to the other. Both of the properties containing these structures were owned by the Board of Education of Perrysburg Township from the 1880's until 1927. Both structures have been modified for reuse, with one currently functioning as a garage and the other as an abandoned habitation currently used for storage.

Coordination with OHPO is ongoing for the Project, and the results of the cultural resource surveys for the Project will be submitted to OHPO for their review and concurrence.

(4) PUBLIC INVOLVEMENT

(a) Documentation of Letter of Notification Transmittal

This LON is being provided concurrently to the following officials of Middleton Township, Perrysburg Township, the City of Perrysburg, and Wood County, Ohio.

Middleton Township

Mr. Jim Bostdorff
Trustee, Middleton Township
19210 Haskins Road
Bowling Green, Ohio 43402

Mr. Fred Vetter
Trustee, Middleton Township
11440 Devils Hole Road
Bowling Green, Ohio 43402

Ms. Penny Getz
Trustee, Middleton Township
216 E. Greenwood Drive 6
Haskins, Ohio 43525

Ms. Laurie Limes
Fiscal Officer, Middleton Township
15228 Cross Creek Road
Bowling Green, Ohio 43402

Perrysburg Township

Mr. Gary Britten
Trustee, Perrysburg Township
10960 Roachton Road
Perrysburg, Ohio 43551

Mr. Craig Lahote
Trustee, Perrysburg Township
9742 Roachton Road
Perrysburg, Ohio 43551

Mr. Robert Mack
Trustee, Perrysburg Township
30195 Morningside Drive
Perrysburg, Ohio 43551

Ms. Shirley Haar
Fiscal Officer, Perrysburg Township
26609 Lime City
Perrysburg, Ohio 43551

City of Perrysburg

The Honorable Nelson Evans
Mayor, City of Perrysburg
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Mr. David Creps,
Clerk of Council
City of Perrysburg
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Mr. Joe Lawless
President, City of Perrysburg City Council
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Mr. Jon G. Eckel
Public Service Director
City of Perrysburg
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Mr. Douglas L. Dariano, P.E.
Perrysburg City Engineer
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Mr. Thomas King
Planning/Zoning Administrator
City of Perrysburg
201 W. Indiana Avenue
Perrysburg, Ohio 43551

Wood County

The Honorable James F. Carter
Wood County Commissioner
One Courthouse Square
Bowling Green, Ohio 43402

The Honorable Joel M. Kuhlman
Wood County Commissioner
One Courthouse Square
Bowling Green, Ohio 43402

The Honorable Doris I. Herringshaw, Ed.D.
Wood County Commissioner
One Courthouse Square
Bowling Green, Ohio 43402

Mr. Raymond A. Huber, P.E., P.S.
Wood County Engineer
One Courthouse Square
Bowling Green, Ohio 43402

Copies of the transmittal letters to these officials have been included with the transmittal letter submitting this LON to the OPSB.

(b) Public Information Program

In January 2013, public notices were issued for the Project and distributed to the Toledo Blade and the Bowling Green Sentinel-Tribune (Appendix E). A public information meeting for the Project was held on January 29, 2013, at Perrysburg Junior High School in Perrysburg, Ohio. A comment form, a Project information sheet with a Project area map, and information on the OPSB process were provided to attendees of the meeting. The public meeting provided an opportunity for residents and other interested parties to review Project information displays, discuss the Project with ATSI staff and representatives, and provide comment on the proposed Project. The public meeting was organized in an open house format and consisted of several stations that identified the Project processes. These stations included the following:

1. Welcome station located at the entrance for attendees to sign in
2. Project Need station providing an overall summary and explaining the planning process
3. Site and Route Selection station detailing the siting process and including aerial maps showing the potential substation sites, transmission line route network, and parcel boundaries
4. Right-of-Way station explaining the easement process
5. Environmental station explaining consultations with local, state, and federal agencies
6. Engineering and Construction station highlighting engineering and substations
7. OPSB Process station explaining the application process and how to stay informed

Twenty-three members of the public attended and signed the attendance sheet for the public meeting. A total of 8 comment forms were completed and received during the meeting. Comments generally involved concerns regarding crossing agricultural fields and preferences for locations for the proposed transmission line on routes paralleling State Route 25, Interstate I-75, or Frusher Road. In addition, ATSI

provided the following means to obtain information about the Project or provide comments: a Project website: https://www.firstenergycorp.com/content/fecorp/about/transmission_projects.html (current link); a phone number: 1-800-589-2837; an email address: transmissionprojects@firstenergycorp.com; and a mailing address: FirstEnergy Corp., Attention: Lemoyne – Midway 345 kV, Chrysler – Levis Park 138 kV and Lemoyne – Midway 138 kV Transmission Line Extensions to Dowling Substation Project Team, A-GO-3, 76 South Main Street, Akron, Ohio, 44308. ATSI's Area Manager will continue to advise local officials of the status of the proposed Project as necessary.

(5) CURRENT OR PENDING LITIGATION

There is no known current or pending litigation involving this Project.

(6) LOCAL, STATE, AND FEDERAL REQUIREMENTS

The Applicant anticipates submitting Notice of Intent ("NOI") for coverage under Ohio EPA General National Pollutant Discharge Elimination System ("NPDES") Permit for Discharges Associated with Construction Activities. Coverage under U.S. Army Corps of Engineers ("USACE") Nationwide Permit 12 for stream impacts associated with Utility Line Activities is also anticipated if the substation access road will require a culvert to cross the roadside drainage and/or the stormwater pond outfall may be located on the edge of a linear wetland, if they are jurisdiction of the USACE. Temporary culverts to access the construction of the Chrysler – Levis Park 138 kV transmission line extension from nearby roadways are also expected to be covered under the Nationwide Permit 12. In addition, the Applicant will be providing project habitat assessments to the U.S. Fish and Wildlife Service ("USFWS") and the Ohio Department of Natural Resources ("ODNR") in anticipation of receiving no adverse affect determinations regarding federal and state listed species, because almost the entire Project is located in cultivated lands and road ROWs. Results of the archaeological surveys completed to date will also be provided to OHPO in order to continue consultation regarding cultural resources. Because no archaeological sites are anticipated to be impacted by the Project, it is anticipated that the OHPO will issue a clearance letter for the Project.

11-01 (E) ENVIRONMENTAL DATA

4906-11-01 (E) Environmental data. Describe the environmental impacts of the proposed project. This description shall include the following information:

(1) A description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the area likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

(2) A description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the areas likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

(3) Any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

Effective: 05/07/2009

R.C. 119.032 review dates: 11/30/2013

Promulgated Under: 111.15

Statutory Authority: 4906.03

Rule Amplifies: 4906.03, 4906.06

Prior Effective Dates: 10/10/78, 5/7/79, 3/20/87, 6/5/93, 8/28/98, 12/15/03, 6/17/05, 1/25/09

11-01 (E) ENVIRONMENTAL DATA

As part of the preparation of this Application, ATSI and Burns & McDonnell conducted a detailed desktop review of published ecological information within 1,000 feet of the Project site through the review of aerial photography, U.S. Geological Survey ("USGS") maps, USFWS National Wetlands Inventory ("NWI") maps, and U.S. Department of Agriculture ("USDA") Natural Resources Conservation Service ("NRCS") soil survey maps.

(1) ENDANGERED, THREATENED, AND RARE SPECIES INVESTIGATION

Letters were submitted to USFWS and ODNR on July 9, 2012, requesting information on threatened, endangered, or rare species that could occur within the Project area. Responses from USFWS, dated July 12, 2012, and ODNR, dated August 9, 2012, are included in Appendix D. In addition to the information request letters, a Natural Heritage Database review request was submitted to ODNR – Division of Wildlife ("DOW") to obtain records of known locations of rare species and significant natural features within the Project vicinity. The Database review indicated that there are no records of rare species within one mile of the Project study area.

Based on the review of available data and the responses from USFWS and ODNR-DOW, the Project is within the range of four species that are state-listed and/or federally listed as threatened or endangered, including the Indiana bat (*Myotis sodalis*), rayed bean (*Villosa fabalis*), bobcat (*Lynx rufus*), and loggerhead shrike (*Lanius ludovicianus*) (Table 6). As indicated in the ODNR response letter, the Project is also within the range of the bald eagle (*Haliaeetus leucocephalus*), which is now delisted but protected under the Bald and Golden Eagle Protection Act ("BGEPA").

On December 2 and 3, 2012 and May 8, 2013, the substation parcel (containing Site A and B, along with the Fulton – Lemoyne 345 kV and Lemoyne – Midway 138 kV transmission line extensions) and the proposed route for the Chrysler – Levis Park 138 kV transmission line extension were visited by a wildlife biologist to conduct a habitat assessment to determine the presence of potentially suitable habitat for state- or federally listed species. The substation parcel contains agricultural fields and does not contain suitable habitat for the identified species of concern. The ROW for the Chrysler – Levis Park 138 kV transmission line extension is primarily disturbed agricultural fields and road ROWs, thus significant tree clearing is not anticipated. Some individual, lone-standing trees along the proposed route may need to be cleared for construction or safe operation of the line. For approximately 300 feet in length, the route parallels a wooded area that is located within cultivated lands; however, the existing trees are located outside of the proposed ROW. It's possible that some tree trimming could be necessary to operate the

transmission line in a safe manner. It is anticipated that tree clearing for the Project, if needed, will take place between September 30 and April 1. If tree clearing is required for the Project outside of this timeframe, ATSI will coordinate further with USFWS and ODNR due to the Project being located within the range of the Indiana bat.

Table 6: Listed Species Known or Likely to Occur within Project Area

Species	Federal Status	State Status	Habitat
Bald eagle (*Haliaeetus leucocephalus*)	Delisted	Threatened	Open water and nests in tall trees or on high cliff ledges
Bobcat (*Lynx rufus*)	N/A	Endangered	Solitary and territorial in various habitats, including woodlands and forest edge, swamps, forested river bottomlands, and brushlands
Indiana bat (*Myotis sodalist*)	Endangered	Endangered	Hibernates in caves and mines. Summers in well-developed riparian woods and upland forests
Loggerhead shrike (*Lanius ludovicianus*)	N/A	Endangered	Grasslands and prairie habitats
Rayed bean (*Villosa fabalis*)	Endangered	Endangered	Smaller, headwater creeks, sometimes large rivers and wave-washed of glacial lakes, with gravel or sand substrates, and are often found in and around roots of aquatic vegetation

Source: USFWS response letter dated July 12, 2012; ODNR response letter dated August 9, 2012

No bald eagle nests were observed during the habitat assessment, and ODNR has no records of eagle nests in the Project area. No adverse impacts to the bobcat, loggerhead shrike, or rayed bean are anticipated as a result of the type and location of the Project, as the majority of the Project area is cultivated fields and roadside drainages that do not contain suitable habitat for these species.

(2) AREAS OF ECOLOGICAL CONCERN

Wetland Delineation

A wetland delineation was completed on the substation parcel site on November 27, 2012, and on the Chrysler – Levis Park 138 kV transmission line route on May 8 and September 6, 2013, in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*

– *Version 2.0* (Regional Supplement). A copy of the wetland delineation report will be submitted to the OPSB under separate cover.

The State of Ohio assigns categories to wetlands based on wetland quality (*Ohio Administrative Code Rule 3745-1-54*). Categories range from 1 to 3 with 3 being the highest quality. Category 1 wetlands are "limited quality waters." They may have low species diversity, no significant habitat or wildlife use, limited potential to achieve beneficial wetland functions, and/or a predominance of non-native species. Category 2 wetlands are "good quality waters" that are dominated by native species but generally lack rare, threatened, or endangered species or habitat. Category 2 wetlands may be degraded but have a reasonable potential for reestablishing lost wetland functions. Category 3 wetlands have high levels of diversity, a high proportion of native species, and/or high functional values. Each delineated wetland was assigned a category using the Ohio Rapid Assessment Method ("ORAM") for Wetland Categorization. The State of Ohio affords different levels of protection to wetlands based on wetland quality.

An assessment of habitat in flowing waters was performed on streams located within the Project site using the Ohio Environmental Protection Agency ("OEPA") Qualitative Habitat Evaluation Index ("QHEI"). Information on substrate, in-stream cover, channel morphology, bank erosion and riparian zone, pool/glide and riffle/run quality, and map gradient was collected and recorded on Qualitative Habitat Evaluation Index and Use Assessment Field Sheets. These six metrics were scored individually. A total QHEI site score was determined for each stream by adding the scores of all six matrices.

One wetland and two streams were identified during the wetland delineation of the substation site (Tables 7 and 8). No wetlands and four streams were identified within the proposed Chrysler – Levis Park transmission line ROW (Table 9). The ORAM category for the delineated wetlands is also included in Table 7, and the QHEI score for each delineated stream is included in Tables 8 and 9.

Table 7: Delineated Wetlands in Substation Site

Wetland Number	Wetland Type[1]	ORAM Category	Acres of Wetland Delineated
W-1	PEM	1	0.14
		Total:	**0.14**

[1]PEM = palustrine emergent

Table 8: Delineated Streams Crossing the Substation Site

Stream Number	Stream Type	Average width (feet)[1]	Average depth (feet)[1]	QHEI Score	Length of Stream Delineated (feet)
S-1	Intermittent	1.0	0.5	21	2,624
S-2	Intermittent	1.0	0.5	19	490
				Total:	**3,114**

[1]As measured from the ordinary high water mark

Table 9: Delineated Streams Crossing the Transmission Line ROW

Stream Number	Stream Type	Average width (feet)[1]	Average depth (feet)[1]	QHEI Score	Length of Stream Delineated (feet)
S-3	Intermittent	3.0	0.5	21	678
S-4	Perennial	5.0	1.0	28	2,733
S-5	Intermittent	4.0	0.5	14	40
S-6	Ephemeral	1.0	0.5	14	62
				Total:	**3,513**

[1]As measured from the ordinary high water mark

Construction of the substation access road will likely require a culvert to cross the roadside drainage (S-1) located along Mercer Road. In addition, the stormwater pond outfall may be located along the edge of the linear wetland (W-1) on the south side of the site. It is anticipated that the culvert across the roadside drainage (S-1) will be approximately 50 feet in length, and the stormwater pond outfall area will include about 200 square feet of the linear wetland (W-1). No other wetland or stream impacts are anticipated on the substation parcel. Construction of the Chrysler – Levis Park 138 kV transmission line extension will likely be able avoid permanent impacts to the identified streams. The streams generally extend parallel to the proposed transmission line and along the edge of the proposed ROW, and, thus, it is anticipated that no structures would be placed within the streams. Stream segments that would be crossed by the proposed line would likely be spanned by the transmission line. Access roads across roadside drainages/streams may be necessary to construct the line. If streams will be impacted, coordination with the USACE will be conducted.

Other Areas of Ecological Concern

There are no other areas of ecological concern either within the proposed Dowling Substation site or within the ROW of the proposed transmission line routes for the Project. The Project will not impact or cross any national or state wild and scenic rivers and will not be constructed within a floodplain. No

national or state parks and forests, wilderness areas, wildlife management areas, wildlife refuges, or wildlife sanctuaries are located in the Project area.

(3) ADDITIONAL INFORMATION

(a) Noise

The proposed Project will be equipped with one 345 kV to 138 kV transformer. Operation of the Project is expected to increase noise in some of the areas immediately surrounding the substation site; however, to minimize impacts, the substation was located on the site to minimize impacts to adjacent residences. Corona noise could also be present, but it is generally considered insignificant as the rain and other outside factors tend to mask the corona noise experienced by anyone near the lines. A preliminary noise study was conducted for the proposed Dowling Substation, which included measurements of existing ambient noise conditions at various locations near the substation site. Rural residential and agricultural areas are located adjacent to the substation site, with the closest residences located to the north and southeast of the substation site. There is one residence located within approximately 1,000 feet of the Project site, with an additional seven residences located within 1,500 feet.

Measurements were taken at five measurement points surrounding the substation parcel in accordance with the American National Standards Institute ("ANSI") standards. An ANSI S1.4 Type I noise meter was used to take 5-minute measurements at each measurement point. The sound levels at the five measurement points were measured during four different time periods (5 a.m.-7 a.m., 11 a.m.-1 p.m., 5 p.m.-7 p.m., and 11 p.m.-1 a.m.). Ambient weather conditions were monitored during the measurements. The wind exceeded the ANSI guidelines of 7 miles per hour (mph) during the evening measurements, with winds generally ranging between 8 and 12 miles per hour (mph). However, winds were below 7 mph for all other readings, and would be considered acceptable per ANSI guidelines. Ambient sound levels near the site were typical of rural residential and agricultural areas. Average sound levels ranged from approximately 43 to 70 A -weighted decibels (dBA). The largest ambient noise impacts in the project area are caused by local vehicular traffic, primarily from I-75, which is located in close proximity to the project site.

Construction Impacts

Noise emissions can reasonably be expected to occur from the Project during each of the construction, operation, and maintenance phases. Audible noise during site preparation and construction associated with the use of construction equipment will be temporary and localized. There are no expected long-term construction noise impacts. Proper maintenance, operation, and use of equipment with mufflers will lessen the noise impacts during the site clearing and construction phases of the Project. Standard

construction techniques will be used, and procedures will be in compliance with applicable Occupational Health and Safety Administration ("OSHA") standards. As a result, the construction noise impact on nearby residences is anticipated to be minimal and of temporary duration.

Operation Impacts

The expected sound level from operating the proposed substation in combination with background noise was estimated using an industry-accepted noise modeling software, Computer Aided Design for Noise Abatement (CadnaA), Version 4.3.143 (published by DataKustik, Ltd., Munich, Germany). A sound level profile was calculated from the equations in the Environmental Noise Guide[4] (Noise Guide). Based on expected transformer ratings, the maximum sound level from the transformer is expected to be 85 dBA. The sound profile was calculated from the Noise Guide and then scaled to an average sound level of 85 dBA as calculated per IEEE C57.12.90-2006. Appropriate sound generation was applied for sound radiating surfaces, and reflections and shielding were considered when sound encountered a physical structure. The atmospheric conditions were assumed to be calm and the temperature and relative humidity were set to 50 degrees Fahrenheit and 70 percent, respectively (based on program defaults). In order to maintain conservatism in the sound model, a ground absorption factor of 0.7 was used.

Figure 5 illustrates the projected operational noise levels of the Project on the surrounding area with 5-dBA colored contours, which considers both ambient noise and noise from the Project. Different sound level thresholds are represented by various colors on the figure. The figure illustrates that the closest residence could experience noise at or below 45 dBA, while all other residences are expected to experience noise below 45 dBA.

[4] (Thompson & Wood, 1984) *Electric Power Plant Environmental Noise Guide*, Volume 1, 2nd Edition, 1984

Legend

Fence Line

Vertical Area Source

Area Source

Structures

NORTH

580 290 0 580

Scale in Feet

Burns & McDonnell SINCE 1898

Figure 5
Proposed Dowling Substation
Sound Level Contours (dBA)
Leq

Path: R:\First Energy\68043\Sound\Results\Dowling 6-4-13_South.mxd jbell 9/20/2013

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(b) Additional Information

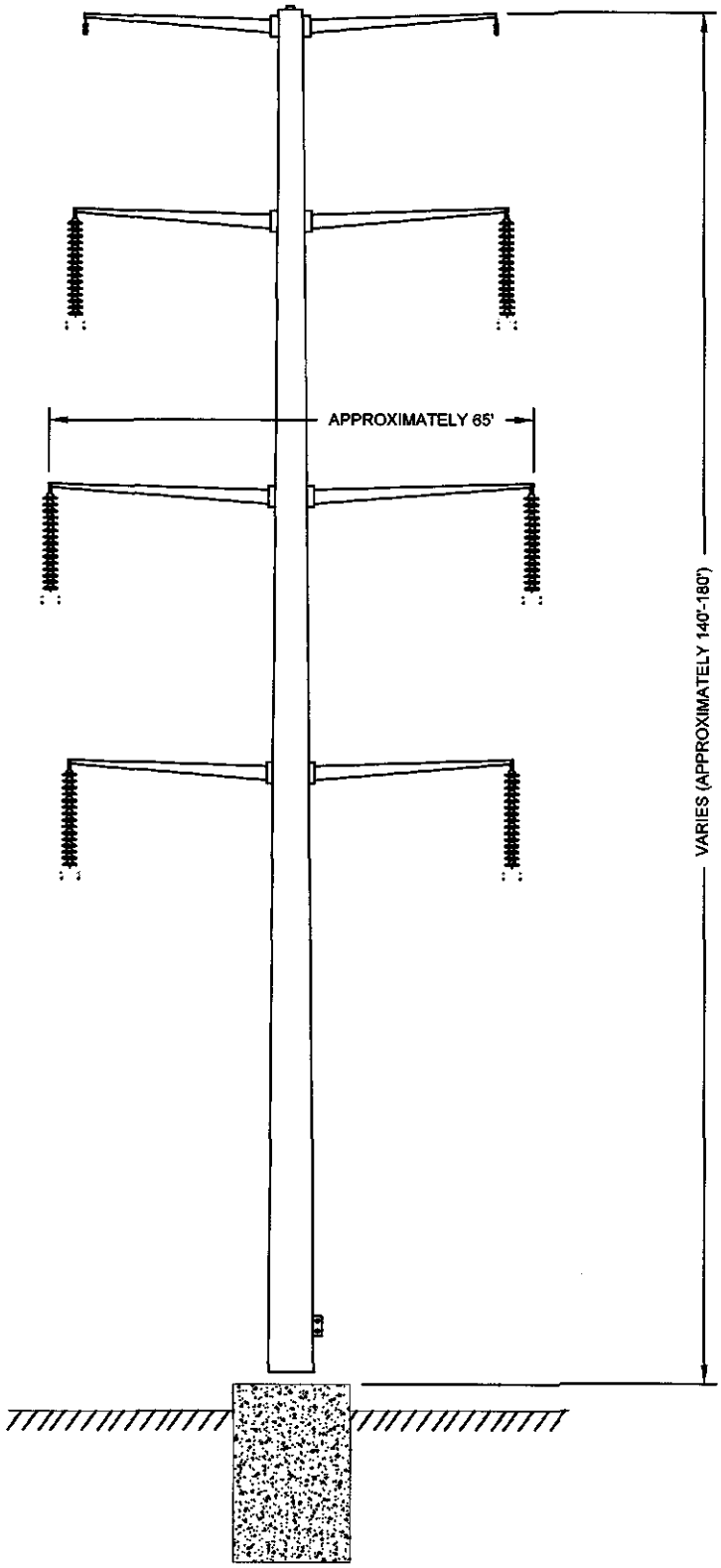
Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the National Electric Safety Code ("NESC") as adopted by the Public Utilities Commission of Ohio ("PUCO") and will meet all applicable safety standards established by OSHA.

As set forth above, the proposed Fulton – Lemoyne 345 kV, Chrysler – Levis Park 138 kV and Lemoyne – Midway 138 kV Transmission Line Extensions to, and Installation of, Dowling Substation Project is needed to reinforce the interconnected transmission system following the announced retirement of several coal-fired power plants in ATSI territory. Because the Project is needed to ensure the ATSI BES meets all applicable NERC Transmission Planning criteria, the Project will serve the public interest, convenience, and necessity. The Project is consistent with the regional plans for expansion of the electric power grid serving northern Ohio.

This Letter of Notification Application describes the nature of the probable environmental impact of the proposed Project. Of all potential routes and sites identified by ATSI, the site and routes presented in this Application represent the site and route with the minimum adverse environmental impact feasible, given all pertinent considerations. The Project is not expected to significantly impact water resources and ATSI will comply with all applicable provisions of relevant environmental statutes. Additionally, the Project will have no significant impact on the viability of agricultural land along the route of the proposed transmission line, because the majority of the route is located along existing roads, transmission lines and property boundaries.

APPENDICES

APPENDIX A – STRUCTURE DRAWINGS



CROSS SECTION VIEW

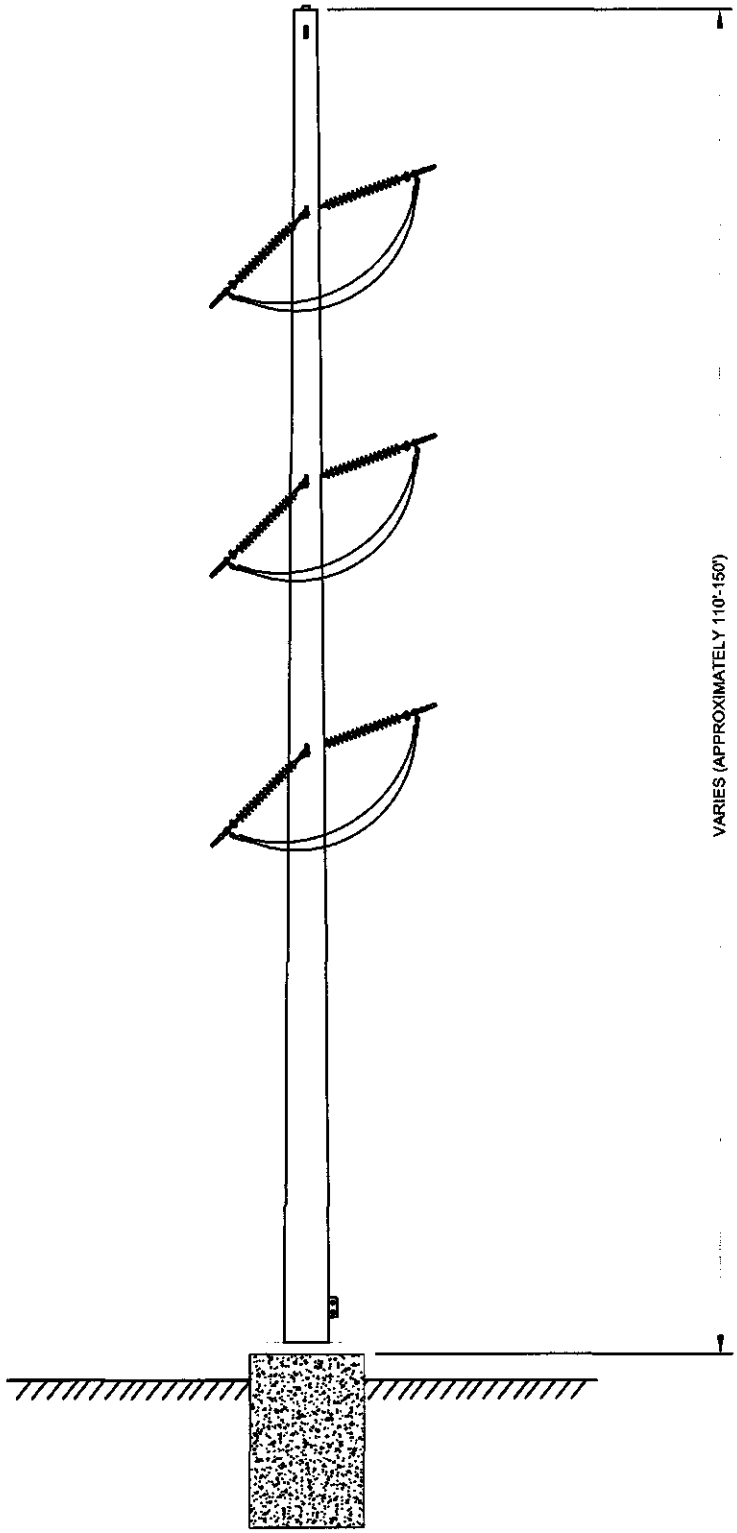
NOTE:
DETAILS DEPICTED IN FIGURE CAN BE APPLIED FOR ANY TYPE OF STEEL POLE CONFIGURATION

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

DOWLING SUBSTATION
TRANSMISSION LINE EXITS

345 kV STEEL DC VERTICAL

FIGURE A-1



ATSI®
American Transmission Systems, Inc.
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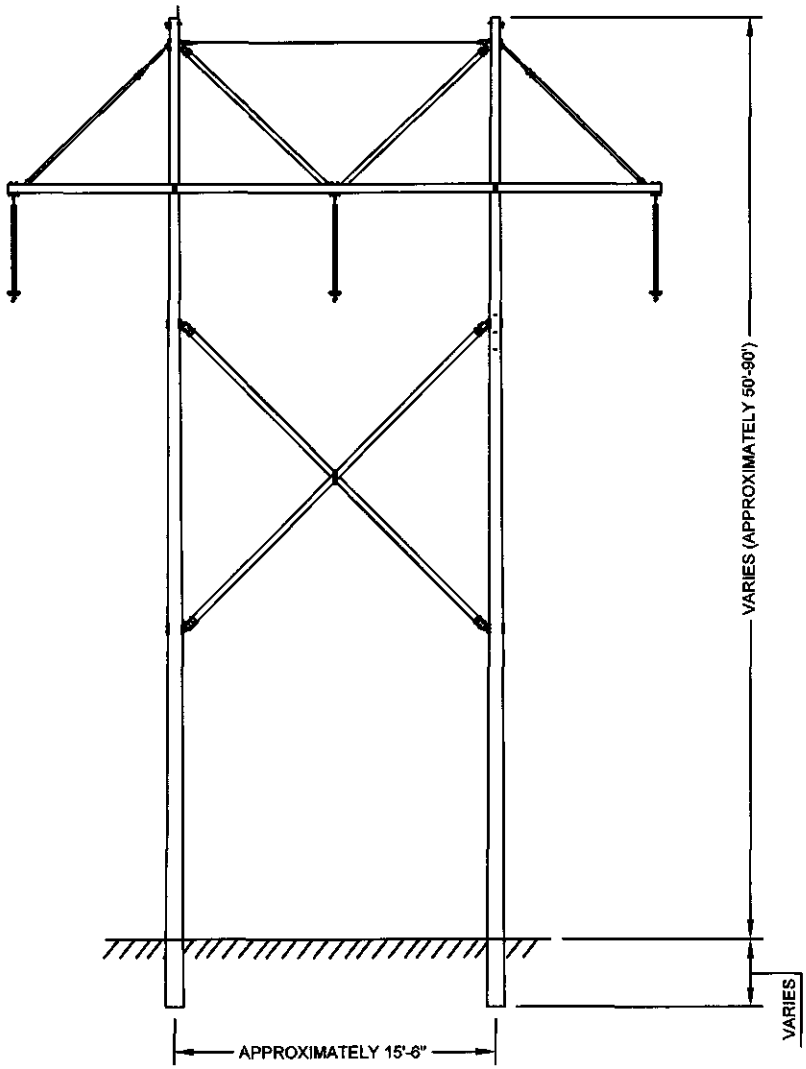
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

NOTE:
DETAILS DEPICTED IN FIGURE CAN BE APPLIED
FOR ANY TYPE OF STEEL POLE CONFIGURATION

345 kV SC VERTICAL DEADEND

FIGURE A-2



CROSS SECTION VIEW

NOTE:
THESE STRUCTURES MAY OR MAY NOT HAVE SHIELDWIRE AND/OR BRACING (X, KNEE AND VEE)

NOTE:
DETAILS DEPICTED IN FIGURE CAN BE APPLIED FOR ANY TYPE OF STEEL POLE CONFIGURATION

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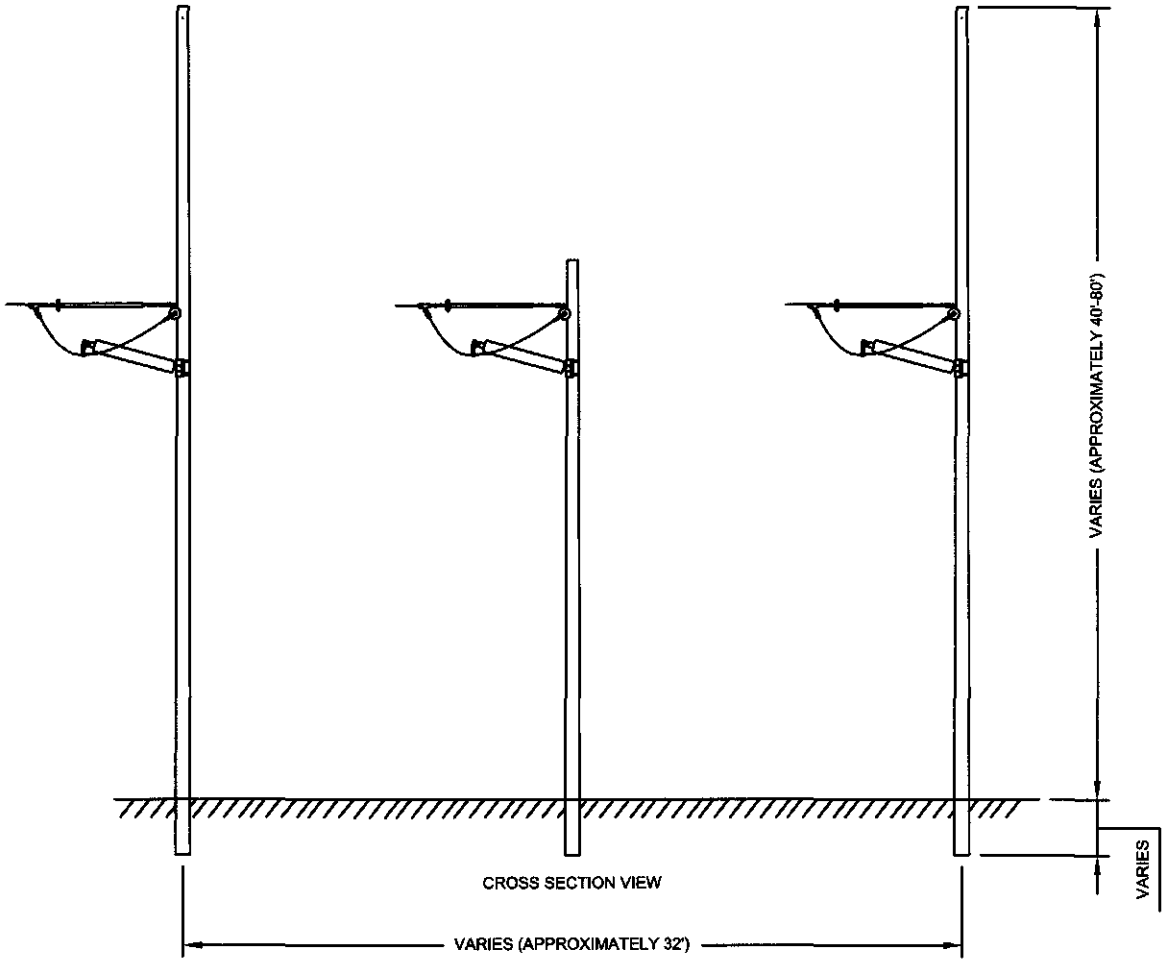
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

138 kV WOOD SC H-FRAME SUSPENSION

FIGURE A-3



NOTE:
THESE STRUCTURES MAY
OR MAY NOT HAVE SHIELDWIRE

NOTE:
DETAILS DEPICTED IN FIGURE CAN BE APPLIED
FOR ANY TYPE OF STEEL POLE CONFIGURATION

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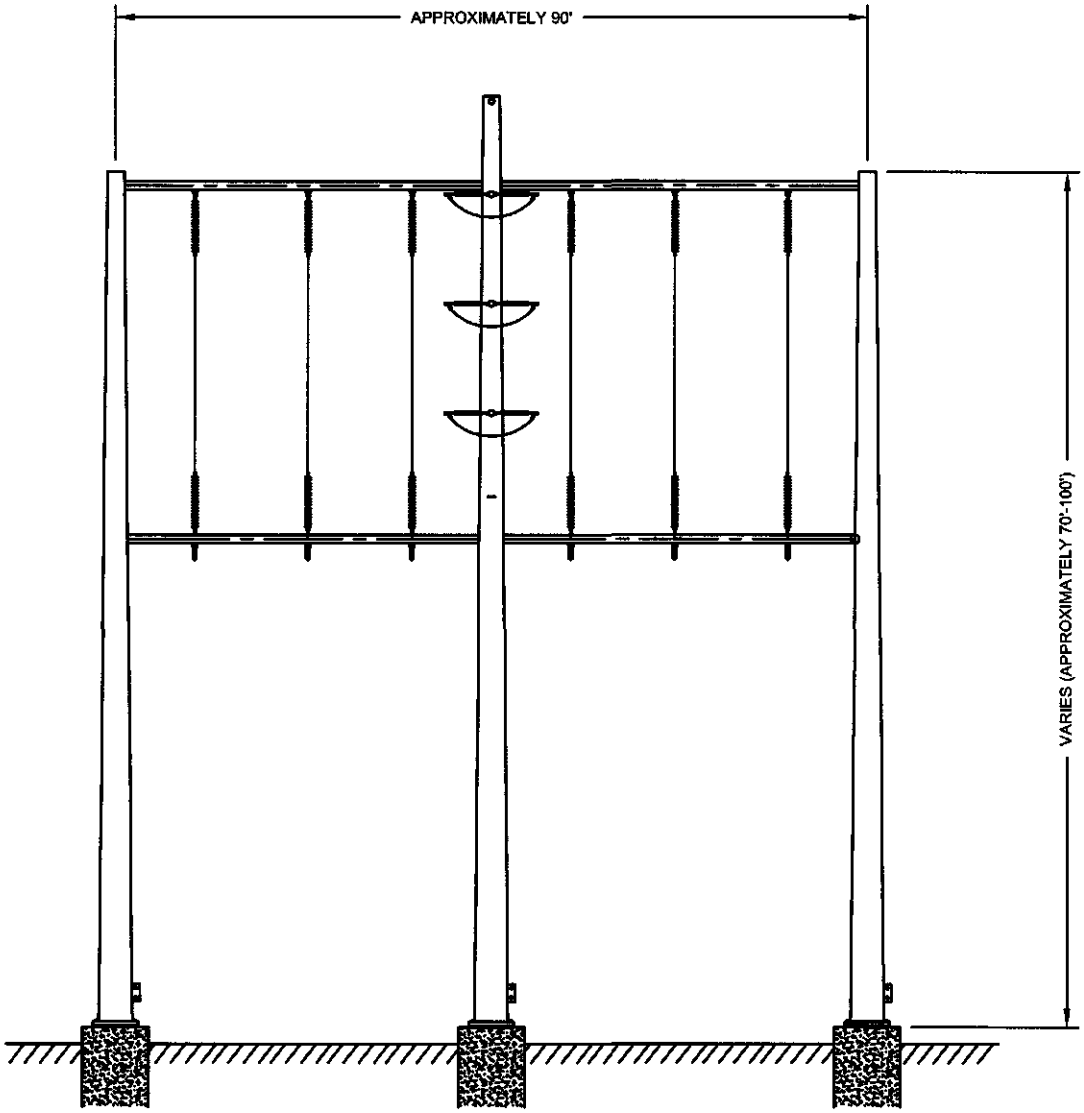
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

138kV WOOD SC 3-POLE DEADEND

FIGURE A-4



PROFILE VIEW

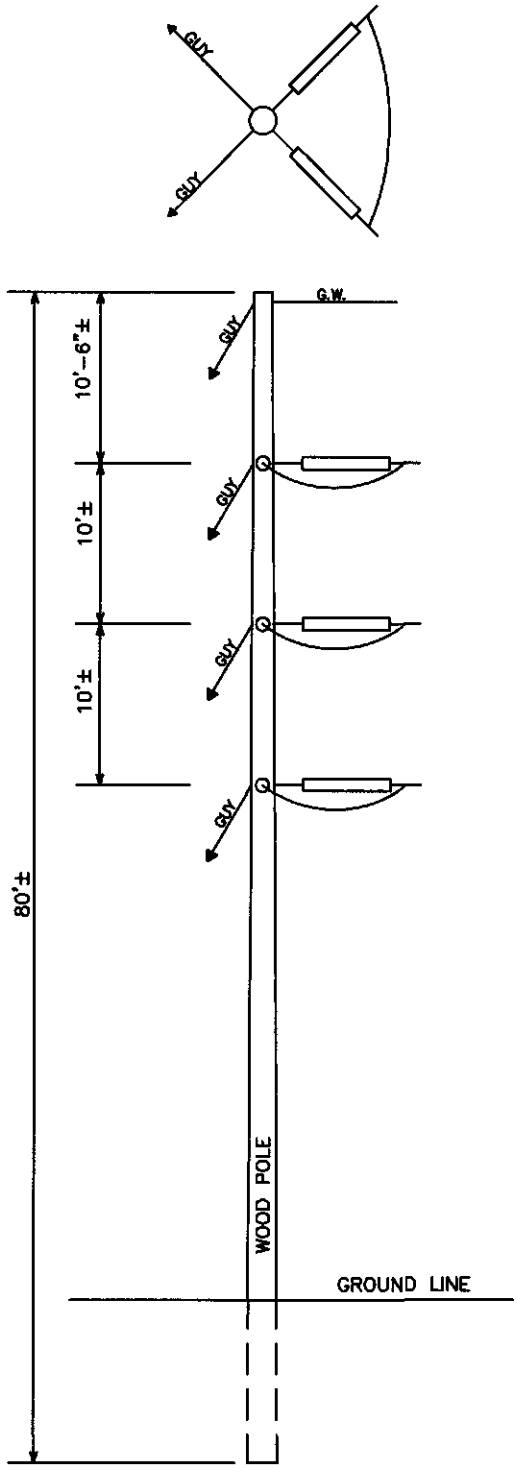
NOTE:
DETAILS DEPICTED IN FIGURE CAN BE APPLIED
FOR ANY TYPE OF STEEL POLE CONFIGURATION

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

DOWLILNG SUBSTATION
TRANSMISSION LINE EXITS

138kV STEEL DC TAP

FIGURE A-5



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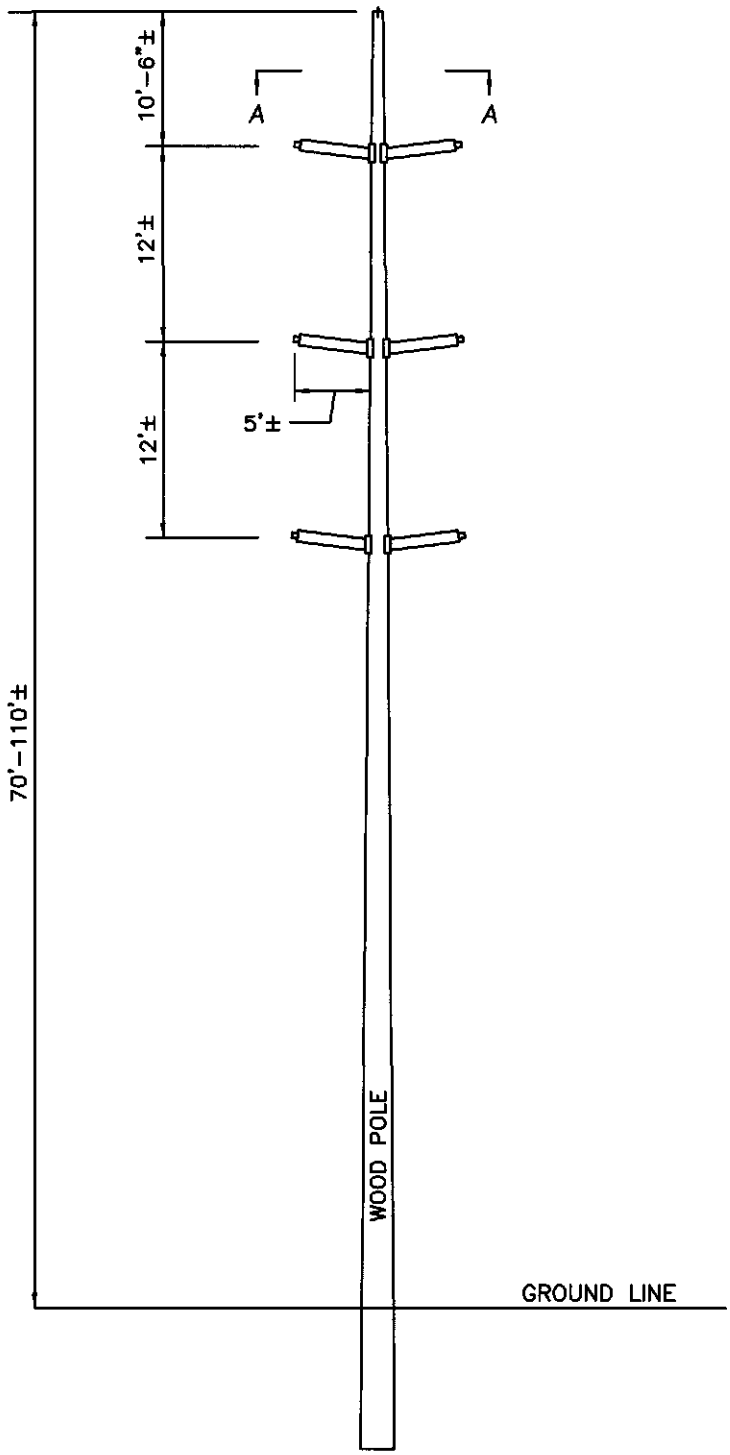
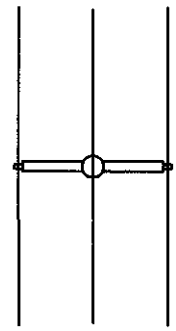
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

SINGLE CIRCUIT CORNER DEAD END STRUCTURE

FIGURE A-6





SECTION A-A

ATSI.
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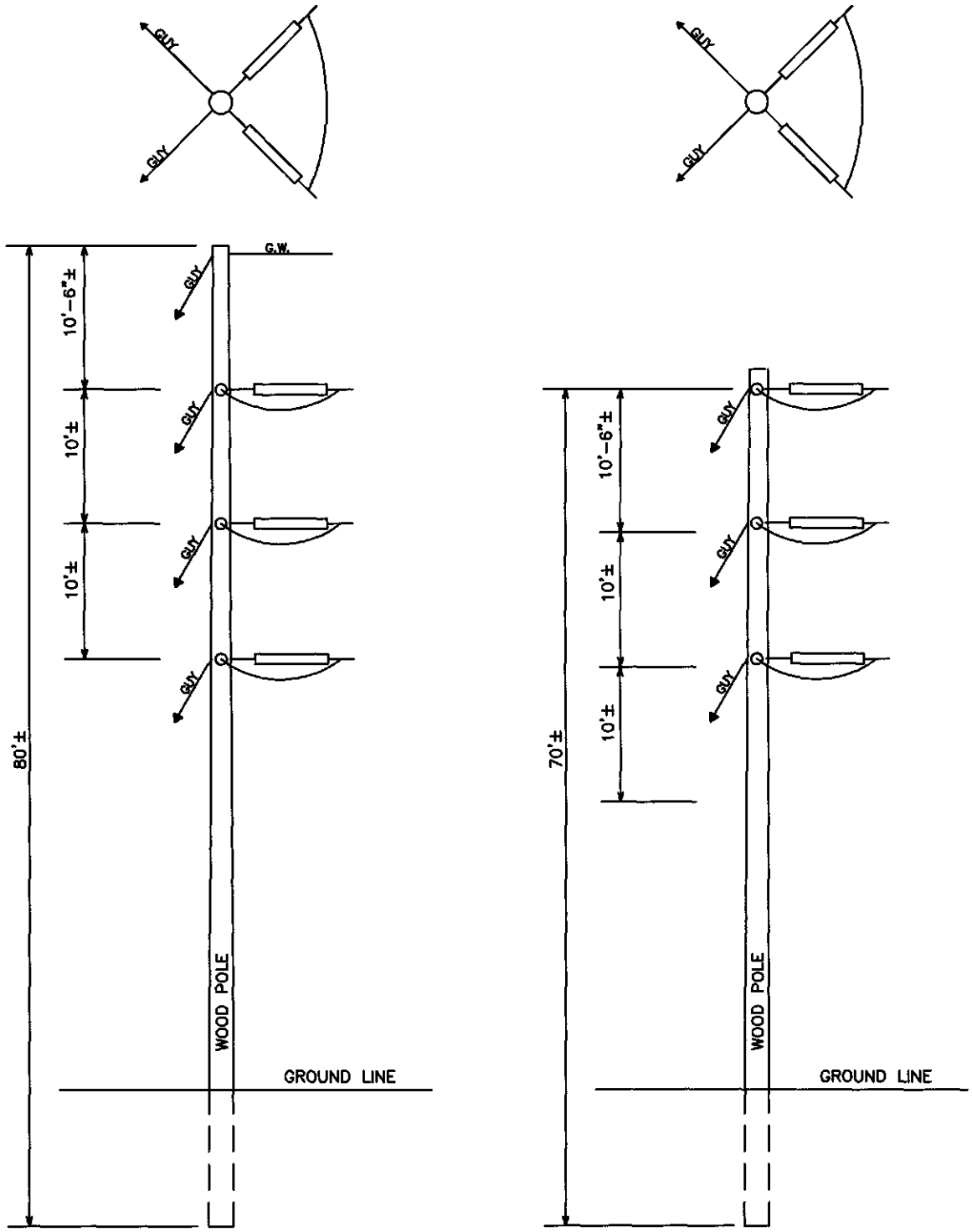
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

DOUBLE CIRCUIT TANGENT STRUCTURE

FIGURE A-7



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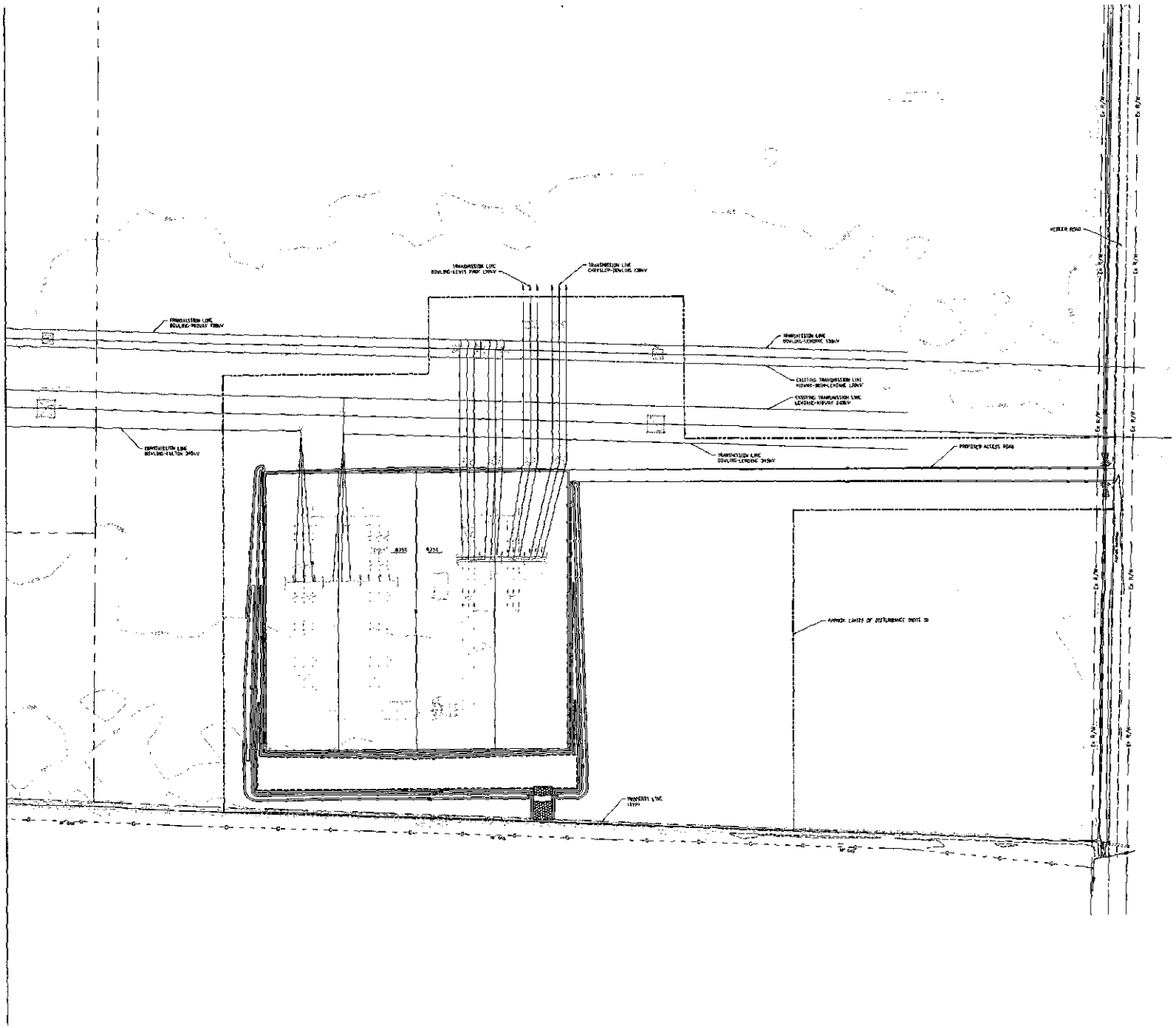
DOWLING SUBSTATION
TRANSMISSION LINE EXITS

DOUBLE CIRCUIT CORNER DEAD END STRUCTURE

FIGURE A-8

APPENDIX B – GRADING PLAN

1. EXISTING CONTOUR DATA AND STRUCTURE INFORMATION BASED ON SURVEY PROVIDED BY:
   GPR GROUP
   520 SOUTH MAIN ST SUITE 2550
   AKRON, OH 44311
   PHONE: 330-572-2100
2. ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED
3. SITE WORK AND NEW CONTOURS SHOWN ARE BASED ON PRELIMINARY INFORMATION AND WILL CHANGE WITH FINAL SITE LAYOUT AND DETAILED STORM WATER MANAGEMENT PROVISIONS. EXISTING AND EXISTING ARE SHOWN AS PRELIMINARY.
4. GEOTECHNICAL INFORMATION PROVIDED BY:
   TURNBULL GEOTECHNICAL GROUP, INC
   2685 GILCHRIST RD.
   AKRON, OH 44305
   PHONE: 330-733-6749
5. LIMITS OF DISTURBANCE ARE PRELIMINARY AND WILL BE UPDATED BASED UPON FINAL DESIGN



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPERTY LINE
- PROPOSED FENCE
- GAS LINE
- EXISTING RIGHT OF WAY
- LIMITS OF ROADTOP OF SLOPE
- CULVERT
- LIMITS OF DISTURBANCE
- SLOPE OF YARD
- NEW DRAINAGE STRUCTURE
- WP RAP
- PROPOSED TRANSMISSION STRUCTURE

NORTH

0 30' 60'
SCALE IN FEET

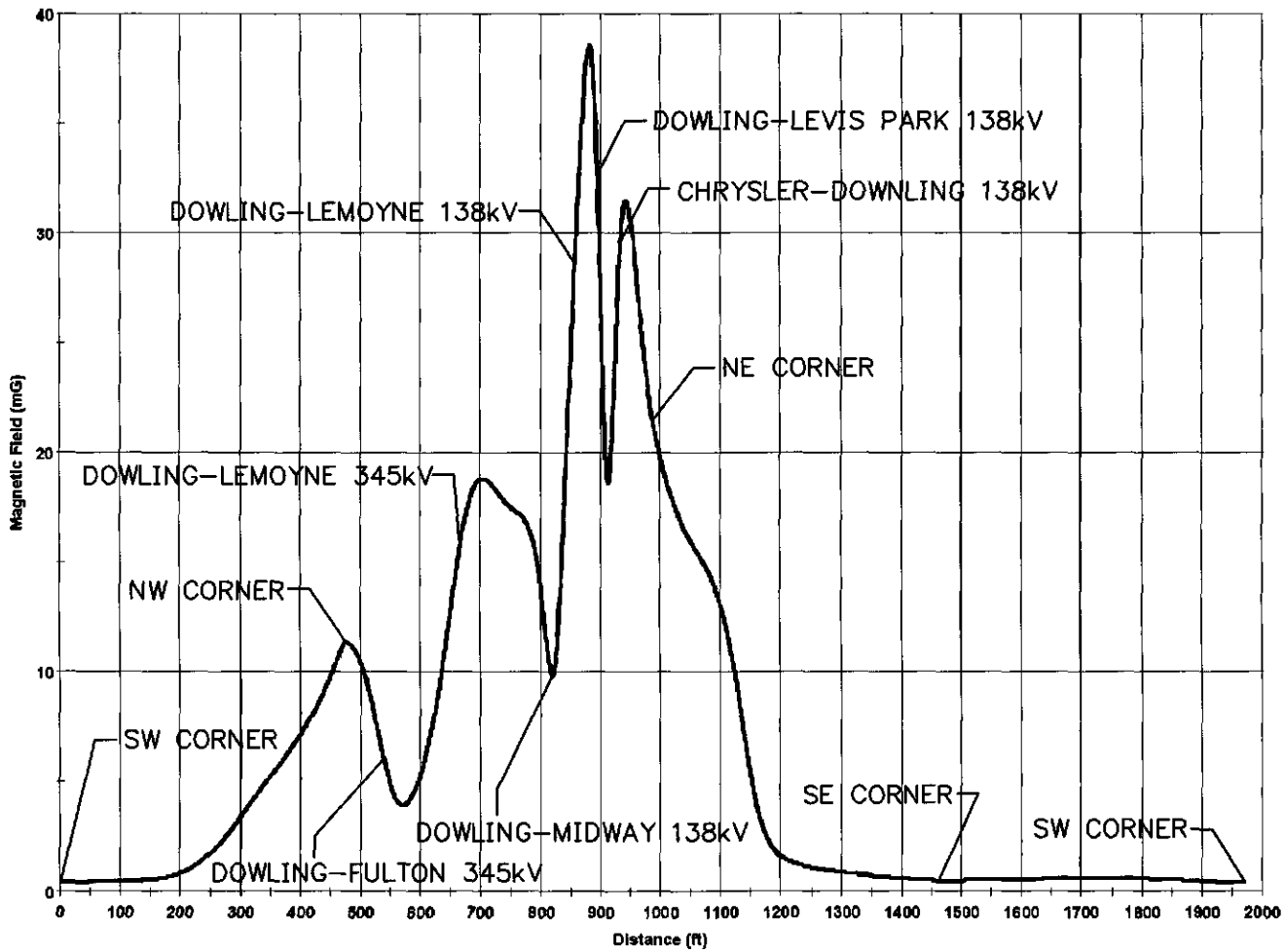
PRELIMINARY

DATE: 06/30/15

FirstEnergy		BOWLING	
DRAWN BY: DAVID L. MCDONALD		PRELIMINARY GRADING PLAN FUTURE TRANSMISSION LINES	
		13-0210-14	PRELIM GRADING PLAN SH. 2 A

APPENDIX C – EMF FIGURES

Electric Field, Location 4 - Normal Load



Resultant
Min = 0.404 mG Max = 39.559 mG

ATSI®
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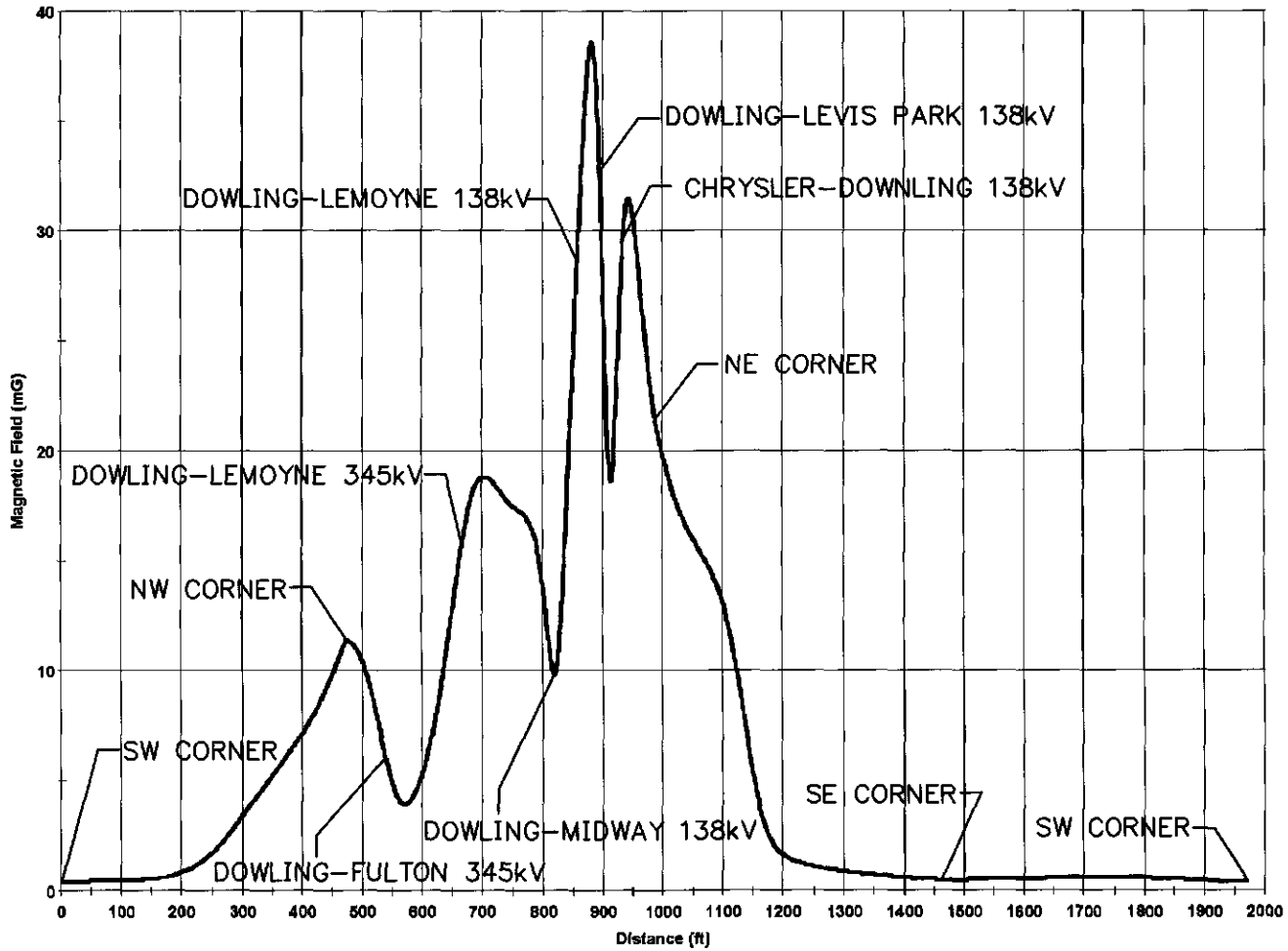
Fulton - Lemoyne 345 kV, Chrysler - Levis Park 138 kV and Lemoyne - Midway 138 kV Transmission Line Extensions to and Installation of Dowling Substation Project

ELECTRIC FIELD

Figure C-1

Magnetic Field, Location 4 - Normal Load



Resultant
Min = 0.404 mG Max = 38.559 mG

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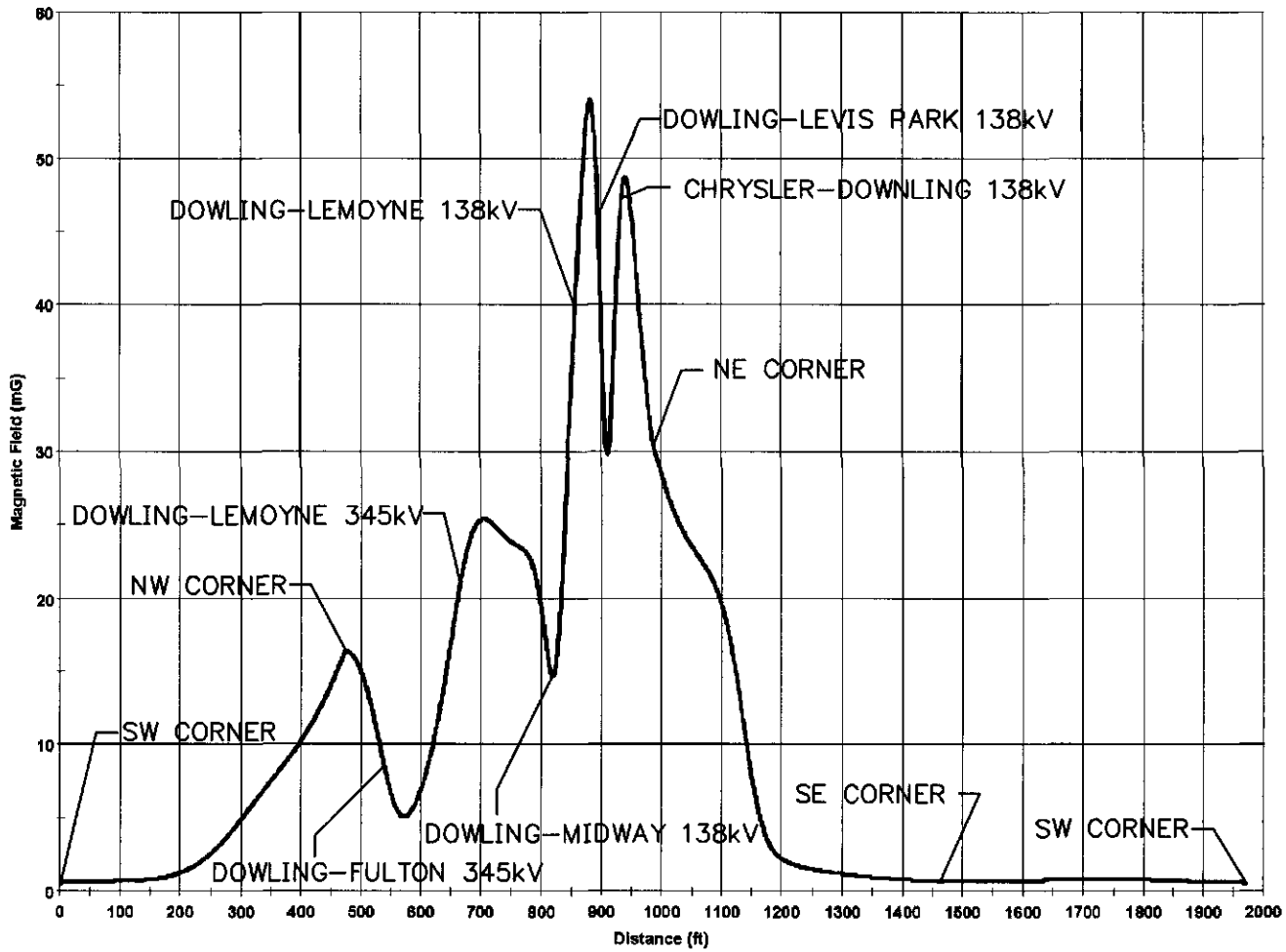
MAGNETIC FIELD – NORMAL LOAD

FIGURE C-2

Magnetic Field, Location 4 - Emergency Load



Resultant
Min = 0.554 mG Max = 54.051 mG

ATSI®
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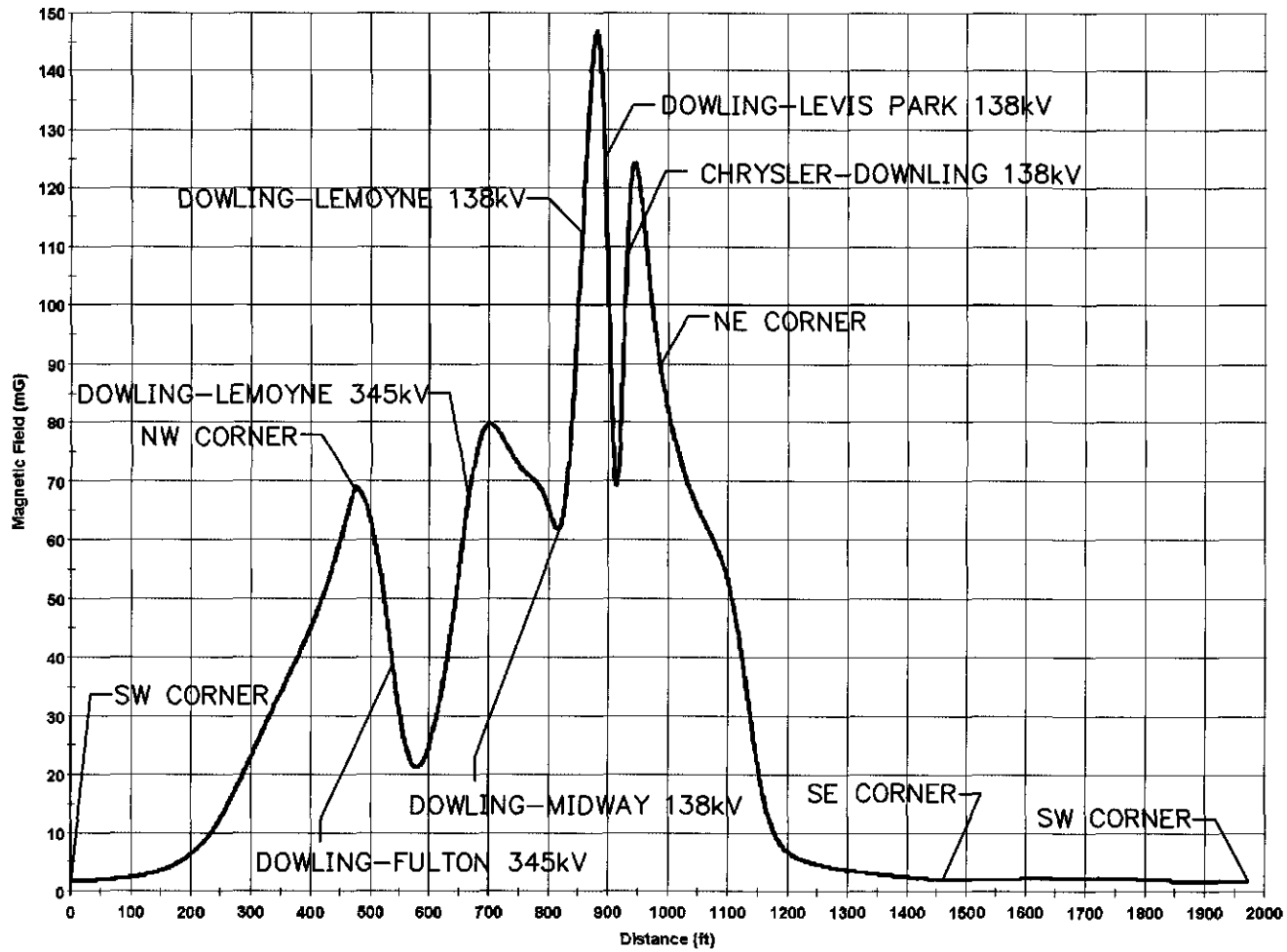
Fulton - Lemoyne 345 kV, Chrysler - Levis Park 138 kV and Lemoyne - Midway 138 kV Transmission Line Extensions to and Installation of Dowling Substation Project

MAGNETIC FIELD – EMERGENCY LOAD

FIGURE C-3

Magnetic Field, Location 4 - Winter Rating



Resultant
Min = 1.651 mG Max = 146.881 mG

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

Fulton - Lemoyne 345 kV, Chrysler - Levis Park 138 kV and Lemoyne - Midway 138 kV Transmission Line Extensions to and Installation of Dowling Substation Project

MAGNETIC FIELD – WINTER RATING

FIGURE C-4

APPENDIX D – AGENCY CORRESPONDENCE

Bell, Jennifer

From: Wetzel, Paul F LRB <Paul.F.Wetzel@usace.army.mil>
Sent: Wednesday, October 03, 2012 8:46 AM
To: Bell, Jennifer
Subject: LRB-2012-00933 - Regarding Permit Requirements For A Potential Development Project, Wood County, Ohio (UNCLASSIFIED)
Attachments: 2012-933-Soil_Map-Wood_County_Ohio.pdf; USGS.PDF; NWI wetland mapper.jpg

Classification: UNCLASSIFIED
Caveats: NONE

Hello Jennifer,

This is a follow up on our recent conversation we had regarding permit requirements for a potential development project located south of the City of Perrysburg in Wood County, Ohio.

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Certain types of excavation activities are defined as discharges of dredged or fill material when they occur in waters of the United States. For instance, land clearing using mechanized equipment, ditching, channelization and other types of excavation when performed in such waters, including wetlands, would likely be regulated under Section 404 of the Clean Water Act.

It appears that the majority of the area depicted in your general location map is active cropland. If the project is constructed in active cropland that is designated by the USDA as prior converted (PC) cropland, then the project would not likely be regulated since areas designated as PC are not considered waters of the US. Also, the area contains hydric soils as indicated on the Wood County Soil Survey, contains mapped tributaries as indicated on the USGS Quad, and wetlands and other waters designated on the USFWS NWI map (see attached).

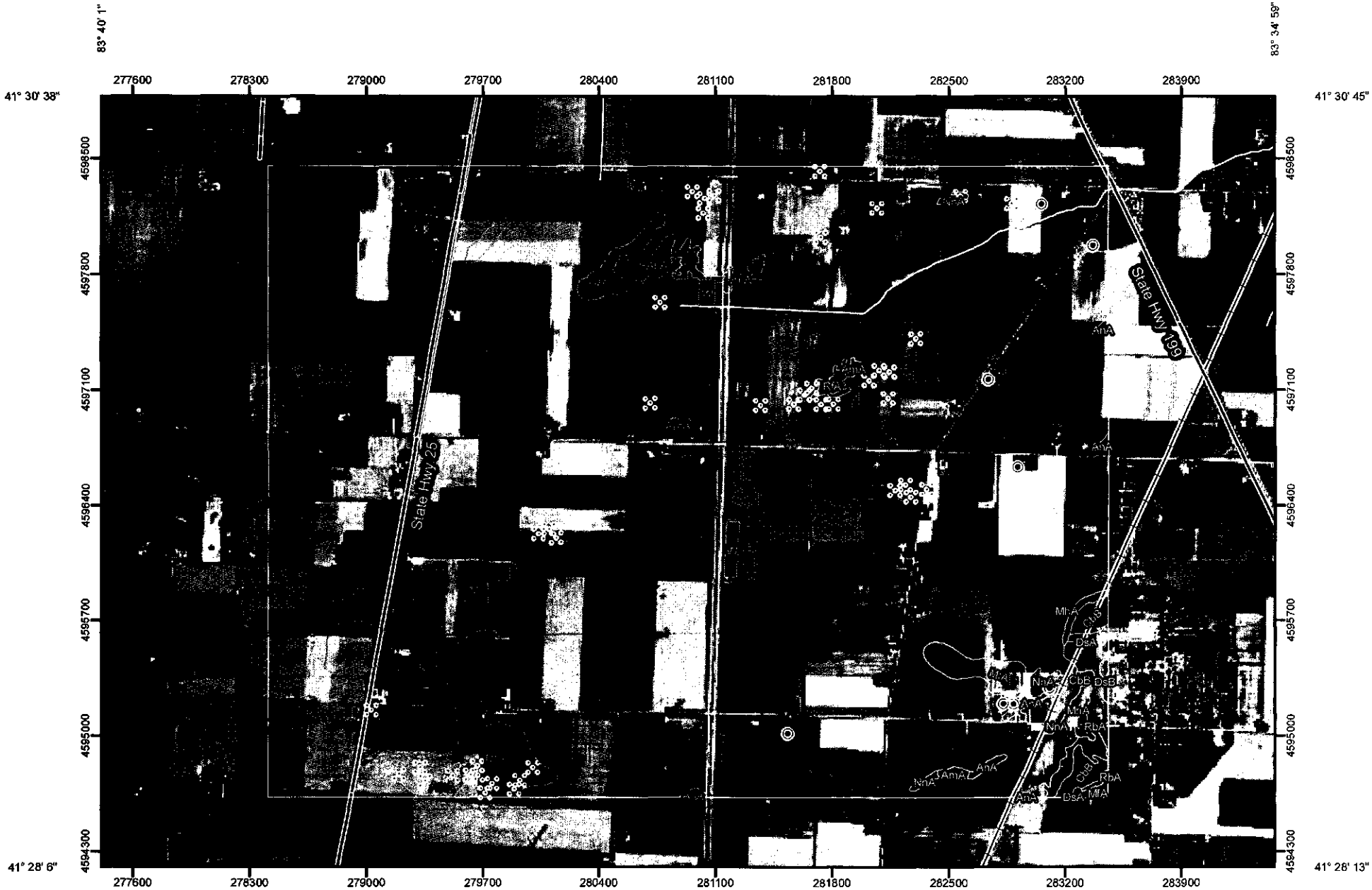
I recommend further investigation to determine if regulated waterways exist and whether a Department of the Army (DA) permit is required for work on the property. If you do not wish to wait for a Corps determination you may secure the services of a private consultant for this purpose. Wetlands should be identified and delineated in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual.

After a wetland determination and waters delineation has been completed, the report should be submitted to our office for review and verification. The wetland and waters of the U.S. delineation should be verified prior to finalizing any project design for the site in question to insure that no further modifications of the project plans would be needed to comply with 404(b)(1) Guidelines.

Let me know if you have any questions.

Thanks,

Paul Wetzel, Biologist
U.S. Army Corps of Engineers, Buffalo District Oak Harbor Field Office
240 Lake Street, Unit D
Oak Harbor, Ohio 43449
paul.f.wetzel@usace.army.mil
(419) 898-3812
Fax (419) 898-4292


83° 40' 1"
83° 34' 59"
41° 30' 38"
41° 30' 45"
41° 28' 6"
41° 28' 13"
83° 39' 55"
83° 34' 53"
277600
278300
279000
279700
280400
281100
281800
282500
283200
283900
4598500
4597800
4597100
4596400
4595700
4595000
4594300
State Hwy 25
State Hwy 199
AnA
MhA
DsA
NhA
CbB
DsB
MlA
RbA
JAmA
Map Scale: 1:33,400 if printed on A size (8.5" x 11") sheet.
N
Meters
0
450
900
1,800
2,700
Feet
0
1,500
3,000
6,000
9,000

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Gully

Short Steep Slope

Other

Political Features

Cities

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

MAP INFORMATION

Map Scale: 1:33,400 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

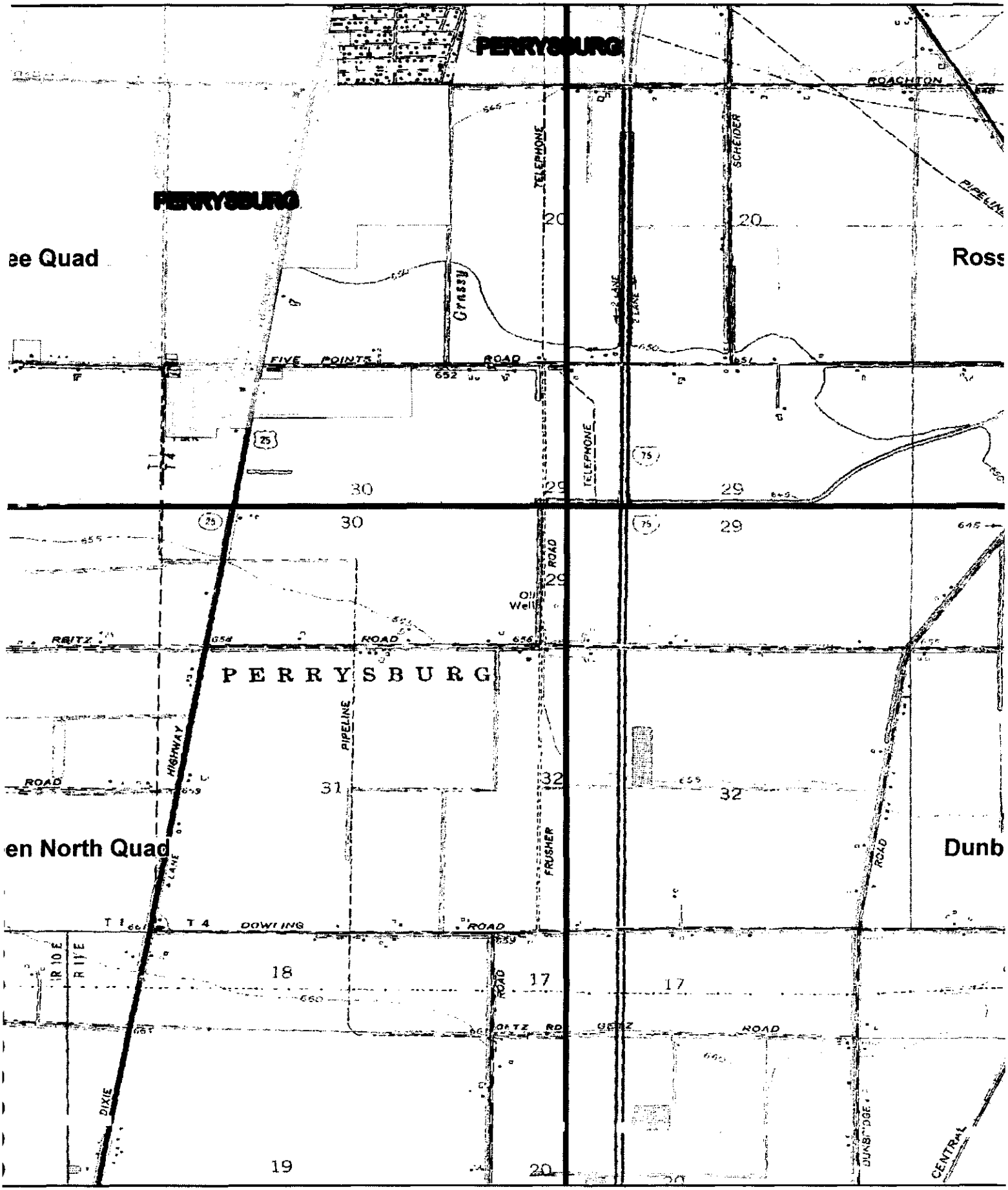
Soil Survey Area: Wood County, Ohio
Survey Area Data: Version 14, Sep 24, 2009

Date(s) aerial images were photographed: 6/23/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Wood County, Ohio (OH173)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AmA	Aurand fine sandy loam, 0 to 2 percent slopes	10.3	0.2%
AnA	Aurand loam, 0 to 2 percent slopes	64.2	1.3%
CbB	Castalia-Marblehead complex, very stony, 0 to 6 percent slopes	23.7	0.5%
DsA	Dunbridge-Spinks, deep to limestone, loamy fine sands, 0 to 2 percent slopes	4.3	0.1%
DsB	Dunbridge-Spinks, deep to limestone, loamy fine sands, 2 to 6 percent slopes	2.7	0.1%
HoA	Hoytville clay loam, 0 to 1 percent slopes	4,416.5	92.4%
MfA	Mermill-Aurand complex, 0 to 1 percent slopes	185.8	3.9%
MhA	Millsdale silty clay loam, 0 to 1 percent slopes	11.0	0.2%
NnA	Nappanee loam, 0 to 2 percent slopes	8.6	0.2%
RbA	Randolph loam, 0 to 2 percent slopes	30.7	0.6%
RfA	Rimer and Tedrow, till substratum, loamy fine sands, 0 to 2 percent slopes	5.0	0.1%
W	Water	14.9	0.3%
Totals for Area of Interest		**4,777.5**	**100.0%**



Legend

Study Area

City

Railroad

Quad Boundary

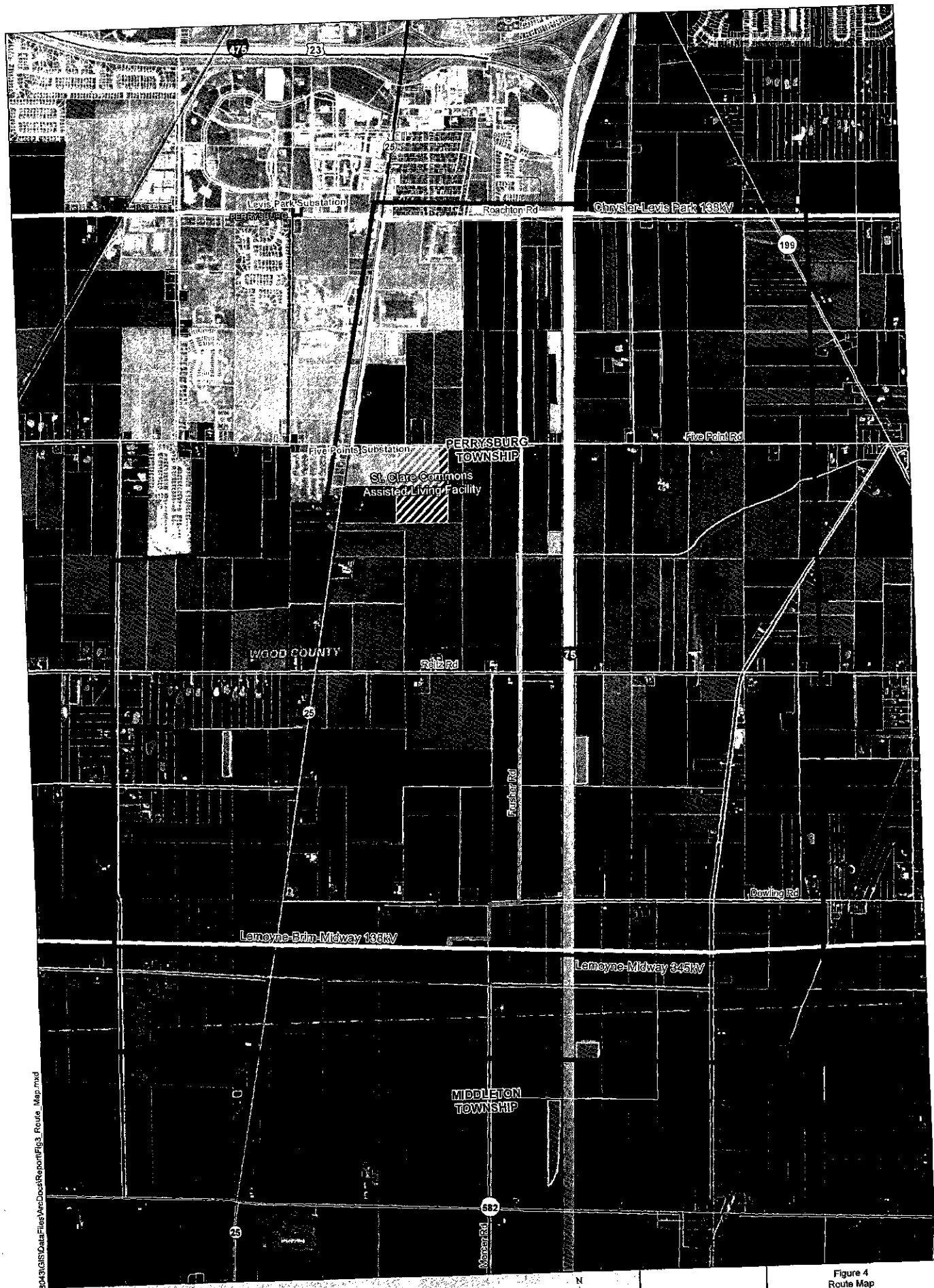


Figure 4
Route Map
Proposed Chrysler - Levis Park 138kV
345kV & 138kV Transmission Line
Extensions to
Dowling Substation Project
American Transmission Systems, Inc.

Bell, Jennifer

From: Bennett, Amanda <ABennett@agri.ohio.gov>
Sent: Thursday, July 12, 2012 7:54 AM
To: Bell, Jennifer
Cc: King, Denise
Subject: RE: Project Number 68043

Hello again Ms. Bell,

Thank you for contacting us with regard to Burns and McDonnell Project Number 68043. We have researched the locations of our existing easements in the area, and find that none are within this proposed project area.

In case it would be helpful, I reached out to one of our local partners in the area, Black Swamp Conservancy in Perrysburg. They have their own, separate easements, and it appears that some of their own conservation projects may be in the proposed project area. If you haven't already been in touch with them, and need their contact information, let me know – I'd be happy to provide it to you.

Thank you again for contacting us, and let us know if we can be of any further assistance.

Sincerely,

Amanda Y. Bennett
Program Manager
Office of Farmland Preservation
Ohio Department of Agriculture
8995 E. Main St.
Reynoldsburg, OH 43068-3399
Phone: 614-728-6214
Fax: 614-752-2282
abennett@agri.ohio.gov

From: Bell, Jennifer [mailto:jbell@burnsmcd.com]
Sent: Wednesday, July 11, 2012 1:59 PM
To: Bennett, Amanda
Subject: RE: Project Number 68043

Please find attached a copy of the map we mailed to you. Let me know if there is any additional information you need.

Thank you,

Jennifer Bell
Environmental Scientist, Environmental Studies & Permitting
Burns & McDonnell
Direct: 303-474-2229
Main: 303-721-9292
Fax: 303-721-0563
jbell@burnsmcd.com
www.burnsmcd.com

From: Bennett, Amanda [mailto:ABennett@agri.ohio.gov]
Sent: Wednesday, July 11, 2012 11:36 AM

To: Bell, Jennifer
Subject: Project Number 68043

Hi Ms. Bell,

We received your request for information on project #68043. The color map that you provided – do you have that in an electronic version? We would like to send it to our local partner on the one easement we have in that county – Black Swamp Conservancy – to determine where our easement is in relation to your project area. We do not have capabilities of scanning the document at its current size.

Thanks,

Amanda Y. Bennett
Program Manager
Office of Farmland Preservation
Ohio Department of Agriculture
8995 E. Main St.
Reynoldsburg, OH 43068-3399
Phone: 614-728-6214
Fax: 614-752-2282
abennett@agri.ohio.gov

This message and any response to it may constitute a public record and thus may be publicly available to anyone who requests it.
This message and any response to it may constitute a public record and thus may be publicly available to anyone who requests it.

Telephone Memorandum

Burns & McDonnell
SINCE 1898

Called:	Rob Krain, Conservation Director
Organization:	Black Swamp Conservancy
Caller:	Jennifer Bell
Organization:	Burns & McDonnell
Subject of Call:	Agency letter sent July 9, 2012 (forwarded to Black Swamp Conservancy from Amanda Bennett, Ohio Department of Agriculture)
Call Date:	July 17, 2012
Phone No. Called:	419-872-5263
Project Name:	FirstEnergy Five Point Substation/T-Line Project
Project No.:	68043

Summary:

Amanda Bennett, Ohio Department of Agriculture, forwarded the agency letter to the Black Swamp Conservancy to determine if they had easements in the study area. Ms. Bennett recommended I contact the Conservancy as well. I spoke with Mr. Krain at the Conservancy, and he indicated that they did not have any easements within the study area. However, he was concerned with the possibility of development in the study area, especially large scale residential/commercial development or fracking operations that would convert agricultural land. Mr. Krain indicated that about 1/3 of our study area is designated as/set aside for agricultural preservation in the Wood County Land Use Plan. This area is generally located east of Highway 75, south of Five Points Road, and north of King Road/Getz Road. He is concerned with any time of development in these "preservation" areas and suggested I take a look at the Plan. The other 2/3 of the study area is classified as a "growth area" on the county land use plan. Mr. Krain explained that agriculture is a big part of the economy in this region, and there is generally very little land set aside for agricultural preservation.

cc: Rob Everard, BMCD; Kristi Wise, BMCD

Telephone Memorandum

Called:	Drew Todd
Organization:	Ohio Department of Natural Resources – Division of Forestry
Caller:	Jennifer Bell
Organization:	Burns & McDonnell
Subject of Call:	Agency letter sent July 9, 2012
Call Date:	July 16, 2012
Phone No. Called:	614-265-6707
Project Name:	FirstEnergy Five Point Substation/T-Line Project
Project No.:	68043

Summary:

Mr. Todd called in regards to the request for information letter sent to agencies on July 9, 2012. He indicated that no state forests are located within the study area, although there is one nearby, the Maumee State Forest, located to the west of the study area in Fulton County. Mr. Todd explained that the majority of the state forests in Ohio are located in the southeast region of the state.

Mr. Todd asked if there was anything he needed to provide us, and I told him he was welcome to send a response letter but did not need to if he did not feel it necessary. I indicated I would just document our conversation regarding forest resources.

cc: Rob Everard, BMCD; Kristi Wise, BMCD

Bell, Jennifer

From: Brad.N.Davidson@faa.gov
Sent: Monday, July 30, 2012 1:41 PM
To: Bell, Jennifer
Subject: Burns & McDonnell Project Number 68043 - FAA Comments on proposed Wood County Development

Ms. Bell,

Thank you for coordinating your potential development project located in Wood County with our office. We oversee the development of all of the commercial service and general aviation airport development for airports that are within our National Plan of Integrated Airport System (NPIAS) in the State of Ohio along with our partners with the Ohio Department of Transportation - Office of Aviation.

Your project study area as outlined in your July 9, 2012 figure encompasses a large land area and is in relatively close proximity to three NPIAS airports as follows:

1) The Wood County Airport in Bowling Green is approximately 5 miles south of the project study area and located at N 41-23-27.5: W 83-37-48.5.

2) Toledo Executive Airport is located in Millbury approximately 6.7 miles to the east and is located at N 41-33-53.8: W 83-28-56.1.

3) Toledo Express Airport is located in Swanton Township approximately 9 miles to the northwest and is located at N 41-35-12.5: W 83-48-28.1.

The FAA protects airspace in the near and extended vicinity of the NPIAS airports from the erection of tall structures that may impact safe and efficient use of airspace. Additionally the FAA along with the airport sponsor protect against any non-compatible land use in the immediate vicinity of the airports themselves.

For your project area you will want to be sure to coordinate any tall structure proposals with the FAA so we can further evaluate any impacts those structures may have on the airspace to the surrounding airports.

The FAA maintains a user friendly website for filing tall structure notices for the FAA to evaluate. The website is located at https://oeaaa.faa.gov/oeaaa/external/portal.jsp

If you have any questions please do not hesitate to contact me either by e-mail or phone.

Sincerely,

Brad N. Davidson, P.E.
Environmental Protection Specialist
Detroit - ADO
734-229-2916

Bell, Jennifer

From: Bouder, Richard <Richard.Bouder@epa.state.oh.us>
Sent: Monday, July 30, 2012 2:39 PM
To: Bell, Jennifer
Subject: Burns & McDowell Project Number 68043

Hi Jennifer,

I was forwarded your request for information regarding the potential development project in Wood County. Unfortunately, I don't believe we will be able to help you with the information you're seeking. We file our records by specific facilities and properties for the most part, and not in general areas like what you are looking at. If there are specific properties within your study area that you are interested in information on, please let me know what those properties are.

Please don't hesitate to contact me should you need any other information.

Thanks,

Richard Bouder
Public Records Manager
Ohio Environmental Protection Agency
Office of the Director
Lazarus Government Center
P.O. Box 1049
Columbus, Ohio 43216-1049
richard.bouder@epa.state.oh.us

Ohio | Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

July 18, 2012

Jennifer Bell
Burns & McDonnell
9400 Ward Parkway
Kansas City, Missouri 64114-3319

Dear Ms. Bell:

Re: Sewerage - Perrysburg and Middleton Townships, Wood County

I am responding to your July 9, 2012 request for available background information for a potential development project (Burns & McDonnell Project #68043) located in Wood County, Ohio. Your letter requested that we identify constraints or opportunities that should be considered in the project development efforts.

In your July 16, 2012, follow-up telephone conversation with Tom Poffenbarger of our Northwest District Office, you indicated that similar requests were sent to multiple divisions and agencies with jurisdiction in the project location. You stated that you were trying to identify whether there are any significant issues or regulations that would prohibit the proposed development within the study area.

We are unaware of any regulations or significant wastewater related issues that would prohibit development in the proposed study area. Access to sanitary sewers is available in most portions of the study area. The City of Perrysburg can be contacted regarding availability within the city limits. Northwestern Water & Sewer District can be contacted regarding availability outside the city limits.

I encourage you to contact Patricia Tebbe, Division of Surface Water/Northwest District Office, at (419)373-3016 to determine specific requirements once potential sites and the proposed development are identified.

Sincerely,

George Elmaraghy

George Elmaraghy, P.E., Chief
Division of Surface Water

GE:tp

50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

614 | 644 3020
614 | 644 3184 (fax)
www.epa.ohio.gov

Bell, Jennifer

From: Kessler, John <John.Kessler@dnr.state.oh.us>
Sent: Thursday, August 09, 2012 1:52 PM
To: Bell, Jennifer
Subject: FW: 12-472 Comments Wood Co. development Project No 68043

ODNR COMMENTS TO: Jennifer Bell, Burns and McDonnell; jbell@burnsmcd.com

Project: Burns and McDonnell Development Project No. 68043

Location: Maumee Quad, Perrysburg (Wood Co.) Ohio

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniosa*), Bitternut hickory (*Carya cordiformis),* Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (Populus deltoides), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months, a net survey must be conducted in May or June prior to cutting. Net surveys shall incorporate either two net sites per square kilometer of project area with each net site containing a minimum of two nets used for two consecutive nights, or one net site per kilometer of stream within the project limits with each net site containing a minimum of two nets used for two consecutive nights. If no tree removal is proposed, the project is not likely to impact this species.

The project is within the range of the rayed bean (*Villosa fabalis*), a state endangered and federal endangered mussel species. If there is a history of mussels near the proposed project area, it may be necessary for a professional malacologist approved by the DOW to conduct a mussel survey in the project area. Surveys are to be done within six months before in-water work. If mussels that cannot be avoided are found in a project area, as a last resort, the DOW may recommend a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the proposed project. The mussel survey must be conducted using standard mussel survey methodologies to include hand grabbing, snorkeling, and the use of SCUBA equipment if depths preclude efficient sampling by other methods. The survey should include excavation of two to three, one-quarter meter quadrants to a depth of at least 10 cm to search for juvenile mussels, and any located must be relocated along with the adult specimens. Individual adult mussel specimens must be marked when relocated. Juveniles are not to be marked and will not be part of future monitoring efforts. If mussels are relocated, it is recommended the recipient site be monitored in two years to determine survivorship. Monitoring must follow the same survey protocol used during the relocation effort, and all marked individuals must be tallied. If no in-water work is proposed, the project is not likely to impact this species.

The project is within the range of the bald eagle (*Haliaeetus leucocephalus*), a state threatened species. However, the Ohio Biodiversity Database currently has no records of this species near the project area.

The project is within the range of the bobcat (*Lynx rufus*), a state endangered species. Due to the mobility of this species, the project is not likely to have an impact on this species.

The project is within the range of the loggerhead shrike (*Lanius ludovicianus*), a state endangered bird. A statewide survey has not been completed for this species. A lack of records does not indicate the species is absent from the area. Therefore, if grassland or prairie habitat will be impacted, construction must not occur in this habitat during the species' nesting period of April 1 to August 1. If this habitat will not be impacted, the project is not likely to impact this species.

The ODNR, Ohio Biodiversity Database has no records for rare or endangered species at this project site. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges or other protected natural areas within the project area. Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

Please note that wetlands known to contain an individual of or documented occurrences of federal or state-listed threatened or endangered plant or animal species are most likely considered high quality, Category 3 wetlands by the Ohio Environmental Protection Agency.

Scenic Rivers: The Division of Watercraft offers the following comments.

The proposed development may affect tributaries to the Maumee State Scenic River; the Scenic Rivers program takes great interest in any activities that may affect the river and appreciates the opportunity to comment on the proposed project. The following recommendations concerning the project are as follows:

1. **Project Design**

   a. **Stormwater Treatment**: The development should incorporate the highest level of stormwater treatment possible. Post construction stormwater treatments should include detention structures designed to treat stormwater with regard to improvement of water quality and control of discharge quantity. All sediment and erosion controls and detention structures should be located above the one hundred year flood elevation. Locating these structures within the one hundred year floodplain allows for the mixing of river water and stormwater which reduces their effectiveness with regard to water quality improvements. Subdivision plans should maximize green\open space areas to increase stormwater infiltration and reduce the volume of stormwater runoff created on the site. Treatment ponds should be designed to provide extended (24-48 hours) detention time for a 0.75 inch storm event. No untreated stormwater discharges should be permitted. Untreated stormwater discharges negatively impact water quality and stream ecosystems as well as intensify the severity of flood events. All final stormwater discharges should be protective of the existing high quality ecosystem of the Maumee State Scenic River and its tributaries.

   Any drainage ways being utilized for the conveyance of stormwater during and after construction should be vegetated. Vegetated drainage ways will reduce stormwater flow velocities as well as filter some non-point source pollutants. Any such drainage ways should be of sufficient length to allow for the infiltration of surface runoff rather than direct conveyance to natural streams. All stormwater should still be treated to remove sediment and other pollutants before discharge into drainage ways leaving the site.

   b. **Low Impact Development**: Subdivision plans should incorporate principles that decrease impervious surfaces. Increases in impervious surfaces are found to be in a direct correlation with the degradation of stream ecosystems. Road widths, clustering of homes, shorter driveways and other methods used to reduce the overall amount of impervious surfaces should be incorporated. Preservation of woodlots, wetlands, and other more permeable surfaces should be encouraged to recharge groundwater and store surface water.

   c. **Riparian Buffers**: No earthwork or vegetation removal should be permitted adjacent to any State Scenic River or their intermittent streams, drainage ways or ravines. Permanent forest buffers consisting of native tree species should be established or maintained adjacent to all State Scenic Rivers, their tributary streams and ravines. Riparian corridor buffers should be protected and measured, at a minimum, as:

      - The one hundred year floodplain as identified on the most current FEMA FIRM maps or other FEMA publications
      - A minimum of 120 feet as measured from the top of the stream bank

      or

- A beltwidth as determined by the following formula

$$W = 147DA^{0.38}$$

Where W = Beltwidth
DA = Drainage area at that point

The greatest width as calculated by the three variables should be the width used for the development. When establishing setbacks based on beltwidth, the setback area shall be centered over the meander pattern (or mathematical average centerline) of the creek or river. If the land on one side (excluding levees) of the creek or river is more than 100% greater in bank height (measured from water surface to the top of bank during low flow and averaged over the length of the parcel), then the setback area location shall be adjusted so that the land area adjacent to the creek with the lowest elevation is included to the greatest extent possible while retaining the majority of creek or river area within the setback area. In cases, where the creek or river extends to the edge or beyond the setback area, that area shall be extended a minimum of 100 feet-beyond the top of the streambank.

Maintaining such areas as mature forest will provide stability to steep slopes, filter pollutants from surface runoff, eliminate excess erosion, reduce floodwater flow velocities as well as provide other ecological benefits to the tributaries, ravines and State Scenic River ecosystems.

d. **Mitigation for Stream Impacts:** In addition to the preceding best management practices outlined above, the areas of riparian corridor should be placed under a permanent conservation easement with an appropriate conservation organization or transferred in fee simple ownership to an appropriate conservation organization. This will help to ensure the long term protection of these sensitive, high quality river systems.

2. **Best Management Practices**

a. **Storm Water Pollution Prevention Plan (SWPPP):** A Notice of Intent (NOI) must be submitted to obtain coverage under a General Stormwater Permit, if the project will result in a land disturbance greater than one acre. The NOI must be submitted 21 days prior to construction. Copies of NOI forms and Instructions can be found at http://epa.ohio.gov/dsw/storm/stormform.asp. A SWPPP must be developed specific for the project. The SWPPP must be developed to address sediment and erosion controls in compliance with the General Storm Water Permit Associated with Construction Activities. The SWPPP must be submitted for review to the attention of the appropriate district office's Ohio EPA Storm Water Coordinator, prior to construction. If the project is within the Olentangy River or Big Darby Creek Watershed, specific guidelines for storm water permits can be found at the above web address.

b. **Erosion Controls**: A sediment and erosion control plan shall be developed for the site and implemented before earthwork commences. Once the site is cleared and grubbed, temporary sediment and erosion controls shall be implemented and maintained until final site stabilization is achieved. Particular attention shall be given to any drainage ways, ditches and streams that could convey sediment laden water directly to the Maumee State Scenic River or its tributaries. Properly installed (framed and entrenched) sediment fence shall be utilized around the work site perimeter and storm water inlets. Appropriately designed rock-check dams and other erosion controls shall be utilized in ditches and drainage ways. All temporary sediment and erosion controls shall be removed upon completion of site stabilization. Any area where the utility line has been completely installed, stabilization will be required within seven days. All denuded areas, including ditches, culverts and river/stream banks, shall be permanently seeded and mulched (or fiber mat) immediately upon completion of earthwork or temporarily seeded and mulched (or fiber mat). For the disturbed areas within 120 feet of streams, temporary and/or permanent erosion control cover shall be required within two days following the installation of the utility line. Temporary seeding and mulching shall be no more than 500 feet behind the point of installation of the utility line at any given time. Straw bales shall not be permitted as a form of erosion control. Access roads constructed on slopes shall be graveled to prevent erosion from surface runoff.

c. **Storage of Fuels, Petrochemicals and Equipment**: Idle equipment, petrochemicals and toxic/hazardous materials should not be stored in the floodplain or near any drainage ways, ditches or streams that could convey such materials to the Maumee State Scenic River or any of its tributaries. Petrochemicals and toxic/hazardous materials should not be discharged into the Maumee State Scenic River, its floodplains or any of its tributary drainage ways, ditches or streams. Refueling of equipment should not occur in floodplains or near any tributary drainage ways, ditches or streams.

d. **Spill Prevention**: The permittee shall develop a Spill Prevention Countermeasure and Contingency Plan (SPCC) in the event of a spill or break in an equipment hydraulic line, which may discharge into waters of the state. All spills must be reported to the Ohio Spill Line (1-800-282-9378) in accordance with OAC 3750.06.

e. **Material Disposal**: Any and all construction debris, earthen debris, excess asphalt or concrete, wood debris from clearing, excess fill material and trash should be disposed of at an approved upland site or land fill above 100 year flood

elevations. Disposal of any such materials in wetlands, floodplains or within 1000 feet of the Maumee State Scenic River is prohibited.

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler, P.E.
Ohio Department of Natural Resources
Office of Real Estate
2045 Morse Rd., Columbus, OH 43229-6605
phone: 614-265-6621
email: john.kessler@dnr.state.oh.us

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR | JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife
Scott Zody, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

July 13, 2012

Jennifer Bell
Burns & McDonnell
9785 Maroon Circle, Suite 400
Centennial, CO 80112

Dear Ms. Bell

After reviewing the Biodiversity Database, I find the Division of Wildlife has no records of rare or endangered species in the Development Project in Wood County, Ohio project area, including a one mile radius, various Townships of Wood County, Ohio. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, parks or forests or other protected natural areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas.

This letter only represents a review of rare species and natural features data within the Ohio Biodiversity Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me at 614-265-6452 if I can be of further assistance.

Sincerely,

Greg Schneider

Greg Schneider, Administrator
Ohio Biodiversity Database Program

OHIO HISTORY

July 31, 2012

Jennifer Bell
Burns & McDonnell
9400 Ward Parkway
Kansas City, Mo 64114-3319

Dear Ms. Bell:

This is in response to your letter of July 9, 2012 requesting information concerning historic properties for an unidentified project in Wood County, Ohio. Unfortunately we do not have the time or staff to complete literature reviews that are the responsibility of the consultant. There are, however, several ways to access the information in our records.

You are welcome to use our files at the Ohio Historic Preservation Office. Our office maintains the Ohio Historic Inventory, the Ohio Archaeological Inventory, and the National Register of Historic Places for properties in Ohio. You may make an appointment with Carrie Simmons at (614) 298-2000 to use these resources. Our office is open from 9 AM to 5 PM, Monday through Friday. We also have a records search service available. Please see http://www.ohiohistory.org/resource/histpres/toolbox/recordsSearch.html for more information.

If this project requires Section 106 review we will need more information. Please provide a description of the project, past and current landuse, and a map showing the exact location. We will also need information about the possible indirect effects of construction on nearby buildings in the area of potential effects. For further information on Section 106 requirements you may wish to check http://www.ohiohistory.org/resource/histpres/services/106rev.html.

If you need a list of consultants, please call me at (614) 298-2000 or check our website at www.ohiohistory.org/resource/histpres/services. Thank you for your cooperation.

Sincerely,

Nathan J. Young

Nathan J. Young, Project Reviews Manager
Resource Protection and Review

2012-WOO-21248

OHIO HISTORICAL SOCIETY
Ohio Historic Preservation Office
1982 Velma Avenue, Columbus, Ohio 43211-2497 ph: 614.298.2000 fx: 614.298.2037
www.ohiohistory.org

Bell, Jennifer

From: Smith, Kacey <Kacey.Smith@dot.state.oh.us>
Sent: Monday, August 06, 2012 6:56 AM
To: Bell, Jennifer
Subject: RFI Project Number 68043
Attachments: Resource Mapping.pdf

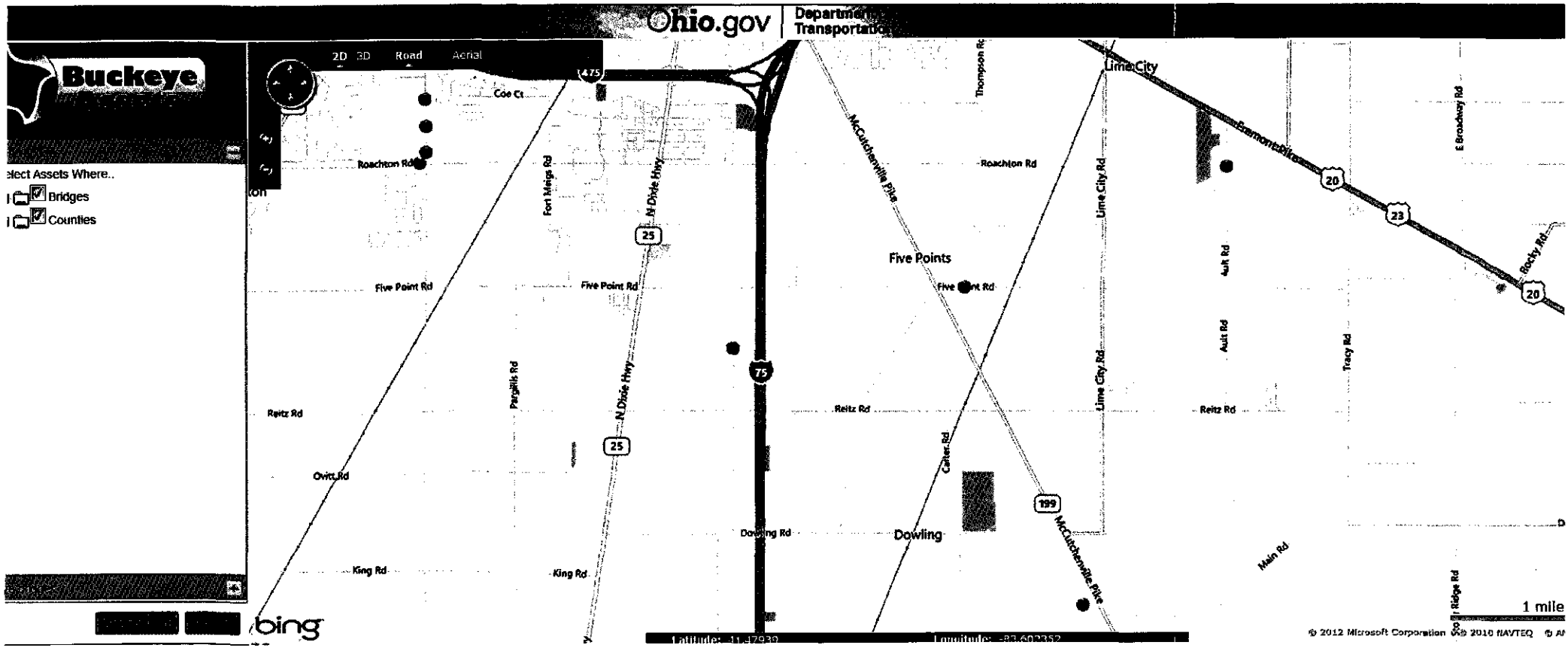
Dear Ms. Bell,

We received your July 9, 2012 letter regarding a Request for Information for Development Project 68043. Please see the attached document for mapping of resources in your study area. The maps contain information for Public Points of Interest (churches, schools, cemeteries), sites Reporting to the EPA, minority populations, low income populations, waterways, residential well logs, wetlands, and historic bridges. There are no airports in the study area.

We hope this information will be useful as you proceed with identifying a suitable project location. If we can be of any further assistance please let us know.

Sincerely,

Kacey Smith
District Environmental Coordinator
ODOT, District 2
Kacey.smith@dot.state.oh.us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Five Point Rd
Pargilis Rd
Reitz Rd
Ovitt Rd
King Rd
Dowling Rd
Dowling
Five Points
McCutchenville Pike
Thompson Rd
Lime City
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Carter Rd
Barnum Pike
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Tracy Rd
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Rocky Rd
Main Rd
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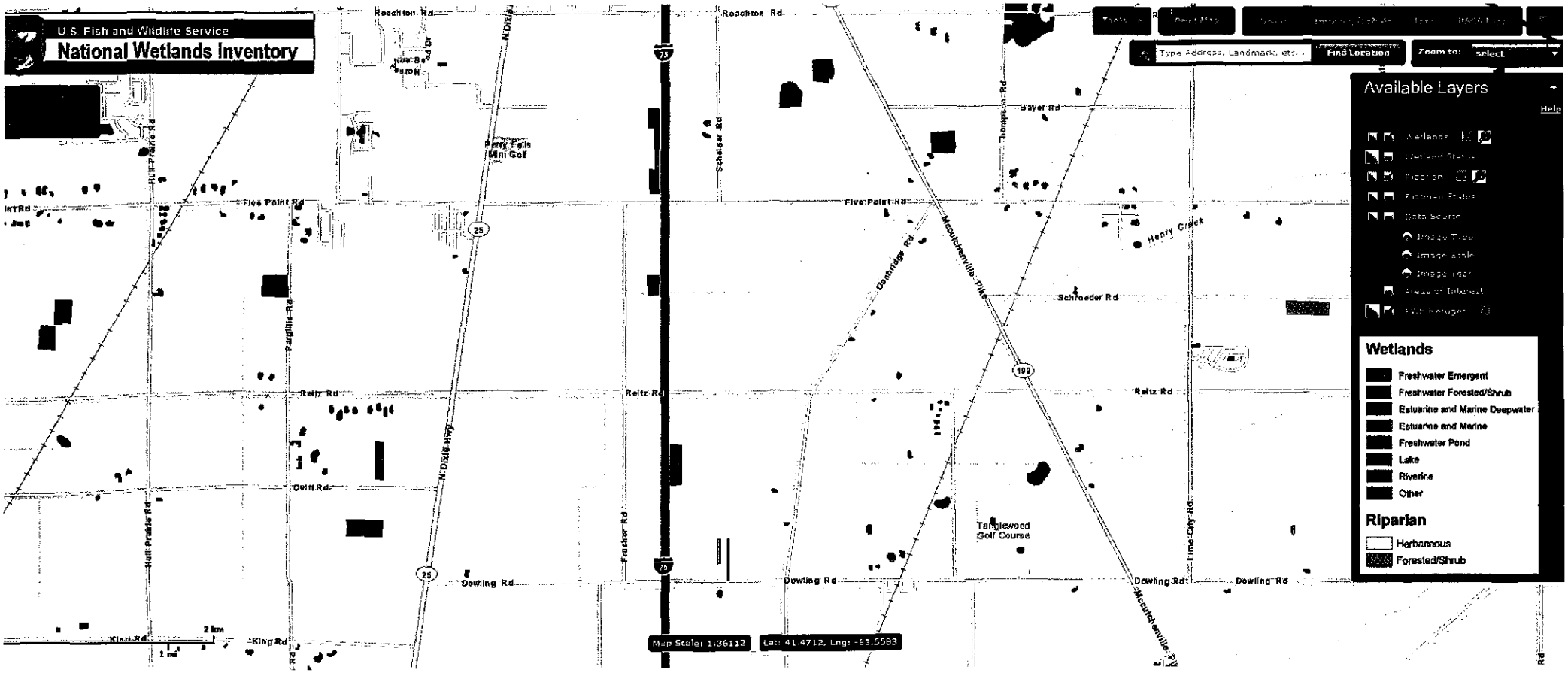
U.S. Fish and Wildlife Service
National Wetlands Inventory
Roachton Rd
Perry Falls Mini Golf
Five Point Rd
Holt Prairie Rd
Pargillie Rd
Reitz Rd
Dolt Rd
N Dixie Hwy
Dowling Rd
King Rd
Scheider Rd
Frecher Rd
Bayer Rd
Thompson Rd
Dashbridge Rd
Mcculloch-ville Pike
Henry Creek
Schroeder Rd
Tanglewood Golf Course
Lime City Rd
Type Address, Landmark, etc...
Find Location
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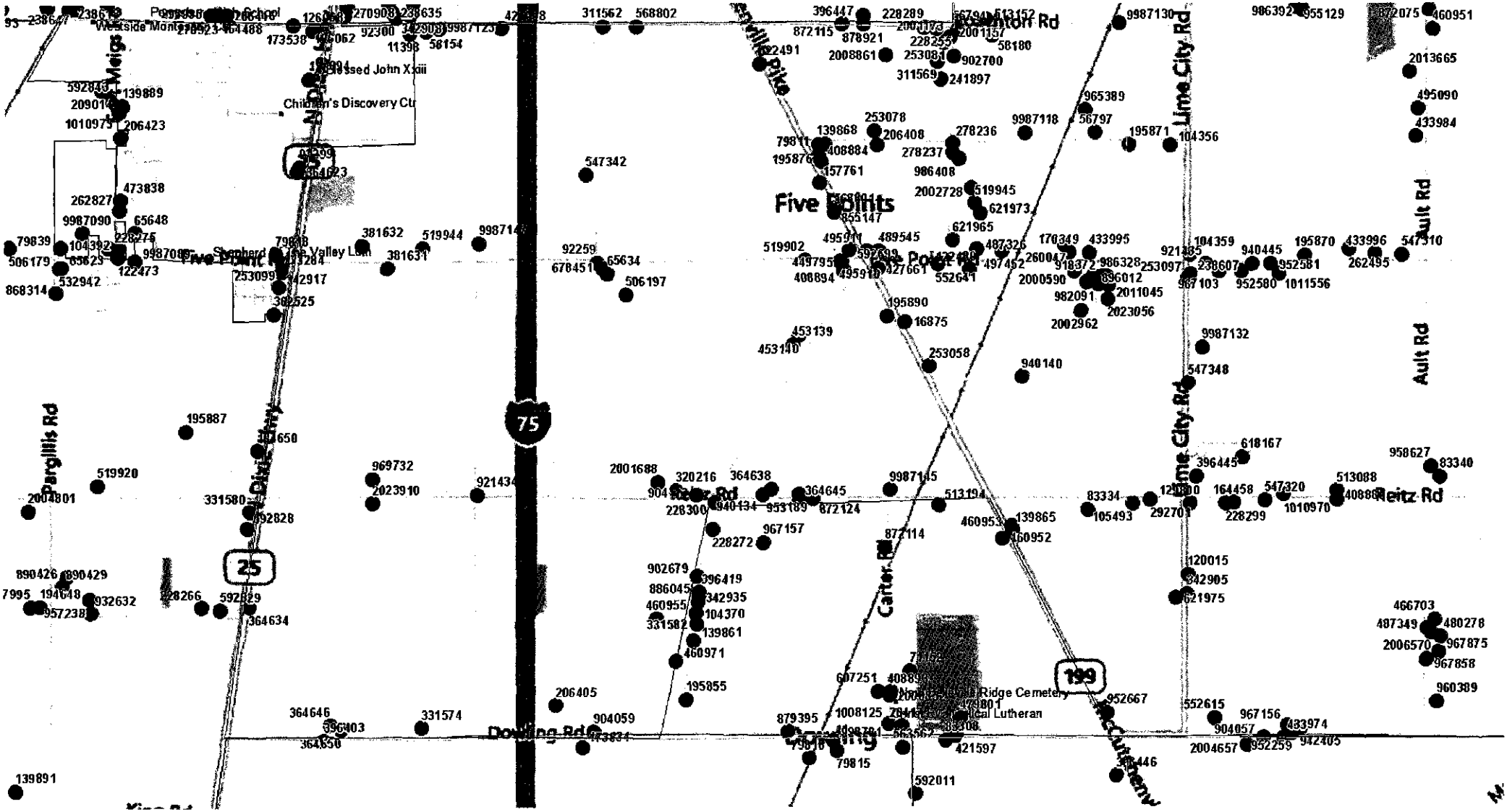
Help
Wetlands
Freshwater Emergent
Freshwater Forested/Shrub
Estuarine and Marine Deepwater
Estuarine and Marine
Freshwater Pond
Lake
Riverine
Other
Riparian
Herbaceous
Forested/Shrub
2 km
1 mi
Map Scale: 1:36112
Lat: 41.4712, Lng: -83.5583


Five Points
Five Points
Meigs
Children's Discovery Ctr
Shepherd of the Valley Luth
Dixie Hwy
Pergillis Rd
Dowling Rd
Carter Rd
Linne City Rd
Ault Rd
Reitz Rd
Ridge Cemetery
Lutheran
75
25
199

JView

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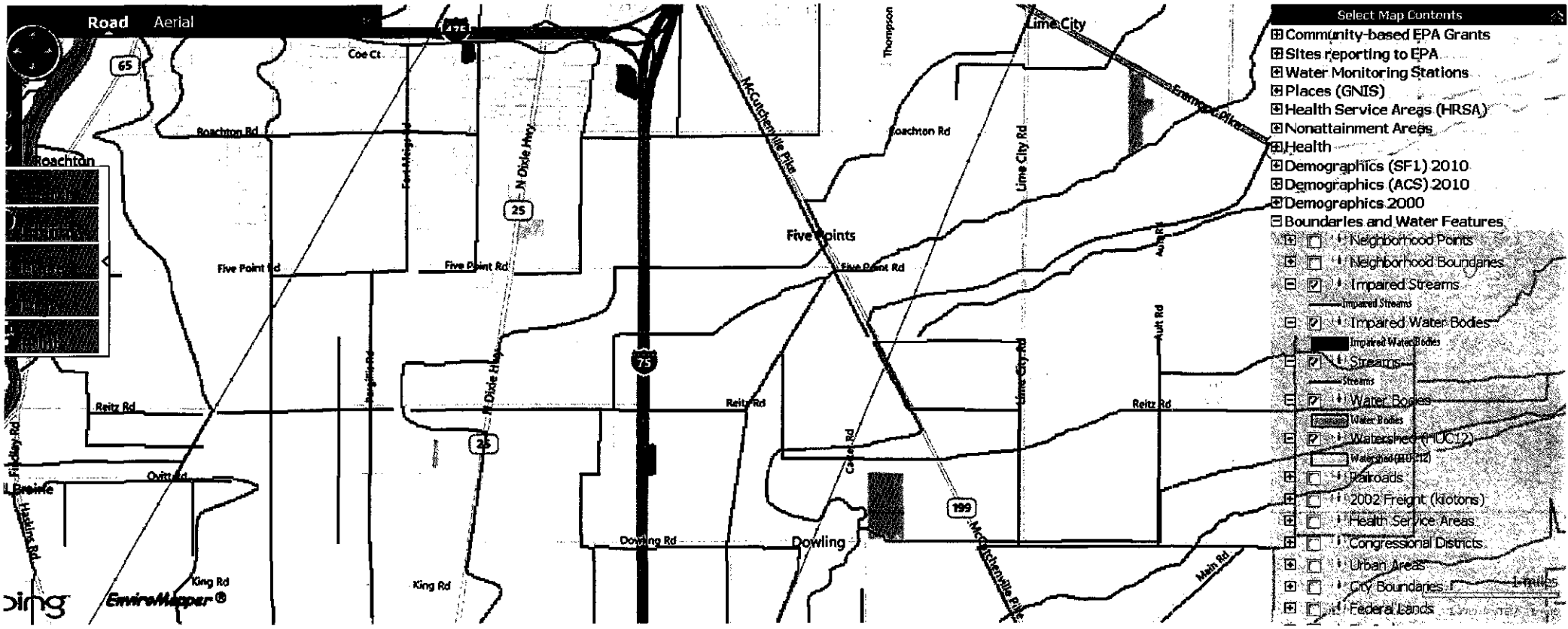

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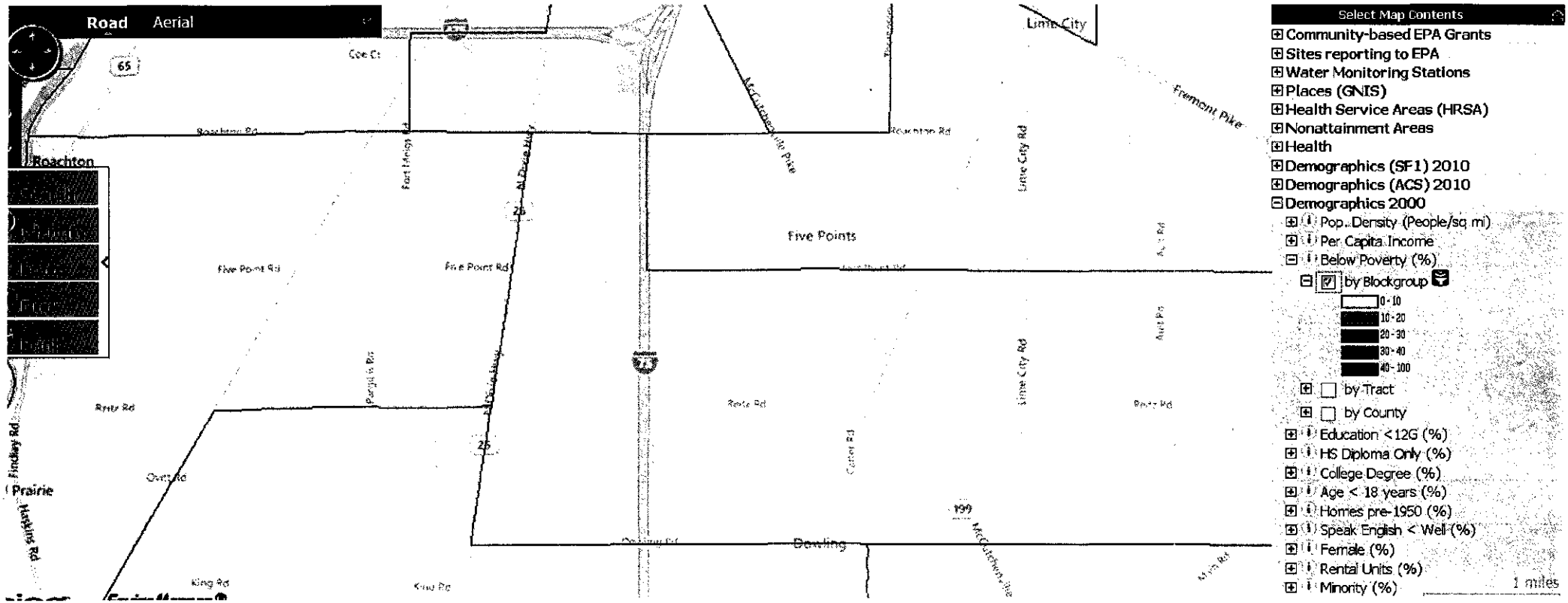

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EJView

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Road Aerial

Roachton

Five Points

Lima City

Fremont Pike

Prairie

Select Map Contents

- Community-based EPA Grants
- Sites reporting to EPA
- Water Monitoring Stations
- Places (GNIS)
- Health Service Areas (HRSA)
- Nonattainment Areas
- Health
- Demographics (SF1) 2010
- Demographics (ACS) 2010
- Demographics 2000
  - Pop. Density (People/sq mi)
  - Per Capita Income
  - Below Poverty (%)
  - Education <12G (%)
  - HS Diploma Only (%)
  - College Degree (%)
  - Age < 18 years (%)
  - Homes pre-1950 (%)
  - Speak English < Well (%)
  - Female (%)
  - Rental Units (%)
  - Minority (%)
    - by Block
    - by Blockgroup
      - 0 - 10
      - 10 - 20
      - 20 - 30
      - 30 - 40
      - 40 - 100
    - by Tract
    - by County

1 miles

EnviroMapper®

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How to use this page?

Road Aerial

Roachton

Roachton Rd

Five Point Rd

Reitz Rd

Ovitt Rd

King Rd

Hull Prairie

Findlay Rd

Hasting Rd

Fort Meigs Rd

Pargilis Rd

N Dixie Hwy

25

75

Five Points

Five Point Rd

McCutchenville Pike

Lime City Rd

Dowling Rd

Dowling

Carter Rd

199

Select Map Contents

- Community-based EPA Grants
- Sites reporting to EPA
  - Hazardous waste (RCRAInfo)
  - Air emissions (AFS)
  - Water dischargers (PCS/ICIS)
  - Toxic releases (TRI)
  - Superfund (CERCLIS)
  - Brownfields (ACRES)
- Water Monitoring Stations
- Places (GNIS)
- Health Service Areas (HRSA)
- Nonattainment Areas
- Health
- Demographics (SF1) 2010
- Demographics (ACS) 2010
- Demographics 2000
- Boundaries and Water Features
- USA Topo Map
- National Land Cover 2006

1 miles

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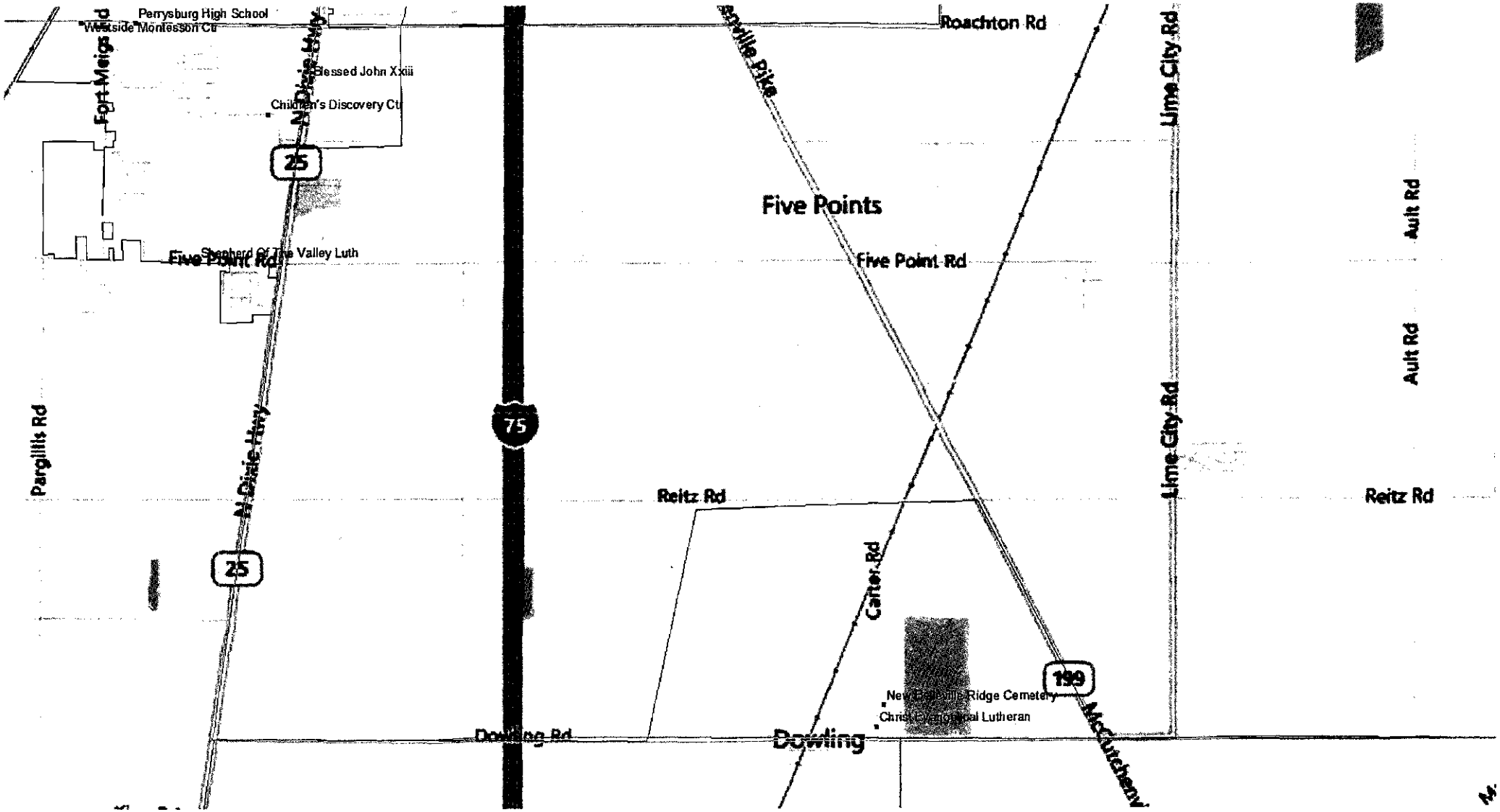
Perrysburg High School
Westside Montessori Ctr
Fort Meigs Rd
Blessed John Xxiii
Children's Discovery Ctr
N Dixie Hwy
25
Shepherd Of The Valley Luth
Five Point Rd
Pargillis Rd
N Dixie Hwy
25
75
Roachton Rd
Bowlile Pike
Five Points
Five Point Rd
Lime City Rd
Lime City Rd
Ault Rd
Ault Rd
Reitz Rd
Reitz Rd
Carter Rd
199
New Bethlehem Ridge Cemetery
Christ Evangelical Lutheran
Dowling Rd
Dowling
McCutcheny

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

July 12, 2012

Burns & McDonnell
Attn: Jennifer Bell
9400 Ward Parkway
Kansas City, MO 64114-3319

Re: Project No. 68043 Wood County Ohio – Commercial Development

Dear Ms. Bell: TAILS: 03E15000-2012-TA-1081

We have received your recent correspondence requesting information about the subject proposal. Due to declining budgets, smaller staffs, and competing priorities, we are unable to respond to all requests for technical assistance at this time. Without a thorough review of the project, it would be impossible to accurately assess the potential effects.

As an alternative, we encourage you to visit the Service's Region 3 Section 7 Technical Assistance website: http://www.fws.gov/midwest/endangered/section7/s7process/index.html. There you will find guidance to assist you in fulfilling the requirements for consultation under Section 7 of the Endangered Species Act, including a step-by-step explanation of the section 7 process, species distribution lists, species life history information and conservation measures, and examples of typical letters.

If you have additional questions or require further assistance with your project proposal, please contact me at the following number (614) 469-6923, x 12. I would be happy to discuss the project in further detail with you and provide additional assistance if necessary. In addition, you can find more information on natural resources in Ohio by visiting our homepage at: http://www.fws.gov/midwest/Ohio/.

Sincerely,

for Mary Knapp, Ph.D.
Field Supervisor

APPENDIX E – PUBLIC INFORMATION MEETING HANDOUTS

Ensuring Service Reliability
for FirstEnergy Customers

Proposed Transmission Line Extensions and Substation in Northwest Ohio

Energizing the Future

FirstEnergy's "Energizing the Future" initiative is a comprehensive transmission construction program designed to improve service reliability as power plants in the region are deactivated due to the high cost of complying with new U.S. EPA standards.

These "Energizing the Future" projects include constructing new 138 and 345 kilovolt (kV) transmission lines, new substations, and converting certain FirstEnergy northern Ohio generating units to synchronous condensers, devices that regulate voltage. FirstEnergy expects to invest approximately $500 million to $700 million over the next five years on these projects.

This initiative is based on recommendations by PJM Interconnection, the regional transmission organization that coordinates the movement of electricity and oversees reliability in all or part of 13 states and the District of Columbia.

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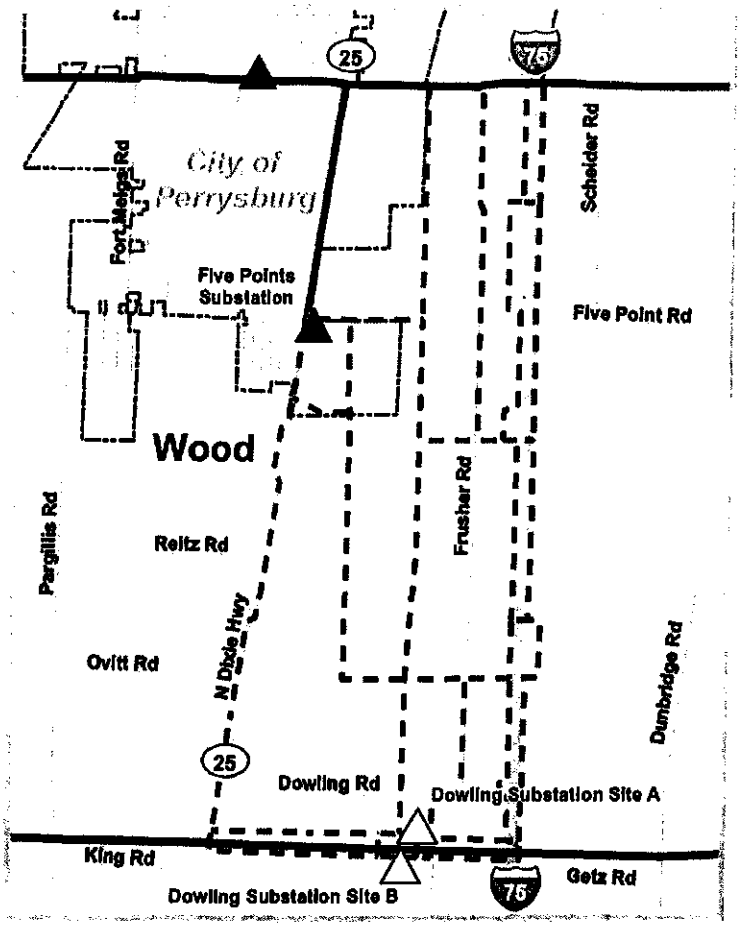

Project Location:
Wood County, Ohio

Legend

- Potential Substation Site
- Existing Substation
- Potential New 138kV Route
- Existing Line
- Rebuild of Existing Line
- Local Road
- State Highway
- Interstate
- Municipality

Various routes and substation sites are depicted; however, only one of each will be chosen.

FirstEnergy

Proposed Transmission Line Extensions and New Substation in Wood County, Ohio

This proposed project involves extending existing transmission lines and installing a new transmission substation to reinforce an existing 138 kV transmission line located in Henry, Lucas and Wood Counties, Ohio.

Transmission Line Extensions: The project will extend an existing 345 kV transmission line and an existing 138 kV transmission line approximately 150 feet and connect to the planned, new substation. The new substation will be named the Dowling Substation.

A third existing 138 kV transmission line will be extended approximately three miles south, to the new Dowling Substation. There is an opportunity to utilize existing transmission line right of way to minimize impact, however, some new right of way will be needed. Potential routes for this extended transmission line are located in Perrysburg and Middleton Townships and the City of Perrysburg.

Substation: The new Dowling Substation to be built in Middleton Township, will transform voltage from 345 kV to 138 kV. Property for the proposed substation has been purchased for this project.

Various routes for the transmission line extensions and sites for the substation are being evaluated. The goal is to locate the new substation as close as possible to existing lines to minimize impact to property owners and the environment.

FirstEnergy expects to invest more than $23 million for the project.

Public Involvement and the Process: All transmission projects encompass a multi-step process that includes significant public input.

- **Evaluation:** FirstEnergy's siting consultant began route studies for the line and sites for the substation in 2012. Potential routes and sites are being further studied to minimize the impact to the environment and property owners.
- **Informational Meetings:** Potential routes for the extended transmission line and sites for the substation will be discussed at a public information meeting to be held in the area that may be affected by the project. Members of the public and local officials will be invited to provide input for consideration. These comments will be used to help determine the proposed routes and sites that are ultimately proposed and developed.
- **OPSB Submittal:** As part of the siting process in Ohio, American Transmission Systems, Incorporated (ATSI), a subsidiary of FirstEnergy Corp., will submit a Letter of Notification for the project with the Ohio Power Siting Board (OPSB). This submittal is expected to occur in the first half of 2013. The OPSB's final decision on the project is anticipated to occur within three to six months after the submittal.
- **Easement/Property Acquisition:** Once the proposed route(s) are identified, discussions to acquire any new rights of way, if needed, may occur. After the OPSB's approval, acquisition of any new rights of way will be completed.
- **Construction:** Construction of the extended transmission lines and substation will take place once necessary approvals are received and occur simultaneously to meet a June 1, 2015 in-service date. Construction of both projects will begin in early 2014.

PROJECT TIMELINE	
Second half 2012	Route Study, Substation Site Selection
Dec. 12 - Jan. 13	Proposed Routes and Substation Sites Developed
Jan. 29, 2013	Public Informational Meetings – Input Considered
First half 2013	Letter of Notification filed with Ohio Power Siting Board (OPSB); Review Period
Late 2013	Permits Received
First quarter 2014	Construction Begins
June 1, 2015	PJM Requested In-Service Date

For more information about FirstEnergy's new transmission projects, visit **www.firstenergycorp.com/transmission**, call **1-800-589-2837** or email **transmissionprojects@firstenergycorp.com.**

Produced by FirstEnergy's Communications Department

FirstEnergy

Lemoyne-Midway 345 kV, Chrysler-Levis Park 138 kV and Lemoyne-Midway 138 kV Transmission Line Extensions to Dowling Substation Project

FirstEnergy®

Today's Date: _____

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Email _____

Comments: _____

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Name of FirstEnergy Representative Taking Inquiry (if applicable) _____

OHIO POWER SITING BOARD APPLICATION CONTENTS

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Project Summary and Facility Overview

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Review Of Need: *Reason for project, alternatives*

. . .

Site and Route Alternatives: *Routing study and fully developed preferred and alternate routes*

. . .

Technical: *Voltage, construction methods, etc.*

. . .

Financial: *Land, construction, facility costs, etc.*

. . .

Socio-Economic: *Impact on land use, residences, etc.*

. . .

Ecological: *Impact on woodlands, wetlands, streams, etc.*

OHIO POWER SITING BOARD APPLICATION PROCESS

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Public Information Meeting

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File Draft Application

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Initial Board Review (within 60 days)

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File Certified Application

. . .

Staff Technical Review (45-75 days)

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Staff Report Issued

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Public & Adjudicatory Hearing

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Administrative Law Judge Report

. . .

Board Decision