
EXHIBIT 1 – PUC CROSS-REFERENCE DOCUMENT

EXHIBIT 1 PUC REGULATION CROSS-REFERENCE MATRIX

Pennsylvania Code Section*	PUC Regulation Requirement	Location in Application	Associated Tables/Figures
57.72 (c)	Application shall contain		
57.72 (c)(1)	The name of the applicant and the address of its principal business office.	<ul style="list-style-type: none"> Certification Application 	
57.72 (c)(2)	The name, title and business address of the attorney of the applicant and the person authorized to receive notice and communications with respect to the application if other than the attorney of the applicant.	<ul style="list-style-type: none"> Certification Application 	
57.72 (c)(3)	A general description – not a legal or metes and bounds description – of the proposed route of the HV line, to include the number of route miles, the rights-of-way width and the location of the proposed HV line within each city, borough, town, and township traversed.	<ul style="list-style-type: none"> Certification Application 	
57.72 (c)(4)	A names and addresses of known persons, corporations, and other entities of record owning property within the proposed rights-of-way, together with an indication of HV line rights-of-way acquired by the applicant.	<ul style="list-style-type: none"> Exhibit 7 	
57.72 (c)(5)	A general statement of the need of the proposed HV line in meeting identified present & future demands for service, how the proposed line will meet that need, and engineering justifications	<ul style="list-style-type: none"> Certification Application 	
57.72 (c)(6)	A statement of the safety considerations which will be incorporated into the design, construction, and maintenance of the proposed HV line.	<ul style="list-style-type: none"> Certification Application 	
57.72 (c)(7)	A description of the studies which had been made as to the projected environmental impact of the HV line as proposed and of the efforts which have been and will be made to minimize the impact of the HV line upon the environment and upon scenic and historic areas.	<ul style="list-style-type: none"> Exhibit 8 	<ul style="list-style-type: none"> Table 5-2

Pennsylvania Code Section*	PUC Regulation Requirement	Location in Application	Associated Tables/Figures
57.72 (c)(8)	A description of the efforts of the applicant to locate and identify archeologic, geologic, historic, scenic, or wilderness areas within 2 miles of the proposed right-of-way and the location and identity of the areas	<ul style="list-style-type: none"> Exhibit 8 	
57.72 (c)(9)	The location and identity of airports within 2 miles of the nearest limit of the right-of-way of the proposed HV line.	<ul style="list-style-type: none"> Exhibit 8 	<ul style="list-style-type: none"> Figure 5-3
57.72 (c)(10)	A general description of reasonable alternative routes to the proposed HV line, including a description of the corridor planning methodology, a comparison of the merits and detriments of each route, and a statement of the reasons for selecting the proposed HV line route.	<ul style="list-style-type: none"> Exhibit 8 	
57.72 (c)(11)	A list of the local, state, and federal governmental agencies which have requirements that shall be met in connection with the construction or maintenance of the proposed HV line and a list of documents which have been or are required to be filed with those agencies.	<ul style="list-style-type: none"> Exhibit 9 	
57.72 c(12)	The estimated cost of construction of the proposed HV line and the projected date for completion.	<ul style="list-style-type: none"> Exhibit 8 	<ul style="list-style-type: none"> Table 5-2
57.72 c(13)(i)	A depiction of the proposed route on aerial photographs and topographic maps of suitable detail.	<ul style="list-style-type: none"> Exhibit 2 	
57.72 c(13)(ii)	A description of the proposed HV line, including the length of the line, the design voltage, the size, number, and materials of conductors, the design of the supporting structures and their height, configuration and materials of construction, the average distance between supporting structures, the number of supporting structures, the line to structure clearances and the minimum conductor to ground clearance at mid-span under normal load and average weather conditions and under predicted extreme load and weather conditions.	<ul style="list-style-type: none"> Certification Application Exhibit 10A-G 	

Pennsylvania Code Section*	PUC Regulation Requirement	Location in Application	Associated Tables/Figures
57.72 c(13)(iii)	A simple drawing of a cross section of the proposed rights-of-way of the HV line and any adjoining rights-of-way showing the placement of the supporting structures at typical locations, with the height and width of the structures, the width of the right-of-way and the lateral distance between the conductors and the edge of the right-of-way indicated.	<ul style="list-style-type: none"> Exhibit 11A-C 	
57.72 c(13)(iv)	A system map which shows in suitable detail the location and voltage of existing transmission lines and substations of the applicant and the location and voltage of the proposed HV line and associated substations	<ul style="list-style-type: none"> Exhibit 5A-B 	
57.72 (c)(14)	A statement identifying litigation concluded or in progress which concerns property or matter relating to the proposed HV line, right-of-way route, or environmental matters.	<ul style="list-style-type: none"> Certification Application 	
Chapter 69	Interim guidelines require		
69.3102 (a)(1)	A Code of Conduct/Internal Practices governing the manner in which public utility employees or their agents interact with landowners along proposed rights of way.	<ul style="list-style-type: none"> Exhibit 19 	
69.3102 (a)(2)	Copies of information provided to landowners by the public utility of any publicly disseminated notices advising landowners to contact the Commission or OCA in the event of improper land agent practices.	<ul style="list-style-type: none"> Exhibit 12 Exhibit 13 Exhibit 14 	
69.3102 (a)(3)	Copies of all notices sent pursuant to §57.91 (relating to disclosure of eminent domain power of electric utilities).	<ul style="list-style-type: none"> Exhibit 12 	
69.3102 (b)	Applicants for transmission siting authority should serve a copy of the Code of Conduct on all landowners along the proposed route whose property is to be purchased, subject to easement rights or borders the transmission corridor. The Code of Conduct should also be available on the applicant's website.	<ul style="list-style-type: none"> Exhibit 12 Exhibit 19 	

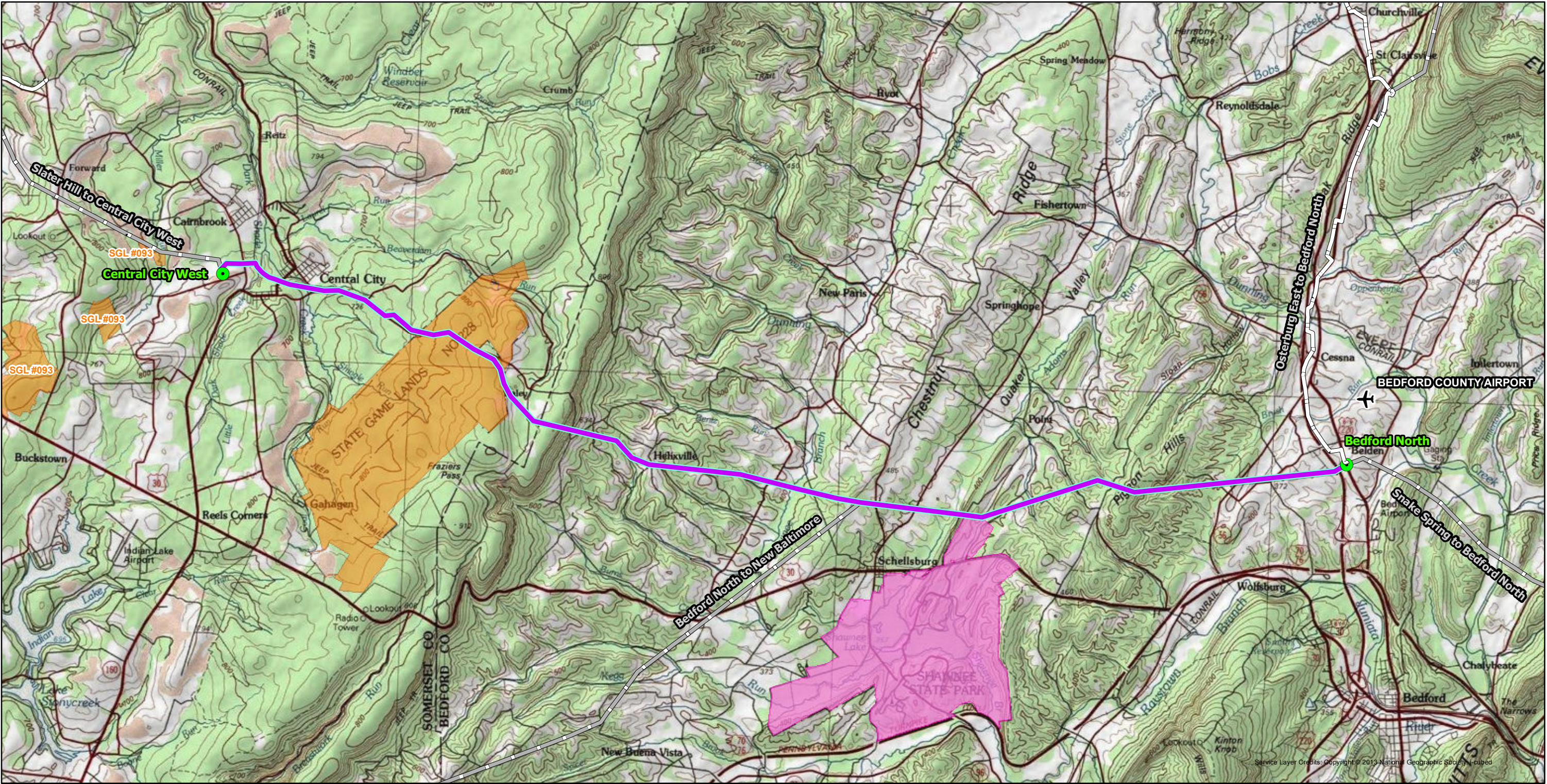
Pennsylvania Code Section*	PUC Regulation Requirement	Location in Application	Associated Tables/Figures
69.3102 (c)	Applicants for transmission siting authority should provide prior notice to the Commission's Office of Communications of informational presentations to community groups by the public utility scheduled after the filing of the transmission siting application so that the Commission, OCA and other interested parties can attend meetings or obtain copies of information being disseminated at the presentations.	N/A - At this time, no informal presentations are scheduled for after the CPCN is filed.	
69.3103	Eminent domain filing requirements	<ul style="list-style-type: none"> Separate Application 	
69.3104	Exemption from municipal zoning standards	<ul style="list-style-type: none"> N/A - At this time. 	
69.3105 (1)	Transmission applicants should utilize a combination of transmission route evaluation procedures including high-level GIS data, traditional mapping (including US Geological Survey data and compilation), aerial maps and analysis of physical site-specific constraints raised by affected landowners.	<ul style="list-style-type: none"> Exhibit 8 	
69.3105 (2)	Transmission applicants should summarize the status of property acquisitions (including fee simple acquisitions and rights of way/easements) as part of the application. The applicant should provide the current status and continuing updates on property acquisition litigation or settlements during the course of the siting proceeding.	<ul style="list-style-type: none"> Exhibit 7 	
69.3105 (3)(i)	In providing information regarding the reasonable alternative routes the utility actively considered in its final phase of the route selection process, and the relative merits of each, in accordance with §57.72(c)(10), the applicant should include the following information: The environmental, historical, cultural and aesthetic considerations of each route.	<ul style="list-style-type: none"> Certification Application Exhibit 8 	<ul style="list-style-type: none"> Table 5-2

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69.3105 (3)(ii)	The proximity of these alternative routes to residential and non-residential structures.	<ul style="list-style-type: none"> Exhibit 8 	<ul style="list-style-type: none"> Table 5-2
69.3105 (3)(iii)	The applicant's consideration of relevant existing rights of way.	<ul style="list-style-type: none"> Exhibit 8 	
69.3105 (3)(iv)	The comparative construction costs associated with each route.	<ul style="list-style-type: none"> Exhibit 8 	<ul style="list-style-type: none"> Table 5-2
69.3105 (4)	With reference to the proposed route, applicants should provide a summary of efforts made to contact and solicit assistance from local governments and non-governmental organizations regarding areas encompassed within the requirement of §57.72(c)(8).	<ul style="list-style-type: none"> Exhibit 8 	
69.3106 (1)	A matrix or list showing all expected federal, state and local government regulatory permitting or licensing approvals that may be required for the project at the time the application is filed, the issuing agency, approximate timeline for approval and current status. The applicant should provide an update on the status of the regulatory permitting/licensing approvals as the case progresses.	<ul style="list-style-type: none"> Exhibit 9 	
69.3107(a)(1)	Applicants for transmission line siting authority should provide a detailed vegetation management plan that includes the following components: A general description of the utility's vegetation management plan.	<ul style="list-style-type: none"> Exhibit 20 	
69.3107(a)(2)	Factors that dictate when each method, including aerial spraying, is utilized.	<ul style="list-style-type: none"> Exhibit 20 	
69.3107(a)(3)	Vegetation management practices near aquatic and other sensitive locations.	<ul style="list-style-type: none"> Exhibit 20 	
69.3107(a)(4)	Notice procedures to affected landowners regarding vegetation management practices.	<ul style="list-style-type: none"> Exhibit 12 Exhibit 20 	
69.3107(a)(5)	Provision of a copy of a landowner maintenance agreement that describes the duties and responsibilities of landowners and the utility for vegetation management to the extent utilized.	<ul style="list-style-type: none"> Exhibit 20 	

Pennsylvania Code Section*	PUC Regulation Requirement	Location in Application	Associated Tables/Figures
69.3107(b)(1)	Transmission siting applications should include the following: A description of the EMF mitigation procedures that the utility proposes to utilize along the transmission line route. This description should include a statement of policy approach for evaluating design and siting alternatives and a description of the proposed measures for mitigating EMF impacts.	<ul style="list-style-type: none"> Certification Application 	

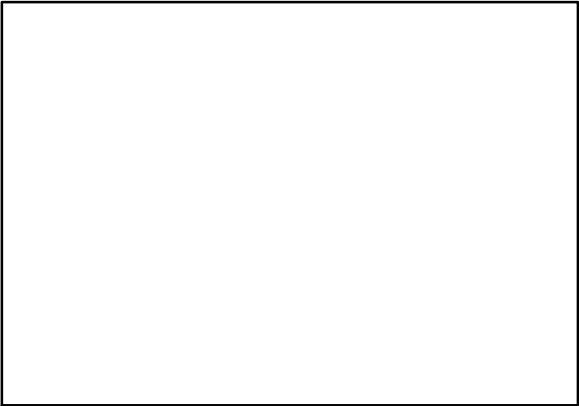
*Pennsylvania Code 57.71 – 57.75 relates to “Commission Review of Siting and Construction of Electric Transmission Lines”. Pennsylvania Code 69.3101 – 69.3107 relates to “General Orders, Policy Statements, and Guidelines on Fixed Utilities”. Sections described within EXHIBIT 1 pertain specifically to those items required to be included for an application filing.

EXHIBIT 2 – PROJECT LOCATION MAP



Legend

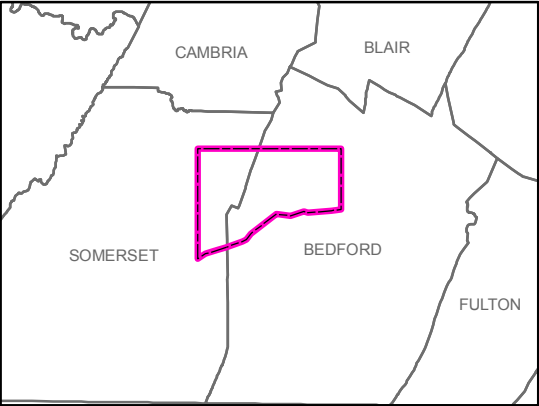
- Substation
- Project Study Area (See Location Map)
- Proposed Route
- Airport
- State Park
- State Game Land
- Existing Transmission Lines
 - 69 kV
 - 115kV



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Existing Transmission Network (PowerMap)
Stream Centerline (NHD & Ch. 93 Designations)
State Forest Land & State Parks (PA DCNR 2015)
State Game Lands (PGC 2015), Airports (PennDOT),
World Imagery Basemap (ESRI)

0 3,750 7,500 15,000
Feet
1 inch = 7,500 feet



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Exhibit 2: Project Location Map

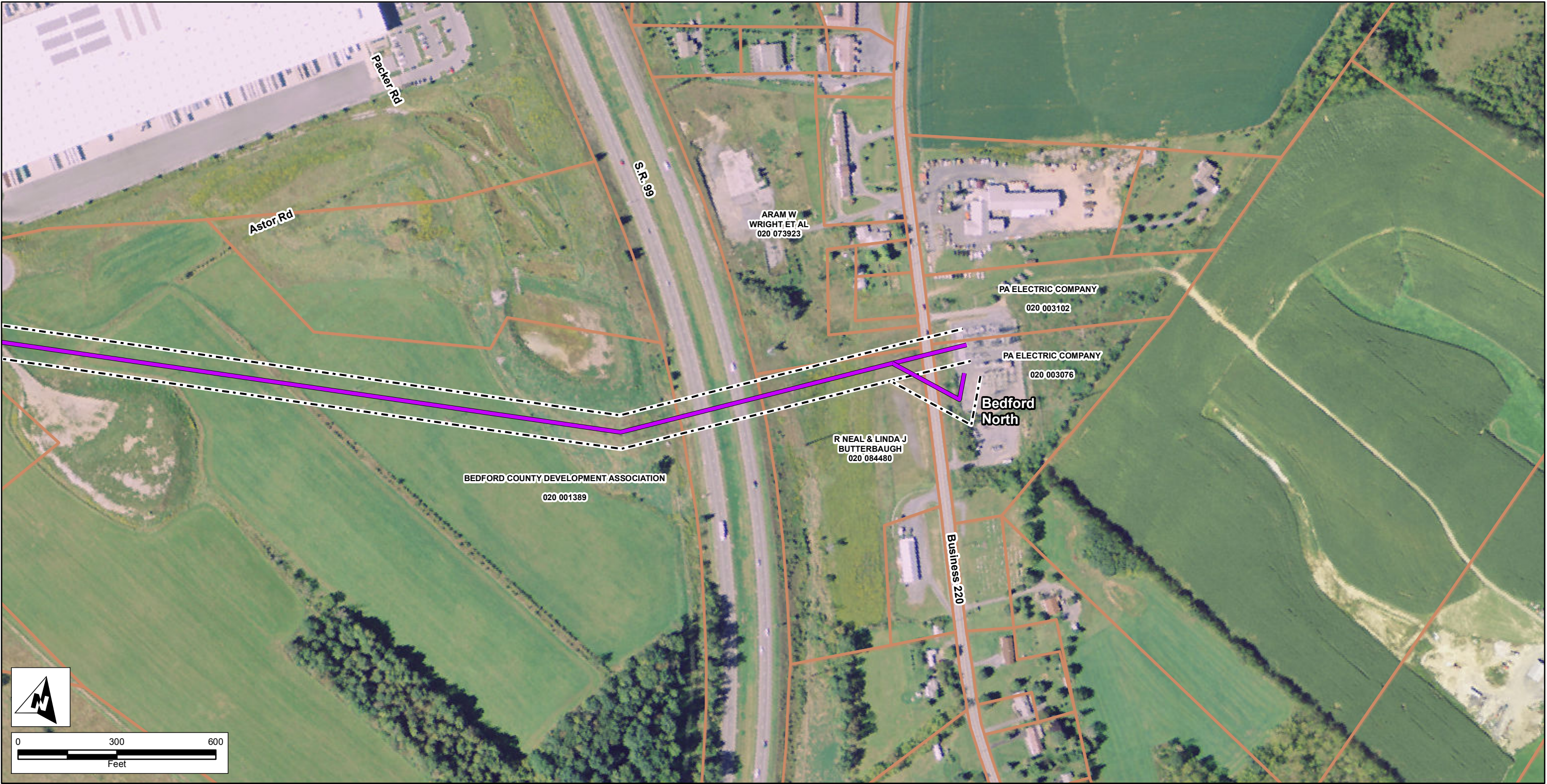
**Bedford North-Central City West 115 kV
Transmission Line Project**

Bedford and Somerset Counties,
Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 8/19/2016

EXHIBIT 3 – PROPERTY OWNERSHIP MAP



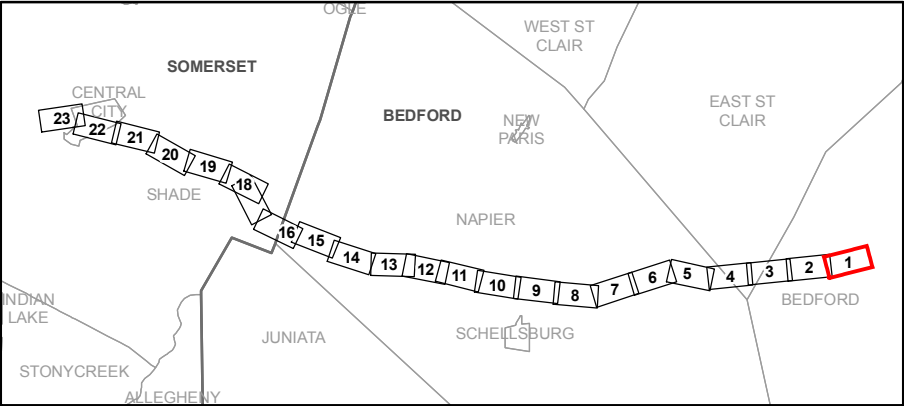
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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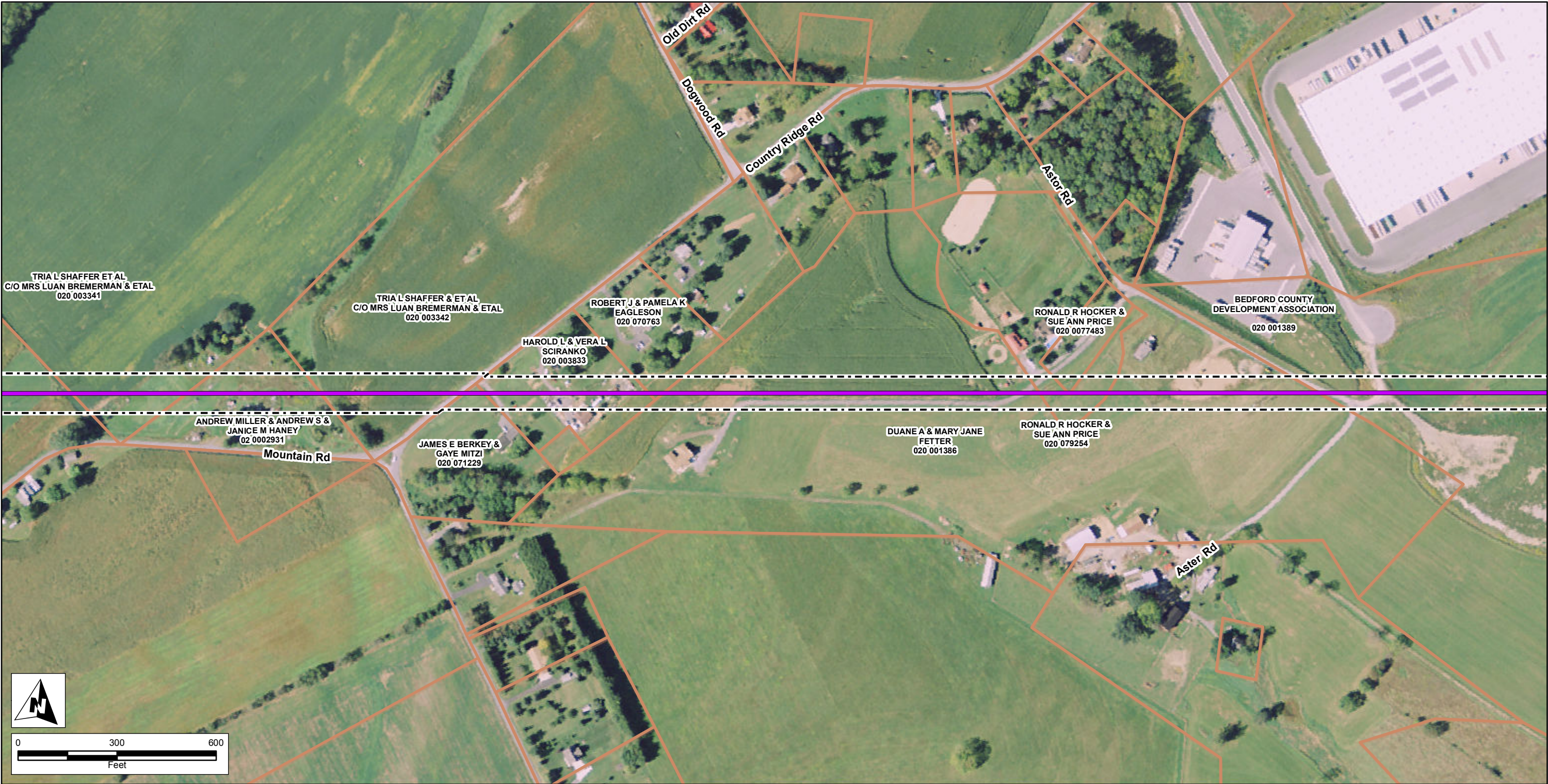


**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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Prepared For: FirstEnergy Corporation, Akron, Ohio

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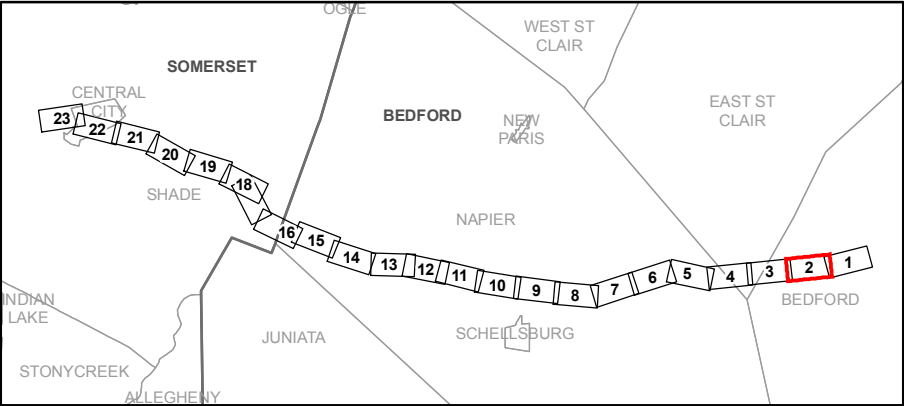
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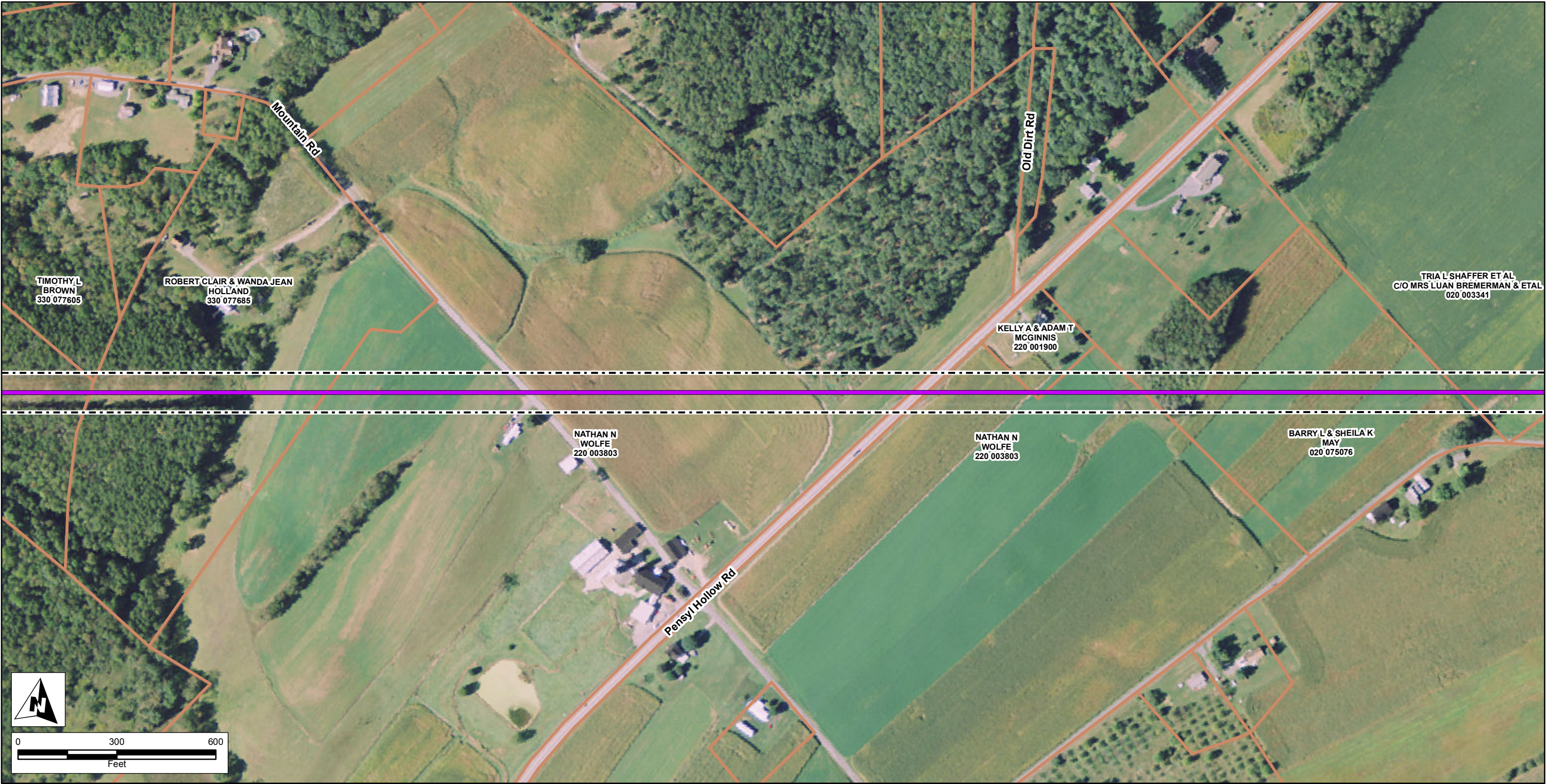


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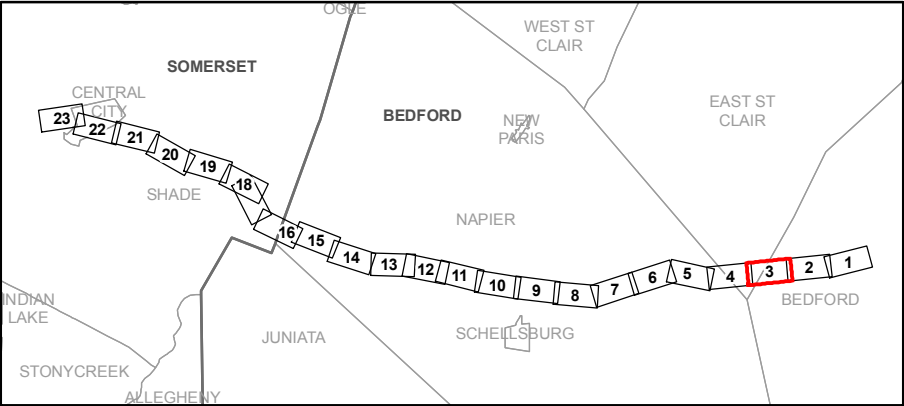
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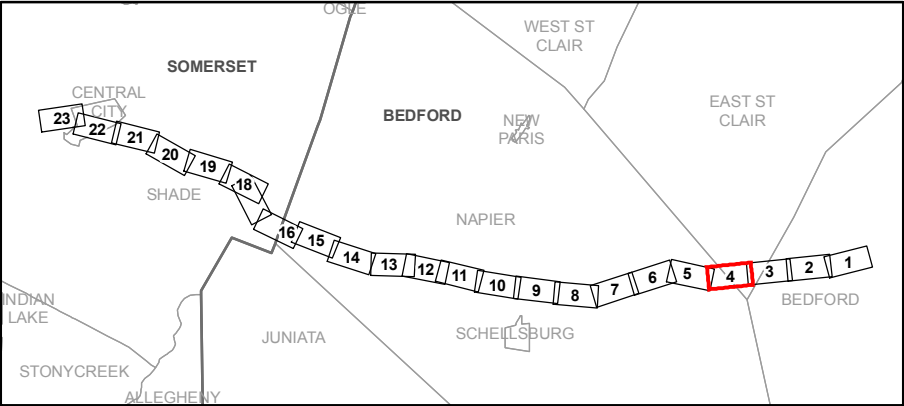
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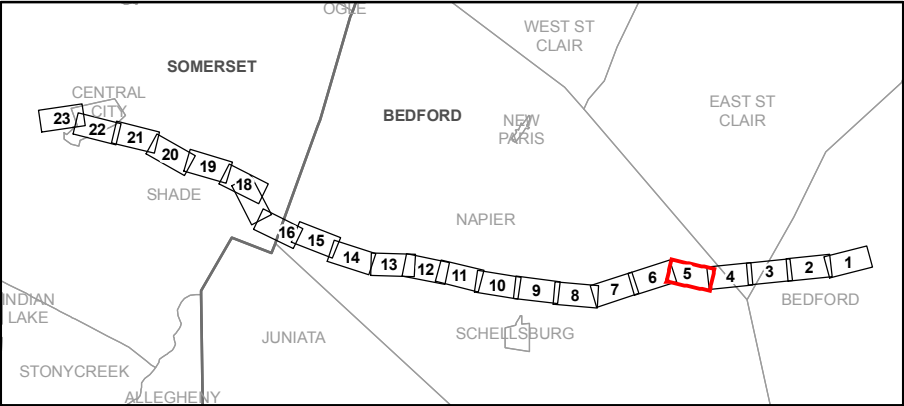
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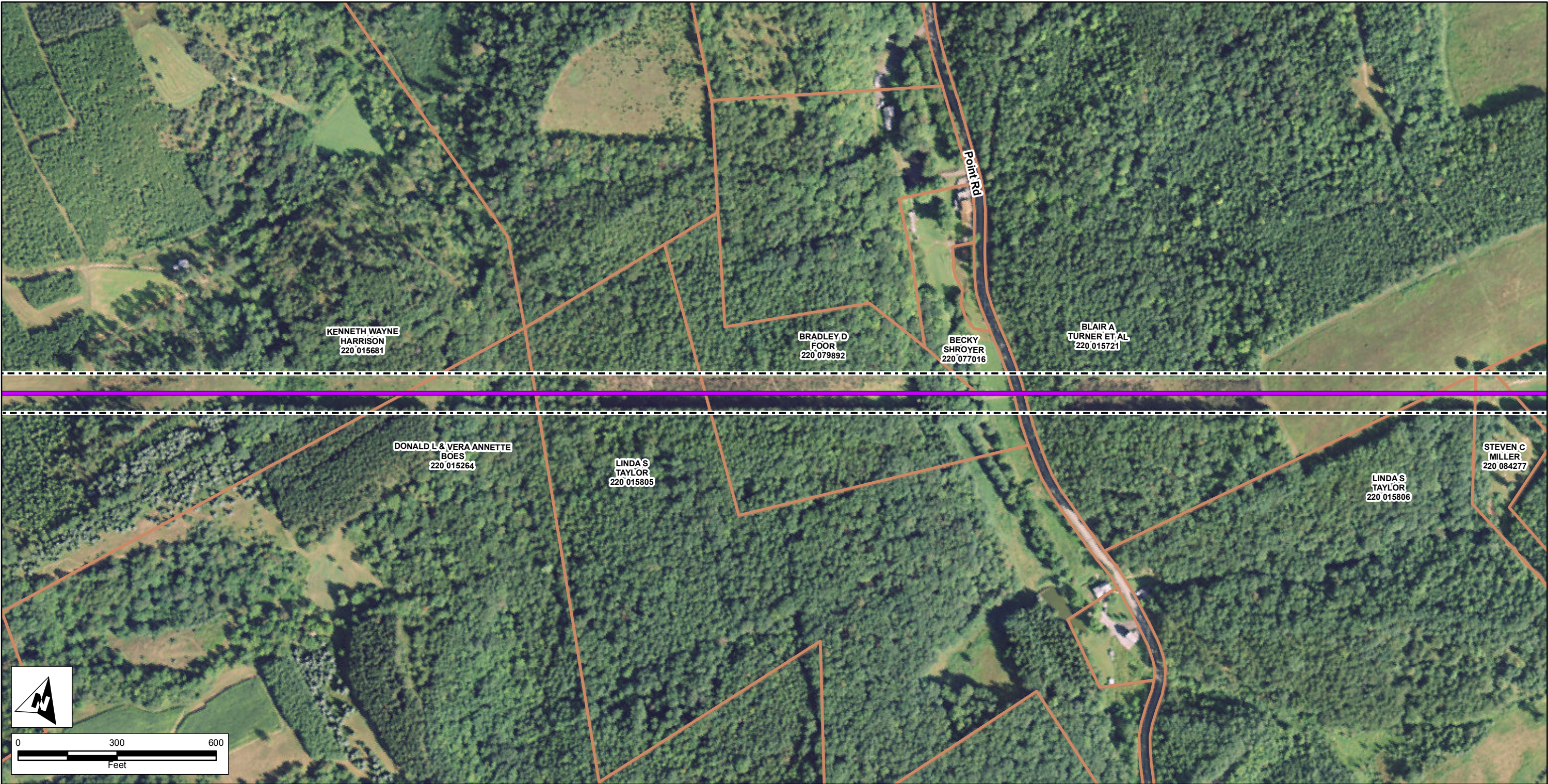
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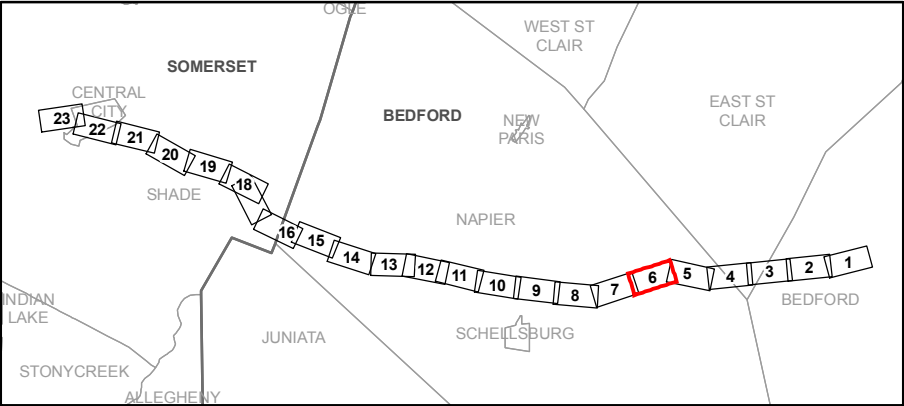
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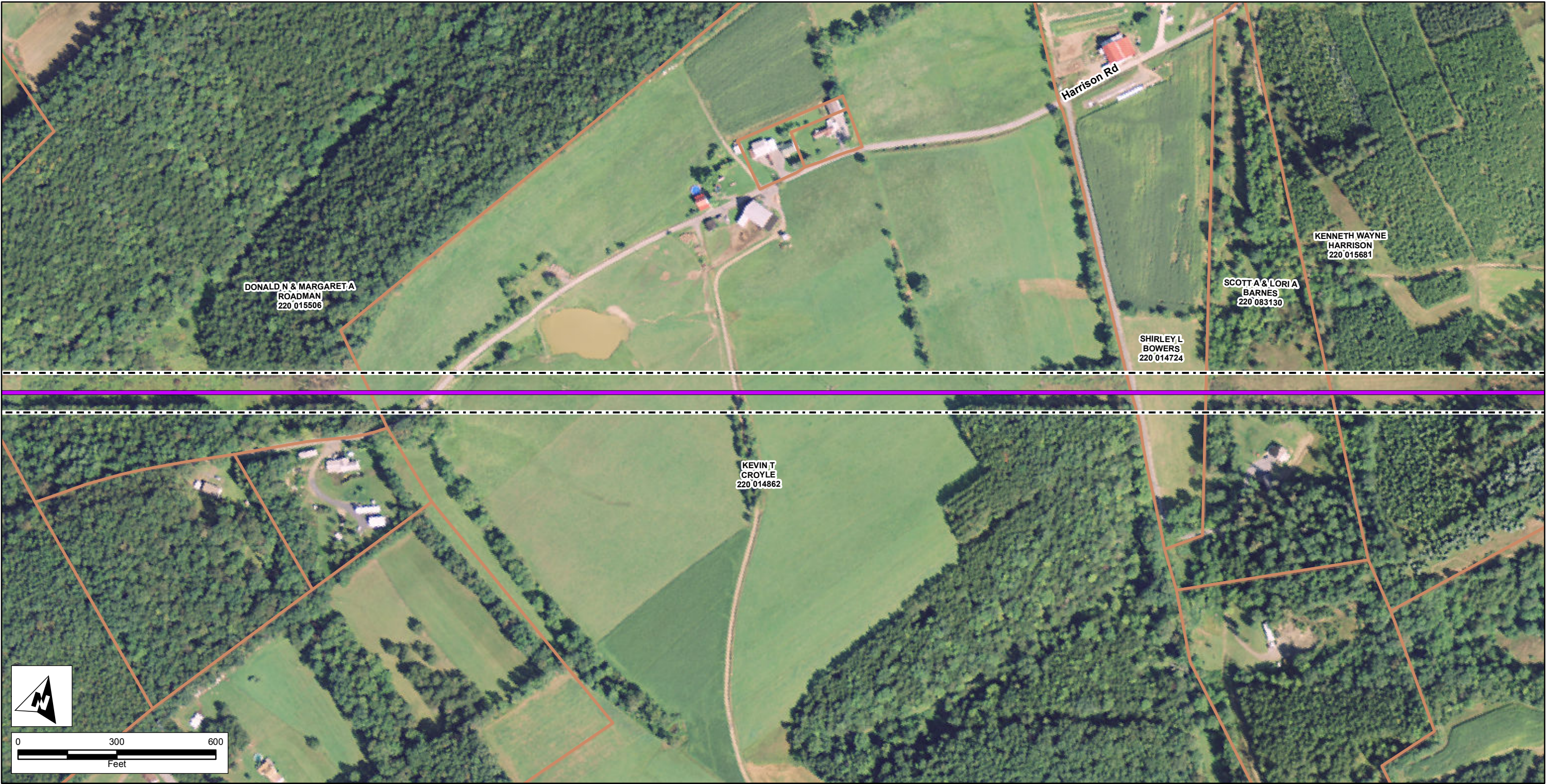


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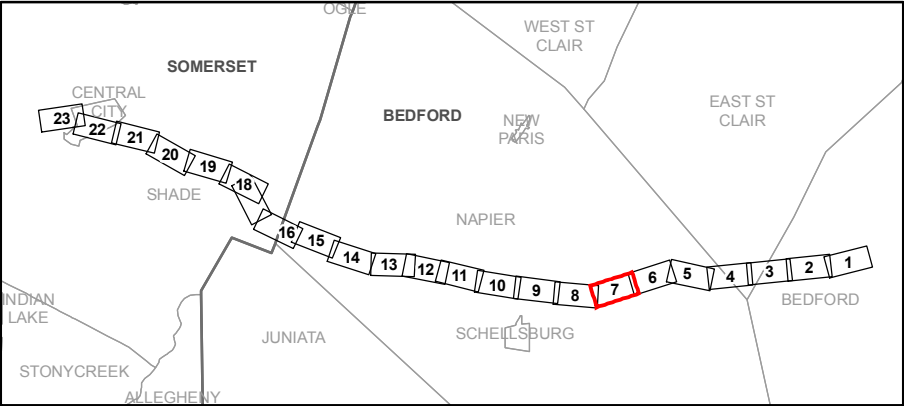
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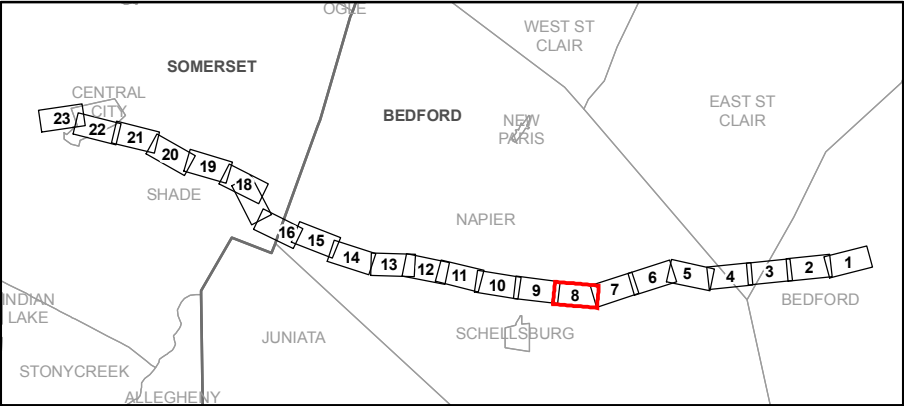
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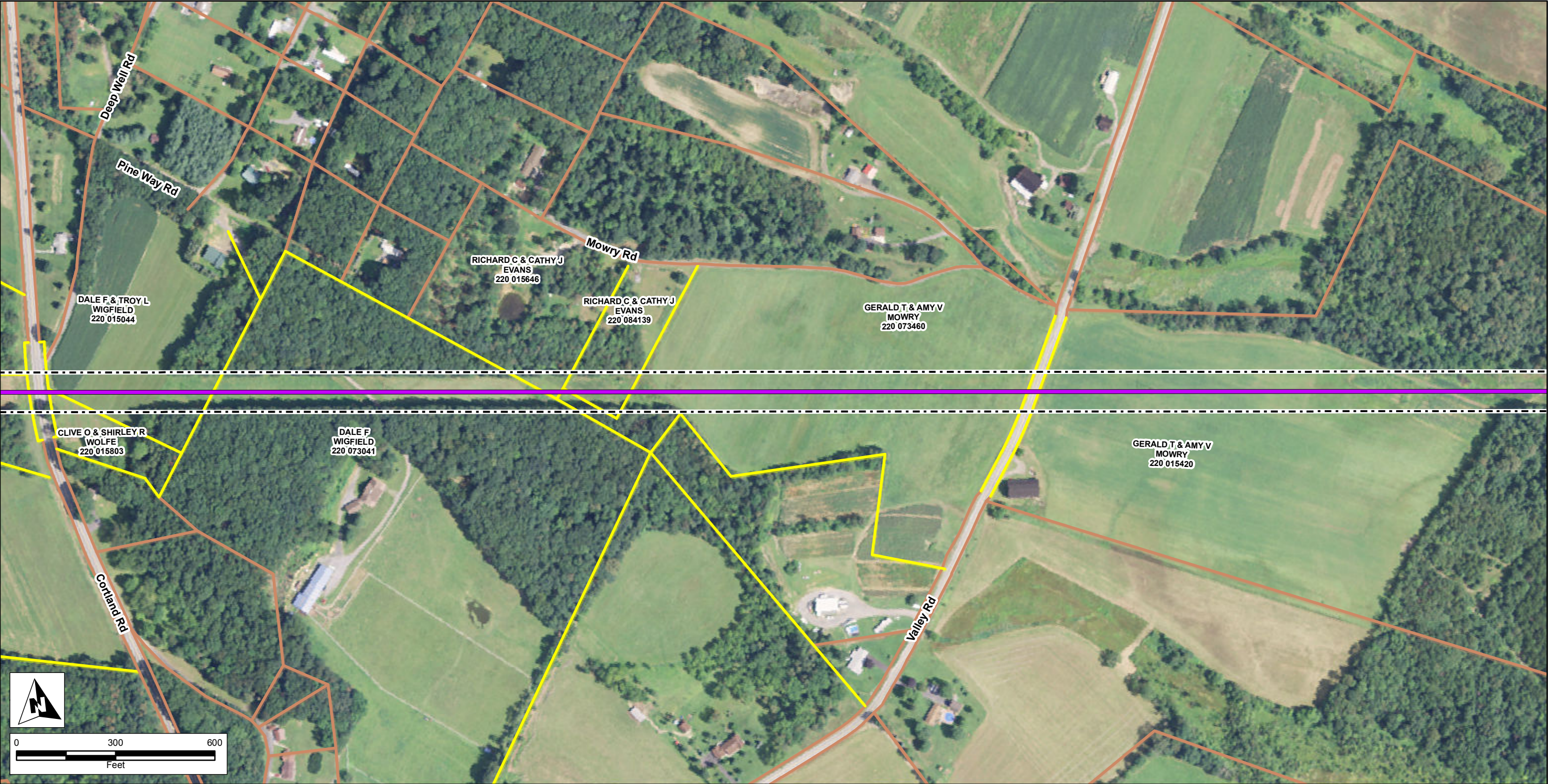


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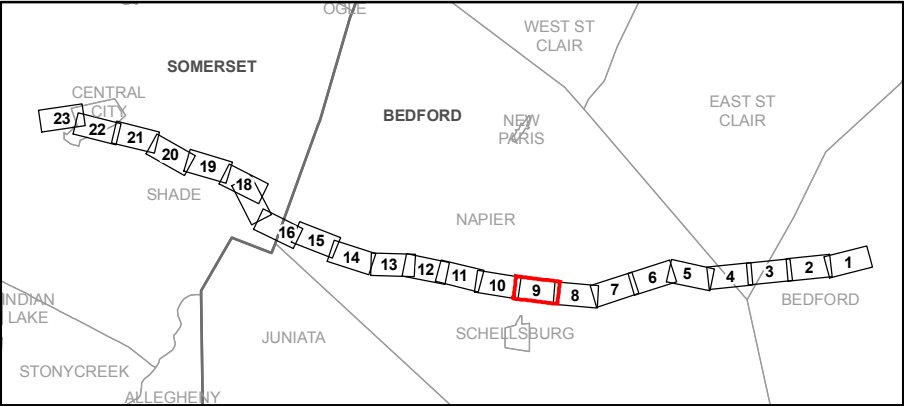
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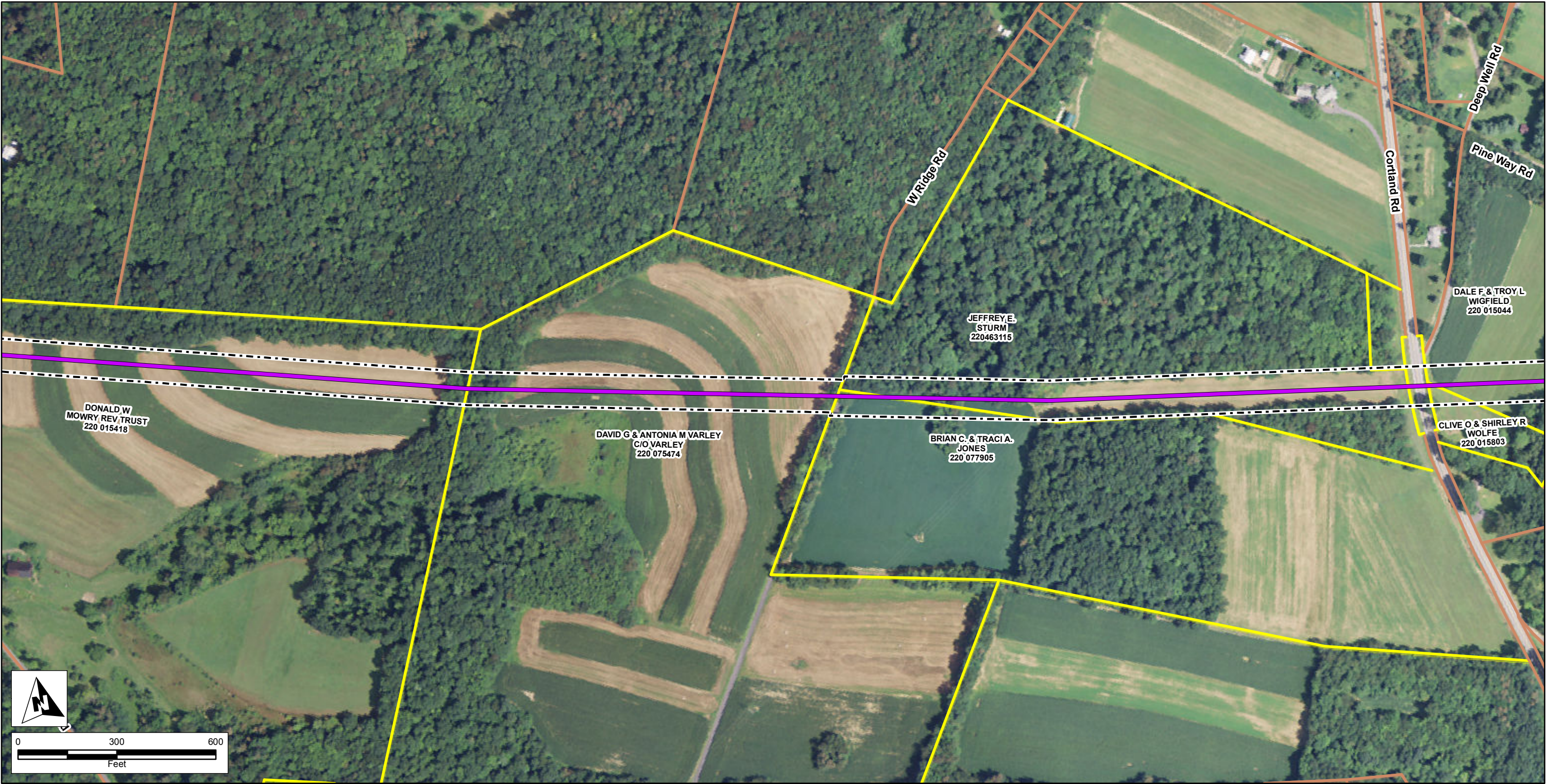


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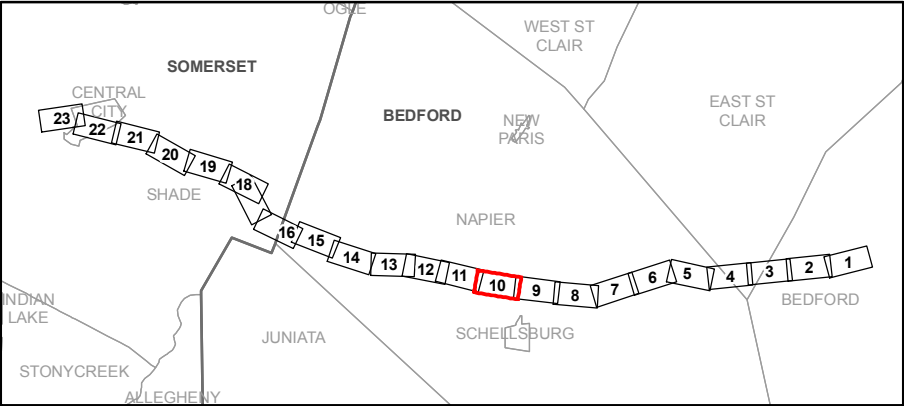
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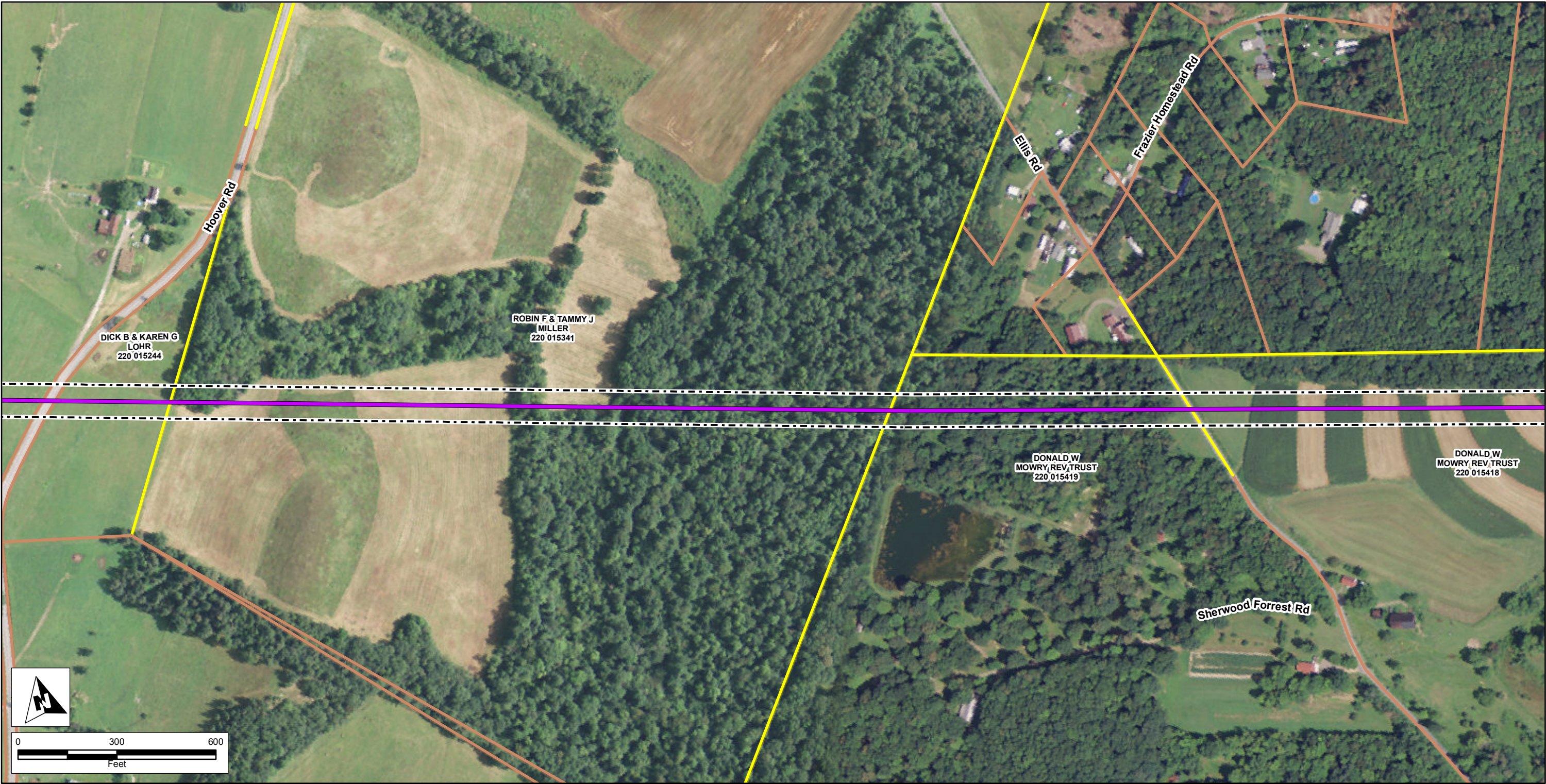
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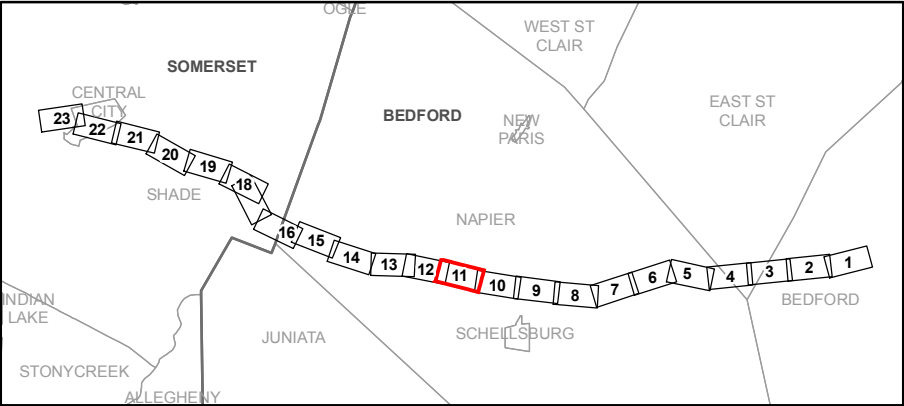
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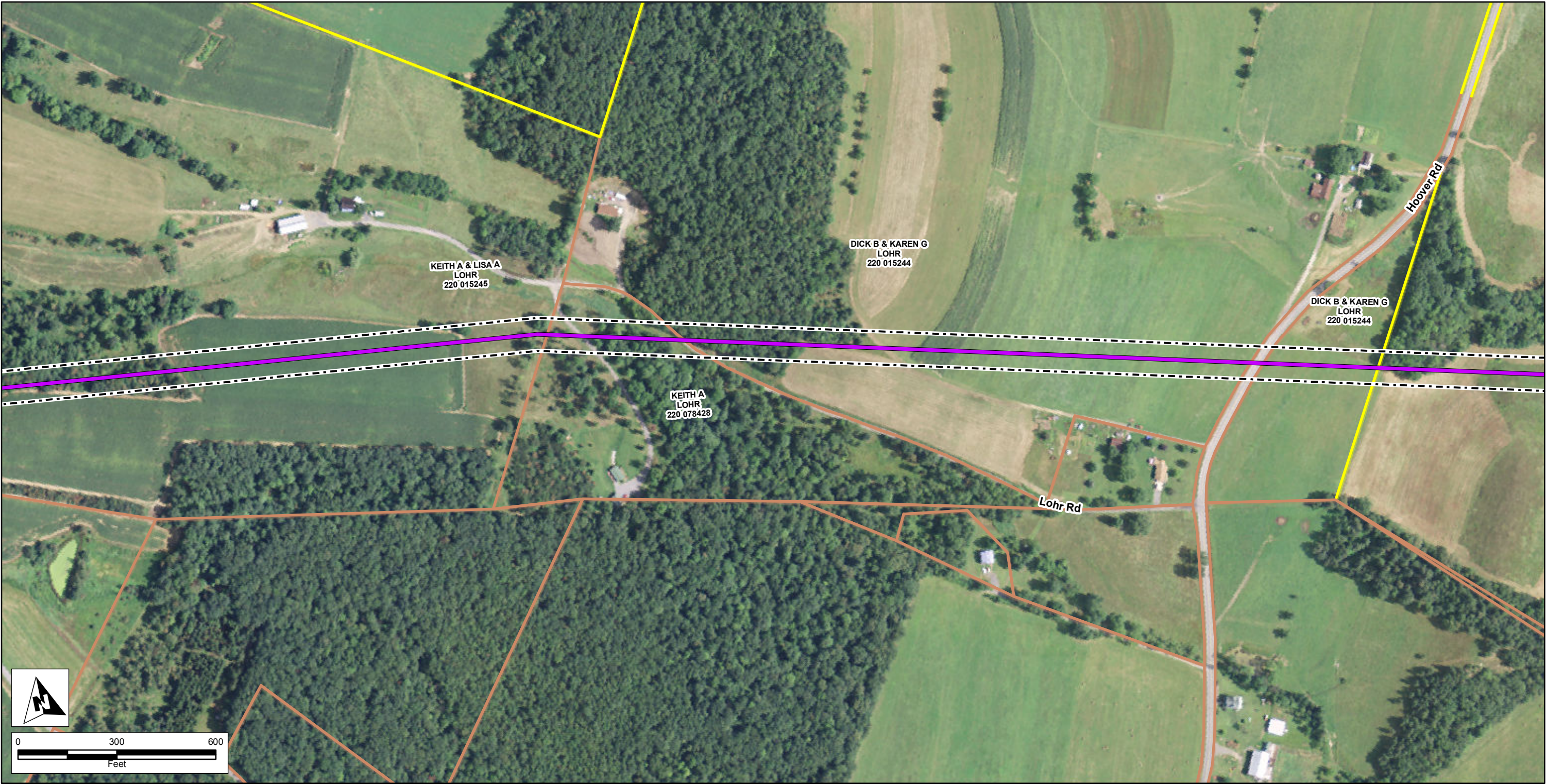
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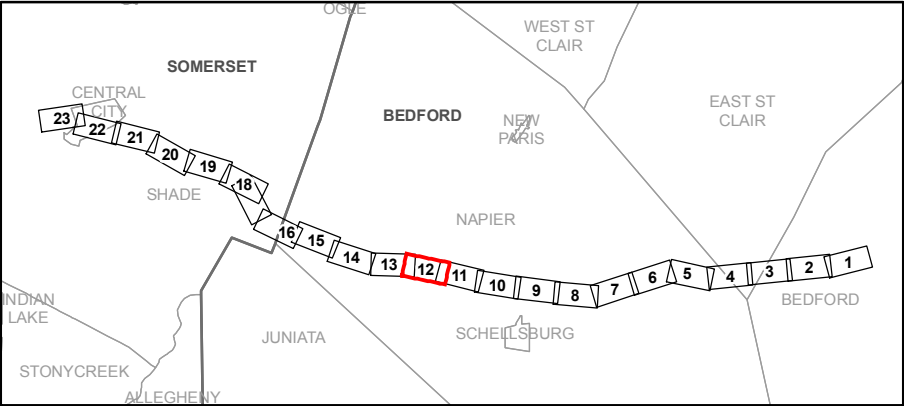
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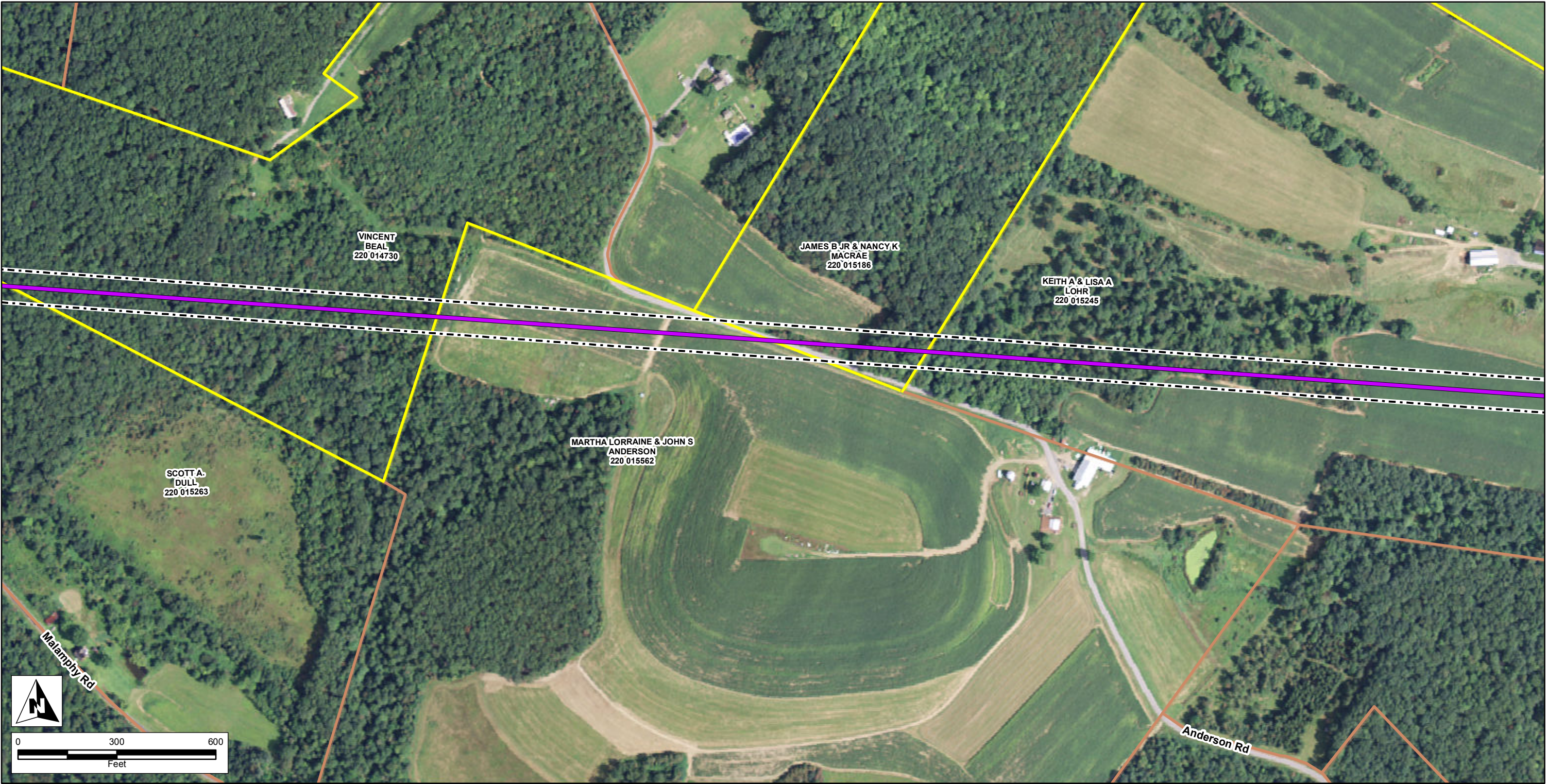
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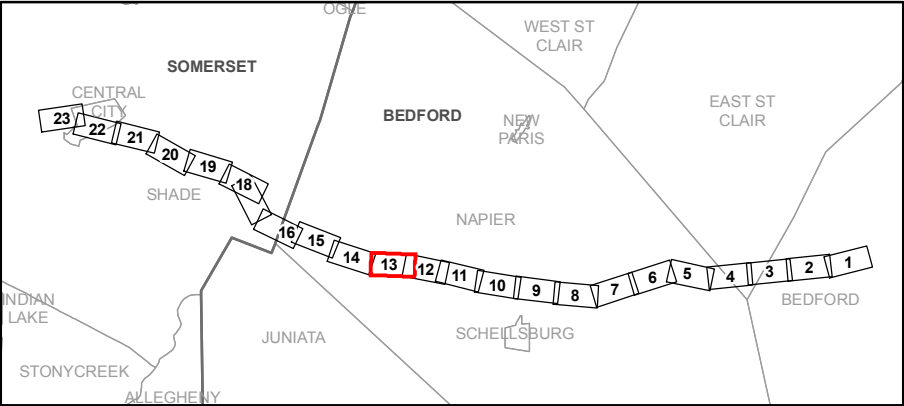
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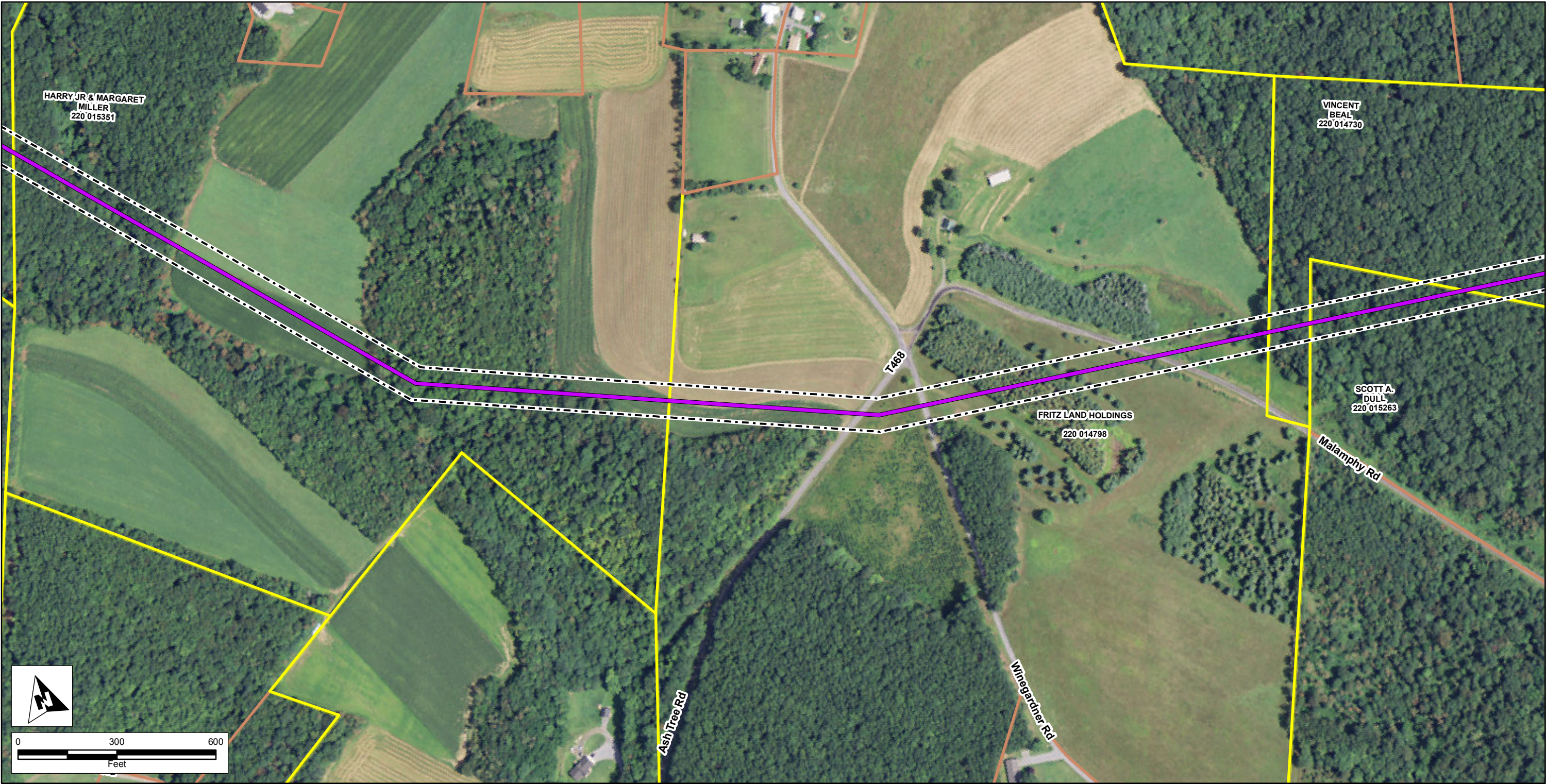
Prepared For: FirstEnergy Corporation, Akron, Ohio

Prepared By: TFB

Checked By: DY

Job: 60414457

Date: 8/19/2016



LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US

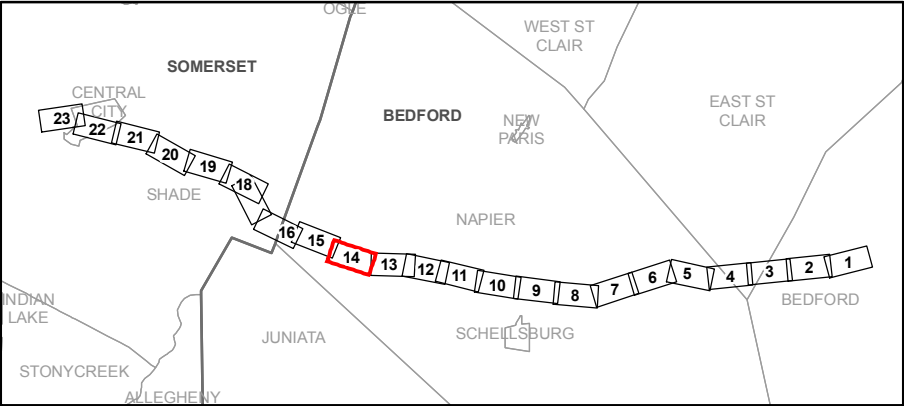
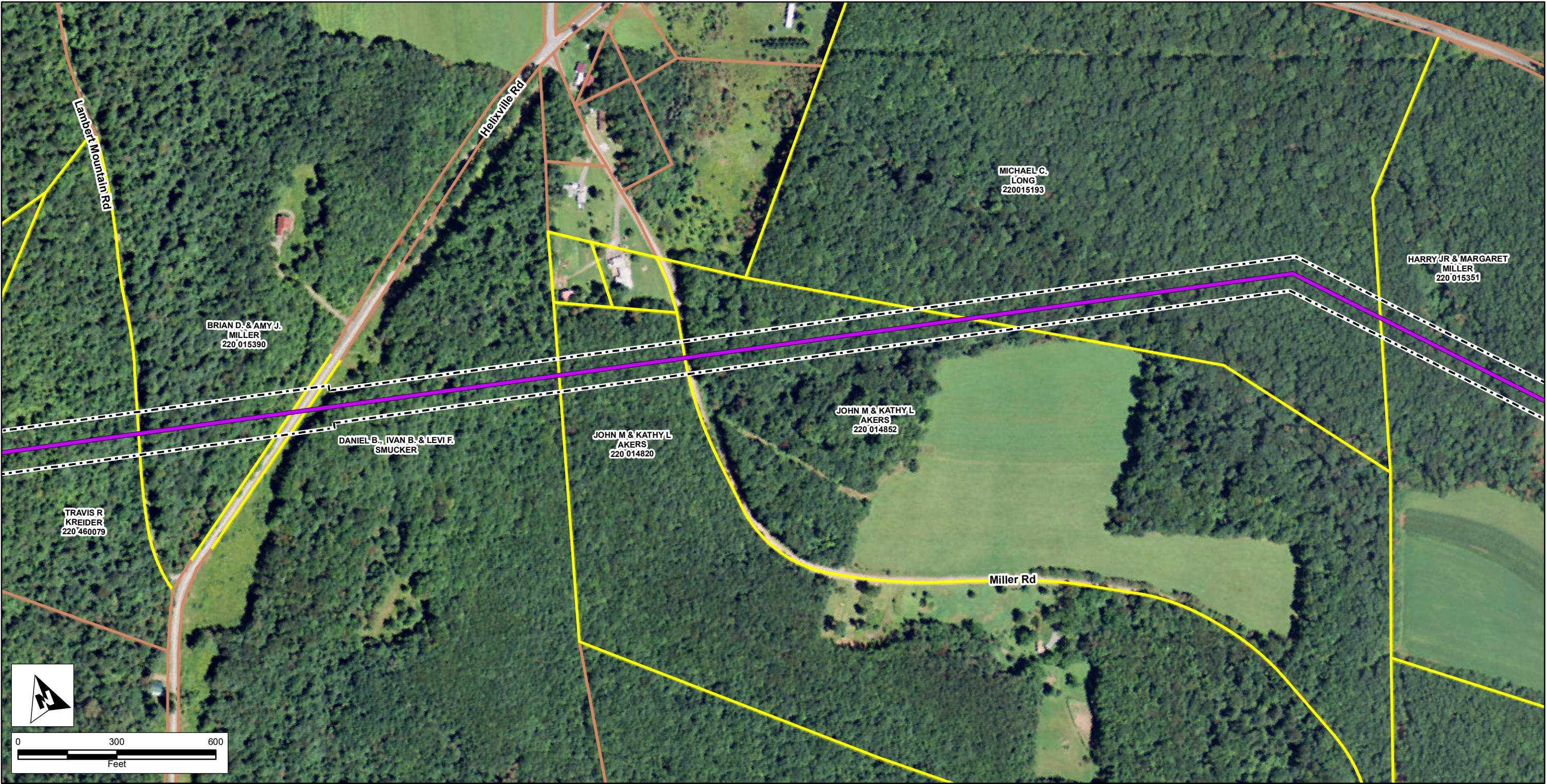


Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project

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Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457	Date: 8/19/2016



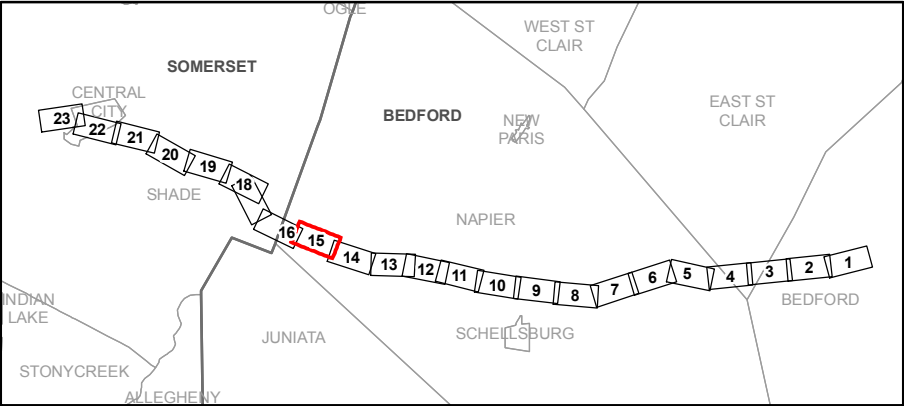
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

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- State Roads (PennDOT 2013)
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Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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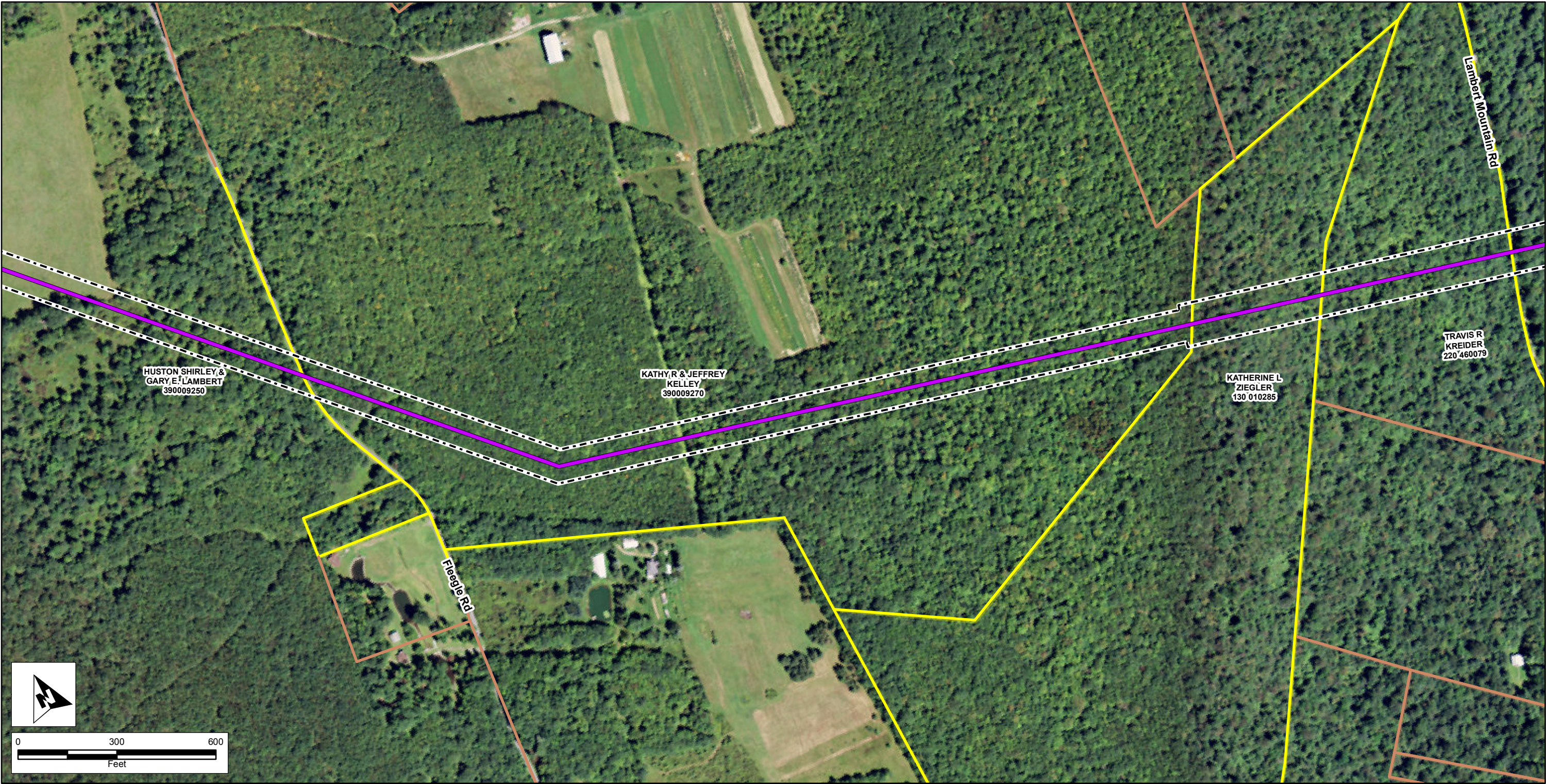


**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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Prepared For: FirstEnergy Corporation, Akron, Ohio

Prepared By: TFB	Checked By: DY
Job: 60414457	Date: 8/19/2016



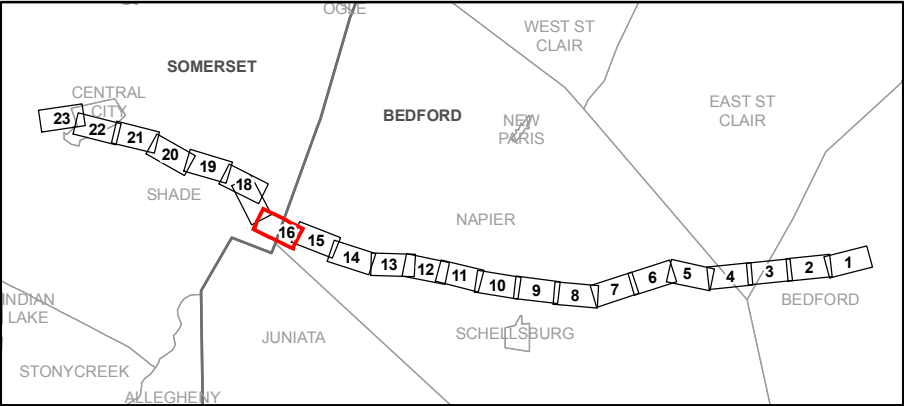
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

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Projection: Lambert Conformal Conic; Units: Foot US



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**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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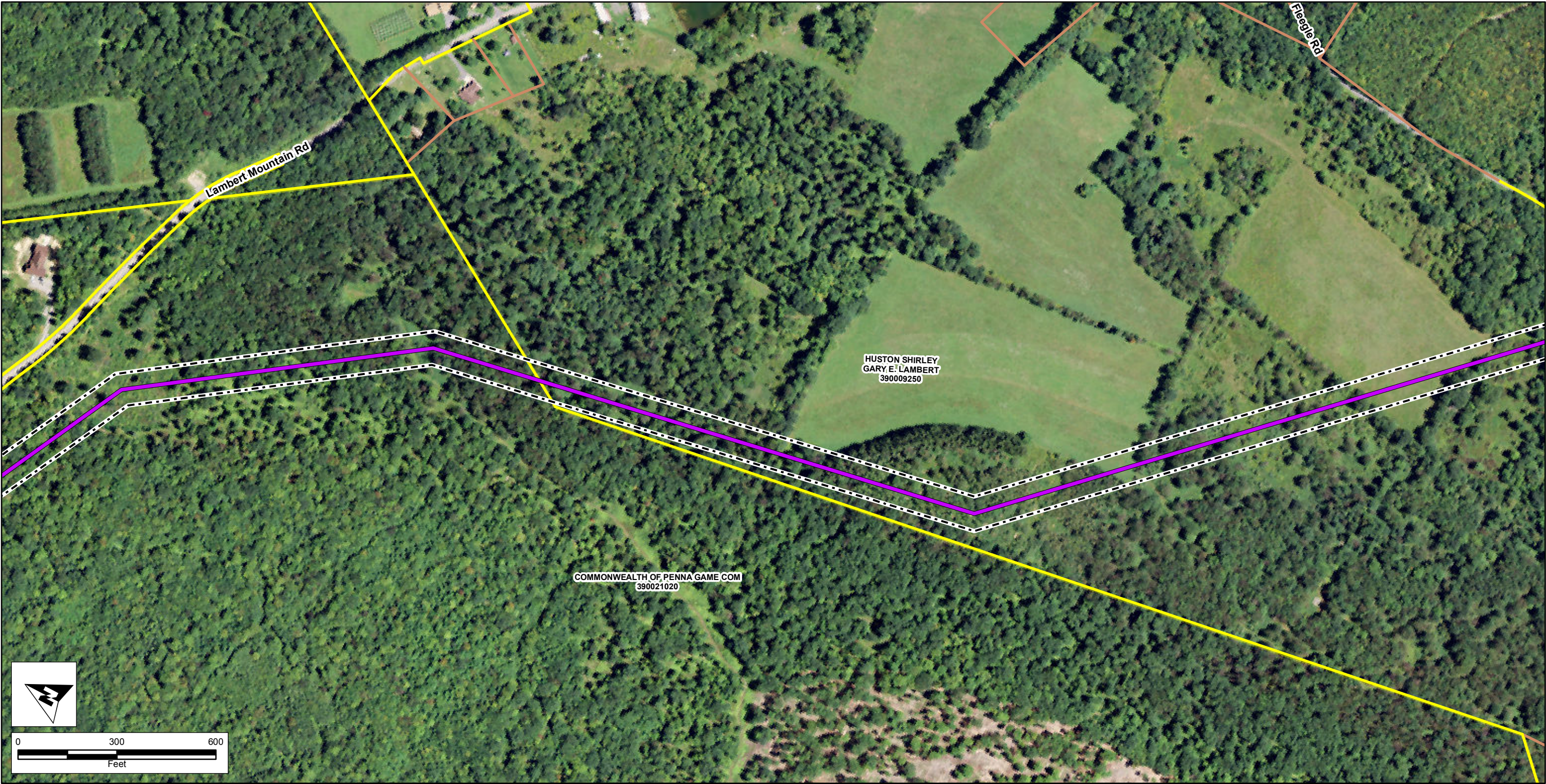
Prepared For: FirstEnergy Corporation, Akron, Ohio

Prepared By: TFB

Checked By: DY

Job: 60414457

Date: 8/19/2016



LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

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Parcel Boundaries (black) (County Tax Offices)
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Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US

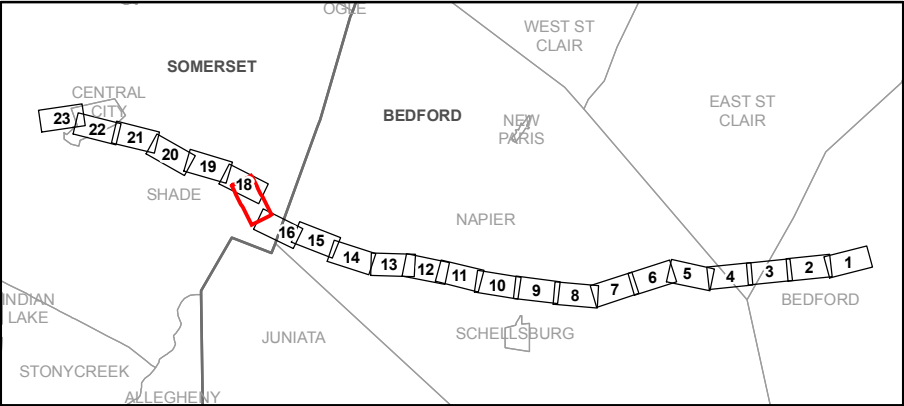
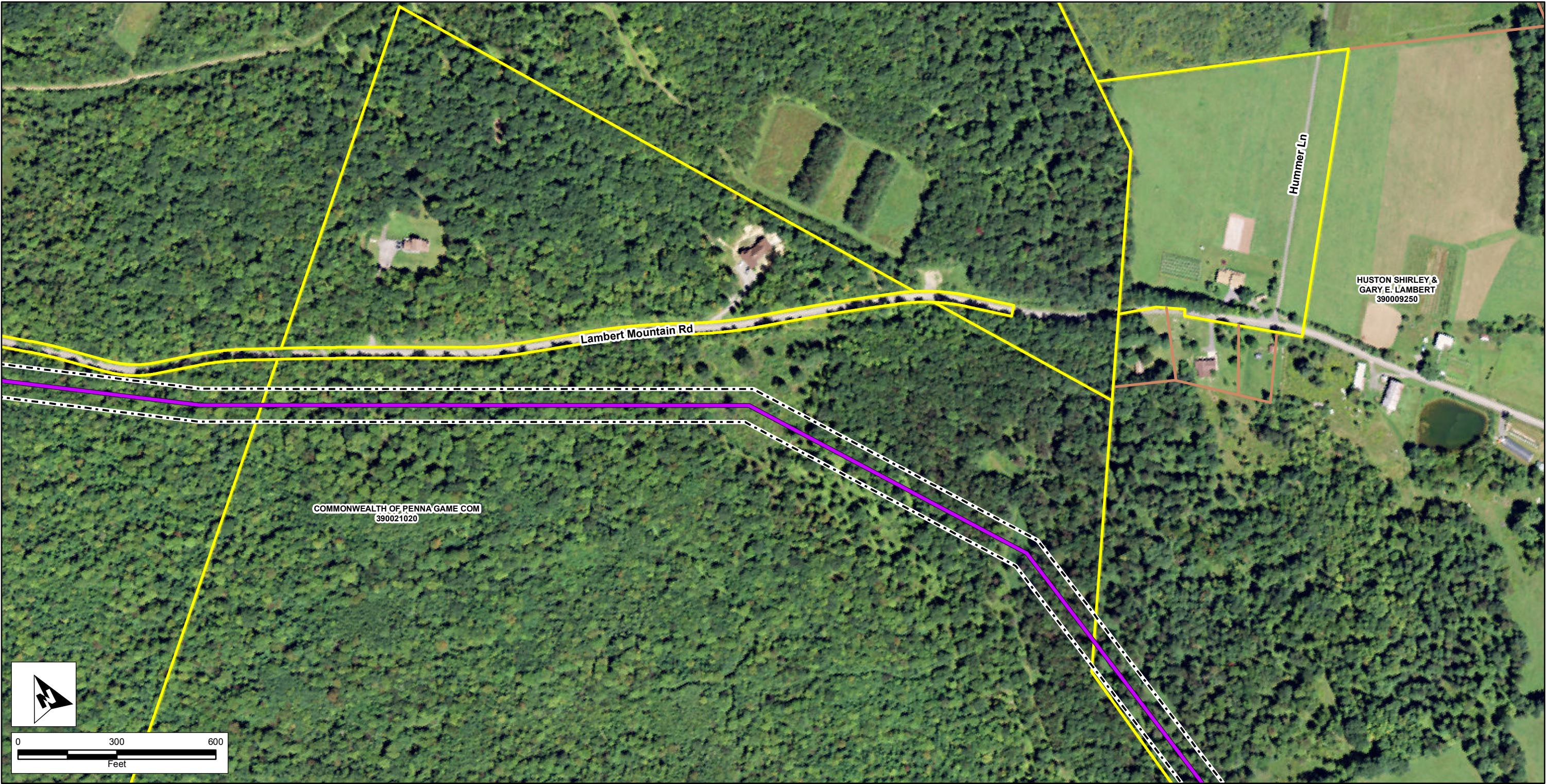


Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project

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Job: 60414457	Date: 8/19/2016



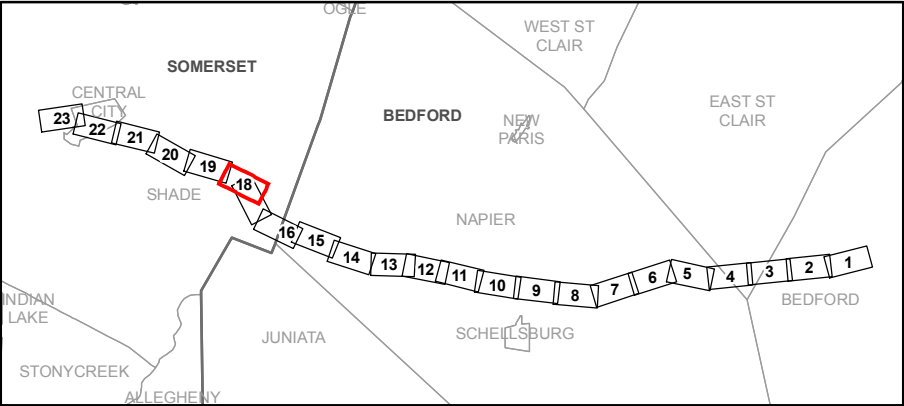
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

- Road Network (ESRI)
- State Roads (PennDOT 2013)
- Parcel Boundaries (black) (County Tax Offices)
- Parcel Boundaries (yellow) (FE Survey 2016)
- Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic: Units: Foot US

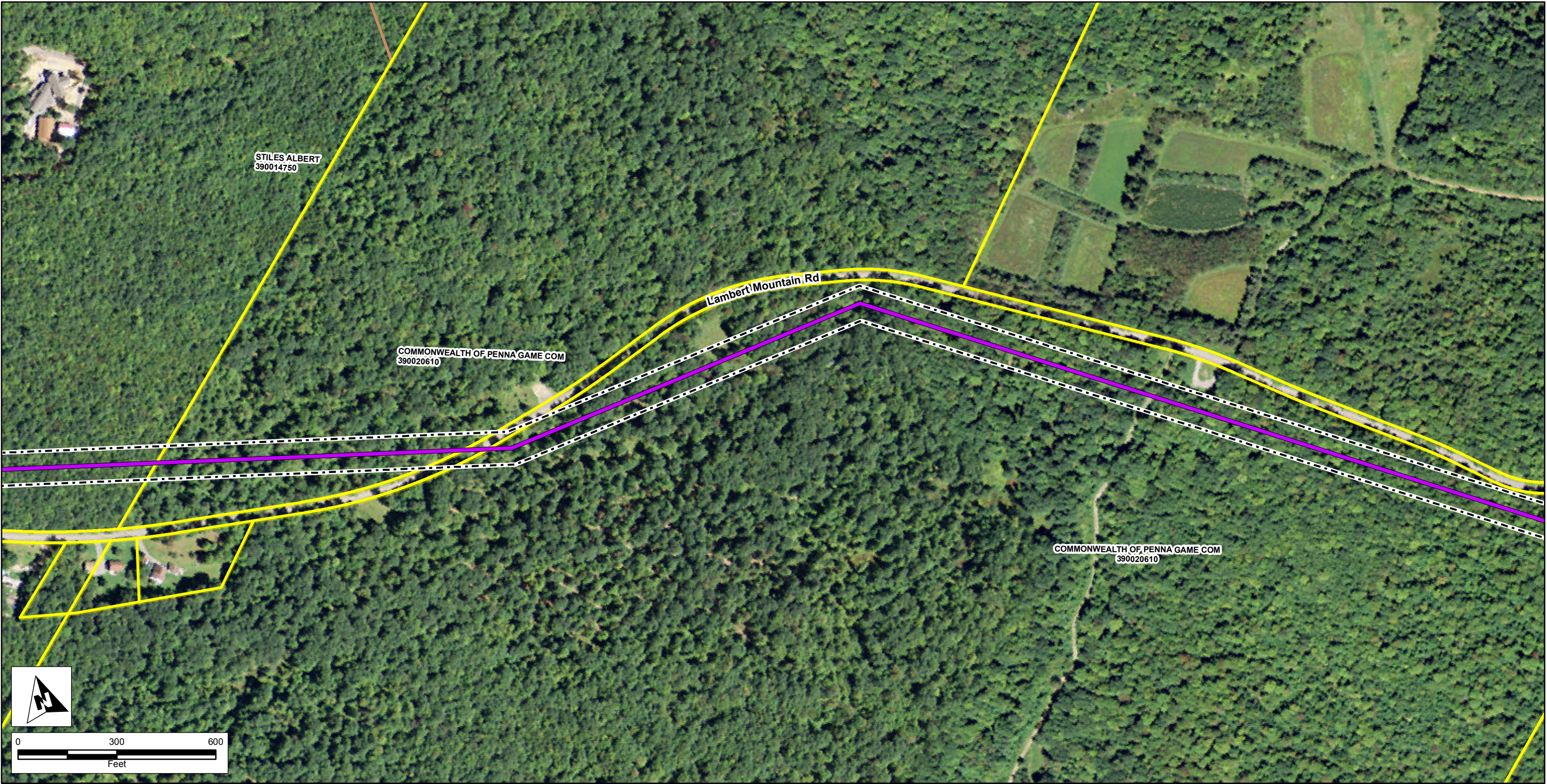


**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457	Date: 8/19/2016



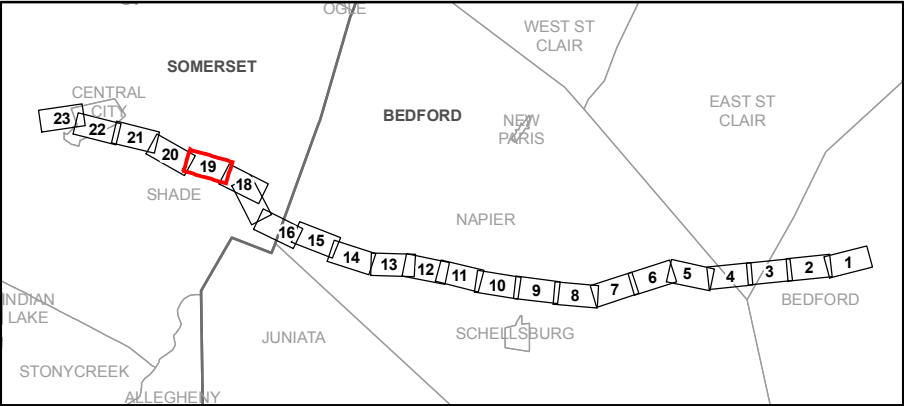
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

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Projection: Lambert Conformal Conic; Units: Foot US



**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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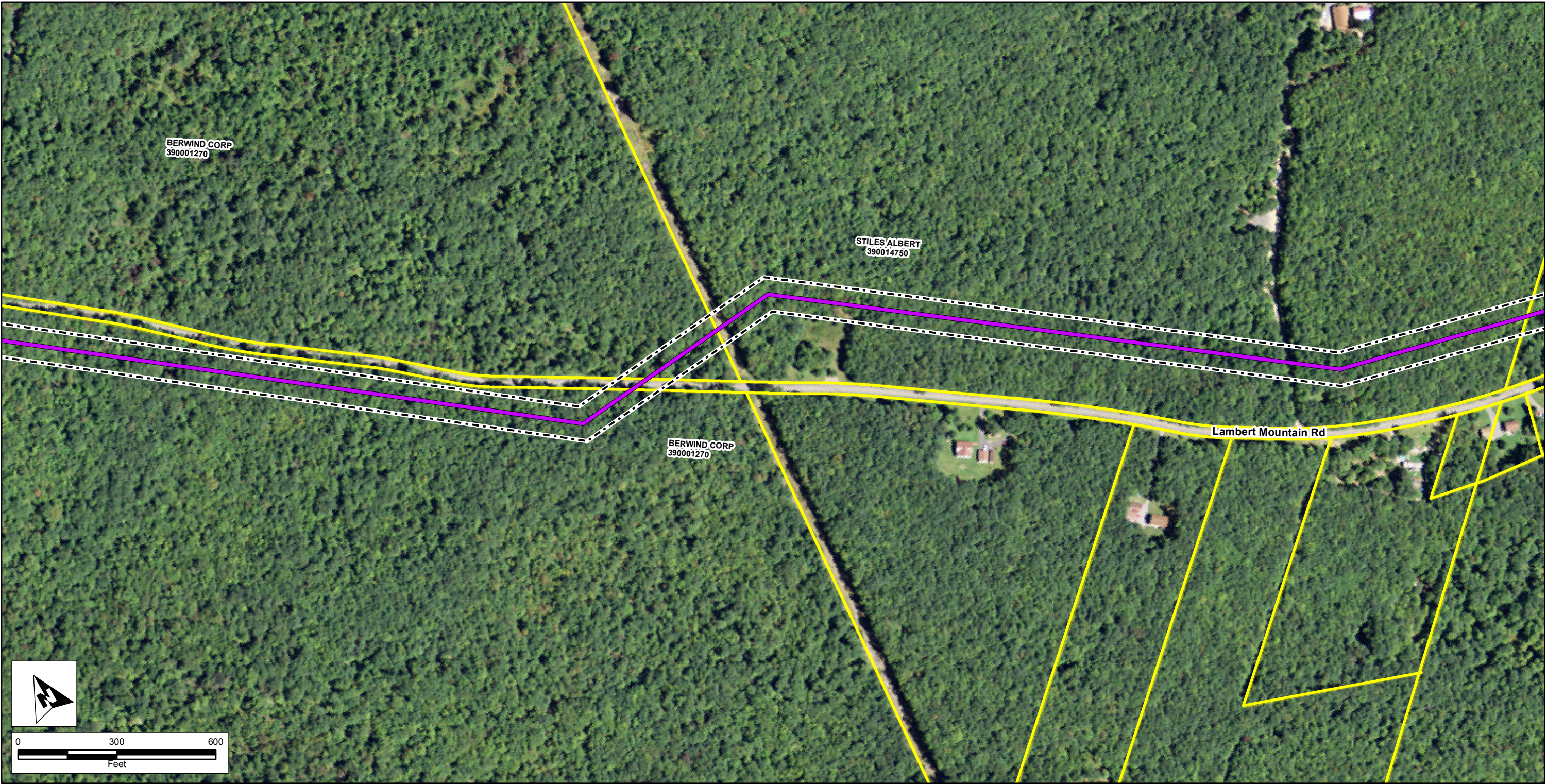
Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457

Date: 8/19/2016



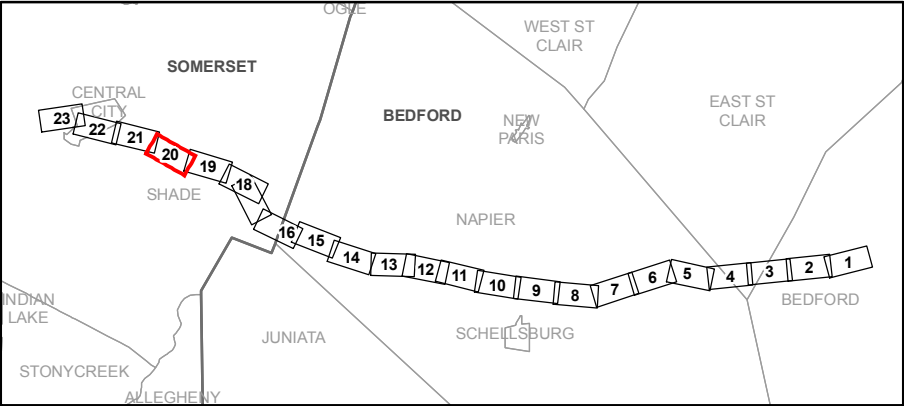
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US

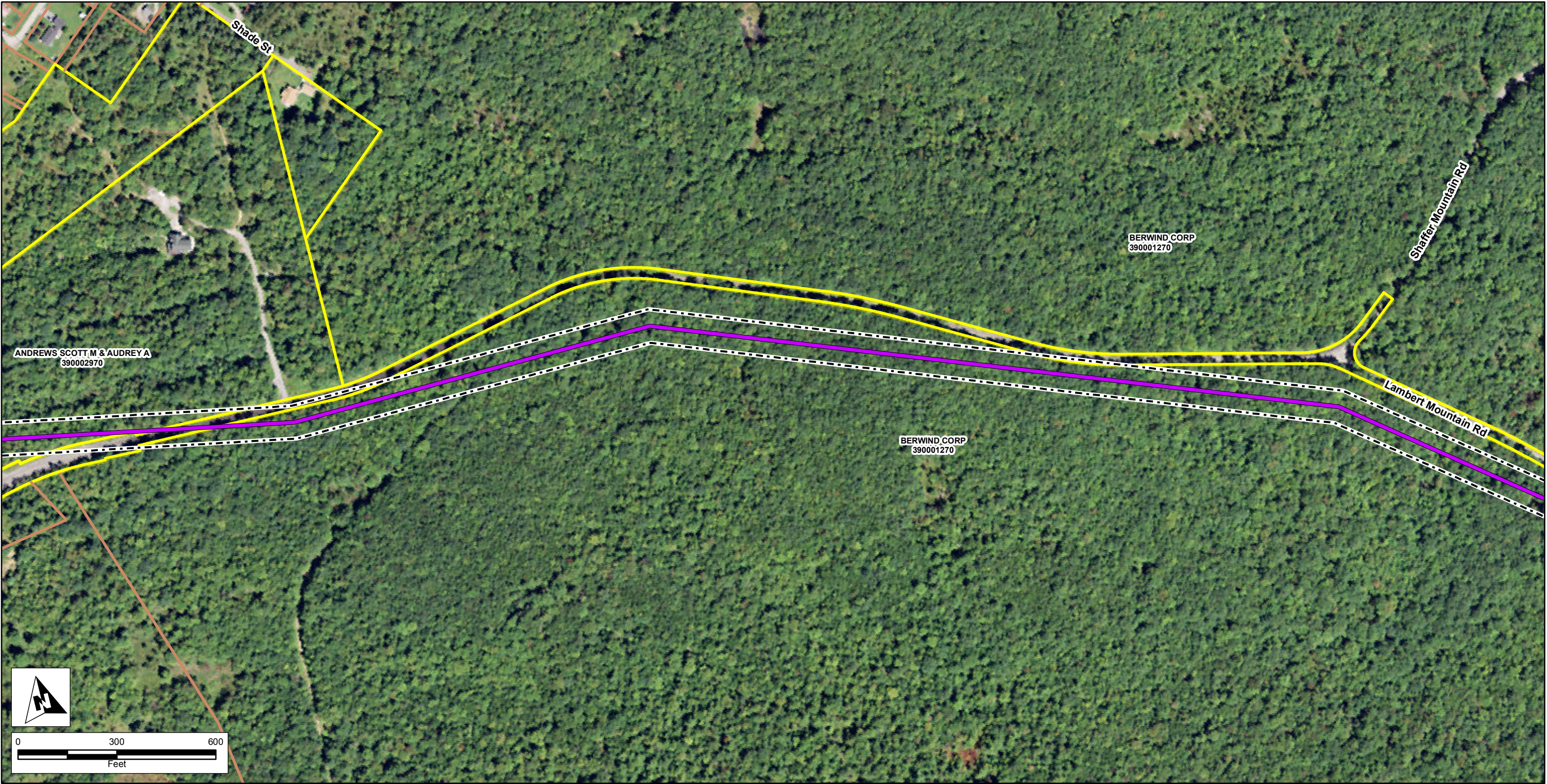


**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457	Date: 8/19/2016



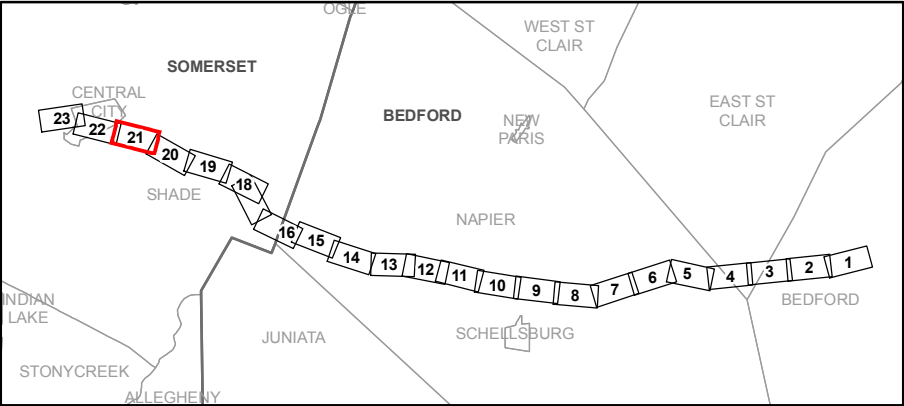
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

- Road Network (ESRI)
- State Roads (PennDOT 2013)
- Parcel Boundaries (black) (County Tax Offices)
- Parcel Boundaries (yellow) (FE Survey 2016)
- Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US

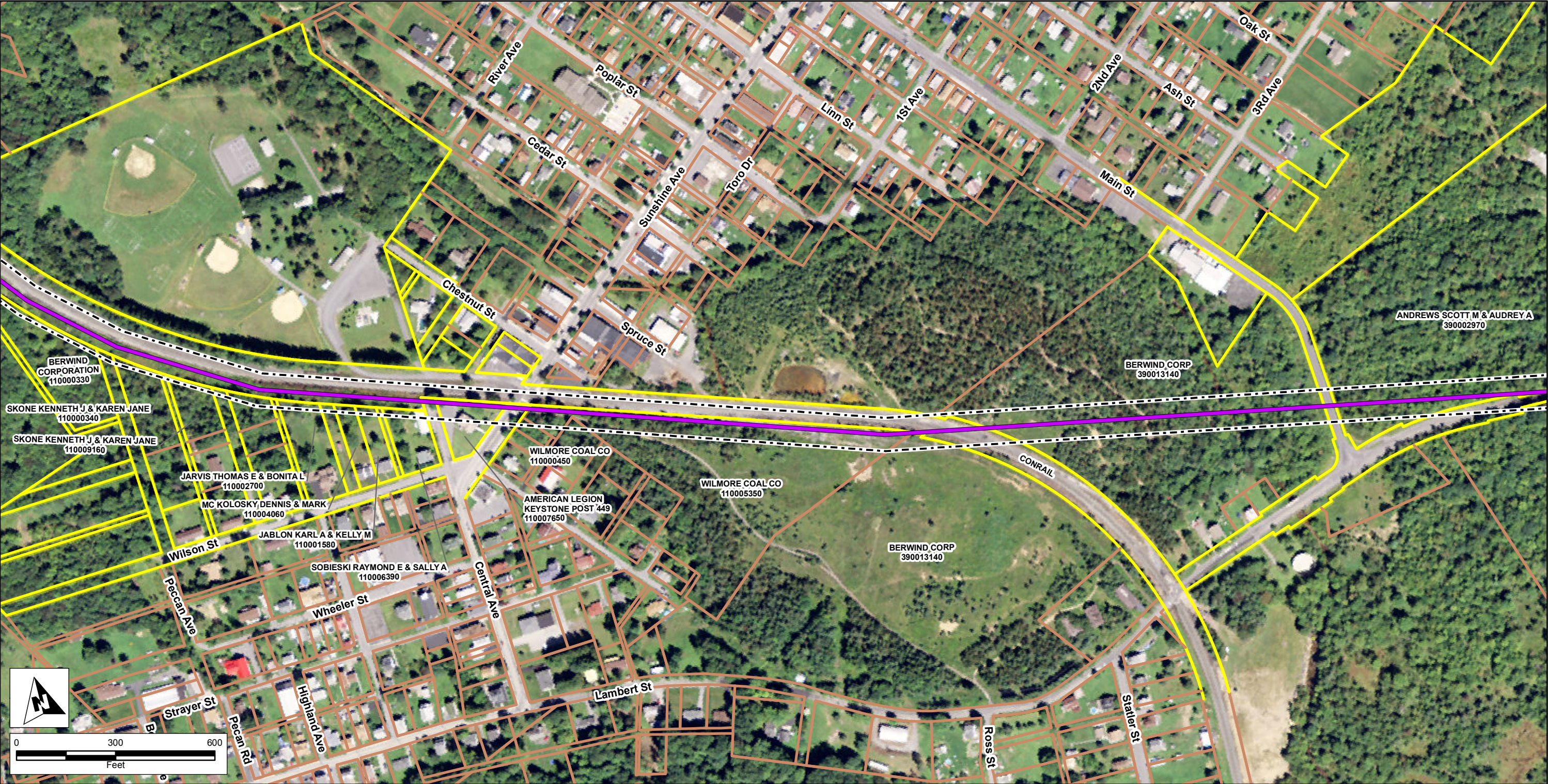


**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457	Date: 8/19/2016



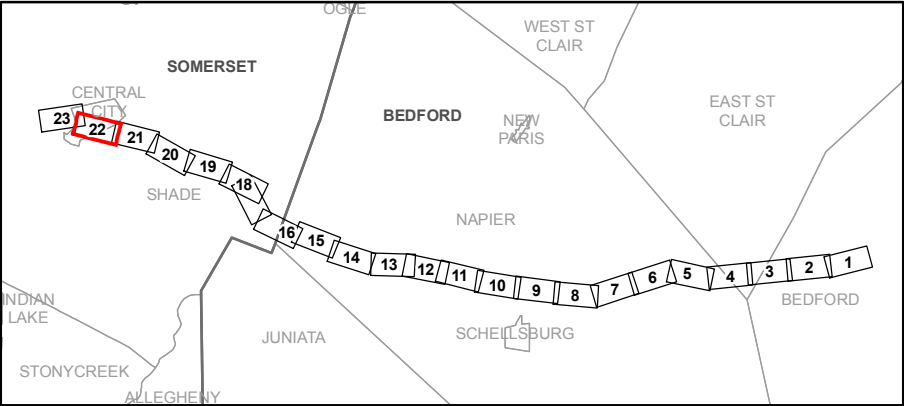
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US



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**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

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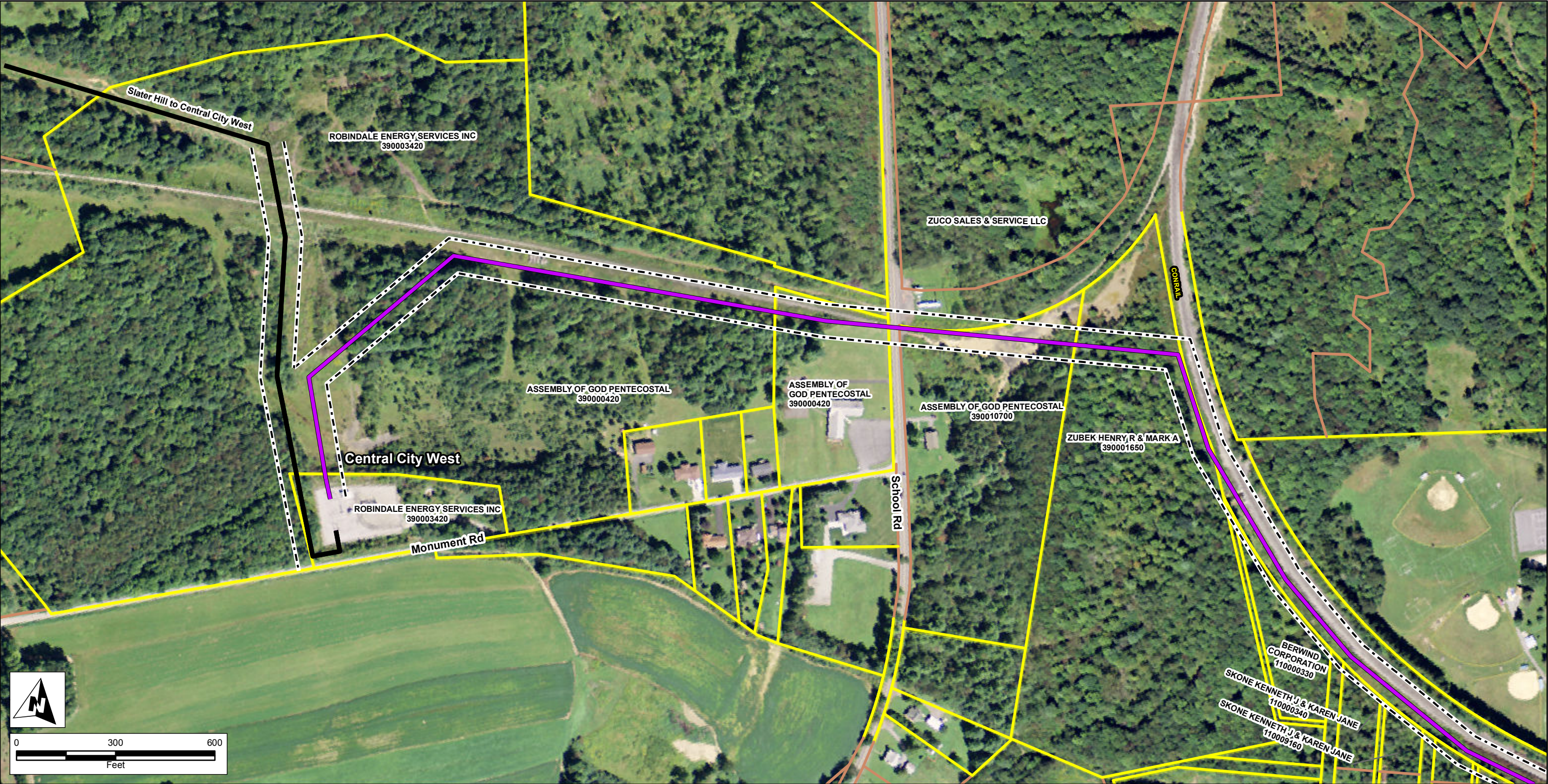
Prepared For: FirstEnergy Corporation, Akron, Ohio

Prepared By: TFB

Checked By: DY

Job: 60414457

Date: 8/19/2016



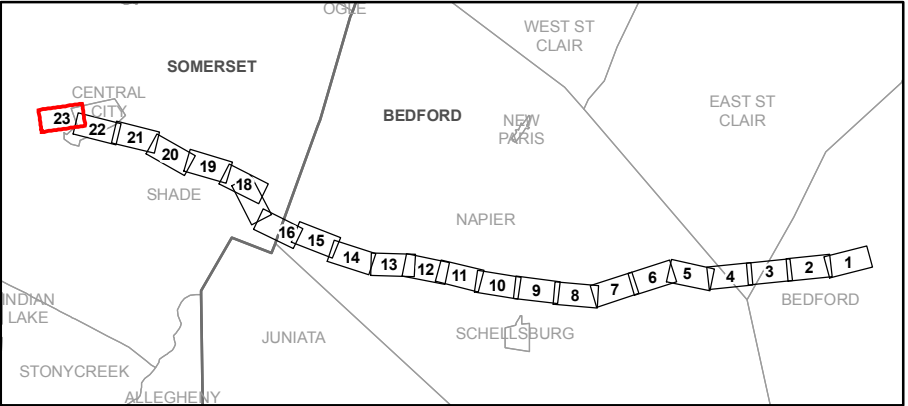
LEGEND

- Proposed BN-CCW Centerlines
- ROW
- Surveyed Parcel Boundary
- County Parcel Boundary
- Slater Hill to Central City West

REFERENCES:

Road Network (ESRI)
State Roads (PennDOT 2013)
Parcel Boundaries (black) (County Tax Offices)
Parcel Boundaries (yellow) (FE Survey 2016)
Aerial Photography: USDA NAIP (2013)

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic: Units: Foot US



AECOM

**Exhibit 3: Property Ownership Map
Bedford North-Central City West
115 kV Transmission Line Project**

Page 23 of 23

Prepared For: FirstEnergy Corporation, Akron, Ohio

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Job: 60414457

Date: 8/19/2016

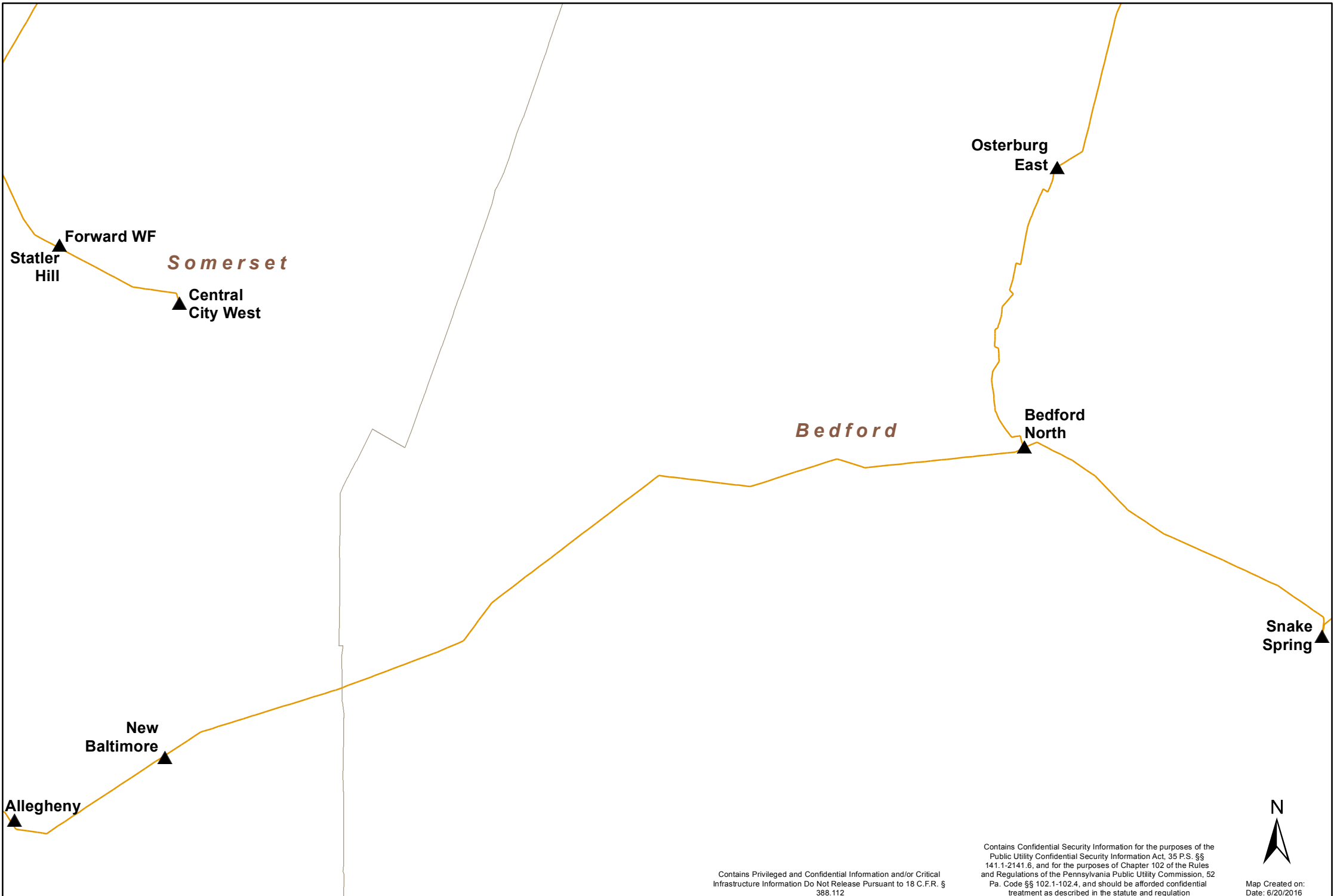
EXHIBIT 4 – PENELEC SYSTEM MAP, REDACTED

Exhibit 4 contains Confidential Security Information for the purposes of the Public Utility Confidential Security Information Act, 35 P.S. §§ 2141.1-2141.6, and for the purposes of Chapter 102 of the Rules and Regulations of the Pennsylvania Public Utility Commission, 52 Pa. Code §§ 102.1-102.4, and should be afforded confidential treatment as described in the statute and regulation.

Exhibit 4 contains privileged and confidential information and/or critical infrastructure information. Do not release pursuant to 18 C.F.R. §388.112.

This exhibit has been redacted from this copy of the Application.

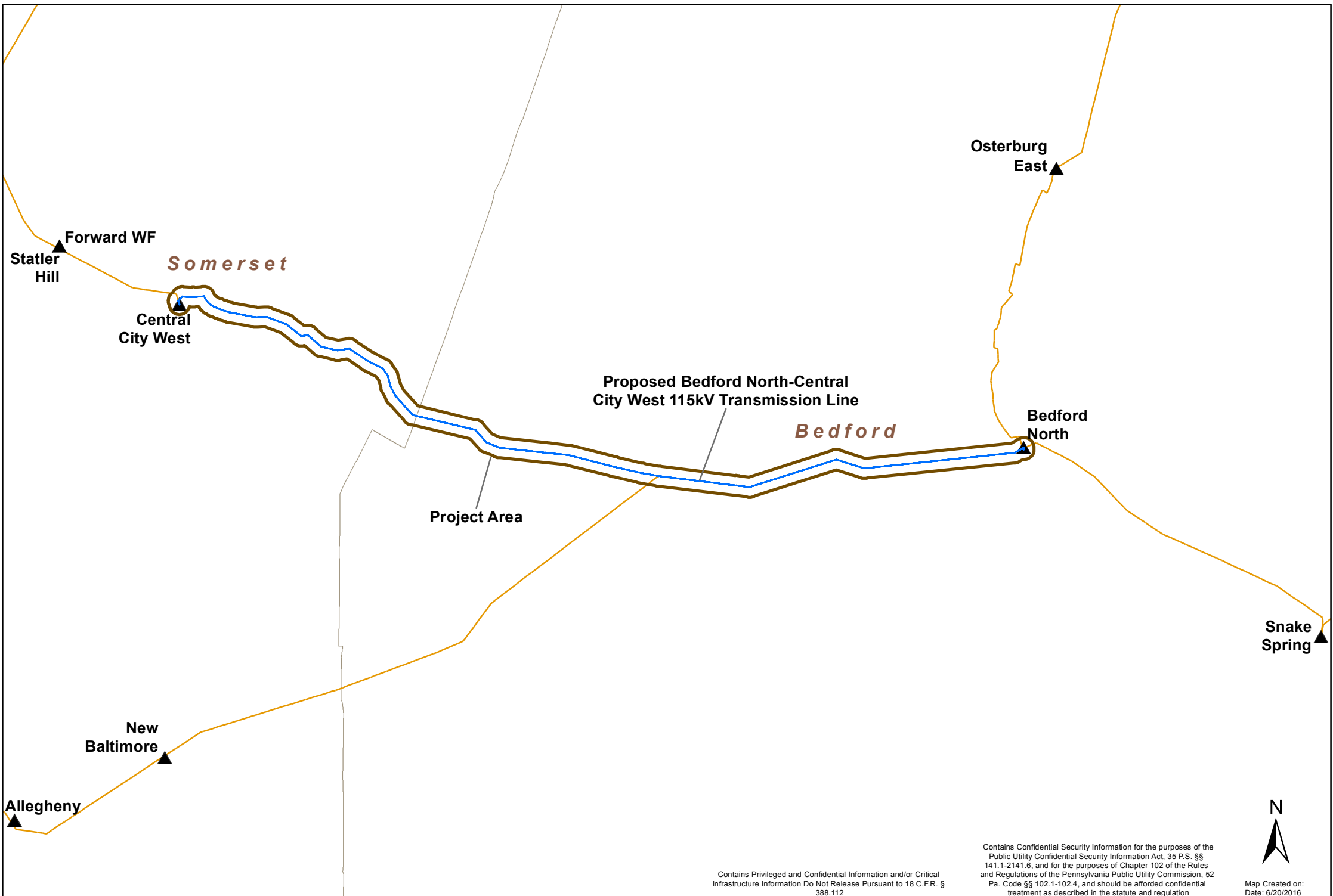
EXHIBIT 5 – TRANSMISSION SYSTEM PROJECT AREA MAPS



Contains Privileged and Confidential Information and/or Critical Infrastructure Information Do Not Release Pursuant to 18 C.F.R. § 388.112

Contains Confidential Security Information for the purposes of the Public Utility Confidential Security Information Act, 35 P.S. §§ 141.1-2141.6, and for the purposes of Chapter 102 of the Rules and Regulations of the Pennsylvania Public Utility Commission, 52 Pa. Code §§ 102.1-102.4, and should be afforded confidential treatment as described in the statute and regulation

N
Map Created on:
Date: 6/20/2016



Contains Privileged and Confidential Information and/or Critical Infrastructure Information Do Not Release Pursuant to 18 C.F.R. § 388.112

Contains Confidential Security Information for the purposes of the Public Utility Confidential Security Information Act, 35 P.S. §§ 141.1-2141.6, and for the purposes of Chapter 102 of the Rules and Regulations of the Pennsylvania Public Utility Commission, 52 Pa. Code §§ 102.1-102.4, and should be afforded confidential treatment as described in the statute and regulation

N
Map Created on:
Date: 6/20/2016

EXHIBIT 6 – CENTRAL CITY WEST SUBSTATION LAYOUT



CENTRAL CITY BOROUGH
SOMERSET COUNTY
STATE OF PENNSYLVANIA

CENTRAL CITY WEST-SLATER HILL
115kV



CENTRAL CITY WEST
SUBSTATION

MONUMENT ROAD

LEGEND



EXISTING STRUCTURE TO REMAIN



EXISTING STRUCTURE TO BE REPLACED

— — — EXISTING TRANSMISSION LINE

— — — PORTION OF THE EXISTING TRANSMISSION
LINE TO BE RELOCATED

Penelec[®]
A FirstEnergy Company

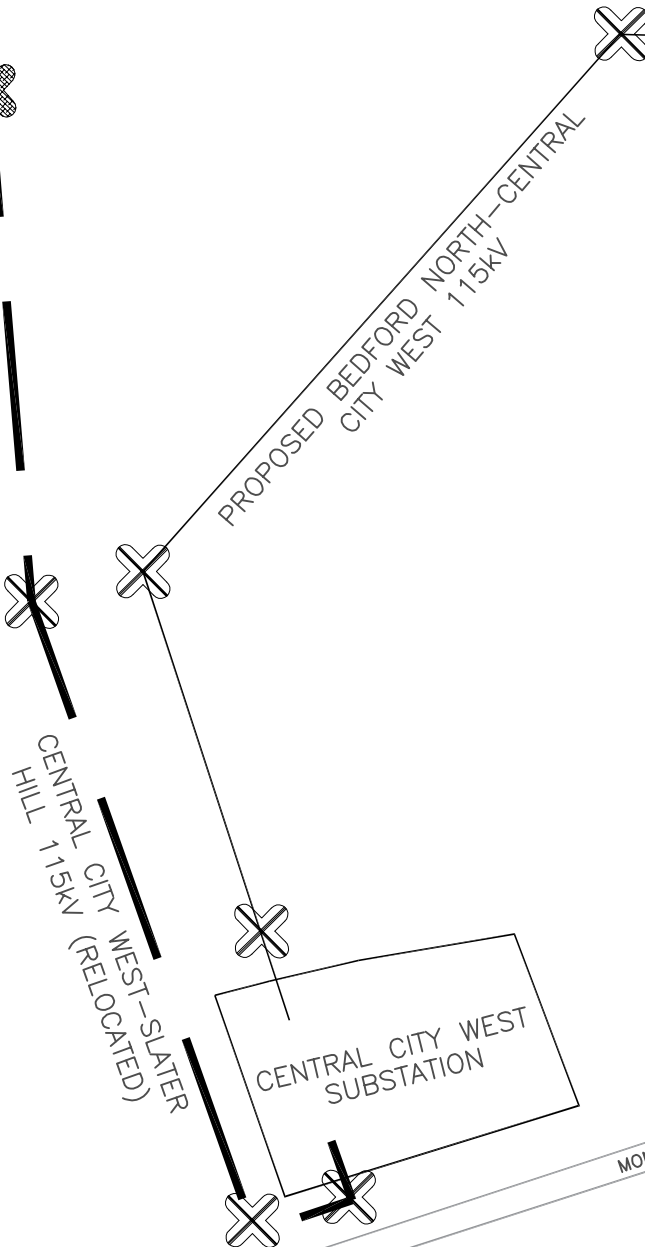
BEDFORD NORTH-CENTRAL CITY
WEST 115kV TRANSMISSION LINE

EXISTING LAYOUT AT THE
CENTRAL CITY WEST SUBSTATION






EXHIBIT 6A



CENTRAL CITY BOROUGH
SOMERSET COUNTY
STATE OF PENNSYLVANIA



LEGEND

-  EXISTING STRUCTURE TO REMAIN
-  PROPOSED STRUCTURE
-  EXISTING TRANSMISSION LINE
-  PORTION OF THE EXISTING TRANSMISSION LINE TO BE RELOCATED
-  PROPOSED TRANSMISSION LINE

Penelec[®]
A FirstEnergy Company

BEDFORD NORTH-CENTRAL CITY
WEST 115kV TRANSMISSION LINE

PROPOSED LAYOUT AT THE
CENTRAL CITY WEST SUBSTATION

EXHIBIT 6B

**EXHIBIT 7 – NAMES AND ADDRESSES OF PROPERTY
OWNERS CROSSED BY THE ROW**

Table 7.1 – NAMES AND ADDRESSES OF PROPERTY OWNERS CROSSED BY THE ROW				
OWNERS NAME	PERMANENT PARCEL NUMBER(S)	TAX ID NUMBER(S)	MAILING ADDRESS	ROW STATUS
Robindale Energy Services, LLC	39-0-003420	S39-010-067-00	P.O. Box 228 224 Grange Hall Road Armagh, PA 15920	Negotiating
Assembly of God Pentecostal Tabernacle of Central City	39-0-010700, 39-0-008030	S39-011-008-00, S39-011-009-00	P.O. Box 10 Central City, PA 15926	Negotiating
Henry R. & Mark A. Zubek	39-0-001650	S39-011-006-00	905 Main Street Central City, PA 15926	Option Obtained
Berwind Corporation c/o The Wilmore Coal Company	11-0-000330, 39-0-001270	S11-036-002-00, S39-011-067-00	509 15th Street Windber, PA 15963	Negotiating
Kenneth J. & Karen Jane Skone	11-0-009160, 11-0-000360, 11-0-010060	S11-036-003-01, S11-037-183-00, S11-037-268-00	101 Hickory Avenue Central City, PA 15926	Negotiating
Thomas E. & Bonita L. Jarvis	11-0-002700	S11-037-182-00	109 Old Wagon Road Winchester, VA 22602	Option Obtained
Dennis & Mark McKolosky	11-0-004060	S11-037-180-00	150 Wilson Street Central City, PA 15926	Option Obtained
Karl A. & Kelly M. Jablon	11-0-001580	S11-037-181-00	136 Wilson Street Central City, PA 15926	Option Obtained
Raymond E. & Sally A. Sobieski	11-0-006390	S11-037-177-00	330 Zeigler Street Central City, PA 15926	Option Obtained
American Legion - Keystone Post 449 Attn: John Furcho	11-0-007650	S11-037-176-00	P.O. Box 125 Central City, PA 15926	Option Obtained
Wilmore Coal Company	11-0-005350, 11-0-005500, 11-0-000450, 39-0013140	S11-037-256-00, S11-037-160-00, S11-037-250-00, S39-011-094-00	509 15th Street Windber, PA 15963	Negotiating
Scott M. & Audrey A. Andrews	39-0-002970,	S39-011-068-00	176 Shaffer Mountain Road Cairnbrook, PA 15924	Negotiating
Albert Stiles	39-0-014750	S39-011-081-00	190 Moss Rock Lane Cairnbrook, PA 15924	Negotiating
Commonwealth of Pennsylvania Game Commission	39-0-020610, 39-0-020600, 39-0-021020	S39-011-084-00, S39-012-023-00, S39-012-025-00	P.O. Box 1567 Harrisburg, PA 17120	Negotiating
Shirley Huston & Gary E. Lambert	39-0-009250	S39-012-037-00	3108 Lambert Mountain Road Cairnbrook, PA 15924	Negotiating
Kathy R. & Jeffrey Kelley	39-0-009270	S39-012-039-00	142 Mile Hill Road Johnstown, PA 15909	Negotiating
Katherine L. Zeigler c/o Linda Krupnik	130-010285	B.08-0.00-002	1379 Northwyck Court McLean, VA 22102	Negotiating
Travis R. Kreider	220-460079	B.08-0.00-306	6411 Allegheny Road Manns Choice, PA 15550	Option Obtained
Brian D. & Amy Miller	220-015390	B.08-0.00-004	1365 Helixville Road Schellsburg, PA 15559	Option Obtained

OWNERS NAME	PERMANENT PARCEL NUMBER(S)	TAX ID NUMBER(S)	MAILING ADDRESS	ROW STATUS
Daniel Smucker, et al.	220-467982	B.08-0.00-065	1769 Spring Hollow Road East Earl, PA 17519	Option Obtained
John M. & Kathy L. Akers	220-014852, 220-464820	B.08-0.00-030, B.08-0.00-308	1012 Chippewa Road Johnstown, PA 15904	Option Obtained
Michael C. Long	220-015193	B.08-0.00-031	1212 Goe Avenue Pittsburg, PA 15212	Negotiating
Bernard Miller	220-015351	B.08-0.00-036	1888 Helixville Road Schellsburg, PA 15559	Option Obtained
Fritz Land Holdings, LP	220-014798	B.08-0.00-039	620 S. Richard Street Bedford, PA 15522	Negotiating
Vincent Beal	220-014730	B.08-0.00-009	103 Parkridge Lane Corapolis, PA 15108	Negotiating
Scott A. Dull	220-015263	B.08-0.00-010	829 Oldham Road Alum Bank, PA 15521	Option Obtained
Martha Lorraine & John S. Anderson	220-015562	C.08-0.00-061	710 Anderson Road Schellsburg, PA 15559	Negotiating
Nancy K. Macrae	220-015186	C.08-0.00-062	503 Anderson Road Schellsburg, PA 15559	Negotiating
Keith A. Lohr	220-015245	C.08-0.00-063	309 Lohr Road Schellsburg, PA 15559	Negotiating
Dick B. & Karen G. Lohr	220-015244	C.08-0.00-065	1159 Hoover Road Schellsburg, PA 15559	Negotiating
Robin F. & Tammy J. Miller	220-015341	C.08-0.00-066	1035 Ellis Road Schellsburg, PA 15559	Negotiating
Donald W. Mowry - Donald W. Mowry Revocable Trust	220-015418, 220-015419	C.08.0.00-101, C.08-0.00-100	717 Ellis Road Schellsburg, PA 15559	Option Obtained
David G. & Antonia M. Varley	220-075474	C.08-0.00-096	104 Maclaine Drive Carnegie, PA 15106	Option Obtained
Brian C. & Traci A. Jones	220-077905	C.08-0.00-171	1708 Dager Circle Harkeysville, PA 19438	Negotiating
Jeffrey E. Sturm	220-463115	C.08-0.00-247	1226 Bridgeton Hill Road Upper Black Eddy, PA 18972	Option Obtained
Neal R. & Linda J. Butterbaugh	020-084480	E.08-0.00-362	477 Welsh Road Bedford, PA 15522	Option Obtained
Pennsylvania Electric Company c/o First Energy Services Co.	39-0-026220, 20-3102, 20- 3076	S39-010-140-00, E.08-0.00-063-B, E.08-0.00-063-A	P.O. Box 1911 Madison Avenue Morristown, NJ 07962	Existing Easement
Richard B. & Cheryle F. Engbert	220-014976	C.08-0.00-072	2156 Cortland Road Schellsburg, PA 15559	Existing Easement
Dale F. & Troy L. Wigfield	220-015044	C.08-0.00-077-D	154 Deep Well Road Schellsburg, PA 15559	Existing Easement
Clive O. & Shirley R. Wolfe	220-015803	C.08-0.00-077-F	2080 Cortland Road Schellsburg, PA 15559	Existing Easement
Dale F. Wigfield	220-073041	C.08-0.00-077-H	154 Deep Well Road Schellsburg, PA 15559	Existing Easement

OWNERS NAME	PERMANENT PARCEL NUMBER(S)	TAX ID NUMBER(S)	MAILING ADDRESS	ROW STATUS
Richard C. & Cathy J. Evans	220-015646, 220-084139	C.08-0.00-018-H, C.08-0.00-219	3027 Mowry Road Schellsburg, PA 15559	Existing Easement
Diane M. Kelly	220-015379	C.08-0.00-020	201 West Penn Street Bedford, PA 15522	Existing Easement
Gerald T. & Amy V. Mowry	220-015420, 220-073460	C.08-0.00-018, C.08-0.00-132	182 Peter Street Schellsburg, PA 15559	Existing Easement
Joseph & Judith Diehl Living Trust	220-014912	C.08-0.00-016	615 Valley Road Schellsburg, PA 15559	Existing Easement
Karen M. Weischedel	220-015778	C.08-0.00-019-A	2501 Alexis Court Bensalem, PA 19020	Existing Easement
Kerry L. & Maria K. Hutson	220-084174	D.08-0.00-261	1006 Harvard Road Monroeville, PA 15146	Existing Easement
Commonwealth of Pennsylvania, Environmental Resources	220-015308	D.08-0.00-065	Fulton Bank Building Harrisburg, PA 17120	Existing Easement
Donald N. & Margaret A. Roadman	220-015506	D.08-0.00-067	816 Ponderosa Road Schellsburg, PA 15559	Existing Easement
Kevin T. Croyle	220-014862	D.08-0.00-113	637 Harrison Road Schellsburg, PA 15559	Existing Easement
Charles L. & Shirley L. Bowers	220-014724	D.08-0.00-140	779 Harrison Road Schellsburg, PA 15559	Existing Easement
Scott A. & Lori A. Barnes	220-083130	D.08-0.00-238	780 Harrison Road Schellsburg, PA 15559	Existing Easement
Kenneth Wayne Harrison	220-015681	D.08-0.00-140-A	965 Harrison Road Schellsburg, PA 15559	Existing Easement
Linda S. Taylor	220-015805, 220-015806	D.08-0.00-118, D.08-0.00-119	1241 Point Road Bedford, PA 15522	Existing Easement
Donald L. & Vera Annette Boes	220-015264	D.08-0.00-141	1753 Tulls Hill Road Bedford, PA 15522	Existing Easement
Bradley D. Foor	220-079892	D.08-0.00-205	1311 Point Road Bedford, PA 15522	Existing Easement
Becky S. Shroyer	220-077016	D.08-0.00-167	1672 Point Road Bedford, PA 15522	Existing Easement
Steven M. & Annette J. Zimmerman	220-073872	D.08-0.00-116-C	1413 Point Road Bedford, PA 15522	Existing Easement
Blair A. Turner, et al.	220-015721	D.08-0.00-078	116 Whispering Pines Lane Bedford, PA 15522	Existing Easement
Steven C. Miller	220-084277	D.08-0.00-269	150 Sloans Hollow Road Bedford, PA 15522	Existing Easement
Joseph F. & Ethel Pearl Ferguson	220-015009	D.08-0.00-129	248 Sloans Hollow Road Bedford, PA 15522	Existing Easement
Vickie J. David E. Fleagle	220-082367	D.08-0.00-226	126 Heritage Lane Bedford, PA 15522	Existing Easement
Joseph M. & Susan Fiocco	220-015222	D.08-0.00-084-A	36 Trevoise Road Trevoise, PA 19053	Existing Easement
Rodney L. Nicodemus	220-084085	D.08-0.00-243	260 Roose Road Bedford, PA 15522	Existing Easement
Krista A. Hillegas	220-078542	D.08-0.00-185	209 Peacock Lane Bedford, PA 15522	Existing Easement

OWNERS NAME	PERMANENT PARCEL NUMBER(S)	TAX ID NUMBER(S)	MAILING ADDRESS	ROW STATUS
Scott A. & Nancy K. Blakeslee	220-071620	D.08-0.00-084-E	265 Peacock Lane Bedford, PA 15522	Existing Easement
Roxie Stiffler Stultz & Cary D. Stultz	220-070305	D.08-0.00-084-D	129 Peacock Road Bedford, PA 15522	Existing Easement
Thomas S. Wright	220-015458	D.08-0.00-084	510 Roose Road Bedford, PA 15522	Existing Easement
Thomas S. & Tricia A. Wright	330-020759	D.08-0.00-084-C	510 Roose Road Bedford, PA 15522	Existing Easement
Fredrick Cable c/o Margaret Cable	020-001676	D.08-0.00-088	426 Pensl Hollow Road Bedford, PA 15522	Existing Easement
Craig A. & Deborah L. Eckenrode	330-021329	D.08-0.00-085-B	5252 Mountain Road Bedford, PA 15522	Existing Easement
Robert Clair & Wanda Jean Holland	330-077685, 330-077783	D.08-0.00-175, D.08-0.00-086	5382 Mountain Road Bedford, PA 15522	Existing Easement
Timothy L. Brown	330-077605	D.08-0.00-173	5350 Mountain Road Bedford, PA 15522	Existing Easement
Nathan N. Wolfe	020-003803	D.08-0.00-019	772 Pensyl Hollow Road Bedford, PA 15522	Existing Easement
Barry L. & Sheila K. May	020-075076	E.08-0.00-053	976 Pensyl Hollow Road Bedford, PA 15522	Existing Easement
Kelly A. & Adam T. McGinnis	020-001900	D.08-0.00-018	476 McCulloch Road Bedford, PA 15522	Existing Easement
Andrew Miller, Janice M. Haney & Andrew S. Miller	020-002931	E.08-0.00-052-B	5929 Mountain Road Bedford, PA 15522	Existing Easement
James E. Berkey & Mitzi G. Berkey, aka Mitzi Gaye Berkey	020-071229	E.08-0.00-133-D	1030 Country Ridge Road Bedford, PA 15522	Existing Easement
Harold L. & Vera L. Sciranko	020-003833	E.08-0.00-133-A	1054 Country Ridge Road Bedford, PA 15522	Existing Easement
Tria L. Shaffer, et al.	02-0003342, 02-0003341	E.08-0.00-057, E.08-0.00-001	5029 Milligans Cove Road c/o Mrs. Luan Bremerman, et al. Manns Choice, PA 15550	Existing Easement
Robert J. & Pamela K. Eagleson	020-070763	E.08-0.00-133-C	1076 Country Ridge Road Bedford, PA 15522	Existing Easement
Duane A. & Mary Jane Fetter	020-001386	E.08-0.00-133	244 Astor Road Bedford, PA 15522	Existing Easement
Ronald R. Hocker & Sue Ann Price	020-077483, 020-079254	E.08-0.00-256, E.08-0.00-271	162 Astor Road Bedford, PA 15522	Existing Easement
Bedford County Development Association	020-001389	E.08-0.00-059	One Corporate Drive Suite 101 Bedford, PA 15522	Existing Easement

Table 7.2 – NAMES AND ADDRESSES OF PROPERTY OWNERS REQUIRING PRIORITY TREE RIGHTS

OWNERS NAME	PERMANENT PARCEL NUMBER(S)	TAX ID NUMBER(S)	MAILING ADDRESS	STATUS
Raymond E. & Sally A. Sobieski	39-0-015810	S39-010-010-00	330 Zeigler Street Central City, PA 15926	Option Obtained
Zuco Sales & Services, LLC c/o David Zubek	39-0-015820	S39-011-002-00	819 Lynn Street Central City, PA 15926	Option Obtained
Henry R. & Mark A. Zubek	39-0-001670	S39-011-005-00	905 Main Street Central City, PA 15926	Option Obtained
Frank J. Shenigo Trustee of the Frank J. Shenigo Revocable Living Trust	39-0-015300	S39-010-039-00	1655 Martin Road Mogadore, OH 44260	Negotiating
Central City Borough	11-0-007680	S11-036-001-00	314 Central Avenue Central City, PA 15926	Negotiating
Robert W. Huff	11-0-005910, 11-0-005920	S11-037-243-00, S11-037-244-00	12 Walnut Street Central City, PA 15926	Option Obtained
Delmas W. & Pansy F. Miller	220-014695	C.08-0.00-074	1958 Cortland Road Schellsburg, PA 15559	Option Obtained

EXHIBIT 8 – AECOM ROUTE SELECTION STUDY REPORT

TRANSMISSION LINE ROUTE SELECTION STUDY

Bedford North-Central City West 115 kV Line Project
Bedford and Somerset Counties, Pennsylvania

AUGUST 2016

Prepared For:

FirstEnergy Corp.
76 South Main Street
Akron, OH 44308



Prepared By:

AECOM - Conshohocken Office
625 West Ridge Pike, Suite E-100
Conshohocken, PA 19428



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1.0 INTRODUCTION AND PROJECT NEED

This document presents the Route Selection Study (Study) conducted for FirstEnergy Corp. to identify the potential route options for developing a new 115 kilovolt (kV) transmission line that will connect the existing Bedford North 115/69 kV Substation, located within Bedford Township, Bedford County, to the existing Central City West 115/69 kV Substation located in Shade Township, Somerset County, Pennsylvania (Project). The straight-line distance between these two endpoints is approximately 16.5 miles. The new 115 kV transmission line is envisioned as consisting of a single circuit 115 kV transmission line supported on wooden poles that can support a second 115 kV transmission line, located in a new approximately 100 foot wide right-of-way (ROW). The Study was conducted by AECOM, in consultation with the Pennsylvania Electric Company (Penelec), a FirstEnergy company, and is a component in the Full Siting Application (FSA) that will be submitted to the Pennsylvania Public Utilities Commission (PUC) for approval.

The routing study for the Bedford North-Central City West 115 kV Line Project was conducted using a methodology that integrates geographic information system (GIS) technology, statistical evaluation, and expert judgment into the decision-making process. Detailed desktop and field reviews were conducted for the project to identify key features and to better understand the landscape. The route currently planned for development will need additional detailed field reviews should this project move forward. The overall objective of the routing study was to identify at least three transmission line route options that would best minimize impacts to communities and the environment while still being feasible to construct, and then selected an option for presentation to the PUC.

1.1 Purpose

The Study identifies major opportunities and constraints and uses an evaluation process to compare alternative transmission line routes for the Project that avoid or minimize adverse effects to the extent practicable. FirstEnergy Service Company on behalf of Penelec retained AECOM to assist with the evaluations and scoring and ranking of social/built, ecological, and engineering issues identified in the Study.

The purpose of this Study is to provide FirstEnergy with several viable alternatives for a transmission line alignment that provides connection between the existing Bedford North 115/69 kV Substation and the existing Central City West 115/69 kV Substation and an assessment of the social/built, ecological, and engineering variables necessary to determine a proposed route.

1.2 Project Need

FirstEnergy and PJM Interconnection, L.L.C. (PJM), the Regional Transmission Organization (RTO) that coordinates the movement of electricity in the Mid-Atlantic region, have identified the risk of thermal overloads and low-voltage conditions on the existing transmission system under certain conditions that could impact service reliability. The proposed project will address these issues and help to safely meet the electrical needs of the region.

The Project is also needed to ensure reliable service under established industry reliability standards that are employed for transmission planning purposes by FirstEnergy in conjunction with, and on behalf of, operating subsidiaries of FirstEnergy Corp., and are explained in the following paragraphs.

Pursuant to Section 215 of the Federal Power Act, the Federal Energy Regulatory Commission (FERC) has certified the North American Electric Reliability Corporation (NERC) as the electric reliability organization to develop and enforce mandatory reliability standards, subject to FERC review and approval. The FERC-approved NERC reliability standards are mandatory. PJM, a FERC-approved RTO, is charged with ensuring the reliability of the electric transmission system under its functional control and coordinating the movement of wholesale electricity in all or parts of 13 states and the District of Columbia, including most of Pennsylvania.

PJM is responsible for assuring compliance with NERC standards for the bulk electric system (i.e., above 100 kV) within its control area. NERC reliability standards require that the bulk electric system be designed to operate under approved thermal and voltage criteria limits, defined in FirstEnergy and PJM Planning Criteria, under various system loading conditions and in consideration of credible outages of elements on the bulk electric system.

PJM plans and operates the transmission system to ensure reliable transmission service for the entire PJM region. PJM and its members, including Penelec, prepare an annual Regional Transmission Expansion Plan (RTEP) to identify system reinforcements that are required to meet NERC reliability standards and each individual transmission owners' planning reliability criteria. Using the RTEP process, PJM develops specific regional transmission projects and designates the appropriate transmission owner to construct those projects.

The Project is needed to mitigate violations of FirstEnergy and PJM Planning Criteria that were identified as part of PJM's RTEP analysis. Specifically, the Project will address thermal and voltage Planning Criteria violations that would occur in NERC Category C conditions (in this instance, a faulted/stuck breaker, bus fault, or an N-1-1 outage).

PJM has conducted studies of the expected future transmission system conditions. The results of the PJM studies were shared with PJM Members and made available for access by the general public. The Project was presented to the PJM Transmission Expansion Advisory Committee (TEAC) on January 9, 2014. An excerpt from the PJM TEAC's January 9, 2014 presentation that discusses the Project is provided in Exhibit 20 and can also be found on the PJM website.

FirstEnergy uses General Electric Positive Sequence Load Flow (PSLF) software application to model the details of its transmission and distribution systems and to simulate power flows and electrical bus voltages under various system conditions and configurations. Regional load flow models are tested against a large series of system contingencies to identify possible violations of thermal and/or voltage criteria.

FirstEnergy and PJM identified thermal violations of their Transmission Planning Criteria, as explained in more detail below, and determined that the Project is the optimal solution to mitigate the identified issues, as also explained in more detail below. Accordingly, PJM determined that the Project is a RTEP “baseline” project and, therefore, has assigned to the Project PJM baseline RTEP upgrade number “b2450”.

As part of the PJM 2013 RTEP, PJM identified thermal loading Planning Criteria violations on Penelec’s Allegheny – Somerset 115 kV transmission line. PJM modeled a N-1-1 contingency that involves the loss of the Hilltop – Krayn – Rachel Hill and Cambria Slope – Summit 115 kV transmission lines, which shows that, if that contingency were to occur, the loading on the Allegheny – Somerset 115 kV transmission line would increase to 102% of its emergency rating and voltages on the 115 kV buses at Bedford North and Snake Springs substations would be less than the Planning Criteria emergency limit of 0.92 per unit. These violations were identified in a model of expected system conditions for summer 2018. Additionally, PJM identified similar overloads on the Allegheny – Somerset 115 kV transmission line for the N-1-1 contingency loss of the Cambria Slope – Summit and Claysburg – Krayn 115 kV transmission lines, and voltage below Planning Criteria emergency limits on the 115 kV buses at Bedford North, Claysburg, Curryville, Osterburg East, Saxton, and Snake Springs substations.

As part of the PJM 2012 RTEP, PJM modeled a contingency consisting of a fault on the Hilltop – Krayn – Rachel Hill 115 kV transmission line in conjunction with a stuck 115 kV circuit breaker at Krayn substation (which also outages the Claysburg – Krayn 115 kV transmission line and the wind generation connected to Krayn substation), which shows that, if that contingency were to occur, the loading on Penelec’s Bedford North – New Baltimore 115 kV transmission line would increase to 107% of its summer emergency rating. PJM also modeled contingencies consisting of a fault on the Cambria Slope – Jackson Road 115 kV transmission line with a stuck 115 kV circuit breaker at Cambria Slope substation (which also outages the Cambria Slope – Johnstown and Cambria Slope – Summit 115 kV line, the Cambria Slope 115/46 kV transformer, and the generation connected to the Cambria Slope 115 kV bus), a faulted 115 kV bus-tie circuit breaker at Rachel Hill substation (which results in an outage of all elements connected to the Rachel Hill 115 kV bus), and a fault on the Cambria Slope 115 kV bus (which results in an outage of all elements connected to that bus) and determined that, if any of these contingencies were to occur, the loading on the Bedford North – New Baltimore 115 kV line would exceed its summer emergency rating. The violations on the Bedford North – New Baltimore 115 kV line were identified in PJM’s generation deliverability test.

As previously mentioned, FirstEnergy and PJM determined that the Project is the best solution for addressing the various Planning Criteria violations identified above. Before reaching that conclusion, FirstEnergy considered replacing the existing Bedford North – New Baltimore and Allegheny – Somerset 115 kV transmission line with higher-capacity conductor. Replacing the conductor on these transmission lines would allow the lines to carry more load without exceeding their design capacity and would mitigate the thermal Planning Criteria violations. However, upgrading the lines would not mitigate the voltage violations. Constructing the Project will create a fourth source into the Bedford North region and will mitigate both the thermal and voltage criteria violations. The Project will allow the Penelec system

to avoid violations of applicable NERC standards, enhance the reliability of the bulk electric system, and provide capacity to serve existing and future load.

The Project will replace PJM baseline RTEP project b1607 which would have re-conducted/rebuilt the Bedford North – New Baltimore 115 kV transmission line using higher capacity conductor.

2.0 METHODOLOGY OVERVIEW

The methodology of the Study is designed to identify transmission line routes that minimize the overall impacts on social development, sensitive land uses, cultural features, and ecological areas to the greatest extent possible while taking into account economic and technical feasibility. This process relies on analysis of current land use and ecological data collected from multiple public sources and commercial providers, which is confirmed and supplemented through field evaluations by AECOM scientists and engineers, and Penelec construction staff. The field evaluation also provides an opportunity to qualitatively assess the various routes. The result of this process is a detailed and comprehensive assessment of the study area and route alternatives that is compiled and summarized in the Study. The data and analysis in the Study is presented in such a manner as to allow consideration and comparison of additional route concepts and alternatives.

The Study consists of a multi-stage suitability analysis that identifies areas of opportunity and constraint and then directly compares the resultant feasible candidate routes. The Study is comprised of four main steps:

1. Definition of a Project Study Area;
2. Review of the Environmental Setting;
3. Identification of Alternative Routes; and
4. Quantitative and Qualitative Analysis of the Alternative Routes to Guide Selection of the Proposed Route by FirstEnergy.

3.0 DEFINING THE PROJECT STUDY AREA

An initial task in the Study was the definition of the Project Study Area. The study area was selected based on professional judgment and the geographic characteristics of the region, as well as the physical endpoints of the Project (i.e., substation locations). In general, a selected study area should be within reasonable distance of the end points of the transmission line and it should provide the opportunity to identify multiple potentially feasible transmission line routes for further evaluation. In this case, the boundaries of the study area were developed based on a review of United States Geological Survey (USGS) maps, state and county road maps, and aerial photographs. Constraints such as major water bodies, urban/developed areas, transportation routes, existing utility corridors, and the locations of the end points played key roles in determining the boundaries of the study area and route candidate selections.

With these criteria in mind, the principal constraints observed for the Project were the existing Bedford North-New Baltimore 115 kV line to the south and Gallitzin State Forest to the north. Crossing to the south side of the existing 115 kV line would be impractical and developing a new line through sections of the state forest would require extensive coordination with the Department of Conservation and Natural Resources (PADCNR) and may involve PADCNR-mandated mitigation. As such, the existing Bedford North-New Baltimore 115 kV line defines the southern boundary and a straight line across the southern edge of Gallitzin State Forest defines the northern boundary of the Project Study Area.

The Project itself involves connecting the existing Bedford North Substation with the existing Central City West Substation; therefore it would be impractical for the Project Study Area to include lands extending beyond these two endpoints. Thus, perpendicular lines that run north-to-south through these substations respectively define the eastern and western boundaries of the Project Study Area. These limits follow best practices by preventing the line from being unnecessarily long and thus minimize impacts.

The resulting Project Study Area comprises approximately 172 square miles and covers portions of Bedford, Napier, Juniata, East St. Clair, and West St. Clair Townships in Bedford County, Allegheny, Stonycreek, Shade, and Ogle Townships in Somerset County and the Boroughs of New Paris in Bedford County and Central City in Somerset County (**Figure 3-1**).

4.0 ENVIRONMENTAL SETTING OF THE PROJECT STUDY AREA

Information contained in this section was gathered from a variety of Federal, State, and local GIS databases, published reports and maps, and windshield surveys of the Project Study Area.

4.1 Natural Environment

Features of the natural environment are an important consideration in the routing process. Transmission line routing studies attempt to minimize impacts to the natural environment by avoiding regulated features such as wetlands, streams, and floodplains. This methodology minimizes project permitting issues and costs while preserving key habitats. This section provides a general description of the environmental setting of the Project Study Area including the physiography, geology, soils, surface waters, vegetation, special use areas, and wildlife habitat.

4.1.1 Physiographic Region and Topography

The Commonwealth of Pennsylvania is divided into several physical geographic regions, known as physiographic provinces, which are defined based on the terrain and geologic history of the landscape. The Project Study Area is located within the Appalachian Mountain Section of the Ridge and Valley Province and the Allegheny Front and Allegheny Mountain Sections of the Appalachian Plateaus Province. The Appalachian Mountain Section is located along the eastern edge of the Project Study Area and is composed of long, narrow ridges and broad to narrow valleys with moderate to very high relief. The Allegheny Front Section composes the majority of the Project Study Area and is characterized by rounded to linear hills rising by steps to an escarpment (Allegheny Front) with some of the hills being cut by narrow valleys. The Allegheny Mountain Section is located along the western edge of the Project

Study Area and is characterized by wide ridges that are separated by broad valleys with moderate to high relief (Sevon 2000).

Elevations within the Appalachian Mountain Section range from 1,000' to 1,400' above mean sea level (amsl) around the Bedford North Substation. Elevations within the Allegheny Front Section increase to 1,800' amsl on top of the Pigeon Hills located just west of the Bedford North Substation and to 1,700' amsl along Chestnut Ridge in the central section of the Project Study Area. Elevations increase sharply along the western half of the Allegheny Front Section from 1,800' amsl to 3,000' amsl at Frazier's Pass near the southern edge of the Project Study Area. After cresting the Allegheny Front, elevations level off to around 2,500' amsl. Elevations within the Allegheny Mountain Section range between 2,500' and 2,200' amsl near the Central City West Substation. **Figure 4-1** shows the physiographic province boundaries and elevations across the region based on a 10-meter Digital Elevation Model (DEM).

4.1.2 Bedrock Geology

The regional geology of the Project Study Area is composed primarily of sedimentary rock units ranging from the older Pennsylvania Age to the more recent Silurian Age. The Pennsylvanian aged Allegheny (Pa), Pottsville (Pp), and Glenshaw (Pcg) formations are located at the higher elevations west of the Allegheny Front. The Mississippian and Devonian aged bedrock units are located in the central and eastern portions and compose more than half the Project Study Area. Silurian aged bedrock units are located along the eastern edge around the Bedford North Substation. Information provided by the Pennsylvania Department of Environmental Protection's (PADEP) EMapPA website describing these bedrock units is listed in **Table 4-1** (PADEP 2016a). The spatial distribution is depicted in **Figure 4-2**.

TABLE 4-1: Summary of Bedrock Units in the Project Study Area

Bedrock Unit Symbol	Bedrock Unit Name	Age of Formation	Primary Composition
Dbh	Brallier and Harrell Formations	Devonian	Siltstone
Dck	Catskill Formation	Devonian	Sandstone
Df	Foreknobs Formation	Devonian	Sandstone
Dh	Hamilton Group	Devonian	Shale
Doo	Onondaga and Old Port Formations	Devonian	Calcareous Shale
Ds	Scherr Formation	Devonian	Siltstone
DSkt	Keyser and Tonoloway Formations	Devonian and Silurian	Limestone
Mb	Burgoon Formation	Mississippian	Sandstone
MDr	Rockwell Formation	Mississippian and Devonian	Shale
MmC	Mauch Chunk Formation	Mississippian	Shale
Pa	Allegheny Formation	Pennsylvanian	Sandstone
Pcg	Glenshaw Formation	Pennsylvanian	Shale
Pp	Pottsville Formation	Pennsylvanian	Sandstone
Sbm	Bloomsburg and Mifflintown Formation	Silurian	Shale
Sc	Clinton Group	Silurian	Shale

Bedrock Unit Symbol	Bedrock Unit Name	Age of Formation	Primary Composition
St	Tuscarora	Silurian	Quartzite
Swc	Wills Creek Formation	Silurian	Calcareous Shale

4.1.3 Soil Characteristics

Soils within the Project Study Area were reviewed using the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) soil survey website (USDA/NRCS 2016). Information on the hydric soil rating is listed in **Table 4-2**. Hydric soils consisted of 19 predominantly hydric map units and one partially hydric map unit, equivalent to about 10 percent of the Project Study Area. These soils are primarily located along the narrower stream valleys east of the Allegheny Front and in broader and more concentrated areas west of this mountain (**Figure 4-3**).

TABLE 4-2: Summary of Soils in the Project Study Area

Map Unit Symbol	Map Unit Name	Hydric Soil
AbB	Albrights silt loam, 3 to 8% slopes	NO
AbC	Albrights silt loam, 8 to 15% slopes	NO
AeB	Allegheny loam, 3 to 8% slopes	NO
AeC	Allegheny loam, 8 to 15% slopes	NO
*AgB	Albrights very stony silt loam, 3 to 8% slopes	NO
*AgD	Albrights very stony silt loam, 8 to 25% slopes	NO
*Ar	Armagh silt loam	Predominantly Hydric
ArB	Andover cobbly loam, 3 to 8% slopes	Predominantly Hydric
*AsB	Armagh very stony silt loam, 0 to 8 percent slopes	Predominantly Hydric
*At	Atkins silt loam, 0 to 3% slopes, frequently flooded	Predominantly Hydric
AvB	Andover cobbly sandy loam, 0 to 8% slopes, very stony	Predominantly Hydric
AvC	Andover cobbly sandy loam, 8 to 15% slopes, very stony	Predominantly Hydric
Aw	Atkins silt loam	Predominantly Hydric
Ax	Atkins-Ernest complex, 0 to 8% slopes	Partially Hydric
Ba	Basher silt loam	NO
BbB	Basher-Birdsboro complex, 0 to 8% slopes	NO
BcC	Bedington-Berks complex, 8 to 15% slopes	NO
BcD	Bedington-Berks complex, 15 to 25% slopes	NO
BdC	Bedington-Berks complex, 8 to 15% slopes, very stony	NO
BdD	Bedington-Berks complex, 15 to 25% slopes, very stony	NO
BdE	Bedington-Berks complex, 25 to 35% slopes, very stony	NO
*BeD	Berks channery silt loam, 15 to 25% slopes	NO
BkB	Berks channery silt loam, 3 to 8% slopes	NO
BkC	Berks channery silt loam, 8 to 15% slopes	NO
BkD	Berks channery silt loam, 15 to 25% slopes	NO
BkE	Berks channery silt loam, 25 to 35% slopes	NO
*BkF	Berks and Weikert soils, 25 to 70% slopes	NO
Bm	Birdsboro silt loam, rarely flooded	NO
*BnB	Blairton channery silt loam, 3 to 8% slopes	NO

Map Unit Symbol	Map Unit Name	Hydric Soil
*BrA	Brinkerton soils, 0 to 3% slopes	Predominantly Hydric
BrB	Blairton channery silt loam, 3 to 8% slopes	NO
*BrB	Brinkerton soils, 3 to 8 %slopes	Predominantly Hydric
BrC	Blairton channery silt loam, 8 to 15% slopes	NO
BrD	Blairton channery silt loam, 15 to 25% slopes	NO
BtA	Brinkerton silt loam, 0 to 3% slopes	Predominantly Hydric
BtB	Brinkerton silt loam, 3 to 8% slopes	Predominantly Hydric
*BtB	Brinkerton very stony silt loam, 0 to 8% slopes	Predominantly Hydric
BtC	Brinkerton silt loam, 8 to 15% slopes	Predominantly Hydric
BuB	Buchanan cobbly loam, 3 to 8% slopes	NO
BuC	Buchanan cobbly loam, 8 to 15% slopes	NO
BwB	Buchanan cobbly loam, 3 to 8% slopes, extremely stony	NO
BwC	Buchanan cobbly loam, 8 to 15% slopes, extremely stony	NO
BwD	Buchanan cobbly loam, 15 to 25% slopes, extremely stony	NO
*CaA	Cavode silt loam, 0 to 3% slopes	NO
CaB	Calvin channery silt loam, 3 to 8% slopes	NO
*CaB	Cavode silt loam, 3 to 8% slopes	NO
CaC	Calvin channery silt loam, 8 to 15% slopes	NO
*CaC	Cavode silt loam, 8 to 15% slopes	NO
CaD	Calvin channery silt loam, 15 to 25% slopes	NO
*CbB	Cavode very stony silt loam, 0 to 8% slopes	NO
*ChA	Chavies silt loam, 0 to 3% slopes	NO
*ChB	Chavies silt loam, 3 to 8% slopes	NO
CkB	Clarksburg silt loam, 3 to 8% slopes	NO
*CoB	Cookport loam, 3 to 8% slopes	NO
*CpB	Cookport very stony loam, 3 to 8% slopes	NO
*CpD	Cookport very stony loam, 8 to 25% slopes	NO
*DhB	Dekalb-Hazleton channery sandy loams, 3 to 8% slopes	NO
*DkB	Dekalb-Hazleton very stony sandy loams, 3 to 8 percent slopes	NO
DkC	Dystrocrepts-Rock outcrop complex, 3 to 15 percent slopes	NO
DkE	Dystrocrepts-Rock outcrop complex, 15 to 35 percent slopes	NO
DkF	Dystrocrepts-Rock outcrop complex, 35 to 70 percent slopes	NO
EdB	Edom silty clay loam, 3 to 8% slopes	NO
EdC	Edom silty clay loam, 8 to 15% slopes	NO
EdD	Edom silty clay loam, 15 to 25% slopes	NO
EIB	Elliber very channery loam, 3 to 8% slopes	NO
EIC	Elliber very channery loam, 8 to 15% slopes	NO
EID	Elliber very channery loam, 15 to 25% slopes	NO
EIE	Elliber very channery loam, 25 to 45% slopes	NO
ErB	Ernest silt loam, 3 to 8% slopes	NO
ErC	Ernest silt loam, 8 to 15% slopes	NO
*EsB	Ernest very stony silt loam, 3 to 8% slopes	NO
*EsD	Ernest very stony silt loam, 8 to 25% slopes	NO
*FV	Fluvaquents	Predominantly Hydric

Map Unit Symbol	Map Unit Name	Hydric Soil
*HaB	Hazleton channery sandy loam, 3 to 8% slopes	NO
*HaC	Hazleton channery sandy loam, 8 to 15% slopes	NO
*HbB	Hazleton channery sandy loam, 3 to 8% slopes, extremely stony	NO
*HbD	Hazleton channery sandy loam, 8 to 25% slopes, extremely stony	NO
*HbF	Hazleton channery sandy loam, 25 to 70% slopes, extremely stony	NO
HeB	Hagerstown silt loam, 3 to 8% slopes	NO
HeC	Hagerstown silt loam, 8 to 15% slopes	NO
HgC	Hagerstown silty clay loam, 8 to 15% slopes	NO
HgD	Hagerstown silty clay loam, 15 to 25% slopes	NO
HnC	Hagerstown silty clay loam, 8 to 15% slopes, very rocky	NO
HnD	Hagerstown silty clay loam, 15 to 25% slopes, very rocky	NO
HTB	Hazleton very stony sandy loam, 3 to 8% slopes	NO
HTC	Hazleton-Clymer association, 8 to 25% slopes, extremely stony	NO
HTE	Hazleton-Clymer association, 25 to 45% slopes, extremely stony	NO
Hy	Holly silt loam	Predominantly Hydric
*HzB	Hazleton channery sandy loam, 0 to 8% slopes, extremely bouldery	NO
*HzD	Hazleton channery sandy loam, 8 to 25% slopes, extremely bouldery	NO
*HzF	Hazleton channery sandy loam, 25 to 60% slopes, extremely bouldery	NO
KIC	Klinesville channery silt loam, 8 to 15% slopes	NO
KID	Klinesville channery silt loam, 15 to 25% slopes	NO
KmE	Klinesville and Calvin soils, 25 to 50% slopes	NO
LdB	Laidig cobbly loam, 3 to 8% slopes	NO
LdC	Laidig cobbly loam, 8 to 15% slopes	NO
LdD	Laidig cobbly loam, 15 to 25% slopes	NO
*LeB	Leck kill channery silt loam, 3 to 8% slopes	NO
*LeC	Leck kill channery silt loam, 8 to 15% slopes	NO
*LeD	Leck kill channery silt loam, 15 to 25% slopes	NO
LgC	Laidig cobbly loam, 8 to 15% slopes, extremely stony	NO
LgD	Laidig cobbly loam, 15 to 25% slopes, extremely stony	NO
LgE	Laidig cobbly loam, 25 to 35% slopes, extremely stony	NO
LkB	Leck kill-Calvin complex, 3 to 8% slopes	NO
*LkB	Leck kill very stony silt loam, 3 to 8% slopes	NO
LkC	Leck kill-Calvin complex, 8 to 15% slopes	NO
LkD	Leck kill-Calvin complex, 15 to 25% slopes	NO
*LkD	Leck kill very stony silt loam, 8 to 25% slopes	NO
*LmF	Leck kill soils, 25 to 60% slopes	NO
Lx	Lobdell loam	NO
McB	Meckesville gravelly loam, 3 to 8% slopes	NO
McC	Meckesville gravelly loam, 8 to 15% slopes	NO
MdC	Meckesville gravelly loam, 8 to 15% slopes, very stony	NO
MdD	Meckesville gravelly loam, 15 to 25% slopes, very stony	NO
MdE	Meckesville gravelly loam, 25 to 35% slopes, very stony	NO
MhC	Mertz channery silt loam, 8 to 15% slopes	NO
MoA	Monongahela silt loam, 0 to 3% slopes	NO

Map Unit Symbol	Map Unit Name	Hydric Soil
MoB	Monongahela silt loam, 3 to 8% slopes	NO
MrB	Morrison channery sandy loam, 3 to 8% slopes	NO
MrC	Morrison channery sandy loam, 8 to 15% slopes	NO
MrD	Morrison channery sandy loam, 15 to 25% slopes	NO
MsB	Morrison channery sandy loam, 3 to 8% slopes, very stony	NO
MsC	Morrison channery sandy loam, 8 to 15% slopes, very stony	NO
MsD	Morrison channery sandy loam, 15 to 25% slopes, very stony	NO
MtB	Morrison-Murrill complex, 3 to 8% slopes, very stony	NO
MtC	Morrison-Murrill complex, 8 to 15 percent slopes, very stony	NO
MtD	Morrison-Murrill complex, 15 to 25% slopes, very stony	NO
MuB	Murrill channery loam, 3 to 8% slopes	NO
MuC	Murrill channery loam, 8 to 15% slopes	NO
MuD	Murrill channery loam, 15 to 25% slopes	NO
Nd	Nolin silt loam	NO
*NoA	Nolo loam, 0 to 3% slopes	Predominantly Hydric
*NoB	Nolo loam, 3 to 8% slopes	Predominantly Hydric
*NsB	Nolo very stony loam, 0 to 8% slopes	Predominantly Hydric
OpB	Opequon-Hagerstown complex, 3 to 8% slopes, very rocky	NO
OpC	Opequon-Hagerstown complex, 8 to 15% slopes, very rocky	NO
OpD	Opequon-Hagerstown complex, 15 to 25% slopes, very rocky	NO
OpE	Opequon-Hagerstown complex, 25 to 45% slopes, very rocky	NO
PeB	Penlaw silt loam, 0 to 8% slopes	NO
Ph	Philo silt loam	NO
*Ph	Philo silt loam, 0 to 3% slopes, occasionally flooded	NO
Pm	Pits and Quarries	NO
Pp	Pope fine sandy loam	NO
Ps	Purdy silty clay loam, 0 to 3% slopes	Predominantly Hydric
*RgB	Rayne-Gilpin channery silt loams, 3 to 8% slopes	NO
*RgC	Rayne-Gilpin channery silt loams, 8 to 15% slopes	NO
*RgD	Rayne-Gilpin channery silt loams, 15 to 25% slopes	NO
*RgF	Rayne-Gilpin channery silt loams, 25 to 65% slopes	NO
*RpB	Rayne-Gilpin very stony silt loams, 3 to 8% slopes	NO
*RpD	Rayne-Gilpin very stony silt loams, 8 to 25% slopes	NO
TgA	Tyler silt loam, 0 to 3% slopes	NO
TgB	Tyler silt loam, 3 to 8% slopes	NO
*UDA	Udorthents, mine spoil, 0 to 8% slopes	NO
*UDD	Udorthents, mine spoil, 8 to 25% slopes	NO
*UDF	Udorthents, mine spoil, 25 to 70% slopes	NO
Ue	Udorthents, loamy	NO
UgF	Ungers-Lehew complex, 35 to 60% slopes, very stony	NO
*UOA	Udorthents, smoothed	NO
VdF	Vanderlip-Rock outcrop complex, 35 to 60% slopes	NO
*WhB	Wharton silt loam, 3 to 8% slopes	NO
*WhC	Wharton silt loam, 8 to 15% slopes	NO

Map Unit Symbol	Map Unit Name	Hydric Soil
*WhD	Wharton silt loam, 15 to 25% slopes	NO
WkC	Weikert channery silt loam, 8 to 15% slopes	NO
WkD	Weikert channery silt loam, 15 to 25% slopes	NO
WkE	Weikert channery silt loam, 25 to 35% slopes	NO
WkF	Weikert channery silt loam, 35 to 65% slopes	NO
WIF	Weikert very flaggy silt loam, 25 to 60% slopes	NO
WsB	Westmoreland channery silt loam, 3 to 8% slopes	NO
WsC	Westmoreland channery silt loam, 8 to 15% slopes	NO
WsE	Westmoreland channery silt loam, 25 to 35% slopes	NO
*WvB	Wharton very stony silt loam, 3 to 8% slopes	NO
*WvD	Wharton very stony silt loam, 8 to 25% slopes	NO
WwD	Westmoreland-Klinesville complex, 15 to 25% slopes	NO
WxB	Wharton channery silt loam, 3 to 8% slopes, very stony	NO
WxC	Wharton channery silt loam, 8 to 15% slopes, very stony	NO

*Indicates Somerset County Soils.

4.1.4 Surface Water

East of the Allegheny Front, the Project Study Area is located within the Dunning Creek and Shawnee Branch watersheds. These two stream systems drain into the Raystown Branch of the Juniata River, which drains into the Susquehanna River and eventually the Chesapeake Bay. West of the Allegheny Front, the Project Study Area is located within the Dark Shade Creek and Clear Shade Creek watersheds. These two stream systems drain into the Conemaugh River, which drains into the Allegheny River and eventually to the Gulf of Mexico. Major surface water features are depicted in **Figure 4-4** and discussed in detail below.

Streams

Surface water resources mapped within the Project Study Area include streams, floodplains, and open waters (**Figure 4-4**). The information presented in this section is based upon publicly available data provided by the United States Geologic Survey (USGS), the Federal Emergency Management Agency (FEMA), and PADEP.

Named streams within the Project Study Area that have been identified on relevant USGS maps are listed in **Table 4-3** (USGS 2016). According to Pennsylvania Code, Title 25, Chapter 93, PADEP has established narrative and numeric water quality criteria necessary to support a variety of protected water uses, which include protection uses for aquatic life (e.g., Cold Water Fishes (CWF), Warm Water Fishes (WWF), Trout Stocked Fishery (TSF), and Migratory Fishes (MF)) and special protection waters (e.g., High Quality (HQ) and Exceptional Value (EV)). PADEP assigns all streams in the Commonwealth a *Designated Use*, which is the water use goal for a particular stream segment, whether or not it is currently being attained. In contrast, a stream's *Existing Use* is the use actually attained by existing water quality. PADEP's antidegradation policy requires existing uses, and the level of water quality necessary to protect existing uses, shall be maintained and protected. As such, the water quality of a stream

segment with an existing use that exceeds its designated use may not be degraded below the water quality levels protective of that existing use (PADEP 2016b). Designated stream classifications are illustrated on **Figure 4-4**. Designated Uses of the streams located in the Project Study Area are also noted in **Table 4-3**. Note that none of the streams has an Existing Use status.

Further, the Pennsylvania Fish and Boat Commission (PFBC) provides additional protection (i.e., season restrictions) to streams that support trout populations. Streams listed as Wild Trout Waters (Natural Reproduction) (PFBC 2016a), Approved Trout Stream (stocked) (PFBC 2016b) Class A Wild Trout Waters (PFBC 2016c) or Wilderness Trout Waters (PFBC 2016d) are also noted on **Table 4-3**.

TABLE 4-3: Named Streams in the Project Study Area

Stream Name	Chapter 93 Designated Use	Special PFBC Designation
Adams Run (Bedford)	WWF	N/A
Barefoot Run (Bedford)	WWF	N/A
Beaverdam Run (Somerset)	HQ-CWF	Approved Trout/Wild Trout
Bentz Run (Bedford)	WWF	N/A
Bobs Creek (Bedford)	CWF	Approved Trout/Wild Trout
Boone Run (Somerset)	CWF	N/A
Breastwork Run (Somerset)	HQ-CWF	Approved Trout/Wild Trout
Brush Run (Bedford)	WWF	N/A
Burns Creek (Bedford)	WWF	N/A
Clear Run (Somerset)	CWF	N/A
Clear Shade Creek (Somerset)	EV/HQ-CWF	Approved Trout/Wild Trout
Coal Run (Somerset)	CWF	Wild Trout
Cub Run (Somerset)	EV	Approved Trout/Wild Trout/ Class A Trout
Dark Shade Creek (Somerset)	CWF	N/A
Dunning Creek (Bedford)	WWF	N/A
Georges Creek (Bedford)	WWF	N/A
Kegg Run (Bedford)	WWF	N/A
Laurel Run (Somerset)	CWF	N/A
Little Dark Shade Creek (Somerset)	CWF	N/A
Miller Run (Somerset)	CWF	N/A
Negro Hollow Run (Bedford)	WWF	N/A
Oppenheimer Run (Bedford)	WWF	N/A
Panther Run (Bedford)	CWF	N/A
Piney Run (Somerset)	EV/HQ-CWF	Approved Trout/Wild Trout/ Wilderness Trout
Rocklick Creek (Bedford)	WWF	N/A
Ryot Run (Bedford)	WWF	N/A
Sandy Run (Somerset)	CWF	N/A
Scrubgrass Creek (Bedford)	CWF	N/A

Stream Name	Chapter 93 Designated Use	Special PFBC Designation
Shade Creek (Somerset)	CWF	N/A
Shawnee Branch (Bedford)	WWF	Wild Trout
Shingle Run (Somerset)	CWF	Wild Trout
Stone Creek (Bedford)	WWF	N/A
Wills Run (Somerset)	HQ-CWF	Wild Trout

PADEP's 2014 Integrated (303(d) and 305(b)) Water Quality Report summarizes the water quality conditions of surface water in the Commonwealth of Pennsylvania. The report classifies streams as impaired or non-impaired and further identifies the standards based on four designated uses: aquatic life, fish consumption, recreation use, and potable water supply (PADEP 2014). Within the Project Study Area, four streams are classified as impaired:

- Stone Creek – located in the northeast corner of the Project Study Area, the aquatic life of this stream is classified as impaired due to nutrients from agricultural runoff.
- Dark Shade Creek/Coal Run – located in the western part of the Project Study Area and flowing through Central City, the aquatic life of this stream network is classified as impaired due to metals and pH levels from acid mine drainage.
- Clear Run – located in the southwestern corner of the Project Study Area, the aquatic life of this stream network is classified as impaired due to metals from acid mine drainage.
- Boone Run – located in the southwestern corner of the Project Study Area, the aquatic life of this stream network is classified as impaired due to metals from acid mine drainage.

There are no state-listed scenic rivers present within the Project Study Area based on review of the Pennsylvania Department of Conservation and Natural Resources (PADCNR) Scenic Rivers Program (PADCNR 2016a). None of the rivers in the Project Study Area are considered federally-listed wild and scenic rivers according to the National Wild and Scenic Rivers Program managed by the U.S. National Park Service (USNPS 2016a).

Floodplains

100-year floodplains are areas adjacent to streams which would be inundated by a flood elevation that has a 1-percent chance of being equaled or exceeded each year. The Federal Emergency Management Agency (FEMA) delineates the extent of most 100-year floodplains. The 100-year floodplain boundaries are illustrated on **Figure 4-4** (FEMA 2016). Floodplains are located primarily along Dunning Creek in the central and northern part of the Project Study Area, as well as around Dark Shades Creek in Central City.

Lakes and Ponds

Numerous small agriculture-based ponds (0.5 to 2.0 acres) are located within the Project Study Area. The U.S. Fish and Wildlife Services (USFWS) National Wetlands Inventory (NWI) categorizes surface water resources such as open waters (e.g. streams, ponds, and lakes) and wetlands in accordance with the Cowardin system (Cowardin *et al.* 1979). These ponds are categorized by the NWI as palustrine unconsolidated bottom, permanently flooded, (PUBH) features, or freshwater ponds. The two largest

open water features are located near Central City and are listed as palustrine unconsolidated shore, seasonally flooded, artificially flooded (PUSKC) and palustrine unconsolidated bottom, artificially flooded, diked/impounded (PUBKh). The first is a 7-acre retention basin associated with adjacent quarry operations and the second is a 5-acre basin associated with water treatment (**Figure 4-4**) (USFWS 2016).

4.1.5 Wetlands

Review of the NWI wetland maps indicates that several small (0.5 to 2.0 acres) and moderate (2.0 to 30.0 acres) sized palustrine wetlands are located within the Project Study Area, primarily in the forested mountains east of Central City (**Figure 4-4**). Palustrine systems include all non-tidal vegetated wetlands and are further classified based on the dominant plant type. These classifications include palustrine emergent (PEM) herbaceous systems, palustrine scrub-shrub (PSS) systems, and palustrine forested (PFO) systems. The various classifications and cumulative areas of the wetlands located in the Project Study Area are listed in **Table 4-4**.

TABLE 4-4: NWI Wetlands in the Project Study Area

Wetland Code	Wetland Type	Area (ac.)
PEMA	Palustrine Emergent, Temporarily Flooded	1.5
PEMB	Palustrine Emergent, Saturated	2.7
PEMC	Palustrine Emergent, Seasonally Flooded	41.0
PFO/SS1A	Palustrine Forested/Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded	4.5
PFO/SS1B	Palustrine Forested/Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Saturated	7.8
PFO/SS1C	Palustrine Forested/Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded	5.4
PFO1A	Palustrine Forested, Broad-Leaved Deciduous, Temporarily Flooded	113.7
PFO1B	Palustrine Forested, Broad-Leaved Deciduous, Saturated	15.1
PFO1C	Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded	20.1
PSS1/EMA	Palustrine Scrub-Shrub, Broad-Leaved Deciduous/Palustrine Emergent, Temporarily Flooded	5.6
PSS1/EMC	Palustrine Scrub-Shrub, Broad-Leaved Deciduous/Palustrine Emergent, Seasonally Flooded	6.6
PSS1A	Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded	16.8
PSS1B	Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Saturated	82.5
PSS1Ba	Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Saturated, Acid	25.1
PSS1C	Palustrine Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded	14.2

Wetlands depicted on the NWI maps are based primarily on interpretation of aerial photographs taken in the 1980's, and were not field verified or delineated in accordance with standard methodologies. Hence, these data are suitable for planning purposes only.

4.1.6 Vegetation Communities

The Project Study Area lies within the Central Appalachian Broadleaf Forest-Coniferous Forest-Meadow Forest ecosystem province (McNab 2005). This province is temperate with cool summers and short, mild winters. Annual precipitation is plentiful and evenly distributed. Vegetation is characterized by a tall, closed canopy of deciduous broadleaf forests with mesophytic and drought-tolerant species; forests change to coniferous or shrub lands at higher elevations. According to Rhoads' and Block's *Trees of*

Pennsylvania: A Complete Reference Guide (Rhoads & Block 2005), the Project Study Area is within the Appalachian Oak Forest, which is the dominant forest type in Pennsylvania. This forest type is characterized by the presence of red oak (*Quercus rubra*), white oak (*Quercus alba*), tulip tree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and hickory trees (*Carya* species). It also generally has a dense layer of shrubs including mountain laurel (*Kalmia latifolia*) and black huckleberry (*Gaylussacia baccata*).

The vegetation of the Project Study Area has been altered considerably by human disturbance. As a result, the landscape is a patchwork of residential and commercial areas, agricultural fields, open meadows, and forested areas. Vegetation within the socially developed areas around Bedford and Central City consists of a wide variety of native and ornamental trees and shrubs planted by various property owners or part of municipal street scape design. Agricultural areas are predominantly noted in the central and eastern portions of the Project Study Area and are dominated by crop species such as corn, wheat, or soybean; some agricultural areas are used for horses, cows, or other livestock. Large orchards operations are noted along Chestnut Ridge in the northern part of the area. Forested pockets border the agricultural lands, but larger tracts of forest are noted on the Pigeon Hills near Bedford and along the Allegheny Front and points west to Central City. All of these forested areas are second and third growth forests; there are few known areas of old-growth forest in the area.

4.1.7 Wildlife

Typical wildlife species found within the Project Study Area include those found in wetlands, forested habitats, and open/agricultural lands. These habitats contain a diverse population of amphibians, fish, reptiles, birds and mammals. Common mammals within these habitats include raccoon (*Procyon lotor*), porcupine (*Erethizon dorsatum*), and white-tailed deer (*Odocoileus virginianus*). More isolated regions such as State Game Lands #228 may also contain black bears (*Ursus americanus*), beaver (*Castor canadensis*), and bobcat (*Lynx rufus*) (Fergus 2000).

Important Bird Areas (IBA) are “designated by the Pennsylvania Ornithological Technical Committee (POTC), as the most critical regions in the Commonwealth for conserving bird diversity and abundance, and are the primary focus of Audubon Pennsylvania’s conservation efforts” (Audubon Pennsylvania Birds Conservation 2016). The area along the Allegheny Front is recognized as a migratory route for raptors and songbirds. The Allegheny Front IBA extends from the Pennsylvania/Maryland border north to Altoona and passes through the western portion of the Project Study Area. The IBA is up to 5-miles wide and encompasses the area from the eastern slope of the Allegheny Front west to points past Central City. Audubon has developed a public viewing area on top of the Allegheny Front at a location approximately 4 miles east of Central City (**Figure 4-4**).

4.1.8 Threatened and Endangered Species

A review of the PADCNr Natural Heritage Program Database would need to be conducted to determine the potential presence of threatened or endangered (T&E) species in the Project Study Area. The search would evaluate for federal (USFWS) and state (PADCNr, Pennsylvania Fish and Boat Commission (PFBC)

and Pennsylvania Game Commission (PGC)) listed species. Further coordination with these agencies will be required to obtain specific T&E species data for the proposed route.

The Natural Heritage Inventory of Bedford County and Somerset County, developed by the Western Pennsylvania Conservancy (WPC), identified several natural areas within the Project Study Area that contain known T&E species or their habitats (**Figure 4-4**) (WPC 1998, WPC 2006). These natural areas and the potential T&E species in these areas are listed in **Table 4-5**.

TABLE 4-5: Natural Areas and Potential T&E Species in the Project Study Area

Natural Area	Community Type and Potential T&E Species
BEDFORD COUNTY	
Cessna Barrens	Appalachian shale barren Natural Community; Kate's-mountain clover (<i>Trifolium virginicum</i>).
Cessna Marsh	Calcareous marsh Natural Community; backward sedge (<i>Carex retrorsa</i>), wood's sedge (<i>Carex tetanica</i>), and Baltic rush (<i>Juncus balticus</i>)
Dunning Creek Wetlands at Ryot	Small groundwater seepage area that supports a plant species of concern, the brown sedge (<i>Carex buxbaumii</i>)
Osterburg Marsh	Calcareous marsh Natural Community; Schweintz's sedge (<i>Carex schweinitzii</i>)
Springhope Seeps	Northern Appalachian Circumneutral Seep, brown sedge (<i>Carex buxbaumii</i>).
St. Clairsville Bluffs	Northern Appalachian calcareous cliff Natural Community; Canby's mountain-lover (<i>Paxistima canbyi</i>)
SOMERSET COUNTY	
Clear Shade Creek	Clear Shade Creek is an exceptional value stream that is occupied by an animal species of concern.
Clear Shade Creek Headwater Wetlands	A series of non-glacial bog communities that form an extensive wetland complex.
Coal Run Trail	Forested ridge-top on State Game Lands #228 along the Allegheny Front; mountain bellwort (<i>Uvularia pudica</i>),
Crumb Bog	The bog is part of Piney Run, an exceptional value stream, supports blunt manna-grass (<i>Glyceria obtusa</i>) and fall dropseed muhly (<i>Muhlenbergia uniflora</i>),
Shingle Run Wetland	Headwater shrub/graminoid wetland community along Shingle Run occupied by yellow-fringed orchid (<i>Platanthera ciliaris</i>).

4.1.9 Special Use Areas

Special use areas are defined as governmental owned or controlled lands that are publically accessible and provide special conservations value and social service. Scenic vistas, wilderness areas, state game lands, and public parks are several examples of these lands.

Scenic Areas

The Project Study Area does not contain any state designated scenic areas (PADCNR 2016b). No federal or state scenic highways, as noted by the Federal Highway Administration (FHA) and the Pennsylvania Department of Transportation (PennDOT), are located in the Project Study Area (FHA 2016; PennDOT 2016). A public scenic overlook does exist along U.S. Route 30 as it crests the top of the Allegheny Front near the town of Grand View. The Allegheny Front Hawk Watch is another public scenic area that is located along the Allegheny Front approximately 4 miles east of Central City. This area is managed by the Allegheny Plateau Audubon Society and is the site of annual raptor surveys and bird counts (Allegheny Plateau Audubon Society 2016).

Wilderness Areas

The Project Study Area is not located within a National Wilderness Preservation System (NWPS 2016).

State Game Lands

State Game Lands are managed by the Pennsylvania Game Commission (PGC) for hunting, trapping, and fishing. The 4,300-acre State Game Land #228 is located within the boundary of the Project Study Area near Central City (PGC 2016).

Park Lands

There are no national parks located within the Project Study Area (USNPS 2016b). A 1-acre segment of Shawnee State Park that is crossed by the existing Bedford North-New Baltimore 115 kV transmission line is located along the southern boundary of the Project Study Area near Bedford (PADCNR 2016c) (**Figure 4-5**). Other local parks in the area include Shade Township Park near Cairnbrook, Central City Borough Park, and a ball field in Osterburg.

Natural Areas

There are no state-listed Natural Areas located within the Project Study Area (PADCNR 2016d).

4.2 Built Environment

Human impacts on the natural environment are represented by a number of land use patterns and development types. Evaluation of the land uses considered conventional classifications such as residential, agriculture, forested, and urban uses. Additional evaluation assessed the government services, educational services, historic and cultural resources, and hazardous material sites.

4.2.1 Land Use/ Land Cover

Land use of the Project Study Area is composed primarily of agricultural and forested lands intersected by a few transportation corridors that are lined with pockets of residential and commercial development. These distributions can be seen in **Figure 4-6**.

Residential Development

Moderately dense pockets of residential land are located within the Borough of Central City and the towns of Cairnbrook, New Paris, Fishertown, Reynoldsdale, Osterburg, and St. Clairsville. Less dense residential development is located along major roadways including State Route 96 (SR 96), which extends north-to-south through the central section of the Project Study Area, and SR 56 and SR 869, which are located in the northeast section. Numerous small communities and farm complexes are scattered across eastern two-thirds of the Project Study Area; the western third on top of the Allegheny Front is less developed due to the presence of State Game Lands #228 and other large tracts of privately owned lands. Residential facilities account for approximately 15% of the Project Study Area.

Institutional/Industrial/Commercial

Institutional facilities generally include schools, which are closely tied into the residential development pattern. The several larger schools noted in the Project Study Area are located in the moderately dense towns including Central City, New Paris, and Fishertown (**Figure 4-6**). These facilities generally involve a large main building structure and surrounding open areas that contain ball fields. Other smaller, private school houses are noted in rural sections of the Project Study Area. Other institutional lands include municipal facilities such as maintenance yards, office buildings, and water treatment areas.

Industrial lands in the Project Study Area include several abandoned and active quarry operations noted predominantly around Central City. Portions of these industrial lands are identified as the Bare Rock and Mines category in **Figure 4-6**. Not noted on **Figure 4-6** is the relatively recent addition of large wind farm complexes along the Allegheny Front. A large cluster of wind turbines has been developed south of Central City near U.S. Route 30.

Commercial lands generally include common retail shops such as restaurants, gas stations, and markets, which are noted in concentrated areas within the towns located in the Project Study Area. Other larger commercial operations noted in the area include the REI outlet and other warehouse facilities located along Interstate-99 (I-99) north of Bedford, the PFBC fish hatchery near Reynoldsdale, a junkyard north of Schellsburg, and several private businesses located along major roads. The Bedford Airport, which is located east of I-99, is also a contributing factor to the commercial development near Bedford.

Institutional, industrial, and commercial lands account for approximately 5% of the Project Study Area.

Agricultural Land

Agricultural land is predominantly noted in the central and eastern portions of the Project Study Area, with a few isolated areas noted west of the Allegheny Front. Some of these agricultural lands located west of the Allegheny Front are now associated with the wind farms discussed above. As discussed in **Section 4.1.6** (Vegetation Communities), agricultural lands are generally used for the production of crops, but some areas are used for grazing and others for orchards. Many of these agricultural lands are associated with single farm complexes that may include several hundred acres; numerous others are smaller plots that may be used for grazing. Agricultural lands account for approximately 40% of the Project Study Area.

Forested Lands

Forested lands are predominately located in the western third of the Project Study Area along the Allegheny Front and the plateau area that extends to the west. A considerable portion of these forested lands are part of State Game Lands #228, but most are part of large private properties, some of which are associated with potential future mining operations or landfill expansion areas, as noted around Central City. Other scattered forested areas are noted east of the Allegheny Front that are surrounded by agricultural lands. These forests may not have been converted to agriculture due to steep slopes, rocky soils, or the presence of wetlands. The largest tracts in this section are along the Pigeon Hills in the southeast corner of the Project Study Area. The existing Bedford North-New Baltimore 115 kV line extends through these steep forested hills. Forested lands account for approximately 40% of the Project Study Area.

Transportation and Utilities

The largest highway in the Project Study Area is I-99, a limited access four-lane interstate that extends north to south along the eastern edge of the area. Three two-lane highways (U.S. Route 220, SR 56, and SR 869) are also located near I-99. SR 96 is a north to south two-lane highway that extends from Alum Bank to Schellsburg through the central section and U.S. Route 30 is a two-lane highway extending east to west along the southern edge of the Project Study Area. SR 160 is a two-lane highway extending north to south through Central City along the western edge. These main roads are supplemented with a network of secondary, residential, agricultural, and forest roads.

Two segments of railroad cross through the Project Study Area. The first is an abandoned Conrail freight line that extended west along Dunning Creek to Reynoldsdale and then that turned north through Osterburg and out of the Project Study Area. This line has been dismantled but is noted on **Figure 4-7**. The second is an active Norfolk Southern freight line that extends through Central City to the open mining operations to the south.

There are no pipeline ROWs in the Project Study Area. The Bedford North-New Baltimore 115 kV transmission line alignment is located along the southern boundary of the Project Study Area and the Bedford North-Osterburg East 115 kV transmission line extends along the eastern edge. All of the aforementioned linear features are included on **Figure 4-7**.

4.2.2 Conservation Lands

Based on review of the National Conservation Easement Database (NCED), there are three conservation lands located within the Project Study Area (NCED 2016). One is a 329-acre farm located near Fishertown in the northeastern portion of the review area. This active farm is listed as an open space farm preserved through Bedford County. The other two properties are located south of Alum Bank in the north-central portion of the review area. These 171-acre and 142-acre adjacent parcels are part of the Wetland Reserve Program coordinated by the Natural Resources Conservation Service (NRCS). These conserved lands are illustrated in **Figure 4-5**.

4.2.3 Agricultural Security Areas

Review of the Project Study Area also indicated that various farms were enrolled in the Agricultural Security Area (ASA) program. Enrollment of farms into an ASA program is a voluntary tool offered by the Pennsylvania Department of Agriculture (PDA) for strengthening and protecting quality farmland from the urbanization of rural areas. The ASA program is governed by the Agricultural Area Security Law (3 P.S. §§901-915) and coordinated at the local level by the county and the municipalities where the ASAs are located (PA Code 2016). To be enrolled in the program requires a minimum of 250 acres from among all the participating farmers in a specific area *“provided that each tax parcel or account is at least ten acres or has an anticipated yearly gross income of at least \$ 2,000 from the agricultural production of crops, livestock and livestock products on such parcel or account (PDA 2016).”* Agricultural production of crops, livestock, and livestock products includes field crops, orchards, vegetables, nursery stocks, livestock, and timber products.

Benefits of enrollment into the ASA include development of local ordinances affecting farming activities and dismissal of nuisance complaints. Specific local ordinances may address the need of farming operations in these areas to drive farm equipment on public roads, work at early hours, and use various forms of fertilizer on the crop fields. Some of these activities generate potential nuisance complaints due to the noises and smells generated. In ASAs, these activities and their associated social effects are permitted as they are considered required components of the farming operations.

Another benefit of the ASA program is the review of farmland condemnation by state and local government agencies. As stated in the Agricultural Area Security Law:

No political subdivision, authority, public utility or other body having or exercising powers of eminent domain shall condemn any land within any agricultural security area for any purpose, unless prior approval has been obtained from Agricultural Lands Condemnation Approval Board and from each of the following bodies: the governing bodies of the local government units encompassing the agricultural security area, the county governing body, and the Agricultural Security Area Advisory Committee.

As further noted by the Agricultural Area Security Law, condemnation through eminent domain can occur under specific conditions as noted:

Review by the Agricultural Lands Condemnation Approval Board and the other indicated bodies shall be in accordance with the criteria and procedures established in this section. The condemnation approvals specified by this subsection shall not be required for an underground public utility facility or for any facility of an electric cooperative corporation or for any public utility facility the necessity for and the propriety and environmental effects of which has been reviewed and ratified or approved by the Pennsylvania Public Utility Commission or the Federal Energy Regulatory Commission, regardless of whether the right to establish and maintain such underground or other public utility facility is obtained by condemnation, or by agreement with the owner.

4.2.4 Comprehensive Plans

Both counties within the Project Study Area developed and approved Comprehensive Plans in 2006. Each of these Comprehensive Plans identifies specific concerns for the area including providing adequate services to the residents, retaining and attracting employment opportunities, and preservation of the local natural and cultural resources. The plans offer a series of Goals and Objectives towards which each county is aiming to minimize the impact of proposed growth and maximize the preservation of the natural and cultural aspects of the area. Specific goals for each county provide strong support for the local agricultural industry and protection of natural resources. The plans provide measures for how to achieve these goals including concentration of new development where infrastructure already exists and the promotion of practices that protect natural resources such as stormwater management plans. Neither plan addresses opposition to or the need for additional electrical power (Bedford County Planning Commission 2006, Somerset County Planning Commission 2006).

4.2.5 Cultural Resources

A review of cultural resources with the Project Study Area is required by various state agencies to ensure their preservation. A desktop survey of existing historic structures and archaeological resources within the Project Study Area was conducted by accessing the Pennsylvania Historical and Museum Commission's (PHMC) Bureau of Historic Preservation's Cultural Resources Geographic Information System (CRGIS) to review available information on historic structures, archaeological surveys, and previously recorded archaeological sites (PHMC CRGIS 2016).

Historic Architecture

Twenty-three National Register of Historic Places (NRHP)-listed or eligible historic properties were identified in the Project Study Area. Historic properties are defined as buildings, structures, districts, objects, sites, and linear historic sites aged 50 years or more. These twenty-three properties are listed in **Table 4-6**.

TABLE 4-6: NHRP-listed or eligible Historic Properties in the Project Study Area

PHMC KEY#	Resource Name	Resource Address/Location	NR Status/SHPO Opinion Date	County	Township
116757	Pennsylvania Turnpike-Carlisle to Irwin	Linear site- east to west through northern Bedford Township and central Napier Township	Eligible; 04/07/2005	Bedford	Bedford, Napier
000990	Bonnet's Tavern; Old Fork's Inn	Intersection of US 30 and PA 31, 4 miles west of Bedford	Listed; 08/01/1979	Bedford	Bedford
086607	Heirline Bridge	Watson Road, 1/10 th of a mile west of Interstate 70/76	Listed; 04/10/1980	Bedford	Napier, Harrison
126007	Egolf Property	247 Mansion Farm Road	Eligible; 9/25/2003	Bedford	Napier

PHMC KEY#	Resource Name	Resource Address/Location	NR Status/SHPO Opinion Date	County	Township
098273	Packard Sales and Service	3758 Pitt Street	Eligible; Contributing; 09/24/1992	Bedford	Napier
103890	May Brothers Body Shop; Tannery	Pitt Street	Eligible; Contributing; 06/20/1995	Bedford	Napier
011036	Chestnut Ridge and Schellsburg Union Church and Cemetery	South Side of Lincoln Highway	Listed; 01/12/2005	Bedford	Napier
050720	Shiller Covered Bridge	Mill Road, 1 Mile Southwest of Schellsburg	Listed; 04/10/1980	Bedford	Napier
089336	Fort Dewart	Intersection of Mountain Road and Fort Duart Road, approximately 1 mile northeast from US 30	Eligible; 04/03/2009	Somerset	Allegheny
100392	Rhor's Gap	Linear Resource; Fort Dewart Segment of Forbes Road near Fort Dewart	Eligible; 11/23/1992	Bedford, Somerset	Juniata, Allegheny
125785	Flight 93 National Memorial	6424 Lincoln Highway	Listed; 11/08/2002	Somerset	Stonycreek
096660	Shade-Central School	Poplar Street, Central City	Eligible; 01/03/1990	Somerset	Central City Borough
050723	New Paris Covered Bridge	Near the intersection of Blackburn Road and SR 96	Listed; 04/10/1980	Bedford	Napier
050713	Knisley Covered Bridge	Dunning Creek Road, Approximately 3/10ths of a mile northeast of Fernwood Road	Listed; 04/10/1980	Bedford	West St. Clair
116333	Snook house	Intersection of Dunning Creek Road and SR 56	Eligible; 01/22/2001	Bedford	West St. Clair
050719	Snook's Covered Bridge	Intersection of Ridge Market Road and Fish Hatchery Road	Listed; 04/10/1980	Bedford	East St. Clair
120486	Reynoldsdale Fish Hatchery	162 Fish Hatchery Road	Eligible; 05/09/2002	Bedford	East St. Clair
120490	Spring Meadow Farm	2921 Reynoldsdale Road	Eligible; 05/09/2002	Bedford	East St. Clair
050718	Osterburg Covered Bridge	Intersection of Heritage Road and SR 869	Listed; 04/10/1980	Bedford	East St. Clair

PHMC KEY#	Resource Name	Resource Address/Location	NR Status/SHPO Opinion Date	County	Township
104177	Yingling Property	Intersection of School Street and Holidaysburg Street	Eligible; 09/06/1995	Bedford	King
022990	Hershberger Farm	Cessna Lane near SR 220	Eligible; 01/03/1989	Bedford	Bedford
096267	Ickes Farm	Approximately 3/10 th of a mile west of PA 1001	Eligible; 01/03/1989	Bedford	Bedford
096266	Claycomb Farm	Approximately 2/10 th of a mile east of Richard Street	Eligible; 01/03/1989	Bedford	Bedford

Though there are outliers, such as the Flight 93 Memorial, the fish hatchery, the Pennsylvania Turnpike, and Fort Dewart, many of these resources can be associated with either the agricultural or iron industries that were prevalent in Bedford and Somerset counties throughout the 19th century. In particular, the covered bridges represent an important resource that assisted the transport of goods for both industries, in addition to serving other needs for the area's communities.

Also in the Project Study Area are three NRHP listed or eligible historic districts and two NRHP-listed or eligible archaeological districts/sites. These five resources are listed in **Table 4-7**.

TABLE 4-7: NHRP-listed or eligible Historic Districts/Archaeological Sites in the Project Study Area

PHMC KEY#	Resource Name	Resource Address/Location	NR Status/SHPO Opinion Date	County	Township
064341	Bedford Village Archaeological Site	Approximately 1.5 miles north of Bedford	Listed; 06/04/1984	Bedford	Bedford
097680	Schellsburg Historic District	Intersection of PA 96 and US 30	Listed; 1979	Bedford	Napier
094516	Cairnbrook Historic District	Intersection of McGregor Avenue and PA 160, 1 Mile northwest of Central City	Listed; 06/03/1994	Somerset	Shade
085203	Shade Furnace Archaeological District	250 Acres approximately 1 mile north of Cairnbrook.	Listed; 01/10/2008	Somerset	Shade
144079	Dutch Corner Rural Historic District	Approximately 1 mile east of PA 56	Eligible; 11/20/2007	Bedford	Bedford

The Bedford Village Archaeological site (PHMC Key No. 064341) is a stockade Monongahela Village from the late woodland Period (ca. 900-1600) listed on the National Register of Historic Places. It is currently contiguous with a recreated "historic" village called Bedford Village. The Bedford Village Archaeological Site is one of few late Monongahela sites in Pennsylvania, and is particularly rare as far east as Bedford.

The Schellsburg Historic District (PHMC KEY No. 097680) is listed on the National Register of Historic Places with a period of significance from 1808-1940. There are 108 resources, 92 contributing and 16 non-contributing. Seventy three of the resources are residences with three churches (two are converted

for alternate use), one former school, 15 commercial buildings, three mixed use buildings, and 15 barns. The resources largely date from 1861-1900 (49%), and from 1810-1860 (33%). The structures are primarily vernacular in style, though Federal and early 20th century styles are also prevalent. The district encompasses most of Schellsburg Borough, and the core a group of buildings along four blocks of Pitt Street. The intersection of Pitt and Market Streets serves as the center of the District. The west boundary is Mill Street, the east is bounded by a modern commercial area off Route 30, Vine Street is the northern boundary, and “New Town,” a two-by-two grid that extends east from Market Street, just south of Pitt Street, provides the southern boundary. Schellsburg developed as a small business center serving travel along the Lincoln Highway and agricultural industry (US Route 30). Despite being bypassed for railroad service in the late 19th century, the highway continued to provide road related and local commerce in the 20th century.

Cairnbrook Historic District (PHMC Key No. 064349) is a national historic district located in Shade Township in Somerset County, Pennsylvania. The district is one mile northwest of Central City, approximately four miles north of Reels Corner and 19 miles south of Johnstown. There are 181 resources in the district, including 132 contributing buildings, 8 contributing structures, and 41 non-contributing resources. It encompasses a 50 acre area primarily developed by the Loyal Hanna Coal and Coke Company of Philadelphia, Pennsylvania between 1912 and 1920 and retains a rural and isolated nature. The structures within the district are mostly vernacular in style, with a small amount of the Prairie School of Architecture. The structures in the district consist of worker’s housing, commercial and social buildings, and a modern draft entry mine with accompanying extractive buildings and structures. Both the remaining extant mine resources and the archaeological remains are included in the district. The mine operated until 1958.

The Shade Furnace Archaeological District is listed on the National Register of Historic Places and represents the ruins of a countryside plantation-style iron-making enterprise that operated from 1808-1858. The district is approximately 208 acres surrounded by rugged woodland and valley slopes along Shade Creek in Shade Township. The district contains abandoned foundations, waterways, milldams, ore pits, slag heaps, and fields that were once part of an operation that encompassed 5,000 acres. The contributing resources are a blast furnace structure in the center of an ironworks site, a forge site, an ore pit site, a farmstead site, and a late 19th century coal mine complex. There is a modern railroad structure that is a non-contributing resource. None of the buildings from the iron making era have survived, but the long abandonment and remoteness of its location have preserved the building ruins and their spatial relations, in addition to the below ground archaeological remains.

Dutch Corner Rural Historic District is Eligible for inclusion in the National Register of Historic Places. It is located approximately one and one-half miles north of Bedford Borough, runs south to the Pennsylvania Turnpike, north to South Woodbury Township, east to Snake Spring Township, and east to St. Clair Township.

Archaeology

Numerous PHMC identified archaeological sites are located across the Project Study Area. These sites are illustrated in **Figure 4-8** but due to the sensitivity of these resources, **their location is considered**

proprietary and is only being made available to the PUC for review per their regulatory requirement. Identification and avoidance of specific sites will be coordinated with the PHMC as part of the permitting process that will be required after the Proposed Route has been approved.

4.2.6 Hazardous Material Sites

A desktop review of the U.S. Environmental Protection Agency's (USEPA) Superfund National Priority List (NPL) indicated that none are present in the Project Study Area (USEPA 2016).

5.0 IDENTIFICATION AND ANALYSIS OF ALTERNATIVE ROUTES

The goal of the Study was to identify viable alternative routes based on reasonable physical placement of the proposed transmission line that avoided or limited impacts to sensitive land uses and ecological, social, and cultural features in the Project Study Area. In evaluating the routing criteria, it is generally considered desirable to maximize certain criteria along a given route, for instance, paralleling existing railroad or utility corridors. These more favorable criteria are known as opportunities. Undesirable criteria for routing, such as residences, wetlands, and historic properties, are generally referred to as constraints and the Study seeks to avoid or minimize their proximity to the Project.

When siting transmission lines, three main routing opportunities are generally focused on where viable. The first is to replace or upgrade existing lines which typically minimizes natural and social impacts by keeping the same ROW, thus eliminating or reducing additional ROW clearing. For the Bedford North-Central City West 115 kV Project, upgrading the existing Bedford North-New Baltimore 115 kV or the Bedford North-Osterburg East 115 kV transmission lines to double-circuit are viable options, but these are limited to specific portions of the Project Study Area.

The second potential opportunity is through corridor sharing. Corridor sharing pairs the transmission line with an existing linear feature, which can include roads, highways, railroad, gas pipelines, or other existing transmission lines. These corridors are considered opportunity areas because locating a new transmission line parallel to them may require less ROW, concentrates linear land uses thus reducing fragmentation of the landscape, and creates an incremental impact rather than a new impact. Opportunity areas within the Project Study Area for the development of the new 115 kV transmission line were generally limited to paralleling the existing transmission line ROWs, paralleling 1-99, and paralleling sections of the active Norfolk Southern Railroad in Central City.

The third opportunity is to use undeveloped areas such as forests, fields, and agricultural areas to identify routes that cross open lands. Identifying these routes involves assessment of parcel boundaries and land use practices to define routes that minimize potential impacts to private properties and any agricultural or other farming activities (e.g., orchards or center pivot agriculture).

Using these fundamental techniques as guidance, information obtained during the environmental field reviews was used to develop an opportunity and constraint map of the Project Study Area using GIS software. Georeferenced data layers of the identified opportunities and constraints obtained from published State and Federal materials and local planning documents were superimposed on available current aerial photography. This process resulted in the identification of a series of candidate segments

within the Project Study Area. Each segment varies in length based on the opportunities and constraints of the alignment. Nodes were identified where segments diverged or converged. The first node (**A**) is the Central City West Substation. From **A** there are two route segments, **Segment A-B**, which connects to node **B**, and **Segment A-F**, which connects to node **F (Figure 5-1)**. This same segment naming system convention continues from node **A** through node **J**.

Note that an alternative route to the south of Central City was initially part of the selection study but due to the potential conflict of this route with the wind farm development occurring around U.S. Route 30, the convoluted alignment of the route required to avoid the growing residential development along the eastern slope of the Allegheny Front, and the overall length of the route, it was removed from further discussion.

Based on the various segment and node arrangements, six potential combinations of candidate segments (i.e., alternative routes) were identified that provided the required connectivity between the Central City West and Bedford North substations.

Public Information Meetings Summary

In January 2015, FirstEnergy conducted a series of public open houses to review the alternative routes with land owners and local officials.

The first Public Information Meeting for the Bedford North-Central City West 115 kV Transmission Line Project was held at the Shade-Central City High School in Cairnbrook, PA from 6-8 p.m. on Wednesday, January 28, 2015. The meeting had thirty-five (35) attendees sign-in to the meeting. Approximately forty-five (45) attendees were present (some families, couples, or neighbors came in with only one person signing in for all). The majority of the concerns at this meeting revolved around specific line locations on individual properties, local ecosystems, and endangered or threatened species populations. There were two comments cards collected throughout the meeting. Many property owners took the comment cards with them to mail them back at a later date, or e-mail or phone in their concerns. The FirstEnergy Siting team was informed about a few places in Somerset County that are being used for future expansion of an existing landfill facility and places of environmental risk (acid mine drainage.)

The second and third Public Information Meetings for the Bedford North-Central City West 115 kV Transmission Line Project were held at the Travelodge Bedford in Bedford, PA from 1-3 p.m. and again from 6-8 p.m. on Thursday, January 29, 2015. The meeting from 1-3 p.m. had twenty-five (25) attendees sign-in to the meeting. Approximately thirty (30) attendees were present (some families, couples, or neighbors came in with only one person signing in for all). The meeting from 6-8 p.m. had nineteen (19) attendees sign-in to the meeting. Approximately twenty-four (24) attendees were present (some families, couples, or neighbors came in with only one person signing in for all). The majority of the concerns came from property owners along Alternative Route 1, the Yellow Route. Property owners with farms and local business owners noted one of the main concerns as the potential affect this project might have on the local watershed. Three comment cards were collected throughout the two meetings. Many property owners took comment cards with them to mail back at a later date, or e-mail or phone in their concerns.

These open houses were staffed by FirstEnergy personnel that could address questions related to real estate, engineering, vegetation management, and the siting process. The land owners that attended worked productively with FirstEnergy to define potential alignments across their properties that would address their concerns to the extent practicable. The comments provided by the land owners were actively considered and where practicable modifications were made to the proposed alignments. Modifications to the original alignments included preferential shifts to certain property lines and crossing specific fields at preferred locations. These resulting alignments of six alternative routes were the routes used for next step analysis and are illustrated in **Figure 5-1**.

As discussed in the following sections, these alternative routes were assessed based on a set of quantitative routing criteria that focused on social/built, natural, and engineering variables, as well as qualitatively reviewed based on the following topics: visual concerns, community concerns, special permit issues, construction, maintenance, and accessibility, and schedule delay risk.

5.1 Description of the Alternative Routes

The resulting alignments are described below and illustrated in **Figure 5-1**.

5.1.1 Alternative Route 1 (Yellow)

Alternative Route 1 is approximately 21.3 miles in length.

- From the Bedford North Substation, Route 1 would extend north 1.7 miles as a second circuit on the existing Bedford North-Osterburg East 115 kV line that would be rebuilt as a double circuit transmission line. The alignment would parallel the east side of U.S. Route 220 for a short distance before spanning to the west side of the road. The route would then turn north to parallel the east side of Interstate-99 (I-99) and crossing over Brush Run (WWF) and State Route 56 (SR 56). Land use crossed in this section is predominantly agricultural and open fields, with several commercial parcels.
- Route 1 then exits the Bedford North-Osterburg East 115 kV line, and turns to the northwest as new construction in new right-of-way that continues to the end of the route. This section of the route crosses I-99 and extends 2.6 miles to Salas Hill Road. After crossing I-99, the route would make several sharp turns to maintain the required distance from a farm house on Fyfe Lane. Along this section, the route would extend predominantly through steep forested lands with few areas of agricultural use.
- After crossing Salas Hill Road, Route 1 would turn west and extend for 2.7 miles to Crissman Road. Roadways in the area around Salas Hill Road, including Edelweiss Lane and Pigeon Hill Road are bordered by moderately dense residential properties. West of Pigeon Hill Road, the route would make two more sharp turns to follow the outer edge of an active farm. Route 1 would then span over Adams Run (WWF) and extend through a mix of open agricultural and steep forested lands. After crossing Valley Road just south of the town of Fishertown, the route would turn northwest and start climbing up the eastern slope of Chestnut Ridge, which is a mix of forested and agricultural land.

- From Crissman Road, Route 1 extends west for 2.5 miles to SR 96. Near Crissman Road, Route 1 extends over a section of an active orchard, which ends near Chestnut Ridge Road. At this point, the route turns to the northwest, crosses both roads, and extends across open agricultural and forested lands down the western slope of Chestnut Ridge. Turning to the west, the route crosses back over Crissman Road and then crosses Quarry Road, extending over agricultural lands through most of this section. The route makes a sharp turn south and then another to the west to border the edge of a farm property. Prior to reaching SR 96, Route 1 would span over Dunning Creek (WWF).
- After crossing the residential lined SR 96 just north of the town of New Paris, Route 1 would extend west for 3.7 miles to Buckeye Road located at the base of the Allegheny Front. Most of this section would be located within forested lands with few open agricultural areas. The slope of the land steadily climbs from an elevation of 1,300' amsl near SR 96 to 2,000' amsl at Buckeye Road. The route would span over the steep valley of Rocklick Creek (WWF) along this section.
- From Buckeye Road, Route 1 would extend 5.5 miles west to the potential alternative route crisscross area located on the eastern edge of Central City. At Buckeye Road, the route would turn to the southwest and start a steep 700-foot climb up the Allegheny Front. Turning to the west, Route 1 would cross into Somerset County, extend over an isolated local road, and then traverse through undeveloped forested lands. The western portion of this section borders lands associated with an active quarry and landfill near Central City. Route 1 would span Beaverdam Run (HQ-CWF) near Central City.
 - The alternative route crisscross area located east of Central City provides for additional alternatives to be discussed below. The purpose of the crisscross is to address specific potential routing obstacles such as State Game Lands #228 and the Norfolk Southern railroad alignment through downtown Central City. Use of the different paths of the crisscross would provide options to avoid either of these potential obstacles.
- Route 1 does not use the crisscross section but continues for 2.6 mile to the northwest and then southwest around the north side of Central City to the Central City West Substation. Passing to the north of Central City, Route 1 travels through a forested area and spans Laurel Run (CWF) before crossing moderately residential-lined First Road. The route turns west and then northwest across forested and open lands that border SR 160 (Dark Shade Drive). At this point, Route 1 turns sharply west and crosses to the west side of SR 160 onto commercial lands, spans over Dark Shade Creek (CWF), and crosses into the town of Cairnbrook. The route then turns sharply southwest over commercial lands to parallel an active Norfolk Southern railroad line. Route 1 then spans to the west side of the railroad and parallels the alignment through a forested area. Turning sharply to the west, the route follows an existing distribution ROW across School Road and then turns southwest across a forested area and enters the Central City West Substation.

5.1.2 Alternative Route 2 (Purple)

Alternative Route 2 is approximately 17.6 miles in length.

- From the Bedford North Substation, Route 2 would extend west for 7.2 miles on the existing Bedford North-New Baltimore 115 kV line that would be rebuilt as a double circuit transmission line. The route would immediately cross U.S. Route 220 and I-99 and then span over open fields where signs of future commercial development were noted. Continuing along the existing ROW, Route 2 would span a densely residential-lined portion of Country Ridge Road, extend over agricultural fields and then span SR 56. After crossing this roadway, the route climbs the steep, forested slopes of the Pigeon Hills and passes over several roads bordered by low density residential development such as Sloan Hollow Road, Point Road, and Harrison Road. After Harrison Road, Route 2 passes over a short (0.1 mile) section of Shawnee State Park, extends through a mix of forested and agricultural lands, and crosses a moderate density residential-lined portion of SR 96 just north of the town of Schellsburg.
- West of SR 96, the existing Bedford North-New Baltimore 115 kV line turns to the southwest and Route 2 would continue west as new construction in new ROW until the end of the route. For the initial 1.4 miles to Hoover Road, where other alternatives would turn north (i.e., Route 3 and Route 6), Route 2 traverses across forested and agricultural lands, spans the Shawnee Branch (WWF) and crosses three low density residential-lined roads.
- After crossing Hoover Road, Route 2 continues west for 3.0 miles to Lambert Mountain Road located at the base of the Allegheny Front. The route extends across active farm lands, through several forested areas, and crosses several low density residential-lined roads such as Anderson Road, Malamphy Road, Miller Road, and Helixville Road. The slope of the land in this section steadily climbs from an elevation of 1,400' amsl near Hoover Road to 2,200' amsl at the intersection of Helixville Road and Lambert Mountain Road.
- From Lambert Mountain Road, Route 2 extends northwest for 1.4 miles to the State Game Lands #228 boundary. At Lambert Mountain Road, the route traverses straight up the 500-foot forested face of the Allegheny Front, extends west across forested lands into Somerset County, and then crosses an isolated section of Fleegle Road. Turning to the northwest, the route crosses Beaverdam Run (HQ-CWF) and traverses through a mix of forested and agricultural lands before intersecting with the State Game Land boundary.
- At this point, Route 2 would extend northwest for 1.4 miles across State Game Land property. The route would initially traverse through forested lands before intersecting with the south side of Lambert Mountain Road. Based on final engineering and agreement by the Pennsylvania Game Commission, Route 2 is conceptually expected to parallel the south-side of Lambert Mountain Road to reduce the number of angles and limit the length of alignment across these protected lands. There are several residential properties on the south side of Lambert Mountain Road at the western edge of State Game Lands #228 that would require the alignment to cross to the north side of the road in this area.

- From the western edge of State Game Lands #228, Route 2 would extend 1.5 miles through forested lands to the potential alternative route crisscross area located on the eastern edge of Central City. The route would cross to the south side of Lambert Mountain Road near an existing utility line ROW and then parallel the road west past the intersection with Shaffer Mountain Road.
- Route 2 does not use the crisscross section but continues for 1.7 miles to the west through central portions of Central City Borough to the Central City West Substation. The route would cross to the north side of Shaffer Mountain Road, span over an undeveloped section of Main Street, span Dark Shade Creek (CWF), and then cross a disturbed area that borders the active Norfolk Southern Railroad. Crossing to the west side of the railroad, Route 2 would parallel the railroad into the town of Central City and across the commercial bordered SR 160 (Sunshine Avenue). West of SR 160, the route would be collocated with an existing electrical distribution line that is located in close proximity to several residential properties that border the railroad ROW. Past this point, the route would follow the electrical distribution line and parallel the railroad as they turn to the north. Just beyond the Central City Borough line, the route would turn sharply to the west following the distribution line over a disturbed abandoned railroad ROW and across sparsely residential-lined School Road. Turning to the northwest, Route 2 crosses a mixed meadow/forest area before extending into the Central City West Substation.

5.1.3 Alternative Route 3 (Blue)

Alternative Route 3 is approximately 19.7 miles in length.

- Route 3 is a hybrid combination of portions of Route 1 and Route 2 with a 4.3 mile connection between these two alternatives.
- The route follows the initial 8.8 miles of Route 2 from the Bedford North Substation to Hoover Road near Schellsburg.
- At this point, Route 3 would be a continuation of new construction in the new right-of-way and turns to the north for 2.0 miles to Shaffer Mountain Road. After crossing a tributary to Shawnee Branch (WWF), the route makes a series of three sharp turns to follow the boundary of an active farm property. The route then spans over Bentz Run (WWF) and a low density residential-lined section of Helixville Road. Continuing north across a mix of agricultural and forested lands, Route 3 then crosses a low density residential-lined section of Shaffer Mountain Road.
- Turning to the northwest, Route 3 extends 2.3 miles to intersect with Route 1 on top of the Allegheny Front. The route would traverse through a mix of forested and agricultural lands and pass over several roads bordered by low density residential development such as Kanouff Road, McCreary Road, and Bethel Hollow Road. After crossing Bethel Hollow Road, which is at an elevation of 2,000' amsl, Route 3 would extend straight up the Allegheny Front to an elevation of 2,700' amsl and intersect with the Route 1 alignment.
- From this point, Route 3 would follow the Route 1 alignment for 6.6 miles around the north side of Central City and into the Central City West Substation.

5.1.4 Alternative Route 4 (Red)

Alternative Route 4 is approximately 19.2 miles in length.

- Route 4 uses the crisscross area east of Central City to connect Route 2 to Route 1. This alternative was developed based on the potential that crossing State Game Lands #228 would be acceptable to the Pennsylvania Game Commission, but use of the railroad ROW through the center of Central City would not be acceptable to Norfolk Southern.
- This alternative follows Route 2 for 15.7 miles from the Bedford North Substation to the crisscross area east of Central City.
- At this point, Route 4 would be a continuation of new construction in the new right-of-way and extends to the northwest for 0.9 miles to connect to Route 1. This portion of the alignment crosses to the north side of Shaffer Mountain Road in an undeveloped area, spans a tributary to Dark Shade Creek (CWF), and then traverses a section of undeveloped forest to intersect with Route 1.
- From this point, Route 4 would follow the Route 1 alignment for 2.6 miles around the north side of Central City and into the Central City West Substation.

5.1.5 Alternative Route 5 (Green)

Alternative Route 5 is approximately 20.6 miles in length.

- Route 5 uses the crisscross area east of Central City to connect Route 1 to Route 2. This alternative was developed based on the potential that crossing State Game Lands #228 would not be acceptable to the Pennsylvania Game Commission, but use of the railroad ROW through the center of Central City would be acceptable to Norfolk Southern.
- This alternative follows Route 1 for 18.3 miles from the Bedford North Substation to the crisscross area east of Central City.
- At this point, Route 5 would be a continuation of new construction in the new right-of-way and extends southwest for 0.7 miles to connect to Route 2. This portion of the alignment traverses a section of undeveloped forest, spans a tributary to Dark Shade Creek (CWF), and crosses to the south side of Shaffer Mountain Road in an undeveloped area to intersect with Route 2.
- From this point, Route 5 would follow the Route 2 alignment for 1.6 miles through the center of Central City and into the Central City West Substation.

5.1.6 Alternative Route 6 (Orange)

Alternative Route 6 is approximately 19.0 miles in length.

- Route 6 uses the crisscross area east of Central City to connect Route 3 to Route 2. This alternative was developed based on the potential that using the existing Bedford North-New Baltimore 115 kV ROW would be feasible from an engineering perspective, that crossing State Game Lands #228 would not be acceptable to the Pennsylvania Game Commission, but use of the railroad ROW through the center of Central City would be acceptable to Norfolk Southern.

- This alternative follows Route 3 for 16.7 miles from the Bedford North Substation to the crisscross area east of Central City.
- At this point, Route 6 would be a continuation of new construction in the new right-of-way and extends southwest for 0.7 miles to connect to Route 2. This portion of the alignment traverses a section of undeveloped forest, spans a tributary to Dark Shade Creek (CWF), and crosses to the south side of Shaffer Mountain Road in an undeveloped area to intersect with Route 2.
- From this point, Route 6 would follow the Route 2 alignment for 1.6 miles through the center of Central City and into the Central City West Substation.

5.2 Evaluation of the Alternative Routes

The Alternative Routes were evaluated and compared against each other to determine the Proposed Route for this segment. Evaluation of the Alternative Routes included a combination of *quantitative analysis* based on weighted metrics, as well as a *qualitative review*. This section describes the evaluation metrics, weighting procedures, and analyses used to evaluate the six Alternative Routes. The quantitative analysis included using weighted metrics to assess the potential impacts in accordance with three perspectives (built environment, natural environment, and engineering considerations). The qualitative analysis included an assessment of visual concerns; community concerns; risk of schedule delay; special permit requirements; and construction, maintenance, and accessibility issues specific to each Alternative Route.

5.2.1 Evaluation Metrics

The process for identifying the Proposed Route involved quantitatively evaluating the advantages and disadvantages of the Alternative Routes. Initial steps in this process required defining the metrics, or constraint data, to be used and then determining the values for each Alternative Route for each metric. These data were summarized in tabular form organized by evaluation metrics for each of the Alternative Routes, and by the three perspectives.

Evaluation metrics were used to factor detailed information on relative lengths, areas, and Project-specific conditions into the selection process. For example, specific evaluation metrics included the number of homes within 300 feet of the route, acres of forest crossed, and miles within existing utility ROW. The metrics used for this evaluation process are shown in **Table 5-1**. These data use a variety of scales/units, including acres, miles, and number of units. For instance, one Alternative Route may cross 100 linear feet of wetland, while another might cross 100 acres of forest and be in close proximity to 100 houses.

The resulting constraint data were then normalized. Data normalization is required to allow meaningful comparison of the Alternative Routes using the quantitative values. Normalizing the data allows the underlying characteristic of the data to be compared by removing the units (e.g., miles and acres) associated with the various measurements. Data normalization was achieved by first comparing a single constraint value for a given Alternative Route against the same constraint values for the other Alternative Routes. For example, the Alternative Routes with the lowest and highest potential FEMA floodplain impacts were determined by comparing the range of floodplain constraint values between

the Alternative Routes. As an example, the acres of FEMA floodplain crossed ranges from 2.05 acres for **Route 4** to 7.49 acres for **Route 5**.

A normalization calculation is used to assign each Alternative Route a value based on a scale of 0 – 100. The Alternative Route with no impact or the lowest potential impact was assigned a normalized value of 0 and the Alternative Route with the highest potential impact was assigned a normalized value of 100; other Alternative Routes were assigned a value in between 0 – 100 based on their relative potential impact when compared to the lowest and highest scoring routes. This same process was used to assign a normalized value on the 0 – 100 scale for all the metrics evaluated. In cases where the metric analysis is inverted (e.g., Miles of Rebuild, Number of Roads within 500 feet), the highest normalized value (100) is assigned to the lowest metric value, and the lowest normalized value (0) is assigned to the highest metric value. For these metrics, longer lengths or higher number counts are considered desirable.

TABLE 5-1: Quantitative Routing Variables

Social/Built Variables
Number of Schools, Churches, or Cemeteries within 1,000 feet of Transmission Center Line: Sensitive receptors (e.g., schools, churches) within 1,000 feet of the Alternative Route.
Number of National Register of Historic Places (NHRP) - listed Sites within 1,000 feet of Transmission Center Line: Number of archaeological or historic sites/structures/districts located within 1,000 feet of the Alternative Route.
Number of Residences within 300 feet of Transmission Center Line: Residences located in close proximity to the Alternative Route.
Number of Proposed Housing Developments within 300 feet of Transmission Center Line: Number of proposed housing developments within 300 feet of the Alternative Route.
Number of Commercial Buildings within 300 feet of Transmission Center Line: Structures in close proximity to the Alternative Route, including retail stores, restaurants, and service garages.
Number of Industrial Buildings within 300 feet of Transmission Center Line: Identifies the number of industrial structures within 300 feet of the Alternative Route
Miles of State-owned and Conserved Lands Crossed: Identifies the length of parks or other conserved lands crossed by the proposed Alternative Route.
Residences within Curtilage: Residences located within the right-of-way of the Alternative Route.
Natural/Ecological Variables
Acres of Natural Forests Crossed: Acres of forest crossed and requiring clearing by the Alternative Route.
Number of Stream/River Crossing: Number of streams that would be crossed by the Alternative Route. Values were based upon use of USGS National Hydrography Dataset (NHD) stream data. Smaller tributaries are often not identified in the GIS database, thus the actual number of crossings may be higher than indicated.
Length of Centerline through NWI Wetlands: Length of potential wetlands that would be crossed by the Alternative Route. USFWS NWI Wetlands were used as the basis of the analysis.
Area of FEMA 100-year Floodplain Crossed: Acres of floodplains that would be crossed by the Alternative Route. Values based on GIS-mapped FEMA floodplains, as available in state databases.
Engineering Variables
Miles Rebuild/Co-locate with an Existing Transmission Line (Inverted): Length of the Candidate Segment to be rebuilt or co-located within an existing transmission line ROW
Miles Parallel to an Existing Transmission Line (Inverted): Length of the Candidate Segment located parallel to the ROW of an existing transmission line. These areas have fewer impacts compared to developing completely new right-of-way, but require additional coordination and may involve more engineering analysis to ensure safe co-location with the other utility.
Miles Parallel to a Road or Railroad (Inverted): Length of the Candidate Segment adjacent to (within 100 feet) of roadways or railroads. These areas have easier access for construction and maintenance. Conversely, lines routed distant from these features have higher engineering constraints.
Number of Road or Railroad Crossings: Number of times the Alternative Route crosses a public road or railroad alignment. These areas would have engineering constraints due to height and other requirements.
Number of Turns Greater Than 60 Degrees: Number of times the Candidate Segment would need to make a turn greater than 60 degrees. Turns place tension on the tower structures, which may require additional support or engineering to support the stress.
Number of Roads within 500 feet of Transmission Center Line (Inverted): Number of roads that fall within 500 feet of the proposed Alternative Route. Roads may represent better accessibility for construction and limit new access road construction.
Estimated Cost to Site, Design and Construct Transmission Facilities (\$): Values were estimated based on typical project-specific cost per mile and any associated cost of new ROW property acquisition, if relevant. Estimates do not include Licensing and Permitting and other miscellaneous costs.

5.2.2 Weighting Procedures

Table 5-2 provides a tabular summary of the raw metrics and corresponding normalized values for the six Alternative Routes identified for the Bedford North-Central City West Project route selection study. The normalized metric values derived from **Table 5-2** were further adjusted through a two-tiered weighting process shown in **Table 5-3**. **Table 5-3** shows the total of the weighted metrics within each of the three perspectives and an overall total for each Alternative Route within this segment. Each of the perspectives was assigned a weighted percentage and the results were normalized to that percentage. The rationale and process for determining the assigned percentages for each perspective are described below. Lower scores are preferred as they indicate potentially less impact along that route.

For the first step in the weighting process shown in **Table 5-3**, a relative weight (percentage) was assigned to each specific metric. For example, proximity to *Residences* was assigned a weight of 25%, while proximity to *Industrial Buildings* was assigned a weight of 4%. This weighting ensures that the features requiring the most protection are assigned a higher relative influence for the ranking process. Relative weights for all the metrics within each perspective category must add up to 100%. The total of the weighted metrics within each perspective are summarized and illustrated on the line entitled “Total” at the bottom of the perspective (e.g., **Route 1** has a total of 42.00 for the built environment perspective).

In the second weighting process shown in **Table 5-3**, each total value was then applied against the assigned weight for the perspective (35% for the built environment and natural environment and 30% for the engineering considerations). For this project, these weights vary based on the premise that the complex intermix of man-made and natural features would be more of a factor in siting the necessary alignment relative to the engineering concerns (i.e. the protectiveness of the built and natural environment was assigned a higher level of influence). The weighted metric total for each Alternative Route is provided on the line entitled “Weighted Total” (e.g., **Route 1** has a weighted total of 14.70 for the built environment perspective).

The Weighted Total values for the entire process are summed at the bottom of **Table 5-3** on the line entitled “Sum of Weighted Total.” The Sum of Weighted Total result effectively compares the cumulative impact of the Alternative Routes on the built and natural environment and shows which has the lowest cumulative impact while being technically feasible to construct from an engineering perspective.

TABLE 5-2: Tabular Summary of Alternative Routes

MATRIX/CORRIDOR		Route 1 (Yellow) A-B-C-D-E	Route 2 (Purple) A-F-G-I-J-E	Route 3 (Blue) A-B-C-D-H-I-J-E	Route 4 (Red) A-B-G-H-I-J-E	Route 5 (Green) A-F-C-D-E	Route 6 (Orange) A-F-C-D-H-I-J-E
BUILT ENVIRONMENT	Number of Schools, Churches, or Cemeteries within 1,000 feet of Transmission Center Line	6	4	5	5	5	4
	<i>Normalized</i>	100	0	50	50	50	0
	Number of NRHP Sites within 1,000 feet of Center Line	1	0	1	1	0	0
	<i>Normalized</i>	100	0	100	100	0	0
	Number of Residences within 300 feet of Transmission Center Line	19	37	24	29	26	32
	<i>Normalized</i>	0	100	28	56	39	72
	Number of Proposed Housing Developments within 300 feet of Transmission Center Line	8	12	8	8	12	12
	<i>Normalized</i>	0	100	0	0	100	100
	Number of Commercial Buildings within 300 feet of Transmission Center Line	8	10	1	1	15	10
	<i>Normalized</i>	50	64	0	0	100	64
	Number of Industrial Buildings within 300 feet of Transmission Center Line	10	5	8	8	5	5
	<i>Normalized</i>	100	0	60	60	0	0
	Miles of State-owned and Conserved Lands Crossed	0.00	1.66	0.08	1.53	0.00	0.08
	<i>Normalized</i>	0	100	5	92	0	5
NATURAL ENVIRONMENT	Acres of Natural Forests Crossed	159.59	90.97	108.12	99.06	157.65	108.58
	<i>Normalized</i>	100	0	25	12	97	26
	Number of Stream/River Crossings	19	18	25	25	19	25
	<i>Normalized</i>	14	0	100	100	14	100
	Length through NWI Wetlands (feet)	169.93	358.01	302.84	302.84	251.01	383.93
	<i>Normalized</i>	0	88	62	62	38	100
	Acres of FEMA 100-year Floodplain Crossed	5.13	2.22	2.67	2.05	7.49	5.03
	<i>Normalized</i>	57	3	11	0	100	55
ENGINEERING CONSIDERATIONS	Miles of Rebuild/Co-locate (Inverted)	1.62	7.58	7.17	7.17	1.62	7.17
	<i>Normalized</i>	100	0	7	7	100	7
	Miles Parallel to a Road or Railroad (Inverted)	3.04	3.01	1.08	3.20	2.65	0.69
	<i>Normalized</i>	6	8	84	0	22	100
	Number of Road and Railroad Crossings	26	40	33	39	28	35
	<i>Normalized</i>	0	100	50	93	14	64
	Number of Turns >60 Degrees	19	2	9	8	16	7
	<i>Normalized</i>	100	0	41	35	82	29
	Number of Roads within 500 feet of Transmission Center Line (Inverted)	68	86	67	80	73	72
	<i>Normalized</i>	95	0	100	32	68	74
	Estimated Cost (\$)	\$20,875,000	\$15,735,000	\$17,897,500	\$17,407,500	\$20,235,000	\$17,247,500
	<i>Normalized</i>	100	0	42	33	88	29

TABLE 5-3: Weighted Metrics and Weighted Totals for Alternative Routes

MATRIX/CORRIDOR	WEIGHTS	Route 1 (Yellow)	Route 2 (Purple)	Route 3 (Blue)	Route 4 (Red)	Route 5 (Green)	Route 6 (Orange)
SOCIAL/BUILT	35.0%						
Number of Schools, Churches, or Cemeteries within 1,000 feet of Transmission Center Line	20.0%	100	0	50	50	50	0
<i>Weighted</i>		20.00	0.00	10.00	10.00	10.00	0.00
Number of NRHP Sites within 1,000 feet of Transmission Center Line	15.0%	100	0	100	100	0	0
<i>Weighted</i>		15.00	0.00	15.00	15.00	0.00	0.00
Number of Residences within 300 feet of Transmission Center Line	25.0%	0	100	28	56	39	72
<i>Weighted</i>		0.00	25.00	7.00	14.00	9.75	18.00
Number of Proposed Housing Developments within 300 feet of Transmission Center Line	10.0%	0	100	0	0	100	100
<i>Weighted</i>		0.00	10.00	0.00	0.00	10.00	10.00
Number of Commercial Buildings within 300 feet of Transmission Center Line	6.0%	50	64	0	0	100	64
<i>Weighted</i>		3.00	3.84	0.00	0.00	6.00	3.84
Number of Industrial Buildings within 300 feet of Transmission Center Line	4.0%	100	0	60	60	0	0
<i>Weighted</i>		4.00	0.00	2.40	2.40	0.00	0.00
Miles of State-owned and Conserved Lands Crossed	20.0%	0	100	5	92	0	5
<i>Weighted</i>		0.00	20.00	1.00	18.40	0.00	1.00
TOTAL	100.0%	42.00	58.84	35.40	59.80	35.75	32.84
WEIGHTED TOTAL		14.70	20.59	12.39	20.93	12.51	11.49
ECOLOGICAL/NATURAL	35.0%						
Acres of Natural Forests Crossed	40.0%	100	0	25	12	97	26
<i>Weighted</i>		40.00	0.00	10.00	4.80	38.80	10.40
Number of Stream/River Crossings	30.0%	14	0	100	100	14	100
<i>Weighted</i>		4.20	0.00	30.00	30.00	4.20	30.00
Length through NWI Wetlands (feet)	20.0%	0	88	62	62	38	100
<i>Weighted</i>		0.00	17.60	12.40	12.40	7.60	20.00
Acres of FEMA 100-year Floodplain Crossed	10.0%	57	3	11	0	100	55
<i>Weighted</i>		5.70	0.30	1.10	0.00	10.00	5.50
TOTAL	100.0%	49.90	17.90	53.50	47.20	60.60	65.90
WEIGHTED TOTAL		17.47	6.27	18.73	16.52	21.21	23.07
ENGINEERING	30.0%						
Miles Rebuild/Co-locate (Inverted)	30.0%	100	0	7	7	100	7
<i>Weighted</i>		30.00	0.00	2.10	2.10	30.00	2.10
Miles Parallel to a Road or Railroad (Inverted)	20.0%	6	8	84	0	22	100
<i>Weighted</i>		1.20	1.60	16.80	0.00	4.40	20.00
Number of Road or Railroad Crossings	20.0%	0	100	50	93	14	64
<i>Weighted</i>		0.00	20.00	10.00	18.60	2.80	12.80
Number of Turns >60 Degrees	15.0%	100	0	41	35	82	29
<i>Weighted</i>		15.00	0.00	6.15	5.25	12.30	4.35
Number of Roads within 500 feet of Transmission Center Line (Inverted)	5.0%	95	0	100	32	68	74
<i>Weighted</i>		4.75	0.00	5.00	1.60	3.40	3.70
Estimated Cost (\$)	10.0%	100	0	55	42	82	36
<i>Weighted</i>		10.00	0.00	5.50	4.20	8.20	3.60
TOTAL	100.0%	60.95	21.60	45.55	31.75	61.10	46.55
WEIGHTED TOTAL		18.29	6.48	13.67	9.53	18.33	13.97
SUM OF WEIGHTED TOTAL		50.45	33.34	44.78	46.98	52.05	48.52

5.2.3 Quantitative Review of Candidate Routes

The results of the quantitative review indicate that **Route 2 (33.34)** may produce relatively fewer impacts compared to the other alternatives. **Route 3 (44.78)** and **Route 4 (46.98)** have the next lowest cumulative value followed by **Route 6 (48.52)** and **Route 1 (50.45)**. **Route 5 (52.05)** has the highest cumulative values and may produce the most impacts. Note that the costs to construct the various alternatives were approximated based on an average of \$1 million per mile for length of new ROW and \$750,000 per mile for length of re-build.

5.2.3.1 Built Environment

Values for the built environment metrics are the highest for **Route 4 (20.93)** and **Route 2 (20.59)** with moderate values noted for **Route 1 (14.70)**, **Route 5 (12.51)**, and **Route 3 (12.39)**, with the lowest for **Route 6 (11.49)**. Specific factors that affected the built environment values for **Route 4** include being close to a historic district (Cairnbrook), a high number of churches and schools (5), a moderately high number of residences (29), and passing through areas of protected lands (a long section of State Game Land #228 and a short section of Shawnee State Park). **Route 2's** score was also high due to passing through State Game Land #228 and Shawnee State Park as well as being in close proximity to the most residences (37) and proposed housing development parcels (12). Although **Route 6** would also pass a high number of churches and schools (4), be adjacent to the second most number of residences (32), and extend through a short section of Shawnee State Park, the route scored well due to avoiding the historic district and State Game Lands #228.

5.2.3.2 Natural Environment

Values for effects to the natural environment were highest for **Route 6 (23.07)** and **Route 5 (21.21)**, moderate for **Route 3 (18.73)**, **Route 1 (17.47)**, and **Route 4 (16.52)** and lowest for **Route 2 (6.27)**. Despite having a relatively moderate impact on forested areas (108.6 acres), **Route 6** would involve the most stream crossings (25), the most wetland impacts (384 feet), and a moderate area within FEMA floodplains (5.0 acres). Conversely, **Route 5** would involve a low number of stream crossings (19) but have the second highest impact on forested areas (157.6) and be located across the most FEMA floodplain (7.5). Although **Route 2** would involve a high wetland crossing length (358), the ecological value was the lowest due to having the fewest forest impacts (91), fewest stream crossings (18), and limited floodplain interaction (2.2).

5.2.3.3 Engineering Considerations

Engineering consideration values were highest for **Route 5 (18.33)** and **Route 1 (18.29)**, moderate for **Route 6 (13.97)** and **Route 3 (13.67)** and lowest for **Route 4 (9.53)** and **Route 2 (6.48)**. The primary factors affecting the engineering values for **Route 5** and **Route 1** are the limited miles of rebuild or co-location with an existing utility (1.6 miles), most high angle turns (16 and 19 respectively), relatively few existing roads in close proximity to the routes, and the high estimated cost to construct. Despite having the most road or railroad crossings (40), **Route 2** has the lowest engineering value due to the long length of rebuild within an existing utility ROW (7.6 miles), one of the longest lengths parallel to a road (3.0

miles), the fewest high angle turns (2), being in close proximity to the most roads, and having the lowest estimated cost to construct. Similar to **Route 2**, **Route 4** would involve a long length of re-build (7.2), but scored slightly higher due to having more sharp turns (8), fewer roads in close proximity, and a higher estimated cost to construct.

5.2.4 Qualitative Evaluation

The final step in the Route Selection Study for the Bedford North-Central City West 115 kV Project involved a qualitative assessment of the six Alternative Routes. The following five qualitative criteria were assessed for the Project:

- Visual concerns
- Community concerns
- Special permit issues
- Construction, maintenance, and accessibility
- Schedule delay risk

Each of these qualitative criteria was assigned a weight based on its significance within the scope of the Project as illustrated in **Table 5-4**. Since the project will require acquisition of new ROW and the need to address engineering challenges associated with steep terrain to develop the ROW, Accessibility and Construction aspects were assigned the highest weight (30%). The potential for Special Permits was also deemed a high risk aspect and assigned the next highest weight (25%). The risk of a Schedule Delay was assigned a moderate weight (20%) as unanticipated delays often result in increased complexity in project coordination. In terms of Community Concerns, avoidance of populated areas and individual residences was a primary focus of the quantitative assessment, thus this aspect was assigned a moderately low weight (15%) for the qualitative evaluation. Visual Concerns was assigned the lowest weight (10%) as the line will generally be located in isolated rural areas except for near Central City.

Each Alternative Route was assessed based on these criteria, ranking each on a 1-5 scale, with one (1) indicating a low impact and five (5) indicating a high impact. A detailed discussion of the considerations related to each of the qualitative criteria is provided below.

TABLE 5-4: Qualitative Analysis of Alternative Routes

Criteria	Weights	ROUTE 1	ROUTE 2	ROUTE 3	ROUTE 4	ROUTE 5	ROUTE 6
VISUAL CONCERNS	10%	4	4	3	3	5	4
<i>Weighted</i>		0.40	0.40	0.30	0.30	0.50	0.40
COMMUNITY CONCERNS	15%	5	2	4	3	5	4
<i>Weighted</i>		0.75	0.30	0.60	0.45	0.75	0.60
SPECIAL PERMIT ISSUES	25%	1	4	2	3	2	3
<i>Weighted</i>		0.25	1.00	0.50	0.75	0.50	0.75
CONSTRUCTION/MAINTENANCE/ ACCESSIBILITY	30%	5	2	4	3	5	4
<i>Weighted</i>		1.50	0.60	1.20	0.90	1.50	1.20
SCHEDULE DELAY RISK	20%	4	2	3	2	5	3
<i>Weighted</i>		0.80	0.40	0.60	0.40	1.00	0.60
TOTALS	100%	3.70	2.70	3.20	2.80	4.25	3.55

5.2.4.1 Visual Concerns

Visual concerns within the Project Study Area will vary due to the diversity of landscapes and the magnitude of people viewing the alignment. Each of the alternatives would extend through the commercial area around the Bedford North Substation and the I-99 corridor, where the addition of the new transmission line system would not be considered a significant visual impact, especially in the areas where the new line would be co-located on existing structures as a second circuit. West of I-99, the alternatives that involve the rebuild of the Bedford North-New Baltimore 115 kV line (**Routes 2, 3, 4, and 6**) would similarly have limited visual effects aside from the proposed engineering changes made in the pole design necessary for the inclusion of the second circuit. Alternatives to the north that do not use an existing ROW (**Routes 1 and 5**) would be required to develop all new ROWs through a landscape where no other linear utilities are located, which would result in new visual impacts to the surrounding land owners and communities. Routes following the Bedford North-New Baltimore 115 kV line ROW eventually depart from this corridor and would similarly need to develop their own ROWs through the landscape, but the length of these impacts would be relatively shorter.

As the alternatives extend to the west, each would be required to traverse up the steep slope of the Allegheny Front, which will involve the development of a new 100-foot wide area of forest clearing to accommodate the new power lines. This cleared area will be visible to most of the local communities and from most of the local and state roads in the lower lands to the east. The specific location of each alignment as it extends up this steep mountain face will have a localized visual impact to the neighboring homes, but none of the alternative alignments up this mountain will have more of a negative effect to the viewshed relative to the others. Of the alternatives, **Route 2** and **Route 4** may have the most visual impact to the viewshed from the Audubon Society-managed Allegheny Front Hawk Watch located along the ridgeline of this mountain. **Route 2** and **Route 4** would pass approximately 0.3 mile to the south of this public viewing area and although it will not have any direct impact in the ability of the public to view the birds or the vista, the alignment of the route would be visible as a new feature in the valley below.

Continuing west, several of the routes (**Routes 2 and 4**) would cross through State Game Lands #228, but to decrease impacts to these protected lands, the alternatives were sited to parallel Lambert Mountain Road, which also extends through the state lands and continues on into Central City. Alternatives in this area would parallel Lambert Mountain Road for up to two miles and cross over the road several times. The visual impact of these alternatives would be noted by the land owners living along Lambert Mountain Road, locals who would use the roadway, and visitors to the state game lands.

In the area around Central City, alternatives either circle around the town to the north or use the Norfolk Southern railroad ROW to cross through the center of the town. Visual impacts of the alternatives circling to the north may be noted where the routes cross SR 160 and extend along the railroad, which is located near the local school complex. Visual impacts of the alternatives following the railroad ROW may be more pronounced due to crossing the main road (Sunshine Boulevard) into town, which is bordered by active commercial and retail stores. There is also a more concentrated area of residential homes along this route, as well as a local park with several ball fields.

Based on these observations, **Route 5** was assigned the highest visual impact value (5) as this alternative would involve the development of over 20 miles of new ROW across areas without any existing utility ROWs and use of the railroad ROW to cross through Central City. **Route 1** was assigned the next highest visual impact score (4) due the need to develop over 20 miles of new ROW across an undeveloped landscape but would avoid the center of Central City. Although **Route 6** would be part of the rebuild along the Bedford North-New Baltimore line, it was also assigned a moderately high visual score (4) due to the length of new ROW required to extend around State Game Lands and the use of the railroad ROW to cross through Central City. Similarly, **Route 3** would involve a longer route to avoid the state lands, but was assigned a moderate visual impact value (3) due to circling around Central City rather than crossing through the center. **Route 2** and **Route 4** would be part of the rebuild along the Bedford North-New Baltimore line, but would also be visible from the Allegheny Front Hawk Watch viewing area as well as extend along Lambert Mountain Road through State Game Lands #228. **Route 2** was assigned a moderately high visual concern value (4) as this route would extend through Central City, whereas **Route 4** was assigned a lower value (3) due to circling around the town.

5.2.4.2 Community Concerns

Community concerns may arise regarding the long-term changes in the local landscape, community character, and for the short-term prospect of increased traffic and noise during construction generated by the project. Other factors that were identified for this project included the potential effect on agricultural practices (i.e., tilling and planting patterns), on specific crop production (i.e., orchards), and the processes involved in sustaining some of the crops such as avoidance of pesticides and maintaining healthy bee populations. Concerns regarding the potential effect on farming practices were raised by several farmers that would be crossed by the various alternatives. In many cases, adjustments were made to the alignment of the route across these lands to follow the boundary of active crop fields or to span these areas were applicable. In terms of the orchards, adjustments were also made to border these lands, but in some cases, trees would still need to be removed based on specific federal requirements for transmission line reliability. Although some route alignments were physically moved off of the orchard area, there were still concerns about the chemicals used to maintain the vegetation in the ROW. The concern raised by some landowners is that these chemicals could have a negative effect on the productivity of the surrounding orchard trees (and other crops), as well as on the health of the bee hives that some farmers maintain to assist in the pollination of their crops.

Another primary area of potential community concern was the alignment of the route near Central City, which would be the most concentrated population affected by the project. Alternatives circling around Central City would cross several residential roads and pass closely to the local school complex, whereas alternatives using the Norfolk Southern ROW would span through the center of town and pass closely to an area of concentrated residential properties and a local ball park. Concerns for either of these proposed alignments would include the short-term effect of noise and traffic during construction, but more critically, the potential long-term effect on the local character. Feedback provided by local citizens and elected officials indicated that neither option would be a drastic change and would not have a negative effect on the community.

The other community concern concept is the difference between the development of a new utility ROW and re-building the structures within an existing ROW. Creating a new ROW would involve the identification and development of an access road system and the clearing of forested areas for the new ROW. Conversely, re-building in an existing ROW would involve the use of an existing access road system, the replacement or modification of the structures, and the installation of the new wires. Communities and landowners along the alignment of an existing ROW would be negatively affected during the construction phase but those along the alignment of a new ROW would need to adjust to the changes in the landscape and the perceived effect on their property value.

Based on these observations, reactions to **Route 1** and **Route 5**, which would require all new ROW across the northern part of the Project Study Area, were deemed to be the most problematic. These two routes, which would also pass over some orchard areas and across several active farms, were each assigned a high community concern value (5). Although **Route 3** and **Route 6** would be part of the Bedford North-New Baltimore rebuild, they were assigned moderately high values (4) due to the additional length of new ROW alignment across the farmlands in Bedford County that would be necessary to span north around the state lands in Somerset County. **Route 4** and **Route 2** follow very similar alignments until they reach Central City. **Route 4** was assigned a moderate concern value (3) due to requiring an additional two miles of new ROW to circle around the north side of town. **Route 2** was assigned a moderately low concern value (2) due to following a more direct route through Central City and thereby affecting relatively fewer properties.

5.2.4.3 Special Permit Issues

Various types of permits may be required for developing a new transmission alignment or even when re-building transmission lines within existing ROW. For example, in the Commonwealth of Pennsylvania, freshwater wetlands, open waters, and floodplains are regulated by PADEP. Impacts on these features would require environmental permits from PADEP, whether related to the complex positioning of a new structure in a large wetland or simply crossing a small tributary with an access road.

Additionally, coordination would be required with local county conservation districts, in conjunction with PADEP, to acquire erosion and sediment control permits required under the federal National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The extent of NPDES permitting is determined by the water quality level of the receiving streams. High Quality (HQ) and Exceptional Value (EV) designated streams would require the highest level of protection.

Furthermore, issuance of compulsory federal and state permits usually requires compliance with agency-mandated evaluation of potential environmental or social resource impacts. This evaluation includes conducting detailed assessments of threatened and endangered (T&E) species habitats, cumulative impact analyses, and/or studies on local cultural resources. Impacts to these features can require mitigation efforts that would need to be addressed prior to obtaining the necessary permits. Likewise, permits or licenses may be required for social safety considerations involving route proximity

to highways, airports, or railroad ROWs, or for conducting work or developing new alignments on state lands including State Game Lands and State Parks.

Based on review of the NWI wetland database and USGS stream network, none of the proposed routes are anticipated to have a major impact on these natural resources. In many cases, engineering review of the wetlands and streams can eliminate or minimize impacts through the strategic placement of structures to span these features. Areas of concern would involve the development of the new access roads, which may need to permanently cross wetlands or span streams. Specific general permits issued by PADEP allow for a certain degree of these impacts, but these general permits have specific thresholds, that when passed typically result in the need to develop and submit a Joint Permit Application (JPA) that is issued to PADEP and may require review by the U.S. Army Corps of Engineers (USACE). Development and review of the JPA requires more time and effort and, due to the level of resource impacts, typically requires the inclusion of a mitigation plan, development of the mitigation site, and long-term commitment to the monitoring and success of the site. At this point, the need for a JPA for this project is not anticipated.

In terms of the NPDES permit, all of the alternatives would cross into a special protection watershed (HQ or EV), which would elevate the level of NPDES from a General permit to an Individual permit. Since this process would be applicable to all of the alignments, each would be equally affected. Similarly, the potential level of T&E survey or cultural resource study is also anticipated to be relatively equivalent across the various alternatives as each will traverse similar habitat areas (agriculture dominated lands in Bedford County, forested slope of the Allegheny Front, and the forested plateau in Somerset County).

In terms of permits from the Pennsylvania Department of Transportation (PennDOT), each alternative would need to span I-99, which would involve the acquisition of an aerial highway occupancy permit (HOP). Other HOPs may be needed for temporary or permanent minimum use driveways that access directly onto state roads, such as SR 96 or SR 56, but these too would be essentially the same for each alternative.

The key differences between the alternatives may be the specific special use permits that may be required from various state agencies and agreements with other private organizations. PADCNr, which oversees the state park system, may require additional coordination for work conducted in Shawnee State Park. The PGC, which oversees the State Game Lands, will require a new license agreement for the development of a new ROW through State Game Lands #228. Norfolk Southern will also require specific agreements to allow the necessary transmission line ROW work proposed within and across their railroad ROW. As such, **Route 2** was assigned a high special permit value (4) due to the need to coordinate with PADCNr, PGC, and Norfolk Southern. **Route 4** and **Route 6** were assigned a moderate permit value (3) due to the need to coordinate with two of these entities and **Route 3** and **Route 5** were assigned moderately low permit values (2) due to the need to coordinate with one of these entities. **Route 1** was assigned the lowest permit value (1) as this alternative would not need to coordinate with any of these agencies or companies.

5.2.4.4 Construction, Maintenance, and Accessibility

Variables identified under this category involve constructing the transmission lines, conducting routine maintenance of the facilities, and providing appropriate access to all the required areas. Initial phases of transmission line construction require the use of various types of heavy machinery (i.e., bulldozers and cranes) that need to traverse the landscape to the proposed pole positions. These vehicles aid in clearing the forest, leveling out the access roads and footer/pad areas, digging the footer, and erecting the structures. Typically, wire installation is installed by hand, with construction personnel carrying lighter leader lines between poles and using small power equipment to pull the line taut and haul the heavier line into place. This process often allows the lines to be strung over wetlands or stream valleys, thereby decreasing potential impacts to protected features. Due to the ability to bypass certain complex areas between the poles, the access road system does not necessarily need to extend the entire length of the proposed alignment. This decrease in access road length also facilitates the permit process as it minimizes impacts to regulated areas by reducing stream and wetland crossings. The access road system would only need to ensure access to the pole locations for routine inspections and maintenance requirements.

Defining the access and completing the construction of a new transmission line ROW will be more problematic than re-building an existing ROW. Most access roads are located within the ROW of the utility and typically begin and end at public road crossings, but in some cases access to specific areas may be more convoluted due to landowner requests (no roads across active farms) or terrain variables (large stream crossing, steep slopes). In these situations, use of other off-ROW access roads to reach these isolated structures may require additional land use negotiations and potential construction costs. For new ROW areas, identification and stabilization of the access road network is a first priority, whereas for existing ROWs, the access road system has typically already been secured and is in functional condition.

The actual construction of the new ROW requires clear cutting the forested areas, which involves extensive man-hours and the use of heavy equipment. Variables that can affect the effectiveness of these operations include terrain and accessibility. The terrain along the various alternatives is generally the same for each, with rolling hills in the eastern section, a steep mountain in the central section, and a high level plateau in the west. Accessibility here refers to the complexity of the access road system, with long forested roads being more complicating than easy access from neighboring public roads. Getting the equipment to the ROW may be as complex as the clear cutting and construction activities for the ROW itself.

Another variable that was considered is the complexity of the alignment, with straighter alignments being less difficult to construct relative to alignments with numerous turns. Structures at turning points require additional engineering to assure they are able to withstand the stresses placed on them by the conductor wires. Often these structures are bigger and may require additional foundation support, such as concrete footers. The complexity of extending over the steep face of the Allegheny Front is another aspect of this variable. This task will require additional engineering and the installation of steel poles and concrete footers; however, the need to conduct this task will be similar for each of the alternatives.

Based on these variables, **Route 1** and **Route 5** were assigned the highest construction value (5) due to these alternatives being primarily within new ROW, having no identified access roads, and the complexity of the alignment. Although **Route 3** and **Route 6** are part of the re-build section, they would involve a considerable length of new ROW and have a moderately complex design and were therefore assigned a moderately high construction value (4). **Route 4** and **Route 2** would also involve the benefits of the re-build section, plus the additional ease of access for the sections extending along Lambert Mountain Road, but **Route 4** would be more difficult due to the additional length and complexity of the route around the north side of Central City relative to the more direct and less complicated alignment of **Route 2**. As such, **Route 4** was assigned a moderate low construction value (3) and **Route 2** was assigned a moderately low value (2).

5.2.4.5 Schedule Delay Risk

Risk of schedule delay is directly related to the other qualitative criteria evaluated for this Project. For example, negative community reaction, complicated ROW acquisition, additional field studies for environmental permit clearance, and construction complexity can result in delayed schedules. Many of the potential reasons for schedule delays along each of the Alternative Routes can be identified in advance, but some reasons for delay cannot be known in advance and may not be realized until much later in the process.

Based on the qualitative discussions above, **Route 5** was assigned the highest delay risk value (5) due to the visibility concerns, potential for community reactions, and level of access and construction difficulty identified for the route. **Route 1** was assigned a moderately high delay risk value (4) as the route would have similar community reactions and access and construction issues, but slightly less issues with visibility due to extending around the north side of Central City. **Route 3** and **Route 6** were each assigned a moderate delay value (3) as each would involve similar levels of community concerns and accessibility and construction issues. **Route 2** and **Route 4** were assigned moderately low delay values (2) due to the relatively lower levels of community concerns and access and constructability issues.

6.0 PROPOSED ROUTE DISCUSSIONS

The results of the *quantitative assessment* of the Alternative Routes, discussed in detail in **Section 5.2.3** illustrated in **Table 5-3**, resulted in **Route 2 (33.34)** having the **lowest** overall weighted total value, with **Route 3 (44.67)** having the second lowest impact value. **Route 2** had the lowest weighted scores for the ecological/natural and engineering considerations categories, but scored relatively high in the social/build category. Conversely, **Route 3**, had the lowest weighted score for social/build category, but scored moderately high for the ecological/natural and engineering considerations categories. Based on this quantitative assessment, **Route 2** and **Route 3** were identified as having fewer impacts relative to the other four alternative routes.

The results of the *qualitative assessment* of the Alternative Routes, discussed in detail in **Section 5.2.4** and illustrated in **Table 5-4**, indicate that **Route 2 (2.70)** and **Route 4 (2.80)** have the two **lowest** weighted scores for the five qualitative aspects reviewed. **Route 2** has the lowest scores for the community concerns, constructability, and schedule delay risk aspects, whereas **Route 4** has lower

scores for the visual concerns and special permit issue aspects. The key difference between these two options is the additional constructability issues due to the longer length and increased potential for community concerns for **Route 4** compared to **Route 2**.

In review of these findings, **Route 2** overall appears the most favorable route for the Project since:

- A considerable length would be located within an existing electrical transmission line ROW;
- It has fewer potential engineering obstacles; and
- There would only be moderate ecological considerations involved in the permitting process.

The Proposed Route is illustrated on **Figure 5-2**.

6.1 Proposed Route Assessment and Summary

Route 2 would involve re-building a 7.2 mile section of the existing Bedford North-New Baltimore 115 kV line plus the development of 10.4 miles of new ROW that will extend to Central City. This alignment will traverse through State Game Lands #228 by paralleling a 1.4 mile section of Lambert Mountain Road. Initial communications with the Pennsylvania Game Commission has indicated that they do not object to the proposed alignment. Coordination with this agency regarding the exact alignment and the development of a license agreement will be forth coming. In Central City, **Route 2** will utilize the Norfolk Southern railroad ROW to pass through the central portion of the town. Initial communications with Norfolk Southern have indicated that they do not object to the proposed alignment. Coordination regarding the exact alignment and the development of a license agreement will be forth coming.

In addition, the key qualitative aspect affecting **Route 2** was the potential need for special permits from the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Game Commission, and Norfolk Southern. As discussed above, communication with two of these entities have been initiated and are proceeding in an optimistic manner. Communication with the Pennsylvania Department of Conservation and Natural Resources has not been initiated, but the section of Shawnee State Park that is in question is located within the existing Bedford North-New Baltimore 115 kV ROW and coordination to re-build the line in this area is not anticipated to be problematic. Although the qualitative assessment indicated that these special permits may be an issue, the responses from the agencies/company have indicated that they will not.

6.2 Review of Proposed Route

Per Pennsylvania Public Utility Commission (PUC) guidelines found at 52 Pa. Code, § 69.1101 (2)(3) and § 69.3104 (1), a review of the potential effect of the Proposed Route on local comprehensive plans and zoning ordinances was conducted (**Section 6.2.1**). Based on the requirements of § 69.3106 (1), an assessment of the potential environmental and cultural mitigation measures and permit requirements anticipated for the Proposed Route is also provided (**Section 6.2.2**). PUC regulation § 69.3105 (2) also requires that the status of the property acquisition process be provided as part of the route selection study (**Section 6.2.3**). PUC regulation § 57.72 (c)(8) requires that a report of the efforts to locate and identify archaeological, geologic, historic, scenic, and wilderness areas within 2 miles of the Proposed

Route also be submitted as part of the route selection study (**Section 6.2.4**). FirstEnergy staff have discussed and solicited input on the Project with Bedford County and Somerset County officials and municipalities along the length of the Proposed Route.

6.2.1 Review of Township Zoning and County Comprehensive Plans

Public utility features, such as transmission lines and substations are generally exempt from local municipal authority. To further the Commonwealth's goal of making agency actions consistent with sound land use planning by considering the impact of its decision upon local comprehensive plans and zoning ordinances, the PUC adopted a policy on January 11, 2001 that requires the public utility to review local zoning ordinances and comprehensive land use plans to evaluate the impact of proposed projects on these items (See 52 Pa. Code § 69.1101, 31 Pa. Bull. 951 (Feb. 17, 2001)). Local zoning ordinances and comprehensive land use plans were reviewed to evaluate the impact of the proposed Bedford North-Central City West Project on these local ordinances and plans.

The route selection study for the Bedford North-Central City West Project has concluded that the new 115 kV transmission line should initially extend 7.2 miles west from the existing Bedford North Substation as a second circuit on the existing Bedford North-New Baltimore 115 kV line, which would be re-built for this Project as a double-circuit transmission line. The rebuild section would originate in Bedford Township (Bedford County) and would cross through portions of East St. Clair Township and into Napier Township. At the point where the Bedford North-New Baltimore 115 kV line turns to the southwest, the new Bedford North-Central City West 115 kV line would be built as a new single-circuit 115 kV transmission line on poles that can support a second (future) 115 kV transmission line. The new transmission line alignment would travel to the northwest across Napier Township and into Shade Township (Somerset County) to the existing Central City West Substation within a new 100-foot wide ROW. Construction of the new 115 kV transmission line will provide a more reliable electrical supply to the surrounding 69 kV transmission line network and thereby address the Project's goals.

In adherence to PUC regulations, FirstEnergy evaluated the Project's consistency with the zoning ordinances and comprehensive plans of the government entities through which the Proposed Route would pass.

Township Zoning

None of the four townships located within the Project Study Area have adopted local zoning ordinances. Generally, these ordinances would be used to guide future land use in the townships by encouraging development of desirable residential, commercial, agricultural, and industrial areas with appropriate groupings of compatible and related land uses.

These ordinances would normally define the allowances and restrictions associated with the various zoning districts and would typically identify "Essential Services", which include distribution, transmission, or collection systems associated with utilities such as water, gas, and electric, to be conditionally exempt from local regulations, as long as the required actions are approved by the

Pennsylvania PUC. In townships that lack local zoning ordinances, county-level land use regulations regarding subdivision and land development supervene.

As such, the proposed Bedford North-Central City West 115 kV Project will not have any effect on zoning within any of the townships crossed.

Comprehensive Plans

Bedford County and Somerset County have prepared comprehensive plans for their particular areas. In general, comprehensive plans are intended to serve as a means to review the assets and pressures within the county and provide guidance for future development and preservation; they are not intended to regulate and have no official authority. According to the *Bedford County Comprehensive Plan*, prepared by the Bedford County Planning Commission (BCPC), *“the real value of this plan is to define a desired future County direction and to mobilize the public and the private sectors to move toward key goals and priorities (BCPC 2006).”*

Bedford County’s comprehensive plan was adopted in 2006 and finalized in 2014. The *Bedford County Comprehensive Plan* provides an assessment of the cultural, community facilities, transportation network, natural resources, and existing land uses within the county, as well as analysis of the population, economic, and housing trends. Goals identified by the *Bedford County Comprehensive Plan* focus on the preservation of natural resources, the promotion of cultural and historic resources, the enhancement of transportation networks, the expansion of community and economic opportunities, land use regulation, and the availability of community services and facilities (BCPC 2006). Implementation strategies include a series of Action Plans that build on the goals to identify and recommend policies for decision making and tasks for making change. Such tasks include development of a future land use map and the identification of generalized land use categories that will guide future development. Specific policies would involve the protection of surface water and groundwater resources, encourage sensitive development and rehabilitation in areas of historic significance, and support municipalities in directing public sewer and water services to existing or planned development centers.

Review of the Proposed Future Land Use map provided in the *Bedford County Comprehensive Plan* indicates that the Proposed Route would be located within the Commercial/Industrial, Natural Resource Protection, Working Countryside, and Recreation and Open Space land use categories. The purpose of the Commercial/ Industrial area is to *“encourage growth and development of commercial and industrial uses in areas where previous infrastructure investment has already been made, taking advantage of readily available municipal services, public utilities, such as water and sewer and transportation.”* The Commercial/ Industrial area is focused around Bedford and extends north up both sides of I-99 past the Bedford North Substation. Eastern portions of the proposed rebuild section of the Bedford North-New Baltimore 115 kV line would also be located in this area.

The purpose of the Natural Resource Protection is to *“protect natural resources from direct and indirect development and disturbance impacts and to accommodate limited, non-intensive growth and development”*. Portions of the proposed rebuild section of the Bedford North-New Baltimore 115 kV

line would extend through several of the identified forested resource areas, but these areas will not be affected by the project as the ROW already exists in this section. Interspersed with the natural resource areas are the Working Countryside uses, the purpose of which is to “*encourage natural resource based industries and non-developed uses and to accommodate limited growth and development.*” These areas include the numerous farms, orchards, and ranches located east of the Allegheny Front. The new ROW alignment traverses across these working farm lands where it is possible to minimize the impacts to the adjacent forest resources. Alignment modifications such as paralleling field edges and crossing fields at narrow points were coordinated with landowners and incorporated into the route to minimize potential effects on regular farming practices. Similarly, efforts were made to minimize impacts to forested areas by following forest edges and crossing narrow forested areas between farm fields. The Proposed Route was sited to reduce impacts to the local natural resources and active farming culture to the lowest practicable extent.

The purpose of the Recreation and Open Space land use is to “*encourage the development of both active and passive recreational and the conservation of open space areas.*” The route extends through a short section of Shawnee State Park in an existing ROW corridor. Rebuilding the existing line in the ROW will not have any effect on the recreational or conservation activities in this park.

In terms of the goals identified in the *Bedford County Comprehensive Plan*, the Proposed Route will not affect local cultural or historic resources, the expansion of community and economic opportunities, or the availability of community services and facilities. FirstEnergy has sited the route to avoid any dense residential areas, including the small villages located throughout this predominantly rural county. To some degree, acquisition of land for the Proposed Route ROW that may have presented an opportunity for economic development could have an effect on the local economy. The lands proposed to be acquired for the ROW, however, are relatively small in comparison to the open lands presently available for these activities; therefore the effect of the Proposed Route on economic development opportunities is minimal.

Potential effects of the Proposed Route on the county’s natural resources have been minimized through the siting process. The *Bedford County Comprehensive Plan* identifies streams, wetlands, and groundwater as key components of its natural resources. Development of the Proposed Route will require crossing streams and wetlands. FirstEnergy has minimized the impacts to waterways by siting the route to cross at right angles, thereby decreasing loss of riparian buffer areas, which naturally help maintain the stream’s water quality. During construction, however, FirstEnergy is aware that it will also be required to develop and implement stormwater erosion and control plans that will protect these waterways from runoff that could negatively affect water quality. Wetlands are another natural resource that FirstEnergy has minimized effects to through avoidance during the siting process. Impacts to wetlands along the Proposed Route will be further minimized by adjusting monopole positions to allow the resource to be spanned. The Proposed Route will not have any effect on local groundwater quality or quantity.

Somerset County’s comprehensive plan was updated in 2006 and similarly assesses the existing conditions and land uses within the county. The *Somerset County Comprehensive Plan* further provides

an analysis of trends and issues surrounding the County's natural, social, and functional characteristics and examines their potential impact on the County's future sustainability. Specific topics reviewed include population, natural resources, housing, transportation, land use, and community facilities. Based on this evaluation, the *Somerset County Comprehensive Plan* identifies a series of goals and objectives that can be used to guide the various planning categories and provide the methods by which to make the necessary changes. Examples of the goals include expanding land use/zoning controls, developing programs and regulations that enhance surface water quality, and enhance recreational opportunities.

To achieve these goals, the *Somerset County Comprehensive Plan* also provides action plans to address specific municipal planning activities such as housing, economic development, and land use regulation. The action plan for land use emphasizes a Future Land Use Plan that provides a general framework for managing targeted future growth and development areas and is based on the goals and objectives that require development to be coordinated and well planned (SCPC 2006). The Future Land Use Plan applies the concept of targeted growth areas to the County's overall existing and future development patterns. Specific categories used to define land uses include town centers, rural residential, mining, agriculture, and forest. The Proposed Route will traverse areas identified as forest, agriculture, and town center (Central City) and will have limited effect on these resource areas or the function and growth potential of the town center.

6.2.2 Compliance with Potential Permit and Mitigation Requirements

The following is a discussion of the anticipated Project impacts and potential permit and mitigation requirements of the proposed Bedford North-Central City West Project.

FirstEnergy is working diligently with relevant property owners to secure the necessary ROW easement areas along the proposed alignment to minimize the impact on existing and future land use. Efforts were made during the transmission line routing process to minimize impacts on existing and future land uses, as well as avoid sensitive natural resources such as wetlands and streams. Where potential impacts are unavoidable, mitigating factors will be employed. As part of the permitting process, any required waterway or floodplain encroachment permits will be obtained from PADEP and the USACE prior to construction and FirstEnergy will comply with all special conditions placed on the permits. In addition, to address water quality standards within the HQ-designated watersheds along the Project corridor, FirstEnergy will comply with the regulations of the NPDES permit program, obtain the required soil erosion and sedimentation control permits, and follow the specified conditions required for the permit.

Land Use

Siting analyses for the Proposed Route was conducted with acknowledgement of existing and proposed land uses. Some impact on existing and future land use may occur, including clearing of forest areas and reducing potential areas for residential or commercial development. Establishment of ROW easement areas also preclude certain uses such as constructing structures, installing swimming pools, or

establishing fruit orchards and tree farms within the easement area. FirstEnergy is working with property owners to locate the ROW easement across their land to minimize the impact on existing and future land uses. These property owners will be compensated at present land values for the ROW easement area that cross their property.

The Proposed Route will also be designed to avoid conflicts with the existing transportation network and other utilities currently located or proposed along the route. One major roadway (I-99) will be spanned by the Project. PennDOT Highway Occupancy Permits or equivalent type permits will be acquired by FirstEnergy for this highway crossing and all other state road access points prior to construction. PennDOT permit processes include review of the plans to assure that the transmission pole locations and development are in compliance with current safety regulations regarding height and sight clearances. This permit process will also be used to coordinate the actual crossing of the highway with the conductor wires, which often requires the temporary closure of the highway. Such permits are not required for railroad crossings, but similar plan reviews and safety coordination will be conducted for the Norfolk Southern crossing in Central City. Aviation coordination will be conducted through the Federal Aviation Association (FAA) and the Pennsylvania Aviation Association (PAA). To assure that the poles are properly recorded by these agencies, information on the location and height of the new poles will be provided to them through use of Form 7460-1 and AV-57 (Notice of Proposed Construction or Alteration), respectively. FirstEnergy will comply with any additional lighting or other visual aids that may be required by these agencies to assure aviation safety in the region.

Natural Features

Vegetation clearing is required to ensure the safe and reliable operation of the line on the Proposed Route. FirstEnergy's vegetation management practices will allow for the re-generation of compatible species of low growing trees, shrubs, and grasses where practicable. Herbicides used on the ROW will be EPA-approved and will be applied selectively in accordance with all label instructions. Mitigation for these impacts, primarily to state owned lands, will be required and may involve land conservation efforts by FirstEnergy. Determination of the mitigation requirements for the forest impacts, as well as for impacts to the other natural resources, will be part of the permit review process.

Wetlands along the Proposed Route are in the process of being delineated. This task is being accomplished using PADEP and USACE approved methodologies based on the *"Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region"* (USACE 2010). Once the wetlands have been delineated, an engineering review will be conducted to minimize the potential impact to these resources by pole placement or access road development activities. All required permits for these unavoidable wetland impacts will be obtained from the PADEP and the USACE prior to construction. Mitigation in the form of wetland creation, enhancement, or conservation may be required for these wetland impacts.

Streams along the Proposed Route will also be delineated using PADEP and USACE approved methodologies. Long-term impacts to these watercourses are expected to be minimal, as they will be spanned by the proposed transmission line, but some mitigation efforts may be required as a result of the reduction in riparian buffer along these features. Due to the water quality level in these

watersheds, an Individual NPDES permit will be required to mitigate any potential short-term impacts of erosion and sedimentation during construction. As part of the Individual NPDES process, additional and more sophisticated Best Management Practices (BMPs) may be required during construction to maintain the high water quality standards in the watersheds and obtain the NPDES permit.

FEMA and state-identified floodplains are found adjacent to watercourses and identify the areas that routinely flood during heavy rain events. Encroachment within a floodplain area is discouraged by the regulatory agencies due to the potential of the structure to increase the flooding hazard in the local area. According to PADEP's Title 25, Chapter 106 *Floodplain Management*, floodways are more specifically *"The channel of the watercourse and those portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year flood. The boundary of the 100-year floodway is as indicated on the maps and flood insurance studies provided by FEMA. In an area where neither FEMA maps nor studies have defined the boundary of the floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet landward from the top of the bank of the stream"* (PADEP 2016c). Where practicable, transmission structures will be constructed outside the floodplain areas. Due to the wide valleys associated with many of the waterways along the Proposed Route, many of the floodplains and floodways will be relatively narrow and can be spanned by the transmission line. For those locations where the floodplains are not avoidable, additional analysis of the proposed structures may be required by PADEP to confirm the activity will not create flooding conditions in the local area. No structures will be located in the floodway of any stream.

Threatened and Endangered Species

Coordination with state and federal agencies regarding potential threatened and endangered species along the Proposed Route was initiated in April 2015. Responses from the various state and federal agencies have been received. PGC and PFBC noted that no T&E species under their jurisdiction are known to be located near the Proposed Route. PADCNR did acknowledge that two plant species (mountain bellwort (*Uvularia pudica*) and yellow-fringed orchid (*Platanthera ciliaris*)) may be located in the area. Botanical surveys for these species will be conducted at the appropriate time of year for these two plants. USFWS noted that the project is located within a known maternity and swarming area of a federally-listed Indiana bat (*Myotis sodalis*) hibernacula and within the range for the northern long-eared bat (*Myotis septentrionalis*). Coordination with USFWS on development of an *Indiana Bat Conservation Plan* has been initiated. FirstEnergy is committed to working with these agencies to complete any required studies and address any potential impacts and required mitigation activities.

Cultural Resources

Cultural resource coordination with the Pennsylvania Historical and Museum Commission (PHMC) will be initiated in May 2016. FirstEnergy is committed to working with the PHMC to complete any required studies and address any potential impacts and required mitigation activities.

Community Features and Conserved Lands

Community features, which include schools, day care centers, churches, and cemeteries, were identified and effectively avoided during the route selection process. As such, none of these features are located along the Proposed Route and no impacts to these features are anticipated.

Conserved lands involve areas preserved as private or public open space. No private open space areas are located along the Proposed Route. During the route selection process, specific attention was given to avoid the public conserved lands such as Shawnee State Park and State Game Land #228, but due to their size and location, they were not avoidable. Impacts to the state park would occur along the existing ROW rebuild area and are not avoidable. FirstEnergy will coordinate with PADCNr to access these lands and complete the required construction activities. No additional impact to state park lands is anticipated. In an effort to minimize impacts to State Game Lands #228, First Energy coordinated with PGC to determine the best alignment across the lands. Input from these meetings has been incorporated into the alignment of the Proposed Route to the satisfaction of the PGC. Continued coordination will define the exact alignment and lead to the development of a license agreement with PGC.

Anticipated Agency Requirements and Permits

In summation of the items reviewed above, several specific threatened and endangered species studies and archaeological surveys may still need to be conducted that may provide information on possible avoidance and impact areas along the Proposed Route. Given the limited impacts anticipated for the stream and wetland crossings required for the Project, the presence of only one HQ waterway, and the anticipated minimal environmentally sensitive habitats along the Proposed Route, a series of PADEP Chapter 105 (Dam Safety and Waterways) General Permits is expected. As a result of the HQ watershed standards, an Individual NPDES permit is expected from PADEP for erosion and sedimentation control during construction.

6.2.3 Sensitive Features within 2 Miles

Desktop and field efforts were conducted to locate and identify archaeological, geologic, historic, scenic, and wilderness areas within 2 miles of the Proposed Route. Most of the scenic and historic areas were addressed during initial analysis of the Project Study Area and were incorporated into the route selection analysis conducted for the Proposed Route. **Figure 5-3** provides an overview of these culturally and environmentally sensitive features within 2-miles of the Proposed Route.

7.0 REFERENCES

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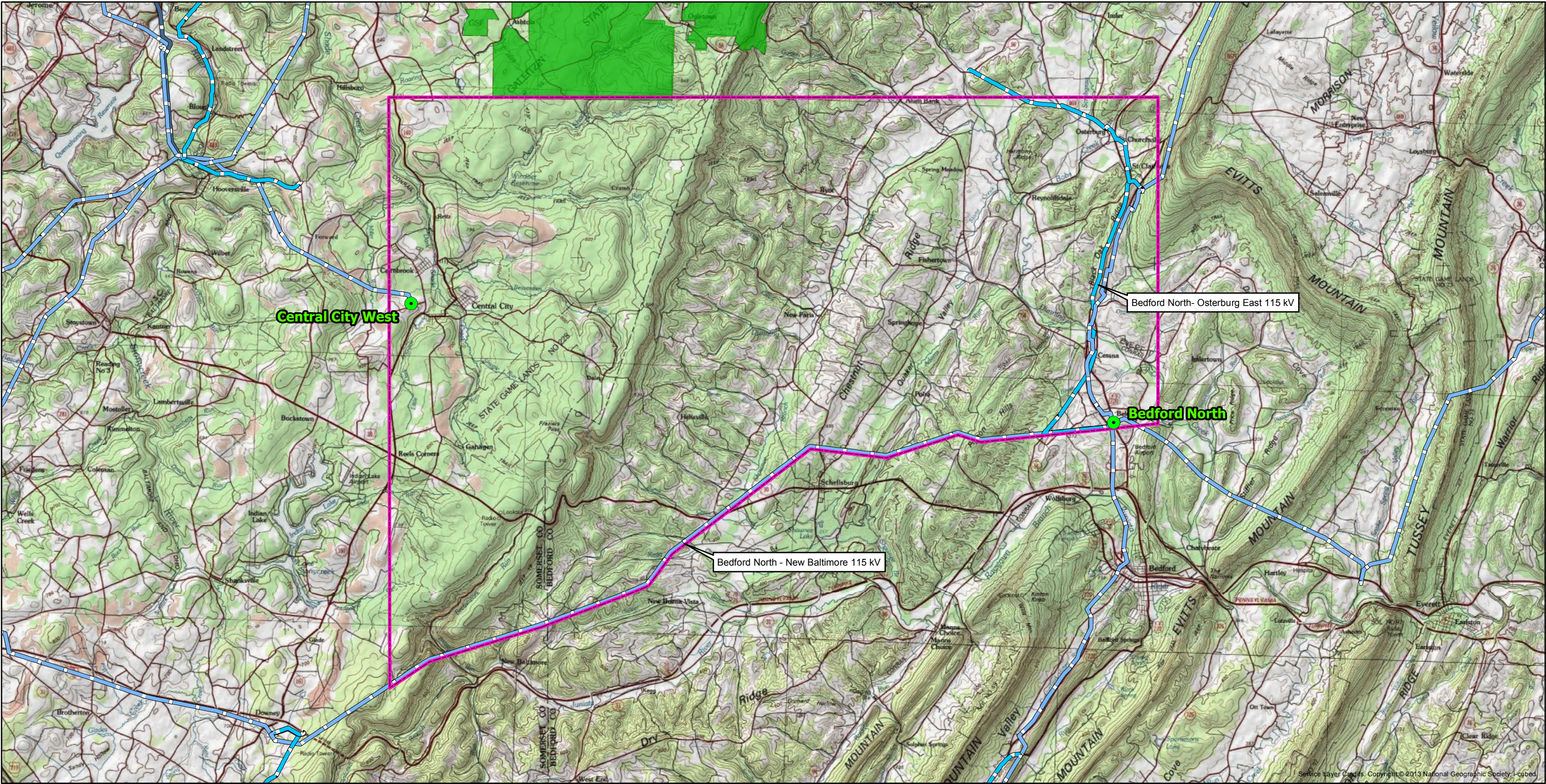
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FIGURES



Legend

- Substation
- ▭ Project Study Area
- Existing Transmission Lines**
- 69 kV
- 115 kV
- 230 kV
- State Forest Land

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Existing Transmission Network (PowerMap)
USGS Topographic Basemap (ESRI)
State Forest Land (PA DCNR 2015)

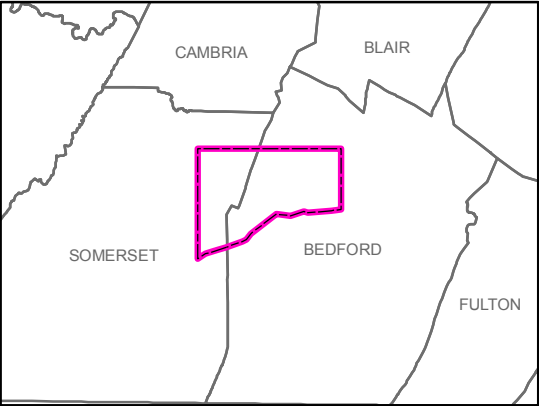
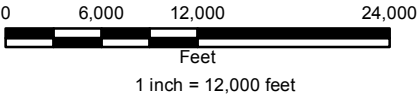


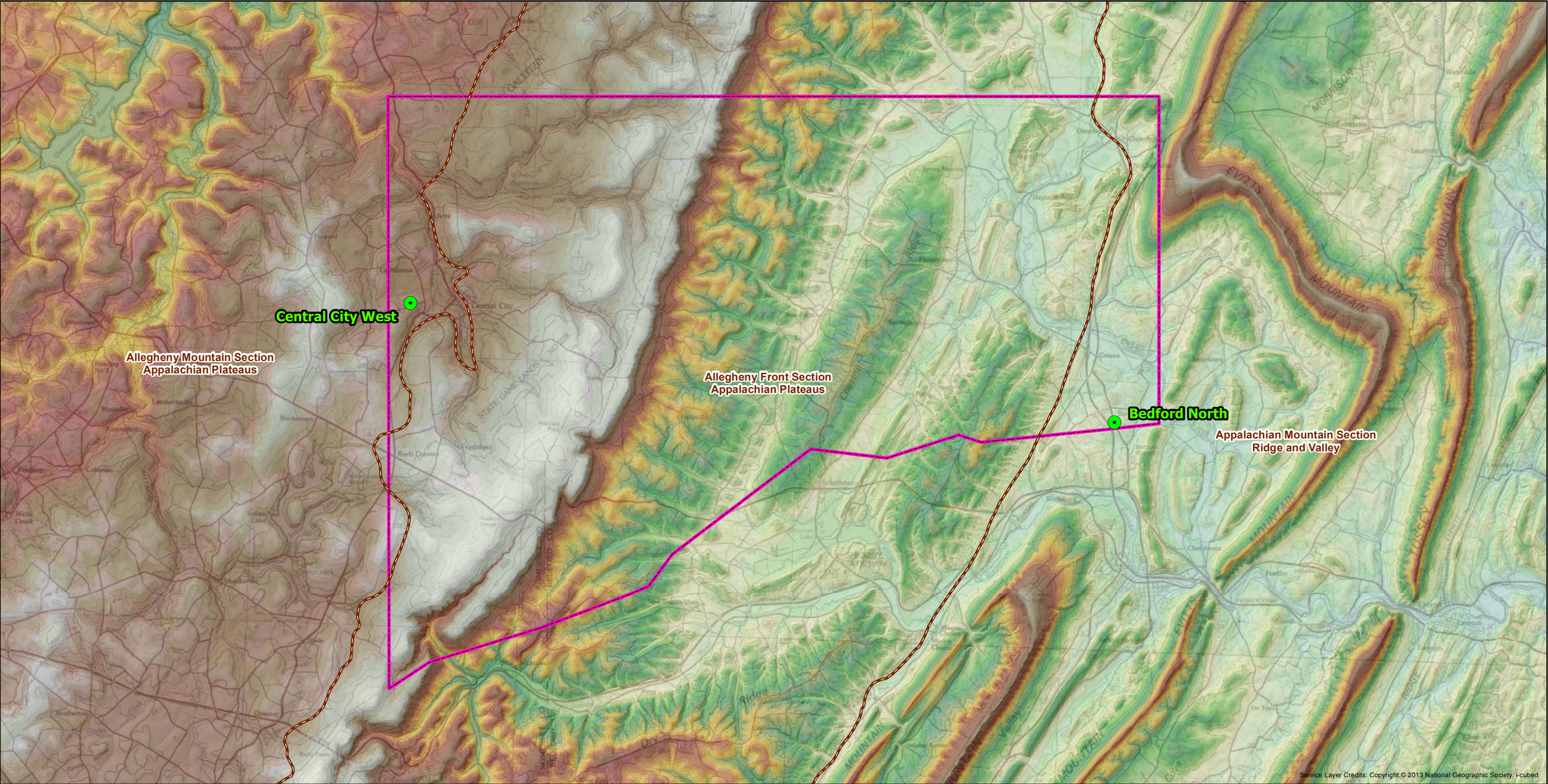
Figure 3-1
Project Study Area

Bedford North-Central City West 115 kV
Transmission Line Project

Bedford and Somerset Counties,
Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/27/2016



Legend

- Substation
- Project Study Area
- Physiographic Provinces
- Elevation (DEM)**
 - High : 2995 feet
 - Low : 900 feet

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
PAMAP Program 2008 - 3.2 ft
Digital Elevation Model of PA
Physiographic Provinces (Pennsylvania Bureau of
Topographic and Geologic Survey, Dept. of
Conservation and Natural Resources)
USGS Topographic Basemap (ESRI)

0 6,000 12,000 24,000
Feet
1 inch = 12,000 feet

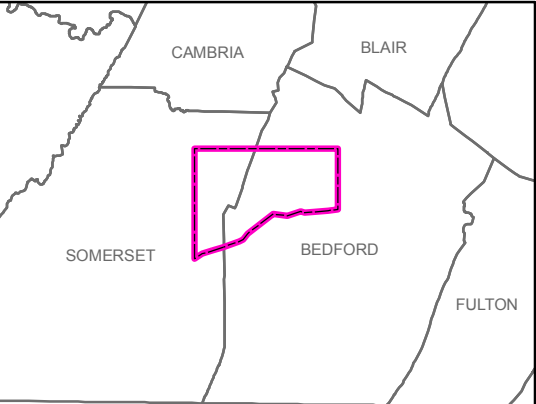
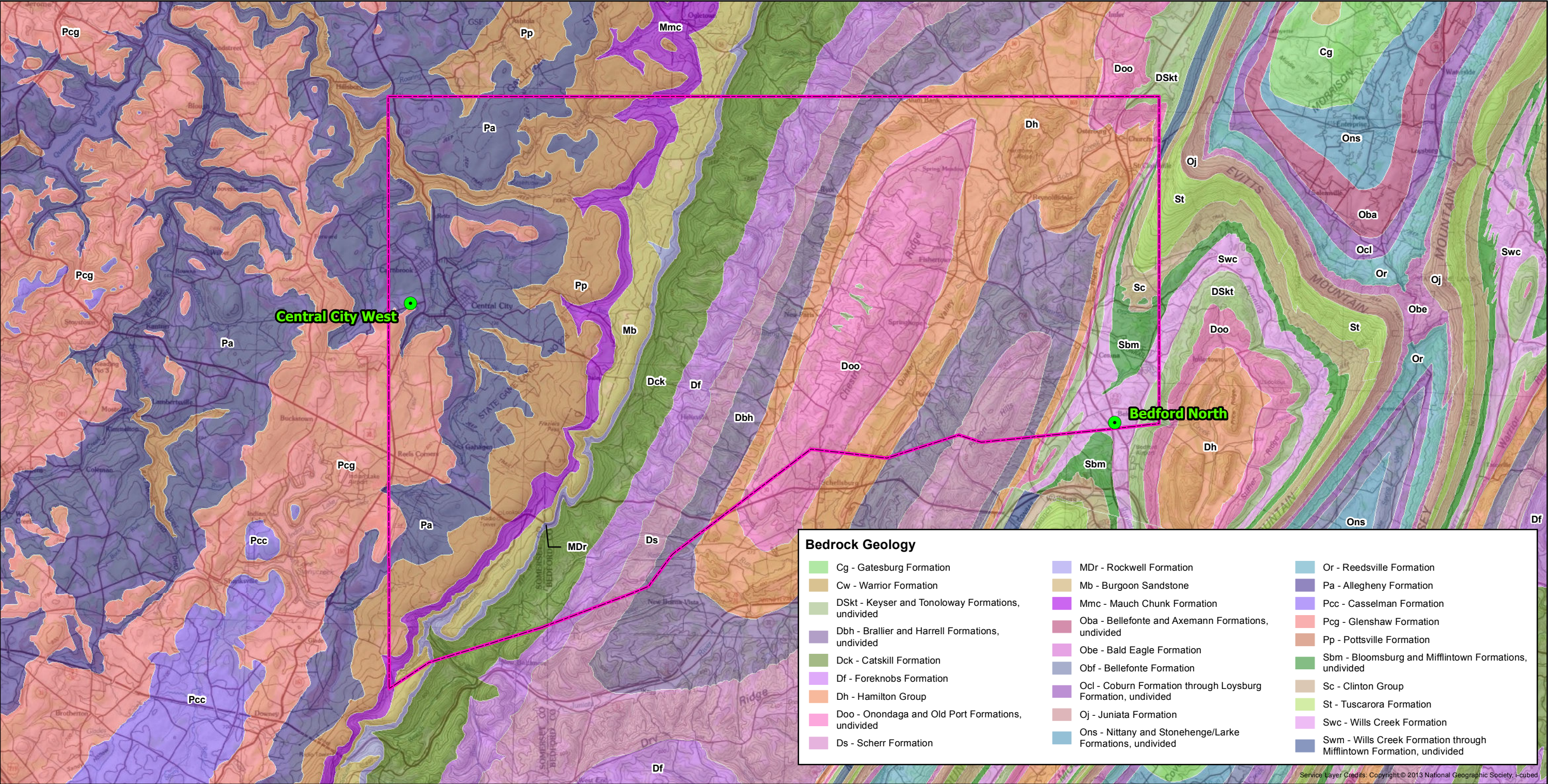


Figure 4-1
Physiographic Provinces and Topography
Bedford North-Central City West 115 kV
Transmission Line Project
Bedford and Somerset Counties,
Pennsylvania
FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/28/2016



Bedrock Geology

- Cg - Gatesburg Formation
- Cw - Warrior Formation
- DSkt - Keyser and Tonoloway Formations, undivided
- Dbh - Brallier and Harrell Formations, undivided
- Dck - Catskill Formation
- Df - Foreknobs Formation
- Dh - Hamilton Group
- Doo - Onondaga and Old Port Formations, undivided
- Ds - Scherr Formation
- MDr - Rockwell Formation
- Mb - Burgoon Sandstone
- Mmc - Mauch Chunk Formation
- Oba - Bellefonte and Axemann Formations, undivided
- Obe - Bald Eagle Formation
- Obf - Bellefonte Formation
- Ocl - Coburn Formation through Loysburg Formation, undivided
- Oj - Juniata Formation
- Ons - Nittany and Stonehenge/Larke Formations, undivided
- Or - Reedsville Formation
- Pa - Allegheny Formation
- Pcc - Casselman Formation
- Pcg - Glenshaw Formation
- Pp - Pottsville Formation
- Sbm - Bloomsburg and Mifflintown Formations, undivided
- Sc - Clinton Group
- St - Tuscarora Formation
- Swc - Wills Creek Formation
- Swm - Wills Creek Formation through Mifflintown Formation, undivided

- Legend**
- Substation
 - Project Study Area

Notes

- Bedrock Geology symbols and names included in the secondary legend on the data frame.

NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Bedrock Geology provided by the Pennsylvania
Bureau of Topographic and Geologic Survey,
Department of Conservation and Natural Resources
USGS Topographic Basemap (ESRI)

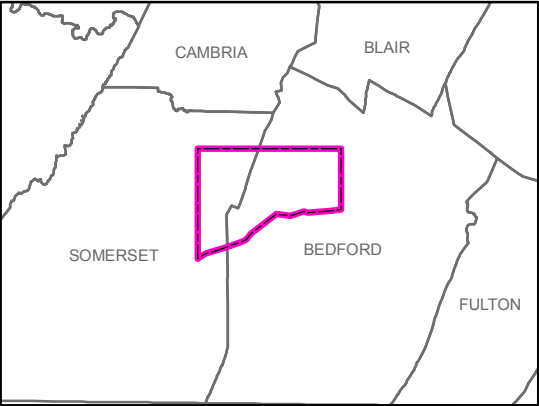


Figure 4-2
Bedrock Geology

**Bedford North-Central City West 115 kV
Transmission Line Project**

**Bedford and Somerset Counties,
Pennsylvania**

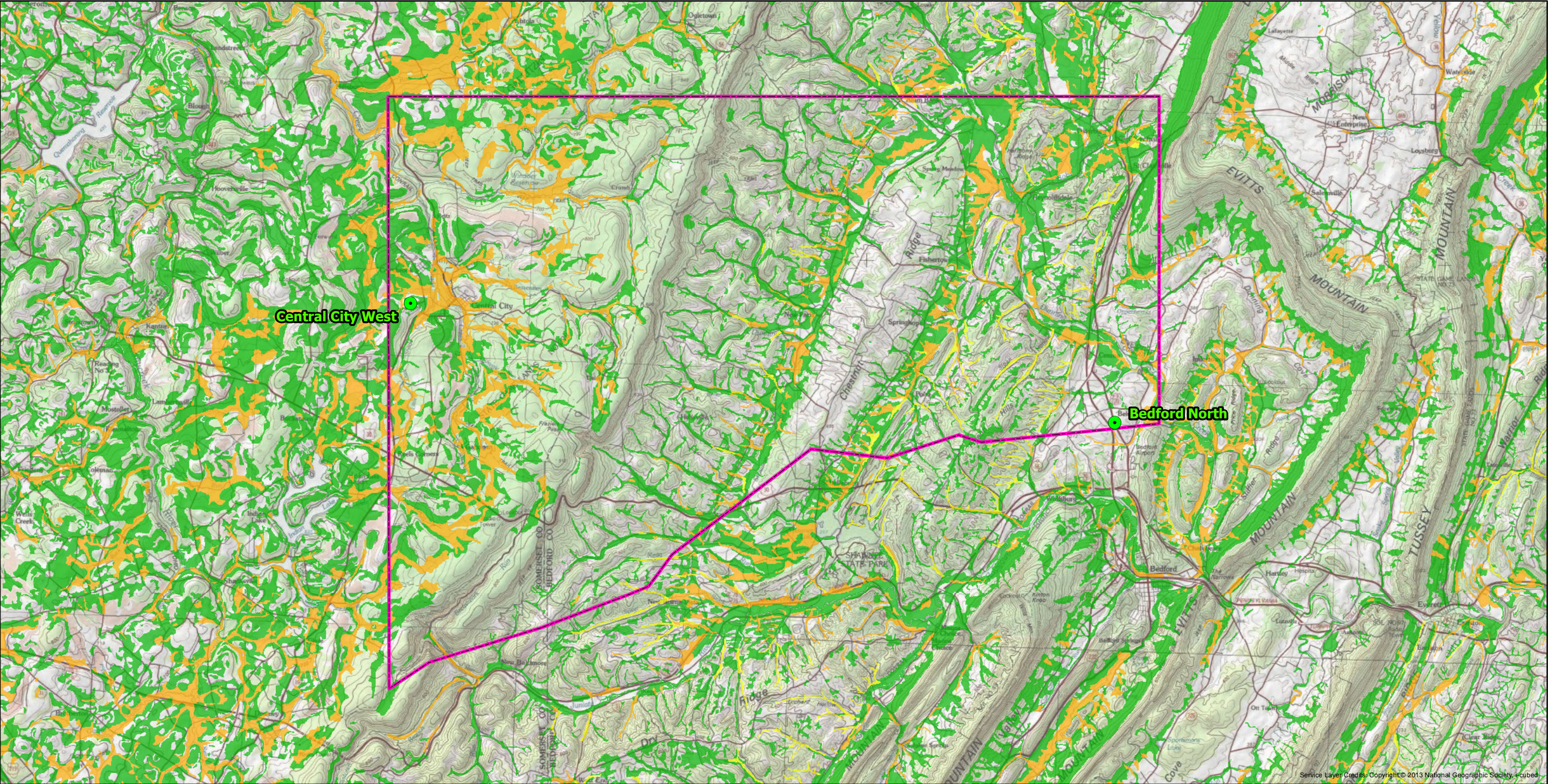
**FirstEnergy Corporation
Akron, Ohio**

Prepared By: MAH/TFB

Checked By: DY

Job: 60414457

Date: 6/27/2016



Legend

- Substation
- ▭ Project Study Area
- Soil Rating Polygons**
- Hydryc (100%)
- Predominantly Hydryc (66 to 99%)
- Partially Hydryc (33 to 65%)
- Predominantly Nonhydryc (1 to 32%)
- Nonhydryc (0%)

Notes

- Hydryc Soil Classifications based on the SSURGO soils attribute field "hydrclprs". Percentage breakdowns based on NRCS hydryc soils rating maps.



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Soil Survey Staff, Natural Resources Conservation Service
United States Department of Agriculture.
Soil Survey Geographic (SSURGO) Database.
USGS Topographic Basemap (ESRI)

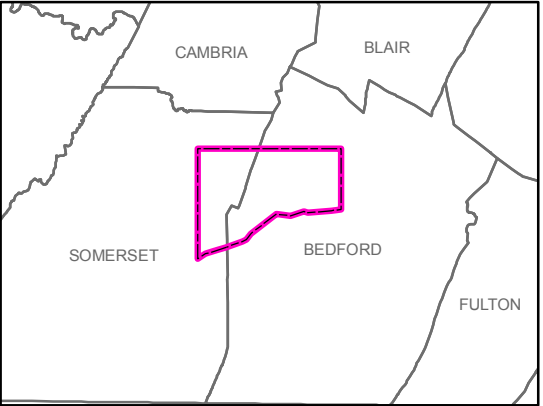
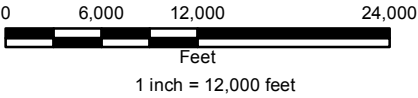
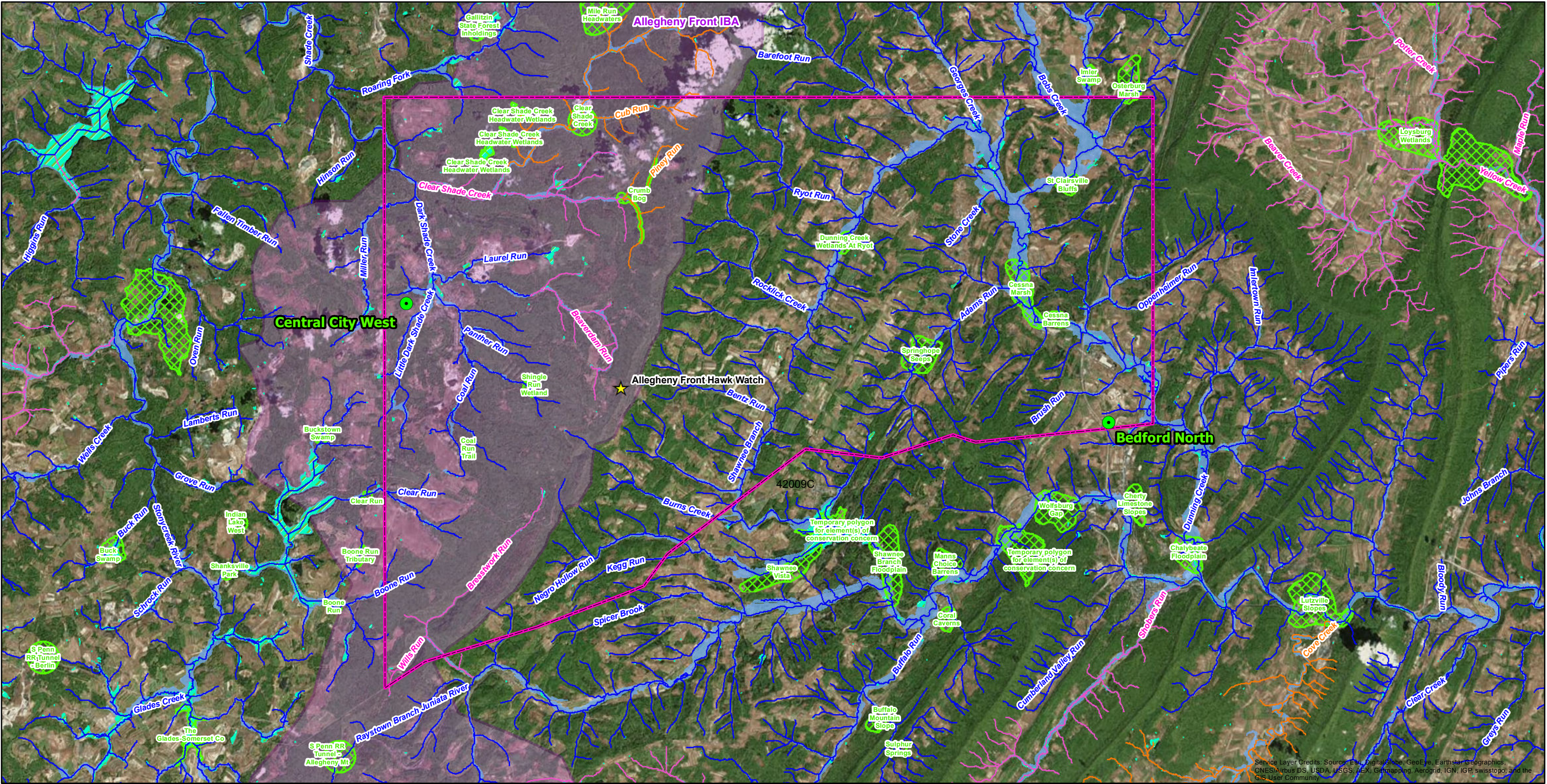


Figure 4-3
Soil Characteristics
Bedford North-Central City West 115 kV
Transmission Line Project
Bedford and Somerset Counties,
Pennsylvania
FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/27/2016



Legend

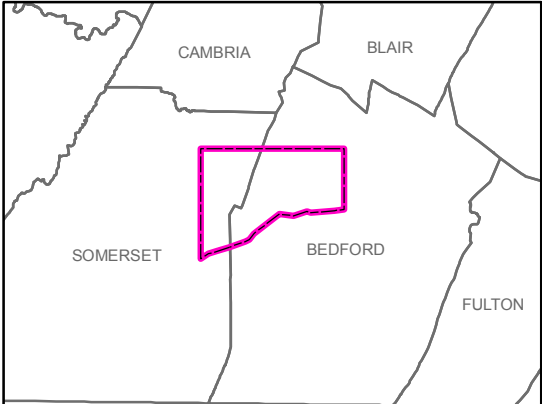
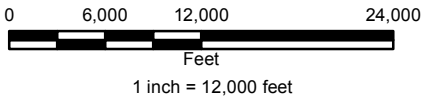
- Substation
- Project Study Area
- ★ Allegheny Front Hawk Watch
- Exceptional Value Stream (EV)
- High Quality Stream (HQ)
- Other Stream
- 100-Year Floodplain
- NWI Wetlands
- Natural Areas (Core Habitat)
- Important Bird Area

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
FEMA 2012 - NFHL (Somerset & Bedford Counties),
USFWS 2009 - NWI Wetlands,
PNHP 2012 - CNHI Natural Areas (Core Habitat),
CHNI 2012 - Important Bird Areas (IBA)
Stream Centerline (NHD & Ch. 93 Designations),
World Imagery Basemap (ESRI)



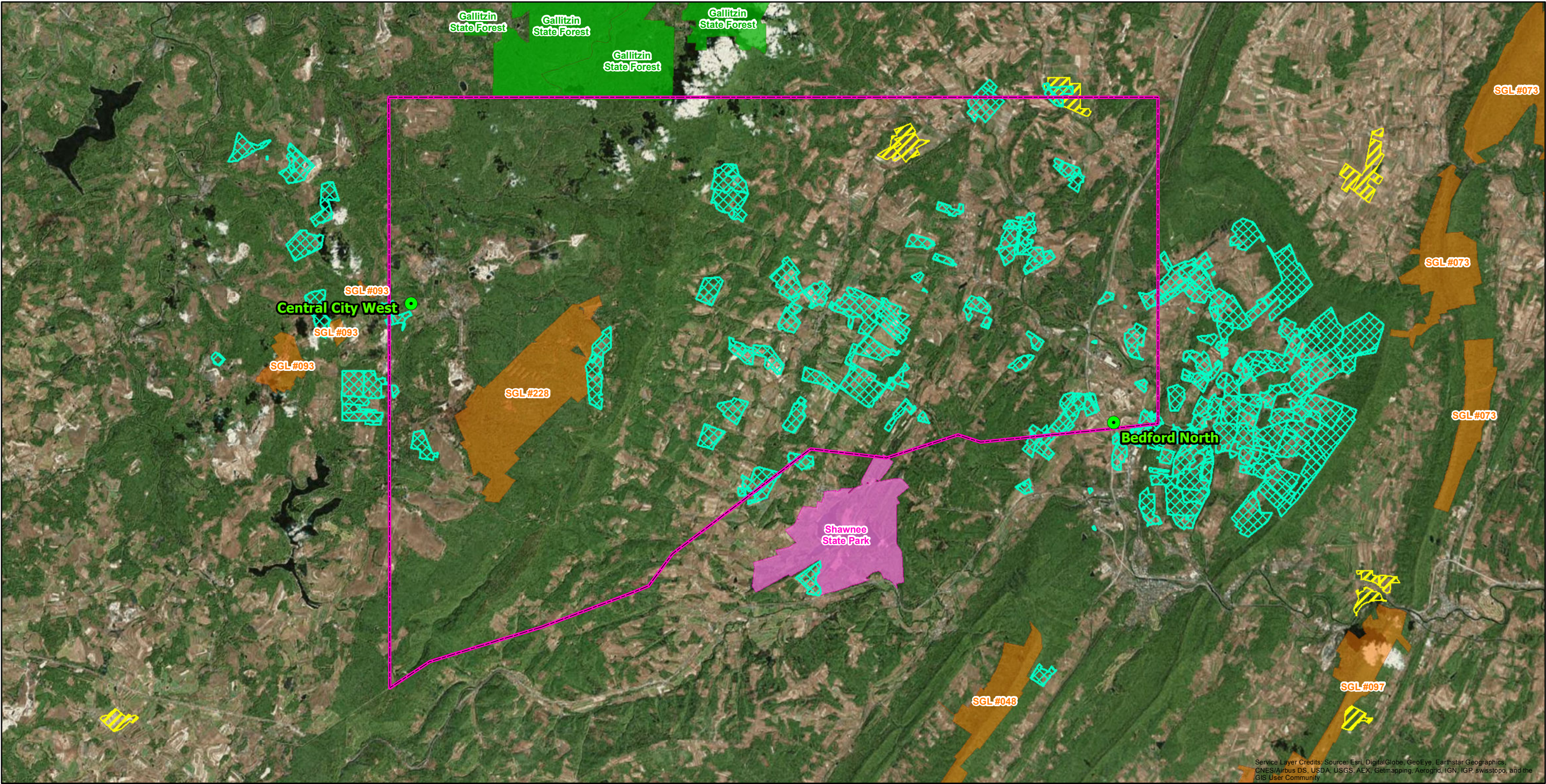
AECOM

**Figure 4-4
Natural Environment
Bedford North-Central City West 115 kV
Transmission Line Project**

**Bedford and Somerset Counties,
Pennsylvania**

**FirstEnergy Corporation
Akron, Ohio**

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/27/2016



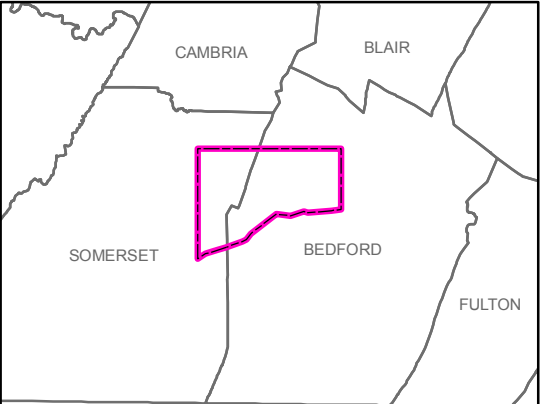
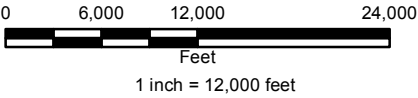
- Legend**
- Substation
 - Project Study Area
 - State Forest Land
 - State Park
 - State Game Land
 - Conservation Easement
 - Agricultural Security Area

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
State Forest Land & State Parks (PA DCNR 2015)
State Game Lands (PGC 2015)
National Conservation Easement Database (NCED)
Agricultural Security Areas provided by Township Supervisors
for Shade, Napier, Bedford and East St. Clair Townships
World Imagery Basemap (ESRI)



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Figure 4-5
Conserved Lands & Agricultural Security Areas

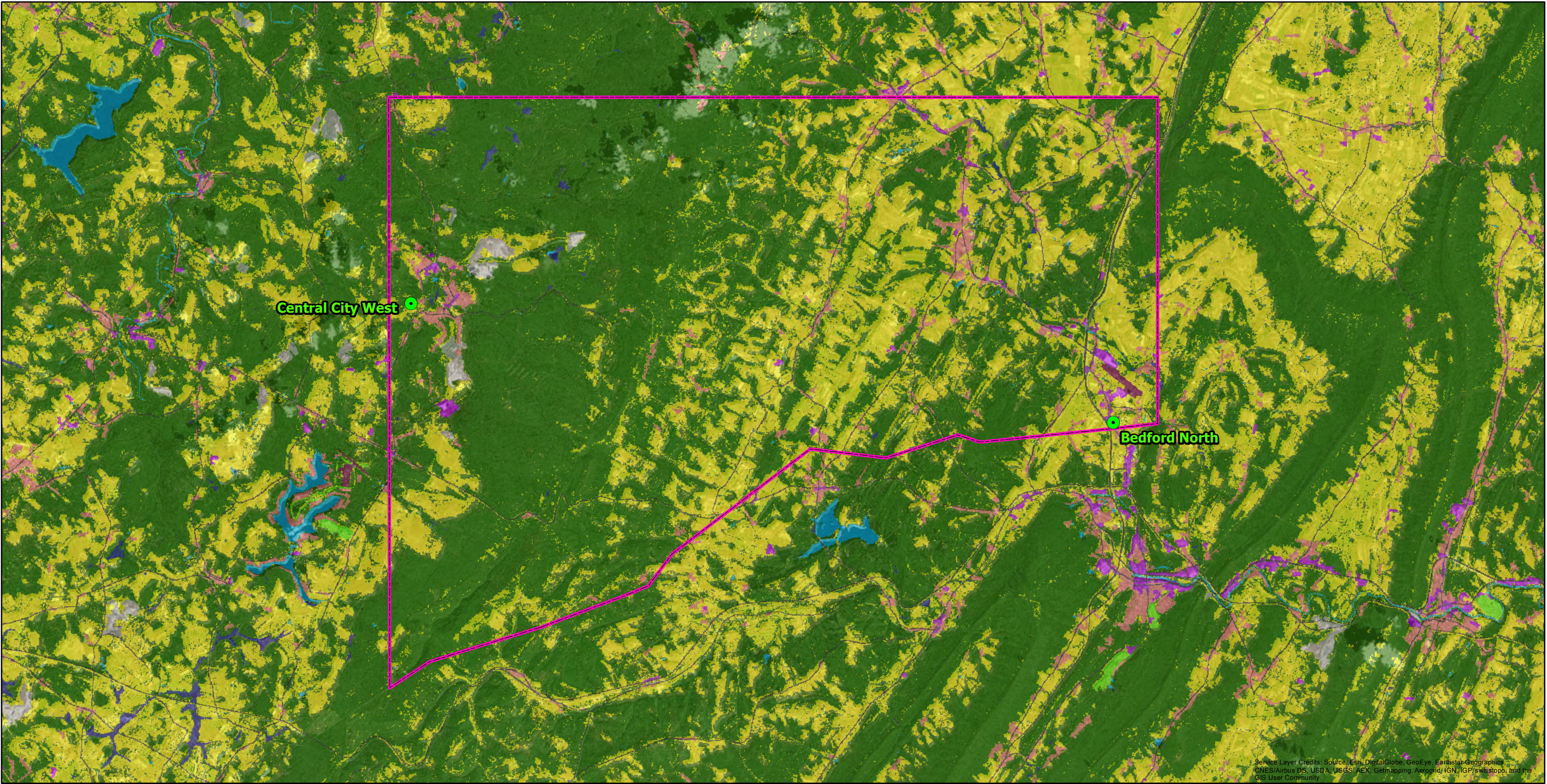
Bedford North-Central City West 115 kV
Transmission Line Project

Bedford and Somerset Counties,
Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB
Job: 60414457

Checked By: BAB
Date: 6/27/2016



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Legend**
- Substation
 - Project Study Area
 - PA Landuse Full Classification**
 - Unclassified
 - Roads
 - Agricultural
 - Forest
 - Water
 - Wetlands
 - Bare, Exposed Rock, Mines, etc
 - Residential/Educational Land
 - Insitutional/Industrial/Commercial
 - Airports
 - Golf Courses

Notes

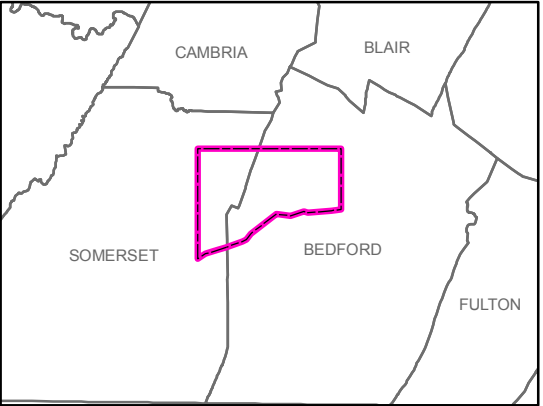
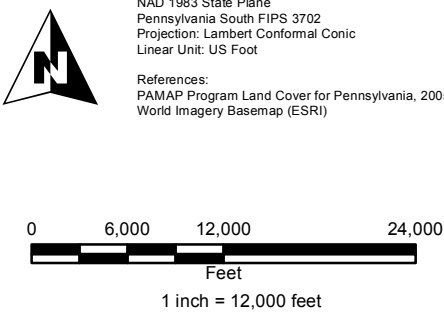
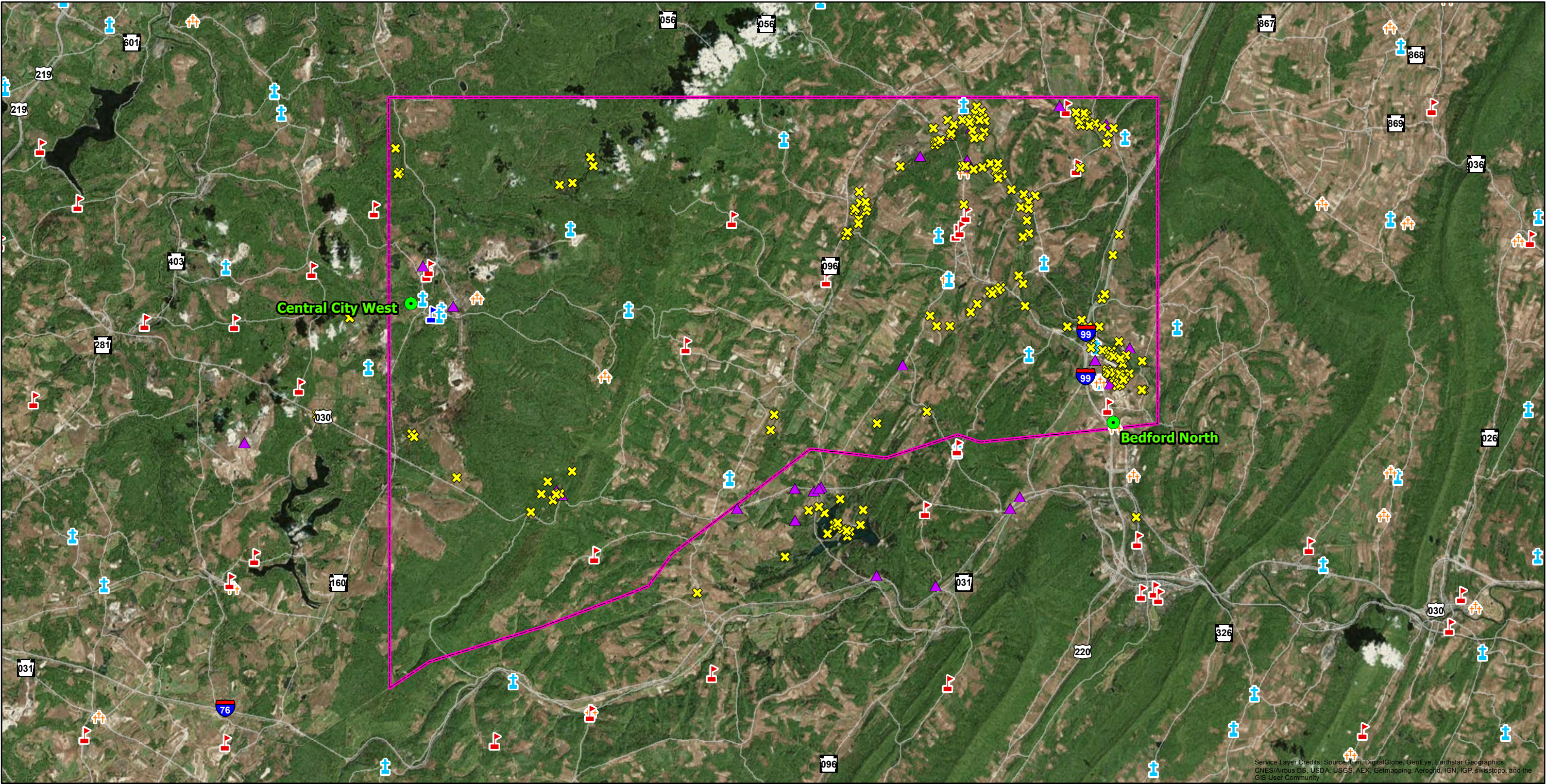


Figure 4-6
Existing Land Use
Bedford North-Central City West 115 kV
Transmission Line Project
Bedford and Somerset Counties,
Pennsylvania
FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/27/2016



Legend

- Substation
- ✕ Archaeological Site
- ▲ Listed/Eligible Resource
- ✕ Cemetery
- I Church
- ▣ Day Care
- ▢ School
- ▭ Project Study Area

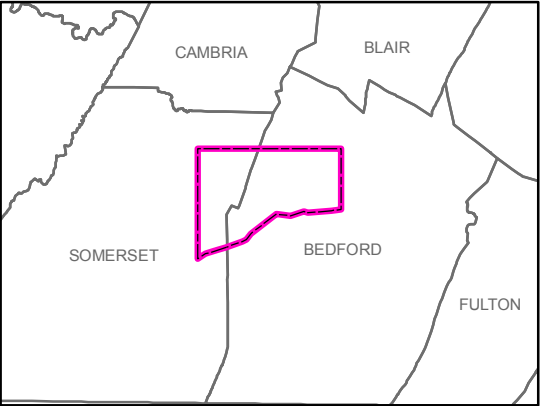
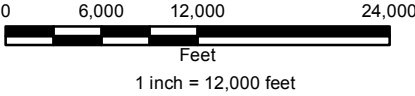
Notes

- Archaeological Sites and Above Ground Cultural Resources from CRGIS (3/23/2015 and 5/11/2015).



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
NRHP Listed Sites (National Park Service)
Sensitive Features (ESRI) supplemented
with GoogleEarth features
World Imagery Basemap (ESRI)



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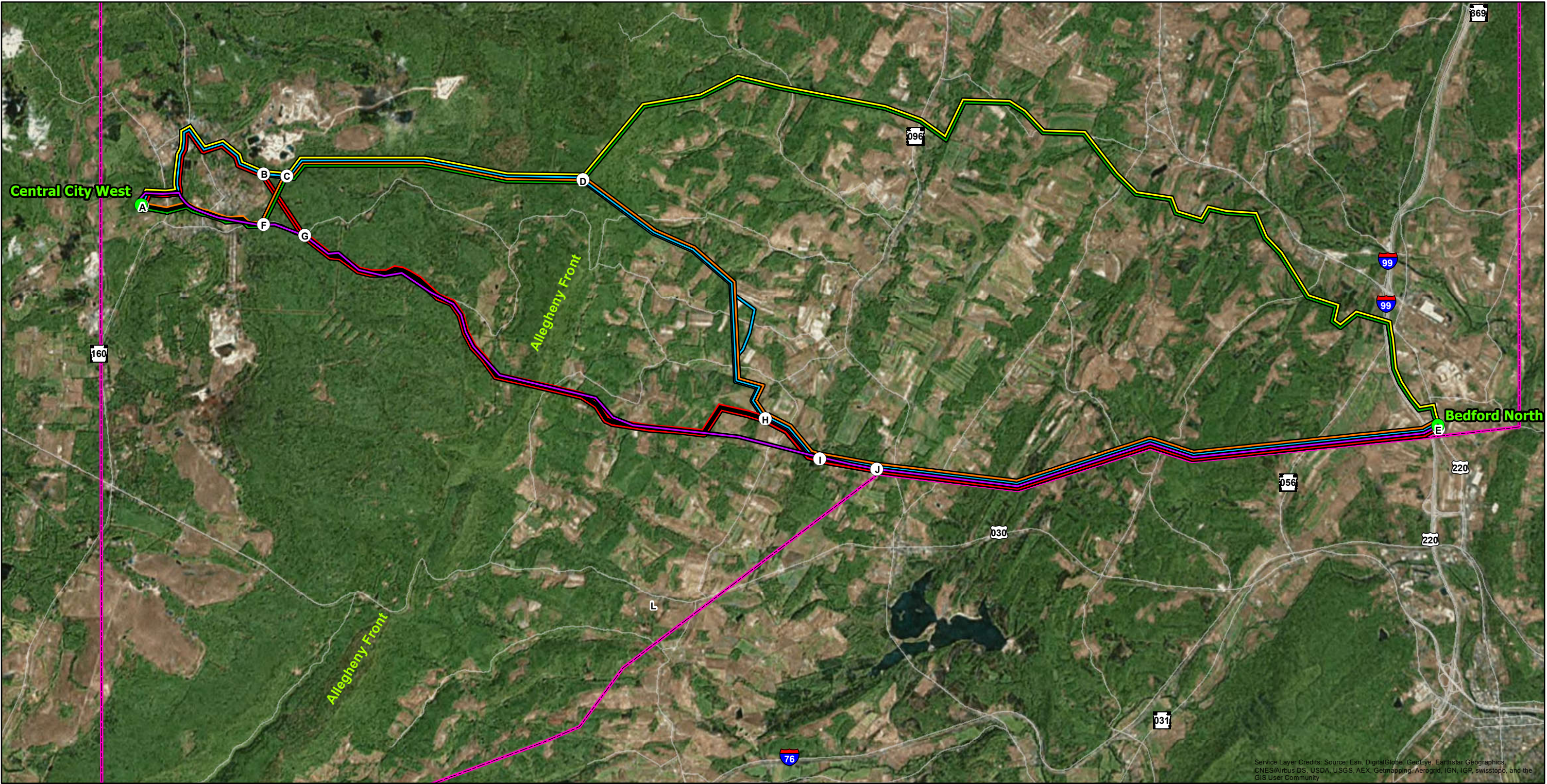
Figure 4-8
Cultural & Historic Features
Bedford North-Central City West 115 kV
Transmission Line Project

Bedford and Somerset Counties,
Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB
Job: 60414457

Checked By: DY
Date: 6/27/2016



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Substation
- Project Study Area
- Node
- Alternative Route 1
- Alternative Route 2
- Alternative Route 3
- Alternative Route 4
- Alternative Route 5
- Alternative Route 6
- State Roads

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Existing Transmission Network (PowerMap)
World Imagery Basemap (ESRI)

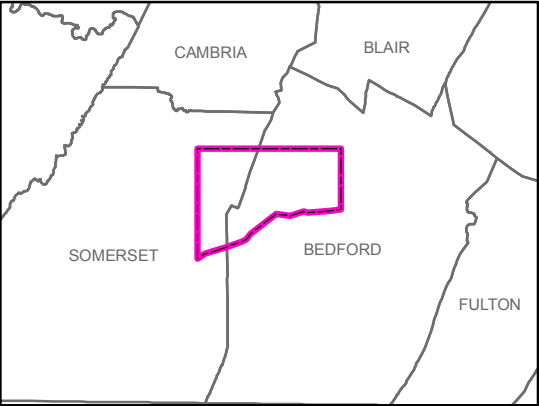
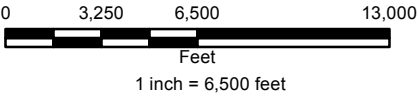


Figure 5-1
Alternative Routes Map
Bedford North-Central City West 115 kV
Transmission Line Project
Bedford and Somerset Counties,
Pennsylvania
FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 6/30/2016



Legend

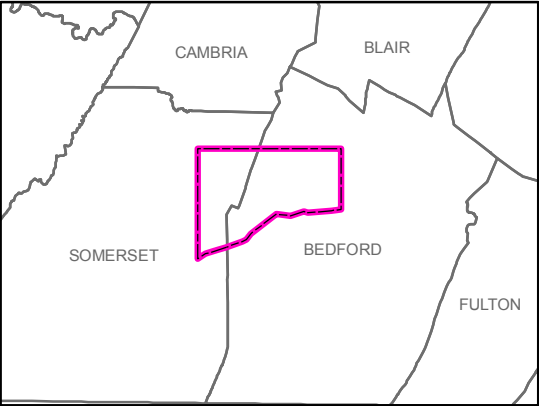
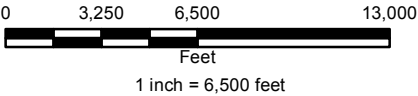
- Substation
- ▭ Project Study Area

Notes



NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Existing Transmission Network (PowerMap)
World Imagery Basemap (ESRI)



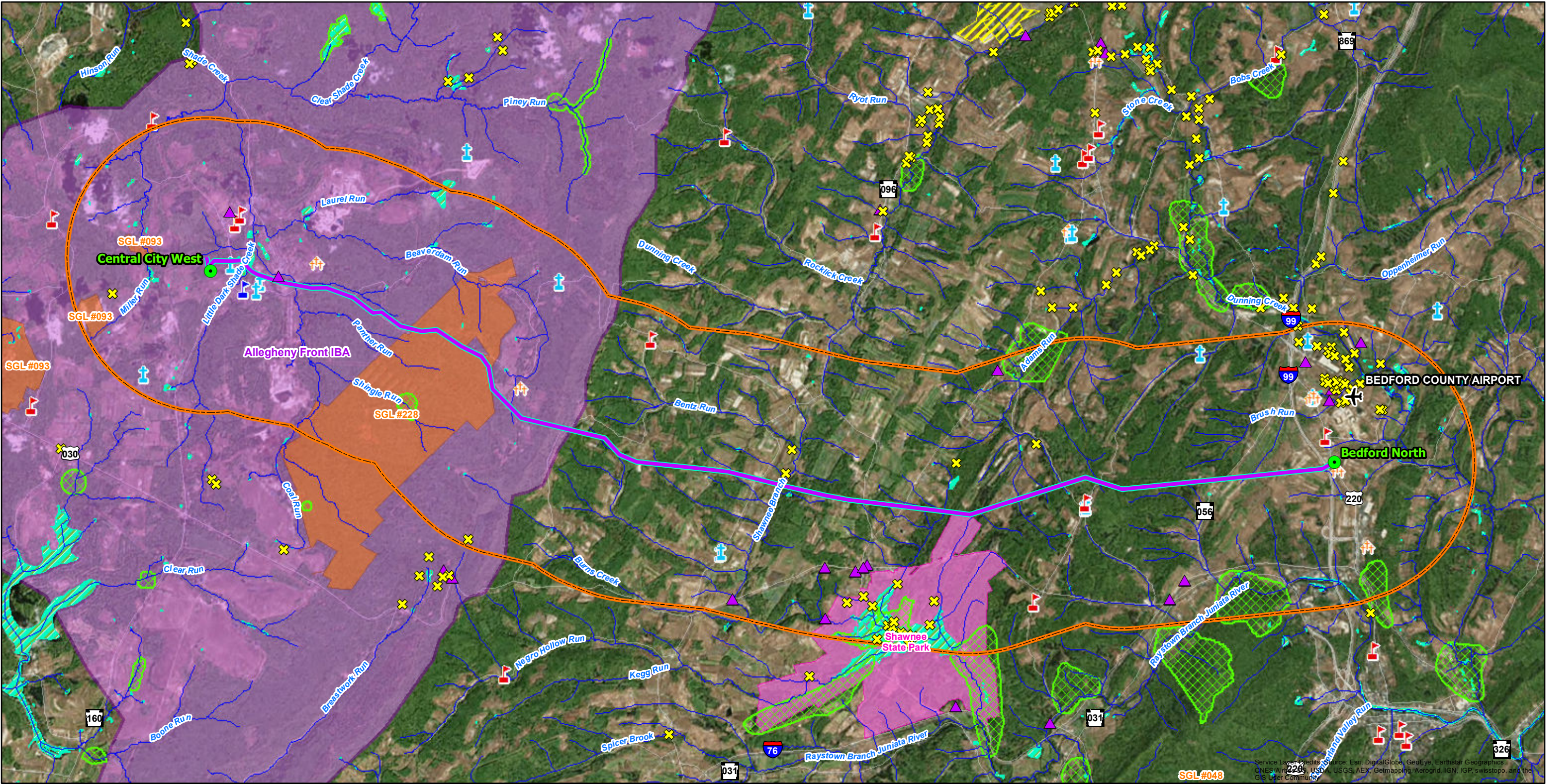
AECOM

**Figure 5-2
Proposed Route**

**Bedford North-Central City West 115 kV
Transmission Line Project**
Bedford and Somerset Counties,
Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 8/19/2016



Legend

	Substation		Airport
	Project Study Area		Listed/Eligible Resource
	2-Mile Buffer of Proposed Route		Archaeological Site
	Cemetery		Stream Centerlines
	Church		NWI Wetlands
	Day Care		State Forest Land
	School		State Park
			State Game Land
			Natural Areas (Core Habitat)
			Conservation Easement
			Important Bird Area

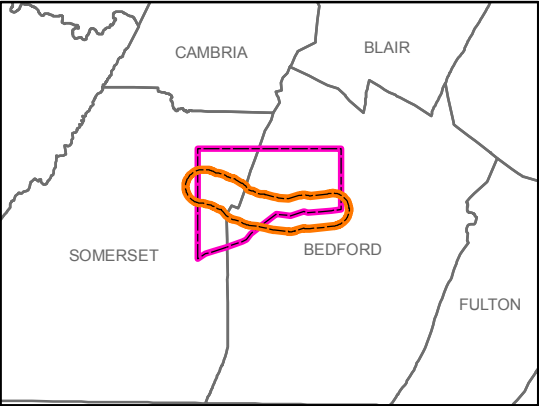
Notes

- Archaeological Sites and Above Ground Cultural Resources from CRGIS (3/23/2015 and 5/11/2015).

NAD 1983 State Plane
Pennsylvania South FIPS 3702
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Existing Transmission Network (PowerMap)
FEMA 2012 - NFHL (Somerset & Bedford Counties)
USFWS 2009 - NWI Wetlands
PNHP 2012 - CNHI Natural Areas (Core Habitat) & IBA
Stream Centerline (NHD & Ch. 93 Designations)
State Forest Land & State Parks (PA DNR 2015)
State Game Lands (PGC 2015), Airports (PennDOT)
National Conservation Easement Database (NCED)
World Imagery Basemap (ESRI)

0 3,750 7,500 15,000
Feet
1 inch = 7,500 feet



AECOM

Figure 5-3
Sensitive Features

Bedford North-Central City West 115 kV Transmission Line Project
Bedford and Somerset Counties, Pennsylvania

FirstEnergy Corporation
Akron, Ohio

Prepared By: MAH/TFB	Checked By: DY
Job: 60414457	Date: 8/19/2016

EXHIBIT 9 – LIST OF GOVERNMENTAL AGENCIES CONTACTED

EXHIBIT 9
LIST OF GOVERNMENTAL AGENCIES CONTACTED FOR
APPROVALS TO CONSTRUCT AND MAINTAIN THE LINE

FEDERAL – a list of federal permit/approval requirements is provided in the matrix below

U.S. Army Corps of Engineers (USACE)
Baltimore District Office
P.O. Box 1715
10 S. Howard Street
Baltimore, MD 21203-1715
Contact: Wade Chandler, Chief Pennsylvania Section

U.S. Fish and Wildlife Service (USFWS)
Pennsylvania Field Office
110 Radnor Rd, Suite 101
State College, PA 16801
USFWS Project # 2015-0495
Contact: Pam Shellenberger

Federal Aviation Administration (FAA)
Eastern Obstruction Evaluation (OE) Team Manager
FAA Southwestern Regional Office
10101 Hillwood Parkway
Fort Worth, TX 76177
Contact: Chris Shoulders

STATE – a list of state permit/approval requirements is provided in the matrix below

Pennsylvania Department of Environmental Protection (PADEP)
South-central Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110
Contact: Nathan Crawford, P.E. – Permits Section

Pennsylvania Department of Conservation and Natural Resources (PADCNR)
Rachel Carson State Office Building
PO Box 8552
Harrisburg, PA 17105-8767
PNDI # 22428
Contact: Jason Ryndock

Pennsylvania Fish and Boat Commission (PFBC)
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823-9620
SIR # 44119
Contact: Kathy Gipe

Pennsylvania Game Commission (PGC)
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Contact: John Taucher

Pennsylvania Historical and Museum Commission (PHMC)
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, PA 17120-0053
Contact: Steven McDougal (archaeological resources)
Contact: Ann Safley (historic structures)

Pennsylvania Department of Transportation (PennDOT)
Commonwealth Keystone Building
400 North Street, 8th Floor
Harrisburg, Pennsylvania 17120
Contact: William J. Cressler, Chief Counsel

COUNTY – a list of county permit/approval requirements is provided in the matrix below

Bedford County Conservation District
702 West Pitt Street # 3,
Bedford, PA 15522
Contact: Jennifer Lentz Kovacs – District Manager

Somerset Country Conservation District
6024 Glades Pike, Suite 103,
Somerset, PA 15501
Contact: Len Lichvar– District Manager

EXHIBIT 9 – LIST OF AGENCY PERMIT/APPROVAL REQUIREMENTS

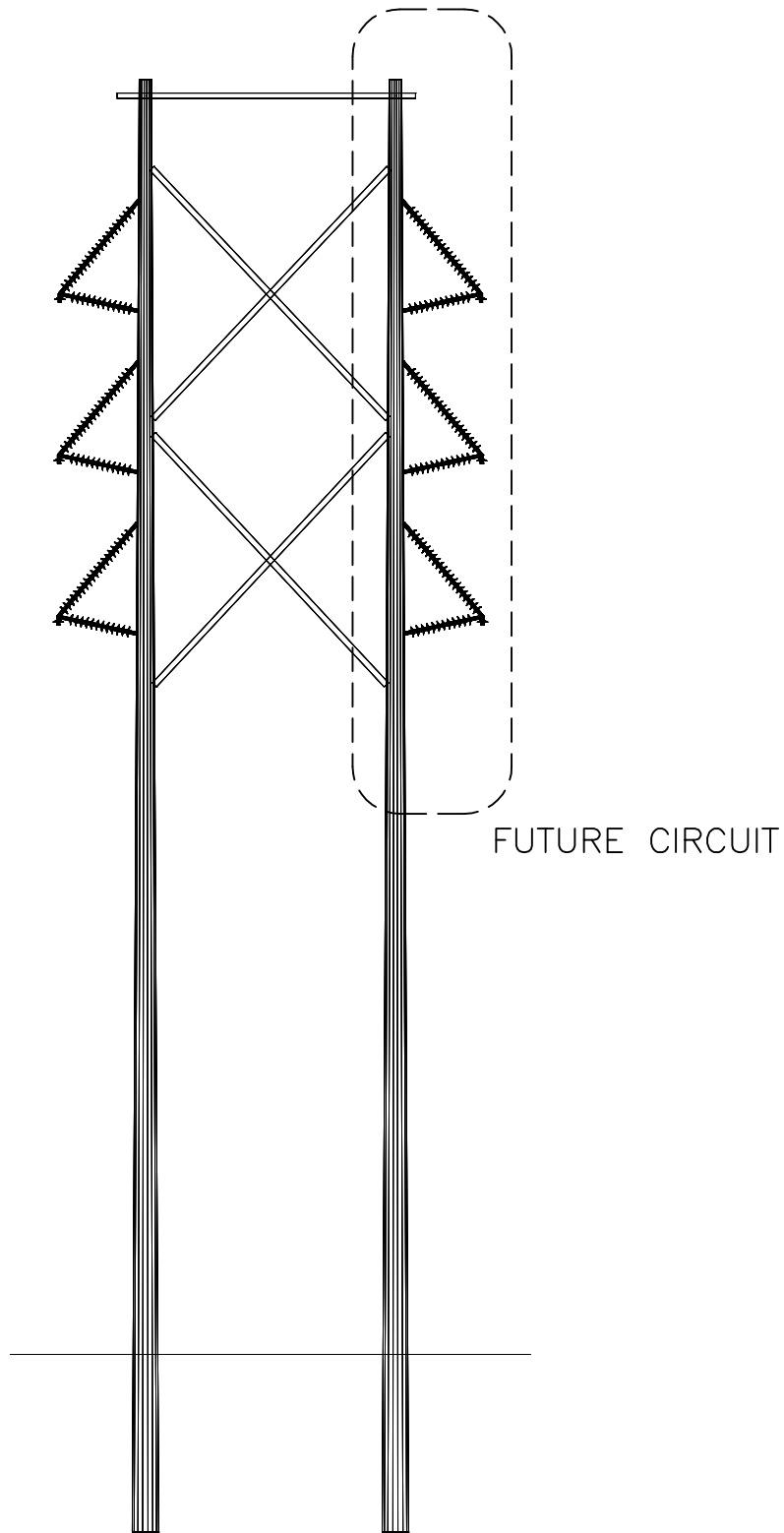
Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
Federal Permits & Authorizations				
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404/401 permits for regulated waters/wetlands encroachments (State Programmatic General Permits [PASPGP-5] from USACE and PADEP).	9/13/2017	Not yet submitted.	Dredge and fill in Waters of the U.S.
U.S. Fish & Wildlife Service (USFWS)	Consultation ongoing – Federal threatened & endangered species reporting and compliance with Section 7 of Endangered Species Act for federal permits.	12/31/2016	Consultation ongoing.	Determination of potential impact to Federal listed and candidate threatened and endangered species and habitat if present and impacted.
Federal Aviation Administration (FAA)	FAA Notification FAA 7460-1	9/13/2017	Not yet submitted.	Notice of Proposed Construction.
State Permits & Authorizations				
Pennsylvania Department of Environmental Protection (PADEP)	Waters/wetland obstruction and encroachment permits or waivers (PA code, Title 25, Chapter 105).	9/13/2017	Not yet submitted.	Activities in watercourses, floodways, bodies of water (incl. wetlands)

Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
Pennsylvania Department of Environmental Protection (PADEP)	NPDES Permit and Post-Construction Stormwater Review (PA code, Title 25, Chapter 92, 93, 96, 102, and 106.)	9/13/2017	Not yet submitted.	Activities that require earth disturbance must institute practices that minimize accelerated erosion and resulting sediment pollution to the waters of the Commonwealth or U.S. Floodplains obstructed by highways and public utilities. Discharge of storm water associated with construction activities.
Pennsylvania Department of Conservation & Natural Resources (PADCNR) – Bureau of Forestry	State rare threatened & endangered species (T&E) consultation and approvals.	12/31/2016	PNDI Coordination Complete. Field studies underway. Consultation ongoing.	Determination of potential impact to state listed and candidate threatened and endangered species and habitat if present and impacted (plants only.)
Pennsylvania Fish and Boat Commission (PFBC)	State rare threatened & endangered species (T&E) consultation and approvals.	4/28/2015	PNDI Coordination Complete. No species of concern in project area and no additional coordination required.	Determination of potential impact to state listed and candidate threatened and endangered species and habitat if present and impacted (fish, reptiles, amphibians)

Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
Pennsylvania Game Commission (PGC)	State rare threatened & endangered species (T&E) consultation and approvals.	4/17/2015	PNDI Coordination Complete. Federal Species of concern in project area under jurisdiction of USFWS. No additional coordination required with PGC.	Determination of potential impact to state listed and candidate threatened and endangered species and habitat if present and impacted (birds and mammals only)
Pennsylvania Historical and Museum Commission (PHMC)	Consultation, cultural resources (archaeology & historic structures) investigation and associated approvals as part of federal and state permits; compliance with Section 106 of National Historic Preservation Act; Federal and state listed or eligible cultural resources consultation.	3/31/2016	Not yet submitted.	Historic and cultural resources listed or eligible for listing on the State and/or Federal National Register of Historic Places.
Pennsylvania Department of Transportation (PennDOT)	PennDOT Access Road Permits	7/31/2017	Not yet submitted	Construction access off of state highways.
Pennsylvania Department of Transportation (PennDOT)	PennDOT Aerial Crossing Permits	7/31/2017	Not yet submitted	Construction of an aerial crossing over a state highway.

Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
County				
Local Conservation Districts (CCDs)	NPDES Permit and Post-Construction Stormwater Review (PA code, Title 25, Chapter 92, 93, 96, 102, and 106)	9/13/2017	Not yet submitted.	<p>Activities that require earth disturbance must institute practices that minimize accelerated erosion and resulting sediment pollution to the waters of the Commonwealth or U.S.</p> <p>Floodplains obstructed by highways and public utilities.</p> <p>Discharge of storm water associated with construction activities.</p>

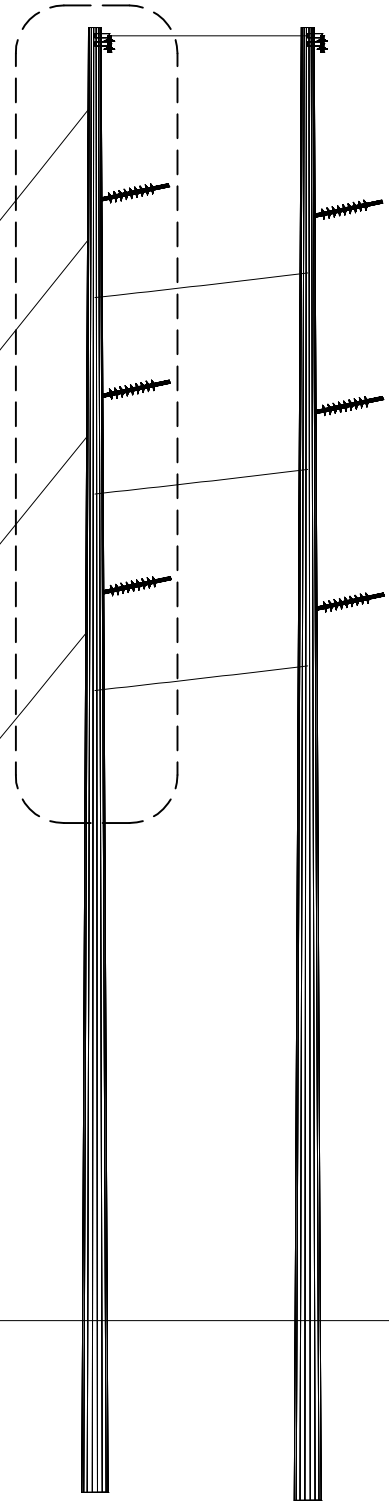
EXHIBIT 10 – TRANSMISSION STRUCTURE TYPES



WOOD DOUBLE CIRCUIT
TANGENT STRUCTURE –
HEIGHT RANGE: 79' TO 103'

ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	BEDFORD NORTH-CENTRAL CITY WEST 115kV STRUCTURE EXAMPLE DOUBLE CIRCUIT TANGENT STRUCTURE				
	CHK.		ORDER NO.					
	INS.		WBS PW-004714 R/W					
	APP.		SCALE N.T.S.					
			FirstEnergy. <i>Transmission Design</i>		OPERATING CO.	DWG NO.	SHEET	REV.
					PENELEC	EXHIBIT 10A		

FUTURE CIRCUIT



WOOD DOUBLE CIRCUIT
LIGHT ANGLE STRUCTURE –
HEIGHT RANGE: 79' TO 93'
(BASED ON FE STD 18-555)

ISSUE DATE:
☐ CONSTRUCTION
☐ AS BUILT
☐ RECORD

DR. WRB/RUE	8/16	C.E.	14-102-PN
CHK.		ORDER NO.	14209469
INS.		WBS PW-004714	R/W
APP.		SCALE	N.T.S.

BEDFORD NORTH-CENTRAL CITY WEST 115kV
STRUCTURE EXAMPLE
DOUBLE CIRCUIT LIGHT ANGLE STRUCTURE

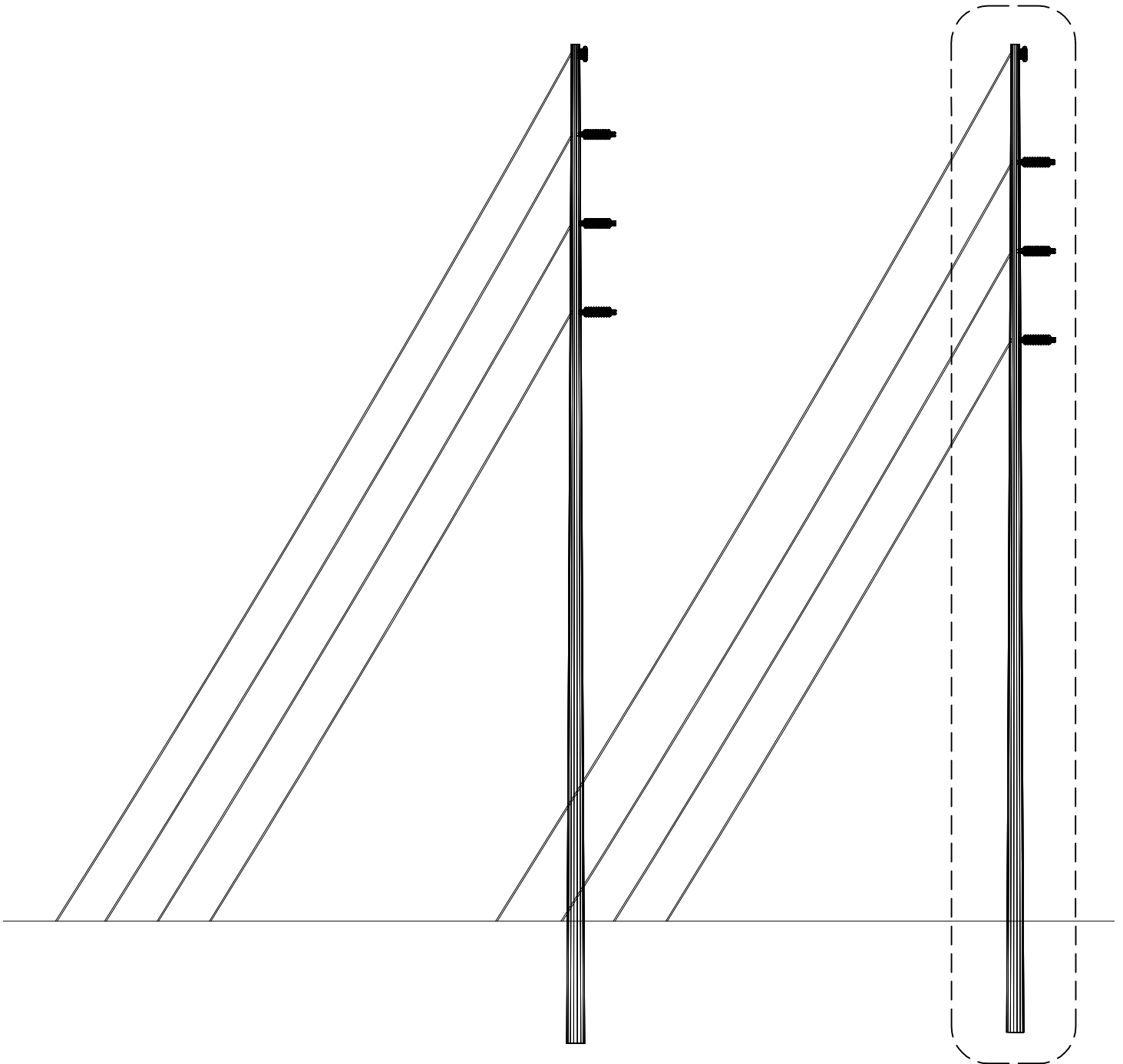
FirstEnergy
Transmission Design

OPERATING CO.
PENELEC

DWG NO.
EXHIBIT 10B

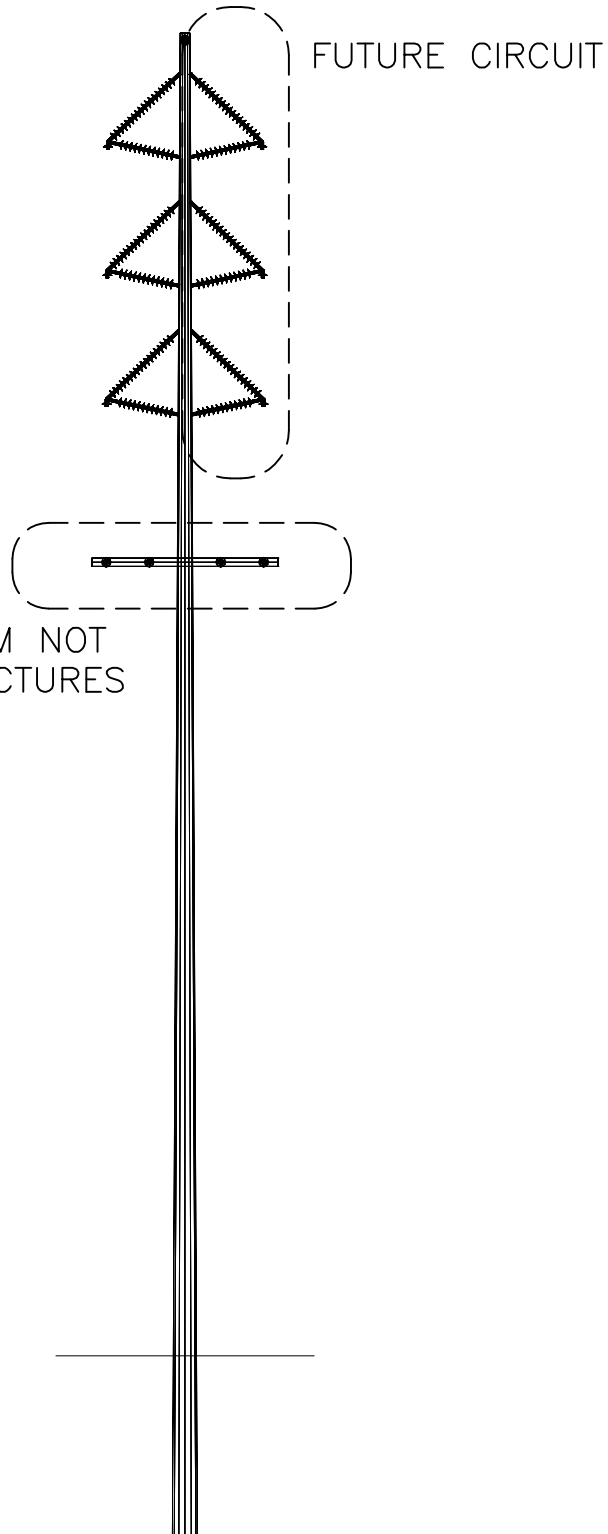
SHEET REV.

FUTURE CIRCUIT



WOOD DOUBLE CIRCUIT
ANGLE DEAD-END STRUCTURE —
HEIGHT RANGE: 79' TO 103'
(BASED ON FE STD 18-560)

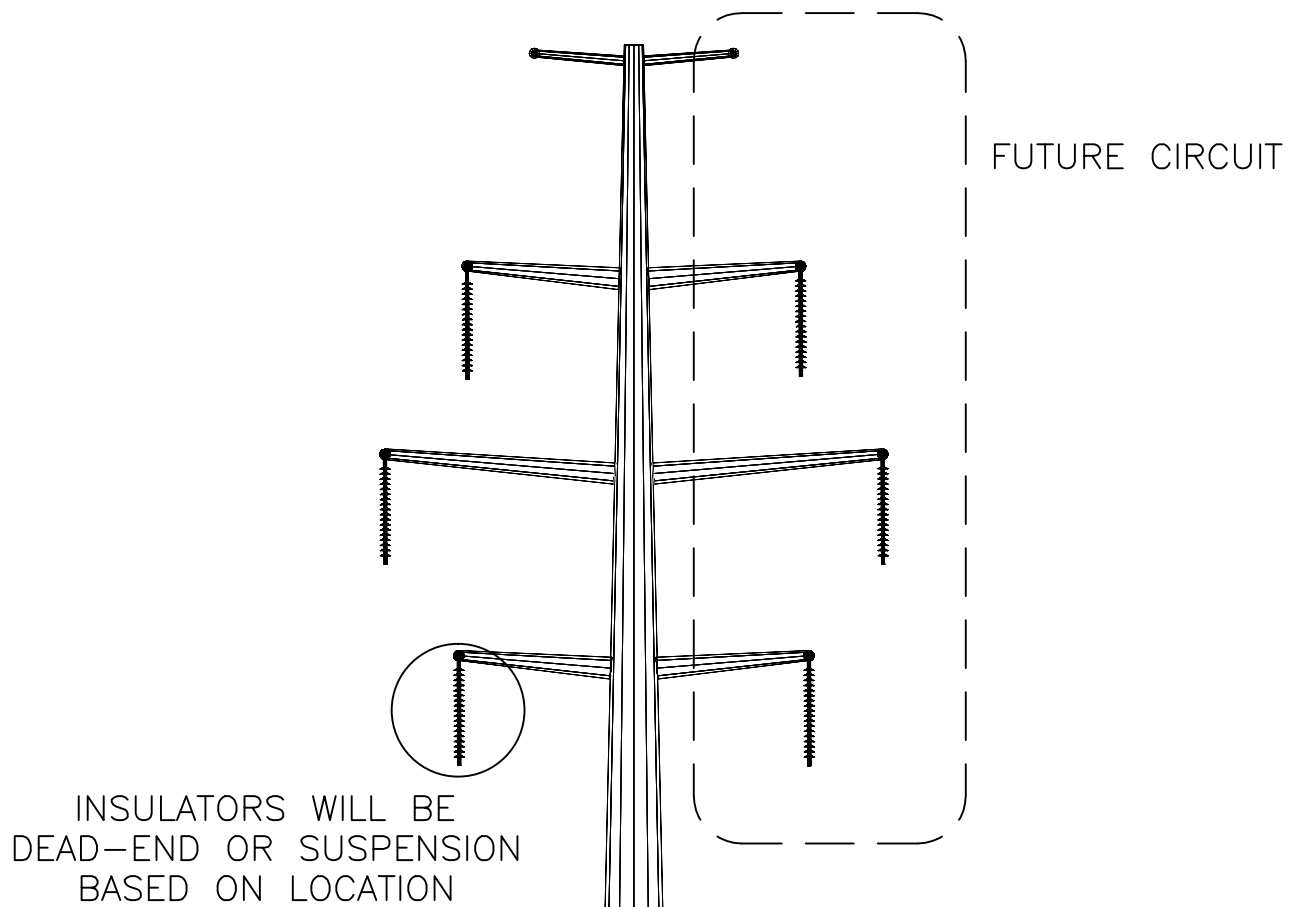
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	CHK.	ORDER NO. 14209469				
	INS.	WBS PW-004714 R/W				
	APP.	SCALE N.T.S.	FirstEnergy. Transmission Design	OPERATING CO. PENELEC	DWG NO. EXHIBIT 10C	SHEET REV.



DIRECT BURY STEEL DOUBLE CIRCUIT
TANGENT STRUCTURE –
HEIGHT RANGE: 105'

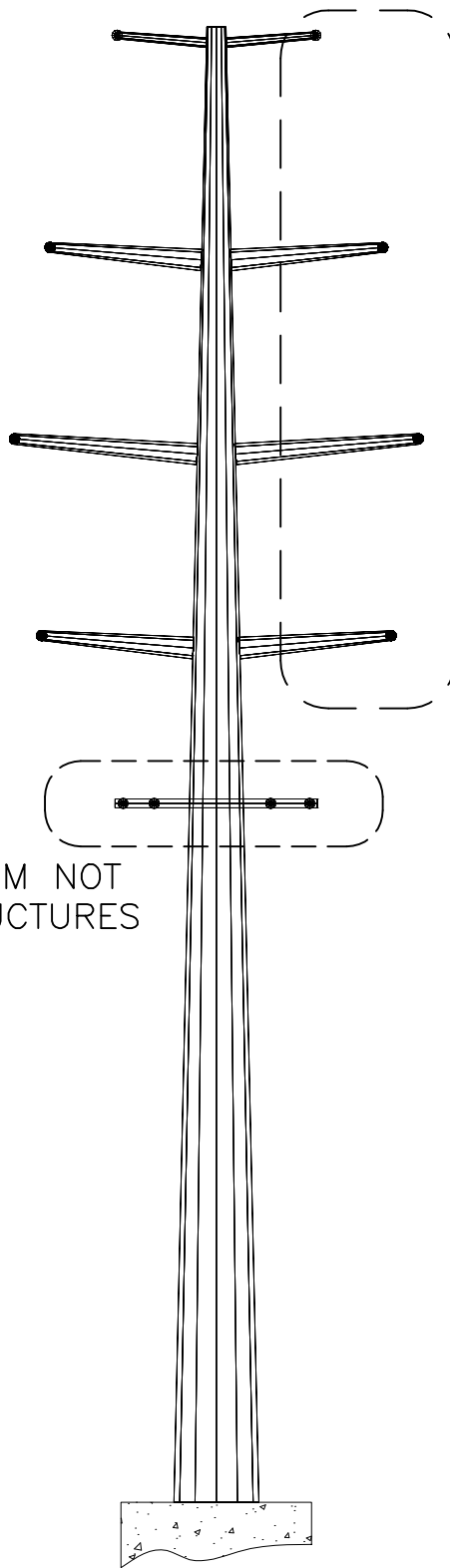
(BASED ON FE STD 18-550)

ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	BEDFORD NORTH-CENTRAL CITY WEST 115kV STRUCTURE EXAMPLE STEEL DOUBLE CIRCUIT TANGENT								
	CHK.		ORDER NO.	14209469								
	INS.		WBS PW-004714	R/W								
	APP.		SCALE	N.T.S.								
			FirstEnergy. <i>Transmission Design</i>		OPERATING CO. PENELEC		DWG NO. EXHIBIT 10D		SHEET		REV.	



ENGINEERED STEEL ON FOUNDATION
(APPALACHIAN RIDGE AREA)
DOUBLE CIRCUIT TANGENT/DEAD-END STRUCTURE —
HEIGHT RANGE: 95' TO 145'

ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	BEDFORD NORTH-CENTRAL CITY WEST 115kV STRUCTURE EXAMPLE STEEL DOUBLE CIRCUIT TANGENT/DEAD-END					
	CHK.		ORDER NO.	14209469					
	INS.		WBS PW-004714 R/W	FirstEnergy. <i>Transmission Design</i>		OPERATING CO. PENELEC	DWG NO. EXHIBIT 10E	SHEET	REV.
	APP.		SCALE N.T.S.						



FUTURE CIRCUIT

UNDERBUILD CROSSARM NOT
PRESENT ON ALL STRUCTURES

ENGINEERED STEEL ON FOUNDATION
DOUBLE CIRCUIT DEAD-END STRUCTURE –
HEIGHT RANGE: 90' to 95'

ISSUE DATE:

- ☐ CONSTRUCTION
- ☐ AS BUILT
- ☐ RECORD

DR. WRB/RUE 8/16

CHK.

INS.

APP.

C.E. 14-102-PN

ORDER NO. 14209469

WBS PW-004714
R/W

SCALE N.T.S.

BEDFORD NORTH-CENTRAL CITY WEST 115kV
STRUCTURE EXAMPLE
STEEL DOUBLE CIRCUIT DEAD-END

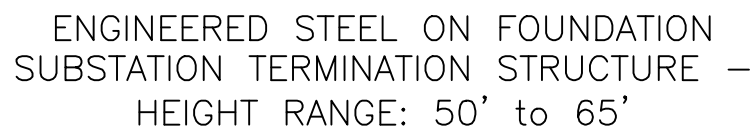
FirstEnergy
Transmission Design


OPERATING CO.
PENELEC

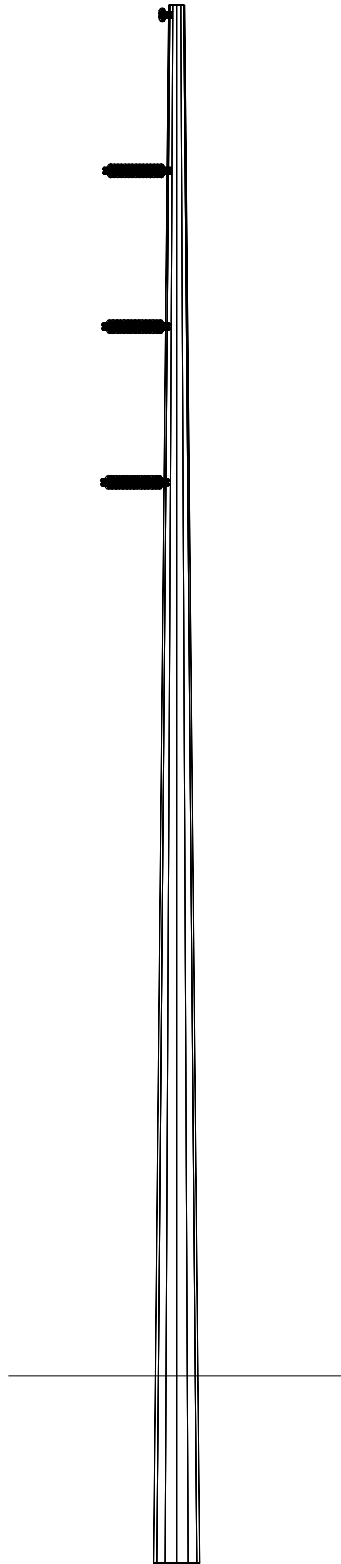
DWG NO.

EXHIBIT 10F

SHEET REV.

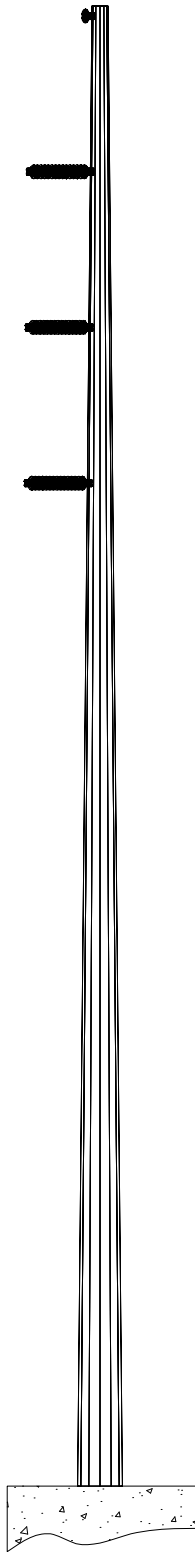


ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	14-102-PN					BEDFORD NORTH-CENTRAL CITY WEST 115kV STRUCTURE EXAMPLE STEEL TERMINATION STRUCTURE			
	CHK.		ORDER NO.	14209469								
	INS.		WBS	PW-004714 R/W								
	APP.		SCALE	N.T.S.								
					OPERATING CO.		DWG NO.		SHEET		REV.	
					PENELEC		EXHIBIT 10G					



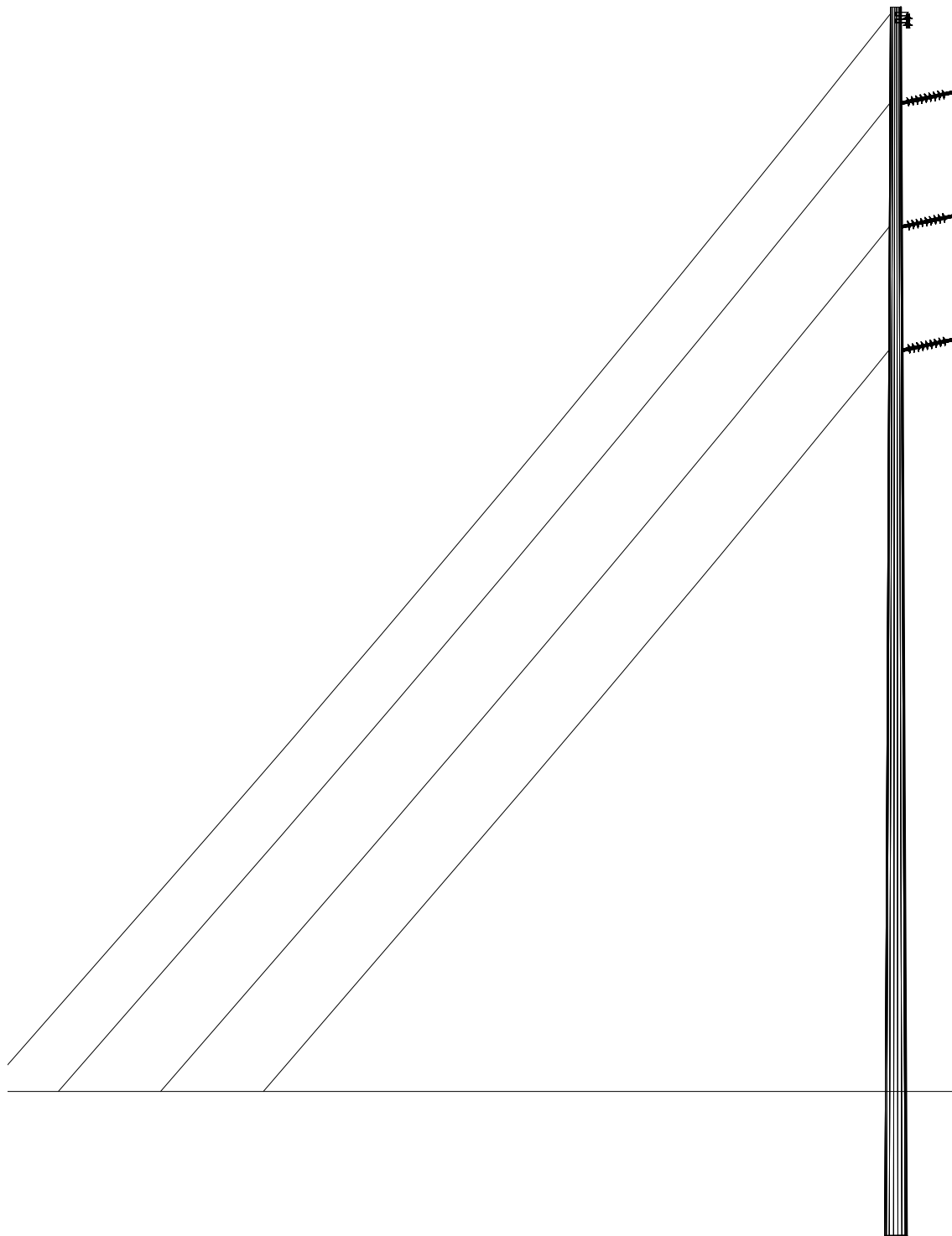
DIRECT BURY STEEL SINGLE CIRCUIT
ANGLE DEAD-END STRUCTURE –
HEIGHT RANGE: 90'

ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	14-102-PN	CENTRAL CITY WEST-STATLER HILL 115kV STRUCTURE EXAMPLE STEEL SINGLE CIRCUIT ANGLE DEAD-END				
	CHK.		ORDER NO.	14209469					
	INS.		WBS PW-004714	R/W	FirstEnergy <i>Transmission Design</i>	OPERATING CO.	DWG NO.	SHEET	REV.
	APP.		SCALE N.T.S.	PENELEC		EXHIBIT 10H			



ENGINEERED STEEL ON FOUNDATION
SINGLE CIRCUIT ANGLE DEAD-END STRUCTURE –
HEIGHT RANGE: 90' to 110'

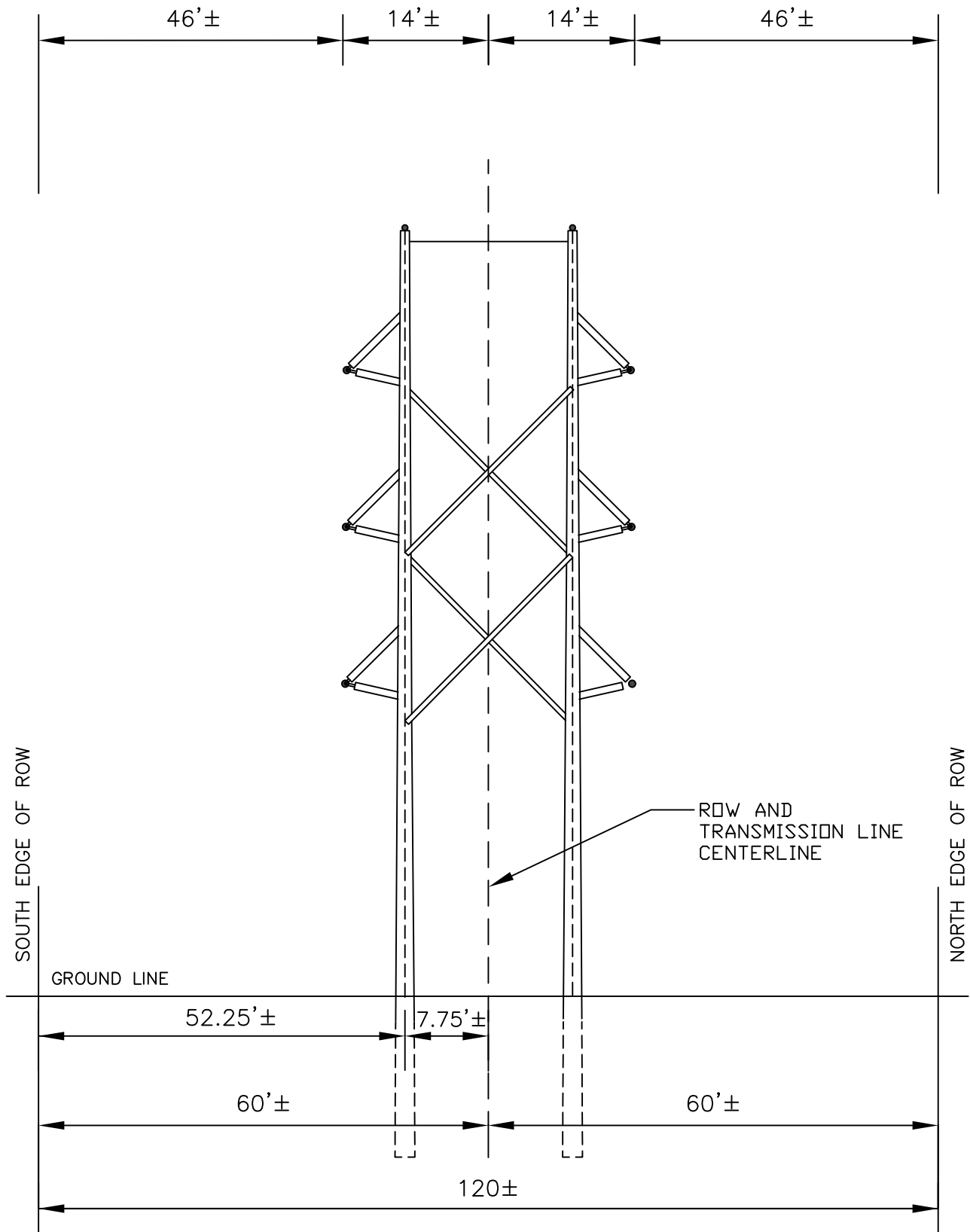
ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE	8/16	C.E.	14-102-PN	CENTRAL CITY WEST-STATLER HILL 115kV STRUCTURE EXAMPLE STEEL SINGLE CIRCUIT ANGLE DEAD-END			
	CHK.		ORDER NO.	14209469				
	INS.		WBS PW-004714 R/W					
	APP.		SCALE N.T.S.					
<div><div>FirstEnergy. <i>Transmission Design</i></div></div>					OPERATING CO.	DWG NO.	SHEET	REV.
					PENELEC	EXHIBIT 10I		



WOOD SINGLE CIRCUIT
LIGHT ANGLE STRUCTURE –
HEIGHT RANGE: 85' TO 105'
(BASED ON FE STD 18-555)

ISSUE DATE: <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS BUILT <input type="checkbox"/> RECORD	DR. WRB/RUE 8/16	C.E. 14-102-PN	CENTRAL CITY WEST-STATLER HILL 115kV STRUCTURE EXAMPLE SINGLE CIRCUIT LIGHT ANGLE STRUCTURE			
	CHK.	ORDER NO. 14209469				
	INS.	WBS PW-004714 R/W				
	APP.	SCALE N.T.S.	FirstEnergy. Transmission Design	OPERATING CO. PENELEC	DWG NO. EXHIBIT 10J	SHEET REV.

EXHIBIT 11 – TYPICAL RIGHT-OF-WAY CROSS SECTIONS



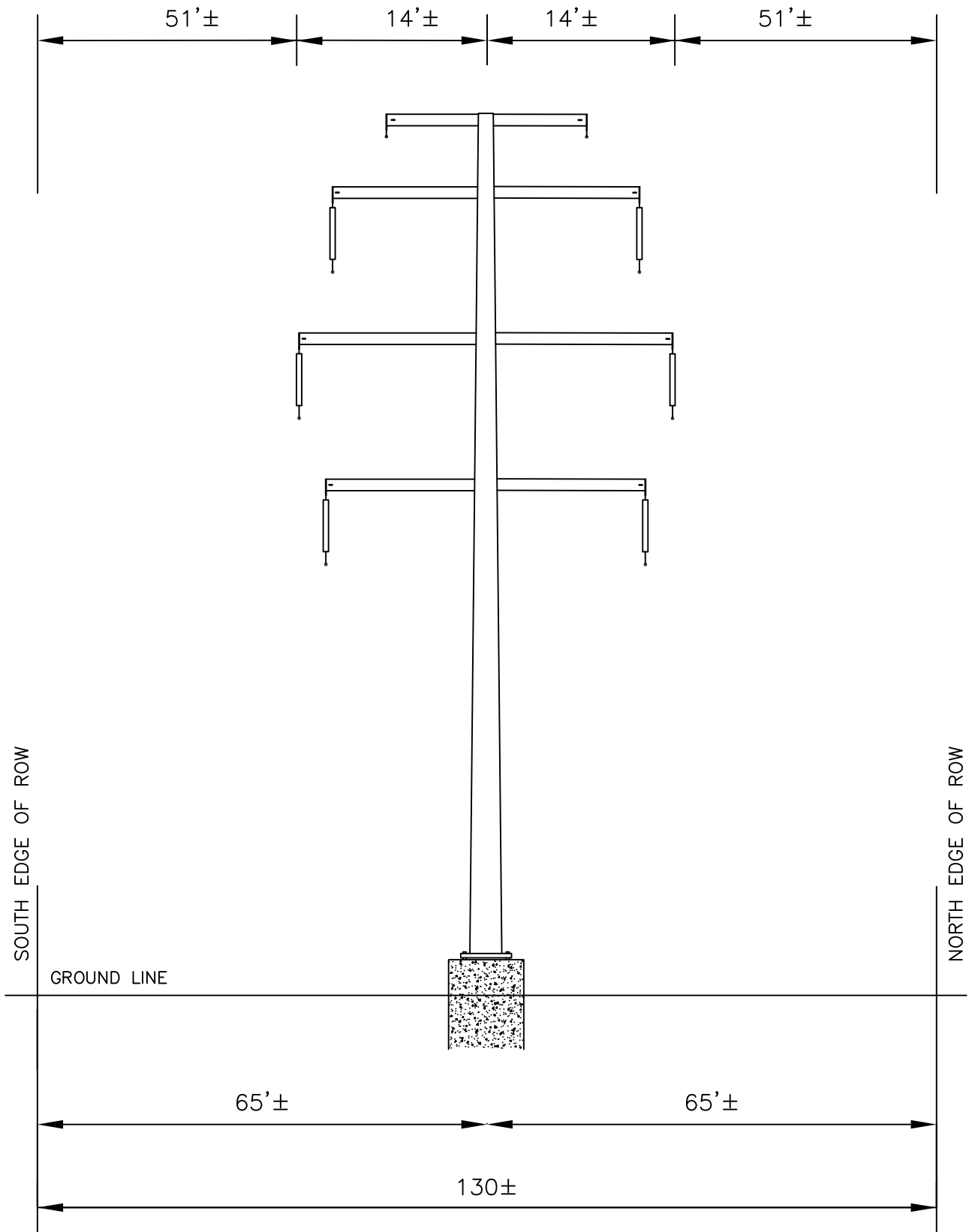
**NOT TO SCALE



BEDFORD NORTH-CENTRAL CITY
WEST 115 kV TRANSMISSION LINE
PROJECT

TYPICAL RIGHT OF WAY CROSS SECTION FOR
THE 5.6 MILE, 120 FOOT WIDE RIGHT OF WAY

EXHIBIT 11B



**NOT TO SCALE



BEDFORD NORTH-CENTRAL CITY
WEST 115 kV TRANSMISSION LINE
PROJECT

TYPICAL RIGHT OF WAY CROSS SECTION FOR
THE 0.3 MILE, 130 FOOT WIDE RIGHT OF WAY

EXHIBIT 11C

**EXHIBIT 12 – REPRESENTATIVE PROPERTY OWNER LETTERS SENT
CONCERNING INITIAL PROJECT NOTICE**

March 17, 2015

VIA CERTIFIED MAIL

Bedford North-Central City West 115kV Transmission Line

PROPERTY NO. _____

Dear _____:

Pennsylvania Electric Company (Penelec), a FirstEnergy company is planning to construct a new 115,000-volt (115kV) electric line in Somerset and Bedford Counties, Pennsylvania.

This line is intended to increase service reliability to Penelec electric customers in Somerset and Bedford Counties. Enclosed is a property owner information packet which includes a project fact sheet, a property owner notice required by the Pennsylvania Public Utility Commission (PAPUC), a Code of Conduct for right-of-way agents and subcontractor employees, a permission form and a brochure entitled "Maintaining Safe and Reliable Service" which explains FirstEnergy's right-of way maintenance practices.

You have been identified as a property owner along the proposed line route. This letter is to notify you and obtain your permission to perform preliminary engineering including, but not limited to surveying, core boring, and cultural and environmental assessments as well as property valuations. These initial activities will allow Penelec to evaluate the proposed route and provides the opportunity to work closely with you, the landowner, to address any of your questions or concerns during this process. To indicate your permission, please sign the enclosed permission form and send it back to me in the enclosed self-addressed stamped envelope.

Another real estate representative or myself will contact you soon to discuss the project and provide information concerning the upcoming surveys and studies which are anticipated to commence in April 2015, followed by the start of construction in late 2016/early 2017. The PAPUC regulations prohibits us from engaging in negotiations with you for the acquisition of the transmission line right-of way for at least 15 calendar days from the time you receive this package.

If, after reviewing this letter you have any questions or comments concerning the project, please feel free to contact me at the above address, at lmarine@firstenergycorp.com or by telephone at 724-830-5629.

Sincerely,

Lisa Marinelli
Adv. Real Estate Representative
FirstEnergy Service Company
on behalf of Pennsylvania Electric Company

NOTICE

The Pennsylvania Public Utility Commission requires that Pennsylvania Electric Company (Penelec), a FirstEnergy Company, give you the following information:

Penelec is planning to construct a new 115,000 volt transmission line that would traverse property in Shade Township, Somerset County and Bedford Township, Bedford County, Pennsylvania, between Penelec's existing substations. Penelec believes the best route for the line, called the Bedford North-Central City West 115kV transmission line, will be to reconstruct part of an existing 115,000 volt transmission line and then purchase new right-of-way for the remaining portion needed. The line is needed to ensure the transmission facilities can operate within prescribed industry reliability standards.

Since the route for the line currently under consideration could affect your property located at Parcel No. _____, _____ County, PA, a representative of the utility will contact you in the near future to discuss Penelec's plans as they may affect your property. In order to better prepare you for these discussions and to avoid possible misunderstandings, we want to take this opportunity to inform you of your legal rights and the legal rights and duties of Penelec with regard to this project.

You have the right to have legal counsel represent you in these negotiations. You do not have to sign any agreement without the advice of counsel. If you do not know an attorney you may contact your local bar association.

MUST YOU ACCEPT ANY OFFER MADE BY THE UTILITY FOR YOUR PROPERTY?

No. You may refuse to accept it. However, the utility has the power to take property by eminent domain, subject to the approval of the Pennsylvania Public Utility Commission, for the construction of transmission lines if the utility is unable to negotiate an agreement to buy the right-of-way. If your property is condemned, you must be paid "just compensation." "Just compensation" has been defined by the courts in Pennsylvania as the difference between the fair market value of your property before condemnation, unaffected by the condemnation, and the fair market value of your remaining property after condemnation, as affected by the condemnation.

CAN THE UTILITY CONDEMN YOUR HOUSE?

No. The utility cannot condemn your house or a reasonable "curtilage" around your house. Generally, curtilage includes the land or buildings within 300 feet of your house which are used for your domestic purposes. However, the 300-foot limit does not automatically extend beyond the homeowner's property line.

DO YOU HAVE A RIGHT TO A PUBLIC HEARING WHEN THE UTILITY SEEKS TO CONDEMN YOUR PROPERTY?

Yes. When an electric utility seeks to have your property condemned, the utility must first apply to the Pennsylvania Public Utility Commission for a certificate finding the condemnation to be necessary or proper for the service, accommodation, convenience, or safety of the public. The Commission will then hold a public hearing. As the landowner whose property may be condemned, you are a party to the proceeding and may retain counsel, present evidence, and/or testify yourself in opposition to the application for the certification. If you wish to testify at the public hearing, you should make your intention known by letter to Secretary, Pennsylvania Public Utility Commission, P. O. Box 3265, Harrisburg, Pennsylvania 17120. If the Commission approves the utility's application for a certificate finding the condemnation in the public interest, then the utility may proceed before the local Court of Common Pleas to condemn your land. If the Commission denies the utility's application, the utility cannot condemn your land. If you retain an attorney to represent you before the Commission, you must do so at your own expense.

The Commission will not decide how much money you should receive if your land is condemned. The only issue the Commission will decide is whether the condemnation serves the public interest. If the Commission approves the utility's application for condemnation, the amount of money to which you are entitled will be determined by a local Board of View or the Court of Common Pleas. However, you may at any time make an agreement with the utility as to the amount of damages you are to be paid.

DOES THE UTILITY HAVE THE RIGHT TO ENTER YOUR LAND AT ANY TIME PRIOR TO CONDEMNATION?

Yes. The utility has the right, for the purpose of making studies, tests, surveys, soundings, and appraisals, to enter any land which they could condemn. However, the owner must be notified prior to entering the property. Any actual damages to your property, as a result of such entry prior to condemnation, must be paid by the utility. The utility may not engage in any construction, and its right to enter exists only to the extent necessary to condemn the property.

MUST THE UTILITY FURNISH YOU WITH INFORMATION ON THE RIGHT-OF-WAY MAINTENANCE PRACTICES FOR THIS PROJECT?

Yes. The Pennsylvania Public Utility Commission requires Penelec give you the following information on the RIGHT-OF-WAY MAINTENANCE PRACTICES for this project.

The methods currently used by Penelec are set forth in *FirstEnergy Vegetation Management Specification*, which will be made available to you for your inspection upon request. If you wish further information concerning right-of-way maintenance methods, you can contact Transmission Vegetation Management Specialist, Michael Owens at the following address; 700 Fourth Street, Cumberland MD 21502-4295 or by phone at 301-759-5760. You may discuss with this person, either before or during negotiation of the right-of-way agreement, these methods and any other questions you may have about right-of-way maintenance.

Once a utility has constructed an electric transmission line on a right-of-way across your land, the utility must maintain the right-of-way free of tall growing trees and brush which might impair the reliability of electric service, the safety of the line, and access to the line or its towers.

The utility or its contractors may remove and control tall growing trees and brush by several methods: hand cutting of trees, limbs and brush; mechanical cutting with chain saws or motorized cutting machines; and application of herbicides, either from the ground or from a helicopter. The utility must confine its maintenance activities to the approved right-of-way across your land, except where tall growing trees or brush or their root systems grow into the right-of-way from adjoining land and constitute a threat to the electric transmission line and its structures.

If you believe that the maintenance method(s) used by the company would raise problems with your use of your land adjacent to the right-of-way, it is your responsibility as the landowner to bring this to the attention of the utility before you sign the right-of-way agreement.

The utility company has a responsibility to maintain its right-of-way and regular maintenance must occur. Although you as the landowner cannot determine whether or not maintenance will occur, your right-of-way agreement may specify certain conditions on the performance of the maintenance program that are important to you. These conditions can be part of the negotiations between you and the utility company for your land, since the right-of-way agreement is a legal contract between the landowner and the utility company. It is important for you to understand also that the maintenance methods used by the utility may change over time as the costs of maintenance or the methods of performing maintenance change. You may want to specify in your right-of-way agreement that the utility company inform you of changes in its maintenance methods or in the maintenance schedule for your land.

The provisions of the right-of-way agreement are enforceable in the local Court of Common Pleas. The right-of-way agreement cannot be enforced by the Pennsylvania Public Utility Commission. Any claims for damage resulting from improper maintenance of the right-of-way must be settled with the utility, its contractors, or in local Court of Common Pleas at your expense. The Commission cannot award damages for violations of the right-of-way agreement.

**Pennsylvania Electric Company (“Penelec”)
BEDFORD NORTH-CENTRAL CITY WEST 115KV
TRANSMISSION LINE
Project**

**Code of Conduct
For
Right-of-Way Agents and Subcontractor Employees**

To Property Owner and any affected adjacent Property Owner on the Transmission Line Project:

This Code of Conduct applies to all communications and interactions with property owners and occupants of property by all right-of-way agents and subcontractor employees representing Penelec in the negotiation of right-of-way, subsequent acquisition of property rights, including the performance of surveying, environmental assessments and other activities for the Bedford North-Central City West 115kV Line Project (“Project”) on property not owned by Penelec.

Property owners may report improper public utility employee/land agent practices to the following agencies:

**Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120
1-800-692-7380 (Utility Customer Hotline)**

**Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg PA 17101-1923
717-783-5048
1-800-684-6560 (PA Only)**

CODE OF CONDUCT

- 1. All communications with property owners and occupants must be factually correct and made in good faith.**
 - a. Do provide maps and documents necessary to keep the landowner properly informed
 - b. Do not make false or misleading statements.

- c. Do not misrepresent any fact.
- d. If you do not know the answer to a question, do not speculate about the answer. Advise the property owner that you will investigate the question and provide an answer later.
- e. Follow-up in a timely manner on all commitments to provide additional information.
- f. Do not suggest that the Project is required for national or homeland security reasons or has been authorized by the federal government.
- h. Do not send written communications suggesting an agreement has been reached when, in fact, an agreement has not been reached.
- i. If information provided is subsequently determined to be incorrect, follow up with the property owner as soon as practical to provide the corrected information.
- j. Do provide the property owner with appropriate contact information should additional contacts be necessary.

2. All Communications and interactions with property owners and occupants of property must be respectful and reflect fair dealing.

- a. When contacting a property owner in person, promptly identify yourself as representing Penelec and display your Company photo ID badge.
- b. When contacting a property owner by telephone, promptly identify yourself as representing Penelec.
- c. Do not engage in behavior that may be considered harassing, coercive, manipulative, intimidating or causing undue pressure.
- d. All communications by a property owner, whether in person, by telephone or in writing, in which the property owner indicates that he or she does not want to negotiate or does not want to give permission for surveying or other work on his or her property, must be respected and politely accepted without argument. Unless specifically authorized by Penelec, do not contact the property owner again regarding negotiations or requests for permission.
- e. When asked to leave property, promptly leave and do not return unless specifically authorized by Penelec.
- f. If discussions with the property owner become acrimonious, politely discontinue the discussion and withdraw from the situation.
- g. Obtain permission to enter property for purposes of surveying or conducting environmental assessments or other activities. Clearly explain to the property owner the scope of the work to be conducted based on the permission given. Attempt to notify the occupant of the property each time you enter the property based on this permission.
- h. Do not represent that a relative, neighbor and/or friend have signed a document or reached an agreement with Penelec.
- i. Do not ask a relative, neighbor and/or friend of a property owner to convince the property owner to take any action.

- j. Do not represent that a relative, neighbor and/or friend supports or opposes the Project.
- k. Do not suggest that any person should be ashamed of or embarrassed by his or her opposition to the Project or that such opposition is inappropriate.
- l. Do not argue with property owners about the merits of the Project.
- m. Do not suggest that an offer is “take it or leave it.”
- n. Do not threaten to call law enforcement officers or obtain court orders.
- o. Do not threaten the use of eminent domain.
- p. Do not suggest that Penelec will seek federal authorization to construct the Project.
- q. Avoid discussing a property owner’s failure to note an existing easement when purchasing the property and other comments about the property owner’s acquisition of the property.

3. All communications and interactions with property owners and/or their representatives of property must respect the privacy of property owners and other persons.

- a. Discussions with property owners and/or their representatives are to remain confidential
- b. Do not discuss your negotiations or interactions with other property owners or other persons.
- c. Do not ask relatives, neighbors and/or friends to influence the property owner or any other person.
- d. Avoid discussions of personal matters about the property owner, others and yourself.



BEDFORD NORTH-CENTRAL CITY WEST 115-kV TRANSMISSION LINE PROJECT

FirstEnergy is proposing to build the Bedford North-Central City West 115-kilovolt (kV) Transmission Line Project to enhance service reliability for approximately 17,500 Penelec customers in Somerset and Bedford Counties.

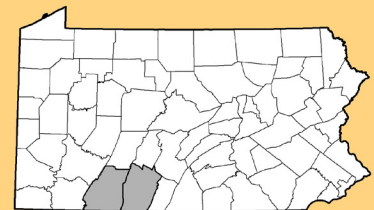
PROJECT OVERVIEW

The project will address the risk of thermal overloads and low voltage conditions on the transmission system that could impact service reliability. FirstEnergy will install a new transmission line connecting existing substations in Shade Township, Somerset County, and Bedford Township, Bedford County. The project cost estimate is approximately \$40 million.

Continued on next page



Project Location:
Bedford and Somerset counties, PA



ROUTING

FirstEnergy has completed a detailed routing study to identify potential routes for the project that minimize impacts on communities and the environment. Community input on these routes was solicited from the public during open house meetings held in Cairnbrook and Bedford in January 2015.

The proposed route shown on the map was selected for more detailed evaluation among several alternative routes because it appears to have the least overall impacts. FirstEnergy will be conducting field studies to collect additional data on the route and although some adjustments may occur along this route, it appears that this route will likely be proposed as the preferred route for the project. The route is approximately 17.8 miles long. The eastern segment of the project involves the rebuilding of approximately 7.2 miles of an existing transmission line into a double-circuit transmission line utilizing the existing right-of-way with new structures capable of supporting an additional set of wires. The western segment of the route would consist of approximately 10.6 miles of new double-circuit transmission line construction in new right-of-way, with only one circuit initially installed.

PROJECT NEED

FirstEnergy and PJM Interconnection, the regional transmission organization that coordinates the movement of electricity in our region, have identified the risk of thermal overloads and low-voltage conditions on the transmission system under certain conditions that could impact service reliability. The proposed project will address these issues and help to safely meet the electrical needs of the region now and into the future.

REGULATORY APPROVAL

A FirstEnergy affiliate will submit an application to the Pennsylvania Public Utility Commission (PaPUC) proposing construction of the project. The PaPUC must approve the project before construction may begin.

EASEMENTS

The width of new right-of-way needed for the proposed line will vary based on the route, terrain, and engineering design. The right-of-way is envisioned as being generally 100 feet wide, but in steep areas, the right-of-way could be 200 feet wide or more.

FirstEnergy will seek to obtain the necessary easements for the right-of-way through negotiations with property owners, with eminent domain used as a last resort. The use of eminent domain requires FirstEnergy to first apply to the PaPUC for a certificate finding that condemnation is necessary or proper for the service, accommodation, convenience, or safety of the public. Although we anticipate that negotiations with property owners would continue, the condemnation submittal to the PaPUC will likely occur before all easement negotiations have been concluded to allow it to be submitted at the same time as the project's application is submitted to the PaPUC.

Continued on next page

PERMITTING

Detailed wetland, stream and other environmental and historical evaluations will be performed along the transmission line route. Necessary permit applications will be submitted to state and federal agencies.

CONSTRUCTION

Project construction is scheduled to begin winter 2016/2017, and the transmission line is expected to be placed in service by summer 2018.

PRELIMINARY PROJECT TIME

Summer 2015 Application submitted to the PaPUC
Late Fall 2016 PaPUC approval and permits received
Early Winter 2016/2017 Start of construction
Summer 2018 Project completed and placed in-service

ABOUT ENERGIZING THE FUTURE

FirstEnergy launched “Energizing the Future” in May 2012 as part of an ongoing commitment to enhance its high-voltage transmission system. Many of these projects – including new or rebuilt high voltage power lines, new substations and the installation of specialized voltage regulating equipment – support increased electric demand as the economy recovers. “Energizing the Future” projects represent a substantial investment in Ohio, Pennsylvania, West Virginia, Virginia, New Jersey and Maryland over the next five years to improve service reliability.

For more information, visit firstenergycorp.com/transmission.





Maintaining a Safe and Reliable **Transmission System**

*Tree Trimming and Comprehensive
Vegetation Management*

Managing Vegetation Along FirstEnergy's Transmission System



Transmission lines are considered the “super highway” of the electric grid, allowing large amounts of electricity to be moved across the country from power plants to end-use customers.

As part of its ongoing efforts to enhance service reliability, FirstEnergy has a comprehensive, year-round program to remove and trim trees and manage vegetation along more than 13,000 miles of transmission line corridors in six states.

FirstEnergy's transmission system includes lines ranging in size from 69,000 to 500,000 volts. The width of transmission line rights-of-way (ROW) vary according to the voltage of the lines and the easement rights that were negotiated with the property owner prior to the lines being constructed.

Easements give FirstEnergy the right to build, operate and maintain transmission lines, which includes removing trees and managing vegetation. While many easements were negotiated by previous property owners, the terms of the agreement remain in place even if the property is transferred or sold.

Unless properly maintained by FirstEnergy, trees have the potential to come in contact with power lines and other electric facilities and can be a major cause of power outages, especially during severe weather.

As utilities look to enhance reliability and safety, it is important that existing vegetation management easement rights are enforced. The removal of trees under high-voltage lines rather than pruning serves to minimize the chance of any vegetation contact.

FirstEnergy is aware that this can be an emotional issue for property owners – but the work must be done to remain in compliance with reliability mandates established on the federal level by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Council (NERC), and by state public utility commissions.

Proper vegetation management does not always involve removal of all vegetation. Compatible shrubs that do not have the potential to interfere with electric facilities typically are not disturbed.

Ultimately, transmission line corridors should include a diverse mixture of grasses, low growing shrubs and other ground cover preferred by birds, deer and small animals to promote a thriving wildlife habitat. In this way, a well-managed ROW provides food and cover wildlife need to survive, and the reliability electric customers require.



Ensuring **Service Reliability**

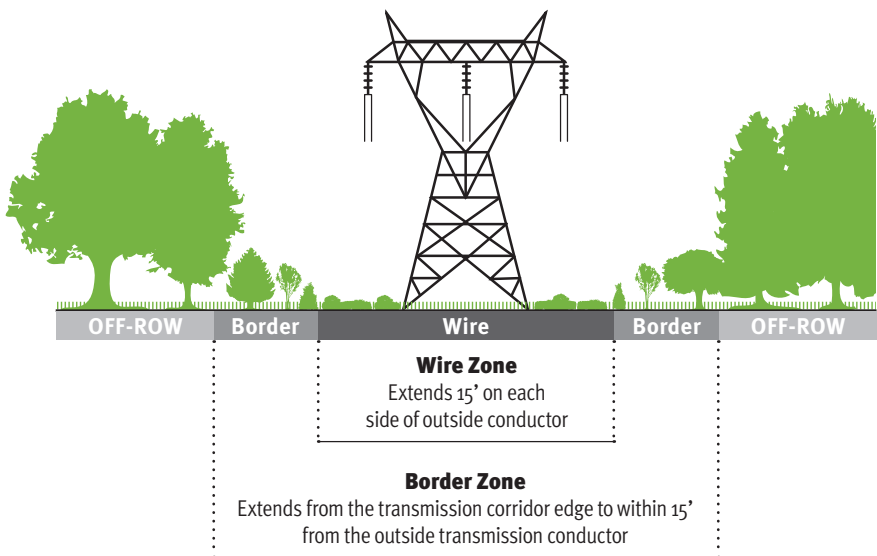
FirstEnergy has a comprehensive vegetation management program designed to maintain its transmission ROW. As part of this program, all safety precautions are utilized by FirstEnergy employees and forestry contractors. We are committed to managing vegetation in ways that will have a minimal impact on our environment.

Creating and sustaining a compatible, stable and low-growing plant community on the ROW is a key component to a successful vegetation management program.

FirstEnergy’s policy regarding transmission lines includes the removal of all trees, regardless of height, to the edge of the ROW. This could include removing trees where pruning was done in the past.

In order to perform vegetation maintenance, FirstEnergy also requires a clear path for trucks and other heavy equipment to access the ROW and transmission structures. As a result, we focus on removing or controlling vegetation that may impede access and affect our ability to inspect transmission equipment for maintenance work.

When site conditions permit, FirstEnergy utilizes the “wire zone-border zone” approach for maintaining most of its higher voltage



transmission line corridors, typically those that are more than 100 feet wide. All trees and incompatible vegetation are removed and controlled in both zones. In the “wire zone,” which extends about 15 feet beyond each side of where the wires are attached to tower or structure, efforts are made to encourage low growing grasses and shrubs that mature at less than five feet tall. In the “border zone,” which extends beyond the wires to the edge of the ROW, taller shrubs and plants that mature at 15 feet or less are allowed to grow.

If the ROW is 100 feet or less, all incompatible vegetation will be controlled from edge to edge.

We also inspect the areas beyond the ROW. Trees that are leaning, dead or diseased may be removed if they are determined to pose a danger of falling into the transmission line.

Inspecting the **Corridors**

Inspections are a key component of FirstEnergy’s comprehensive vegetation management program.

Twice a year, helicopters fly low over our transmission line corridors to inspect the condition of the electrical equipment and monitor any ROW encroachments from trees, shrubs or other vegetation.

In addition to the inspections, for most company transmission corridors, the vegetation is maintained on a five-year cycle, based on expected growth rates. In New Jersey and certain areas of Pennsylvania, the vegetation maintenance work is done every four years.



However, if a mid-cycle inspection uncovers an issue with a leaning tree or fast growing vegetation, the problem will be addressed immediately rather than waiting until the next regularly scheduled vegetation management cycle.

Multiple Options Can Be Used to Control Trees and Vegetation

FirstEnergy's policy is to make every reasonable effort to notify property owners prior to vegetation management work taking place along the transmission ROW. However, in the event of storms or other emergencies, advance notice may not always be possible.

FirstEnergy utilizes integrated vegetation management (IVM) techniques, which involve evaluating the transmission ROW to identify incompatible vegetation, the timeframe for control, and evaluation and selection of control options. These options include manual, mechanical and chemical methods that are used to prevent encroachments from vegetation located on and adjacent to transmission corridors. Site characteristics, environmental impact and worker/public safety are analyzed to determine the most effective control options. The goal of using IVM techniques is to create and sustain stable and compatible vegetation within and along the transmission corridor.

Depending on the location and the voltage of the transmission line, FirstEnergy and its tree contractors can utilize specific control methods – manual saws, aerial saws or herbicides – or a combination of methods, to safely and effectively remove and control vegetation.

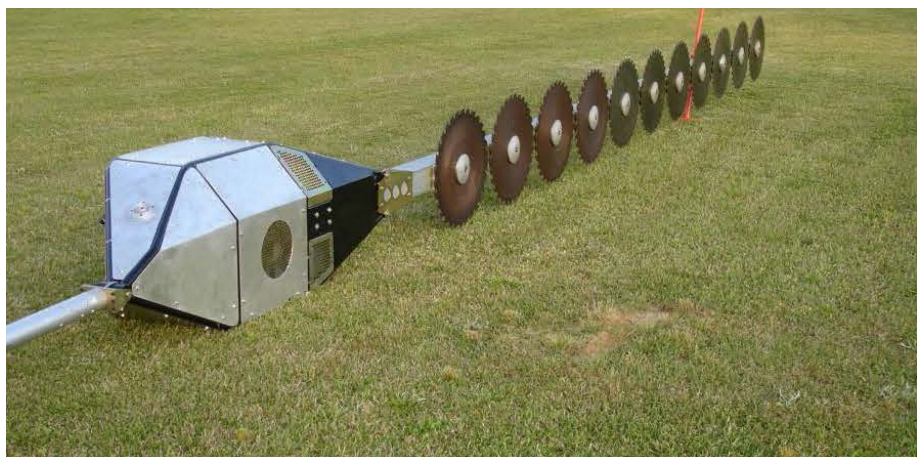
Manual Trimming

For as long as there have been power lines, forestry personnel have used manual saws and bucket trucks to remove trees and limbs. However, using this method is very labor intensive and some transmission lines are not easily accessible by foot or in a vehicle.

Manual tree trimming also is limited by the reach of the bucket truck or ladder, which can make trimming the very top of the tree a challenge.

Aerial Saw

Another way to trim along the edge of a ROW is using helicopters equipped with aerial saws. The saw attachment consisting of multiple 24-inch rotary blades powered by a motor suspended on a vertical



boom beneath the helicopter. The company has been safely using aerial tree-trimming since 1988 and aerial saws are in accordance with American National Standards Institute (ANSI) A300 tree pruning standards.

As the helicopter flies slowly along the ROW, the aerial saw cuts and trims trees and other vegetation rapidly and cleanly. Tree limbs 8 to 10 inches are neatly cut without tearing, and typically fall straight down, assisted by the air blasts from the rotors of the helicopter.

Benefits

The aerial saw eliminates the risk of injury to workers using bucket trucks or climbing trees near energized lines. The aerial saw can be used in remote areas or places inaccessible to a vehicle. In addition, this method helps protect private land and roads from damage by heavy equipment making repeated trips during the course of the work schedule.



Multiple Options Can Be Used to Control Trees and Vegetation (continued)

The aerial saw can perform work quickly, side-trimming both sides of a 10-to-12 mile right-of-way in one week. It also is an effective tool to use in environmentally sensitive areas since it is not necessary to take equipment in to perform the work.

Clean Up

Brush that has fallen onto access roads, maintained yards, agricultural fields or in streams will be moved to adjacent wooded areas by a ground crew shortly after the aerial saw has been used. The ground crew also will identify and remove individual dead trees found along the ROW that potentially threaten the transmission line.

The aerial saw is not a replacement for conventional tree-trimming methods, but it is very effective on hard-to-reach transmission and sub-transmission lines. This method is not used to trim trees in residential areas unless safety buffers are utilized.

Using an aerial saw allows subsequent maintenance work to focus on the removal of “priority” trees off the ROW. By using the aerial saw, we expect to extend the length of our tree-trimming cycle in rural areas.





EPA-Approved Herbicide Application

Once the ROW is cleared of trees, it is important to take steps to prevent future growth of incompatible vegetation. U.S. Environmental Protection Agency (EPA)- approved herbicides for use on utility ROW provide the most effective means of controlling unwanted trees, shrubs and other incompatible plants.

Safe and Effective

The EPA approves such products for use only after determining that they will not adversely affect people, animals or the environment when properly applied. Nearly 60 years of university and industry research also has shown that herbicide use on ROWs can help create optimum plant and wildlife habitats.

These products have undergone significant testing. In fact, some of the materials our contractors use are the same as those commonly used by homeowners to control weeds and other vegetation.

Herbicide application is the preferred method to control immature trees or brush. Herbicide control options are determined by terrain, brush height, and density and are designed to control only incompatible vegetation.

Multiple Options Can Be Used to Control Trees and Vegetation (continued)

While mechanical methods such as cutting and mowing might appear to be less harmful compared to herbicides, these methods have many disadvantages. For example, cutting and mowing vegetation have the undesired effect of causing vegetation to grow back thicker and fuller, requiring repeated and often more frequent trimming.

Less Needed Over Time

In subsequent years, once the preferred low-growing shrub/herb community becomes dominant, less herbicide will be needed for future maintenance as incompatible species are brought under control.

Ultimately, herbicides eliminate the need for much more frequent mechanical treatments, like tree trimming and mowing — meaning you'll see our crews much less often.

Professional Application

All herbicides used on ROWs are applied by state-certified applicators or under the supervision of a certified applicator. FirstEnergy vegetation managers and its contractors are trained and certified in the use of herbicides.

Herbicides can be applied using several methods:

1.) Aerial applications using a helicopter are used in less populated areas where terrain and accessibility make it difficult and dangerous for ground-based crews to safely apply herbicides.



2.) Trucks or ATVs with spray tanks can be used in areas with accessible ROW.

3.) Backpack sprayers can be used in populated areas, as well as near parks, ponds and other sensitive areas.

Herbicides are important vegetation management tools to stop the spread of invasive plant species. Using herbicides helps control these weeds and other nuisance plants from overtaking ROWs, and will stop the spread to adjacent areas, including your property.



Guidelines for Planting Near Rights-of-Way

If you are considering planting shrubs or other plants on any transmission ROW, please contact a member of FirstEnergy's transmission forestry staff using the customer service numbers listed on the following page. You also can consult your local arborist, nursery professional or cooperative extension agent for more information regarding compatible plant species.

It is important to select the right plant for the right place.

Planting proper vegetation in and around transmission ROW can help provide a sustainable and compatible plant community. However, the vegetation must be limited to low-growing plants – such as grasses, herbs and shrubs – that are less than five feet high at mature height. Plus, vegetation must be planted at least 10 feet away from any pole, tower or guy wire and should not hinder access to the transmission line.

FirstEnergy **Customer Service** Phone Numbers

The Illuminating Company	1-800-589-3101
JCP&L	1-800-662-3115
Met-Ed	1-800-545-7741
Mon Power.....	1-800-686-0022
Ohio Edison	1-800-633-4766
Penelec.....	1-800-545-7741
Penn Power.....	1-800-720-3600
Potomac Edison	1-800-686-0011
Toledo Edison	1-800-447-3333
West Penn Power	1-800-686-0021

Information about FirstEnergy’s transmission tree trimming and vegetation management are available online at www.firstenergycorp.com/help/brochures.html.

PERMISSION FORM

I, _____ (Grantor) hereby give permission to the PENNSYLVANIA ELECTRIC COMPANY (Company), its employee's, agents, and contractors permission to enter upon my property to perform preliminary engineering work, including surveying, core boring and cultural and environmental assessments as well as property appraisal.

Company agrees to enter upon the property "as is". Grantor makes no warranties as to the condition of the property or for the property for the particular suitability of the property for Company's purposes.

Company may deem it necessary to trim or cut vegetation for surveying and will be responsible for any damage done to the property, including planted crops. Company further agrees to pay grantor, for any marketable trees greater than 6-inch DBH cut down in the course of the surveys. Such payment will be determined utilizing the prevailing local market price for standing timber.

Grantor

Date

**EXHIBIT 13 – REPRESENTATIVE PROPERTY OWNER LETTER CONCERNING
PROJECT STATUS**

July 17, 2015

Bedford North-Central City West 115kV Transmission Line

PROPERTY NO. _____

Dear _____:

This letter provides an update to keep you informed of progress and activities related to the proposed Pennsylvania Electric Company (Penelec), 115,000-volt (115kV) electric line in Somerset and Bedford Counties, Pennsylvania.

Since our initial letter in March, there has been much activity in preparation for filing the application with the Pennsylvania Public Utility Commission (PAPUC) for approval of the location and construction of the transmission line. These activities included wetland and stream delineations, ground surveys, and preliminary design that further assist in refining the alignment for the transmission line. In addition, there has been some preliminary contact with landowners to discuss the right-of-way proposed across their respective properties.

For the next several months, there will be a pause in our activity until the next phase of the project begins which is anticipated in early 2016. At that time, remaining field studies and surveys will be conducted and right-of-way negotiations will continue. Filing with the PAPUC for the approval of this project is expected to occur in late spring 2016. At present, construction is slated to commence mid to late 2017 with a transmission in-service date of June 2018.

Thank you for your cooperation as we proceed with this project. If you have any questions concerning the project, please feel free to contact me at the above address, at lmachine@firstenergycorp.com or by telephone at 724-830-5629.

Sincerely,

Lisa Marinelli
Adv. Real Estate Representative
FirstEnergy Service Company
on behalf of Pennsylvania Electric Company

**EXHIBIT 14 – REPRESENTATIVE PROPERTY OWNER LETTER
CONCERNING PROJECT CONTINUATION**

January xx, 2016

VIA CERTIFIED MAIL

Bedford North-Central City West 115kV Transmission Line

PROPERTY NO. _____

Dear _____:

On behalf of the Pennsylvania Electric Company (Penelec), I'm writing to update you on the Bedford North-Central City West Transmission Project, a 115-kilovolt transmission line proposed to traverse Somerset and Bedford counties.

You may recall from the letter we sent last July that project work would be delayed until early this year. We are resuming project activities over the next few weeks. These activities include completion of any remaining field studies, surveys, and preliminary design to further refine the alignment of the proposed transmission line. These activities are necessary for the completion and submittal of our application to be filed with the Pennsylvania Public Utility Commission (PaPUC) this spring. Further, we plan to contact landowners to discuss the need for right-of-way across their respective properties and to negotiate an easement for that right.

The PaPUC must approve the application before construction activities begin. We anticipate construction will begin in mid to late 2017 to meet a June 2018 project in-service date.

We appreciate your cooperation and look forward to working together on this project. If you have any questions or comments concerning the project, please feel free to contact me at the above address, at lmachine@firstenergycorp.com or by telephone at 724-830-5629.

Sincerely,

Lisa Marinelli
Adv. Real Estate Representative
FirstEnergy Service Company
on behalf of Pennsylvania Electric Company

**EXHIBIT 15 – PROPERTY OWNER LETTER CONCERNING RIGHT-OF-ENTRY
ON THE FRITZ LANDHOLDINGS PROPERTY**

March 23, 2016

Fritz Land Holdings
620 S Richard St.
Bedford, PA 15522

Bedford North-Central City West 115kV Transmission Line

PROPERTY NO. **B.08-0.00-039**

Dear Fritz Land Holdings,

Pennsylvania Electric Company (Penelec), a FirstEnergy company, sent you a letter dated March 17, 2015 regarding its need to enter your property for the purposes of conducting examinations, including but not limited to land surveying, possible core boring, cultural and environmental assessments, and property valuations in connection with its planned construction of a new 115-kilovolt electric line connecting existing substations in Shade Township, Somerset County and Bedford Township, Bedford County, Pennsylvania.

Pursuant to the Pennsylvania Eminent Domain Code, 26 Pa. C.S. Section 309, Penelec is providing you notice of its intent to enter your property on or after March 28, 2016 for the purposes outlined above. Employees of FirstEnergy Service Company and its consultants will begin work to collect data that will allow Penelec to further evaluate the proposed route for the transmission line. Various studies will be performed periodically in the following weeks. This is a data collection exercise only and there will be no heavy equipment or construction type activities conducted at this time.

No damage to your property is expected, but if there is, Penelec will repair or pay you for those damages caused by these survey activities. Should core boring (a hole drilled in the ground using rotating equipment to determine the nature and/or thickness of the underlying rock) be necessary on your property, representatives will be in contact with you for further coordination.

Please note that the exercise of this right of entry by Penelec does not constitute a condemnation nor should it be interpreted as a notice of an intent to acquire the rights necessary for the construction, operation and maintenance of this transmission line through eminent domain.

A real estate representative will be in contact with you soon to further discuss the right of way needs across your property as well as compensation for the easement rights.

If you have questions or wish to discuss further, please contact me by telephone at 724-830-5629.

Sincerely,

Lisa Marinelli
Advanced Real Estate Representative

EXHIBIT 16 – PROPERTY OWNERS SENT A COPY OF EXHIBIT 12

EXHIBIT 16

Bedford North – Central City West 115 kV Transmission Line Project Property Owners Sent a Copy of Exhibit 12

Robindale Energy Services, LLC
P.O. Box 228 224 Grange Hall Rd
Armagh, PA 15920

Pennsylvania Electric Company
c/o First Energy Service Co.
P.O. Box 1911 300 Madison Ave
Morristown, NJ 07962

Frank J. Shenigo Revocable Living Trust
1655 Martin Rd
Mogadore, OH 44260

Edward J. & Darleen R. Morelli
138 Monument Rd
Central City, PA 15926

Mark J. & Sharon M. Yuko
132 Monument Rd
Central City, PA 15926

John R. & Kaye L. Yuko
134 Monument Rd
Central City, PA 15926

Assembly of God Pentecostal Tabernacle
of Central City
P.O. Box 10
Central City, PA 15926

Alan W. Manges
104 Monument Rd
Central City, PA 15926

John A. & Nora Jean Halkovich
PO Box 1 1808 School Road
Central City, PA 15926

Leonard J. Grega
1822 School Rd
Central City, PA 15926

Henry R. & Mark A. Zubek
905 Main St
Central City, PA 15926

Berwind Corporation
c/o The Wilmore Coal Company
509 15th St
Windber, PA 15963

Central City Borough
314 Central Ave Ste 201
Central City, PA 15926

Kenneth J. & Karen Jane Skone
101 Hickory Ave
Central City, PA 15926

Charles F. & Frances B. Lewandowski
202 Wilson St
Central City, PA 15926

William G. Sr. & Barbara A. Marek
Rd 1
Central City, PA 15926

Dennis & Mark McKolosky
150 Wilson St
Central City, PA 15926

Thomas E. & Bonita L. Jarvis
109 Old Wagon Rd
Winchester, VA 22602

Raymond E. & Sally A. Sobieski
330 Zeigler St
Central City, PA 15926

Karl A. & Kelly M. Jablon
136 Wilson St
Central City, PA 15926

Alan J. & Betty L. Klonisky
665 Chestnut St
Central City, PA 15926

Craig & Amy Rose
597 Gravity Hill Rd
New Paris, PA 15554

Somerset County
111 East Union St Ste 100
Somerset, PA 15501

George M. Napora
Bond Realty Partners
478 Bunker Hill Rd
Central City, PA 15926

Geoffrey T. & Lori A. Miscoe
299 Main St
Central City, PA 15926

Verna Louise Farkas
2343 Lambert Mt Rd
Cairnbrook, PA 15924

John Ray Kott
2387 Lambert Mt Rd
Cairnbrook, PA 15924

Andrew S. & Shirley V. Trimeloni
Rear 182 Statler St
Central City, PA 15926

Commonwealth of Pennsylvania Game
Commission
P.O. Box 1567
Harrisburg, PA 17120

Shirley Huston & Gary E. Lambert
3108 Lambert Mt Rd
Cairnbrook, PA 15924

Michael P. & Delores F. Goga
133 Goldie St
Cairnbrook, PA 15924

Gregory Pongrac
693 Lynn St
Central City, PA 15926

American Legion - Keystone Post 449
Central City, PA 15926

Robert L. Inks, Jr.
2106 Pasternak Pl
Newark, DE 19702

Denis J. & Donna L. Cicciarella
550 Cedar St
Central City, PA 15926

Robert W. Huff
12 Walnut St
Central City, PA 15926

Wilmore Coal Co.
509 15th St
Windber, PA 15963

Scott M. & Audrey A. Andrews
176 Shaffer Mt Rd
Cairnbrook, PA 15924

Shade Landfill, Inc.
P.O. Box 1450
Chicago, IL 60690

Albert Stiles
190 Moss Rock Ln
Cairnbrook, PA 15924

Somerset Hunting Camp
c/o Isaac Stoltzfus
141 South Groffdale Rd
Leola, PA 17540

Eugene P. & Janet Yelovich
2461 Lambert Mt Rd
Cairnbrook, PA 15924

Robert & Lori J. Yelovich
2467 Lambert Mt Rd
Cairnbrook, PA 15924

William J. & Katherine C. Mihelcic
2850 Lambert Mountain Rd
Cairnbrook, PA 15924

Travis R. Kreider
6411 Allegheny Rd
Manns Choice, PA 15550

Daniel Smucker
1769 Spring Hollow Rd
East Earl, PA 17519

Clark & Bernadine Bowen
1657 Miller Rd
Schellsburg, PA 15559

John M. & Kathy L. Akers
1012 Chippewa Rd
Johnstown, PA 15904

Harry & Margaret Miller
1101 Miller Rd
Schellsburg, PA 15559

Fritz Land Holdings, LP
620 S. Richard St
Bedford, PA 15522

Nancy K. Macrae
503 Anderson Rd
Schellsburg, PA 15559

Keith A. Lohr
209 Lohr Rd
Schellsburg, PA 15559

Dick B. & Karen G. Lohr
1159 Hoover Rd
Schellsburg, PA 15559

Donald W. Mowry
717 Ellis Rd
Schellsburg, PA 15559

David G. & Antonia M. Varley
104 Maclaine Drive
Carnegie, PA 15106

Richard B. & Cheryle F. Engbert
2156 Cortland Rd
Schellsburg, PA 15559
Clive O. & Shirley R. Wolfe

John III & Jennifer Goga
P.O. Box 284
Cairnbrook, PA 15924

Kathy R. & Jeffrey Kelley
142 Mile Hill Rd
Johnstown, PA 15909

Katherine L. Ziegler
c/o Linda Krupnik
1379 Northwyck
McLean, VA 22102

John E. Kochandwicz
c/o Joann Gruener
2583 Stone Chip Dr
Allison Park, PA 15101

Michele C. Anderson
c/o Michele Anne Campbell
245 Ash Tree Rd
Schellsburg, PA 15559

Vincent Beal
103 Parkridge Lane
Coraopolis, PA 15108

Martha Lorraine & John S. Anderson
710 Anderson Rd
Schellsburg, PA 15559

Randall G. & Kay McCreary Kring
303 Krings Ln
New Paris, PA 15554

Robin F. & Tammy J. Miller
1035 Ellis Rd
Schellsburg, PA 15559

Delmas W. & Pansy F. Miller
1958 Cortland Rd
Schellsburg, PA 15559

Dale F. & Troy L. Wigfield
154 Deep Well Rd
Schellsburg, PA 15559

Dale F. Wigfield
154 Deep Well Rd
Schellsburg, PA 15559
Gerald T. McCreary

2080 Cortland Rd
Schellsburg, PA 15559

Richard C. & Cathy J. Evans
3027 Mowry Rd
Schellsburg, PA 15559

Ronald & Diane Kelly
201 West Penn St
Bedford, PA 15522

Gerald T. & Amy V. Mowry
182 Peter St
Schellsburg, PA 15559

Joseph & Judith Diehl Living Trust
615 Valley Rd
Schellsburg, PA 15559

Kerry L. & Maria K. Hutson
1006 Harvard Rd
Monroeville, PA 15146

Kevin T. Croyle
637 Harrison Rd
Schellsburg, PA 15559

Scott A. & Lori A. Barnes
780 Harrison Rd
Schellsburg, PA 15559

Linda S. Taylor
1241 Point Rd
Bedford, PA 15522

Donald L. & Vera Annette Boes
1753 Tulls Hill Rd
Bedford, PA 15522

Becky S. Shroyer
c/o Rose
1672 Point Rd
Bedford, PA 15522

Blair A. Turner, et al
116 Whispering Pines Ln
Bedford, PA 15522

182 Peter St
Schellsburg, PA 15559

Karen M. Weischedel
2501 Alexis Ct
Bensalem, PA 19020

Commonwealth of Pennsylvania
Enviornmental Resources
Fulton Bank Building
Harrisburg, PA 17120

Michael L. Hillegass
506 Harrison Rd
Schellsburg, PA 15559

Shirley L. Bowers
779 Harrison Rd
Schellsburg, PA 15559

Kenneth Wayne Harrison
965 Harrison Rd
Schellsburg, PA 15559

Bradley D. Foor
1311 Point Rd
Bedford, PA 15522

Steven M. & Annette J. Zimmerman
1413 Point Rd
Bedford, PA 15522

Steven C. Miller
150 Sloans Hollow Rd
Bedford, PA 15522

Vickie J. David E. Fleegle
126 Heritage Ln
Bedford, PA 15522

Scott A. & Nancy K. Blakeslee
265 Peacock Ln
Bedford, PA 15522

Thomas S. Wright
510 Roose Rd
Bedford, PA 15522

Joseph F. & Ethel Pearl Ferguson
248 Sloans Hollow Rd
Bedford, PA 15522

Fredrick Cable
c/o Margaret Cable
426 Pensl Hollow Rd
Bedford, PA 15522

Joseph M. & Susan Fiocco
36 Trevose Road
Trevose, PA 19053

Robert Clair & Wanda Jean Holland
5382 Mountain Rd
Bedford, PA 15522

Krista A. Hillegas
209 Peacock Ln
Bedford, PA 15522

Barry L. & Sheila K. May
976 Pensyl Hollow Rd
Bedford, PA 15522

Roxie & Cary Stultz
129 Peacock Rd
Bedford, PA 15522

James E. Berkey & Mitzi G. Berkey
1030 Country Ridge Road
Bedford, PA 15522

Thomas S. & Tricia A. Wright
510 Roose Rd
Bedford, PA 15522

Harold L. & Vera L. Sciranko
1054 Country Ridge Rd
Bedford, PA 15522

Craig A. & Deborah L. Eckenrode
5252 Mountain Rd
Bedford, PA 15522

Robert J. & Pamela K. Eagleson
1076 Country Ridge Road
Bedford, PA 15522

Timothy L. Brown
5350 Mountain Rd
Bedford, PA 15522

Ronald R. Hocker & Sue Ann Price
162 Astor Rd
Bedford, PA 15522

Nathan N. Wolfe
772 Pensyl Hollow Rd
Bedford, PA 15522

Bedford County Development Association
One Corporate Drive
Bedford, PA 15522

Kelly A. & Adam T. McGinnis
476 McCulloch Rd
Shippensburg, PA 17257

Fred E. & Connie R. Claycomb
4964 Business Rt 220
Bedford, PA 15522

Andrew Miller, Janice M. Haney
& Andrew S. Miller
5929 Mountain Rd
Bedford, PA 15522

William & Idella Malamphy
343 Malamphy Rd
Schellsburg, PA 15559

Bruce & Nicole Burns
1050 Country Ridge Road
Bedford, PA 15522

Lawrence & Donna Sturm
732 Heather Ridge
Manheim, PA 17545

Tria L. Shaffer, et al
c/o Mrs. Luan Bremerman
5029 Milligans Cove Road
Manns Choice, PA 15550

Ray Ash
130 West Penn St
Bedford, PA 15522

Neal R. & Linda J. Butterbaugh
477 Welsh Rd
Bedford, PA 15522

Adam Wright
11136 Golden Park Road
Williams, IN 47470

PA Electric Company
c/o FirstEnergy Service
Morristown, NJ 7962

Donald W. Mowry Rev Trust
242 Sherwood Forest Rd
Schellsburg, PA 15559

Donald N. & Margaret A. Roadman
816 Ponderosa Rd
Schellsburg, PA 15559

EXHIBIT 17 – PROPERTY OWNERS SENT A COPY OF EXHIBIT 13

EXHIBIT 17

Bedford North – Central City West 115 kV Transmission Line Project
Property Owners Sent a Copy of Exhibit 13.

Robindale Energy Services, LLC
P.O. Box 228 224 Grange Hall Rd
Armagh, PA 15920

Pennsylvania Electric Company
c/o First Energy Service Co.
P.O. Box 1911 300 Madison Ave
Morristown, NJ 07962

Frank J. Shenigo Revocable Living Trust
1655 Martin Rd
Mogadore, OH 44260

Edward J. & Darleen R. Morelli
138 Monument Rd
Central City, PA 15926

Mark J. & Sharon M. Yuko
132 Monument Rd
Central City, PA 15926

John R. & Kaye L. Yuko
134 Monument Rd
Central City, PA 15926

Assembly of God Pentecostal Tabernacle
of Central City
P.O. Box 10
Central City, PA 15926

Alan W. Manges
104 Monument Rd
Central City, PA 15926

John A. & Nora Jean Halkovich
PO Box 1 1808 School Road
Central City, PA 15926

Leonard J. Grega
1822 School Rd
Central City, PA 15926

Henry R. & Mark A. Zubek
905 Main St
Central City, PA 15926

Berwind Corporation
c/o The Wilmore Coal Company
509 15th St
Windber, PA 15963

Central City Borough
314 Central Ave Ste 201
Central City, PA 15926

Kenneth J. & Karen Jane Skone
101 Hickory Ave
Central City, PA 15926

Charles F. & Frances B. Lewandowski
202 Wilson St
Central City, PA 15926

William G. Sr. & Barbara A. Marek
Rd 1
Central City, PA 15926

Dennis & Mark McKolosky
150 Wilson St
Central City, PA 15926

Thomas E. & Bonita L. Jarvis
109 Old Wagon Rd
Winchester, VA 22602

Raymond E. & Sally A. Sobieski
330 Zeigler St
Central City, PA 15926

Karl A. & Kelly M. Jablon
136 Wilson St
Central City, PA 15926

Alan J. & Betty L. Klonisky
665 Chestnut St
Central City, PA 15926

Craig & Amy Rose
597 Gravity Hill Rd
New Paris, PA 15554

Somerset County
111 East Union St Ste 100
Somerset, PA 15501

George M. Napora
Bond Realty Partners
478 Bunker Hill Rd
Central City, PA 15926

Geoffrey T. & Lori A. Miscoe
299 Main St
Central City, PA 15926

Verna Louise Farkas
2343 Lambert Mt Rd
Cairnbrook, PA 15924

John Ray Kott
2387 Lambert Mt Rd
Cairnbrook, PA 15924

Andrew S. & Shirley V. Trimeloni
Rear 182 Statler St
Central City, PA 15926

Commonwealth of Pennsylvania Game
Commission
P.O. Box 1567
Harrisburg, PA 17120

Shirley Huston & Gary E. Lambert
3108 Lambert Mt Rd
Cairnbrook, PA 15924

Michael P. & Delores F. Goga
133 Goldie St
Cairnbrook, PA 15924

Gregory Pongrac
693 Lynn St
Central City, PA 15926

American Legion - Keystone Post 449
Central City, PA 15926

Robert L. Inks, Jr.
2106 Pasternak Pl
Newark, DE 19702

Denis J. & Donna L. Cicciarella
550 Cedar St
Central City, PA 15926

Robert W. Huff
12 Walnut St
Central City, PA 15926

Wilmore Coal Co.
509 15th St
Windber, PA 15963

Scott M. & Audrey A. Andrews
176 Shaffer Mt Rd
Cairnbrook, PA 15924

Shade Landfill, Inc.
P.O. Box 1450
Chicago, IL 60690

Albert Stiles
190 Moss Rock Ln
Cairnbrook, PA 15924

Somerset Hunting Camp
c/o Isaac Stoltzfus
141 South Groffdale Rd
Leola, PA 17540

Eugene P. & Janet Yelovich
2461 Lambert Mt Rd
Cairnbrook, PA 15924

Robert & Lori J. Yelovich
2467 Lambert Mt Rd
Cairnbrook, PA 15924

William J. & Katherine C. Mihelcic
2850 Lambert Mountain Rd
Cairnbrook, PA 15924

Travis R. Kreider
6411 Allegheny Rd
Manns Choice, PA 15550

Daniel Smucker
1769 Spring Hollow Rd
East Earl, PA 17519

Clark & Bernadine Bowen
1657 Miller Rd
Schellsburg, PA 15559

John M. & Kathy L. Akers
1012 Chippewa Rd
Johnstown, PA 15904

Mr. Bernard Miller
1888 Helixville Rd
Schellsburg, PA 15559

Fritz Land Holdings, LP
620 S. Richard St
Bedford, PA 15522

Nancy K. Macrae
503 Anderson Rd
Schellsburg, PA 15559

Keith A. Lohr
209 Lohr Rd
Schellsburg, PA 15559

Dick B. & Karen G. Lohr
1159 Hoover Rd
Schellsburg, PA 15559

Donald W. Mowry
717 Ellis Rd
Schellsburg, PA 15559

David G. & Antonia M. Varley
104 Maclaine Drive
Carnegie, PA 15106

Mr. Jeffrey Sturm
1226 Bridgeton Hill Rd
Upper Black Eddy, PA 18972

John III & Jennifer Goga
P.O. Box 284
Cairnbrook, PA 15924

Kathy R. & Jeffrey Kelley
142 Mile Hill Rd
Johnstown, PA 15909

Katherine L. Ziegler
c/o Linda Krupnik
1379 Northwyck
McLean, VA 22102

Scott A Dull
829 Oldham Rd.
Alum Bank, PA 15521

Michele C. Anderson
c/o Michele Anne Campbell
245 Ash Tree Rd
Schellsburg, PA 15559

Mr. & Mrs. Brian Jones
1708 Dager Circle
Harkeysville, PA 19438

Martha Lorraine & John S. Anderson
710 Anderson Rd
Schellsburg, PA 15559

Randall G. & Kay McCreary Kring
303 Krings Ln
New Paris, PA 15554

Robin F. & Tammy J. Miller
1035 Ellis Rd
Schellsburg, PA 15559

Michael C Long
1212 Goe Ave
Pittsburgh, PA 15212

William & Idella Malamphy
343 Malamphy Rd
Schellsburg, PA 15559

Lawrence & Donna Sturm
732 Heather Ridge
Manheim, PA 17545

Andrew Miller, Janice M. Haney
& Andrew S. Miller
5929 Mountain Rd
Bedford, PA 15522

Donald W. Mowry Rev Trust
242 Sherwood Forest Rd
Schellsburg, PA 15559

Neal R. & Linda J. Butterbaugh
477 Welsh Rd
Bedford, PA 15522

EXHIBIT 18 – PROPERTY OWNERS SENT A COPY OF EXHIBIT 14

EXHIBIT 18

Bedford North – Central City West 115 kV Transmission Line Project Property Owners Sent a Copy of Exhibit 14

Robindale Energy Services, LLC
P.O. Box 228 224 Grange Hall Rd
Armagh, PA 15920

Pennsylvania Electric Company
c/o First Energy Service Co.
P.O. Box 1911 300 Madison Ave
Morristown, NJ 07962

Frank J. Shenigo Revocable Living Trust
1655 Martin Rd
Mogadore, OH 44260

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Mark J. & Sharon M. Yuko
132 Monument Rd
Central City, PA 15926

John R. & Kaye L. Yuko
134 Monument Rd
Central City, PA 15926

Assembly of God Pentecostal Tabernacle
of Central City
P.O. Box 10
Central City, PA 15926

Berwind Corporation
c/o The Wilmore Coal Company
509 15th St
Windber, PA 15963

John A. & Nora Jean Halkovich
PO Box 1 1808 School Road
Central City, PA 15926

Leonard J. Grega
1822 School Rd
Central City, PA 15926

Henry R. & Mark A. Zubek
905 Main St
Central City, PA 15926

Alan W. Manges
104 Monument Rd
Central City, PA 15926

Central City Borough
314 Central Ave Ste 201
Central City, PA 15926

Kenneth J. & Karen Jane Skone
101 Hickory Ave
Central City, PA 15926

Charles F. & Frances B. Lewandowski
202 Wilson St
Central City, PA 15926

William G. Sr. & Barbara A. Marek
Rd 1
Central City, PA 15926

Dennis & Mark McKolosky
150 Wilson St
Central City, PA 15926

Thomas E. & Bonita L. Jarvis
109 Old Wagon Rd
Winchester, VA 22602

Raymond E. & Sally A. Sobieski
330 Zeigler St
Central City, PA 15926

Karl A. & Kelly M. Jablon
136 Wilson St
Central City, PA 15926

Alan J. & Betty L. Klonisky
665 Chestnut St
Central City, PA 15926

American Legion - Keystone Post 449
Central City, PA 15926

Craig & Amy Rose
597 Gravity Hill Rd
New Paris, PA 15554

Geoffrey T. & Lori A. Miscoe
299 Main St
Central City, PA 15926

Verna Louise Farkas
2343 Lambert Mt Rd
Cairnbrook, PA 15924

Shirley Huston & Gary E. Lambert
3108 Lambert Mt Rd
Cairnbrook, PA 15924

Travis R. Kreider
6411 Allegheny Rd
Manns Choice, PA 15550

Daniel Smucker
1769 Spring Hollow Rd
East Earl, PA 17519

Michele C. Anderson
c/o Michele Anne Campbell
245 Ash Tree Rd
Schellsburg, PA 15559

John M. & Kathy L. Akers
1012 Chippewa Rd
Johnstown, PA 15904

Mr. Bernard Miller
1888 Helixville Rd
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Nancy K. Macrae
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Keith A. Lohr
209 Lohr Rd
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Central City, PA 15926

Wilmore Coal Co.
509 15th St
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Scott M. & Audrey A. Andrews
176 Shaffer Mt Rd
Cairnbrook, PA 15924

Albert Stiles
190 Moss Rock Ln
Cairnbrook, PA 15924

William J. & Katherine C. Mihelcic
2850 Lambert Mountain Rd
Carinbrook, PA 15924

Kathy R. & Jeffrey Kelley
142 Mile Hill Rd
Johnstown, PA 15909

Katherine L. Ziegler
c/o Linda Krupnik
1379 Northwyck
McLean, VA 22102

Scott A Dull
829 Oldham Rd.
Alum Bank, PA 15521

Clark & Bernadine Bowen
1657 Miller Rd
Schellsburg, PA 15559

Mr. & Mrs. Brian Jones
1708 Dager Circle
Harkeysville, PA 19438

Martha Lorraine & John S. Anderson
710 Anderson Rd
Schellsburg, PA 15559

Randall G. & Kay McCreary Kring
303 Krings Ln
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1159 Hoover Rd
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Donald W. Mowry
717 Ellis Rd
Schellsburg, PA 15559

David G. & Antonia M. Varley
104 MacLaine Drive
Carnegie, PA 15106

Mr. Jeffrey Sturm
1226 Bridgeton Hill Rd
Upper Black Eddy, PA 18972

Vincent Beal
103 Parkridge Lane
Coraopolis, PA 15108

Robin F. & Tammy J. Miller
1035 Ellis Rd
Schellsburg, PA 15559

Michael C Long
1212 Goe Ave
Pittsburgh, PA 15212

Donald W. Mowry Rev Trust
242 Sherwood Forest Rd
Schellsburg, PA 15559

Neal R. & Linda J. Butterbaugh
477 Welsh Rd
Bedford, PA 15522

EXHIBIT 19 – CODE OF CONDUCT

**Pennsylvania Electric Company (“Penelec”)
BEDFORD NORTH-CENTRAL CITY WEST 115KV
TRANSMISSION LINE
Project**

**Code of Conduct
For
Right-of-Way Agents and Subcontractor Employees**

To Property Owner and any affected adjacent Property Owner on the Transmission Line Project:

This Code of Conduct applies to all communications and interactions with property owners and occupants of property by all right-of-way agents and subcontractor employees representing Penelec in the negotiation of right-of-way, subsequent acquisition of property rights, including the performance of surveying, environmental assessments and other activities for the Bedford North-Central City West 115kV Line Project (“Project”) on property not owned by Penelec.

Property owners may report improper public utility employee/land agent practices to the following agencies:

**Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120
1-800-692-7380 (Utility Customer Hotline)**

**Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg PA 17101-1923
717-783-5048
1-800-684-6560 (PA Only)**

CODE OF CONDUCT

- 1. All communications with property owners and occupants must be factually correct and made in good faith.**
 - a. Do provide maps and documents necessary to keep the landowner properly informed
 - b. Do not make false or misleading statements.

- c. Do not misrepresent any fact.
- d. If you do not know the answer to a question, do not speculate about the answer. Advise the property owner that you will investigate the question and provide an answer later.
- e. Follow-up in a timely manner on all commitments to provide additional information.
- f. Do not suggest that the Project is required for national or homeland security reasons or has been authorized by the federal government.
- h. Do not send written communications suggesting an agreement has been reached when, in fact, an agreement has not been reached.
- i. If information provided is subsequently determined to be incorrect, follow up with the property owner as soon as practical to provide the corrected information.
- j. Do provide the property owner with appropriate contact information should additional contacts be necessary.

2. All Communications and interactions with property owners and occupants of property must be respectful and reflect fair dealing.

- a. When contacting a property owner in person, promptly identify yourself as representing Penelec and display your Company photo ID badge.
- b. When contacting a property owner by telephone, promptly identify yourself as representing Penelec.
- c. Do not engage in behavior that may be considered harassing, coercive, manipulative, intimidating or causing undue pressure.
- d. All communications by a property owner, whether in person, by telephone or in writing, in which the property owner indicates that he or she does not want to negotiate or does not want to give permission for surveying or other work on his or her property, must be respected and politely accepted without argument. Unless specifically authorized by Penelec, do not contact the property owner again regarding negotiations or requests for permission.
- e. When asked to leave property, promptly leave and do not return unless specifically authorized by Penelec.
- f. If discussions with the property owner become acrimonious, politely discontinue the discussion and withdraw from the situation.
- g. Obtain permission to enter property for purposes of surveying or conducting environmental assessments or other activities. Clearly explain to the property owner the scope of the work to be conducted based on the permission given. Attempt to notify the occupant of the property each time you enter the property based on this permission.
- h. Do not represent that a relative, neighbor and/or friend have signed a document or reached an agreement with Penelec.
- i. Do not ask a relative, neighbor and/or friend of a property owner to convince the property owner to take any action.

- j. Do not represent that a relative, neighbor and/or friend supports or opposes the Project.
- k. Do not suggest that any person should be ashamed of or embarrassed by his or her opposition to the Project or that such opposition is inappropriate.
- l. Do not argue with property owners about the merits of the Project.
- m. Do not suggest that an offer is “take it or leave it.”
- n. Do not threaten to call law enforcement officers or obtain court orders.
- o. Do not threaten the use of eminent domain.
- p. Do not suggest that Penelec will seek federal authorization to construct the Project.
- q. Avoid discussing a property owner’s failure to note an existing easement when purchasing the property and other comments about the property owner’s acquisition of the property.

3. All communications and interactions with property owners and/or their representatives of property must respect the privacy of property owners and other persons.

- a. Discussions with property owners and/or their representatives are to remain confidential
- b. Do not discuss your negotiations or interactions with other property owners or other persons.
- c. Do not ask relatives, neighbors and/or friends to influence the property owner or any other person.
- d. Avoid discussions of personal matters about the property owner, others and yourself.

EXHIBIT 20 – TRANSMISSION VEGETATION MANAGEMENT BROCHURE



Maintaining a Safe and Reliable **Transmission System**

*Tree Trimming and Comprehensive
Vegetation Management*

Managing Vegetation Along FirstEnergy's Transmission System



Transmission lines are considered the “super highway” of the electric grid, allowing large amounts of electricity to be moved across the country from power plants to end-use customers.

As part of its ongoing efforts to enhance service reliability, FirstEnergy has a comprehensive, year-round program to remove and trim trees and manage vegetation along more than 13,000 miles of transmission line corridors in six states.

FirstEnergy's transmission system includes lines ranging in size from 69,000 to 500,000 volts. The width of transmission line rights-of-way (ROW) vary according to the voltage of the lines and the easement rights that were negotiated with the property owner prior to the lines being constructed.

Easements give FirstEnergy the right to build, operate and maintain transmission lines, which includes removing trees and managing vegetation. While many easements were negotiated by previous property owners, the terms of the agreement remain in place even if the property is transferred or sold.

Unless properly maintained by FirstEnergy, trees have the potential to come in contact with power lines and other electric facilities and can be a major cause of power outages, especially during severe weather.

As utilities look to enhance reliability and safety, it is important that existing vegetation management easement rights are enforced. The removal of trees under high-voltage lines rather than pruning serves to minimize the chance of any vegetation contact.

FirstEnergy is aware that this can be an emotional issue for property owners – but the work must be done to remain in compliance with reliability mandates established on the federal level by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Council (NERC), and by state public utility commissions.

Proper vegetation management does not always involve removal of all vegetation. Compatible shrubs that do not have the potential to interfere with electric facilities typically are not disturbed.

Ultimately, transmission line corridors should include a diverse mixture of grasses, low growing shrubs and other ground cover preferred by birds, deer and small animals to promote a thriving wildlife habitat. In this way, a well-managed ROW provides food and cover wildlife need to survive, and the reliability electric customers require.



Ensuring **Service Reliability**

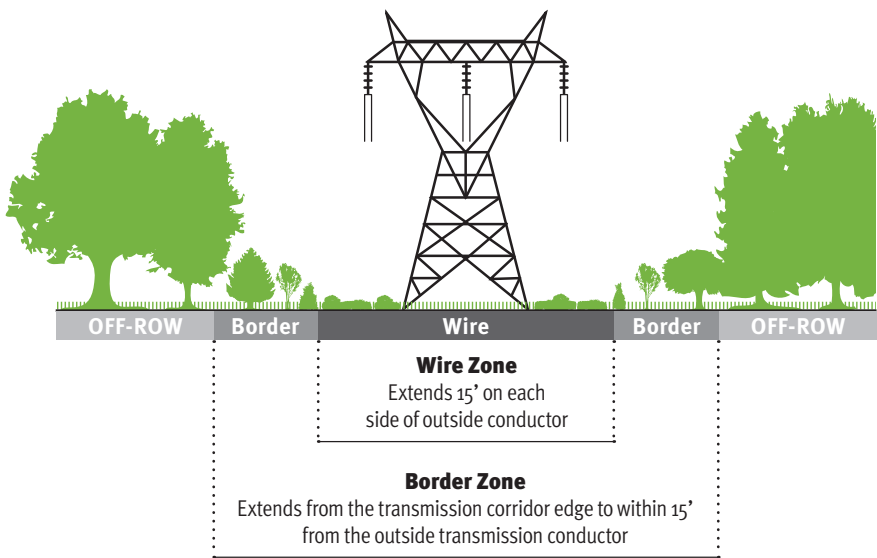
FirstEnergy has a comprehensive vegetation management program designed to maintain its transmission ROW. As part of this program, all safety precautions are utilized by FirstEnergy employees and forestry contractors. We are committed to managing vegetation in ways that will have a minimal impact on our environment.

Creating and sustaining a compatible, stable and low-growing plant community on the ROW is a key component to a successful vegetation management program.

FirstEnergy’s policy regarding transmission lines includes the removal of all trees, regardless of height, to the edge of the ROW. This could include removing trees where pruning was done in the past.

In order to perform vegetation maintenance, FirstEnergy also requires a clear path for trucks and other heavy equipment to access the ROW and transmission structures. As a result, we focus on removing or controlling vegetation that may impede access and affect our ability to inspect transmission equipment for maintenance work.

When site conditions permit, FirstEnergy utilizes the “wire zone-border zone” approach for maintaining most of its higher voltage



transmission line corridors, typically those that are more than 100 feet wide. All trees and incompatible vegetation are removed and controlled in both zones. In the “wire zone,” which extends about 15 feet beyond each side of where the wires are attached to tower or structure, efforts are made to encourage low growing grasses and shrubs that mature at less than five feet tall. In the “border zone,” which extends beyond the wires to the edge of the ROW, taller shrubs and plants that mature at 15 feet or less are allowed to grow.

If the ROW is 100 feet or less, all incompatible vegetation will be controlled from edge to edge.

We also inspect the areas beyond the ROW. Trees that are leaning, dead or diseased may be removed if they are determined to pose a danger of falling into the transmission line.

Inspecting the **Corridors**

Inspections are a key component of FirstEnergy’s comprehensive vegetation management program.

Twice a year, helicopters fly low over our transmission line corridors to inspect the condition of the electrical equipment and monitor any ROW encroachments from trees, shrubs or other vegetation.

In addition to the inspections, for most company transmission corridors, the vegetation is maintained on a five-year cycle, based on expected growth rates. In New Jersey and certain areas of Pennsylvania, the vegetation maintenance work is done every four years.



However, if a mid-cycle inspection uncovers an issue with a leaning tree or fast growing vegetation, the problem will be addressed immediately rather than waiting until the next regularly scheduled vegetation management cycle.

Multiple Options Can Be Used to Control Trees and Vegetation

FirstEnergy's policy is to make every reasonable effort to notify property owners prior to vegetation management work taking place along the transmission ROW. However, in the event of storms or other emergencies, advance notice may not always be possible.

FirstEnergy utilizes integrated vegetation management (IVM) techniques, which involve evaluating the transmission ROW to identify incompatible vegetation, the timeframe for control, and evaluation and selection of control options. These options include manual, mechanical and chemical methods that are used to prevent encroachments from vegetation located on and adjacent to transmission corridors. Site characteristics, environmental impact and worker/public safety are analyzed to determine the most effective control options. The goal of using IVM techniques is to create and sustain stable and compatible vegetation within and along the transmission corridor.

Depending on the location and the voltage of the transmission line, FirstEnergy and its tree contractors can utilize specific control methods – manual saws, aerial saws or herbicides – or a combination of methods, to safely and effectively remove and control vegetation.

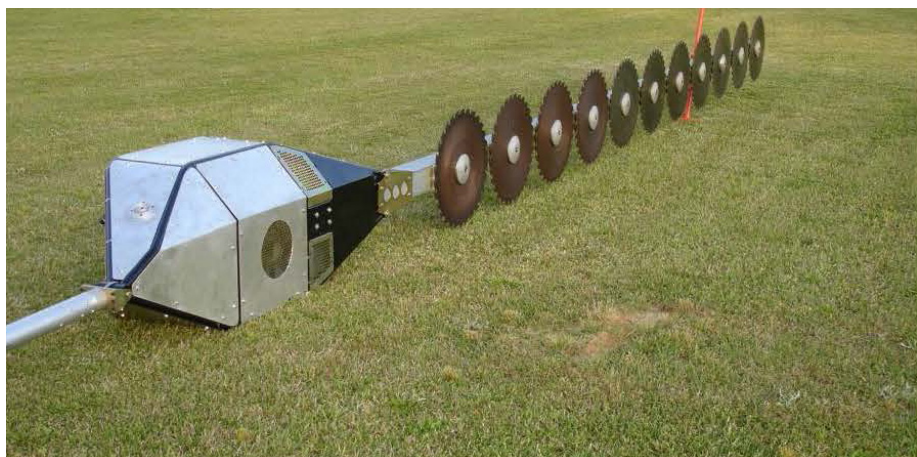
Manual Trimming

For as long as there have been power lines, forestry personnel have used manual saws and bucket trucks to remove trees and limbs. However, using this method is very labor intensive and some transmission lines are not easily accessible by foot or in a vehicle.

Manual tree trimming also is limited by the reach of the bucket truck or ladder, which can make trimming the very top of the tree a challenge.

Aerial Saw

Another way to trim along the edge of a ROW is using helicopters equipped with aerial saws. The saw attachment consisting of multiple 24-inch rotary blades powered by a motor suspended on a vertical



boom beneath the helicopter. The company has been safely using aerial tree-trimming since 1988 and aerial saws are in accordance with American National Standards Institute (ANSI) A300 tree pruning standards.

As the helicopter flies slowly along the ROW, the aerial saw cuts and trims trees and other vegetation rapidly and cleanly. Tree limbs 8 to 10 inches are neatly cut without tearing, and typically fall straight down, assisted by the air blasts from the rotors of the helicopter.

Benefits

The aerial saw eliminates the risk of injury to workers using bucket trucks or climbing trees near energized lines. The aerial saw can be used in remote areas or places inaccessible to a vehicle. In addition, this method helps protect private land and roads from damage by heavy equipment making repeated trips during the course of the work schedule.



Multiple Options Can Be Used to Control Trees and Vegetation (continued)

The aerial saw can perform work quickly, side-trimming both sides of a 10-to-12 mile right-of-way in one week. It also is an effective tool to use in environmentally sensitive areas since it is not necessary to take equipment in to perform the work.

Clean Up

Brush that has fallen onto access roads, maintained yards, agricultural fields or in streams will be moved to adjacent wooded areas by a ground crew shortly after the aerial saw has been used. The ground crew also will identify and remove individual dead trees found along the ROW that potentially threaten the transmission line.

The aerial saw is not a replacement for conventional tree-trimming methods, but it is very effective on hard-to-reach transmission and sub-transmission lines. This method is not used to trim trees in residential areas unless safety buffers are utilized.

Using an aerial saw allows subsequent maintenance work to focus on the removal of “priority” trees off the ROW. By using the aerial saw, we expect to extend the length of our tree-trimming cycle in rural areas.





EPA-Approved Herbicide Application

Once the ROW is cleared of trees, it is important to take steps to prevent future growth of incompatible vegetation. U.S. Environmental Protection Agency (EPA)- approved herbicides for use on utility ROW provide the most effective means of controlling unwanted trees, shrubs and other incompatible plants.

Safe and Effective

The EPA approves such products for use only after determining that they will not adversely affect people, animals or the environment when properly applied. Nearly 60 years of university and industry research also has shown that herbicide use on ROWs can help create optimum plant and wildlife habitats.

These products have undergone significant testing. In fact, some of the materials our contractors use are the same as those commonly used by homeowners to control weeds and other vegetation.

Herbicide application is the preferred method to control immature trees or brush. Herbicide control options are determined by terrain, brush height, and density and are designed to control only incompatible vegetation.

Multiple Options Can Be Used to Control Trees and Vegetation (continued)

While mechanical methods such as cutting and mowing might appear to be less harmful compared to herbicides, these methods have many disadvantages. For example, cutting and mowing vegetation have the undesired effect of causing vegetation to grow back thicker and fuller, requiring repeated and often more frequent trimming.

Less Needed Over Time

In subsequent years, once the preferred low-growing shrub/herb community becomes dominant, less herbicide will be needed for future maintenance as incompatible species are brought under control.

Ultimately, herbicides eliminate the need for much more frequent mechanical treatments, like tree trimming and mowing — meaning you'll see our crews much less often.

Professional Application

All herbicides used on ROWs are applied by state-certified applicators or under the supervision of a certified applicator. FirstEnergy vegetation managers and its contractors are trained and certified in the use of herbicides.

Herbicides can be applied using several methods:

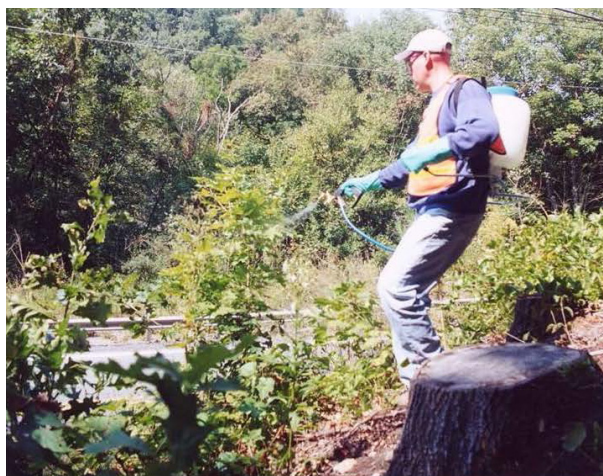
1.) Aerial applications using a helicopter are used in less populated areas where terrain and accessibility make it difficult and dangerous for ground-based crews to safely apply herbicides.



2.) Trucks or ATVs with spray tanks can be used in areas with accessible ROW.

3.) Backpack sprayers can be used in populated areas, as well as near parks, ponds and other sensitive areas.

Herbicides are important vegetation management tools to stop the spread of invasive plant species. Using herbicides helps control these weeds and other nuisance plants from overtaking ROWs, and will stop the spread to adjacent areas, including your property.



Guidelines for Planting Near Rights-of-Way

If you are considering planting shrubs or other plants on any transmission ROW, please contact a member of FirstEnergy's transmission forestry staff using the customer service numbers listed on the following page. You also can consult your local arborist, nursery professional or cooperative extension agent for more information regarding compatible plant species.

It is important to select the right plant for the right place.

Planting proper vegetation in and around transmission ROW can help provide a sustainable and compatible plant community. However, the vegetation must be limited to low-growing plants – such as grasses, herbs and shrubs – that are less than five feet high at mature height. Plus, vegetation must be planted at least 10 feet away from any pole, tower or guy wire and should not hinder access to the transmission line.

FirstEnergy **Customer Service** Phone Numbers

The Illuminating Company	1-800-589-3101
JCP&L	1-800-662-3115
Met-Ed	1-800-545-7741
Mon Power.....	1-800-686-0022
Ohio Edison	1-800-633-4766
Penelec.....	1-800-545-7741
Penn Power.....	1-800-720-3600
Potomac Edison	1-800-686-0011
Toledo Edison	1-800-447-3333
West Penn Power	1-800-686-0021

Information about FirstEnergy’s transmission tree trimming and vegetation management are available online at www.firstenergycorp.com/help/brochures.html.

**EXHIBIT 21 – EXCERPT OF PJM TRANSMISSION EXPANSION
ADVISORY COMMITTEE’S PRESENTATION ON MARCH 6, 2014**



- **N-1-1 Thermal Violation:**
 - The Somerset to Allegheny 115 kV circuit is overloaded for the N-1-1 contingency loss of the Cambria Slope – Summit and Claysburg – Krayn 115 kV circuits.
- **Proposed Solution:**
 - Construct a new 115 kV line from Central City West to Bedford North (B2450). This project will replace baseline project B1607 (Reconductor the New Baltimore-Bedford North 115 kV Line).
- **Estimated Project Cost:**
 - \$ 37.5 M
- **Expected IS Date:**
 - 6/1/2018

PenElec Transmission Zone

