Post & Schell P.C.
ATTORNEYS AT LAW

17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Garrett P. Lent

glent@postschell.com
717-612-6032 Direct
717-731-1985 Direct Fax

April 6, 2026

VIA ELECTRONIC FILING

Matthew L. Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Miles of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Miles of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double-Circuit 230 kV Transmission Line for Future Double-Circuit 500 kV Capacity, Located in Black Creek, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania Docket No. A-2026-_____

Dear Secretary Homsher:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric"), are the following:

1. The Application and the Attachments in support of the Application;

2. The Direct Testimony in support of the Application; and

3. The Notice of Filing.

The associated $350.00 filing fee has been paid by Post & Schell, P.C. as of the time of the filing.

Copies of the Application and accompanying Attachments, and Direct Testimony are being served by certified mail, return receipt requested, upon the parties indicated on the Certificate of Service associated with the Application.

Copies of the Notice of Filing are being served by certified mail, return receipt requested, upon the parties indicated on the Certificate of Service associated with the Notice of Filing.

As explained in the Application, PPL Electric has contemporaneously filed one Zoning Petition pursuant to 52 Pa. Code § 5.41 and 53 P.S. § 10619, for a finding that one structure to shelter electrical control equipment at the Nescopeck Switchyard, is reasonably necessary for the convenience or welfare of the public and, therefore, exempt from any local zoning ordinance. In addition, PPL Electric has contemporaneously filed 30 Condemnation Applications pursuant to 15 Pa. C.S. § 1511(c) for findings and determinations by the Commission, to the extent that any such findings and determinations may be required, that the service to be furnished by PPL Electric through the exercise of the power of eminent domain for the Sugarloaf 500/230 kV Transmission Line Project is necessary or proper for the service, accommodation, convenience or safety of the public.

Issues relating to the need for the Application, Condemnation Applications, and Zoning Petition are interrelated. Pursuant to 52 Pa. Code § 5.81, the Company requests that these related proceedings be consolidated for purposes of hearings, if necessary, and decision.

If you have any questions pertaining to the matter, please contact me at the addresses or telephone numbers provided above.

Very truly yours,



Garrett P. Lent

GPL/sll
Enclosures

cc: Jordan Van Order *(via email only)*
Deb Backer *(via email only)*
Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Application has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 57.74(b).

VIA CERTIFIED MAIL: RETURN RECEIPT REQUESTED

PA Bureau of Investigation and Enforcement
Attn: Allison Kaster
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor, Room-N201
Harrisburg, PA 17120

PA Department of Environmental Protection
Attn: Regional Permit Coordination Office
Rachel Carson State Office Building
400 Market Street, 10th Floor
Harrisburg, PA 17101

Pennsylvania Office of Consumer Advocate
Attn: Darryl A. Lawrence, Consumer Advocate 555 Walnut Street
5th Floor Forum Place
Harrisburg, PA 17101-1923

PA Office of Small Business Advocate
Attn: NazAarah Sabree, Small Business Advocate
555 Walnut Street
1st Floor, Forum Place
Harrisburg, PA 17101

Luzerne County Council Office
Attn: Sharon Lawrence, Chief Clerk
200 N. River Street
Wilkes-Barre, PA 18711

Luzerne County Conservation District
Attn: Josh Longmore, Executive Director
325 Smiths Pond Road
Shavertown, PA 18708

Black Creek Township
Attn: Jennifer Hall, Secretary
1980 Tomhicken Road
Bloomsburg, PA 17815

Luzerne County Planning Commission
Attn: Daniel G. Reese, Interim Director
200 N. River Street
Wilkes-Barre, PA 18711

Luzerne Co. Farmland Preservation Board
Attn: Jen Merryman, Program Administrator
325 Smiths Pond Road
Shavertown, PA 18708

Black Creek Township Planning Committee
Attn: Judy Knelly, President
1980 Tomhicken Road
Bloomsburg, PA 17815

Black Creek Township Board of Supervisors
Attn: Randall Yacowatz, Chairman
1980 Tomhicken Road
Bloomsburg, PA 17815

Conyngham Township
Attn: Thomas Kubasek, Chairman
10 Pond Hill Road
Mocanaqua, PA 18655

Hazle Township
Attn: Jim Montone, Secretary/Treasurer
P.O. Box 506
Harleigh, PA 18225

Hollenback Township
Attn: Frank Hanley
665 E. County Road
Wapwallopen, PA 18660

Nescopeck Township Supervisors
Attn: Michael Winder, Chairman
429 Berwick Hazleton Highway
Nescopeck, PA 18635

Sugarloaf Township
Attn: Elizabeth Tolan, Township Supervisor
858 Main Street
Sugarloaf, PA 18249

Conyngham Township
Attn: Edward Whitebread, Supervisor
10 Pond Hill Road
Mocanaqua, PA 18655

Hazle Township
Attn: Anthony Griguoli, Chairman
P.O. Box 506
Harleigh, PA 18225

Hazle Township Planning Department
Attn: Joseph Ferdinand, Esq., Solicitor
67 North Church Street
Hazleton, PA 18201

Nescopeck Township
Attn: Carolyn Superko, Secretary
429 Berwick Hazleton Highway
Nescopeck, PA 18635

Nescopeck Township Planning Commission
Attn: Walter Lear, Chairperson
429 Berwick Hazleton Highway
Nescopeck, PA 18635

Sugarloaf Township Board of Supervisors
Attn: Joseph DiSabella, Sr., Chairman
858 Main Street
Sugarloaf, PA 18249

Baidwan Investments LLC
9 Jennifer Lane
Sugarloaf, PA 18249

Donald Karpowich, Esquire
85 Drasher Road
Drums, PA 18222
Attorney for Baidwan Investments LLC

Michael & Deena Bereznak
6 Second St.
Sugarloaf, PA 18249

Francis J. & Jennifer P. Broyan
718 Zenith Rd.
Nescopeck, PA 18635-1819

Mark L. Clark
80 Red Rock Road
Sugarloaf, PA 18249

Anthony J. & Erika L. Cook
38 Red Rock Rd.
Sugarloaf, PA 18249-3333

Melanie M. Dagostin
3 Second St.
McAdoo, PA 18237

Vincent & Veronica Dagostin
136 Hilltop Road
Hazleton, PA 18201-5609

Joseph A. & Deborah A. Disabella Sr.
437 Rock Glen Road
Sugarloaf, PA 18249

Chris Slusser, Esquire
1620 N. Church Street, Suite 1
Hazle Township, PA 18202
Attorney for Joseph A. & Deborah A. Disabella Sr.

Michael Dunleavy
P.O. Box 334
Nescopeck, PA 18635-1809

Jill Groce
478 West County Rd.
Sugarloaf, PA 18249

Humboldt Realty
c/o Romark Management LLC
822 South Avenue W
Westfield, NJ 07090

Humboldt Realty LP
822 South Avenue W
Westfield, NJ 07090

John G. & Melissa Kramer
122 Sugarloaf Mountain Dr.
Sugarloaf, PA 18249-3220

George LaRock
101 Church Road
Sugarloaf, PA 18249

Wendy LaRock and Patricia Kisenwether
96 Mt. Laurel Trail
Sugarloaf, PA 18249

Thomas John Marushin
566 State Route 93
Sugarloaf, PA 18249-3126

Michael Gill, Esquire
1684 South Broad Street
Suite 230
PO Box 1479
Landsdale, PA 19446
Attorney for Thomas John Marushin

Robert J. Pope
922 Wyoming Ave.
West Pittston, PA 18643-2743

Robert J. Pope
223 Montgomery Ave.,
West Pittston, PA 18643

Robert J. Pope
210 Delaware Ave.,
West Pittston, PA 18643

Richard E. Angelo Family Ltd Partner
P.O. Box 23
Conyngham, PA 18219-0029

Andrew J. & Susan K. Sanko
522 White Swan Way
Langhorne, PA 19047-2373

Erik D. & Tiffany M. Sharkey
477 W. County Rd.
Sugarloaf, PA 18249

Sugar Maple Trails LLC
38 Red Rock Road
Sugarloaf, PA 18249

William John & Cynthia A. Tressler
Tressler Family Living Trust
29 Sugarloaf Mountain Dr.
Sugarloaf, PA 18249-3215

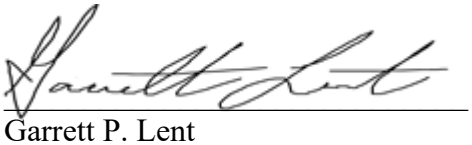
James J. & Wendy M. Wolk
182 Sugarloaf Mountain Drive
Sugarloaf, PA 18249

Jason D. & Daniel E. Zola
P.O. Box 466
Conyngham, PA 18219

John F. & Jill M. Zola
17 Dagostin Rd.
Sugarloaf, PA 18249

Lynn R. & Jane A. Reakes & Glenda R. Johnson
196 Sugarloaf Mountain Dr.
Sugarloaf, Pa 18249

Date: April 6, 2026



Garrett P. Lent

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Miles of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Miles of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double-Circuit 230 kV Transmission Line for Future Double-Circuit 500 kV Capacity, Located in Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf, Townships in Luzerne County, Pennsylvania	:	Docket No. A-2026-_____

APPLICATION OF PPL ELECTRIC UTILITIES CORPORATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") hereby files, pursuant to 52 Pa. Code § 57.72, this Application requesting the Pennsylvania Public Utility Commission's ("Commission") approval to (1) rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard"); (2) construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard; (3) raise approximately 0.5 miles of the Sunbury-Susquehanna

500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and (4) construct a new 11.2-mile-long 230 kV transmission line ("Sugarloaf 500/230 kV Transmission Line") for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and the existing Harwood 230/69 kV Substation ("Harwood Substation"). Collectively, the new and rebuilt transmission lines are referred to in this Application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." The Project is located between the existing Susquehanna 230 kV Switchyard ("Susquehanna Switchyard") and Harwood Substation in Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships, Luzerne County, Pennsylvania. The proposed Nescopeck kV Switchyard is located in Nescopeck Township, Luzerne County. As explained in greater detail below, this Project is the second phase of a transmission expansion needed to address multiple customers' future electrical needs, as well as PPL Electric's own system needs, and to support the interconnection of the proposed Tomhicken Switchyard.

As explained in the Direct Testimony and Attachments submitted with this Application, PPL Electric's proposed route for the Project is reasonable when compared to other alternative routes. The cumulative environmental, engineering and constructability, and social and financial impacts associated with constructing the proposed route are more favorable when compared to the alternative routes, based on a qualitative and quantitative review of information obtained from GIS

[1] The Tomhicken Switchyard has not yet been constructed and is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

data, existing easements, field reconnaissance, extensive public outreach, and engineering and financial estimates for this Project.

Subject to the Commission's approval, construction will begin in February 2027 to support an in-service date of March 2028. PPL Electric will own, operate, and maintain the proposed Nescopeck Switchyard and the new and rebuilt transmission lines. The total estimated cost of this Project, as described below, is approximately $118.5 million.

In support of this Application, PPL Electric states as follows:

I. INTRODUCTION AND OVERVIEW

1. This Application is filed by PPL Electric, a public utility that provides electric distribution, transmission, and provider of last resort services in Pennsylvania subject to the regulatory jurisdiction of the Commission.

2. PPL Electric's address is as follows:

PPL Electric Utilities Corporation
827 Hausman Road
Allentown, Pennsylvania 18104

3. PPL Electric's attorneys are:

Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. # 321566)
Lindsay A. Berkstresser (I.D. #318370)
Megan E. Rulli (I.D. # 331981)
Hayley E. Wilburn (I.D. # 336055)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com
E-mail: lberkstresser@postschell.com
E-mail: mrulli@postschell.com
E-mail: hwilburn@postschell.com

PPL Electric's attorneys are authorized to receive all notices and communications regarding this Application.

4. PPL Electric furnishes electric service to approximately 1.5 million customers throughout its certificated service territory, which includes all or portions of twenty-nine counties and encompasses approximately 10,000 square miles in eastern and central Pennsylvania. PPL Electric is a "public utility" and an "electric distribution company" as defined in Sections 102 and 2803 of the Pennsylvania Public Utility Code, 66 Pa.C.S. §§ 102, 2803. PPL Electric is also a "public utility" as defined by the Federal Power Act, 16 U.S.C. § 824(e), a transmission owner, and a member of PJM Interconnection, L.L.C. ("PJM").

5. PPL Electric owns approximately 5,000 miles of transmission lines operating at 69 kV or higher, approximately 375 substations with a capacity of 10 megavolt amperes or more, and approximately 43,000 miles of distribution lines operating at less than 69 kV.

6. This Application includes the following accompanying attachments:

- Attachment 1 Commission Regulation Cross-Reference Matrix;
- Attachment 2 Necessity Statement;
- Attachment 3 Environmental Analysis
- Attachment 4 Alternatives and Siting Analysis;
- Attachment 5 Engineering Description;
- Attachment 6 List of Owners of Property Within the Right-of-Way;
- Attachment 7 Agency Permit Requirements;
- Attachment 8 List of Involved Governmental Agencies, Municipalities, and Other Public Entities Receiving the Application;
- Attachment 9 List of Government Agencies, Municipalities, and Other Public Entities Contacted;

- Attachment 10 List of Public Locations where Application can be Examined;
- Attachment 11 PPL Electric's Magnetic Field Management Program;
- Attachment 12 PPL Electric's Vegetation Management Program;
- Attachment 13 PPL Electric's Design Criteria and Safety Practices ;
- Attachment 14 Agency Coordination;
- Attachment 15 Cultural Resources Report; and
- Attachment 16 Public Notice Requirements.

7. Also accompanying this Application are the following written direct testimonies further explaining and supporting this Application:

PPL Electric Statement No. 1, Direct Testimony of Joseph Lookup, which provides an overview of the Project and a discussion of the need for the Project.

PPL Electric Statement No. 2, Direct Testimony of Kyle Swartzentruber, which discusses the Company's the engineering and design criteria of the Project, as well as PPL Electric's safety considerations.

PPL Electric Statement No. 3, Direct Testimony of Peter Sparhawk, which provides information regarding the Company's siting and environmental reviews and evaluation for the Project.

PPL Electric Statement No. 4, Direct Testimony of Austin Weseloh, which provides background on the right-of-way ("ROW") to be used for the Project and the Company's outreach to landowners, among other things.

8. This Application, including the accompanying Attachments and Statements, which are incorporated herein by reference, contains all of the information required by 52 Pa. Code §§ 57.72(c), 69.1101, 69.3102 – 69.3107.

II. NEED FOR THE PROJECT

A. EXISTING SYSTEM

9. The Susquehanna–Harwood #1 & #2 230 kV Transmission Lines are part of PPL Electric's 230 kV bulk electric network.

10. These transmission lines transfer power south from the Susquehanna Switchyard, located near the Susquehanna Steam Electric Station, to the Harwood Substation in Luzerne County, the East Palmerton 230/69 kV Substation in Carbon County, and the Siegfried 230-138-69 kV Substation in Northampton County.

11. The Susquehanna–Harwood #1 & #2 230 kV Transmission Lines are heavily loaded and have a history of transmission congestion. PPL Electric installed Dynamic Line Ratings ("DLR") on the Susquehanna–Harwood #1 & #2 230 kV Transmission Lines in 2022 to resolve these congestion issues.

12. The Susquehanna Switchyard and Siegfried Substation are connected to many other 230 kV transmission lines. The 230 kV network moves power from the generators to regional supply substations. At the regional substations, the 230 kV is stepped down to 138 kV and/or 69 kV. The distribution substations in the surrounding area are supplied via transmission lines operating at 69 kV or 138 kV.

13. A one-line diagram showing a section of the existing 230 kV system is provided as **Figure 2-1** in **Attachment 1 – Necessity Statement**.

14. The proposed Tomhicken Switchyard bifurcates the Susquehanna–Harwood #1 and #2 230 kV Transmission Lines to create the Susquehanna–Tomhicken #1 and #2 Transmission Lines and the Tomhicken–Harwood #1 and #2 230 kV Transmission Lines.[2]

15. A one-line diagram of the proposed system configuration after the Tomhicken Switchyard Project is completed is provided as **Figure 2-2** in **Attachment 1 – Necessity Statement**.

[2] The Susquehanna – Tomhicken #1 and #2 230kV Transmission Lines and the Tomhicken-Harwood #1 and #2 230 kV Transmission Lines have not yet been constructed. These transmission lines are the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

B. NEED FOR THE PROJECT

16. PPL Electric has a right and obligation to provide transmission assets and maintain them in a manner that is efficient, safe, reliable, and resilient to meet the needs of the electric system and the service expectations of its customers. To meet this duty, PPL Electric applies its transmission asset management planning procedure, which includes system performance and condition assessments. These performance and condition assessments identify system needs and prioritize projects based on several variables such as equipment age, condition, maintenance schedule, customer needs, and impact on system reliability and performance to ensure a reliable electric grid and reasonable service to its customers.

17. PPL Electric engages in proactive planning and action to ensure that its system operates safely and reliably. This allows PPL Electric to identify future reliability problems and correct them before they occur. The system planning process is not designed to wait until a violation actually occurs before taking measures to resolve it. Rather, the system planning process is designed to prevent violations from occurring in the first place.

18. PJM is a Federal Energy Regulatory Commission ("FERC") approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control (100 kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including most of Pennsylvania. PPL Electric, an owner of transmission facilities in Pennsylvania, is a member of PJM and actively participates in the PJM transmission planning process.

19. New load customers are covered under Attachment M-3 Procedure of PJM's Open Access Transmission Tariff ("OATT").[3] **Attachment 2 – Necessity Statement** contains a detailed

[3] PJM's OATT is available at https://www.pjm.com/directory/merged-tariffs/oatt.pdf

description of PJM's Attachment M-3 Procedure. This Project has gone through the M-3 Supplemental Project Process and the do no harm tests to ensure the proposed solution will not create overloads, voltage violations, or other criteria violations. The Project is part of PJM Supplemental Number S3528, specifically segments S3528.2, S3528.3, S3528.5, S3528.7, S3528.8, and S3528.10.

20. As explained in **Attachment 2 – Necessity Statement**, the Project is required to comply with PPL Electric's obligation to provide service to customers upon request, subject to reasonable terms and conditions, and to resolve the projected violations created by multiple customers' projected load additions in the Hazleton area.

21. Here, one new customer ("Customer"), located in Hazle Township, has requested 230 kV electrical service with an in-service date of March 2028, at an initial load of 240 megawatts ("MW"). The Customer's load will increase in stages to approximately 965 MW by 2033.[4] This Customer will be served by the proposed Tomhicken Switchyard, which bifurcates the existing Susquehanna-Harwood #1 and #2 230 kV Transmission Lines to create the Susquehanna-Tomhicken #1 and #2 and the Tomhicken-Harwood #1 and #2 230 kV Transmission Lines.[5]

22. Additional customers have also applied for service in the Hazleton area with a combined requested load of over 5,000 MW by 2033. These customer requests have been submitted to PJM under the following need numbers: PPL-2024-0003, PPL-2024-0004, PPL-2024-0012, PPL-2025-0002, PPL-2025-0009, and PPL-2025-0010.

[4] The Company is in the process of working with the Customer to amend the service agreement to comply with the settlement reached in the Company's base rate case proceeding at Docket No. R-2025-3057164, for customers served under the contemplated Rate Schedule LP-6.

[5] The Susquehanna – Tomhicken #1 and #2 230 kV Transmission Lines and the Tomhicken-Harwood #1 and #2 230 kV Transmission lines have not yet been constructed. They are the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

23. The projected load growth will create overloads on the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines, which will require additional improvements to the 230 kV network in this area to continue to provide reliable service.

24. Specifically, the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines become overloaded when the load increases by approximately 400 MW in the Hazleton area. The loss of one of the Susquehanna-Tomhicken 230 kV lines in a single contingency (P1)[6] or multiple contingency with a fault plus stuck breaker[7] (P4) category overloads the remaining in-service line. When the load addition in the Hazleton area approaches approximately 700 MW, the loss of both Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines for a multiple contingency with the common structure (P7) category results in voltage violations at both the Tomhicken Switchyard and the Harwood Substation.

25. To serve the multiple load requests received and avoid the voltage violations described above, PPL Electric is planning two phases of transmission line expansion. The first phase is the subject of the Tomhicken 230 kV Switchyard Project LON[8] and involves the construction of new high voltage ("HV") transmission lines to connect the Customer requesting transmission level service in Hazle Township, Luzerne County to the 230 kV system.

26. The second phase is the Sugarloaf 500/230 kV Transmission Line Project, which is the subject of the instant Application. This Project is needed to: (1) address multiple customers' future electrical needs in the area; (2) address PPL Electric's own system needs; and (3) support the interconnection of the proposed Tomhicken Switchyard.

---

[6] P1, P4 and P7 are category contingencies defined in Table 1 of the NERC TPL-001 Transmission System Planning Performance Requirements. https://www.nerc.com/globalassets/standards/reliability-standards/tpl/tpl-001-5.1.pdf

[7] A stuck breaker means that for a gang-operated breaker, all three phases of the breaker have remained closed. For an independent pole operated (IPO) or an independent pole tripping (IPT) breaker, only one pole is assumed to remain closed. A stuck breaker results in Delayed Fault Clearing.

[8] *See* fn. 1.

27. PPL Electric notes that, consistent with its Tariff, PPL Electric and the Customer have voluntarily negotiated a service agreement which contemplates the provision of the requested service to the Customer, but which also contains financial safeguards to ensure that PPL Electric's other customers are insulated from the costs of the Project if the Customer were to withdraw its request.

28. Expedient initiation of adequate and reliable service to new high-load customers seeking to enter PPL Electric's system is critical for the Commonwealth of Pennsylvania's continued economic development. This interest is addressed by the Project. Moreover, high-load customers connecting to PPL Electric's Bulk Electric System ("BES") will ultimately reduce the transmission rates charged by PPL Electric to its other transmission level customers. This Project would further that interest and will ultimately result in lower rates for other of PPL Electric's transmission level customers.

29. The need for this Project is further explained in **Attachment 2 – Necessity Statement**.

III. DESCRIPTION OF THE PROPOSED TRANSMISSION LINE

A. OVERVIEW OF THE PROPOSED PROJECT

30. To address the issues described above, PPL Electric has proposed to: (1) rebuild approximately 4.4 miles of the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation from the existing Susquehanna Switchyard to the proposed Nescopeck Switchyard; (2) construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation from the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard; (3) raise 0.5 miles of the Sunbury–Susquehanna 500 kV Transmission Line to accommodate the

undercrossing of the proposed 230 kV transmission lines; and (4) construct a new 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken Switchyard, and existing Harwood Substation.

31. The new Nescopeck Switchyard will be constructed in a breaker-and-a-half arrangement. Breaker-and-a-half arrangements are the preferred design because of the balance of operational flexibility and cost that this design affords.

32. The Project will be located in Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships, Luzerne County, Pennsylvania. The proposed Nescopeck Switchyard will be located in Nescopeck Township, Luzerne County.

33. A detailed map of the proposed Project, including the new and rebuilt structure locations, is provided in the **Aerial Exhibit** in **Attachment 4 – Alternatives and Siting Analysis**.

34. There is currently no pending litigation regarding environmental matters related to the Project. However, as explained below, there are related proceedings to the Project that have been contemporaneously filed with this Application at the Commission.

B. ENGINEERING DESCRIPTION

35. PPL Electric will complete the contemplated new construction, rebuild, and raising of the existing facilities as follows:

Sugarloaf 500/230 kV Transmission Line

36. PPL Electric will construct the new double-circuit 11.2-mile-long Sugarloaf 500/230 kV Transmission Line initially as a double-circuit 230 kV transmission line designed for future double-circuit 500 kV capacity. The Sugarloaf 500/230 kV Transmission line will be located between the proposed Nescopeck Switchyard, new Tomhicken Switchyard, and existing Harwood 230/69 kV Substation. After traveling 8.4 miles, the eastern circuit ("Nescopeck–Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 miles as a single-

circuit transmission line to the new Tomhicken Switchyard. At Structure 41, the western circuit ("Nescopeck–Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

37. The new Sugarloaf 500/230 kV Transmission Line will be constructed for future 500 kV operation but will initially operate at 230 kV. In the future, the lines will operate at 500 kV as the amount of load requests in the Hazleton area increases and thus necessitate 500 kV lines and 500-230 kV transformation in the immediate area. At that time, the Nescopeck-Harwood #1 500/230 kV Transmission Line will be converted to 500 kV and will extend to a new 500/230 kV substation under PJM baseline projects B4029.1-4. The Nescopeck-Tomhicken #1 500/230 kV Transmission Line will continue at 230 kV operation but will be designed at 500 kV to sustain structure symmetry and to provide the 230 kV circuit with a high conductor rating.

38. The Sugarloaf 500/230 kV Transmission Line will be installed on new single-shaft steel poles. In total, the proposed transmission line will require the installation of approximately 90 structures ranging in height from 150 to 205 feet, with an average height of approximately 165 feet. All 90 structures will be self-supported (*i.e.*, no guy wires) and installed on concrete foundations and will have an average span length of approximately 912 feet.

39. The proposed structures will include approximately 39 tangent suspension structures, 7 angle suspension structures, and 26 tension structures that will be single pole weathering tubular steel structures equipped with steel arms and installed on concrete foundations. The proposed structures will also include approximately 18 tension structures, which will be two-pole weathering tubular steel structures installed on concrete foundations. The proposed structure types are shown in **Figures 5-1 through 5-7** in **Attachment 5 – Engineering Description**.

40. The proposed Sugarloaf 500/230 kV Transmission Line will consist of six power conductors and two overhead ground wires. Each conductor will be 1590 kcmil,[9] 54/19 aluminum conductor steel reinforced ("ACSR"). The overhead ground wires will be 16 fiber 0.791-inch diameter Optical Ground Wires ("OPGW"). The overhead ground wires will provide lightning protection for the proposed line and will also be used for telecommunication purposes. The proposed Sugarloaf 500/230 kV Transmission Line will be designed and constructed as a double-circuit 500 kV line but initially will operate as a double-circuit 230 kV line until load growth in the area makes it appropriate to increase the operating voltage.

41. The minimum conductor to ground clearance for the proposed Sugarloaf 500/230 kV Transmission Line will be 31.4 feet, which occurs at a maximum conductor temperature of 257°F (125°C). **Tables 5-1 and 5-2** in **Attachment 5 – Engineering Description** identify the designed minimum conductor clearances and the conductor thermal ratings of the conductors, respectively.

Susquehanna-Nescopeck and Sunbury-Nescopeck 230 kV Transmission Lines

42. PPL Electric will rebuild approximately 4.4 miles of the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation to form the Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines. These transmission lines will be rebuilt between the existing Susquehanna Switchyard and the proposed Nescopeck Switchyard.

43. In addition, PPL Electric will construct the new approximately 0.9-mile-long Sunbury–Nescopeck #1 230 kV Transmission Line Tap ("Tap Line") for future 230 kV double-circuit operation from the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard.

[9] A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm².

44. The existing 230 kV transmission lines are composed of double bundle 1033.5 ACSR with dual alumoweld overhead ground wire. These conductor and ground wires are supported by a series of transmission line structures that include 17 single-circuit steel lattice tower structures between Susquehanna Switchyard and the proposed Nescopeck Switchyard and three single-circuit steel lattice tower structures located west of Cross Valley Road and the proposed Nescopeck Switchyard. The existing structures range in height from approximately 95 feet to 130 feet, with an average height of 105 feet.

45. The existing structures will be replaced by 17 new structures ranging in height from approximately 95 feet to 150 feet, with an average height of approximately 125 feet. The rebuilt 230 kV transmission lines will be constructed with new steel monopoles, high capacity conductors, and two OPGWs. The replaced structures will remain on the same parcels as the existing structures, and no structures will be placed on parcels that do not currently have a structure.

Sunbury–Susquehanna 500 kV Transmission Line Riser Structures

46. PPL Electric will raise approximately 0.5 miles of the existing Sunbury–Susquehanna 500 kV Transmission Line to accommodate the 230 kV undercrossing connecting the 230 kV lines from Sunbury and Susquehanna to Nescopeck Switchyard.

47. As shown in the **Aerial Exhibit** in **Attachment 4**, to complete the rebuilt 230 kV transmission lines, PPL Electric will raise five existing structures along the Sunbury–Susquehanna 500 kV Transmission Line. The existing structures are steel H-frame structures and average 145 feet in height.

48. The proposed steel H-frame or three-pole structures will range between 150 feet to 250 feet with an average height of 200 feet. The proposed structures will be self-supported (*i.e.*, no guy wires) and installed on concrete foundations.

49. A detailed engineering description of the Project is provided in **Attachment 5 – Engineering Description**.

IV. ALTERNATIVES AND SITING REVIEW

A. OVERVIEW OF SITING CONSIDERATIONS

50. PPL Electric utilized an Alternatives and Siting Analysis to determine the most reasonable route for the components of the Sugarloaf 500/230 kV Transmission Line Project. The goal of this analysis was for the Company to gain a detailed understanding of the opportunities and constraints in the Project's "Study Area"[10] to facilitate the development of "Potential Routes,"[11] evaluate potential impacts associated with each route, and select a "Proposed Route"[12] from one or more "Alternative Routes."[13]

51. A multi-disciplinary team performed the routing study ("Siting Team"). Siting Team members were selected to bring wide experience to the routing study to achieve a thorough review of all aspects of developing the route. Members of the Siting Team have experience in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management.

52. In accordance with the Commission's regulations at 52 Pa. Code § 57.72(c), PPL Electric conducted an extensive, multi-faceted analysis to determine the overall best route for the

[10] Defined in Attachment 4 – Alternatives and Siting Analysis as "that territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs."

[11] Defined in Attachment 4 – Alternatives and Siting Analysis as "an early iteration of the routing process that involves the development of conceptually based routes and general consideration of these routes with respect to constraints and opportunity features in the Study Area."

[12] "Alternative Routes" are "Potential Routes" that have been considered and refined as a part of the siting analysis.

[13] The "Proposed Route" is also referred to as "Alternative Route A." The Proposed Route is the Alternative Route that was determined to be the most reasonable route based upon the siting evaluation criteria and in consideration of the cumulative environmental, engineering and constructability, social, and financial impacts discussed in Attachment 4 – Alternatives and Siting Analysis.

proposed Project. The Siting Team evaluated the advantages and disadvantages of the Potential Routes based on the established routing criteria, an inventory of environmental, land use, and cultural factors along each of the routes, and additional local knowledge and past experience.

53. The Study Area is the territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental and social impacts and project costs. The process used by PPL Electric to identify the Study Area is further explained in **Attachment 4 – Alternatives and Siting Analysis**.

54. PPL Electric identified a Study Area for the proposed Project that encompassed a 30-square-mile area. The boundaries of the Study Area were determined by the geographic area encompassing the two final end points (the existing Harwood Substation to the southeast and the proposed Nescopeck Switchyard to the northwest) and the existing Susquehanna Switchyard and Tomhicken Switchyard.

55. The Study Area was intended to encompass all reasonable Potential Routes for the new Sugarloaf 500/230 kV Transmission Line (including the Nescopeck–Tomhicken #1 and Nescopeck–Harwood #1 500/230 kV Transmission Lines), located between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation endpoints, as well as the existing ROW corridor for the rebuilt 230 kV transmission lines between the Susquehanna Switchyard and Nescopeck Switchyard.

56. Additionally, the Project Study Area includes a 400-foot buffer of the existing ROW for the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines to evaluate the feasibility of rebuilding the 230 kV facilities within or adjacent to the existing ROW.

57. The compiled Project Study Area also encompasses a suitable area for evaluating and identifying a feasible alignment for the 230 kV Tap Line between the existing Sunbury–Susquehanna #1 230 kV Transmission Line and the new Nescopeck Switchyard.

58. A detailed description and map of the Study Area for this Project are provided in **Figure 4-1** in **Attachment 4**.

59. In order to identify the preferred route for the proposed Project, PPL Electric identified general guidelines it would consider, to the extent practical, in selecting the preferred routes. These general guidelines included the following:

- Use existing ROW, where feasible, to minimize new impacts and simplify ROW acquisition.
- Identify the complexity of regulatory approval process for a route to evaluate impacts to cost and schedule.
- Consider using or paralleling existing transmission, pipeline ROWs, or other linear features and infrastructure when practical. When paralleling existing facilities, however, potential reliability issues and mitigation requirements must be evaluated.
- Avoid where possible public conservation and protected lands.
- Avoid or minimize impacts to critical and protected natural communities and other unique or distinct natural resources.
- Maximize the distance from and/or minimize impact on residences and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.
- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern (*i.e.*, use/parallel existing corridors where available or avoid the resources if possible).
- Avoid or minimize conflict with existing land uses and economic activities and future development with a proposed plan, schedule, and permitting process underway.
- Minimize clearing of forested areas to reduce environmental impact and preserve natural land cover.
- Consider paralleling property lines.

- Consider stakeholder input.

- Avoid conflicts with designated public and military aviation facilities.

- Minimize Project environmental impact and construction/maintenance costs by considering shorter, more direct routes.

- Consider safety with respect to construction, maintenance, and operation of the facilities.

- Consider construction concerns, such as access routes, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.

- Minimize environmental impact by considering routes that minimize the overall length of access roads.

60. PPL Electric also considered technical guidelines, which imposed technical requirements or limitations related to the physical limitations, design, ROW, or reliability concerns regarding the Project's infrastructure. These technical guidelines included:

- Minimize crossing higher voltage transmission lines.

- Consider paralleling high-voltage ("HV") and extra high-voltage ("EHV") transmission lines, unless other operational and system reliability issues are identified.

- Maintain a minimum of 100 feet of centerline-to-centerline separation when paralleling existing transmission lines.

- When paralleling existing transmission lines, verify there are no reliability issues by locating two lines adjacent to each other.

- When paralleling existing pipelines, evaluate mitigation requirements and any additional impacts and associated costs for construction and/or long-term maintenance.

- Minimize structure angles greater than 45 degrees.

- Minimize structures on steep slopes, particularly if guy wires are required for construction.

- Minimize distribution underbuild or co-location on transmission structures if possible.

61. Another step in the route selection process was the identification and mapping of the location of routing constraints. The constraints were defined as specific areas that should be avoided to the extent feasible during the alternative analysis process. The constraints within the Study Area were divided into large and small area constraints. Possible routes were identified to avoid large area constraints to the extent possible. These routes were then adjusted, to the extent practical, to avoid and maximize distance from small area constraints. Although complete avoidance of all constraints is not feasible, PPL Electric sought routes that would minimize intrusions into constrained areas.

62. The Siting Team included quantitative and qualitative routing criteria as part of the Potential and Alternative Route analysis process. No ranking or weighting values were applied. Instead, the Siting Team used the routing criteria along with the guidelines described above to compare the potential impacts of the routes on land use, natural and cultural resources and engineering and construction concerns to identify the route with the least overall impact. These criteria are summarized in **Tables 4-2 and 4-3** of **Attachment 4** to this Application.

B. IDENTIFICATION OF POTENTIAL ROUTES

Sugarloaf 500/230 kV Transmission Line

63. Using the information summarized above, PPL Electric began identification of Potential Routes for the Sugarloaf 500/230 kV Transmission Line. The process for identifying potential transmission line routes produced a network of nine route links that could be considered to route the new transmission lines from the proposed Nescopeck Switchyard to the Tomhicken Switchyard and the existing Harwood Substation. Those links were combined into a number of initial Potential Routes for the proposed Project, the Potential Route Network.

64. The Siting Team subsequently reviewed and evaluated the Potential Route Network. During these conversations, comparative data, aerial photos, and notes taken during the

field reconnaissance were reviewed. The major environmental and land use factors considered in this evaluation were: wetlands, ponds, and other stream crossings, tree clearing requirements, amount of new ROW required, proximity of residences and other buildings, known or suspected historic sites, and incremental aesthetic impact. Engineering factors were also considered during the Potential Route evaluation, including extent of ROW paralleling opportunities and areas that presented engineering and construction challenges (*e.g.*, the number of angle structures required, transmission line crossings, and oil/gas pipeline crossings).

65. The Siting Team evaluated the advantages and disadvantages of the Potential Routes based on the established routing criteria, an inventory of environmental, land use, and cultural factors along each of the routes, and additional local knowledge and past experience. Less favorable Potential Routes were eliminated, and seven potentially viable Potential Routes were retained for further consideration.

66. This iterative process resulted in the identification of three Alternative Routes and ultimately the Proposed Route, which was presented to public on April 30, 2025 at the Valley Country Club in Sugarloaf, Pennsylvania. Following the public open house meeting, minor adjustments occurred based on discussions with individual property owners.

67. As part of the route development process, the Siting Team contacted various federal, state, and local agencies to inform them of the Project and request data to be used during route analysis. The agencies contacted are identified in **Section 3.3** of **Attachment 4**. Copies of correspondence with federal and state agencies are provided in **Attachment 14**.

68. After carefully analyzing and evaluating the Refined Potential Route Network, PPL Electric selected three Alternative Routes, *i.e.*, "Alternative Route A," "Alternative Route B," and

"Alternative Route B1." A detailed description of the selection of the Alternative Routes is provided in **Attachment 4**.

69. Alternative Route A is approximately 11.2 miles long and located within Black Creek, Hazle, Nescopeck, and Sugarloaf Townships, Luzerne County. Departing the proposed Nescopeck Switchyard, Alternative Route A proceeds southward through the future use corridor for 1.4 miles. At this point, Alternative Route A continues southeastward for 9.7 miles within the previously acquired ROW corridor to reach the new Tomhicken Switchyard and the existing Harwood Substation, which is partially cleared in this section as a remnant of the retired Harwood–Berwick 69 kV transmission line. Overall, Alternative Route A utilizes an existing right-of-way for 100% of its total alignment and requires approximately 100 acres of new ROW acquisition due to the ROW being expanded.

70. Alternative Route B is approximately 12 miles long and located within Hazle, Nescopeck, and Sugarloaf Townships, Luzerne County. Starting at the proposed Nescopeck Switchyard, Alternative Route B proceeds generally southeastward along a cross-country alignment for approximately 5.8 miles. At this point, Alternative Route B turns to continue southward by paralleling the existing Susquehanna–Harwood 230 kV Transmission Line for 3.5 miles. The remainder of its alignment (approximately 2.7 miles) continues southeastward within the previously acquired future use corridor to the new Tomhicken Switchyard and the existing Harwood Substation, which is also occupied in this section by the existing Susquehanna–Harwood 230 kV Transmission Line. Overall, Alternative Route B parallels a combination of existing transmission line and future use corridor for 54% of its total length and would require approximately 244 acres of new ROW acquisition.

71. Alternative Route B1 is 13.2 miles long and located within Hazle, Nescopeck, and Sugarloaf townships, Luzerne County. From the proposed Nescopeck Switchyard, Alternative Route B1 proceeds northeastward for approximately 0.2 mile to reach the existing Sunbury–Susquehanna #2 500 kV Transmission Line and parallels the south side of its ROW for approximately 2.3 miles, proceeding eastward. At this point, Alternative Route B1 turns away from the existing line and travels generally south in a cross-country alignment for 5.1 miles until reaching the existing Susquehanna–Harwood 230 kV transmission line. From here, Alternative Route B1 shares the next 3.5 miles of its alignment with Alternative Route B, paralleling the existing Susquehanna–Harwood 230 kV transmission line. Like Alternative Routes A and B, the remaining 2.7 miles of its alignment proceeds southeast to the new Tomhicken Switchyard and the existing Harwood Substation within the previously acquired ROW corridor, which is also occupied in this section by the existing Susquehanna–Harwood 230 kV Transmission Line. Overall, Alternative Route B1 shares approximately 59% of its total alignment with Alternative Route B and parallels a combination of existing future line or existing ROW for 60% of its total length. Alternative Route B1 would require approximately 263 acres of new ROW acquisition.

72. **Figure 4-4** in **Attachment 4** depicts each of the Alternative Routes, and **Attachment 4** contains detailed description of Alternative Routes A, B, and B1.

73. The Routing Team undertook a qualitative and quantitative review and comparison of each alternative. The alternatives were compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team. A detailed explanation of the qualitative and quantitative analysis and comparison of the alternatives is provided in **Attachment 4**.

74. As explained in more detail below, based on an assessment of the advantages and disadvantages of the Alternative Routes under consideration, the Siting Team selected Alternative Route A as the Proposed Route, because the cumulative environmental, social, engineering, and financial impacts associated with constructing Alternative Route A will be less than the Alternative Routes B and B1.

Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines[14]

75. For the rebuild of the existing Sunbury–Susquehanna 230 kV Transmission Line, the Siting Team evaluated an approximately 800-foot-wide buffer area of the existing Sunbury–Susquehanna 230 kV Transmission Line. It was determined that rebuilding within the existing 150-foot-wide ROW was feasible for the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines since no major constraints were identified within existing ROW and the surrounding area.

76. As such, the initial approximately 4-mile-long alignment identified for the Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines is located entirely within existing ROW. From here, the Susquehanna–Nescopeck #1 and #2 230 kV Transmission Line turns south for approximately 0.3 mile, crossing Berwick Hazleton Highway, then turns southwest for 0.1 mile, crossing Church Road, to interconnect the new Nescopeck Switchyard. This combined 4.4-mile alignment crosses predominantly agricultural land.

Sunbury–Nescopeck #1 230 kV Transmission Line (Tap Line)[15]

77. The Sunbury–Nescopeck #1 230 kV Transmission Line is located west of the new Nescopeck Switchyard. Starting from an existing structure along the Sunbury–Susquehanna 230

[14] All three Alternative Routes considered for the Sugarloaf 500/230 kV Transmission Line contemplate the route described in this section for the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines.

[15] All three Alternative Routes considered for the Sugarloaf 500/230 kV Transmission Line contemplate the route described in this section for the Sunbury–Nescopeck #1 230 kV Transmission Line (Tap Line).

kV Transmission Line, the Tap Line heads south for approximately 0.3 miles, then turns to continue southeastward for approximately 0.6 miles. The combined 0.9-mile-long Tap Line crosses predominantly agricultural land and undeveloped forest. The Tap Line is located on a property that PPL Electric has an agreement to purchase, so no new ROW will be required for its construction.

C. PROJECT AREA AND ALTERNATIVE ROUTE EVALUATION

78. During the siting process, PPL Electric made efforts to minimize impacts the proposed Project may have on the natural and built environment, as well as to avoid engineering and constructability issues. **Attachments 4, 14 and 15** to this Application provide a detailed evaluation of the potential impacts of the Alternative Routes identified for the proposed Project.

1. Natural Environment

79. Natural environment impacts include potential impacts to vegetation and habitat, surface waters, and conservation and recreation lands. A comparison of the natural environment considerations for the Alternative Routes is provided in **Table 4-4** of **Attachment 4**.

Sugarloaf 500/230 kV Transmission Line

80. Farmland in the vicinity of the Alternative Routes for the Sugarloaf 500/230 kV Transmission Line includes croplands and grasslands that could be used for grazing or hay production. Permanent impacts to farmlands are anticipated to be minimal due to the use of the monopole tower structures for this Project, which have smaller footprints compared with lattice or H-frame structures. Therefore, none of the Alternative Routes are expected to significantly impact prime farmland or farmland of statewide importance.

81. Unvegetated soil surfaces are more susceptible to erosion and loss of soil productivity. Removing stumps during tree clearing increases the potential for soil erosion, and leaving topsoil exposed increases the potential of loss by wind and water. Best management

practices ("BMPs") to minimize erosion impacts may include leaving stumps in the ground, covering exposed soil, and reseeding after construction. PPL Electric will obtain all necessary permits and employ specified BMPs to minimize soil erosion during construction activities. In agricultural areas, farming activities will continue to occur within the ROW following construction. In forested areas, the ROW will be revegetated with compatible species and maintained in accordance with PPL Electric's Vegetation Management Program, included as **Attachment 12**.

82. Other indirect impacts to surface waters, such as sedimentation and erosion of surrounding soils can also result from ground-disturbing activities. Typically, sedimentation is easily controlled with proper perimeter controls around the transmission line construction area. BMPs may include the implementation of sediment control measures such as silt fencing, access road drainage management measures, and rapid reseeding of disturbed soil areas. PPL Electric will coordinate with the Pennsylvania Department of Environmental Protection ("PADEP") and obtain and comply with the necessary storm water permits for construction of the Project.

83. As a result of implementing mitigation measures similar to those discussed above and the limited footprint of permanent impacts on soil productivity created by the structures themselves, any impacts to soils are likely minor for all three Alternative Routes.

84. PPL Electric also examined whether the Project would have any significant impacts to wetland areas. Where wetland impacts cannot be avoided, PPL Electric will coordinate with the U.S. Army Corps of Engineers ("USACE") concerning potential impacts on jurisdictional wetlands and will attempt to minimize permanent impacts when feasible and practical. To this end, PPL Electric will implement a range of BMPs during the design, construction, and operational phases to avoid or minimize impacts on wetlands. PPL Electric anticipates that project engineering

can minimize wetland and stream impacts through spanning and avoidance, and will obtain and adhere to all required state and federal permits, as well as any conditions imposed on those permits.

85. Each of the Alternative Routes crosses approximately 0.9 acres of palustrine forested ("PFO")/Palustrine Scrub-Shrub ("PSS") wetlands in their 200-foot-wide ROWs, which is crossed by their shared 2.7-mile alignment. However, reduced permanent impacts are anticipated for this wetland since it would be crossed within PPL Electric's existing ROW for the retired Harwood–Berwick 69 kV Transmission Line. The Alternative Routes are anticipated to cross between 1.3 and 1.6 acres of riparian buffers in their 200-foot-wide ROWs. No palustrine emergent ("PEM") wetlands are crossed by the Alternative Routes.

86. Alternative Routes were also analyzed for number of waterbody crossings and stream crossings, including streams, rivers, or drainages that can be perennial, seasonal, intermittent, or ephemeral, as well as FEMA 100-year floodplain and regulatory floodway crossings. The Alternative Routes cross between eight and 12 streams and between one and three waterbodies.

87. Because it bisects the Study Area from east to west, all Alternative Routes cross Nescopeck Creek and its associated 100-year floodplain for between 4.5 and 6.1 acres within the 200-foot-wide ROWs. Alternative Route A additionally requires crossing 1.3 acres of regulatory floodway associated with Nescopeck Creek. Regardless of the route selected, PPL Electric will minimize in-stream, waterbody, floodplain/regulatory floodway, and wetland impacts, by spanning or avoiding them to the extent practical.

88. Alternative Route A is anticipated to significantly reduce potential impacts to wetlands, streams, and waterbodies since it uses PPL Electric's existing ROW for the retired Harwood–Berwick 69 kV Transmission Line to the greatest extent practicable.

89. The Alternative Routes predominantly cross undeveloped forest or agricultural areas within the Study Area. During construction, trees and other tall-growing vegetation within the forested portions of the ROW would be removed to maintain appropriate clearances for the conductors. Upon completion of construction, compatible species would be permitted to regrow and would be maintained in accordance with PPL Electric's Vegetation Management Program (see **Attachment 12**) in these areas. In forested areas, a 200-foot-wide ROW will be cleared and maintained.

90. In agricultural areas, minimal vegetation clearing would be required and permanent impacts would be limited to the structures and/or their foundations and any areas requiring permanent access roads. After construction, access roads can be re-vegetated with native grasses or agricultural crops. For areas where an access road was cut into the landscape, the access road can either be reclaimed back to the original grade or the roadbed left in place and re-vegetated for future access needs. Whether or not an access road is reclaimed would depend on several factors, including landowner negotiations and need to access that particular section of the transmission line in the future.

91. Alternative Routes B and B1 would require more than double the ROW tree clearing of Alternative Route A. Furthermore, the majority of the required ROW tree clearing for Alternative Route A occurs within PPL Electric's existing ROW for the retired Harwood–Berwick 69 kV Transmission Line, which has younger growth stages of forested cover due to previous routine vegetation maintenance of the corridor.

92. As stated in **Attachments 3 and 4**, PPL Electric conducted an online review for the Study Area. This review requested information from the four agencies responsible for the protection of endangered, threatened, or species of special concern within the Project area:

Pennsylvania Fish and Boat Commission ("PFBC"), Pennsylvania Game Commission ("PGC"), Pennsylvania Department of Conservation and Natural Resources ("DCNR"), and the U.S. Fish and Wildlife Service ("USFWS"). The correspondence from these agencies regarding the potential presence of these ecological resources within the Project area are provided in **Attachment 14**.

93. Following the selection of the Proposed Route and its subsequent adjustments, a final online PNDI review was submitted on December 5, 2025. The final online PNDI review noted potential impact to screw stem, a vascular plant species (see **Attachment 14**). PPL Electric will obtain all required permits from these state and federal agencies and will comply with the terms and conditions placed on any required permits.

94. To avoid impacts to protected bat species (tricolored bat, Indiana bat, and northern long-eared bat), the Company will adhere to seasonal clearing restrictions, only clearing trees greater than 3 inches diameter at breast height between October 1 and March 15, and will coordinate with USFWS prior to construction. Monarch butterflies are a proposed federally threatened species and have a known range that is crossed by the Alternative Routes. Regardless of the route selected, areas cleared within the ROW will be re-vegetated with compatible species and maintained in accordance with PPL Electric's Vegetation Management Plan.

95. From a combined natural environment resources perspective, Alternative Route A is anticipated to significantly reduce potential impacts to wetlands, streams, waterbodies, and wildlife habitat since it uses PPL Electric's existing ROW for the retired Harwood–Berwick 69 kV Transmission Line to the greatest extent practicable. Although this ROW is currently unmaintained, vegetation removal for a new 500/230 kV transmission line is considerably reduced because of the previous routine maintenance along the Harwood–Berwick 69 kV Transmission Line.

Susquehanna – Nescopeck #1 and #2 230 kV Transmission Lines and Tap Line

96. The 800-foot-wide buffer area evaluated for the rebuilt 230 kV Transmission Lines and Tap Line is located on variable terrain adjacent to and south of the Susquehanna River and is primarily surrounded by undeveloped forest.

97. Big Wapwallopen Creek, including its associated FEMA 100-year floodplain and regulatory floodway areas, crosses the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines from northwest to southeast between County Road and Wapwallopen Road. Two smaller resources were also identified within the 800-foot-wide buffer area, including one freshwater pond and one PFO/PSS wetland.

98. The majority of the 800-foot-wide buffer area evaluated for the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines crosses County Natural Heritage Inventories Core Habitat for Wapwallopen Gorge, Council Cup Cliffs, and Susquehanna Riverlands. Potential impacts to these features are minimized by rebuilding the 230 kV Transmission Lines entirely within existing ROW.

99. On February 3, 2026, an online PNDI was conducted to identify state-specific wildlife habitats and sensitive species for a 150-foot-wide corridor of the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines and Tap Line. Based on this review, the preliminary screening results indicate further coordination with PGC and USFWS is required to determine potential impacts. Specifically, the PGC response requests further coordination to determine potential impacts to the peregrine falcon, a state special concern species. The USFWS response indicates that the rebuilt 230 kV Transmission Lines and the Tap Line are located within the range of the federally listed northern long-eared bat. PPL Electric is currently coordinating directly with these agencies per the PNDI response.

100. The PNDI review also included a response from DCNR with no further action required, which recommends conservation measures to minimize the Project's impact on a state geologic feature of special concern and a state plant community of concern. PPL Electric will obtain all required permits from these state and federal agencies and will comply with the terms and conditions placed on any required permits.

2. Built Environment

101. Built environment impacts include direct and indirect impacts to residential, commercial, and industrial development, institutional uses (*e.g.*, schools, places of worship, and cemeteries), cultural resources, and land use.

Sugarloaf 500/230 kV Transmission Line

102. A comparison of the built environment considerations for the Alternative Routes for the Sugarloaf 500/230 kV Transmission Line is provided in **Table 4-5** of **Attachment 4**. Topographic maps identifying known built environment elements and constraints within established distances of the Alternative Routes as specified in the Commission's siting regulations are included in **Figure 4-6, Pages 1 through 10** in **Attachment 4**.

103. In general, land uses crossed by all three Alternative Routes are anticipated to be similar since they each avoid densely populated areas and parallel existing linear infrastructure (*e.g.*, existing overhead transmission lines or transmission line right-of-way corridors) or property lines for much of their total alignment. Regardless of the route chosen, a new 500/230 kV transmission line will result in at least some aesthetic impact to the existing landscape. However, the Siting Team prioritized paralleling and utilizing existing linear utility infrastructure and corridors, as well as parcel boundaries, to address viewshed and aesthetic impacts.

104. Overall, Alternative Route A is the shortest route identified for the Project (11.2 miles), while Alternative Route B and B1 range between 1 and 2.2 miles longer than Alternative Route A, respectively.

105. Alternative Route A crosses significantly less agricultural security areas and easement areas than Alternative Routes B and B1, as shown in **Figure 4-8** and **Table 4-5** in **Attachment 4**. No federal agricultural conservation easements are crossed by the Alternative Routes. Electric transmission lines are permitted in agricultural security and/or easement areas and do not have a significant impact on the use of the property for agricultural purposes. PPL Electric attempted to reduce agricultural impacts by paralleling property boundaries and roads. Additionally, PPL Electric will also work with the landowners to further minimize the impact of the Proposed Route on their farming practices.

106. None of the Alternative Routes contain residences within the 200-foot-wide ROW. While Alternative Route A crosses the most parcels and landowners; the majority (89%) of these properties are already crossed by existing ROW. Additionally, Alternative Route A minimizes clearing trees, which acts as a primary viewshed screen, to the greatest extent practicable by using existing ROW wherever possible. The existing ROW is predominantly cleared and will require minimal maintenance clearing or vegetation clearing.

107. No hospitals, places of worship, cemeteries, or schools were identified within the Study Area or in proximity to the Alternative Routes. Additionally, no airports are located within 2 miles of the Alternative Routes; therefore, construction and operation of either route is not expected to interfere with airport operations or flight plans. If necessary, however, PPL Electric will file the appropriate documentation with both the Federal Aviation Administration and the

PennDOT Bureau of Aviation to ensure the proposed line will not be a hazard to the airport's flight operations.

108. There are several public hiking trails and camping/picnic areas throughout Wapwallopen Gorge, located within the northeastern portion of the Study Area. A small local park, Tomhicken Playground, is located within the southwestern portion of the Study Area. Within its southernmost portion, the Study Area narrowly crosses undeveloped areas of Eagle Rock Resort, which is already crossed by PPL Electric's maintained ROW for the existing Susquehanna–Harwood 230 kV Transmission Line and unmaintained ROW from the retired Harwood–Berwick 69 kV Transmission Line. Additionally, Eagle Rock Resort's skiing hills and golf course are located outside of the Study Area, distanced approximately 3 miles southwest of PPL Electric's existing Harwood Substation. No additional recreational areas were identified within or adjacent to the Study Area.

109. No existing federal, state, or locally owned lands are crossed by the Alternative Routes.

110. The Siting Team attempted to minimize tree clearing, which acts as a primary viewshed screen, by paralleling existing linear infrastructure or previously maintained transmission line ROW wherever possible. Alternative Route A requires substantially less tree clearing because it utilizes existing, predominantly cleared ROW for the retired Harwood–Berwick 69 kV Transmission Line.

111. PPL Electric further analyzed and compared the Alternative Routes with respect to cultural (*i.e.*, archaeological and historical) resources, as described in **Attachment 4**. The known historic architectural resources within 0.25 miles and 1 mile of the centerline, are identified in **Table 4-5** of **Attachment 4**. No known archaeological sites are located within 1,000 feet of the

Alternative Routes. All three Alternative Routes cross a National Register of Historic Places ("NRHP") eligible historic railroad district identically upon their exit of the existing Harwood Substation, which is located within a predominantly mixed-use commercial/industrial area. For the Proposed Route, PPL Electric will take necessary measures during construction to avoid impacting the NRHP-eligible bridge located on Hollow Road by identifying suitable haul routes elsewhere. Overall, PPL Electric does not anticipate that the Project will result in adverse impacts to known cultural resources.

Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines and Tap Line

112. PPL Electric evaluated the existing land uses on the PPL Electric and customer owned properties, within the existing ROW, and within 0.25 miles of the rebuilt 230 kV transmission lines and the Tap Line ("Rebuild Project Area"). The Rebuild Project Area was reviewed to provide a sense of the landscape in which the Project is located. Based on review of current aerial maps, land use in the Project Area is 85% forest, 5% agriculture, and 10% existing utility ROW.

113. The closest communications tower is located approximately 1.7 miles northeast of the Project. A natural gas transmission pipeline, operated by Sunoco, traverses southeast to northwest and is crossed by the Project three times. Another natural gas transmission pipeline, operated by UGI Energy Services, traverses north to south and is crossed by the Project once.

114. The closest active airport relative to the Rebuild Project Area is the Hazleton Regional Airport, a publicly owned facility, located approximately 3.8 miles northeast of the Project. Additionally, one private heliport is located 1.2 miles northwest of the Project. PPL Electric does not anticipate any interference with airport or heliport operations since the Project consists of new electrical facilities that are of a similar height to the existing electrical facilities in

the immediate Rebuild Project Area. However, PPL Electric will file any required documentation with the Federal Aviation Administration.

115. The rebuilt 230 kV transmission lines and Tap Line will not affect any national parks or state parks. Potential impacts to Wapwallopen Gorge, an area with public hiking trails and camping/picnic areas, are avoided by rebuilding the 230 kV transmission lines entirely within existing and maintained ROW.

116. An online review of the Project Area and surrounding landscape was conducted through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site. The Lehigh Railroad, an abandoned railroad, is located approximately 0.4 miles north of the Project Area but is not crossed or spanned by the Project. As such, the Project will not affect the abandoned railroad.

117. PPL Electric is in the initial stage of coordination with the PHMC for the modifications being made to the transmission lines. This coordination will be required to receive permits to construct the Project and will be conducted in the near future. PPL Electric does not anticipate any impacts to SHPO listed or eligible structures or districts. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to avoid, minimize, and mitigate impacts to archaeological or historic architectural resources that may be located within the Project Area.

3. Engineering and Constructability

118. Constructability refers to the evaluation of engineering and construction considerations in relation to feasibility of a proposed transmission line. Constructability evaluates the use of existing transmission corridors, engineering challenges, and accessibility issues of a preferred route. Major factors that affect constructability include, but are not limited to, steep topography, condensed ROWs, high angles, proximity to major highways, and accessibility.

Sugarloaf 500/230 kV Transmission Line

119. A comparison of the engineering and construction considerations for the Alternative Routes is provided in **Table 4-7** of **Attachment 4**.

120. All three Alternative Routes use approximately 2.7 miles of existing ROW from the existing Harwood Substation. Alternative Route A continues to utilize an existing transmission line corridor for the entirety of its alignment. As noted above, the majority of this existing ROW was previously maintained for the retired Harwood–Berwick 69 kV Transmission Line.

121. Based on preliminary engineering, Alternative Route A is the shortest and most direct route, minimizing the number of angles between 30 and 45 degrees and angles 45 degrees or greater. By contrast, Alternative Route B would require an additional angle between 30 and 45 degrees and Alternative Route B1 would require an additional angle 45 degrees or greater to circumnavigate various constraints throughout the north-central portion of the Study Area.

122. All three Alternative Routes require crossing the existing Harwood–Humboldt 69 kV Transmission Line as they exit the existing Harwood Substation to the northwest along their common alignment. No additional HV or EHV crossings are required for any of the Alternative Routes.

123. Because Interstate 80 bisects the Study Area from east to west, each Alternative Route requires one interstate highway crossing. As they leave PPL Electric's existing Harwood Substation, each Alternative Route shares the same centerline for their initial 2.7 miles, crossing PA-924 and a railroad corridor as they parallel existing PPL Electric ROW. Alternative Route B1 requires two additional State Highway crossings (State Route 93 and State Route 239). Local road crossings were not considered to be a significant constraint for the Project since typical structures

can span the minor transportation corridors easily. No U.S. highways are located within the Project Study Area.

124. PPL Electric evaluated the Alternative Routes from a cost perspective based on preliminary estimates from siting, real estate, engineering, procurement, and construction.

125. Alternative Route A is the shortest, most direct route and utilizes existing ROW exclusively for the entirety of its alignment. As such, the anticipated acquisition costs for Alternative Route A are considerably lower than Alternative Routes B and B1. Based on preliminary engineering, Alternative Route A requires the least number of angle structures, which will significantly reduce the cost of materials to build the proposed Sugarloaf 500/230 kV Transmission Line.

126. From a combined engineering and constructability perspective, Alternative Route A is most favorable. It is the shortest, most direct alignment between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation. Additionally, Alternative Route A utilizes an existing ROW corridor, that formally hosted PPL Electric's now retired Harwood-Berwick 69 kV transmission line, for the entirety of its alignment and requires the least number of angle structures. The existing ROW corridor is being expanded to accommodate the proposed Sugarloaf 500/230 kV transmission Line.

Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines and Tap Line

127. The rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines are located entirely within an existing 150-foot-wide ROW for the existing single-circuit Sunbury–Susquehanna #1 230 kV line. The rebuilt 230 kV Transmission Lines and Tap Line require installing 17 new structures, which will be constructed on properties owned by PPL Electric or

where PPL Electric has existing ROW. A network of existing and new access roads will be utilized during construction of the rebuilt 230 kV Transmission Line and Tap Line.

D. CONCLUSION

128. Based on a qualitative and quantitative review of information obtained from GIS data, existing easements, field reconnaissance, and extensive public outreach as well as engineering and financial estimates for this Project, the Siting Team selected Alternative Route A as the Proposed Route. The cumulative environmental, engineering and constructability, and social and financial impacts associated with constructing Alternative Route A are more favorable when compared to Alternative Routes B and B1.

129. Overall, the 11.2-mile-long Proposed Route for the new Sugarloaf 500/230 kV Transmission Line is the most direct and shortest route, saving between 0.9 and 2.1 miles as compared to the other Alternative Routes. It is also the only route to utilize an existing transmission ROW corridor for the entirety of its alignment. The shortened length and use of existing ROW substantially reduce the amount of new ROW acquisition needed to expand the existing ROW and complete the Project. Additionally, by maximizing the existing ROW for its entire alignment, the Proposed Route significantly reduces the number of new access roads and robust angle structures (greater than 45 degrees), and thereby specifically reduces overall impacts to constructability.

130. Furthermore, maximizing existing ROW opportunities reduces impacts to the natural and human environments significantly. Although the Proposed Route for the new Sugarloaf 500/230 kV Transmission Line crosses the most properties, minimal aesthetic impact is anticipated since the entire alignment utilizes an existing ROW corridor which already crosses the majority of those properties and formerly hosted the Harwood–Berwick 69 kV Transmission Line. In addition to reduced viewshed impacts by utilizing a corridor for a recently retired transmission

line, the Proposed Route for the new Sugarloaf 500/230 kV Transmission Line minimizes impacts to residential and commercial or industrial properties to the best extent practicable by broadly avoiding road crossings in close proximity to houses. Alternative Route A also avoids circuitous cross-country options that increase new cumulative impacts. These route considerations will reduce right-of-way acquisition risks considerably.

131. Moreover, the rebuilt Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines effectively minimize increasing the cumulative impacts of the overall Project since they will be constructed entirely within existing ROW or property owned by PPL.

132. Collectively, PPL Electric's Proposed Route for the new Sugarloaf 500/230 kV Transmission Line: (1) is most consistent with the siting guidelines described above; (2) reasonably minimizes adverse impacts on existing land uses and the visual, natural, and human environments; (3) minimizes special design requirements and unreasonable costs; (4) utilizes the greatest amount of existing ROW; and (5) can be constructed and operated in a safe, timely, and reliable manner. Based on this analysis and PPL Electric's extensive experience, the Proposed Route is the most suitable, constructable, and accessible route, with the lowest risk and least overall impacts.

V. HEALTH AND SAFETY

133. The proposed Project will not create any unreasonable risk of danger to the public health or safety.

134. The proposed lines will be designed, constructed, operated, and maintained in a manner that meets or surpasses all applicable National Electrical Safety Code ("NESC") minimum standards and all applicable legal requirements. Descriptions of the NESC standards, PPL

Electric's design criteria, and PPL Electric's safety practices are provided in **Attachment 13 – PPL Electric Design Criteria and Safety Practices**.

135. PPL Electric's Magnetic Field Management Program is summarized in **Attachment 11 – Magnetic Field Management** and is applied to new and reconstructed transmission line projects. Consistent with the Company's Magnetic Field Management Program, the conductors for this Project will have ground clearances that are approximately three feet higher than the required NESC minimum ground clearance for 500/230 kV lines[16] in order to reduce the magnetic field exposure. Since this proposed transmission line will operate as a single-circuit, reverse phasing is not feasible at this time. Where it is feasible to do so at low or no cost, PPL Electric will select a phasing arrangement for the proposed transmission line that lowers the magnetic field. PPL Electric will select the best circuit/phase arrangement to reduce the potential exposure to electric magnetic fields where it is feasible to do so at low or no cost.

VI. RELATED PROCEEDINGS

136. PPL Electric has contemporaneously filed one Zoning Petition pursuant to 52 Pa. Code § 5.41 and 53 P.S. § 10619, for a finding that one structure to shelter electrical control equipment at the Nescopeck Switchyard, is reasonably necessary for the convenience or welfare of the public and, therefore, exempt from any local zoning ordinance.

137. In addition, PPL Electric has contemporaneously filed 30 Condemnation Applications pursuant to 15 Pa. C.S. § 1511(c) for findings and determinations by the Commission, to the extent that any such findings and determinations may be required, that the service to be furnished by PPL Electric through the exercise of the power of eminent domain for the Sugarloaf

[16] PPL Electric has designed the 230 kV transmission line to the latest 500 kV construction standards.

500/230 kV Transmission Line Project is necessary or proper for the service, accommodation, convenience or safety of the public.

138. Issues relating to the need for the Application, Condemnation Applications, and Zoning Petition are interrelated. Pursuant to 52 Pa. Code § 5.81, the Company requests that these related proceedings be consolidated for purposes of hearings, if necessary, and decision.

VII. NOTICE AND SERVICE

139. The public outreach approach for the Project included regulatory agency consultation, public notification and open house meetings, and meetings with property owners. PPL Electric's public outreach for the Project is more fully descripted in **Attachment 4 – Alternatives and Siting Analysis**.

140. PPL Electric hosted a public open house meeting to provide information on the Project on April 30, 2025, between 6 p.m. and 8 p.m. at the Valley Country Club, located at 79 Country Club Lane, Sugarloaf, PA 18249.

141. PPL Electric has provided public notices in accordance with Section 69.3102 of the Commission's Interim Siting Guidelines, 52 Pa. Code § 69.3102. A copy of the informational packet that was sent to all landowners who will be subject to the rights-of-way and easements for the proposed Project is included in **Attachment 16.**

142. PPL Electric has reached out to residents located immediately adjacent to PPL Electric's fee owned parcels and owners of properties that are crossed by the Project. Copies of the Application will be served upon landowners in accordance with 52 Pa. Code § 57.74. A list of the landowners impacted by this project is provided in **Attachment 6 – List of Owners of Property Within the Right-of-Way**.

143. PPL Electric has provided information regarding the Project to representatives of Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships in Luzerne County, Pennsylvania. Luzerne County, as well as Black Creek and Sugarloaf Townships have passed resolutions opposing the Project. Copies of this Application will be served on the governmental agencies, municipalities, and other public entities and organizations in accordance with 52 Pa. Code § 57.74. A list of these entities and organizations is also provided in **Attachment 8 – List of Governmental Agencies, Municipalities, and Other Public Entities Receiving the Application**. In addition, copies of the Application will be served on all landowners within the proposed route for the Project that are the subject of a condemnation application pursuant to 52 Pa Code §§ 57.74(c)(1)(iv) and 57.75(i), and copies of a Notice of Filing will be served on all landowners within the proposed route for the Project that are not the subject of a condemnation application, pursuant to 52 Pa. Code § 57.74(c)(1)(iv).

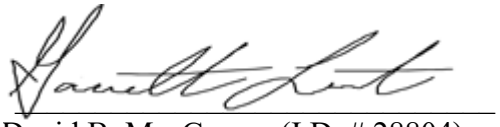
144. A copy of this Application is available for public examination in-person during ordinary business hours at: Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships. As soon as practicable after the filing of this Application, PPL Electric will publish notice in newspaper(s) of general circulation in the area of the Project. This notice will: (a) note the filing with the Commission; (b) provide brief description of the Project and its location; and (c) provide any additional information as directed by the Commission. PPL Electric also requests that the Commission publish notice of this Application in the Pennsylvania Bulletin.

145. PPL Electric will provide such additional forms of notice as may be directed by the Commission.

VIII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests Pennsylvania Public Utility Commission approval to (1) rebuild the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation; (2) construct the new approximately Sunbury-Nescopeck #1 230 kV Transmission Line tap for future 230 kV double-circuit operation; (3) raise the existing Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed 230 kV transmission lines; and (4) construct the new Sugarloaf 500/230 kV Transmission Line for future double-circuit 500 kV capacity. PPL Electric Utilities Corporation further requests that the Pennsylvania Public Utility Commission consolidate this Application with the interrelated and contemporaneously filed Zoning Exemption Petition and Condemnation Applications, and issue any additional approvals or waivers that may be necessary to site and construct the high-voltage transmission lines that are the subject of this Application.

Respectfully submitted,



Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. # 321566)
Lindsay A. Berkstresser (I.D. #318370)
Megan E. Rulli (I.D. # 331981)
Hayley E. Wilburn (I.D. # 336055)
Post & Schell, P.C.
17 North Second Street, 12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com
E-mail: lberkstresser@postschell.com
E-mail: mrulli@postschell.com
E-mail: hwilburn@postschell.com
Attorneys for PPL Electric Utilities Corporation

Date: April 6, 2026

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Miles of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Miles of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double Circuit 230 kV Transmission Line for Future Double Circuit 500 kV Capacity, Located in Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania	:	Docket No. A-2026-_____

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. 1

DIRECT TESTIMONY OF JOSEPH LOOKUP

TOPICS ADDRESSED: **GENERAL DESCRIPTION OF PROJECT**
NEED FOR PROJECT

DATE: APRIL 6, 2026

I. INTRODUCTION

Q. Please state your full name and business address.

A. My name is Joseph Lookup, and my business address is 827 Hausman Road, Allentown, Pennsylvania 18104.

Q. By whom are you employed and in what capacity?

A. I am employed by PPL Services Corporation as Vice President – Transmission and Distribution Planning and Asset Management and provide services to PPL Electric Utilities Corporation ("PPL Electric" or the "Company").

Q. What are your current responsibilities?

A. I oversee the Transmission Planning, Asset Strategy, Portfolio Management, Project Development, Real Estate, Project Management and Construction Management Groups. This includes responsibility for transmission system reliability, investment strategy and project execution.

Q. Please describe your professional experience.

A. Prior to working at PPL Electric, I worked as a consultant providing engineering, project management, construction management services for utility, industrial, commercial, and educational clients. At PPL Electric I have worked in Engineering, Project and Construction Management, and Asset Management in various engineering and project leadership, and management roles.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to generally explain the Application requesting the Pennsylvania Public Utility Commission's ("Commission") approval to (1) rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard"); (2) construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard; (3) raise approximately 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and (4) construct a new 11.2 mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and existing Harwood 230/69 kV Substation ("Harwood Substation"). Collectively, the new and rebuilt transmission lines are referred to in this application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." I will explain why the Project is necessary or proper for the service, accommodation, convenience, or safety of the public. More specifically, I will summarize the information detailed in the above-captioned

[1] The Tomhicken Switchyard has not yet been constructed. It is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

Application and associated Attachment 2 – Necessity Statement, and Attachment 13 – Design and Safety Practices.

Q. Are you responsible for the preparation of any of the Attachments filed with the above-captioned Application?

A. Yes. The above-mentioned Attachments to the Application were prepared by me or under my supervision. In addition, I verified the contents of the Application filed by the Company at the above-captioned docket.

II. NEED FOR THE PROJECT

Q. Please describe the existing system relevant to this Project.

A. PJM Interconnection, LLC ("PJM") operates and coordinates an extensive 500 kV and 230 kV Bulk Electric System ("BES") that is owned by multiple utilities through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. The BES allows for regional transfer of power to supply load throughout the PJM Area.

The existing Susquehanna-Harwood #1 and #2 230 kV Transmission Lines are part of PPL Electric's BES. These lines are heavily loaded and have a history of transmission congestion. A one-line diagram of the existing 500 kV and 230 kV system around the project area is provided as **Figure 2-1** to **Attachment 2 – Necessity Statement**. A map of the existing transmission lines is provided as **Figure 2-2** to **Attachment 2 – Necessity Statement**.

Q. Why is the Project needed?

A. The Project is required to comply with PPL Electric's obligation to provide service to customers upon a request subject to reasonable terms and conditions and to resolve the projected violations created by multiple customers' projected load additions in the Hazleton area, as fully explained in Attachment 2 – Necessity Statement.

Here, one new customer ("Customer"), located in Hazle Township, has requested 230 kV electrical service with an in-service date of March 2028, at an initial load of 240 megawatts ("MW"). The Customer's load will increase in stages to approximately 965 MW by 2033. This Customer will be served by the proposed Tomhicken Switchyard, which bifurcates the Susquehanna-Harwood #1 and #2 230 kV Transmission Lines to create the Susquehanna-Tomhicken #1 and #2 and the Tomhicken-Harwood #1 and #2 230 kV Transmission Lines.[2] Additional customers have also applied for service in the Hazleton area with a combined requested load of over 5,000 MW by 2033. These customer requests have been submitted to PJM under the following need numbers: PPL-2024-0003, PPL-2024-0004, PPL-2024-0012, PPL-2025-0002, PPL-2025-0009, and PPL-2025-0010.

The projected load growth will create overloads on the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines, which will require additional improvements to the 230 kV network in this area to continue to provide reliable service.

Specifically, the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines become overloaded when the load increases by approximately 400 MW in the Hazleton area. The loss of one of the Susquehanna-Tomhicken 230 kV lines in a single contingency

[2] The Susquehanna – Tomhicken #1 and #2 230kV Transmission Lines and the Tomhicken-Harwood #1 and #2 230 kV Transmission lines have not yet been constructed. They are the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

(P1)[3] or multiple contingency with a fault plus stuck breaker[4] (P4) category overloads the remaining in-service line. When the load addition in the Hazleton area approaches approximately 700 MW, the loss of both Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines for a multiple contingency with the common structure (P7) category results in voltage violations at both the Tomhicken Switchyard and the Harwood Substation.

To serve the multiple load requests received and avoid the voltage violations described above, PPL Electric is planning two phases of transmission line expansion. The first phase is the subject of the Tomhicken 230 kV Switchyard Project LON and involves the construction of new high voltage ("HV") transmission lines to connect the Customer requesting transmission level service in Hazle Township, Luzerne County to the 230 kV system.

The second phase is the Sugarloaf 500/230 kV Transmission Line Project, which is the subject of the instant Application. This Project is needed to: (1) address multiple customers' future electrical needs in the area; (2) address PPL Electric's own system needs; and (3) support the interconnection of the proposed Tomhicken Switchyard. Expedient initiation of adequate and reliable service to new high-load customers seeking to enter PPL Electric's system is critical for the Commonwealth of Pennsylvania's continued economic development. This interest is addressed by the Project. Moreover, high-load customers

[3] P1, P4 and P7 are category contingencies defined in Table 1 of the NERC TPL-001 Transmission System Planning Performance Requirements. https://www.nerc.com/globalassets/standards/reliability-standards/tpl/tpl-001-5.1.pdf

[4] A stuck breaker means that for a gang-operated breaker, all three phases of the breaker have remained closed. For an independent pole operated (IPO) or an independent pole tripping (IPT) breaker, only one pole is assumed to remain closed. A stuck breaker results in Delayed Fault Clearing.

connecting to PPL Electric's BES will ultimately reduce the transmission rates charged by PPL Electric to its other customers.

Q. Are there any other aspects of the need for the Project that you wish= to comment upon?

A. Yes. While the proposed Sugarloaf 500/230 kV Transmission Line will be designed and constructed as a double-circuit 500 kV line, it will initially be operated at 230 kV until load growth in the area makes it appropriate to increase the line's operating voltage. PPL Electric is not seeking the Commission's pre-approval to increase the voltage of this line to 500 kV at this time. PPL Electric will file an appropriate letter of notification pursuant to 52 Pa. Code § 52.72(d)(1)(iv) prior to increasing the voltage from 230 kV to 500 kV.

III. OVERVIEW OF THE PROJECT

Q. Please summarize the proposed Project.

A. The Project, as accepted by PJM, includes reinforcements of the 230 kV system from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation, via the proposed Nescopeck Switchyard. The existing Sunbury-Susquehanna #1 230 kV line will be bifurcated into the new Nescopeck Switchyard. The section of the Sunbury-Susquehanna #1 230 kV line between the Nescopeck-Switchyard and the Susquehanna Switchyard will be rebuilt to double-circuit 230 kV operation. The other section of the Sunbury-Susquehanna #1 230 kV line between the bifurcation and the Nescopeck Switchyard will be rebuilt to single-circuit 230 kV operation. PPL Electric will raise the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the proposed 230 kV transmission line undercrossings. Two new 500 kV lines (initially operating at 230 kV)

will extend south from the Nescopeck Switchyard, with one line terminating at the Tomhicken Switchyard and one line terminating at the Harwood Substation. The existing corridor of the vacated Harwood-Berwick 69 kV right of way will be utilized for the 500/230 kV lines. The additional paths from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation will prevent the thermal overload of the Susquehanna-Tomhicken #1 & #2 230 kV lines and voltage violations at Tomhicken Switchyard and Harwood Substation.

A detailed engineering description is provided in **Attachment 5 – Engineering Description**.

Q. What is the estimated cost of the Project?

A. The total estimated cost of the proposed Project is $98.4 million. The cost will be recovered through the Company's FERC Transmission Formula Rate. However, the new load customer is providing a minimum load guarantee ensuring that the Company will receive transmission rate revenue at least equal to the amount of the cost of the Project.

Q. How does this cost compare to the estimated cost of the Project as submitted to PJM?

A. The estimated cost of the proposed project is $1.15 million less than the estimated project cost presented to PJM on May 6, 2024.

Q. When is construction of the Project scheduled to begin?

A. Construction of the Project is anticipated to begin in February 2027, subject to the Commission's approval.

Q. What is the in-service date for the proposed Project?

A. The anticipated in-service date is March 2028.

IV. DESIGN DESCRIPRTION AND SAFETY PRACTICES

Q. Please describe the design of the proposed construction of the Project.

A. The Project has four primary components. The first is a rebuild of approximately 4.4 miles of the Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines from the existing Susquehanna Substation to the proposed Nescopeck Switchyard. The second component involves the construction of the Sunbury-Nescopeck #1 230 kV Transmission Line from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard. Third, PPL Electric will raise approximately 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line. Finally, the Company will construct an 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken Switchyard[5], and existing Harwood Substation ("Sugarloaf 500/230 kV Transmission Line"). After traveling 8.4 miles, the Nescopeck-Tomhicken #1 500/230 kV Transmission Line turns east for approximately 0.3 miles as a single-circuit transmission line to the new Tomhicken 230 kV Switchyard. At Structure 41, the Nescopeck-Harwood #1 500/230 kV Transmission Line

[5] The Tomhicken Switchyard has not yet been constructed. It is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation. The existing corridor of the vacated Harwood-Berwick 69 kV right-of-way ("ROW") will be utilized for the 500/230 kV lines.

The new Sugarloaf 500/230 kV Transmission Line will be constructed with new single-shaft steel poles, two pole weathering tubular steel structures, and will be installed on concrete foundations. The rebuilt Susquehanna-Nescopeck and Sunbury-Nescopeck 230 kV Transmission Lines will be constructed with new steel monopoles, high-capacity conductors, and two Optical Ground Wires ("OPGW"). The Sunbury-Susquehanna 500 kV Transmission Line will be raised on steel H-frame or 3-pole structures which will be self-supported and installed on concrete foundations. All structures will comply with NESC and PPL Electrical clearance requirements.

A detailed engineering description is provided in **Attachment 5 – Engineering Description**.

Q. Will the proposed Project create any unreasonable risk of danger to the public health or safety?

A. No. The proposed lines will be designed, constructed, operated, and maintained in a manner that meets or surpasses all applicable National Electrical Safety Code ("NESC") minimum standards and all applicable legal requirements. Descriptions of the NESC standards, PPL Electric's design criteria, and PPL Electric's safety practices are provided in Attachment 13 - PPL Electric Design Criteria and Safety Practices.

Q. Does the Application explain how PPL Electric managements magnetic fields?

A. Yes. **Attachment 11 – PPL Electric Magnetic Field Management Program** and **Attachment 13 – PPL Electric Design Criteria and Safety Practices** explain PPL Electric's standards for Magnetic Field Management.

V. CONCLUSION

Q. Does this conclude your Direct Testimony at this time?

A. Yes. I reserve the right to supplement my testimony as additional issues arise during the course of this proceeding.

VERIFICATION

I, JOSEPH B. LOOKUP, being the Vice President – Transmission & Distribution Planning and Asset Management at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: March 31, 2026

Joseph B. Lookup

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Miles of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Miles of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double Circuit 230 kV Transmission Line for Future Double Circuit 500 kV Capacity, Located in Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania	:	Docket No. A-2026-_____

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. 2

DIRECT TESTIMONY OF KYLE SWARTZENTRUBER

TOPICS ADDRESSED: ENGINEERING AND DESIGN CRITERIA

SAFETY CONSIDERATIONS

DATE: APRIL 6, 2026

I. INTRODUCTION

Q. Please state your full name and business address.

A. My name is Kyle Swartzentruber. My business address is 827 Hausman Rd Allentown, PA 18104.

Q. By whom are you employed and in what capacity?

A. I am employed by PPL Services Corporation as a Lead Responsible Engineer and provide services to PPL Electric Utilities Corporation ("PPL Electric" or "Company").

Q. What are your current responsibilities?

A. I assist with and oversee the design of transmission line projects, including the Sugarloaf Project. This includes specifying and ordering materials, pole placement and spotting, and the design of the transmission voltage facilities.

Q. Please provide your educational background.

A. I have a Bachelors of Science Degree in Mechanical Engineering Technology from The Pennsylvania State University.

Q. Please describe your professional experience.

A. I have been employed with PPL since 2011 and performed Transmission Line Design the entire time. Prior to that I was a Test Engineer for Mack Trucks Inc, a draftsman for East Penn Manufacturing, and a design Engineer for Zeks Air Drawing Systems.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to summarize and detail the engineering and design criteria utilized for the Company's proposal to: (1) rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard"); (2) construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard; (3) raise approximately 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and (4) construct a new 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and existing Harwood 230/69 kV Substation ("Harwood Substation"). Collectively, the new and rebuilt transmission lines are referred to in

[1] The Tomhicken Switchyard has not yet been constructed. It is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

this application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." I will also discuss the safety considerations for the Project.

Q. Please describe the portions of the Siting Application that you are sponsoring.

A. I am responsible for describing the engineering and design criteria, as well as safety considerations, for the Project. Specific to the Application, I am responsible or partly responsible for **Attachment 5 – Engineering Description** and **Attachment 13 – Design and Safety Practices**.

II. OVERVIEW OF ENGINEERING AND DESIGN CONSIDERATIONS

Q. Could you provide a brief explanation of the engineering and design considerations for the Project?

A. Yes. The Project is designed to comply with PPL Electric's obligation to provide service to customers upon a request subject to reasonable terms and conditions and to resolve the projected violations created by multiple customers' projected load additions in the Hazleton area as described in further detail by Joseph Lookup in PPL Electric Statement No. 1, as well as the various items addressed in **Attachment 2 – Necessity Statement** to the Application.

PPL Electric's new and rebuilt transmission lines as part of the Project will be designed according to, and generally exceed, all National Electric Safety Code ("NESC") minimum standards. The NESC standards are developed to safeguard utility workers and the public during the installation, operation, and maintenance of electric power lines. Although not intended as a design specification, its provisions establish minimum design requirements. The NESC is a safety code

that includes loading requirements and clearances for the design, construction, and operation of power lines. Loading requirements are the loads on the conductors and structures that are anticipated assuming certain ice and wind conditions. Loading requirements always contain "safety factors" to allow for unknown or unanticipated contingencies. The clearances and loading requirements contained in the NESC are designed to maintain public safety. PPL Electric's transmission line design standards meet or surpass the NESC clearances and loading requirements.

For example, the NESC specifies strength and loading rules based on three different "grades of construction" for conductors and supporting structures:

Grade B – This grade of construction provides the highest margin of safety and is required when the pole supports spans that cross limited access highways, railroads, and waterways.

Grade C – This grade of construction is most common and provides a basic margin of safety. It is often utilized for the typical power and joint-use distribution pole.

Grade N – This is the lowest grade of construction and is most often used for emergency and temporary construction.

PPL Electric designs all of its transmission lines for Grade B construction. The use of Grade B design and construction translates to higher levels of structural reliability and safety to withstand the environmental conditions of ice and/or wind loading.

PPL Electric's transmission lines are designed to exceed NESC requirements by accounting for additional ice and wind loading conditions not contemplated under the NESC. This means that PPL Electric's lines are designed to operate safely and reliably during extreme inclement weather. In addition, where practicable, PPL Electric's transmission lines are designed with more clearance to the ground than required by the NESC.

PPL Electric also uses a relay protection system to protect the public safety, as well as the equipment on the transmission system. Relay protection is installed for all transmission lines and is designed to automatically de-energize a line in the unlikely event that the line or supporting structure fails and the line contacts the ground.

Q. Could you provide further detail as to the Project?

A. Yes. The Project, as accepted by PJM, includes reinforcements of the 230 kV system from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation, via the proposed Nescopeck Switchyard. The existing Sunbury--Susquehanna #1 230 kV line will be bifurcated into the new Nescopeck Switchyard. The section of the Sunbury-Susquehanna #1 230 kV line between the Nescopeck-Switchyard and the Susquehanna Switchyard will be rebuilt to double-circuit 230 kV operation. The other section of the Sunbury-Susquehanna #1 230 kV line between the bifurcation and the Nescopeck Switchyard will be rebuilt to single-circuit 230 kV operation. PPL Electric will raise the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the proposed 230 kV transmission line

undercrossings. Two new 500 kV lines (initially operating at 230 kV) will extend south from the Nescopeck Switchyard, with one line terminating at the Tomhicken Switchyard and one line terminating at the Harwood Substation. The existing corridor of the vacated Harwood-Berwick 69 kV right of way will be utilized for the 500/230 kV lines. The additional paths from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation will prevent the thermal overload of the Susquehanna-Tomhicken #1 & #2 230 kV lines and voltage violations at Tomhicken Switchyard and Harwood Substation.

The new Sugarloaf 500/230 kV Transmission Line will be constructed with new single-shaft steel poles, two pole weathering tubular steel structures, and will be installed on concrete foundations. The rebuilt Susquehanna-Nescopeck and Sunbury-Nescopeck 230 kV Transmission Lines will be constructed with new steel monopoles, high-capacity conductors, and two Optical Ground Wires ("OPGW"). The Sunbury-Susquehanna 500 kV Transmission Line will be raised on steel H-frame or 3-pole structures which will be self-supported and installed on concrete foundations. All structures will comply with NESC and PPL Electrical clearance requirements.

A more detailed engineering description is provided in **Attachment 5 – Engineering Description**.

Q. Could you generally describe the periodic maintenance PPL Electric employs for all of its Transmission Lines, including the new and/or rebuilt Transmission Lines for the subject Project?

A. Yes. To ensure continued public safety and integrity of service, PPL Electric has implemented a periodic maintenance and inspection program for every transmission line. The program is administered using helicopter patrols, with supplemental foot patrols, as needed. Helicopter patrols are performed on all lines on a predetermined frequency, depending on voltage level. The two-man helicopter crew flies parallel and above the line so that the observer can look for signs of line damage or deterioration and observe clearances between vegetation and conductors. The observations are included in a report that is forwarded to the appropriate department for corrective action.

III. SAFETY CONSIDERATIONS

Q. Please provide an overview of PPL Electric's safety considerations for the Project.

A. PPL Electric designs and constructs its projects with a high appreciation for the safety of the public and its employees and meets or exceeds all applicable codes and requirements. The following are examples of the PPL Electric safety rules that illustrate the Company's dedication to employee and contractor safety:

- Work procedures have been developed to facilitate the safe performance of work on energized facilities. Any timelines or equipment is removed from service for repair or maintenance, an Energy Control Process system is applied. This system requires that a red tag be physically placed on the control handle of all de-energized equipment.

- The red tag may be removed only after proper authorization to re-energize the equipment has been received.
- Various other tags are used for limited operations and informational purposes.
- Only authorized employees and contractors can apply or remove a tag or change the status of tagged equipment.
- Temporary safety grounds are used on de-energized facilities to promote employee safety during maintenance, construction, or reconstruction work. Safety grounds are wires that connect a de-energized facility to an electrical ground. If the facility should be unintentionally energized, the safety grounds will reduce the likelihood of personal injury but diverting the current directly to ground.
- Lines are tested to confirm de-energization before applying safety grounds using a voltage testing device to assure reliability.
- Poles and structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before any work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is always worn by linemen during line work activity.

Q. Did PPL Electric consider Magnetic Fields as part of the review of the Project?

A. Yes. PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. The Company does not believe that

current scientific evidence demonstrates that magnetic fields cause any adverse health effects or pose a health or safety danger to the public. Nevertheless, PPL Electric has determined, as a matter of policy, to design its new and rebuilt transmission lines to reduce magnetic fields when consistent with functional requirements. The program generally prescribes the use of a line design with ground clearance that exceeds NESC standards by a minimum of 5 feet and reverse phasing of new double-circuit lines where feasible and can be implemented at low or no additional cost.

Further information on PPL Electric's Magnetic Field Management Plan can be found in **Attachment 11 – PPL Electric Magnetic Field Management Program** and **Attachment 13 – PPL Electric Design Criteria and Safety Practices** to the Sugarloaf 500/230 kV Transmission Line Project Application.

IV. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, it does. If necessary, I will supplement my testimony if and as additional issues arise during the course of this proceeding.

VERIFICATION

I, KYLE SWARTZENTRUBER, being the Consulting Engineer at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 03/31/2026

Kyle Swartzentruber

Kyle Swartzentruber (Mar 31, 2026 09:16:10 EDT)

Kyle Swartzentruber

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Mile of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Mile of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double Circuit 230 kV Transmission Line for Future Double Circuit 500 kV Capacity, Located in Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania	:	Docket No. A-2026-_____

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. 3

DIRECT TESTIMONY OF PETER SPARHAWK

TOPICS ADDRESSED: **ROUTE ALTERNATIVES**
SITING ANALYSIS
ENVIRONMENTAL ASSESSMENT AND MITIGATION

DATE: APRIL 6, 2026

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Peter Sparhawk. My business address is 350 Eagleview Boulevard, Suite 250, Exton, PA 19341.

Q. By whom are you employed and in what capacity?

A. I am employed by WSP USA ("WSP") as Senior Vice President, T&D Market Sector Lead, Earth & Environment.

Q. What are your principal responsibilities in this position?

A. My responsibilities include managing, coordinating, and providing senior review for a variety of environmental assessment, regulatory, and compliance projects and tasks for electric transmission projects. These projects include leading and participating in siting and routing studies, feasibility studies, compliance with state and federal regulatory processes, state filings before public utility commissions (including the Pennsylvania Public Utility Commission), environmental permitting projects, and similar environmental and planning assignments.

Q. Please provide a summary of your education and professional work experience.

A. I graduated from Cornell University in Ithaca, New York in 1985 with a Bachelor of Arts degree in History. I also completed a Certificate Program for the Environmental Manager in 1996 at the University of Washington. I have over 35 years of experience in preparing, coordinating, and managing environmental, infrastructure, and energy projects, including federal and state environmental impact statements and assessments, environmental

compliance and permitting efforts, and state certification applications for transmission line projects. My experience with energy projects includes licensing and permitting for electric transmission lines, gas-fired generation, wind power, and hydroelectric facilities, with the past 18 years dedicated primarily to electric transmission and substation projects. I have conducted and overseen numerous environmental analyses and coordinated license applications to state energy agencies and siting boards for power facilities and infrastructure in various states throughout the United States, including many in Pennsylvania. Specifically, my electric transmission line experience includes routing and siting, licensing, public outreach, permitting, consultation with resource agencies, expert witness testimony before the Pennsylvania Public Utility Commission ("PUC" or the "Commission") and the New Jersey Board of Public Utilities, participation in and tracking of transmission planning efforts within various Independent System Operators and Regional Transmission Organizations – including PJM Interconnection ("PJM") – and everyday coordination with WSP utility clients and programs. I have been responsible for helping PPL Electric Utilities Corporation's ("PPL Electric" or the "Company") prepare various attachments and analyses for inclusion in full siting applications or letters of notification to the PUC for 36 electric transmission line projects since 2008.

Q. What is the purpose of your direct testimony in this proceeding?

A. My testimony provides a summary of the Route Selection of the new 11.2-mile-long 230 kilovolt ("kV") transmission line ("Sugarloaf 500/230 kV Transmission Line") for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new

Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and existing Harwood 230/69 kV Substation ("Harwood Substation"). I will also provide a summary of the Route Selection to rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard") and the construction of a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard. Collectively, I will refer to the new and rebuilt double circuit transmission lines and the Nescopeck Switchyard as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." The siting and environmental study activities described in the Report were performed by WSP, under my supervision, in coordination with PPL Electric. The Report was filed with the Siting Application as Attachment 3 and 4.

Q. Were any portions of the siting study prepared by you or under your supervision?

A. Yes. I am sponsoring certain attachments to PPL Electric's Application. Specifically, I am responsible for portions of the following attachments to the Application:

- Attachment 3 – Environmental Analysis
- Attachment 4 – Alternatives and Siting Analysis

[1] The Tomhicken Switchyard has not yet been constructed and is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

I was involved in preparing these attachments to the Application or otherwise provided oversight to WSP technical staff who prepared them. I also provided review for the complete Application prior to assembly and submission to the Commission.

Q. Please provide an overview of the Project.

A. As explained in the written direct testimony of Company witness Joseph Lookup (PPL Electric Statement No. 1), and Kyle Swartzentruber (PPL Electric Statement No. 2), the Project is required to comply with PPL Electric's obligation to provide service to customers upon a request subject to reasonable terms and conditions and to resolve the projected violations created by multiple customers' projected load additions in the Hazleton area.

To address these transmission needs, PPL Electric will construct the new double-circuit 11.2-mile-long Sugarloaf 500/230 kV Transmission Line initially as a single-circuit 230 kV transmission line for future double-circuit 500 kV capacity. The Sugarloaf 500/230 kV Transmission line will be located between the proposed Nescopeck Switchyard, new Tomhicken Switchyard, and existing Harwood 230/69 kV Substation. After traveling 8.4 miles, the eastern circuit ("Nescopeck–Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 mile as a single-circuit transmission line to the new Tomhicken 230 kV Switchyard. At Structure 41, the western circuit ("Nescopeck–Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

PPL Electric will also rebuild approximately 4.4 miles of the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation

to form the Susquehanna–Nescopeck #1 and #2 230 kV Transmission Lines. These transmission lines will be rebuilt between the existing Susquehanna Switchyard and the proposed Nescopeck Switchyard.

In addition, PPL Electric will construct the new approximately 0.9-mile-long Sunbury–Nescopeck #1 230 kV Transmission Line tap for future 230 kV double-circuit operation from the existing single-circuit Sunbury–Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard.

Finally, PPL Electric will raise 0.5 mile of the existing Sunbury–Susquehanna 500 kV Transmission Line to accommodate the 230 kV undercrossing connecting the 230 kV lines from Sunbury and Susquehanna to Nescopeck Switchyard.

II. OVERVIEW OF THE SITING PROCESS

Q. Please provide an overview of the siting process and explain how the study area was determined, and how the potential and alternative routes were developed.

A. The Siting Team, made up of representatives of PPL Electric and WSP, conducted an Alternative Analysis Study to identify a Proposed Route for the Project that best balances environmental, social, engineering and economic considerations. That analysis included the determination of a Study Area, the compilation of an environmental inventory, identification and analysis of alternative line routes and, finally, selection of a Proposed Route. The Study Area is that territory in which line route alternatives could be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs.

The boundaries of the Study Area were determined by the geographic area encompassing the two final end points (the existing Harwood Substation to the southeast and the proposed Nescopeck Switchyard to the northwest), as well as the existing Susquehanna Switchyard and proposed Tomhicken Switchyard. The Study Area was intended to encompass all reasonable Potential Routes for the new Nescopeck – Tomhicken #1 and Nescopeck – Harwood #1 500/230 kV Transmission Lines located between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation endpoints, as well as the existing ROW corridor for the rebuilt 230 kV transmission lines between the Susquehanna Switchyard and Nescopeck Switchyard.

Given these considerations, the Siting Team identified a Study Area encompassing approximately 30 square miles.

Q. Explain the methodology employed to develop alternative routes for the Project.

A. The ultimate goal of the Project's Alternative Analysis Study was to identify overhead electric transmission line routes that minimize the impact to the built and natural environments to the maximum extent practicable, while still maintaining the technical and economic viability of the Project. The Siting Team worked together during the Alternative Analysis Study to define the Study Area, develop routing criteria, identify routing constraints and opportunities, collect and analyze environmental and design data, solicit public input and concerns, consult with natural resource and permitting agencies, develop and revise the siting alternatives, and analyze and report on the selection of a Proposed Route.

Once the Study Area was identified, the Siting Team met in July 2024 to develop basic route selection criteria that would be used to select and analyze potential Alternative Routes. The methodology employed to develop alternative routes for the proposed Project involves five fundamental steps:

(1) Identify large area constraints and opportunity features within the Study Area, which encompasses the endpoints of the Project and areas in between. These areas are typically identified using a combination of data sets that are readily available via public data sources

(2) Develop Conceptual Routes adhering to a series of general routing and technical guidelines. Efforts are made to develop Conceptual Routes throughout the Study Area to ensure that all reasonable alignments are considered. Alignments are approximate at this stage, but they are revised after ongoing review and analysis.

(3) Refine Conceptual Routes as the Siting Team continues to collect and review information. Where two or more Conceptual Routes intersect, a node is created, and between two nodes, a link is formed. As the Siting Team continues to gather information and review the links of the Conceptual Route, links are modified, removed, or added, resulting in a Refined Potential Route Network.

(4) Generate Alternative Routes, after carefully analyzing and evaluating the Potential Routes. Alternative Routes are routes that begin and end at similar locations for direct comparison.

(5) Select the Proposed Route through a quantitative and qualitative assessment to compare the Alternative Routes. The Alternative Routes are compared, and a Proposed Route is selected based upon a detailed analysis and balancing of environmental impacts, societal concerns, engineering considerations, and costs. Based on these evaluation process, the Siting Team ultimately selects a Proposed Route for the proposed transmission line.

Each of these phases of the siting process for the Project is fully explained in **Attachment 4 – Alternatives and Siting Analysis** to the Siting Application.

Q. How did PPL Electric develop Potential Routes for the Project?

A. The Siting Team developed initial Potential Routes to avoid large area constraints where feasible and maximize the distance between small area constraints while avoiding circuitous routes and minimizing sharp angles. Where feasible, Potential Routes were sited to use existing/unmaintained ROW (including a vacant 69 kV ROW and future use corridor) or parallel existing transmission lines. Where such routing opportunities did not exist, the Siting Team sought to draw routes predominantly along parcel boundaries, although the diversity of parcel sizes and the presence of localized constraints necessitated the development of some diagonal alignments. The Potential Route identification effort resulted in a network of nine unique links that could be considered to route the new line from the proposed Nescopeck Switchyard to the Tomhicken Switchyard and the existing Harwood Substation. Figure 4-3 in Attachment 4 shows the resulting network of Potential Routes evaluated by the Project Team.

The Siting Team subsequently reviewed and evaluated the Potential Route Network. During these conversations, comparative data, aerial photos, and notes taken during the field reconnaissance were reviewed. The major environmental and land use factors considered in this evaluation were: wetlands, ponds, and other stream crossings; tree clearing requirements; amount of new ROW required; proximity of residences and other buildings; known or suspected historic sites; and incremental aesthetic impact. Engineering factors were also considered during the Potential Route evaluation, including the extent of ROW paralleling opportunities and areas that presented engineering and construction challenges (e.g., the number of angle structures required, transmission line crossings, and oil/gas pipeline crossings). From this initial analysis three Alternative Routes were assembled and selected for additional comparative analysis.

As part of the route development process, the Siting Team contacted various federal, state, and local agencies to inform them of the Project and request data to be used during route analysis. Copies of correspondence with federal and state agencies are provided in Attachment 14.

As described in Attachment 3, an online preliminary Pennsylvania Natural Diversity Inventory ("PNDI") review was conducted for the Potential Routes on September 26, 2025. Based upon the results of the September 2025 PNDI, the Pennsylvania Department of Conservation and Natural Resources ("DCNR") requested further review of this Project to resolve potential impacts to the Screw-Stem (*Bartonia paniculata ssp. paniculata*), which is listed as a species of special concern. On December 16, 2025, an updated online PNDI was conducted to identify state-specific wildlife habitats and sensitive species within the Study Area. Because the Project Area exceeds 10 square miles

and/or 5,165 acres, the PNDI response indicated that further coordination would be required between the Company, the Pennsylvania Game Commission ("PGC"), DCNR, Pennsylvania Fish and Boat Commission ("PFBC"), and the U.S. Fish and Wildlife Service ("USFWS") in order to determine potential impacts and more specific information on threatened or endangered species within the Project Area. PPL Electric is currently coordinating directly with the four agencies per the PNDI response. Botanical surveys may be required during the August-October flowering season. The PGC has indicated that further review is required for two sensitive species with unlisted names, while the USFWS response noted that the Project is within range of the federally listed northern long-eared bat and tricolored bat. Agency findings will be updated once further coordination has been conducted for the Proposed Route.

Q. Please explain how the Company evaluated potential routes.

A. During the evaluation, comparative data, aerial photos, and notes taken during the field reconnaissance were reviewed. As stated previously, the major environmental and land use factors considered in this evaluation were: wetlands, ponds, and other stream crossings; tree clearing requirements; amount of new ROW required; proximity of residences and other buildings; known or suspected historic sites; and incremental aesthetic impact. Engineering factors were also considered during the Potential Route evaluation, including extent of ROW paralleling opportunities and areas that presented engineering and construction challenges (e.g., the number of angle structures required, transmission line crossings, and oil/gas pipeline crossings).

Q. Was public outreach part of the routing process?

A. Yes. Agency and public outreach are an important component of the siting process. PPL Electric conducted public outreach throughout the siting process, including regulatory agency consultation, public notification and an open house meeting, and meetings with property owners. PPL Electric's public outreach efforts for this Project are summarized by Austin Weseloh in PPL Electric Statement No. 4. We also engaged in consultation with various federal, state, and local agencies to inform them of the Project and request data used in the route planning process.

After announcing the selection of the Proposed Route in April 2025, PPL Electric thoroughly reviewed the information obtained during the public meetings, along with the comments received. As a result, PPL Electric took the information received into consideration to address landowner concerns and make modifications to the Project plan, where practical. PPL Electric also reached out to affected landowners crossed by the rebuilt Susquehanna – Nescopeck #1 and #2 230 kV Transmission Line and rebuilt Sunbury – Nescopeck #1 230 kV Tap Line to discuss the Project. Additional details regarding PPL Electric's agency and public outreach efforts are provided in **Attachment 14 – Agency Coordination** and **Attachment 4 – Alternatives and Siting Application**, respectively, to the Application.

Q. Did PPL Electric consider local comprehensive plans and zoning in selecting the proposed route for the Project?

A. Yes. As required by the PUC's guidelines found at 52 Pa. Code, § 69.1101 (2)(3) and § 69.3104 (1), local zoning ordinances and comprehensive land use plans were reviewed

by PPL Electric to evaluate the impact of the proposed Project. PPL Electric evaluated the Project's consistency with the zoning ordinances and comprehensive plans of the government entities through which the Proposed Route would pass. PPL Electric has reviewed the Project with Luzerne County and Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle townships. A discussion of PPL Electric's review of the local zoning ordinances and land use comprehensive plans is provided in **Attachment 3 – Environmental Analysis** to the Application.

III. SELECTION OF THE PROPOSED ROUTE

Q. Please summarize how PPL Electric identified Alternative Routes for the Project.

A. Once the Potential Routes were identified and the network of nine unique links created (identified as Potential Routes 1 through 9), the Team selected the most suitable links that could be further refined and assembled into distinct Alternative Routes for subsequent comparative analysis.

Nescopeck Switchyard is located approximately 0.2 mile south of the existing Sunbury – Susquehanna 230 kV and Sunbury – Susquehanna 500 kV transmission lines. Within the western portion of the Study Area, existing ROW was identified as the primary siting opportunity (see Section 2.5 in **Attachment 4 – Alternatives and Siting Analysis** for further details). As shown on Figure 4-3 in **Attachment 4 – Alternatives and Siting Analysis**, Potential Route 8 is an alignment that either uses existing and unmaintained ROW (including the future use corridor) for its entire length (8.4 miles) between proposed the Nescopeck Switchyard and Potential Route 1. Potential Route 9 is the western-most feasible pathway identified within the Study Area. From the proposed Nescopeck

Switchyard, Potential Route 9 uses a brief diagonal alignment to proceed northwest for approximately 0.3 mile to reach the existing Sunbury – Susquehanna #2 500 kV Transmission Line and parallel the south side of its existing ROW for approximately 0.5 mile. At this point, Potential Route 9 uses or parallels the existing ROW for the retired Harwood – Berwick 69 kV line. The other Potential Routes are located to the east of Potential Routes 8 and 9, all of which eventually worked their way back west and south to meet up with Potential Route 1.

After analyzing each of the Potential Routes, the routes were assembled into three Alternative Routes to be further compared side by side as discussed in detail in Attachment 4: Alternative Route A, consisting of Potential Routes 8 and 1; Alternative Route B, consisting of Potential Routes 7, 5, 2 and 1; and Potential Route B1, consisting of Potential Routes 4, 6, 5, 2 and 1.

Q. Please summarize the Alternative Routes.

A. Alternative Route A is approximately 11.2 miles long and located within Black Creek, Hazle, Nescopeck, and Sugarloaf townships, Luzerne County. Departing the proposed Nescopeck Switchyard, Alternative Route A proceeds southward through the future use corridor for 1.4 miles. At this point, Alternative Route A continues southeastward for 9.7 miles within the previously acquired ROW corridor to reach the new Tomhicken Switchyard and the existing Harwood Substation, which is partially cleared in this section as a remnant of the retired Harwood – Berwick 69 kV transmission line. Overall, Alternative Route A utilizes an existing right-of-way for 100% of its total alignment and

requires approximately 100 acres of new ROW acquisition due to the ROW being expanded.

Alternative Route B is approximately 12 miles long and located within Hazle, Nescopeck, and Sugarloaf townships, Luzerne County. Starting at the proposed Nescopeck Switchyard, Alternative Route B proceeds generally southeastward along a cross-country alignment for approximately 5.8 miles. At this point, Alternative Route B turns to continue southward by paralleling the existing Susquehanna – Harwood 230 kV Transmission Line for 3.5 miles. The remainder of its alignment (approximately 2.7 miles) continues southeastward within the previously acquired future use corridor to the new Tomhicken Switchyard and the existing Harwood Substation, which is also occupied in this section by the existing Susquehanna – Harwood 230 kV Transmission Line. Alternative Route B would require approximately 244 acres of new ROW acquisition.

Alternative Route B1 is 13.2 miles long and located within Hazle, Nescopeck, and Sugarloaf townships, Luzerne County. From the proposed Nescopeck Switchyard, Alternative Route B1 proceeds northeastward for approximately 0.2 mile to reach the existing Sunbury – Susquehanna #2 500 kV Transmission Line and parallel the south side of its ROW for approximately 2.3 miles, proceeding eastward. At this point, Alternative Route B1 turns away from the existing line and travels generally south in a cross-country alignment for 5.1 miles until reaching the existing Susquehanna – Harwood 230 kV transmission line. From here, Alternative Route B1 shares the next 3.5 miles of its alignment with Alternative Route B, paralleling the existing Susquehanna – Harwood 230 kV transmission line. Like Alternative Routes A and B, the remaining 2.7 miles of its alignment proceeds southeast to the new Tomhicken Switchyard and the existing Harwood

Substation within the previously acquired ROW corridor, which is also occupied in this section by the existing Susquehanna – Harwood 230 kV Transmission Line. Overall, Alternative Route B1 shares approximately 59 percent of its total alignment with Alternative Route B and parallels a combination of existing future line or existing ROW for 60 percent of its total length. Alternative Route B1 would require approximately 263 acres of new ROW acquisition.

Q. Did the Siting Team consider impacts of the Alternative Routes on the natural environment?

A. Yes. From a combined natural environment resources perspective, Alternative Route A is anticipated to significantly reduce potential impacts to wetlands, streams, waterbodies, and wildlife habitat since it uses PPL Electric's existing ROW for the retired Harwood – Berwick 69 kV Transmission Line to the greatest extent practicable. Although this ROW is currently unmaintained, vegetation removal for a new 500/230 kV transmission line is considerably reduced because of the previous routine maintenance along the Harwood – Berwick 69 kV Transmission Line. Regardless of the route selected, disturbance to farmland soils is generally limited to structure footprints and/or their foundations.

Q. Did the Siting Team evaluate the impacts of the Alternative Routes on the built or human environment?

A. Yes. In general, land uses crossed by all three Alternative Routes are anticipated to be similar since they each avoid densely populated areas and parallel existing linear infrastructure (e.g., existing overhead transmission lines or transmission line right-of-way

corridors) or property lines for much of their total alignment. Still, Alternative Route A is notably more favorable from a combined built environment perspective because it exclusively uses previously acquired ROW for the entirety of its alignment. A significant portion of the existing ROW was previously maintained for the retired Harwood – Berwick 69 kV Transmission Line. As a result, Alternative Route A significantly reduces the acreage of tree clearing required for a desired 200-foot-wide ROW, thereby reducing the viewshed and aesthetic impacts to the best extent practicable.

Q. Did the Siting Team consider the impacts of the Alternative Routes on aesthetics and recreation areas?

A. Yes. No existing recreational areas were identified in proximity to Alternative Routes A and B. During construction of the Project, Alternative Route B1 could limit access to the public recreation areas of the Powderhole (Wapwallopen Gorge) if it were to be selected as the Proposed Route.

Q. Did the Siting Team consider the impacts of the Alternative Routes on cultural resources?

A. Yes. No known archaeological sites are located within 1,000 feet of the Alternative Routes. All three Alternative Routes cross an NRHP-eligible historic railroad district identically upon their exit of the existing Harwood Substation, which is located within a predominantly mixed-use commercial/industrial area. For the Proposed Route, PPL Electric will take necessary measures during construction to avoid impacting the NRHP-eligible bridge located on Hollow Road by identifying suitable haul routes elsewhere.

Overall, the Siting Team does not anticipate that the Project will result in adverse impacts to known cultural resources.

Q. Did the Siting Team reach a conclusion regarding the engineering and constructability of the Alternative Routes?

A. Yes. From a combined engineering and constructability perspective, Alternative Route A is most favorable. It is the shortest, most direct alignment between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation. Additionally, Alternative Route A utilizes existing ROW for the entirety of its alignment and requires the fewest number of angle structures.

Although each Alternative Route requires crossing Interstate 80 (I-80), experience suggests that perpendicular crossings of major highways are preferred by PennDOT. Therefore, Alternative Route A is also most favorable from an interstate highway crossing perspective.

Due to the overall physiographic characteristics of the Study Area, the Siting Team anticipates similar topographic and geotechnical challenges regardless of the final Proposed Route. However, Alternative Route A utilizes an existing transmission line ROW for the entirety of its alignment, which could potentially reduce the number of those challenges.

Q. Please explain the process to select the Proposed Route.

A. As discussed previously, the Alternative Routes were evaluated and compared against each other to determine a Proposed Route for the Project. The evaluation of the Alternative

Routes included a quantitative and qualitative analysis of potential impacts to the natural environment, built environment, and engineering and constructability.

Natural environment impacts include potential impacts to vegetation and habitat, surface waters, and conservation and recreation lands. Potential impacts are evaluated based on publicly available maps and data as well as consultation with federal and state agencies.

Built environment impacts include direct and indirect impacts to residential, commercial and industrial development, institutional uses, cultural resources, and land use. Construction of a new transmission line can result in changes to land use and aesthetic impacts to residents, commuters and travelers, employees, and recreational uses.

Potential engineering challenges or difficulties are also important to consider. Sharp transmission structure angles, crossing of existing transmission lines, excessive road and stream crossings, narrow ROW alignments, steep topography, and unnecessary length are all elements that could ultimately require extensive engineering and can lead to increases in overall cost. For example, every turn in the line requires a different, and often more expensive, type of structure.

The Alternative Routes were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

As discussed in the previous section of this testimony, the Siting Team ultimately decided that the cumulative environmental, engineering and constructability, and social and financial impacts associated with constructing Alternative Route A are more favorable

when compared to Alternative Routes B and B1. Therefore, Alternative Route A was selected as the Proposed Route for the Project.

Q. Please explain why the Proposed Route was chosen.

A. Overall, the 11.2-mile-long Proposed Route for the new Nescopeck – Tomhicken #1 and Nescopeck – Harwood #1 500/230 kV Transmission Lines is the most direct and shortest route, saving between 0.9 and 2.1 miles as compared to the other Alternative Routes. It is also the only route to utilize an existing transmission ROW corridor for the entirety of its alignment. The shortened length and use of existing ROW substantially reduce the amount of new acquisition needed to expand the existing ROW and complete the Project. Additionally, by maximizing the existing ROW for its entire alignment, the Proposed Route significantly reduces the number of new access roads and robust angle structures (greater than 45 degrees), and thereby specifically reduces overall impacts to constructability.

Furthermore, maximizing existing ROW opportunities reduces impacts to the natural and human environments significantly. Although the Proposed Route for the new Nescopeck – Tomhicken #1 and Nescopeck – Harwood #1 500/230 kV Transmission Lines crosses the most properties, minimal aesthetic impact is anticipated since the entire alignment utilizes an existing ROW corridor which already crosses the majority of those properties and formerly hosted the Harwood – Berwick 69 kV transmission line. In addition to reduced viewshed impacts by utilizing a corridor for a recently retired transmission line, the Proposed Route for the new Nescopeck – Tomhicken #1 and Nescopeck – Harwood #1 500/230 kV Transmission Lines minimizes impacts to residential and commercial or

industrial properties to the best extent practicable by broadly avoiding road crossings in close proximity to houses. Alternative Route A also avoids circuitous cross-country options that increase cumulative impacts. These route considerations will reduce right-of-way acquisition risks considerably.

Moreover, the rebuilt Susquehanna – Nescopeck #1 and #2 230 kV Transmission Lines effectively minimize increasing the cumulative impacts of the overall Project since they will be constructed entirely within existing ROW or property owned by PPL.

Collectively, PPL Electric's Proposed Route for the new Nescopeck – Tomhicken #1 and Nescopeck – Harwood #1 500/230 kV Transmission Lines (1) is most consistent with the siting guidelines listed in Section 2.4 in **Attachment 4 – Alternatives and Siting Analysis**; (2) reasonably minimizes adverse impacts on existing land uses and the visual, natural, and human environments; (3) minimizes special design requirements and unreasonable costs; (4) will allow for right-of-way to be acquired with the least inconvenience on landowners and in a timely manner; and (5) can be constructed and operated in a safe, timely, and reliable manner. Based on this analysis and PPL Electric's extensive experience, the Proposed Route is the most suitable, constructable, and accessible route, with the lowest risk and least overall impacts.

IV. COMPLIANCE WITH POTENTIAL PERMIT AND MITIGATION REQUIREMENTS

Q. Please summarize PPL Electric's efforts to minimize the anticipated impacts and potential permit and mitigation requirements of the Project.

A. Efforts were made during the transmission line siting process to minimize impacts on existing and future land uses, as well as avoid sensitive natural resources such as wetlands

and streams. Where impacts are unavoidable, best management practices will be employed, and PPL Electric will obtain and comply with any necessary permits.

As part of the permitting process, any required waterway or floodplain encroachment permits will be obtained from the Pennsylvania Department of Environmental Protection ("PADEP") and United States Army Corps of Engineers ("USACE") prior to construction and PPL Electric will comply with all special conditions placed on the permits. In addition, PPL Electric will comply with the regulations of the National Pollutant Discharge Elimination System ("NPDES") permit program, obtain the required soil erosion and sedimentation control approvals and permits, and follow the specified conditions required for the permit.

A detailed discussion of the Company's efforts to minimize the anticipated impacts and potential permit and mitigation requirements of the proposed Project is provided in Attachments 3, 4, 14, and 15 to the Application, including potential impacts to: land use; natural features; rare, threatened, and endangered species; cultural resources; community features and conserved lands; and agency requirements and permits.

V. CONCLUSION

Q. Does this conclude your testimony at this time?

A. Yes, it does. I reserve the right to supplement my testimony as additional issues arise during the course of this proceeding.

VERIFICATION

I, PETER SPARHAWK, being the Senior Vice President, T&D Market Sector Lead, Earth & Environment at WSP USA, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 03/24/2026

Peter Sparhawk

Peter Sparhawk (Mar 24, 2026 21:14:09 EDT)

Peter Sparhawk

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, for Approval to (1) Bifurcate and Rebuild 4.4 Miles of the Existing Sunbury-Susquehanna #1 230 kV Transmission Line; (2) Construct 0.9 Miles of New Transmission Line Tap for Future 230 kV Double-Circuit Operation; (3) Raise Approximately 0.5 Miles of the Sunbury-Susquehanna 500 kV Transmission Line; and (4) Construct 11.2 Miles of New Double Circuit 230 kV Transmission Line for Future Double Circuit 500 kV Capacity, Located in Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania	:	Docket No. A-2026-_____

PPL ELECTRIC UTILITIES CORPORATION

STATEMENT NO. 4

DIRECT TESTIMONY OF AUSTIN WESELOH

TOPICS ADDRESSED: RIGHT-OF-WAY AND EASEMENT RIGHTS

DATE: APRIL 6, 2026

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Austin K. Weseloh. My business address is 827 Hausman Road, Allentown, Pennsylvania 18104.

Q. By whom are you employed and in what capacity?

A. I am employed by PPL Services Corporation as Transmission Right of Way and Real Estate Supervisor. In this position, my primary responsibility is to supervise all Transmission Right of Way ("ROW") and Real Estate assets for PPL Service Corporation in service to PPL Electric Utilities Corporation ("PPL Electric" or the "Company").

Q. What is your educational background?

A. I attended the University of Pittsburgh for three years, majoring in Economics.

Q. Are you a member of any professional organizations?

A. Yes. I am currently a member of the International Right of Way Association ("IRWA") where I am taking classes to attain the Senior Right of Way Agent ("SR/WA") certification which is the highest-level industry designation. The certification requires course work consisting of both core courses and elective courses. The certification requires satisfactory completion of the certification test administered by the IRWA.

Q. Please describe your background and employment history.

A. I have been employed by PPL Electric in my current position as Transmission Right of Way and Real Estate Supervisor for approximately seven years. Prior to that, I was a Senior Right of Way Specialist at PPL Electric for three and a half years.

- From 2012 through 2013 I worked as a Right of Way Agent for Doyle Land Services negotiating the acquisition of ROW grants, access roads, property damages and real estate contracts to add a 60-mile pipe adjacent to an existing ROW in Pennsylvania.
- From 2011 through 2012 I worked as a Right of Way Agent for Meridian Land Group negotiating the acquisition of ROW grants, access roads and property damages for 75 miles of new pipeline ROW to connect 69 new natural gas wells in Northeast Pennsylvania.
- From 2010 through 2011 I worked as a Right of Way Agent for Miller Land Professionals reviewing title for potential natural gas leases and ROWs in Bradford and Susquehanna Counties, Pennsylvania.

From 2004 through 2010 I worked for LTS Builders and Realty Company purchasing land for new home construction. My duties included negotiating for individual lots as well as large tracts to be subdivided into developments.

Q. What are your responsibilities in connection with the proposed Project?

A. The Project is described by Joseph Lookup in PPL Electric Statement No. 1, and in Attachment 2. The Project requires the acquisition of additional right-of-way ("ROW") to accommodate the construction of the new transmission lines. My colleagues and I are

responsible for identifying all property owners along the route selected for the ROW and negotiating easement rights with those property owners.

For new ROWs and easements, the Company attempts to negotiate with the property owners for the required land rights. We also provide the landowners along the selected route with literature regarding electromagnetic fields, compatible ROW uses, pictures of typical transmission line structures, and other information to help them fully understand the project. The ROW Agent will meet with property owners as necessary to answer questions, address concerns, and/or to resolve issues. The ROW Agent provides the property owner with information on how he/she can be contacted at any time, to answer questions or to address issues or concerns, should any arise. The ROW Agent is the direct link for the property owner to communicate with PPL Electric.

Q. What are the subjects of your testimony?

A. First, I will identify the portions of the above-captioned Application that I am sponsoring. Second, I will summarize our process for identifying new ROW required for the Project and the property owners that would be affected. Third, I will explain the process we employed to attempt to acquire rights of way and easements for the Sugarloaf 500/230 kV Transmission Line Project. Fourth, I will explain the Company's policy regarding the property owner's use of the ROW area and will provide examples of measures the Company employs to mitigate the impacts of the Transmission Lines on property owners' present and future uses of their properties. Fifth, I will explain the status of our efforts to acquire the rights-of-way and easements needed for the Project.

Q. Please describe the portions of the Siting Application that you are sponsoring.

A. I am responsible for assisting in the identification of landowners crossed by the proposed project and the ROW acquisition process.

II. RIGHT-OF-WAY IDENTIFICATION AND ACQUISITION

Q. Please describe the Company's process for identifying the owners of property that will be traversed by Project facilities.

A. Starting in 2024, Company personnel and contractors researched the Project routes for property owner names, property records, and mapping. ROW agents then collected boundary and physical evidence from the field to determine or confirm property boundaries. My colleagues then prepared mapping for the contract ROW agents to meet with the property owners to show them where the proposed ROW would be located.

Q. Please explain the Company's policy regarding dealing with owners of property to be traversed by Project facilities.

A. The Company's policy regarding dealing with property owners is described in the informational packet provided to property owners along the Proposed Route, which is provided as an enclosure to **Attachment 16 – Public Notice Requirements**. Included in this informational packet, described in more detail below, this packet provides that PPL Electric representatives are to: act with integrity at all times; treat everyone courteously and in a professional manner; be forthright and honest in all actions and communications; comply with all laws and regulations; avoid any conflicts of interest; accept responsibility for any actions or decisions; be good stewards of the environment; and place a high priority on safety for the public, as well as Company employees and representatives. In addition, it

is PPL Electric's practice to accommodate the landowner's use of their property by shifting the location of the ROW on a landowner's property when it can be reasonably accomplished without incurring significant costs or challenges.

Q. Did the Company provide information to owners of land that may be subject to a ROW or easement for the Project?

A. Yes. As mentioned above, prior to contacting property owners to negotiate ROW agreements, the Company provided informational packets to notify property owners of the Company's plans to negotiate to acquire rights of way and easements across their land. This packet discloses to the property owner information including the name, purpose, and general location of the Project; PPL Electric's standards of employee and agent conduct; notices of eminent domain power and ROW management practices; and includes a permission form for landowners to grant PPL Electric access to their property.

This packet also contains the notices required by the Pennsylvania Public Utility Commission in its regulations at 52 Pa. Code § 57.91. The first notice discusses the Company's power of eminent domain with respect to the Project, and the associated rights of the property owner. The second notice provides information regarding the ROW maintenance practices for the Project facilities.

Additionally, the Company held a public open house on April 30, 2025, at the Valley Country Club, located at 79 Country Club Lane, Sugarloaf, PA 18249. At the meeting, attendees received a welcome packet including the Project fact sheet, Project frequently asked questions ("FAQs"), and electromagnetic field FAQs and comment cards. The public information meeting provided an opportunity for residents and other interested

parties to review project information displays and discuss the Project with PPL Electric representatives. The fact sheet contained a brief statement on the Project need, a description of the siting process, and a preliminary Project timeline. Approximately 110 attendees signed in and an estimated total of approximately 250 to 300 guests attended the public open house. After announcing the selection of the Proposed Route in April 2025, PPL Electric thoroughly reviewed the information obtained during the public meetings, along with the comments received. As a result, PPL Electric took the information received into consideration to address landowner concerns and make modifications to the Project plan, where practical.

Q. What does the Company do after providing the information and notices to property owners?

A. Pursuant to 52 Pa. Code § 57.91, the Company waits at least 15 days following landowner's receipt of the informational packet. We then contact the property owner(s) via telephone or in person to schedule a convenient time to meet so that we can explain the details of the Project and answer any questions they may have. At such meetings, we usually make a monetary offer to the property owner(s) for the ROW sought. The amount of the offer is based on the fair market value of the property that would be occupied by the ROW the Company wishes to acquire.

Q. Please explain the Company's policy regarding the property owner's use of the ROW area.

A. Following the Company's acquisition of a ROW and easement, the property owner can continue to use the ROW area, so long as such use is compatible with the safe and reliable operation and maintenance of Company facilities. Compatible uses that require no prior review or approval from the Company include farming and gardening. The Company also allows compatible development within the ROW area, provided that the design and work in the area does not interfere with the safe and reliable operation and maintenance of Company facilities. Such uses include grading, installation of roadways or parking lots, and installation of underground infrastructure (such as utilities).

Q. Please identify methods and/or examples where the Company has worked with property owners along the Proposed Route to mitigate effects of the Project on their present and future land uses.

A. The Company sought feedback from landowners at the open houses and subsequent individual meetings to minimize the impact to properties where possible. Given that the Project utilizes an existing ROW corridor there are limited additional impacts to landowners. However, the use of an existing ROW corridor limits the Company's flexibility in agreeing to landowner requests.

Q. Please explain the status of the Company's efforts to acquire ROW and easements for the Project.

A. There is a total of 88 deeded properties along the Proposed Route, owned by a total of 69 distinct property owners. At the time of this filing, 36 formal easement and right-of-way agreements have been executed. Additionally, PPL Electric has contemporaneously filed 30 Condemnation Application pursuant to 15 Pa. C.S. § 1511(c) for a finding and determination by the Commission, to the extent that any such finding and determination may be required, that the service to be furnished by PPL Electric through the exercise of the power of eminent domain for the Sugarloaf 500/230 kV Transmission Line Project is necessary or proper for the service, accommodation, convenience or safety of the public. PPL Electric has been negotiating to widen its easements, and there are 30 easements that PPL has been unable to acquire to date. These easements have not been acquired for various reasons, including easement language concerns, disagreement on compensation, or opposition to the project.

III. CONCLUSION

Q. Does this conclude your Direct Testimony?

A. Yes. I reserve the right to supplement my testimony as additional issues arise during the course of this proceeding.

VERIFICATION

I, AUSTIN K. WESELOH, being the Transmission ROW & Real Estate Supervisor, at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 03/31/2026

Austin K Weseloh
Austin K Weseloh (Mar 31, 2026 09:44:39 EDT)

Austin K. Weseloh

Executive Summary

EXECUTIVE SUMMARY

This Siting Application is submitted by PPL Electric Utilities Corporation ("PPL Electric") pursuant to the Pennsylvania Public Utility Commission's ("PUC" or the "Commission") regulations at 52 Pa. Code §§ 57.71 through 57.77 for PUC approval to construct a new Nescopeck 230 kilovolt ("kV") Switchyard and connecting lines (the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project"). The Project as accepted by PJM Interconnection, LLC ("PJM"), includes reinforcements of the 230 kV system from the existing Susquehanna 230 kV Switchyard ("Susquehanna Switchyard") to the new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard") and the existing Harwood 230-69 kV Substation ("Harwood Substation"), via the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard"). As explained in the Attachments and Testimony filed with this Application, the Sugarloaf 500/230 kV Transmission Line Project is needed to serve a new customer located in Hazle Township (the "Customer") with an initial load of 240 megawatts ("MW"). The Customer's load will increase in stages to approximately 965 MW by 2033. Additional customers have applied for service in the Hazleton area with a combined requested load of over 5,000 MW by 2033. Due to the size of the requested load, the Customer is most appropriately supplied from the 230 kV network. PPL Electric anticipates that this projected load growth will create overloads on the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines, which could lead to voltage violations. The instant Project will resolve the projected violations created by the load addition.

The Project involves bifurcating and rebuilding 4.4 miles of the existing Sunbury-Susquehanna #1 230 kV Transmission Line between the proposed Nescopeck Switchyard and the existing Susquehanna Switchyard for double-circuit 230 kV operation. The other section of the Sunbury-Susquehanna #1 230 kV line between the bifurcation and the Nescopeck Switchyard will be rebuilt to single-circuit 230 kV operation. In addition, 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line will be raised to accommodate the undercrossings of the rebuilt 230 kV lines from Sunbury and Susquehanna to Nescopeck. The Project also includes the construction of a new approximately 11.2-mile long 500/230 kV transmission line between the proposed Nescopeck Switchyard, Tomhicken Switchyard, and the existing Harwood Substation in Luzerne County, Pennsylvania ("Sugarloaf 500/230 kV Transmission Line"). The new 500 kV transmission line

(initially operating at 230 kV) will extend south from the Nescopeck Switchyard for 8.4 miles and then split into two lines (the Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines), with one line terminating at the Tomhicken Switchyard and one line terminating at the Harwood Substation. The existing corridor of the retired Harwood-Berwick 69 kV transmission line will be utilized for the Sugarloaf 500/230 kV Transmission Line. The new Nescopeck Switchyard will be located in Nescopeck Township, near the existing Sunbury-Susquehanna 500 kV and 230 kV Transmission Lines. The new Tomhicken Switchyard will be located in Hazle Township and will tie into a new customer-owned 230-34 kV substation and be adjacent to the existing Susquehanna-Harwood 230 kV Transmission Line. The new Sugarloaf 500/230 kV Transmission Line will continue past the proposed Tomhicken Switchyard and ultimately terminate into the existing Harwood Substation located in Hazle Township.

A comprehensive route selection study was conducted to establish a Proposed Route for the new Sugarloaf 500/230 kV Transmission Line. Using established siting guidelines, the Routing Team identified constraints and opportunity features within the Study Area that would minimize impacts to the natural and human environments. The Routing Team evaluated the advantages and disadvantages of the Potential Routes based on the established routing criteria and an inventory of land use, environmental, and cultural factors along each of the routes. Less favorable Potential Routes were eliminated, and three feasible Alternative Routes were retained for further consideration. This study also identified and evaluated the proposed bifurcation and rebuild of the existing Sunbury-Susquehanna #1 230 kV Transmission Line.

A quantitative and qualitative assessment was conducted to compare the Alternative Routes. A Proposed Route was selected based upon a detailed analysis and balance of public input, societal concerns, environmental impacts, engineering considerations, and costs. Based on an assessment of the advantages and disadvantages of the three alternative routes under consideration, the Routing Team selected Alternative Route A as the Proposed Route. Overall, the Proposed Route will have substantially less impact on the natural and built environments, land use, and citizens in Luzerne County.

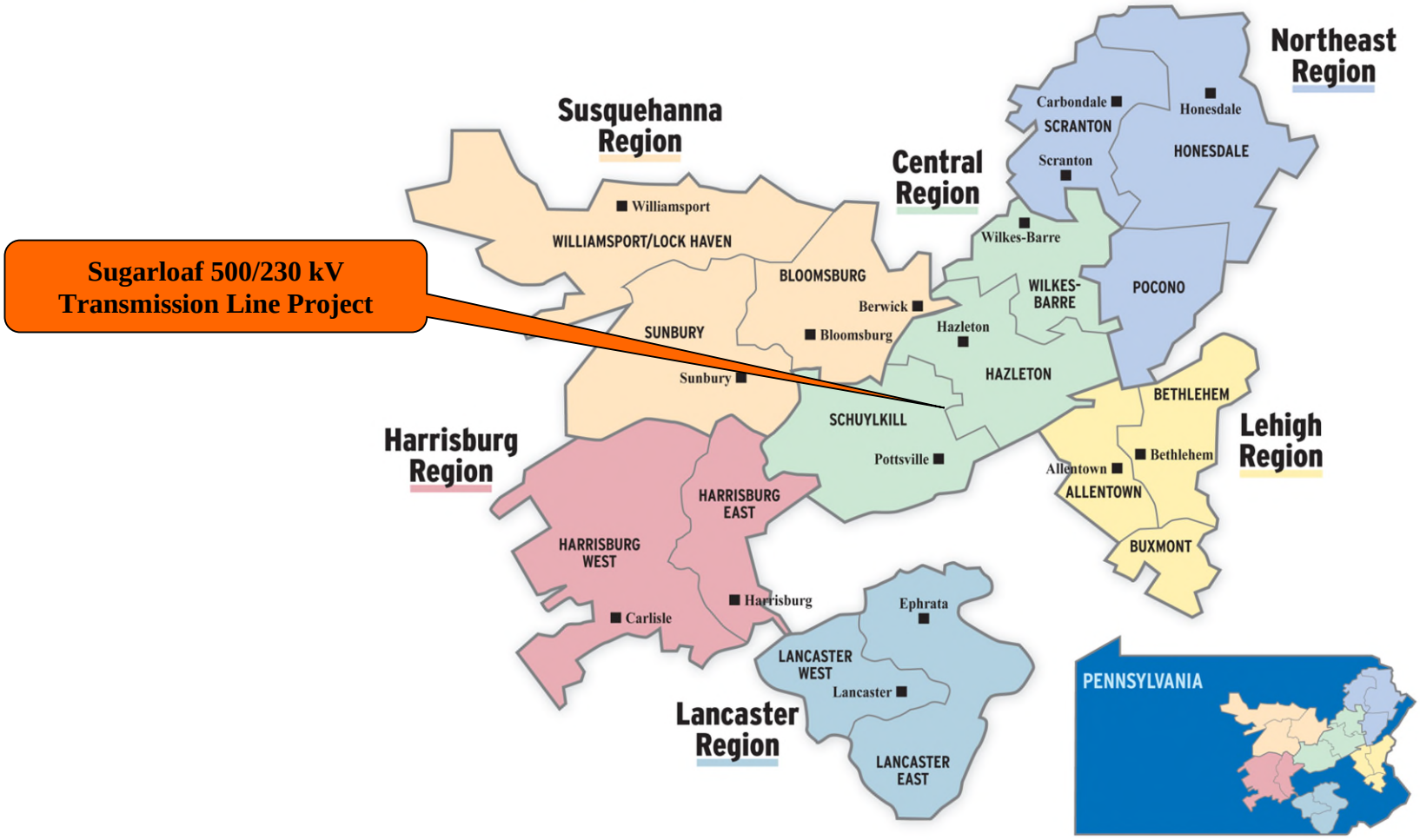
The estimated cost of the Project is approximately $118.5 million, and the cost for the Project will be allocated to PPL Electric customers.[1] Subject to Commission approval, construction is scheduled to begin in February 2027 to support an in-service date of March 2028.

Included with this Siting Application are the following Attachments:

Attachment 1	PUC Regulation Cross Reference Matrix
Attachment 2	Necessity Statement
Attachment 3	Environmental Setting
Attachment 4	Siting Analysis
Attachment 5	Design and Engineering Description
Attachment 6	List of Owners of Property Within the Right-of-Way
Attachment 7	Agency Permit Requirements
Attachment 8	List of Involved Governmental Agencies, Municipalities and Other Public Entities Receiving the Application
Attachment 9	List of Government Agencies, Municipalities, and Other Public Entities Contacted
Attachment 10	List of Public Locations Where Application Can Be Examined
Attachment 11	PPL Electric Magnetic Field Management Program
Attachment 12	Vegetation Management
Attachment 13	PPL Design Criteria and Safety Practices
Attachment 14	Agency Coordination (PNDI/Wetlands)
Attachment 15	Cultural Resources Report
Attachment 16	Public Notice Requirements

[1] The estimated cost was developed using preliminary engineering and initial field investigations. The cost is subject to change as engineering, constructability analysis of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

PPL ELECTRIC UTILITIES SERVICE TERRITORY



Attachment 1

ATTACHMENT 1
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
PUC REGULATION CROSS-REFERENCE MATRIX

Administrative Code Section or Statute	PUC Regulation Requirement	Location
57.72	Form and content of application	
57.72(a)	Applications shall be in conformity with Section 1.31 (relating to form of documentary filings generally). Supporting exhibits such as maps, photographs and other engineering materials may be on paper not exceeding 28 inches by 40 inches.	Attachments 1 – 16 Attachment 3 – Environmental Maps Attachment 4 – Siting Analysis Maps Attachment 4 – Aerial Maps
57.72(b)	The application shall be signed by a person having authority with respect thereto and having knowledge of the matters herein set forth and shall be verified under oath.	Siting Application
57.72(c)	An application shall contain:	
57.72(c)(1)	The name of the applicant and the address of its principal business office	Siting 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.	Siting 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 right-of-way width and the location of the proposed HV line within each city, borough, town and township traversed.	Siting Application Attachment 4 – Section 3.3 Attachment 4 – Tables 4-3 and 4-5
57.72(c)(4)	The names and addresses of known persons, corporations and other entities of record owning property within the proposed right-of-way, together with an indication of HV line rights-of-way acquired by the applicant.	Attachment 4 – Aerial Maps Attachment 6

Administrative Code Section or Statute	PUC Regulation Requirement	Location
57.72(c)(5)	A general statement of the need for the proposed HV line in meeting identified present and future demands for service, of how the proposed HV line will meet that need and of the engineering justifications for the proposed HV line.	Attachment 2
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.	Attachment 5 – Section 3.0 Attachment 11 Attachment 12 Attachment 16
57.72(c)(7)	A description of 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 which will be made to minimize the impact of the HV line upon the environmental and upon scenic and historic areas, including but not limited to impacts, where applicable, upon land use, soil and sedimentation, plant and wildlife habitats, terrain, hydrology and landscape.	Attachment 3 Attachment 4 – Section 4.0 Attachment 8 Attachment 14 Attachment 15
52.72(c)(8)	A description of the efforts of the applicant to locate and identify archaeologic, geologic, historic, scenic or wilderness areas of significance within 2 miles of the proposed right-of-way and the location and identity of the areas discovered by the applicant.	Attachment 3 – Sections 2.0 through 3.0 Attachment 3 – Figures 3-2 through 3-7 Attachment 4 – Section 4.0 Attachment 4 – Figures 4-4 through 4-9 Attachment 15
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.	Attachment 3 – Section 2.1.2 Attachment 4 – Section 4.2.1

Administrative Code Section or Statute	PUC Regulation Requirement	Location
		Attachment 4 – Figure 4-5A through Figure 4-5C Attachment 4 – Aerial Maps
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 merit and detriments of each route, and a statement of the reasons for selecting the proposed HV line route.	Attachment 4
57.72(c)(11)	A list of the local, State and Federal governmental agencies which have requirements which 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 in connection with the siting and construction of the proposed HV line.	Attachment 7
57.72(c)(12)	The estimated cost of construction of the proposed HV line, and the projected date for completion.	Siting Application Attachment 2 – Section 1.0 Attachment 4 – Section 1.2
57.72(c)(13)	The following exhibits:	
57.72(c)(13)(i)	A depiction of the proposed route on aerial photographs and topographic maps of suitable detail.	Attachment 4 – Aerial Maps Attachment 4 – Figure 4-5A through Figure 4-5C
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	Siting Application Attachment 5

Administrative Code Section or Statute	PUC Regulation Requirement	Location
	supporting structures, the number of supporting structures, the line to structure clearances and the minimum conductor to ground clearances at mid-span under normal load and average weather conditions and under predicted extreme load and weather conditions.	
57.72(c)(13)(iii)	A simple drawing of a cross section of the proposed right-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	Attachment 5 – Figure 5-1 through Figure 5-3
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.	Attachment 2
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.	Siting Application
57.72(c)(15)	Additional information as the Commission may require.	N/A
57.74(a)	(a) *Filing.* The applicant shall file with the Commission the original and six copies of the application. An affidavit of service showing the identity of those served under subsections (b) and (c) shall accompany the original and the copies of the application filed with the Commission.	Siting Application Notice of Filing Certificate of Service
57.74(b)	(b) *Copies.* At the time of filing, the applicant shall serve a copy of the application by registered or certified mail, return receipt requested, upon the following: (1) The chief executive officer, the governing body and the body charged with the duty of planning land use in each city, borough, town, township and county	Siting Application Certificate of Service

Administrative Code Section or Statute	PUC Regulation Requirement	Location
	in which any portion of the HV line is proposed to be located. (2) The president of the public utility, other than the applicant, in whose service territory any portion of the HV line is proposed to be located. (3) The Department of Environmental Resources, Attention: Bureau of Environmental Planning; Post Office Box 2357, 101 S. Second Street, Harrisburg, Pennsylvania, 17120. (NOTE: now Department of Environmental Protection at different Harrisburg office).	
57.74(c)	(c) *Notice.* (1) At the time of filing, the applicant shall serve a notice of filing and a map of suitable detail showing the proposed route of the proposed facility by registered or certified mail, return receipt requested, upon the following: (i) The Secretary of the Department of Transportation, Room 1200 Transportation and Safety Building, Harrisburg, Pennsylvania 17120. (ii) The Chairman of the Historical and Museum Commission, Post Office Box 1026, Harrisburg, Pennsylvania 17120. (iii) Other local, State or Federal agencies designated in § 57.72 (c)(11)(relating to form and content of application). (iv) The persons, corporations, and other entities designated in § 57.72(c)(4), unless they are served with a copy of the application under § 57.75(i) (relating to hearing and notice).	Siting Application Notice of Filing Certificate of Service
57.74(c)	(2) The notice of filing shall contain a statement identifying the filing, the date on which the filing was or is to be made, a description of the proposed line, the design voltage, the number of route miles, the right-of-way width and the location of the proposed HV line within each township traversed and a statement that a copy of the application is available for public examination as provided in subsection (d).	Notice of Filing

Administrative Code Section or Statute	PUC Regulation Requirement	Location
57.74(d)	(d) *Examination.* On the day of filing of the application, the applicant shall make a copy of the application available for public examination during ordinary business hours at a convenient location within a county in which any part of the proposed HV will be located.	Attachment 10
57.74(e)	(e) *Additional notice.* The applicant shall provide an additional notice and shall serve such additional copies of the application without cost as the Commission may require.	N/A
69.3102(a)	(a) Applications for electric transmission siting authority should provide the following information with the initial application for siting approval demonstrating its efforts to fully notify landowners who are either owners of land that will be purchased for the transmission project or will be subject to right of way/easement requirements: (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. (2) Copies of information provided to landowners by the public utility of any publicly disseminated notices advising landowners to contact the Commission or the Office of Consumer Advocate (OCA) in the event of improper land agent practices. (3) Copies of all notices sent under § 57.91 (relating to disclosure of eminent domain power of electric utilities).	Attachment 16
69.3102(b)	(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.	Attachment 16
69.3102(c)	(c) Applicants for transmission siting authority should provide prior notice to the Commission's	N/A

Administrative Code Section or Statute	PUC Regulation Requirement	Location
	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.	

Administrative Code Section or Statute	PUC Regulation Requirement	Location
69.3103	Applicants for eminent domain authority should follow the following requirements and provide the following information as part of the application: (1) Applicants for transmission siting authority should file applications for all known eminent domain authority as separate filings, but simultaneously with the associated transmission siting applications. Testimonial evidence in support of an eminent domain application should be filed with the application. Subsequent eminent domain authority applications should be filed as soon as reasonably known during the course of the transmission siting application. (2) As part of an eminent domain application, the public utility applicant should present, for those properties subject to condemnation at the time the transmission siting application is filed or later in the siting proceeding, the reason for the exercise of condemnation power for each property and the precise location of the affected property. Supporting maps or legal descriptions of the property to be condemned should be supplied to the extent feasible. Submission of information pursuant to this guideline should be consistent with the filing requirements for the exercise of eminent domain powers under 26 Pa.C.S. § 302(b)(5) (relating to declaration of taking). (3) A public utility transmission siting application should include a summary status report for those properties along the proposed transmission route where negotiations for either property acquisition or rights of way/easements may be ongoing. This information should be supplemented as requested by the administrative law judge or the parties during the course of the transmission siting proceeding.	Condemnation Applications

Administrative Code Section or Statute	PUC Regulation Requirement	Location
69.3104	Applications for exemption from municipal zoning requirements should provide the following information with the application: (1) Copies of comprehensive land use plans, zoning ordinances and other documentation relevant to the buildings affected by the exemption request. This information may be filed in either hard copy or electronic format. (2) Provision of metes and bounds or site maps of building sites. (3) A procedure for providing notice to affected municipalities of the request for exemption.	Zoning Petition
69.3105(1)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of application) requirements: (1) Transmission applicants should utilize a combination of transmission route evaluation procedures including high-level GIS data, traditional mapping (including United States Geological Survey data and compilation), aerial maps and analysis of physical site specific constraints raised by affected landowners.	Attachment 3 Attachment 4
69.3105(2)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of application) requirements: (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.	Attachment 5

Administrative Code Section or Statute	PUC Regulation Requirement	Location
69.3105(3)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of application) requirements: (3) 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: (i) The environmental, historical, cultural and aesthetic considerations of each route. (ii) The proximity of these alternative routes to residential and nonresidential structures. (iii) The applicant's consideration of relevant existing rights of way. (iv) The comparative construction costs associated with each route.	Attachment 3 Attachment 4
69.3106	Applications for siting of electric transmission lines should include as part of the filing requirement under § 57.72(e)(7) the following information: 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.	Attachment 7
69.3107(a)	(a) *Interim guidelines for the use of herbicides and pesticides.* Applicants for transmission line siting authority should provide a detailed	Attachment 12

Administrative Code Section or Statute	PUC Regulation Requirement	Location
	vegetation management plan that includes the following components: (1) A general description of the utility's vegetation management plan. (2) Factors that dictate when each method, including aerial spraying, is utilized. (3) Vegetation management practices near aquatic and other sensitive locations. (4) Notice procedures to affected landowners regarding vegetation management practices. (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.	
69.3107(b)	(b) *Interim guidelines for Electromagnetic Field (EMF) impacts.* 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.	Attachment 5 Attachment 11 Attachment 13 Attachment 16

Attachment 2

ATTACHMENT 2
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
NECESSITY STATEMENT

TABLE OF CONTENTS

1.0 INTRODUCTION 2-1

2.0 BACKGROUND 2-4

3.0 TRANSMISSION SYSTEM PLANNING PROCESS 2-5

4.0 THE NEED FOR THE PROJECT 2-7

4.1 Existing System 2-7

4.2 Project Need 2-7

5.0 ALTERNATIVES 2-9

6.0 PROPOSED SOLUTION 2-11

List of Figures

Figure 2-1: Existing System Configuration 2-13

Figure 2-3: Proposed System Configuration After Tomhicken 2-14

Figure 2-5: Proposed System Configuration 2-15

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to:

1) Rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard");
2) Construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard;
3) Raise approximately 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and
4) Construct a new 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and existing Harwood 230/69 kV Substation ("Harwood Substation"). After traveling 8.4 miles, the eastern circuit ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 mile as a single-circuit transmission line to the new Tomhicken 230 kV Switchyard. At Structure 41 (**Page 9 of 10** of the **Aerial Exhibit** in **Attachment 4**), the western circuit ("Nescopeck-Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

Collectively, the new and rebuilt transmission lines are referred to in this application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." The Project is required to accommodate multiple customers' requests to serve new and future load in the area. The customer requests have been submitted to PJM Interconnection, LLC ("PJM") under the following need numbers: PPL-2024-0003,

[1] The Tomhicken Switchyard has not yet been constructed. It is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

PPL-2024-0004, PPL-2024-0012, PPL-2025-0002, PPL-2025-0009, and PPL-2025-0010. The total requested load in the area is over 5,000 megawatts ("MW"). The Project is located between the existing Susquehanna 230 kV Switchyard ("Susquehanna Switchyard") and Harwood Substation through Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships, Luzerne County, Pennsylvania. The proposed Nescopeck Switchyard is located in Nescopeck Township, Luzerne County.

The Company received multiple load requests, and the scope to serve these load requests will be performed in two phases. The first phase involves the construction of new high voltage ("HV") transmission lines to connect one customer (the "Customer") requesting transmission level service in Hazle Township, Luzerne County to the 230 kV system.[2] As explained in greater detail below, the subject of this instant Siting Application is the second phase of transmission expansion needed to address multiple customers' future electrical needs, as well as PPL Electric's own system needs, and to support the interconnection of the proposed Tomhicken Switchyard. PPL Electric notes that the phases are being submitted separately because only the first phase is required to meet the Customer's in-service requests for its load ramp schedule; while this second phase is required as the customer load in the area increases due to multiple customer requests for transmission-level service.

As such, PPL Electric herein seeks Commission approval to construct the Sugarloaf 500/230 kV Transmission Line Project.

The Project is required to comply with:

- The PPL Electric General Tariff to provide non-discriminatory service to a customer facility at 69,000 volts ("V") (69 kV) or above service at the LP-5 rate schedule.
- PPL Electric's general right and obligation to serve customers in its service territory, subject to the terms and conditions of its tariffs and certificate of public convenience.[3]

[2] The first phase is the subject of the Tomhicken 230 kV Switchyard Project LON. *See* fn. 1.

[3] *See, e.g.*, 66 Pa.C.S. §§ 1103, 1501, 2802(12); 52 Pa. Code §§ 57.19; *Popowsky v. Pa. PUC*, 910 A.2d 38, 48-56 (Pa. 2006); *Pa. Gas Co. v. Pub. Serv. Comm'n*, 83 Pa. Super. 557, 565-66 (1924); *Philadelphia Transp. Co. v. Pa. PUC*, 37 A.2d 138, 147 (Pa. Super. 1944); *Application of Leatherstocking Gas Co., LLC, for Approval to Supply Natural Gas Serv. to the Pub. in N. Susquehanna Cnty., in the Twps. of Bridgewater, Forest Lake, Great Bend, Harmony, New Milford, and Oakland, and in the Boroughs of Great Bend, Hallstead, Lanesboro, Montrose, New Milford, Oakland and Susquehanna*, Docket No. A-2011-2275595, 2012 Pa. PUC LEXIS 1391, at *22 (Order entered Aug. 30, 2012).

- PJM's Supplemental Project process as defined by Attachment M-3 to PJM's Open Access Transmission Tariff ("OATT").

The Project, as proposed, represents the optimal solution that allows PPL Electric to reinforce the system to serve the customers' load. This Project resolves projected overloading and voltage violations on the 230 kV system due to the future load growth in the Hazleton area.

Subject to the Commission's approval, construction will begin in February 2027 to support an in-service date of March 2028. PPL Electric will own, operate, and maintain the proposed Nescopeck Switchyard and the new and rebuilt 500/230 kV transmission lines. The total estimated cost of this Project, as described below, is approximately $118.5 million.

2.0 BACKGROUND

PPL Electric has a right and obligation to provide retail electric service in a manner that is adequate, efficient, safe, reliable, and reasonable to meet the needs of the electric system and the expectations of its customers.[4]

PPL Electric is a public utility that provides electric service to approximately 1.5 million customers throughout 29 central and eastern Pennsylvania counties. The Susquehanna-Harwood #1 & #2 230 kV Transmission Lines are part of PPL Electric's 230 kV Bulk Electric network. These transmission lines transfer power south from the Susquehanna Nuclear Station to the Harwood Substation (Luzerne County), East Palmerton Substation (Carbon County), and Siegfried Substation (Northampton County).

[4] 66 Pa.C.S. § 1501.

3.0 TRANSMISSION SYSTEM PLANNING PROCESS

The nation's interconnected transmission grid ("Transmission Grid") serves as the backbone for the safe and reliable delivery of large amounts of electricity from generating stations over substantial distances to customers served by transmission and local distribution systems. It is critical that the Transmission Grid be planned and designed to ensure reliable electric service is provided under all loading conditions or when certain elements of the Transmission Grid are out of service (system contingencies) due to planned or unplanned outages.

Robust Transmission Planning assures that the transmission system can supply electricity to all customer loads in a manner that is reliable and economical. This System Planning process ensures that both the Bulk Electric System ("BES")[5] and non-Bulk Electric System ("non-BES")[6] are planned and constructed so that they can:

- Accommodate forecasted system flows during summer and winter peak load;
- Adequately serve each customer's need regarding capacity, voltage, and reliability for all load levels throughout the daily load cycle;
- Sustain contingencies and disturbances with minimal customer service interruptions; and
- Conform with North American Electric Reliability Corporation ("NERC"), PJM, and the Transmission Owner's reliability criteria for all normal and emergency operating conditions.

PJM is a Federal Energy Regulatory Commission ("FERC")-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control (100 kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including Pennsylvania.[7]

New load customers are covered under Attachment M-3 Procedure of the OATT.[8] PPL Electric submits to PJM and presents the supplemental project assumptions and methodology yearly at the PJM

[5] Includes transmission facilities operated at voltages of 100 kV or higher.

[6] Includes transmission facilities operated at voltages less than 100 kV.

[7] As more fully explained in the Siting Application, PPL Electric notes that this Siting Application, if approved, would resolve the issues involved in the proceeding pending before FERC at FERC Docket No. ER ER24-2172.

[8] PJM's OATT is available at https://www.pjm.com/directory/merged-tariffs/oatt.pdf

Subregional Regional Transmission Expansion Planning ("RTEP") December meeting.[9] The supplemental project driver of "Customer Service" is used for new customer requests. PPL Electric submits the project need information to PJM detailing the requested load amount, location, and requested in-service date. PPL Electric then presents the need at the next Transmission Expansion Adequacy Committee ("TEAC") (>200 kV) or Subregional-RTEP (<200 kV) meeting. At a subsequent meeting, PPL Electric presents the proposed solution to serve the requested load. PPL Electric provides the solution files to PJM, including changes to the network model, contingency changes, and short-circuit model changes. PJM then studies the proposed solution to ensure that the changes do no harm ("DNH" test) to the system by creating overloads, voltage violations, or other criteria violations. PPL Electric will include in the solution any upgrades that are required to serve the customer load in the DNH case year. When the project passes the DNH test a supplemental project number is assigned and PPL Electric submits the project into the local plan. The project is then added into the RTEP model in the next case creation cycle. Any customer load increases above the DNH case year will be included in the PPL Electric's Load Forecast submission to PJM. The load increases are then incorporated into the RTEP case creation. Any overloads, voltage violations, or other criteria violations caused by the increase of load on PPL Electric's system are then resolved through the PJM Competitive Planning Process.

This Project has gone through the M-3 Supplemental Project Process and the DNH tests. The Project was assigned the PJM supplemental number 3528.

[9] PPL Electric's 2024 Annual M-3 Project Assumptions and Methodology is available at: https://www.pjm.com/-/media/committeesgroups/committees/srrtep-ma/2023/20231213/20231213-item-05---2024-ppl-planning-assumptions.ashx

4.0 THE NEED FOR THE PROJECT

4.1 Existing System

The Susquehanna-Harwood #1 & #2 230 kV Transmission Lines are part of PPL Electric's 230 kV BES. These transmission lines transfer power south from the Susquehanna Switchyard (near the Susquehanna Steam Electric Station) to the Harwood Substation (Luzerne County), East Palmerton 230/69 kV Substation (Carbon County), and Siegfried 230-138-69 kV Substation (Northampton County). The Susquehanna-Harwood #1 & #2 230 kV Transmission Lines are heavily loaded and have a history of transmission congestion. PPL Electric installed Dynamic Line Ratings ("DLR") on the Susquehanna-Harwood #1 & #2 230 kV Transmission Lines in 2022 to resolve these congestion issues. The Susquehanna Switchyard and Siegfried Substation are connected to many other 230 kV transmission lines. The 230 kV network moves power from the generators to regional supply substations. At the regional substations, the 230 kV is stepped down to 138 kV and/or 69 kV. The distribution substations in the surrounding area are supplied via transmission lines operating at 69 kV or 138 kV. A one-line diagram showing a section of the existing 230 kV system is provided as **Figure 2-1**, and a map of the existing facilities is included as **Figure 2-2**.

The proposed Tomhicken Switchyard bifurcates the Susquehanna-Harwood #1 and #2 230 kV Transmission Lines to create the Susquehanna-Tomhicken #1 and #2 Transmission Lines and the Tomhicken-Harwood #1 and #2 230 kV Transmission Lines.[10] A one-line diagram of the proposed system configuration after the Tomhicken 230 kV Switchyard Project is completed is provided as **Figure 2-3**.

4.2 Project Need

A new customer located in Hazle Township is requesting 230 kV electrical service with an in-service date of December 15, 2026, and an initial load of 240 MW. This customer is to be served by the proposed Tomhicken Switchyard. The Customer's load will increase in stages to approximately 965 MW by 2033. Additional customers have applied for service in the Hazleton area with a combined requested load of over 5,000 MW by 2033. This projected load growth creates overloads on the

[10] The Susquehanna – Tomhicken #1 and #2 230kV Transmission Lines and the Tomhicken-Harwood #1 and #2 230 kV Transmission Lines have not yet been constructed. They are the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A Decision has not yet been issued in this matter.

Susquehanna-Tomhicken #1 and #2 230 kV lines. The Susquehanna-Tomhicken #1 and #2 230 kV lines become overloaded when the load increases by approximately 400 MW in the Hazleton area. The loss of one of the Susquehanna-Tomhicken 230 kV lines in a single contingency (P1)[11] or multiple contingency with a fault plus stuck breaker[12] (P4) category overloads the remaining in-service line. When the load addition in the Hazleton area approaches approximately 700 MW, the loss of both Susquehanna-Tomhicken #1 and #2 230 kV lines for a multiple contingency with the common structure (P7) category results in voltage violations at both the Tomhicken Switchyard and Harwood Substation.

The Project is required to comply with PPL Electric's obligation to provide service to customers upon a request subject to reasonable terms and conditions. This Project resolves the projected violations created by the Customer's projected load addition. In this case, PPL Electric specifically notes that, consistent with its Tariff, PPL Electric and the Customer have voluntarily negotiated a service agreement which contemplates the provision of the requested service to the Customer but which also contains financial safeguards to ensure that PPL Electric's other customers are insulated from the costs of the Project if the Customer were to withdraw its request. In addition, PPL Electric anticipates that new, incremental load upon the transmission system will have a positive impact upon the transmission rates paid by its customers.

In addition to these direct protections and benefits, the expedient initiation of adequate and reliable service to new high-load customers seeking to enter PPL Electric's system is critical for the Commonwealth of Pennsylvania's continued economic development. Such new, incremental high-load customers can result in additional job growth and tax base for the Commonwealth.

[11] P1, P4 and P7 are category contingencies defined in Table 1 of the NERC TPL-001 Transmission System Planning Performance Requirements. https://www.nerc.com/globalassets/standards/reliability-standards/tpl/tpl-001-5.1.pdf

[12] A stuck breaker means that for a gang-operated breaker, all three phases of the breaker have remained closed. For an independent pole operated (IPO) or an independent pole tripping (IPT) breaker, only one pole is assumed to remain closed. A stuck breaker results in Delayed Fault Clearing.

5.0 ALTERNATIVES

PPL Electric performed a comprehensive analysis to identify feasible and cost-effective solutions to best resolve the violations created by the prospective Customer, consistent with its obligations to provide non-discriminatory service to customers, while seeking to minimize impacts upon the local environment and surrounding community.

PPL Electric evaluated the following alternatives to resolve the projected reliability violations on the Susquehanna-Tomhicken #1 and #2 230 kV lines:

1) Construct the new Nescopeck Switchyard and bifurcate the Sunbury-Susquehanna #1 230 kV Transmission Line into the new Nescopeck Switchyard. This will create the Sunbury-Nescopeck 230 kV line and the Susquehanna-Nescopeck 230 kV line. Construct the new approximately 0.5-mile-long section of the Sunbury-Nescopeck #1 230 kV line for single-circuit capacity. Rebuild the approximately 4.4-mile-long single-circuit Susquehanna-Nescopeck 230 kV line for double-circuit capacity (the proposed Susquehanna-Nescopeck #1 & #2 230 kV Transmission Lines). Construct a new double-circuit 11.1-mile-long 230 kV transmission line for future double-circuit 500 kV capacity in the vacated Harwood-Berwick 69 kV right of way ("ROW"). This will create the Nescopeck-Tomhicken #1 500/230 kV and Nescopeck-Harwood #1 500/230 kV Transmission Lines. Construct the approximately 8.4-mile-long Nescopeck-Tomhicken #1 500/230 kV Transmission Line between the Nescopeck Switchyard and the Tomhicken Switchyard. Construct the approximately 11.1-mile-long Nescopeck-Harwood #1 500/230 kV Transmission Line between the Nescopeck Switchyard and the Harwood Substation. ("Proposed Solution")
2) Rebuild 11.2 miles of the newly constructed Susquehanna-Tomhicken #1 and #2 230 kV lines. Build a new 230 kV line from the Susquehanna Switchyard to the Tomhicken Switchyard. Rebuilding the existing Susquehanna--Tomhicken #1 and #2 230 kV lines would resolve the overloads in the near term but not resolve the voltage violations due to a P7 tower contingency. -Therefore, implementation of this alternative would also require the construction of a third line between the Susquehanna Switchyard and the Tomhicken Switchyard. The construction of a third line in this location would require an expanded ROW corridor. Building a new 230 kV line in an expanded ROW corridor immediately adjacent to the existing Susquehanna--Tomhicken #1 and #2 230 kV would have a greater overall impact on landowners and the community. The

amount of load growth in the Hazleton area will eventually create a need for a 500 kV source into the load pocket. This would necessitate the use of the vacated Harwood-Berwick 69 kV ROW for the 500 kV line, the use of which the Company already proposed in the first alternative. Therefore, due to the greater community and landowner impact, this alternative was not selected.

6.0 PROPOSED SOLUTION

To address the Customer load growth at the Tomhicken 230 kV Switchyard as well as the additional load requests from customers in the Hazleton area, PPL Electric proposes constructing a new Nescopeck Switchyard and connecting lines. The Project as accepted by PJM, includes reinforcements of the 230 kV system from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation, via the proposed Nescopeck Switchyard. The existing Sunbury-Susquehanna #1 230 kV line will be bifurcated into the new Nescopeck Switchyard. The section of the Sunbury-Susquehanna #1 230 kV line between the Nescopeck-Switchyard and the Susquehanna Switchyard will be rebuilt to double-circuit 230 kV operation. The other section of the Sunbury-Susquehanna #1 230 kV line between the bifurcation and the Nescopeck Switchyard will be rebuilt to single-circuit 230 kV operation. PPL Electric will raise the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the proposed 230 kV transmission line under crossings. Two new 500 kV lines (initially operating at 230 kV) will extend south from the Nescopeck Switchyard, with one line terminating at the Tomhicken Switchyard and one line terminating at the Harwood Substation. The existing corridor of the vacated Harwood-Berwick 69 kV right of way will be utilized for the 500/230 kV lines. The additional paths from the Susquehanna Switchyard to the Tomhicken Switchyard and Harwood Substation will prevent the thermal overload of the Susquehanna-Tomhicken #1 & #2 230 kV lines and voltage violations at Tomhicken Switchyard and Harwood Substation. These upgrades will also increase operational flexibility and resiliency of the 230 kV system. These upgrades will allow for load growth of the Customer connecting to the Tomhicken Switchyard, as well as connecting customers in the Hazleton area. The Project is part of PJM Supplemental Number S3528, specifically segments S3528.2, S3528.3, S3528.5, S3528.7, S3528.8, and S3528.10.

The new Nescopeck Switchyard will be constructed in a breaker-and-a-half arrangement. Section III of the PJM minimum planning and design standards refers to Substation Bus Configurations and Substation Design Recommendations.[13] Under PJM's standards, three terminal lines and radial bus station configurations are discouraged for use in new BES substation construction because of the considerable potential for detrimental effects on transmission system reliability. Acceptable standards for substations

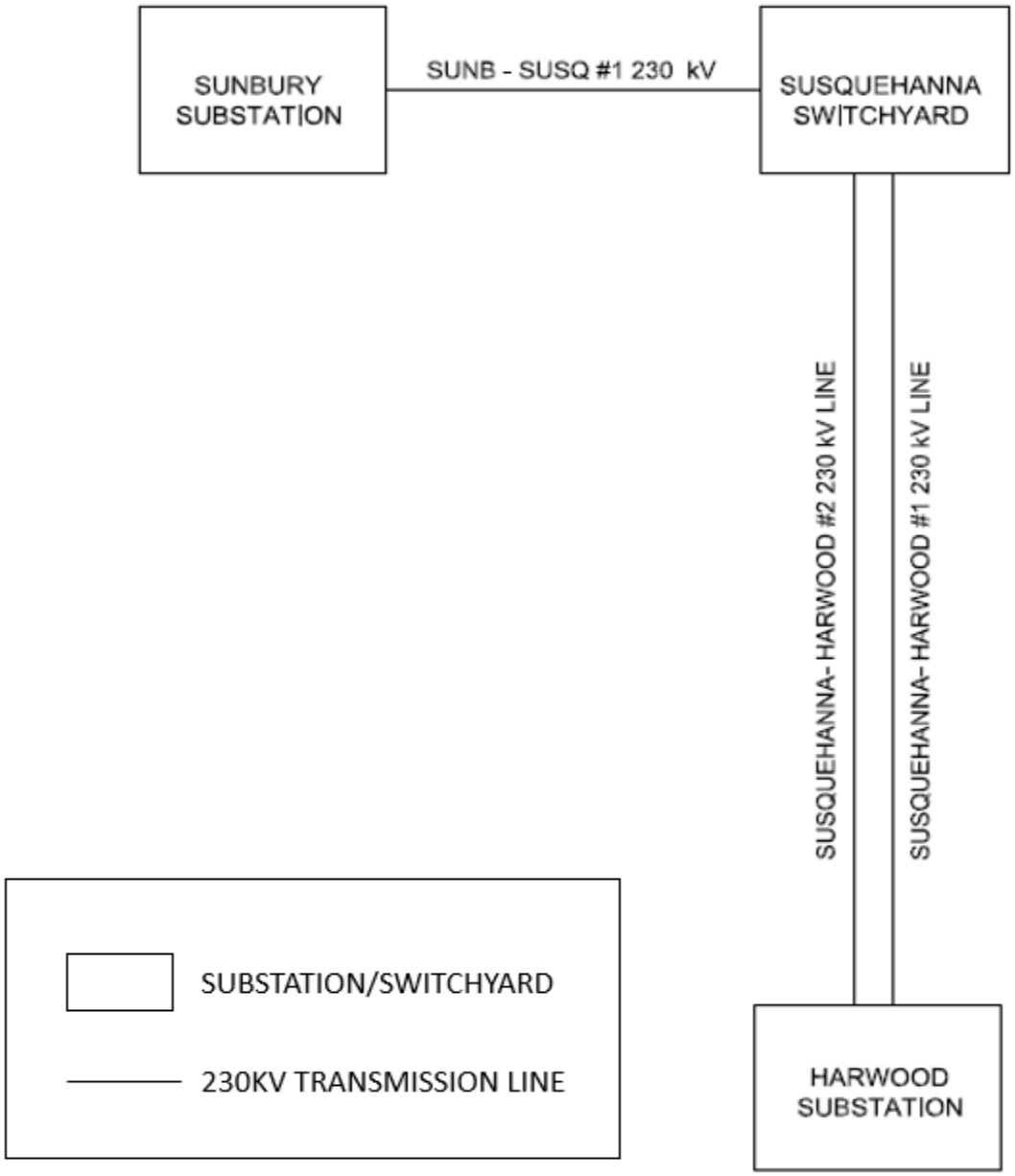
[13] PJM Substation Bus Configurations and Substation Design: https://www.pjm.com/~/media/planning/design-engineering/maac-standards/section-iii-sub-bus-config.ashx

are noted as ring bus configurations, breaker-and-a-half-arrangements, and double breaker-double bus arrangements. Breaker-and-a-half arrangements are the preferred design because of the balance of operational flexibility and cost that this design affords.

The new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines will be constructed for future 500 kV operation but will initially operate at 230 kV. Under Baseline project B4029.3, the Nescopeck-Harwood #1 500/230 kV Transmission Line will be converted to 500 kV and will extend to a new 500/230 kV substation. The Nescopeck – Harwood circuit will be converted to 500 kV and extended to a new 500-230 kV Substation under PJM baseline project B4029.3. The construction and the eventual conversion of the Nescopeck – Harwood line to 500kV is a critical part of the PJM baseline projects under B4029. The conversion of the Nescopeck – Harwood line and the additional upgrades under B4029 resolve multiple N-1 and N-1-1 thermal and voltage violations in the Hazleton Area. The 500kV conversion under B4029.3 Baseline project has a required in-service date of 5/1/2030. The Nescopeck-Tomhicken #1 500/230 kV Transmission Line will continue at 230 kV operation but be designed at 500 kV to sustain structure symmetry and to provide the 230 kV circuit with a high conductor rating.

The Proposed Solution will allow PPL Electric to provide safe and reliable transmission-level service to the customers in the Hazleton area while maintaining reliability of the BES. The Project will provide another route for power to flow from the Susquehanna area to the southern portion of PPL Electric's service territory. The Project will increase resiliency of the 230 kV system and allow for greater ability to take 230 kV outages for planned and unplanned work. The Project will also resolve any risk of future congestion on the Susquehanna-Tomhicken #1 and #2 230 kV Transmission Lines by providing an additional electrical path. Additionally, the Proposed Solution is the least impactful option to landowners and the local community among the feasible alternatives. A map of the proposed facilities is included as **Figure 2-4**, and a diagram of the proposed system configuration is provided as **Figure 2-5.**

Figure 2-1: Existing System Configuration





Substation or Switchyard
Local Park or Recreation Area
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
PA DCNR (2015)

Coordinate System:
State Plane PA South
Datum: NAD 83

Sugarloaf 500/230 kV Transmission Line Project

Figure 2-2. Existing Facilities

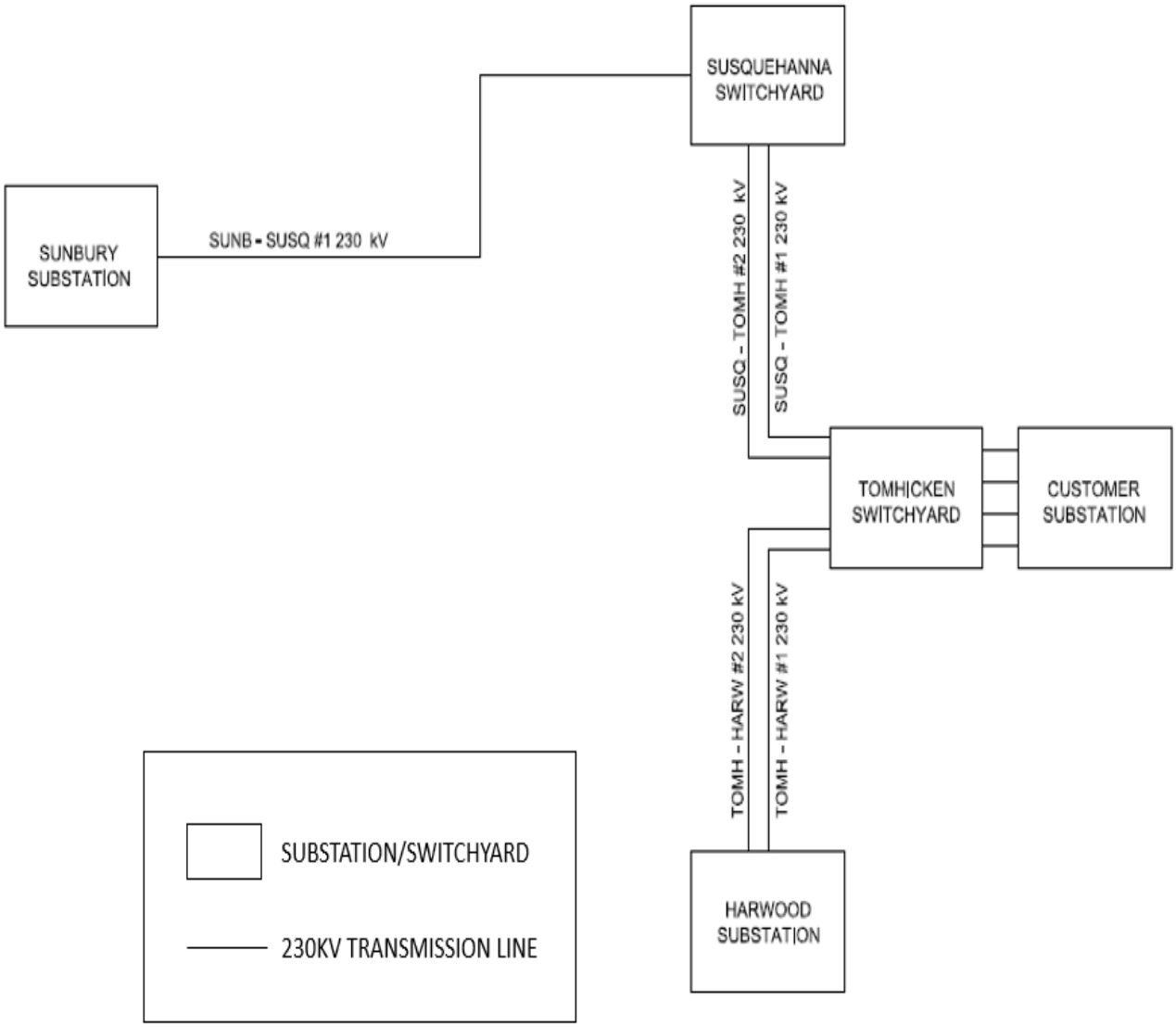
ppl

WSP

0 0.5 1 Miles

N

Figure 2-3: Proposed System Configuration After Tomhicken



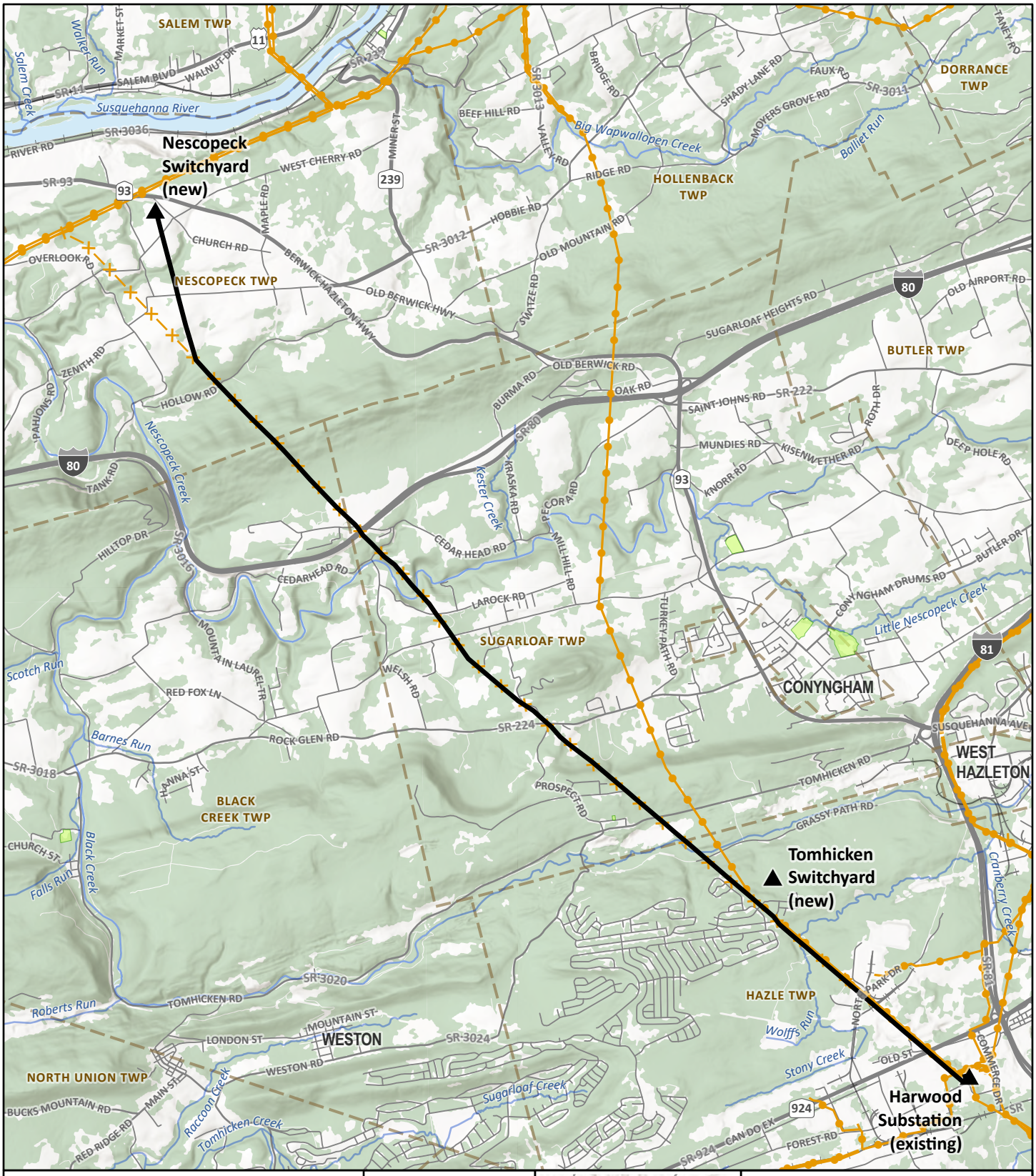
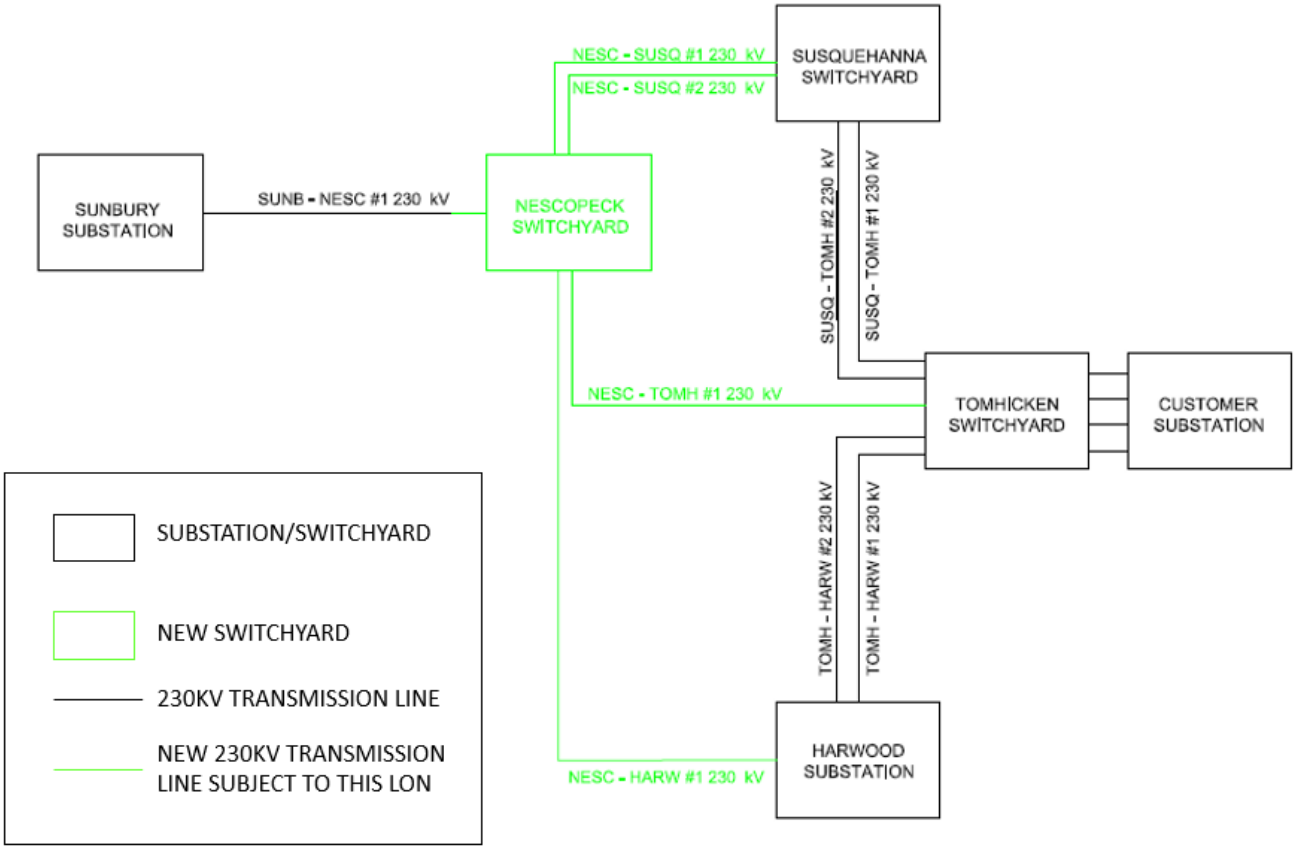

Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
NORTH UNION TWP
CONYNGHAM
WEST HAZLETON
WESTON
Susquehanna River
Nescopeck Creek
Big Wapwallopen Creek
Little Nescopeck Creek
Black Creek
Sugarloaf Creek
Tomhicken Creek
Raccoon Creek
Cranberry Creek
Stony Creek
Wolffs Run
Roberts Run
Barnes Run
Scotch Run
Falls Run
Balliet Run
Kester Creek
SR-93
SR-239
SR-3036
SR-3013
SR-3012
SR-3011
SR-3016
SR-3018
SR-3020
SR-3024
SR-224
SR-222
SR-80
SR-81
SR-924
SR-309
80
81
93
239
924
WYOMING
LUZERNE
SCHUYLKILL
CARBON
Scranton
Wilkes-Barre
Jim Thorpe
Substation or Switchyard
Local Park or Recreation Area
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
PA DCNR (2015)
Coordinate System: State Plane PA South
Datum: NAD 83
Sugarloaf 500/230 kV Transmission Line Project
Figure 2-4. Proposed Facilities
ppl
wsp
0
0.5
1
Miles
N

Figure 2-5: Proposed System Configuration



Attachment 3

ATTACHMENT 3
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
ENVIRONMENTAL ANALYSIS

TABLE OF CONTENTS

1.0 INTRODUCTION 3-3

2.0 BUILT ENVIRONMENT 3-6

2.1 Land Use 3-6

2.1.1 Forestry Uses 3-8

2.1.2 Agricultural Uses 3-8

2.1.3 Urban and Developed Land Uses 3-11

2.1.4 Linear Infrastructure 3-12

2.1.5 Municipal Zoning 3-13

2.1.6 Comprehensive and Land Use Plans 3-14

2.2 Recreation/Aesthetics 3-15

2.2.1 Federal, State, and Local Recreation Areas 3-15

2.2.2 Landscape and Aesthetics 3-16

2.3 Cultural Resources 3-17

2.3.1 Historic Architectural Sites 3-17

2.3.2 Archeological Sites 3-18

3.0 NATURAL ENVIRONMENT 3-20

3.1 Geology and Soil Resources 3-20

3.1.1 Geology 3-20

3.1.2 Soils 3-20

3.2 Water Resources 3-23

3.2.1 Streams 3-23

3.2.2 Wetlands and Lakes 3-25

3.2.3 100-year Floodplains 3-26

3.3 Vegetation 3-26

3.4 Special Natural Areas 3-26

3.5 Threatened, Endangered and Rare Species 3-28

REFERENCES..... 3-29

LIST OF TABLES

Table 3-1. Summary of Land Use Types..... 3-6
Table 3-2. Study Area Population Demographics..... 3-11

LIST OF FIGURES

Figure 3-1. Study Area 3-5
Figure 3-2. Land Use..... 3-7
Figure 3-3. Agricultural Security Areas and Easements..... 3-9
Figure 3-4. Cultural Resources..... 3-19
Figure 3-5. Geology and Soils 3-22
Figure 3-6. Natural Features..... 3-24

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to:

1) Rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard");
2) Construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard;
3) Raise approximately 0.5 mile of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and
4) Construct a new double-circuit 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard"), and existing Harwood 230/69 kV Substation ("Harwood Substation"). After traveling 8.4 miles, the eastern circuit ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 mile as a single-circuit transmission line to the new Tomhicken Switchyard. At Structure 41 (**Page 9 of 10** of the **Aerial Exhibit** in **Attachment 4**), the western circuit ("Nescopeck-Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

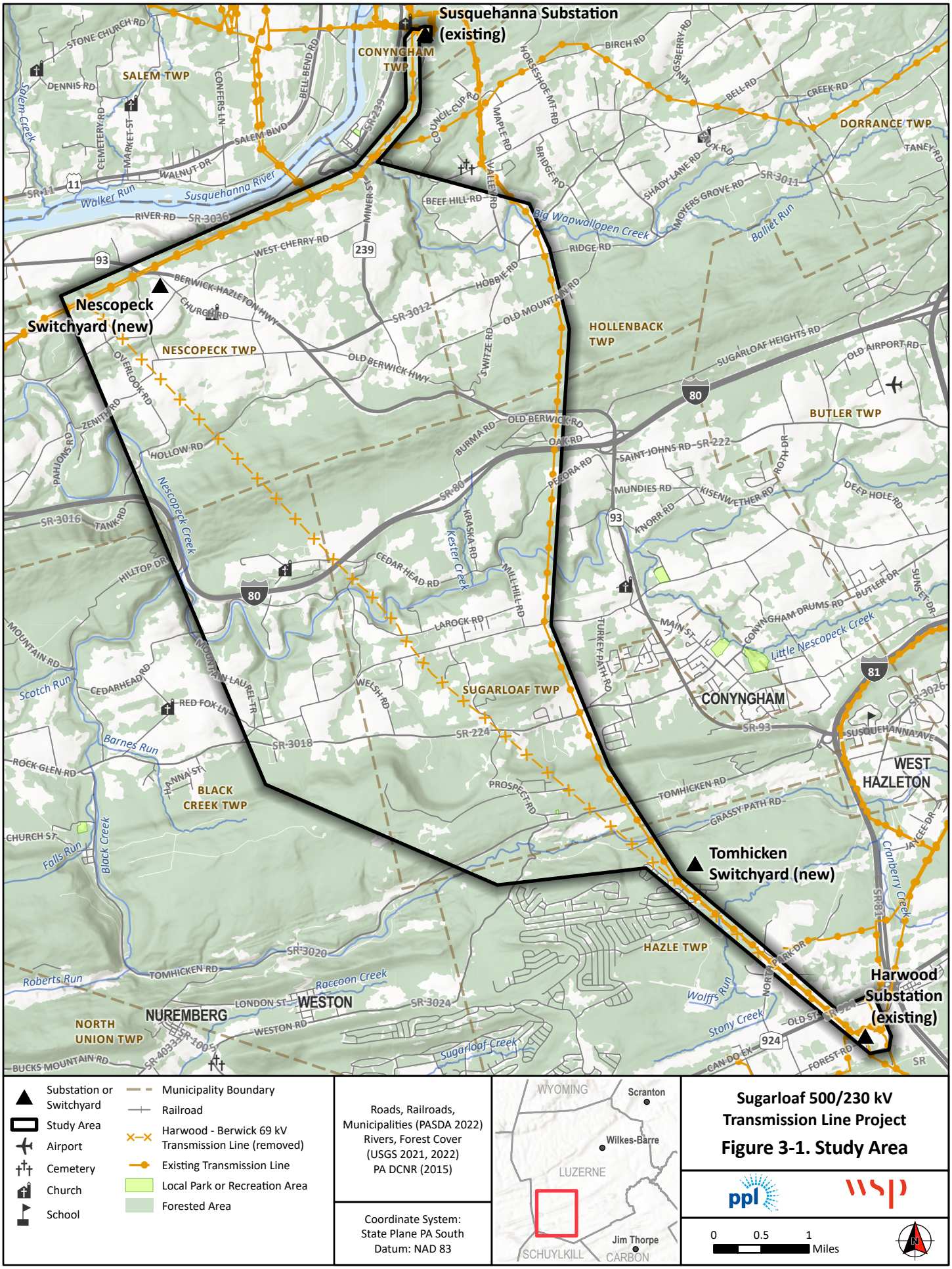
Collectively, the new and rebuilt transmission lines are referred to in this Application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project."

The purpose of this Attachment is to provide background information on the natural and built environment located within the Project Study Area ("Study Area"), which provides the basis for the comprehensive Alternative Analysis Study discussed in **Attachment 4**. The routing process involved a series of steps, including identification of a suitable Study Area; Potential Route development, analysis, and refinement; Alternative Route development; public outreach activities; and identification of Preferred and Alternate Routes.

The Routing Team identified a Study Area encompassing approximately 19,250 acres (30.1 square miles) within Black Creek, Conyngham, Hazle, Hollenback, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania (**Figure 3-1**). The Project Study Area is generally bound to the north by the Susquehanna River and by the existing Sunbury-Susquehanna #1 230 kV, Sunbury-Susquehanna #2 500 kV, and Susquehanna-Wescosville 500 kV transmission lines; to the east by the existing Susquehanna-Harwood 230 kV Transmission Line; to the south by the existing Harwood Substation; and to the west by Black Creek. Nescopeck Mountain bisects the northern half of the Study Area from southwest to northeast and Buck Mountain bisects the southern half of the Study Area from southwest to northeast.

The Routing Team used many sources of information to evaluate the Study Area, including aerial imagery, federal, state, and local Geographic Information System ("GIS") data, U.S. Geological Survey ("USGS") maps, county and municipal planning reports, and field reconnaissance.

Figure 3-1. Study Area


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
CONYNGHAM TWP
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
NORTH UNION TWP
CONYNGHAM
WEST HAZLETON
NUREMBERG
WESTON
Susquehanna River
Walker Run
Salem Creek
Big Wapwallopen Creek
Ballier Run
Nescopeck Creek
Kester Creek
Little Nescopeck Creek
Scotch Run
Barnes Run
Black Creek
Falls Run
Roberts Run
Raccoon Creek
Wolffs Run
Stony Creek
Sugarloaf Creek
Cranberry Creek
80
81
93
239
11
924
SR-3036
SR-3012
SR-3011
SR-222
SR-80
SR-3016
SR-3018
SR-224
SR-93
SR-3026
SR-3020
SR-3024
SR-4033
SR-1005
SR-239
SR-11
RIVER RD
WEST CHERRY RD
BERWICK-HAZLETON HWY
OLD BERWICK HWY
OLD MOUNTAIN RD
SUGARLOAF HEIGHTS RD
OLD AIRPORT RD
OLD BERWICK RD
SAINT JOHNS RD
MUNDIES RD
KISENWETHER RD
DEEP HOLE RD
BUTLER DR
SUNSET DR
CONYNGHAM DRUMS RD
MAIN ST
SUSQUEHANNA AVE
TOMHICKEN RD
GRASSY PATH RD
JAYCEE DR
NORTH PARK DR
OLD ST
FOREST RD
CAN DO EX
BUCKS MOUNTAIN RD
LONDON ST
WESTON RD
CEDAR HEAD RD
LAROCK RD
MILL HILL RD
TURKEY PATH RD
PROSPECT RD
WELSH RD
MOUNTAIN LAUREL TR
RED FOX LN
ROCK GLEN RD
CHURCH ST
HILLTOP DR
HOLLOW RD
TANK RD
ZENITH RD
OVERLOOK RD
PAHIONS RD
CHURCH RD
HOBBIE RD
RIDGE RD
BEEF HILL RD
MOYERS GROVE RD
SHADY LANE RD
BELL RD
CREEK RD
BIRCH RD
HORSESHOE MT RD
COUNCIL CUP RD
MAPLE RD
VALLEY RD
BRIDGE RD
MINER ST
SWITZE RD
BURMA RD
OAK RD
PEGORA RD
KRASKA RD
KNORR RD
ROTH DR
STONE CHURCH RD
DENNIS RD
CEMETERY RD
MARKET ST
CONFERS LN
BELL BEND RD
SALEM BLVD
WALNUT DR
GOOSEBERRY RD
TANEY RD
ANNA ST
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Substation or Switchyard
Study Area
Airport
Cemetery
Church
School
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Local Park or Recreation Area
Forested Area
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
PA DCNR (2015)
Coordinate System: State Plane PA South
Datum: NAD 83
Sugarloaf 500/230 kV Transmission Line Project
Figure 3-1. Study Area
ppl
WSP
0
0.5
1
Miles
N

2.0 BUILT ENVIRONMENT

The built environment includes land use, residential, commercial, and industrial development, institutional uses (e.g., schools, places of worship, cemeteries, and hospitals) and cultural resources. The following sections describe the aspects of the built environment located within the Study Area.

2.1 Land Use

The Study Area predominantly consists of forested land interspersed with some pastures and hayfields, as well as cultivated croplands. Other land uses in the Study Area include residential development, industrial land use (i.e., industrial/warehousing facilities near Harwood Substation or Commerce Drive), streams, and wetlands. The use of such lands and the public's general desire to develop or protect areas are managed by federal, state, and especially local plans, policies, and zoning.

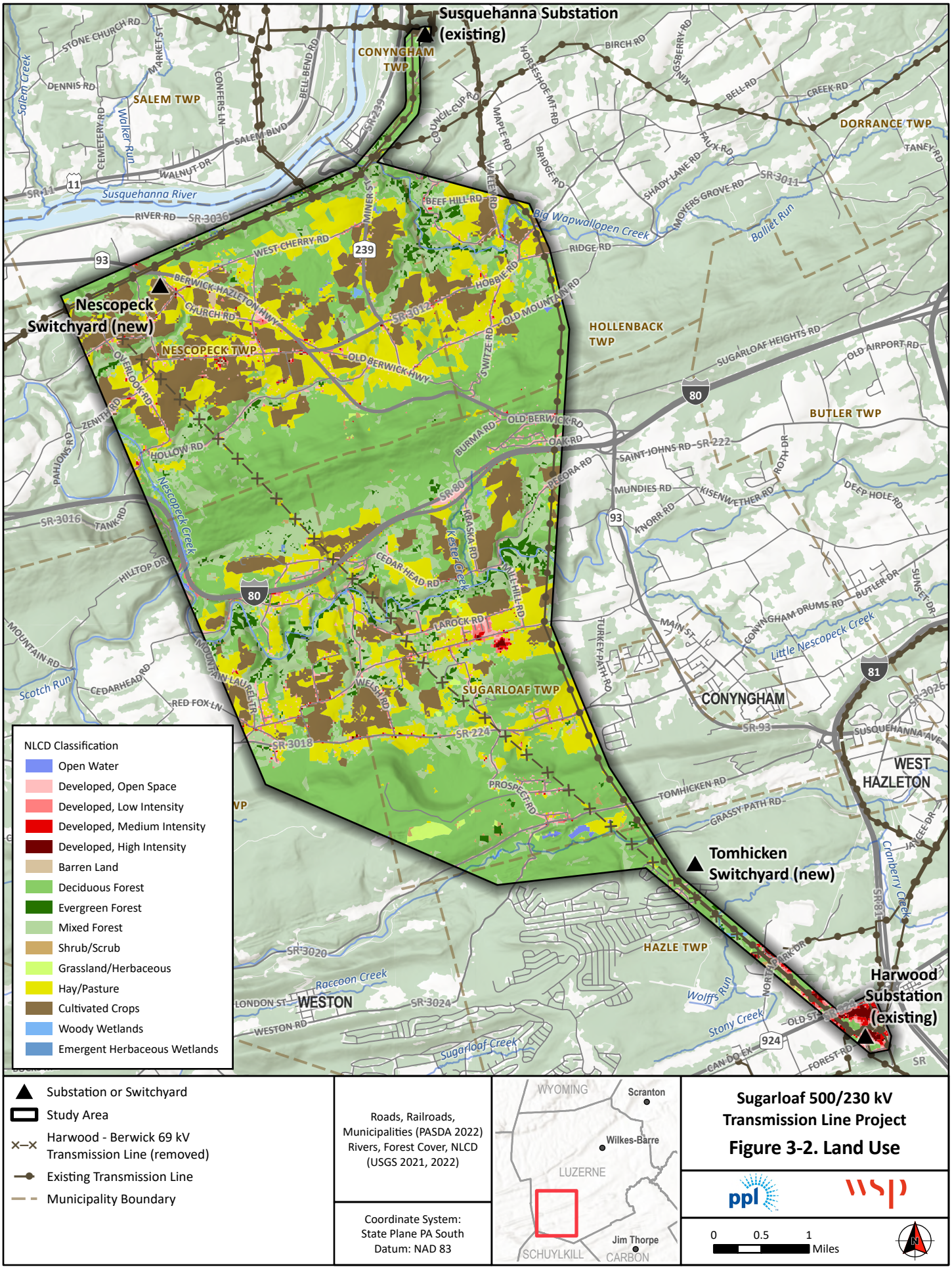
A breakdown of the general classifications of land use (i.e., barren lands, water/wetlands, developed lands, forest cover, grassland/pasture, cultivated crops) within the Study Area are based on the National Land Cover Database ("NLCD")[1], as presented in **Table 3-1**. General land uses in the Study Area are depicted graphically in **Figure 3-2**.

Table 3-1. Summary of Land Use Types

Land Use Type	Percentage of Land Use within Study Area
Barren Land	0.3%
Water/Wetlands	0.3%
Developed (Open Space, Low, Medium, and High Intensity)	8.9%
Forest Cover	57.8%
Grassland/Pasture	18.8%
Cultivated Crops	13.9%

[1] Land Use calculations are based on the 2021 NLCD. NLCD is a 16-class land cover classification that has been applied consistently across the conterminous United States at a spatial resolution of 30 meters. NLCD is an industry standard, but due to its large resolution it should be used as a rough approximation of land use.

Figure 3-2. Land Use


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
CONYNGHAM TWP
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
HAZLE TWP
CONYNGHAM
WEST HAZLETON
WESTON
Susquehanna River
Big Wapwallopen Creek
Little Nescopeck Creek
Nescopeck Creek
Kester Creek
Scotch Run
Raccoon Creek
Wolffs Run
Stony Creek
Sugarloaf Creek
Cranberry Creek
Ballier Run
Walker Run
Salem Creek
NLCD Classification
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Barren Land
Deciduous Forest
Evergreen Forest
Mixed Forest
Shrub/Scrub
Grassland/Herbaceous
Hay/Pasture
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
Substation or Switchyard
Study Area
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Municipality Boundary
Roads, Railroads, Municipalities (PASDA 2022) Rivers, Forest Cover, NLCD (USGS 2021, 2022)
Coordinate System: State Plane PA South Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 3-2. Land Use
ppl
WSP
0 0.5 1 Miles
N

2.1.1 Forestry Uses

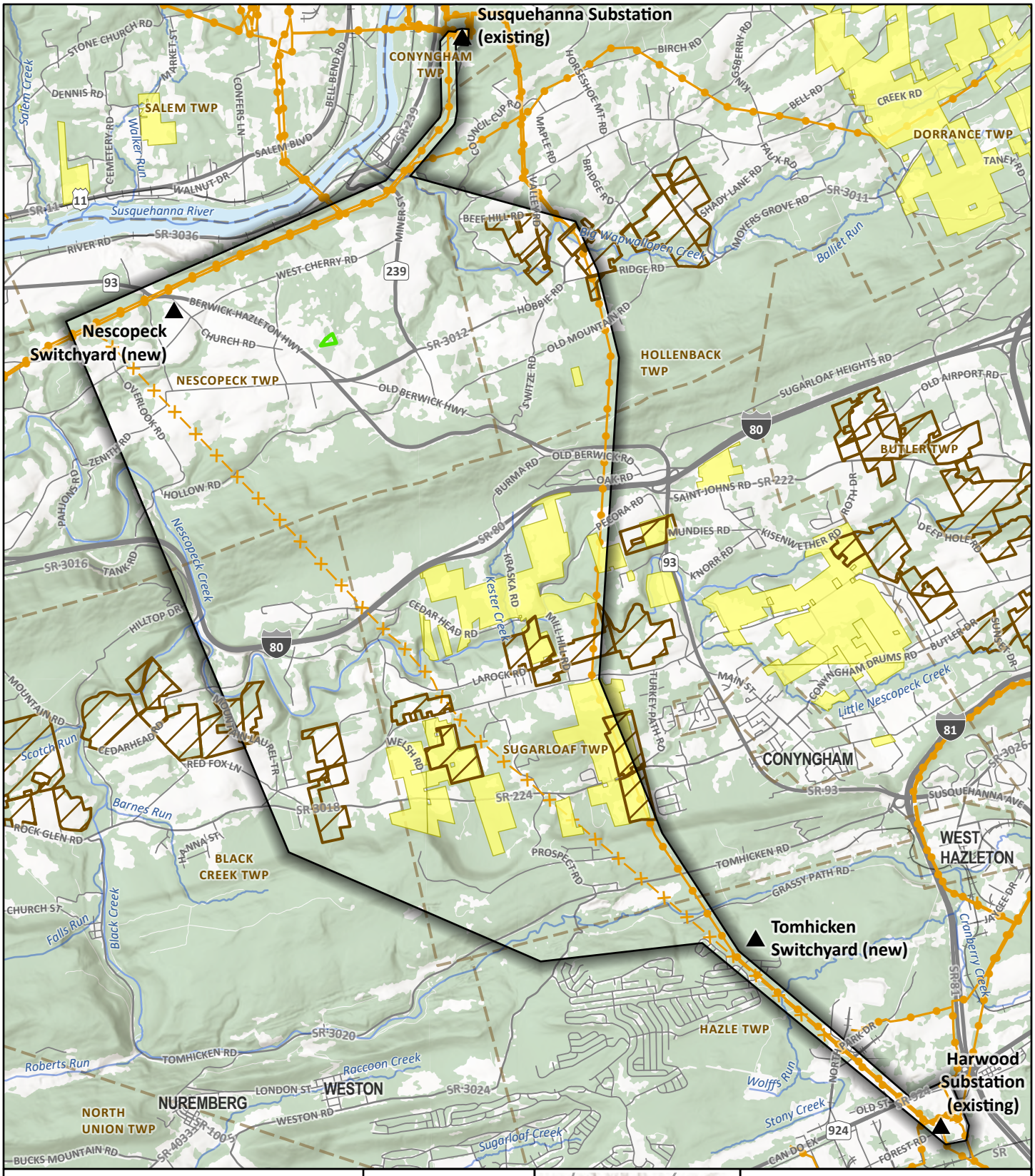
Forested lands also provide habitat for various types of flora and fauna, as well as watershed protection. Forested land is predominantly concentrated in areas surrounding Nescopeck Mountain and Buck Mountain within the Study Area. In residentially developed areas, forest remnants and woodlots serve as landscaping and provide privacy screening, and minimal areas of existing forest cover were identified on private and public properties scattered throughout Study Area. No state or federally owned or managed forest lands are located within the Study Area.

2.1.2 Agricultural Uses

Agricultural uses (i.e., crop production, farmland) constitute a significant land use type throughout the Study Area and represent a significant portion of the local economy in Luzerne County. According to 2017 United States Department of Agriculture ("USDA") Census of Agriculture data, farms within Luzerne County produce over $17.7 million worth of commodities annually (USDA, 2017). The Pennsylvania Agricultural Security Law of 1981[2], provides certain protections for farmland voluntarily enrolled in Agricultural Security Areas ("ASAs") (Pennsylvania Department of Agriculture ("PDA"), no date). The Pennsylvania Agricultural Conservation Easement ("ACE") Purchase Program, created in 1989, enables state and local governments to pay farmers for agreeing to limit the use of their land to agricultural production or agriculture and related activities (PDA, 2021). The Pennsylvania Farmland and Forest Land Assessment ("Clean and Green") Act of 1974, which assists in preserving farmland through setting property taxes by actual land use instead of at the prevailing market rate, has been implemented in Luzerne County since 1988 (Luzerne County, 2020).[3] Designated ASAs and easements in the Study Area are shown on **Figure 3-3**.

[2] 3 Pa. C.S. §§ 901-915.
[3] 72 P.S. §§ 5490.1–5490.13.

Figure 3-3. Agricultural Security Areas and Easements



Sugarloaf 500/230 kV Transmission Line Project

Figure 3-3. Agricultural Easements and Security Areas

ASAs are created by local municipalities in cooperation with individual landowners who agree to collectively place at least 250 acres in an agricultural security area (PDA, 2016). Additionally, the Pennsylvania Agricultural Security Law requires that counties must appoint Agricultural Land Preservation Boards to administer county conservation easement programs (PDA, 2020). Therefore, Luzerne County operates an Agricultural Conservation Easement Purchase Program that works to preserve important agricultural lands through the purchase of ACEs.

In accordance with Pennsylvania ASA regulations, public utility facilities that have been reviewed and approved by the PUC are permitted within ASAs (PDA, 2008).[4] Public utility facilities are also permitted in ACEs based on the granting of a right-of-way ("ROW") by the property owner, according to the Agricultural Conservation Easement Purchase Program regulations.[5] The USDA's Natural Resource Conservation Service ("NRCS") is responsible for providing financial and technical assistance to assist in the conservation of agricultural lands and wetlands throughout the United States under the Agriculture Conservation Easement Program ("ACEP") (USDA-NRCS, n.d.). Transmission lines are permitted within federal ACEP easements with approval from the landowner and the USDA.

As stated above, agriculture is a dominant land use within the Study Area. As shown in Figure 3-3, many agricultural properties designated ASAs and ACEs are located throughout the Study Area, with the heaviest concentration in the southern portion of the Study Area south of Interstate 80 ("I-80"). Specifically, approximately 1,484 acres of ASAs and approximately 902 acres of Luzerne County ACEs are located within the Study Area. Combined, conserved agricultural areas cover approximately 13% of the Study Area.

The northern portion of the Study Area contains one 5-acre easement enrolled in the federal ACEP, located just north of Berwick-Hazleton Highway in Briggsville. No additional land within the Study Area is enrolled in the federal ACEP.

[4] 7 Pa. Code § 138l.20(b)(4)
[5] 7 Pa. Code § 138e.241(2)

2.1.3 Urban and Developed Land Uses

Due to the predominately rural agricultural landscape, developed land is considered a secondary land use type within the Study Area. Developed areas include high, medium, and low-density areas of residential; commercial and industrial development; and developed open space (i.e., areas with a mixture of some constructed materials, including paved roads, but mostly vegetation in the form of lawn grasses).

Single-family residential neighborhoods are mostly scattered throughout the Study Area adjacent to roadway corridors near Briggsville to the north or west of Sybertsville in the central/southern portion of the Study Area. No schools are located within the Study Area. Two places of worship associated with adjacent cemeteries are within the northern portion of the Study Area: Mount Zion Church/Cemetery located north of Church Road just south of PA-93, and Saint Paul's Church and Red Rock Cemetery, located along Red Rock Road just north of the I-80 corridor. The Cornerstone Bible Church is also located within the northern portion of the Study Area, near the intersection of Church Road and West Maple Road, just east of Mount Zion Church. Industrial development within the Study Area is primarily limited to the industrial/warehousing facilities near areas surrounding the existing Harwood Substation along Commerce Drive and North Park Drive in the southern portion of the Study Area, as well as farming operations dispersed throughout.

As shown below in **Table 3-2**, population growth trends within the Study Area generally decreased by approximately 2.8 to 9.7 percent between 2010 and 2020, aside from Hazle Township, which increased by approximately 6.4 percent. Aside from Hazle Township, populations within the Study Area are generally projected to increase by a range of 1 to 29 percent between 2020 and 2030, depending on the township. During this period, the population of Hazle Township is expected to decrease by approximately 2.2 percent.

Table 3-2. Study Area Population Demographics

County/ Municipality	2010[1]	2020[1]	Percent Change	2030[2] (Projected)	Percent Change (Projected)
Luzerne County	320,918	325,594	+1.5%	316,271	-2.9%
Black Creek Township	2,016	1,909	-5.3%	2,038	+6.8%
Conyngham Township	1,453	1,312	-9.7%	1,436	+9.5%

Table 3-2. Study Area Population Demographics					
County/ Municipality	**2010[1]**	**2020[1]**	**Percent Change**	**2030[2] (Projected)**	**Percent Change (Projected)**
Hazle Township	9,549	10,160	+6.4%	9,935	-2.2%
Hollenback Township	1,196	1,162	-2.8%	1,174	+1.0%
Nescopeck Township	1,155	1,081	-6.4%	1,244	+15.1%
Sugarloaf Township	4,211	3,846	-8.7%	4,971	+29.3%

Sources: [1]Center for Rural Pennsylvania (2024); [2]Pennsylvania Department of Environmental Protection (PADEP) (2018)

No airports are located within the Study Area. The nearest Federal Aviation Administration ("FAA") facility is a privately-owned, grass-landing airstrip located approximately 3.3 miles northeast of the Study Area. The Hazleton Regional Airport is the next nearest airport, located approximately 3.5 miles northeast of the existing Harwood Substation. One registered Federal Communications Commission ("FCC") tower was identified within the Study Area, located on a Nescopeck Mountain ridgetop near the existing Susquehanna-Harwood 230 kV Transmission Line. One gas pipeline operated by Sunoco bisects the Study Area in a general northwest to southeast direction. No wind farms or solar farms are located within the Study Area.

2.1.4 Linear Infrastructure

The Study Area is bisected by Interstate 80 ("I-80"), which generally traverses east-west along the southern valley of Nescopeck Mountain, as well as by a series of state routes, including PA-239 and PA-93, which are both located in the northern region of the Study Area. Located in the southern portion of the Study Area, State Route 924 ("PA-924") travels through an industrial corridor southwest to northeast, just north of the existing Harwood Substation. A minor industrial railroad, owned by Reading Blue Mountain & Northern Railroad, is also located within the southernmost portion of the Study Area and travels southwest to northeast. The Study Area is also served by several local roads, such as Rock Glen Road, which runs from east to west along the northern valley of Buck Mountain, and Tomhicken Road, which runs from east to west along the southern valley of Buck Mountain. Numerous other local roads form a network within the Study Area, connecting the rural areas to major transportation corridors. Additionally, no U.S. Highways, PennDOT-designated scenic byways, or bike paths were identified within the Study Area.

A network of existing PPL Electric-owned 230 kV and 500 kV transmission lines traverse the Study Area, including the Sunbury-Susquehanna #1 230 kV, Sunbury-Susquehanna #2 500 kV, and Susquehanna-Wescosville 500 kV transmission lines in the northern portion of the Study Area, and the Susquehanna-Harwood 230 kV Transmission Line along the Study Area's eastern boundary. Several other PPL Electric transmission lines cross the southeasternmost portion of the Study Area, interconnecting with Harwood Substation. Additionally, the Susquehanna Switchyard is located in the northeastern most portion of the Study Area, and a series of other PPL Electric-owned transmission lines interconnect here, generally from east-west directions.

PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line, which generally ranges between 100 and 130 feet in width, bisects the Study Area from southeast to northwest. Additionally, the Company previously acquired land rights along a corridor ranging between 200 and 325 feet, which could accommodate a new 500 kV transmission line. This corridor generally extends from the retired Harwood-Berwick 69 kV Transmission Line to the proposed Nescopeck Switchyard, crossing south to north within the northwestern portion of the Study Area.

2.1.5 Municipal Zoning

Six townships are crossed by the Study Area: Conyngham, Nescopeck, Hollenback, Black Creek, Sugarloaf, and Hazle. Nescopeck, Hollenback, Black Creek, Sugarloaf, and Hazle townships have enacted zoning ordinances. Conyngham Township is covered by Luzerne County zoning. The zoning districts established by these ordinances are generally designed to guide future land use in the municipality by encouraging the development of desirable residential, commercial, agricultural, and manufacturing areas within appropriate groups of compatible and related uses. PPL Electric has reached out to the affected municipalities and counties and provided details pertaining to the Project. Luzerne County, as well as Black Creek and Sugarloaf Townships have passed resolutions opposing the Project.

The entire Study Area within Conyngham Township is zoned AG (Agricultural District). Most of the Study Area in Nescopeck Township is zoned A (Agricultural) or OS (Open Space), with some areas zoned I (industrial) and C (Commercial). In Black Creek Township, most of the Study Area is zoned as C-1 (Conservation) and A-1 (Agricultural). Sugarloaf Township zoning within the

Study Area is mostly S-1 (Conservation District) and A-1 (Agricultural District) with some R-1 (Residential District) and I-1 (General Industrial District and Mining District). Most of the Study Area in Hazle Township is zoned I-1 (Industrial District) and C-1 (Conservation District). Hollenback Township's zoning information is not available online. PPL Electric's independent siting contractor, WSP, attempted to contact Hollenback Township's zoning department to obtain its zoning information, but had not received a response at the time that this report was compiled.

As a general rule, public utility facilities, including transmission lines, are exempt from local zoning ordinances.[6] Nevertheless, electric transmission lines by public utilities are typically addressed in municipal zoning codes as an "essential service," "public utility," or similar categorization. The Black Creek Township Zoning Ordinance (2025) defines a public utility as "a use which is operated, owned, or maintained by a municipality or municipal authority or which is privately owned and requires a Certificate of Convenience approved by the Pennsylvania Public Utility Commission for the purpose of providing … the transmission of energy or telephone service." Conyngham, Nescopeck, and Hazle Townships mention the exception of public utilities from their zoning ordinance in accordance with Section 619 of the Pennsylvania Municipalities Planning Code, Act 247, as amended. Sugarloaf Township does not specifically address public utility facilities.

2.1.6 Comprehensive and Land Use Plans

PPL Electric's independent siting contractor, WSP, collected and reviewed all county comprehensive or land use plans applicable to the municipalities located in the Study Area. The townships encompassed by the Project's Study Area do not have adopted comprehensive or land use plans publicly available on their respective websites. Comprehensive plans serve as a means for local governments to assess existing development and guide future development within their boundaries.

In June 2021, Luzerne County, in collaboration with Lackawanna County, adopted a region-wide comprehensive plan encompassing both counties called the *Lackawanna-Luzerne Counties Joint*

[6] *See, e.g., Duquesne Light Co. v. Upper St. Clair Township*, 377 Pa. 323, 105 A.2d 287 (1954); *Duquesne Light Co. v. Monroeville Borough*, 449 Pa. 573, 580, 298 A.2d 252, 256 (1972); *County of Chester v. Philadelphia Electric Co.*, 420 Pa. 422, 425-26, 218 A.2d 331, 333 (1996); *Commonwealth v. Delaware & Hudson Railway Co.*, 339 A.2d 155, 157 (Pa. Cmwlth. 1975).

Comprehensive Plan & Long Range Transportation Plan ("Comprehensive Plan"). The Study Area includes all four of the Comprehensive Plan's future land use categories: Primary Growth Area, Secondary Growth Area, Rural Living Area, and Preservation Area. The Study Area does not cross any Revitalization Areas (Luzerne County 2021).

The Comprehensive Plan established 10 regional policies addressing key planning objectives, meeting the community's housing demands, encouraging higher-density development within the Primary Grown Areas, preserving and supporting agricultural lands, promoting the development and use of renewable energy resources, creating a multi-modal transportation network, improving existing regional traffic operations, and enhancing utilization of historic resources (Luzerne County, 2021).

The proposed transmission line is consistent with Luzerne county's comprehensive and land use plans in the Study Area.

2.2 Recreation/Aesthetics

2.2.1 Federal, State, and Local Recreation Areas

Pennsylvania supports a wide array of both dispersed and developed recreational opportunities that occur on federal, state, local, and private lands. Dispersed recreational uses include recreation that occurs over a broad area and not at a specific developed site but may include developments or facilities that provide access to recreational opportunities. Examples of dispersed recreational activities include hiking, scenic driving, bicycling, backpacking, hunting, fishing, off-road vehicle use, snowmobiling, bird watching, and cross-country skiing, among others. Developed recreation provides permanent facilities designed to accommodate uses such as camping, boat launching, sports and athletic activities, or day-use activities (e.g., picnicking, interpretive exhibits, and hiking/biking trails).

The USGS Protected Areas Database of the U.S. ("PADUS") was reviewed to identify federal, state, local, and private lands within the Study Area. Other than confirming the presence of the above-mentioned ACEs scattered throughout the Study Area, the USGS PADUS shows that properties managed by the North Branch Land Trust, a non-governmental organization ("NGO") are located within the northern portion of the Study Area along PA-93. No federal or state lands

were identified within the Study Area.

The Lance Corporation owns Wapwallopen Gorge, which allows public access for recreation on the property. There are several hiking trails and camping/picnic areas throughout Wapwallopen Gorge. Wapwallopen Gorge, which is known locally as the Powderhole, has some historical significance with many remnants of a turn of the century gunpowder plant that can be found along the edge of the gorge.

Tomhicken Playground, a local park, is located approximately 0.2 miles northeast of Tomhicken Road and Welston Road. Within its southernmost portion, the Study Area narrowly crosses undeveloped areas of Eagle Rock Resort, which is already crossed by PPL Electric's maintained ROW for the existing Susquehanna-Harwood 230 kV Transmission Line and unmaintained ROW from the retired Harwood-Berwick 69 kV Transmission Line. Additionally, Eagle Rock Resort's skiing hills and golf course are located outside of the Study Area, distanced approximately 3 miles southwest of PPL Electric's existing Harwood Substation. Local recreation areas are identified on **Figure 3-1**.

2.2.2 Landscape and Aesthetics

For the purpose of this Application, aesthetics are defined as a mix of landscape character, the context in which the landscape is being viewed, and the scenic integrity of the landscape. The Routing Team considered the aesthetic impact of the Project by evaluating the existing landscape character, reviewing available GIS data, and reviewing the Study Area in the field from points of public access.

Landscape character encompasses the patterns of landform (topography), vegetation, land use, and aquatic resources (i.e., lakes, streams, and wetlands). The landscape character is influenced both by natural systems (e.g., soils, surface water, wetlands, and vegetation), as well as people's interactions with and use of land (e.g., land use, recreation, and cultural resources). In natural settings, the landscape character attributes are natural elements, whereas in pastoral or rural/agricultural settings they may include man-made elements such as fences, walls, barns and occasional residences. In a more developed setting, the landscape character may include buildings, lawn areas and landscaping, pavement, and utility infrastructure.

The northern part of the Study Area is part of the physiographic region known as the Anthracite Upland Section, while the central and southern portions of the Study Area are within the Susquehanna Lowland Section, both within the Ridge and Valley Province. The Anthracite Upland Section is composed of upland surfaces with low, linear to rounded hills. The Susquehanna Lowland Section is characterized by low to moderately high linear ridges, linear valleys, and the Susquehanna River valley. Two primary surface water conveyance features within the Study Area are Nescopeck Creek and Big Wapwallopen Creek, both of which flow from east to northwest for convergence with the Susquehanna River. Additional streams include headwater tributaries of these two creeks, namely Black Creek, Kester Creek, Little Nescopeck Creek, and numerous unnamed tributaries ("UNTs"). The Study Area is primarily comprised of forested areas, especially within the steep, mountainous terrain of Nescopeck and Buck mountains, and agricultural land use. Residential development is interspersed throughout the landscape, primarily concentrated around the network of local roads and transportation corridors.

2.3 Cultural Resources

Resources of historic architectural and archaeological significance are located in the vicinity of the Study Area. Initial analysis of the Project's potential to affect cultural resources involved a review of the Pennsylvania Historical and Museum Commission ("PHMC")/State Historic Preservation Office ("SHPO") Cultural Resource Geographic Information System ("CRGIS") on-line inventory of cultural resources. The review involved identifying all known prehistoric and historic period archaeological sites and all known historic architectural resources and historic districts within the Study Area in accordance with PUC regulations.[7] A list of architectural and archaeological resources identified in the CRGIS within the Study Area is included in the tables in **Attachment 15**. Known architectural resources and sites (i.e., historic buildings, structures, districts, and roadways) in the Study Area are shown on **Figure 3-4**. Known archaeological resources are not shown on the figure to protect any such sites.

2.3.1 Historic Architectural Sites

One previously recorded historic district and 20 previously recorded architectural sites were identified within the Study Area. Six of the 20 previously recorded sites are demolished or have

[7] 52 Pa. Code § 57.72

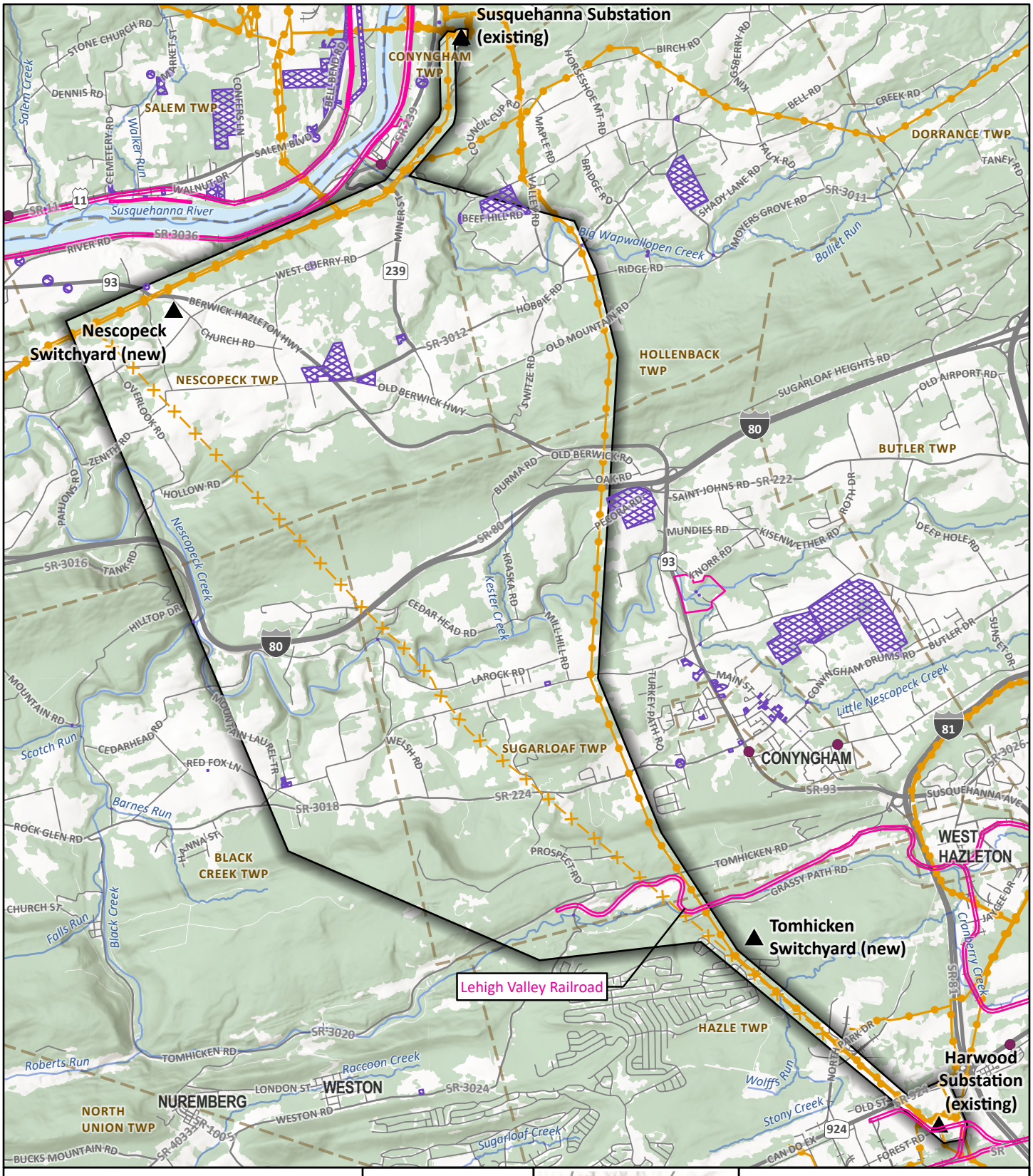
been determined as not eligible for the National Register of Historic Places ("NRHP"). The previously recorded architectural resources and their NRHP status is shown in **Table 15-1** in **Attachment 15**.

2.3.2 Archeological Sites

One previously recorded archaeological site was identified within the Study Area. According to CRGIS, this site has undetermined eligibility due to insufficient data available, as shown in **Table 15-2** in **Attachment 15**.

Precise locations of the archaeological resources are often uncertain due to mapping inaccuracies or intentionally vague because of concern for sensitivity of the resource and will need to be confirmed in the field and through further consultation with the PHMC/SHPO. In addition, the number of resources identified in the CRGIS databases in and/or near the respective routes is not necessarily indicative of the relative potential of transmission line construction along each route to affect cultural resources. Differing survey intensities and methods have resulted in an inventory of cultural resources in the CRGIS that is not necessarily representative of the actual number and distribution of resources that would be identified were the routes to be thoroughly and comparably surveyed.

Figure 3-4. Cultural Resources


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
Lehigh Valley Railroad
CONYNGHAM TWP
SALEM TWP
DORRANCE TWP
NESCOPECK TWP
HOLLENBACK TWP
BUTLER TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
NORTH UNION TWP
CONYNGHAM
WEST HAZLETON
NUREMBERG
WESTON
Susquehanna River
Nescopeck Creek
Kester Creek
Big Wapwallopen Creek
Little Nescopeck Creek
Black Creek
Raccoon Creek
Sugarloaf Creek
Stony Creek
Wolffs Run
Roberts Run
Falls Run
Barnes Run
Scotch Run
Walker Run
Salem Creek
Cranberry Creek
Ballliet Run
Substation or Switchyard
Study Area
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Municipality Boundary
Railroad
Historical Marker
Historical District
Architectural Resource
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
PHMC (2025)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 3-4. Cultural Resources
ppl
WSP
0
0.5
1
Miles
N

3.0 NATURAL ENVIRONMENT

Natural resources evaluated include geology and soils, water resources, vegetation, and wildlife. Each of these resources is discussed in the following sections.

3.1 Geology and Soil Resources

3.1.1 Geology

The Study Area is in the eastern part of the Commonwealth in the Ridge and Valley Province. A Province is a region having a pattern of relief features or landforms that differ significantly from that of adjacent regions. Within the Province, the Study Area crosses both the Anthracite Upland Section in the norther region, and the Susquehanna Lowland Section in the central and southern portions. A Section (i.e., a succession of rock units) is composed of several individual geologic units or formations.

The Anthracite Upland Section consists of upland surface with low, linear to rounded hills, strip mines, and waste piles; upland areas are surrounded by an escarpment, a valley, and a mountain rim. Relief (difference in elevation between the highest and lowest points of a land surface) is generally quite variable, ranging from 320 to 2,094 feet in this Section (DCNR, 2018). The Susquehanna Lowland Section consists of a region with lower linear ridges and valleys, as well as folded and faulted sedimentary rocks. Relief in this Section ranges from low to moderate, with elevations between 260 to 1,715 feet (DCNR, 2018). Elevation in the Study Area generally ranges from 505 to 1,795 feet. No USGS- or DCNR-designated karst features were identified within the Study Area. Additionally, no documented DCNR sinkholes are mapped within the Study Area.

3.1.2 Soils

Soil groups in the vicinity of the Study Area were determined using the soil survey geographic ("SSURGO") database. SSURGO is the most detailed level of soil mapping done by the NRCS of the USDA. The northern portion of the Study Area is predominantly comprised of Devonian-age formations underlain by mudstone, siltstone, and sandstone, whereas the southern portion of the Study Area is primarily comprised of Mississippian- and Pennsylvanian-age formations underlain

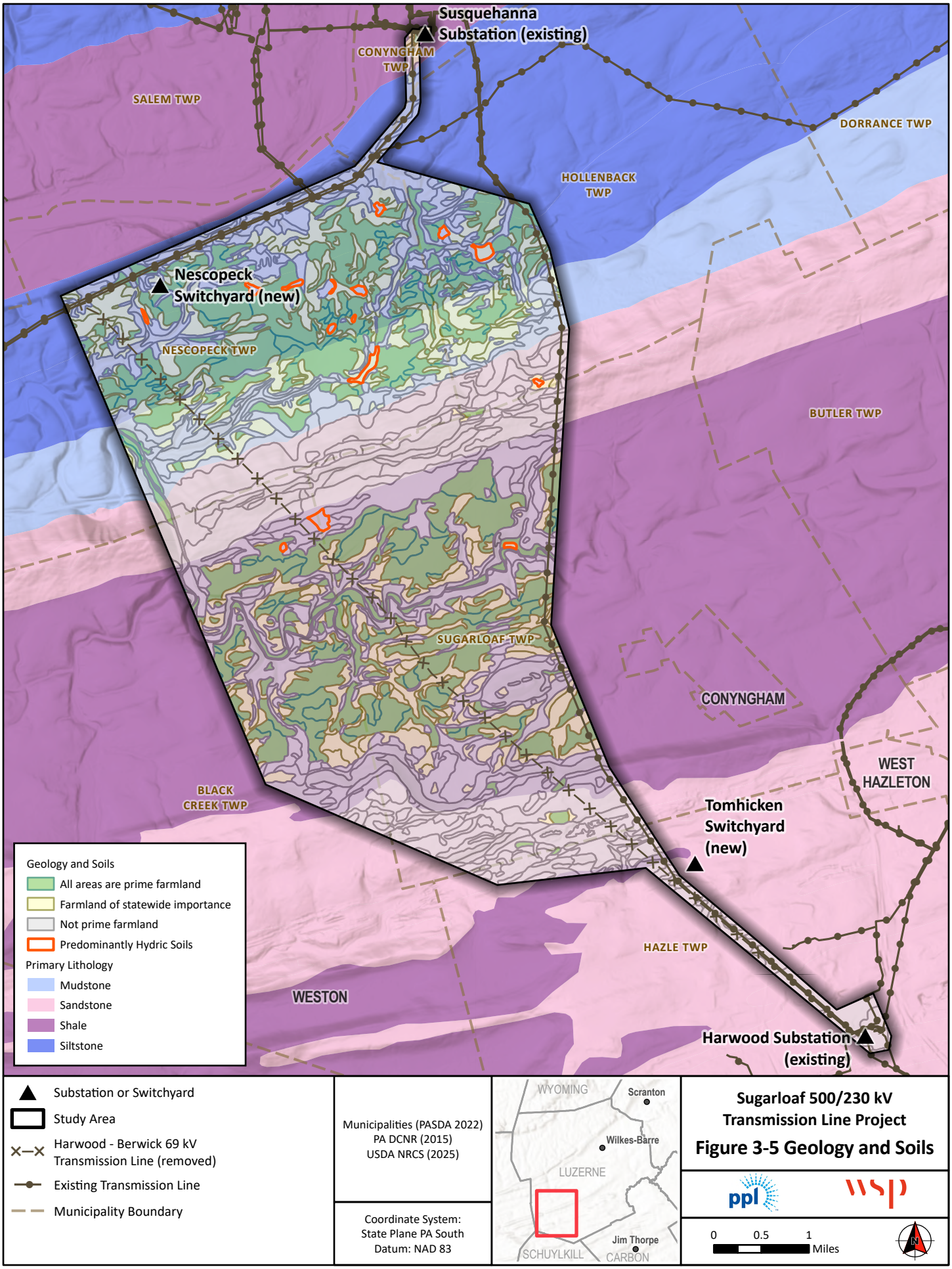
by sandstone, siltstone, and shale. Sandstone, siltstone, and shale are the primary lithology[8] located within the Study Area, as shown in **Figure 3-5**. The Catskill Formation and the Trimmers Rock Formation predominate the northern portion of the Study Area, consisting of rocky, loamy soils that have variable drainage patterns occurring on steep slopes and hillsides. The central region of the Study Area consists of the Pocono, Mauch Chunk, and Spechty Kopf formations, with soils that are well-drained and higher permeability. The southern portion of the Study Area contains the Pottsville and Llewellyn formations, which are characterized by relatively variable drainage given the degree of interbedding of more permeable layers of sandstone and conglomerates with less-permeable layers, such as shale and coal.

Approximately 1.5 percent of soils within the Study Area can generally be characterized as predominantly hydric, while approximately 17 percent are predominantly non-hydric, and 81 percent are non-hydric, while less than 1 percent of the Study Area is classified as water. The NRCS National Soil Survey Handbook ("NSSH"), Part 614, defines hydric soil as a soil that forms under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils can indicate the presence of wetlands, ponds, streams and other hydro-related features.

Prime farmland and farmland of statewide importance are special categories of highly productive cropland that is recognized and described by the NRCS. Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops. Soils that do not meet the prime farmland category but are still recognized for their productivity may qualify as farmland of statewide importance. Approximately 30% of soils within the Study Area can generally be characterized as prime farmland, while approximately 19% are farmland of statewide importance, and 51% is not classified for farmland use. No soil conditions were found that would potentially limit construction of the proposed Project.

[8] The lithology of a rock unit is a description of its physical characteristics visible at outcrop, in hand or core samples or with low magnification microscopy, such as color, texture, grain size, or composition.

Figure 3-5. Geology and Soils


Susquehanna Substation (existing)
CONYNGHAM TWP
SALEM TWP
DORRANCE TWP
HOLLENBACK TWP
Nescopeck Switchyard (new)
NESCOPECK TWP
BUTLER TWP
SUGARLOAF TWP
CONYNGHAM
WEST HAZLETON
BLACK CREEK TWP
Tomhicken Switchyard (new)
HAZLE TWP
WESTON
Harwood Substation (existing)
Geology and Soils
All areas are prime farmland
Farmland of statewide importance
Not prime farmland
Predominantly Hydric Soils
Primary Lithology
Mudstone
Sandstone
Shale
Siltstone
Substation or Switchyard
Study Area
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Municipality Boundary
Municipalities (PASDA 2022)
PA DCNR (2015)
USDA NRCS (2025)
Coordinate System:
State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 3-5 Geology and Soils
ppl
WSP
0
0.5
1
Miles
N

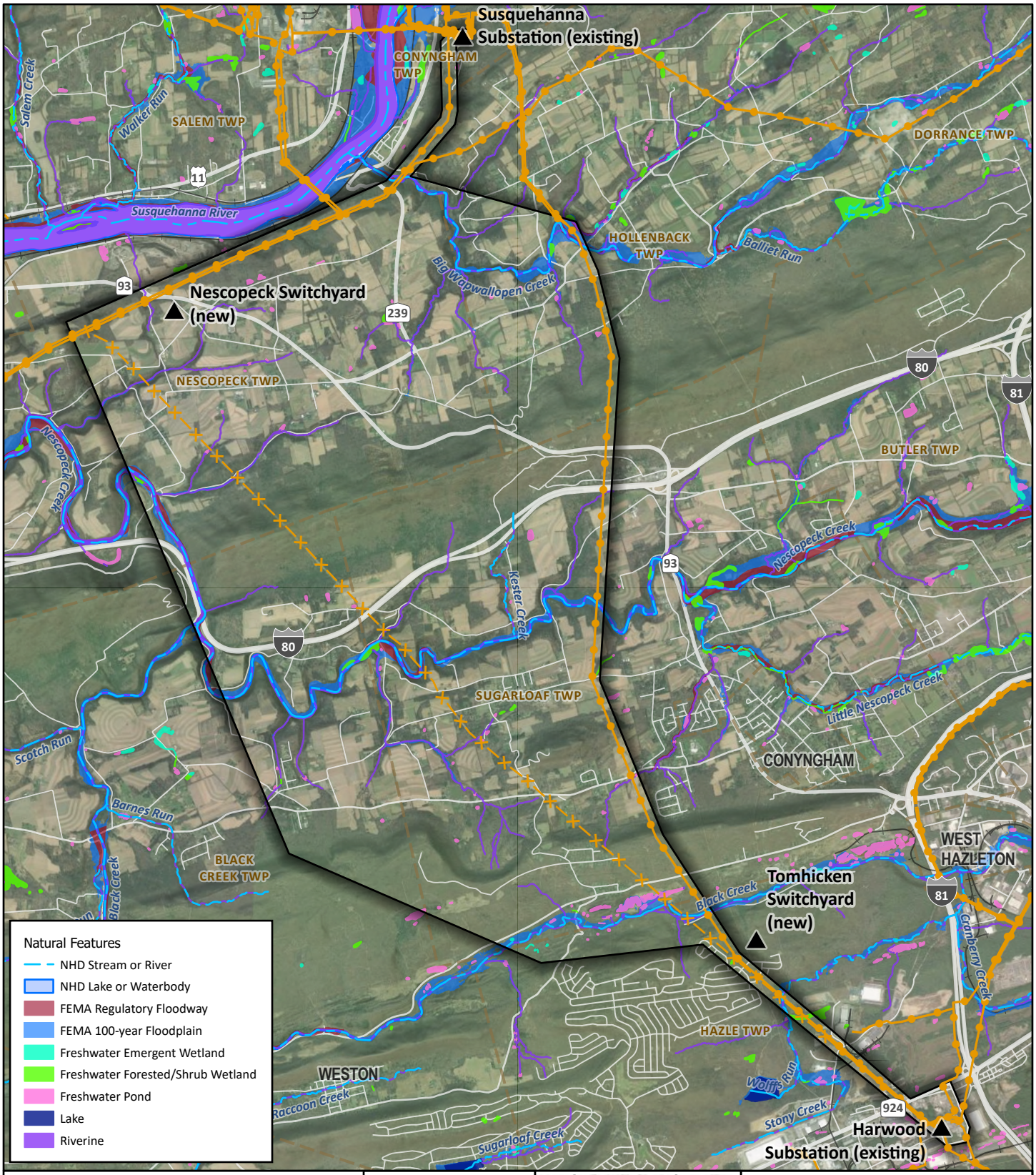
3.2 Water Resources

3.2.1 Streams

The entire Study Area is located within the Upper Susquehanna-Lackawanna HUC-8 watershed (02050107), and entirely within the USACE Baltimore District. More specifically, the Study Area is located within four HUC-12 Watershed Districts: Salem Creek-Susquehanna River (020501070307) and Lower Big Wapwallopen Creek (020501070306) in the northern/northeastern portion; Nescopeck Creek (020501070403) in the central portion; and Black Creek (020501070402) in the southern portion. As illustrated on **Figure 3-6**, Big Wapwallopen Creek flows from east to northwest towards the Susquehanna River in the northeastern region of the Study Area, while Nescopeck Creek also flows east to northwest for convergence with the Susquehanna River in the central region of the Study Area, and additional streams include Black Cree, Kester Creek, Little Nescopeck Creek, and various UNTs. No navigable waters are located within the Study Area.

Pennsylvania Water Quality Standards (25 Pa. Code § 93.3) designate protected water uses which provide the basis for the development of water quality criteria. Special quality waters consist of exceptional value and high-quality waters. Those pertaining to biological uses include the maintenance and propagation of aquatic life, including cold water and warm water fisheries, and anadromous fish (i.e., those that live their lives in the sea and migrate to freshwater to spawn) and catadromous fish (i.e., those that live their lives in freshwater and travel to the sea to spawn), which ascend into flowing waters to complete their life cycle. The Pennsylvania Department of Environmental Protection ("PADEP") routinely re-evaluates its water quality designations. Waterbodies that have been granted a new designated use status that has not yet been incorporated into the Pennsylvania Code are still classified according to their existing use with regard to permitting. According to this code, Big Wapwallopen Creek, Kester Creek, and one UNT to Nescopeck Creek within the Study Area are all designated as High-Quality Cold-Water Fishery ("HQ-CWF") streams.

Figure 3-6. Natural Features


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
CONYNGHAM TWP
SALEM TWP
DORRANCE TWP
HOLLENBACK TWP
NESCOPECK TWP
BUTLER TWP
SUGARLOAF TWP
CONYNGHAM
BLACK CREEK TWP
WEST HAZLETON
HAZLE TWP
WESTON
Susquehanna River
Salem Creek
Walker Run
Balliet Run
Big Wapwallopen Creek
Nescopeck Creek
Kester Creek
Little Nescopeck Creek
Scotch Run
Barnes Run
Black Creek
Cranberry Creek
Wolfs Run
Stony Creek
Raccoon Creek
Sugarloaf Creek
11
93
239
80
81
924
Natural Features
NHD Stream or River
NHD Lake or Waterbody
FEMA Regulatory Floodway
FEMA 100-year Floodplain
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine
Substation or Switchyard
Study Area
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Roads, Railroads, Municipalities (PASDA 2022)
Rivers (USGS 2022)
FEMA (2022), USFWS (2022)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 3-6 Natural Features
ppl
WSP
0
0.5
1
Miles
N

3.2.2 Wetlands and Lakes

The Routing Team used the U.S. Fish & Wildlife Service's ("USFWS") National Wetland Inventory ("NWI") shapefiles and maps to preliminarily identify potential wetlands within the Study Area. The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats. The accuracy of NWI maps varies based upon age, wetland type and size, source photography, and survey methods. Therefore, actual wetland totals are expected to change based upon field surveys and formal delineations using the U.S. Army Corps of Engineers 1987 Methodology. Field surveys or delineations along the Alternative Routes are not practical during the routing process due to the large geographic area, as well as the lack of land access for portions of the Alternative Routes. PPL Electric has completed the process of delineating wetlands located along the Preferred Route (see Attachment 4) using the U.S. Army Corps of Engineers 1987 Methodology. In addition, the Routing Team used hydric soils mapped by the NRCS. A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. All wetlands contain hydric soils. Therefore, they are a good indicator of potential wetland locations. Wetlands and water resources are shown in **Figure 3-6**.

NWI wetlands are mapped using the Cowardin (1979) wetland classification system. Within the Study Area, both palustrine and riverine systems are represented. The palustrine system includes all non-tidal freshwater wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, as well as un-vegetated shallow water wetlands such as ponds. Classes within the palustrine system are defined based upon the dominant vegetation type and include forested ("PFO"), scrub-shrub ("PSS"), emergent marsh ("PEM"), and unconsolidated bottom (freshwater ponds) ("PUB").

Based on the NWI data, numerous wetlands and freshwater ponds are located within the Study Area (see **Figure 3-6**). Specifically, five PEM wetlands are concentrated near Black Creek in the southern portion of the Study Area; eight forested (PFO) wetlands and six scrub-shrub (PSS) wetlands occur throughout the Study Area near Nescopeck Creek, Black Creek, and UNTs to Big Wapwallopen Creek. A total of 69 freshwater ponds are similarly dispersed throughout the Study Area, primarily occurring south of Nescopeck Creek alongside one of its UNTs, and adjacent to riparian corridors of both Kester Creek and Black Creek. Many of the ponds within the Study Area are likely man-made and occur on agricultural or residential properties.

3.2.3 100-year Floodplains

Federal Emergency Management Agency ("FEMA") designated 100-year floodplains and regulatory floodways, which are typically associated with perennial streams and wetland complexes. Based on a review of the FEMA Flood Map Service Center website (FEMA, 2021), 100-year floodplain and regulatory floodway are generally confined to the primary headwaters within the Study Area. The regulatory FEMA-designated floodway occurs along Nescopeck Creek which bisects the central portion of Study Area, while 100-year floodplains are located throughout the Study Area along streams and their UNTs, such as Black Creek in the southern portion, Nescopeck and Kester creeks in the central region, and Big Wapwallopen Creek in the northeastern portion (see **Figure 3-6**).

3.3 Vegetation

The Study Area is located within one level III ecoregion: Ridge and Valley (Woods et al., 1999). Level III ecoregions are ecological areas or divisions small enough to enhance regional environmental monitoring, assessment, and reporting, as well as decision-making. Because level III ecoregions are smaller (i.e., compared to level I and II ecoregions), they allow locally defining characteristics to be identified, and more specific management strategies to be formulated. The natural vegetation of the Ridge and Valley historically consisted of Appalachian Oak Forest and Oak-Hickory-Pine Forest (Woods et al, 1999). Today, much of the land within the Study Area has since been converted for agricultural use.

According to the National Land Cover Dataset (NLCD, 2001) and as shown above in **Table 3-1**, the Study Area's vegetation is dominated by forest cover, which represent approximately 58 percent of the Study Area's vegetation.

3.4 Special Natural Areas

The DCNR generated a conservation planning report for the Study Area, using the Natural Areas Inventory ("NAI"), which been prepared by The Nature Conservancy in association with the Pennsylvania Natural Heritage Program ("PNHP"). The NAI includes information on the locations of rare, threatened, and endangered species and the highest quality natural areas located within the County.

Four natural heritage areas ("NHA") were identified within the Study Area: Briggsville Vernal Pools, Humboldt Barren, Susquehanna Riverlands, and Wapwallopen Gorge (see **Figure 3-6**). All four NHAs are classified as County Natural Heritage Inventory (CNHI) Core Habitats, which represent the most intact areas of a landscape identified as critical for supporting high levels of biodiversity, rare, and/or imperiled species, providing essential functions for their survival and protection.

- *Briggsville Vernal Pools* – located within the northern portion of the Study Area, this site contains a series of vernal pools that make up an ephemeral fluctuating pool natural community north of Nescopeck Mountain. This habitat supports a damselfly species of concern, azure bluet (*Enallagma aspersum*), as well as an addition species of concern, which is not named at the request of the jurisdictional agency overseeing its protection. Currently, some of the pools are situated in an agricultural setting but many of the vernal pools are found in young, deciduous woods.
- *Humboldt Barren* – a ridgetop dwarf tree forest natural community on a broad, high elevation (1,500-1,700 feet) occurs at this site, part of which is considered a scrub oak shrubland natural community. The site, located within the southern-most portion of the Study Area, is unusual among Luzerne County ridgetop barrens in having pitch pine (*Pinus rigida*) that is at least as abundant as scrub oak (*Quercus ilicitfolia*) over much of the site. Suitable habitat for several snake species is present among the conglomerate slabs and boulders at the site.
- *Susquehanna Riverlands* – only crossing a sliver of the northern portion of the Study Area, this site provides aquatic and riparian habitats that support four species of concern. As a whole, the Susquehanna Riverlands NHA encompasses a two-county region in south-central Pennsylvania, which is a tourist destination for hikers, bicyclists, and paddlers.
- *Wapwallopen Gorge* – the Wapwallopen Gorge crosses the northeastern portion of the Study Area and characterizes Big Wapwallopen Creek's steeply-sided, forested ravine. The gorge, which is locally known as the Powderhole, has some historical significance with many remnants of a turn-of-the-century gunpowder plant that can be found along the edge of the gorge.

No federal or additional local designated wilderness areas are located within the Study Area.

3.5 Threatened, Endangered and Rare Species

On September 26, 2025, a Pennsylvania Natural Diversity Inventory ("PNDI") was conducted. Based upon the results of the September 2025 PNDI, DCNR requested further review of this Project to resolve potential impacts to the Screw-Stem (*Bartonia paniculata ssp. paniculata*), which is listed as a species of special concern. On December 16, 2025, an updated online PNDI was conducted to identify state-specific wildlife habitats and sensitive species within the Study Area. Because the Project Area exceeds 10 square miles and/or 5,165 acres, the PNDI response indicate that further coordination would be required between the Company, the PA Game Commission ("PAGC"), DCNR, PA Fish and Boat Commission ("PAFBC"), and USFWS in order to determine potential impacts and more specific information on threatened or endangered species within the Project Area. PPL Electric is currently coordinating directly with the four agencies per the PNDI response. Botanical surveys may be required during an August-October flowering season. The PAGC has indicated that further review is required for two sensitive species with unlisted names, while the USFWS response had noted that the Project is within range of the federally listed northern long-eared bat and tricolored bats. Agency findings will be updated once further coordination has been conducted for the Proposed Route.

An agency consultation description for the Proposed Route is presented in **Attachment 4**. Copies of correspondence with federal and state agencies are provided in **Attachment 14**.

REFERENCES

Braun, E.L. (1950). *Deciduous Forests of Eastern North America*. Retrieved July 11, 2023 from: http://reader.library.cornell.edu/docviewer/digital?id=chla2844274#page/2/mode/1up

Center for Rural Pennsylvania (2024). ArcGIS Dashboard for County and Municipal Demographics. Retrieved November 11, 2025 from:
County Demographics | Center for Rural Pennsylvania Data Hub; and
Municipal Demographics | Center for Rural Pennsylvania Data Hub

Luzerne County (2020). *Luzerne County Farmland Preservation Program.* Retrieved November 10, 2022 from:
https://luzernecd.org/wp-content/uploads/2025/01/Luzerne-County-Farmland-Preservation-Program-Guide_Bylaws_Application1_25.pdf

Luzerne County (2021), Planning and Zoning. *Lackawanna-Luzerne Counties Joint Comprehensive Plan & Long Range Transportation Plan* , Luzerne and Lackawanna Counties, June 2021. Retrieved November 4, 2025 from:
https://www.luzernecounty.org/DocumentCenter/View/25983/2021-Comp-Plan-FINAL-digital.

Pennsylvania Department of Agriculture (PDA). (2016). Bureau of Farmland Preservation. *Agricultural Security Area Handbook.* Retrieved from:
https://www.agriculture.pa.gov/Plants_Land_Water/farmland/asa/Documents/ASA%20Handbook%2004.06.16%20single%20sider%20full.pdf

PDA Bureau of Farmland Preservation. (2008). *A Guide to Farmland Preservation* (3rd ed.). Harrisburg, PA: Author.

PDA Bureau of Farmland Preservation. (2021). *2021 Annual Report*. Retrieved from:
https://www.agriculture.pa.gov/Plants_Land_Water/farmland/pages/default.aspx

Pennsylvania Department of Conservation and Natural Resources (DCNR). (2018) *Geology of PA: Physiographic Provinces of Pennsylvania, Map 13*. Retrieved on November 7, 2025 from: https://www.dcnr.pa.gov/Geology/GeologyOfPA/Landforms/Pages/default.aspx

Pennsylvania Department of Environmental Protection (PADEP). (2018). *Population Projections Table 2010-2040.* Retrieved on November 7, 2025 from
https://files.dep.state.pa.us/Water/Division%20of%20Planning%20and%20Conservation/2010_2040PopulationProjections.pdf

Pennsylvania Water Quality Standards. (Last amended July 30, 2022). 25 PA Code Chapter §93.

Penn State University. (n.d.). *Pennsylvania's clean and green program*. Retrieved November 10, 2025 from: https://pennstatelaw.psu.edu/_file/aglaw/Clean_and_Green_files/Pennsylvania_Clean_and_Green.pdf

U.S. Fish and Wildlife Service (USFWS). (1979). *Classification of wetlands and deepwater habitats of the United States*. Washington, D.C.: U.S. Department of the Interior.

U.S. Department of Agriculture (USDA) National Agricultural Statistics Service. (2017). *2017 census of agriculture county profile for Luzerne County.* Retrieved from: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Pennsylvania/

Woods, A., Omenik, J. and Brown, D. (1999). Level III and IV Ecoregions of Delaware, Maryland, Pennsylvania, Virginia, and West Virginia. Washington, DC: U.S. Environmental Protection Agency.

Attachment 4

ATTACHMENT 4
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
ALTERNATIVES AND SITING ANALYSIS

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS iv

EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 4-1

1.1 Project Overview 4-1

1.2 Project Timeline 4-2

1.3 Goal of the Alternative Analysis Study 4-3

1.4 Project Description 4-4

1.4.1 Project Study Area 4-4

1.4.2 Line Characteristics and Right-Of-Way Requirements 4-6

2.0 ROUTING PROCESS 4-8

2.1 Siting Team Members 4-8

2.2 Process Steps and Terminology 4-9

2.3 Routing Guidelines 4-12

2.3.1 General Guidelines 4-12

2.3.2 Technical Guidelines 4-14

2.4 Routing Constraints 4-15

2.5 Routing Opportunities 4-16

2.6 Routing Criteria and Data Sources 4-17

2.6.1 Quantitative Routing Criteria 4-18

2.6.2 Qualitative Routing Criteria 4-22

2.6.3 Route Reconnaissance 4-22

3.0 ROUTE DEVELOPMENT 4-23

3.1 Potential Route Development 4-23

3.2 Potential Route Review and Evaluation 4-26

3.3 Agency Consultation 4-27

3.3.1 Federal Agencies 4-27

3.3.2 State Agencies 4-28
3.3.3 Local 4-28
3.4 Alternative Route Development 4-29
3.5 Rebuilt 230 kV Transmission Lines Development 4-32
4.0 ALTERNATIVE ROUTE EVALUATION 4-33
4.1 Natural Environment Impacts 4-33
4.1.1 Soil and Water Resources 4-34
4.1.2 Wildlife Habitat 4-38
4.1.3 Natural Environment Summary 4-40
4.2 Built Environment Impacts 4-42
4.2.1 Land Use 4-45
4.2.2 Recreation/Aesthetics 4-50
4.2.3 Cultural Resources 4-51
4.2.4 Built Environment Summary 4-55
4.3 Engineering and Constructability Impacts 4-57
4.3.1 Transmission Right-of-Way 4-59
4.3.2 Engineering Considerations 4-59
4.3.3 Project Cost 4-61
4.3.4 Engineering and Constructability Summary 4-61
5.0 SELECTION OF THE PROPOSED ROUTE 4-63
6.0 PUBLIC OUTREACH 4-65
6.1 Outreach Media 4-65
6.2 Public Open House 4-65
6.3 Open House Debrief 4-66
7.0 COMPLIANCE WITH POTENTIAL PERMIT AND MITIGATION REQUIREMENTS 4-68

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

Page

Table 4-1. Siting Team Members 4-9
Table 4-2. Quantitative Siting Criteria 4-19
Table 4-3. Qualitative Siting Criteria 4-22
Table 4-4. Natural Environment 4-33
Table 4-5. Built Environment 4-43
Table 4-6. NRHP Listed and Eligible Historic Architectural 4-53
Table 4-7. Engineering and Constructability 4-58

LIST OF FIGURES

Figure 4-1. Study Area 4-7
Figure 4-2. Routing Process Steps 4-11
Figure 4-3. Potential Route Network 4-24
Figure 4-4. Alternative Routes 4-31
Figure 4-5. Natural Environment 4-37
Figure 4-6. Constraint/Topography Maps 4-44
Figure 4-7. Land Use 4-46
Figure 4-8. Agricultural Resources 4-49
Figure 4-9. Cultural Resources 4-54
Aerial Exhibit ..... End of Attachment

ACRONYMS AND ABBREVIATIONS

ESRI	Environmental Systems Research Institute
BDA	Biological diversity area
CNHI	County Natural Heritage Inventories
CWF	Coldwater fishery
DCNR	Pennsylvania Department of Conservation and Natural Resources
FAA	Federal Aviation Administration
GIS	Geographic information system
GNIS	Geographical Names Information System
GPS	Global positioning system
HQ-CWF	High quality cold water fishery
HUC	Hydrologic unit code
kV	Kilovolt
NAI	Natural Areas Inventory
NAIP	National Agricultural Imagery Program
NERC	North American Electric Reliability Corporation
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service of the U.S. Department of Agriculture
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PASDA	Pennsylvania Spatial Data Access
PEMA	Pennsylvania Emergency Management Agency
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PNDI	Pennsylvania Natural Diversity Inventory
PNHP	Pennsylvania Natural Heritage Program
PPL Electric	PPL Electric Utilities Corporation
PUC	Pennsylvania Public Utility Commission
ROW	Right-of-way
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic Database
T&E	Threatened and endangered (species)
UNT	Unnamed tributary
USACE	United States Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WWF	Warm water fishery

EXECUTIVE SUMMARY

As explained more fully in **Attachment 2 – Necessity Statement**, to address the Customer load growth at Tomhicken 230 kV Switchyard, as well as additional load requests in the Hazleton area, PPL Electric Utilities Corporation ("PPL Electric" or the "Company") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval for the Sugarloaf 500/230 kV Transmission Line Project (as defined below). The Project involves the following:

1) rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the new Nescopeck 230 kV Switchyard ("Nescopeck Switchyard");

2) construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard;

3) raise an approximate 0.5-mile section of the Sunbury-Susquehanna 500 kV Transmission Line to allow the connecting 230 kV lines from Sunbury and Susquehanna into Nescopeck to pass beneath the 500 kV line; and

4) construct a new double circuit 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the new Nescopeck Switchyard, Tomhicken 230 kV Switchyard, and existing Harwood 230/69 kV Substation ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line" and "Nescopeck-Harwood #1 500/230 kV Transmission Line").

The rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines are located within existing ROW. The Proposed Route identified for the Nescopeck-Tomhicken #1 500/230 kV Transmission Line and Nescopeck-Harwood 500/230 kV Transmission Line uses existing ROW, either from the retired Harwood-Berwick 69 kV Transmission Line or recently acquired ROW for an identified future use corridor, for its entire 11.2-mile-long alignment. WSP was retained by PPL

Electric to support the route selection study process for the proposed Sugarloaf 500/230 kV Transmission Line Project.

PPL Electric and WSP staff, along with other subject matter experts combined to form "the Siting Team" (see Section 2.1), conducted a comprehensive Route Selection Study to establish a Proposed Route for the Sugarloaf 500/230 kV Transmission Line Project. Using established routing guidelines, the Siting Team identified constraints and opportunity features within the study area that would minimize impacts to the natural and human environment and take advantage of existing infrastructure corridors to the extent practicable. The Siting Team acquired environmental and engineering data from various sources and assembled the information into a geographic information system ("GIS") database superimposed on aerial photography.

The Siting Team evaluated the advantages and disadvantages of the Potential Routes based on the established routing criteria, an inventory of environmental, land use, and cultural factors along each of the routes, and additional local knowledge and past experience. Less favorable Potential Routes were eliminated, and seven potentially viable Potential Routes were retained for further consideration. This iterative process resulted in the identification of three Alternative Routes and ultimately the Proposed Route, which was presented to public on April 30, 2025, at the Valley Country Club in Sugarloaf, PA.

Based on an assessment of the advantages and disadvantages of the Alternative Routes under consideration, the Siting Team selected Alternative Route A as the Proposed Route. The Siting Team believes that the cumulative environmental, social, engineering, and financial impacts associated with constructing Alternative Route A will be less than the Alternative Routes B and B1.

1.0 INTRODUCTION

1.1 Project Overview

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to construct a new double-circuit 500/230 kV transmission line between the new Nescopeck 500/230 kV Switchyard, Tomhicken 230 kV Switchyard, and existing Harwood 230/69 kV Substation. Specifically, as part of the Project, PPL Electric proposes addressing the Customer load growth at Tomhicken 230 kV Switchyard, as well as additional load requests in the Hazleton area as follows:

- (1) Rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the new Nescopeck 230 kV Switchyard;
- (2) Construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck 230 kV Switchyard;
- (3) Raise an approximate 0.5-mile section of the Sunbury-Susquehanna 500 kV Transmission Line to allow the connecting 230 kV lines from Sunbury and Susquehanna into Nescopeck to pass beneath the 500 kV line; and
- (4) Construct a new double-circuit 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity. After traveling 8.4 miles, the eastern circuit ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 miles as a single-circuit transmission line to the proposed Tomhicken 230 kV Switchyard. At Structure 41 (**Page 6 of 7** of the **Aerial Exhibit** in **Attachment 4**), the western circuit ("Nescopeck-Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken 230 kV Switchyard to the existing Harwood 230/69 kV Substation.

Collectively, the new and rebuilt transmission lines are referred to in this Application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project"). The Project is located between the existing Susquehanna 230 kV Switchyard and Harwood 230/69 kV Substation in

Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle Townships, Luzerne County, Pennsylvania. The need for the Project is explained further in **Attachment 2**.

The rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines will be located within existing PPL Electric right-of-way ("ROW") or on property owned by PPL Electric. The new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines, which are the subject of **Attachment 4**, will require a standard 200-foot-wide ROW corridor.

1.2 Project Timeline

PPL Electric initiated a 12-month transmission siting process for this Project in July 2024. During this time, an initial corridor screening study was conducted to identify all reasonably feasible corridors between the proposed Nescopeck 500/230 kV Switchyard, new Tomhicken 230 kV Switchyard, and existing Harwood 230/69 kV Substation to determine which alternatives to retain for more detailed analysis. After conducting this review, the Siting Team determined the vacated corridor of a recently retired 69 kV transmission line (the Harwood-Berwick 69 kV Transmission Line) and previously acquired land rights (the "Nescopeck-Harwood Future Use Corridor" or "future corridor"), extending from the retired Harwood-Berwick 69 kV Transmission Line to the proposed Nescopeck Switchyard, could be utilized between the proposed/new switchyards and existing switchyard and substation. Based on this analysis, the Siting Team evaluated the feasibility of using the existing Harwood-Berwick 69 kV ROW and any defined limitations of those rights by reviewing easement agreements. Through this process, the Siting Team collected data and identified the potential expansion areas, generally either located adjacent to the northeast or southwest of the existing ROW, which is predominately 100 feet wide but varies up to 200 feet wide between the existing Sunbury-Susquehanna 500 kV and 230 kV Transmission Lines, the proposed Nescopeck 230 kV Switchyard, and the existing Harwood Substation. The Siting Team determined that no new ROW was required to support the new 500/230 kV transmission lines within the Nescopeck-Harwood future use corridor as this corridor ranges between 200 and 325 feet in width.

Based on this comprehensive analysis, PPL Electric determined utilizing and expanding the existing ROW and utilizing the future corridor are collectively the most efficient solution for the Project, as it would result in the least amount of cumulative impacts for the Project when compared to a new greenfield 500/230 kV transmission corridor. In April 2025, PPL Electric announced the

Proposed Route and presented the Project at a public open house meeting. No other alternative route corridors were shown to the public. Following the public open house meeting, minor adjustments occurred based on discussions with individual property owners.

In addition to the Alternative Analysis Study for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines and following the April 2025 public open house meeting, PPL Electric also identified the need to bifurcate and rebuild a section of the existing Sunbury-Susquehanna #1 230 kV Transmission Line (discussed in greater detail in **Attachment 2**). The section of the Sunbury-Susquehanna #1 230 kV Transmission Line between the existing Susquehanna 230 kV Switchyard and the new Nescopeck 230 kV Switchyard will be rebuilt to double-circuit 230 kV operation. The existing 230 kV transmission lines will be bifurcated and rebuilt entirely within existing ROW or property owned by PPL Electric.

Subject to Pennsylvania Public Utility Commission approval, construction is expected to begin in February 2027 to meet a March 2028 system in-service date.

1.3 Goal of the Alternative Analysis Study

The goal of the Alternative Analysis Study is to gain a detailed understanding of the opportunities and constraints in the Project Study Area to facilitate the development of Potential Routes for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines, evaluate potential impacts associated with each route, and select a Proposed Route from one or more Alternative Routes. The Proposed Route is the route that is most consistent with the routing guidelines (see **Section 2.3**):

- Reasonably minimizes adverse effects on the natural and human environments.
- Minimizes special design requirements and unreasonable costs.
- Can be constructed and operated in a safe, timely, and reliable manner.

This document describes the Alternative Route identification, evaluation, and selection process for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines. This study also describes the identification and evaluation of the proposed bifurcation and rebuild of the existing Sunbury-Susquehanna #1 230 kV Transmission Line.

1.4 Project Description

See Section 1.1, *supra.*

1.4.1 Project Study Area

The Study Area is that territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs. The boundaries of the Study Area were determined by the geographic area encompassing the two final end points (the existing Harwood Substation to the southeast and the proposed Nescopeck Switchyard to the northwest) and the existing Susquehanna Switchyard and Tomhicken Switchyard. The Study Area was intended to encompass all reasonable Potential Routes for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines located between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation endpoints, as well as the existing ROW corridor for the rebuilt 230 kV transmission lines between the Susquehanna Switchyard and Nescopeck Switchyard. Additionally, the Project Study Area includes a 400-foot buffer of the existing ROW for the Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines to evaluate the feasibility of rebuilding the 230 kV facilities within or adjacent to the existing ROW. Subsequently, the compiled Project Study Area encompasses a suitable area for evaluating and identifying a feasible alignment for the 230 kV Tap Line between the existing Sunbury-Susquehanna #1 230 kV Transmission Line and the new Nescopeck Switchyard.

The approximately 30-square-mile Study Area (**Figure 4-1**) is predominantly characterized by agricultural land (cropland or hayfield/pasture) and undeveloped forested cover. Residential areas are scattered throughout the exurban landscape, most of which appear as agricultural homesteads or single-family homes. Mixed-use commercial/industrial development is concentrated to the southern portion of the Study Area, along the State Route 924 (PA-924) corridor. Overall, the Study Area is moderately populated with low-density exurban housing associated with the nearby city of Hazelton (population 26,700) and borough of Berwick (population 10,100), although there are no incorporated areas within the Study Area.

The northern edge of the Study Area is generally defined by PPL Electric's existing Sunbury-Susquehanna #1 230 kV and Sunbury-Susquehanna #2 500 kV and Susquehanna-Wescosville 500 kV transmission lines. The eastern edge of the Study Area is bounded by PPL Electric's

existing Susquehanna-Harwood 230 kV Transmission Line. PPL Electric's existing Harwood Substation defines the furthest southern extent of the Study Area. The remainder of the southern portions of the Study Area generally encompasses the existing ROW for the retired Harwood-Berwick 69 kV Transmission Line, since the surrounding area is heavily constrained by industrial development. To the west, the Study Area predominantly follows Mountain Laurel Trail and Black Creek. The limits of the Study Area were intentionally defined to avoid the borough of Conyngham and the city of Hazelton, where developed residential and commercial land uses are located in heavier concentrations.

In general, the Study Area topography is characterized by variable and steep terrain within the Susquehanna Lowland Section of the Ridge and Valley Providence of the Appalachian Mountain range in Pennsylvania. Elevation within the Study Area ranges from approximately 505 to 1,795 feet above mean sea level ("msl"). Although the majority of the Study Area has previously been converted to agricultural cropland and pasture/hayfield, two densely forested mountain ranges were unavoidable: Nescopeck Mountain bisects the northern half of the Study Area from southwest to northeast and Buck Mountain bisects the southern half of the Study Area from southwest to northeast. Little Sugarloaf Mountain, located approximately 4 miles west of the existing Harwood Substation, was intentionally avoided to reduce the amount of steep terrain crossed by the Potential Routes and minimize potential conflicts with the recreational areas of Eagle Rock Resort.

A desktop review of the USGS National Hydrology Dataset ("NHD") indicates that the primary surface water conveyance feature within the Study Area is Nescopeck Creek, which generally flows from east to northwest for convergence with the Susquehanna River. Big Wapwallopen Creek also crosses the northeastern corner of the Study Area, flowing east to northwest for convergence with the Susquehanna River. The remaining surface water conveyances mapped within the Study Area are headwater tributaries of either Nescopeck Creek or Big Wapwallopen Creek, which often incise steep areas of the variable terrain. These headwaters include Black Creek, Kester Creek, Little Nescopeck Creek, and numerous unnamed tributaries (UNTs). All of the mapped streams within the Study Area have Pennsylvania Department of Environmental Protection ("PADEP") Chapter 93 Designated Use classifications.[1] No named lakes or reservoirs

[1] Classifications include Cold Water Fishes (CWF), High Quality-Cold Water Fishes (HQ-CWF), and TSF (Trout Stocking).

are located within the Study Area. The majority of the ponds located within the Study Area appear as man-made impoundments for residential or agricultural use.

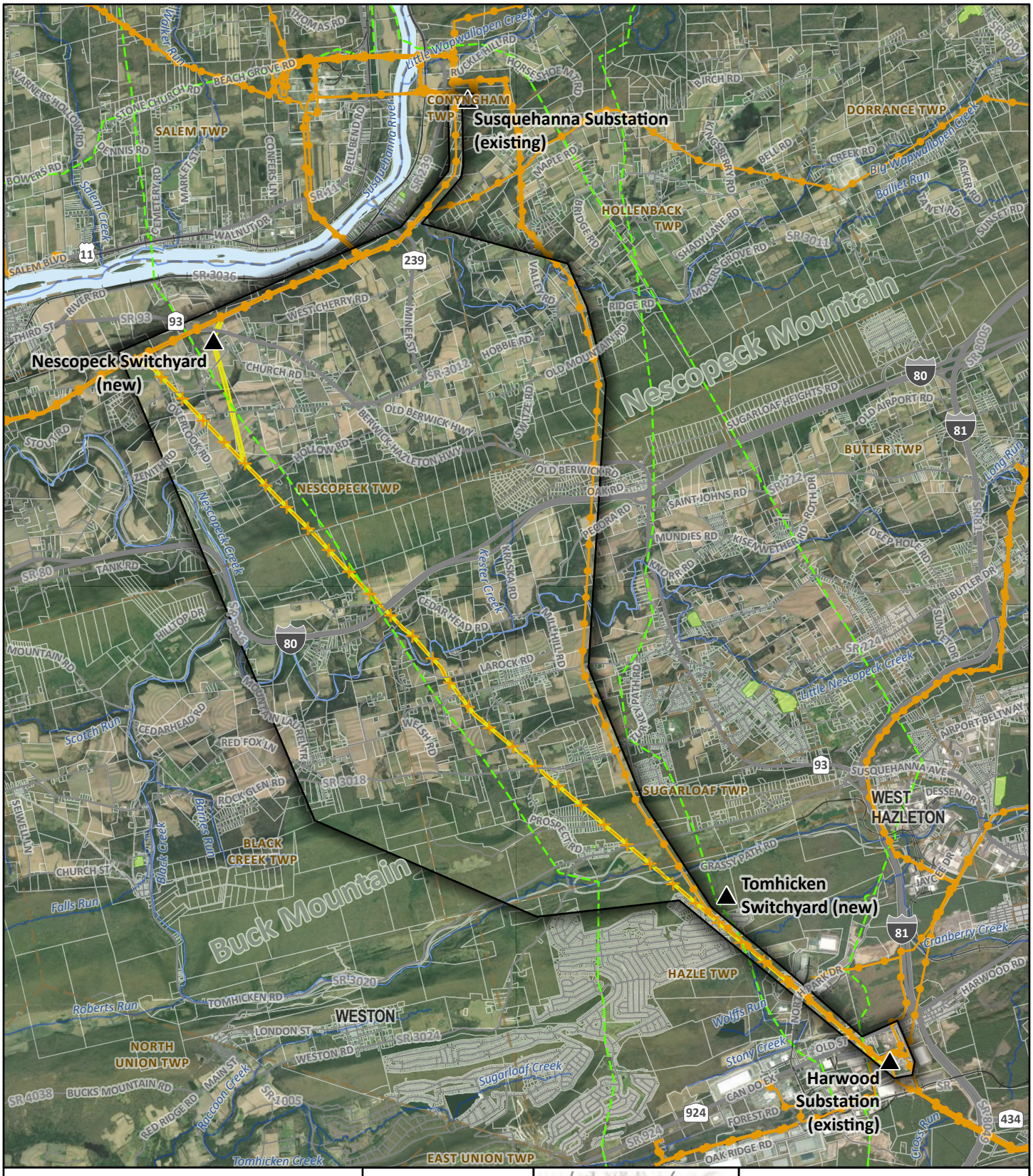
Using this established Study Area, the Siting Team began its efforts to determine Potential Routes for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines.

1.4.2 Line Characteristics and Right-Of-Way Requirements

The desired ROW width for the new double-circuit 500/230 kV lines is 200 feet. The vacant corridor for the retired Harwood-Berwick 60 kV Transmission Line is predominately 100 feet wide but varies up to 200 feet wide. The future use corridor varies between 200 and 325 feet in width. ROW for the Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines would be cleared to their full width of tall growing vegetation for the safe and reliable operation of the transmission line. Farming and grazing land uses are typically compatible and can continue under the transmission line. From a combined engineering and safety perspective, the desired 200-foot width will reduce the number and height of poles and reduce the risk of nearby tree strikes.

The proposed double-circuit design for the Project will consist of single-shaft steel monopoles equipped with steel conductor support arms and will be placed on concrete foundations. The structures will be designed for 500 kV operation but will initially operate at 230 kV, in anticipation of continued load growth in the surrounding area. Altogether, this Project requires the installation of approximately 90 structures with an average height of approximately 165 feet. Average span lengths will be approximately 912 feet. Additional detail on the engineering considerations for this Project is included in **Attachment 5**. The status of ROW acquisition for the Proposed Route is discussed in **Section 4.7**.

Figure 4-1. Study Area


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
Nescopeck Mountain
Buck Mountain
CONYNGHAM TWP
SALEM TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
NESCOPECK TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
NORTH UNION TWP
EAST UNION TWP
WEST HAZLETON
WESTON
Susquehanna River
Little Wapwallopen Creek
Big Wapwallopen Creek
Nescopeck Creek
Little Nescopeck Creek
Black Creek
Sugarloaf Creek
Tomhicken Creek
Cranberry Creek
Stony Creek
Wolfs Run
Roberts Run
Falls Run
Scotch Run
Kester Creek
Raccoon Creek
Gross Run
Ballet Run
Long Run
Salem Creek
Walker Run
Barnes Run
Mountain Laurel Trail
SR 93
SR 239
SR 11
SR 3036
SR 3012
SR 3018
SR 3020
SR 3024
SR 1005
SR 4038
SR 3011
SR 3005
SR 222
SR 224
SR 924
SR 4034
SR 80
SR 81
SR 434
239
924
RIVER RD
WEST CHERRY RD
CHURCH RD
OLD BERWICK HWY
BERWICK-HAZLETON HWY
OLD BERWICK RD
OAK RD
SAINT JOHNS RD
MUNDIES RD
CEDARHEAD RD
LAROCK RD
MILL HILL RD
WELSH RD
RED FOX LN
ROCK GLEN RD
CHURCH ST
TOMHICKEN RD
LONDON ST
WESTON RD
MAIN ST
BUCKS MOUNTAIN RD
RED RIDGE RD
GRASSY PATH RD
PROSPECT RD
SUSQUEHANNA AVE
AIRPORT BELTWAY
OLD AIRPORT RD
SUGARLOAF HEIGHTS RD
FOREST RD
OAK RIDGE RD
CAN DO EX
OLD ST
HARWOOD RD
DEEP HOLE RD
BUTLER DR
SUNSET DR
Substation or Switchyard
Study Area
Future Use Corridor
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Pipeline
Local Park or Recreation Area
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-1. Study Area
ppl
WSP
0
0.5
1
1.5
Miles
N

2.0 ROUTING PROCESS

The Siting Team conducted an Alternative Analysis Study to identify a Proposed Route for constructing new double-circuit 500/230 kV transmission lines between the proposed Nescopeck Switchyard, proposed Tomhicken Switchyard, and the existing Harwood Substation. This section describes the Alternative Route identification, evaluation, and selection process for the proposed Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines. It also describes the identification and evaluation process for the proposed bifurcation and rebuild of the existing Sunbury-Susquehanna #1 230 kV Transmission Line.

2.1 Siting Team Members

A multi-disciplinary Siting Team performed the routing study. Team members were selected to bring wide experience to the routing study to achieve a thorough review of all aspects of developing the route and included representatives from Environmental Permitting, Transmission Engineering, Construction, Project Management, Communications, Right of Way and Siting Groups. Members of the Siting Team have experience in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management. The team's objective was to identify a route that provided a reasonable balance between impacts on local communities and the natural environment, as determined through application of appropriate siting criteria and subject to technical guidelines, as addressed in detail below.

The team worked together during the Alternative Routes Analysis to define the Study Area, develop routing criteria, identify routing constraints and opportunities, collect and analyze environmental and design data, solicit public input and concerns, consult with natural resource and permitting agencies, develop and revise the siting alternatives, and analyze and report on the selection of a Proposed Route. **Table 4-1** identifies the Siting Team members and their areas of responsibility.

Table 4-1. Siting Team Members		
Siting Team Member	**Company**	**Role**
Doug Grossman	PPL Services Corporation	Manager, Siting
Chad Huber	PPL Services Corporation	Lead Siting Specialist
Austin Weseloh	PPL Services Corporation	Right of Way and Real Estate Supervisor
Nick Sweigart	PPL Electric Utilities Corporation	Right of Way Specialist
Kyle Swartzentruber	PPL Services Corporation	Transmission Engineering
Glenn Smith	PPL Electric Utilities Corporation	Transmission Engineering
Horst Lehmann	PPL Electric Utilities Corporation	Transmission Planning
Kellon Balum	PPL Electric Utilities Corporation	Permitting/Environmental
John Daly	PPL Services Corporation	Construction/Constructability
Dana Burns	PPL Electric Utilities Corporation	Director, Communications
Peter Sparhawk	WSP	Siting Advisor
Andrew Burke	WSP	Siting Project Manager
Miranda Bush	WSP	Siting Support
Stacey Hubbard	WSP	Siting Support
Kelly Grogan	WSP	Siting Support
Linda Green	WSP	Siting, GIS Analysis and Mapping

2.2 Process Steps and Terminology

Initial route development efforts start with the identification of large **area constraints and opportunity features** within the **Study Area** (**Step 1, Figure 4-2**), which encompasses the endpoints of the Project and areas in between. These areas are typically identified using a combination of data sets that are readily available via public data sources. The Siting Team uses this information to develop **Conceptual Routes** (**Step 2**) adhering to a series of general routing and technical guidelines (**Section 2.3**). Efforts are made to develop Conceptual Routes throughout

the Study Area to ensure that all reasonable alignments are considered. Alignments are approximate at this stage, but they are revised after ongoing review and analysis.

As the Siting Team continues to collect and review information, Conceptual Routes are refined. Where two or more Conceptual Routes intersect, a node is created, and between two nodes, a link is formed. As the Siting Team continues to gather information and review the links of the Conceptual Route, links are modified, removed, or added, resulting in a Refined Potential Route Network (**Steps 3**). The Conceptual Route Network is further refined and compared by the Siting Team, and a selection of the most suitable links is assembled into Alternate Routes (**Step 4**). Alternative Routes are routes that begin and end at similar locations for direct comparison.

Potential impacts are assessed and compared with land use, natural and cultural resources, and engineering and construction concerns. Ultimately, through a quantitative and qualitative analysis and comparison of the Alternative Routes, a **Proposed Route (Step 5)** is identified for the Project.

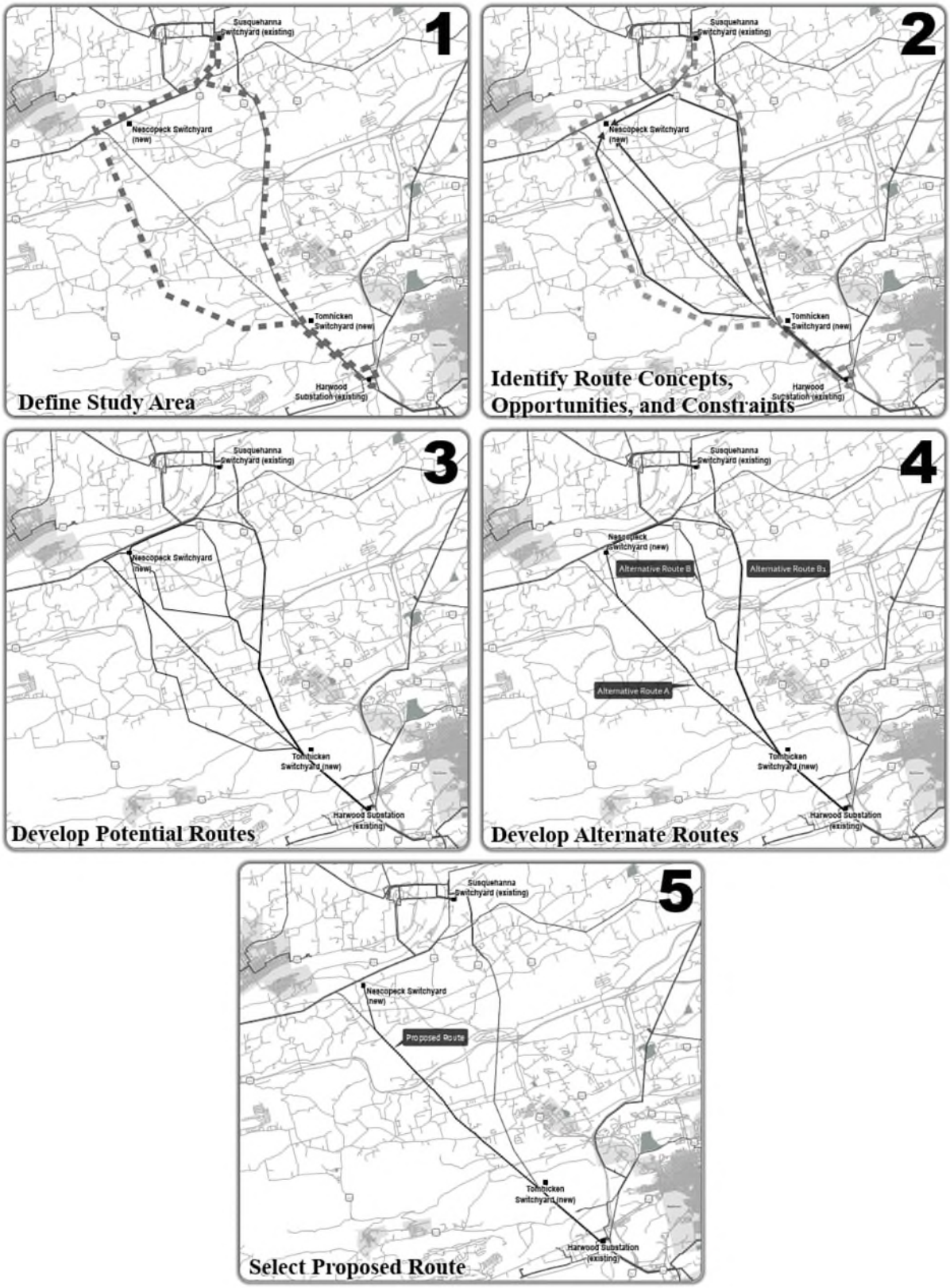


Figure 4-2. Routing Process Steps

2.3 Routing Guidelines

The primary objective in identifying a suitable route for the Project is to minimize effects of the line on natural resources, people and communities, land uses, cultural resources, and recreational resources, while providing safe and reliable service to the local region.

Identifying a route that optimizes all constraints and opportunities requires consideration of many factors and can therefore be challenging. For example, a route with minimal impacts on wildlife habitat may have increased impacts on residential resources, and vice versa. In addition, federal and state laws and input from federal, state, and sometimes local regulatory agencies may have an impact on siting decisions. Rebuilding within an existing ROW usually results in fewer impacts compared to constructing within new ROW.

The use of routing guidelines helps to reach that goal by setting forth general principles that guide the development of alignments considered in the study. The Siting Team considered two types of Routing Guidelines: General Guidelines and Technical Guidelines. General Guidelines establish a set of principles that guide the development of alignments with respect to area land uses, sensitive features, and considerations of economic reasonableness. Technical Guidelines provide the Siting Team with technical limitations related to the physical limitations, design, ROW requirements, or reliability concerns of the Project infrastructure. Both types of guidelines are discussed in the following sections.

2.3.1 General Guidelines

Once the Study Area was identified, the Siting Team met in July 2024 to develop basic route selection criteria that would be used to select and analyze potential Alternative Routes. The recommendations for Project siting contained in this Application are based on the primary objective stated above and the following criteria and technical guidelines (the listed criteria are not in order of importance or weight). The following guidelines were considered for this effort.

- Use existing ROW, where feasible, to minimize new impacts and simplify ROW acquisition.
- Identify the complexity of regulatory approval process for a route to evaluate impacts to cost and schedule.

- Consider using or paralleling existing transmission, pipeline ROWs, or other linear features and infrastructure when practical. When paralleling existing facilities, however, potential reliability issues and mitigation requirements must be evaluated.
- Avoid where possible public conservation and protected lands. Agricultural Security Areas ("ASAs") and Pennsylvania Agricultural Conservation Easements ("ACE") Purchase Program easements are present in the central-most portion of the Study Area (see **Section 3.2**).
- Avoid or minimize impacts to critical and protected natural communities and other unique or distinct natural resources, including the Department of Conservation and Natural Resources ("DCNR") Natural Area Inventory ("NAI")[2] Briggsville Vernal Pools core habitat[3] and Wapwallopen Gorge core habitat.[4] Both core habitats cross the northeastern portion of the Study Area.
- Maximize the distance from and/or minimize impact on residences and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.
- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern (i.e. use/parallel existing corridors where available or avoid the resources if possible).
- Avoid or minimize conflict with existing land uses and economic activities and future development with a proposed plan, schedule, and permitting process underway.
- Minimize clearing of forested areas to reduce environmental impact and preserve natural land cover.

[2] The DCNR generated a conservation planning report for the Study Area, using the Natural Areas Inventory ("NAI"), which been prepared by The Nature Conservancy in association with the Pennsylvania Natural Heritage Program ("PNHP"). The NAI includes information on the locations of rare, threatened, and endangered species and the highest quality natural areas located within Luzerne County. Natural Heritage Areas ("NHAs") are sites that have been identified as critical habitat for species or natural communities of concern.

[3] This site contains a series of vernal pools that make up an Ephemeral Fluctuating Pool Natural Community north of Nescopeck Mountain. This habitat supports a damselfly species of concern, Azure Bluet (*Enallagma aspersum*) and an additional species of concern, which is not named at the request of the jurisdictional agency overseeing its protection.

[4] The Lance Corporation, which allows public access for recreation, owns this property. There are several hiking trails and camping/picnic areas throughout. The gorge, which is known locally as the Powderhole, has some historical significance with many remnants of a turn of the century gunpowder plant that can be found along the edge of the gorge.

- Consider paralleling property lines.
- Consider stakeholder input.
- Avoid conflicts with designated public and military aviation facilities. None were identified within the Study Area.
- Minimize Project environmental impact and construction/maintenance costs by considering shorter, more direct routes.
- Consider safety with respect to construction, maintenance, and operation of the facilities.
- Consider construction concerns, such as access routes, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.
- Minimize environmental impact by considering routes that minimize the overall length of access roads.

2.3.2 Technical Guidelines

Technical Guidelines provide the Siting Team with technical requirements or limitations related to the physical limitations, design, ROW, or reliability concerns of the Project infrastructure. The new 500/230 kV transmission lines generally require a 200-foot ROW to meet North American Electric Reliability Corporation ("NERC") safety guidelines and PPL Electric's design criteria. However, non-standard design can be used in narrower ROWs (e.g., taller structures with differing conductor orientation). The technical guidelines were informed by: (1) the technical expertise of engineers and other industry professionals responsible for the reliable and economical construction, operation, and maintenance of electric system facilities, (2) NERC reliability standards as implemented by PJM, and (3) industry best practices. Technical guidelines for this Project include:

- Minimize crossing higher voltage transmission lines.
- Consider paralleling high-voltage (HV) and extra high-voltage (EHV) transmission lines, unless other operational and system reliability issues are identified.
- Maintain a minimum of 100 feet of centerline-to-centerline separation when paralleling existing transmission lines.

  - Centerline-to-centerline spacing is based on voltage class. Higher voltages require more separation distance/clearance.

- When paralleling existing transmission lines, verify there are no reliability issues by locating two lines adjacent to each other.
- When paralleling existing pipelines, evaluate mitigation requirements and any additional impacts and associated costs for construction and/or long-term maintenance.
- Minimize structure angles greater than 45 degrees.
- Minimize structures on steep slopes (generally, this is more than 20% slopes for angle structures and more than 30% for tangent structures), particularly if guy wires are required for construction.
- Minimize distribution underbuild or co-location on transmission structures if possible.

2.4 Routing Constraints

The Siting Team identified and mapped routing constraints in the Study Area. Constraints were defined as specific areas that should be avoided to the extent feasible during the alternative analysis process. Constraints are generally divided into two groups based on the size of their geographic area: large area constraints and small area constraints. Large area constraints are avoided to the extent practicable and are considered unfavorable by the Siting Team for developing Potential Routes.

The initial list of large area constraints consisted of:

- Populated areas, such as the borough of Conyngham and the city of Hazleton.
- Interstate highway crossings (I-80 and I-81).
- Industrial development concentrated along the PA-924 corridor and surrounding the existing Harwood Substation.
- Steep and forested terrain, especially along the Nescopeck Mountain, Buck Mountain, and Little Sugarloaf Mountain ranges.

After the Potential Routes were initially developed to avoid large area constraints to the extent practicable, the alignments were adjusted where feasible to avoid and maximize distance from small area constraints. Small area constraints encompass other features that are found within

smaller geographic areas or site-specific locations. Small area constraints identified within the Study Area include:

- Individual residences (including houses, anchored mobile homes, and multi-family buildings) and residential *curtilage*, which is interpreted in Pennsylvania as the area up to 100 meters (328 feet) immediately surrounding a residence, and used for domestic purposes. Curtilage does not extend beyond the individual's parcel boundaries and may also be "broken" by road or railroad ROWs or changes in land use.
- Commercial, industrial, and large farm buildings.
- Recorded sites of designated historic buildings and sites, including any specified buffer zone around each site.
- Small wetlands, open water, and streams.
- Pennsylvania Natural Heritage Program (PNHP) County Natural Heritage Inventory (CNHI) Core Habitat.
- Recreation areas such as Tomhicken Playground, a local park, as well as hiking trails and camping/picnic areas throughout Wapwallopen Gorge.

The Siting Team attempted to keep the routes and associated ROW from passing over these point-specific constraints. However, in some instances complete avoidance of small area constraints (e.g., Humboldt Barren core habitat) was not possible because of the location of these constraints in some areas of the Project. The Siting Team also considers alignments parallel to parcel boundaries and tree lines where practical to avoid bisecting properties.

2.5 Routing Opportunities

The Siting Team defined routing opportunities as locations where the proposed transmission line might be located with the least or minimal impact. Routing opportunities were identified and evaluated by:

- Reviews of aerial photography and other available mapping data.
- Incorporation and consideration of available GIS data.
- Field investigation of the Project area.

- A public open house meeting, where landowners identified potential revisions to the routes and provided property specific information.
- Federal, state, and local agency consultation.
- Project input from PPL Electric staff.
- Siting Team experience with similar projects.

Practical routing opportunities considered in the Study Area include utilizing and paralleling existing rights-of-way and linear features, including:

- Utilizing existing and unmaintained ROW:
    - PPL Electric's existing 150-foot-wide ROW for the single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line.
    - PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line, with an undefined width up to 130 feet of defined vegetation clearing rights, bisects the Study Area from southeast to northwest.
    - PPL Electric previously acquired land rights along the future use corridor range between 200 and 325 feet and can accommodate new double-circuit 500/230 kV transmission lines. The corridor generally extends from the retired Harwood-Berwick 69 kV Transmission Line and the proposed Nescopeck Switchyard, crossing south to north within the northwestern portion of the Study Area.
- Paralleling existing 230 and 500 kV transmission lines, including the Susquehanna-Wescosville 500 kV, Sunbury- Susquehanna #2 500 kV, and Susquehanna-Harwood 230 kV transmission lines.
- Paralleling parcel boundaries.

2.6 Routing Criteria and Data Sources

The Siting Team included quantitative and qualitative routing criteria as part of the Potential and Alternative Route analysis process. No ranking or weighting values are applied. Instead, the Siting Team uses the routing criteria along with the guidelines (described in **Section 2.3**) to compare the potential impacts of the routes on land use, natural and cultural resources and engineering and construction concerns to identify the route with the least overall impact. The quantitative and

qualitative routing criteria used during the routing process are described in the following sections. The routing process is explained in more detail in **Section 2.2**.

2.6.1 Quantitative Routing Criteria

The Alternative Analysis Study made extensive use of information from existing GIS data. This information was obtained from many sources, including federal, state, and county governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and some was created by the Siting Team by either digitizing information or through aerial photo interpretation.

The use of GIS data allows for the consideration and efficient use of a wide variety of information that would otherwise be unavailable or impractical to consider for a planning effort of this scope. GIS information is a highly effective tool when utilized for broad level planning studies, identifying, and characterizing landscape level constraints and features, and developing environmental inventory information useful for comparisons between planning alternatives. However, GIS data sources vary widely with respect to their accuracy and precision, and presentation, analysis, and calculations derived from these data sources require careful consideration when used for planning purposes. Therefore, GIS-based calculations and maps should be considered reasonable approximations of the resource or geographic feature they represent, and not absolute measures or counts. They are presented to allow for general comparisons between alternatives with the assumption that the level of any inherent errors or inaccuracies would be generally similar across all alternatives. A list of quantitative data used during the alternative analysis process is provided in **Table 4-2**.

Table 4-2. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Built Environment		
Number of parcels and landowners crossed by the ROW	Luzerne County (2025)	More parcels crossed increases the number of negotiations, title work, owner disruption, ROW team time, and compensation to the landowners. It is an advantage to minimize the number of parcels crossed and landowners affected.
Number of residences, outbuildings, and commercial buildings within specified distances of the route centerline	Based on Microsoft's Bing Building Footprints (2019) and updated/classified based on recent aerial imagery, field reconnaissance, and landowner comments	Count of the number of residences within the ROW and within 100, 250, and 500 feet of alternative routes.
Institutional uses (schools, places of worship and cemeteries) within 500 feet of the route centerline	U.S. Geological Survey's GNIS (2020) and recent aerial imagery, field reconnaissance, and landowner comments	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools.
Acres of agricultural easements in the ROW	PASDA – PA Conserved Land Farmland Preservation Easements (2024)	Agricultural easements are intended to preserve prime farmland.
Acres of agricultural security areas (ASAs) within the ROW	PASDA – Pennsylvania State University Agricultural Security Areas (1996)	An ASA qualifies land for consideration under the farmland preservation program at the owner's request if the ASA has at least 500 acres enrolled.
Prime Farmland and Farmland of Statewide Importance	USDA-NRCS Soil Survey Geographic Database (SSURGO) (2024)	Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops.
Historic Resources		
Historic architectural resources within 1 mile	Pennsylvania Historical and Museum Commission, NRHP-Eligible Aboveground and District Resources (2025)	Previously identified historic architectural resource sites and districts listed on or eligible for the NRHP.

Table 4-2. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Archaeology sites in the ROW	Pennsylvania Historical and Museum Commission, Archaeology Resources (2025)	Count of the number of buried archaeological resources crossed by the routes. Locations of known archaeological resources are not displayed in this ARA to protect such sites.
Natural Environment		
Number of National Hydrography Dataset (NHD) streams and waterbodies crossed by the centerline	USGS (2024)	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features, such as lakes, ponds, streams, rivers, springs and wells.
Acres of National Wetland Inventory (NWI) wetlands within the ROW	U.S. Fish and Wildlife Service (USFWS) (2024)	The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deep-water habitats.
Location of 100-year floodplain	U.S. Federal Emergency and Management Agency (FEMA) (2024)	Floodplains are any land area susceptible to being inundated by floodwaters from any source. FEMA maintains and updates floodplain data via flood maps and risk assessments for flood insurance purposes. States and municipalities may regulate activities within floodplains.
County Natural Heritage Inventory (CNHI) Core Habitat Areas within the ROW	Pennsylvania Natural Heritage Program (PNHP) (2025)	Core habitat areas contain rare species and/or exemplary natural communities.
Tree clearing	WSP (2025)	Tree clearing areas were digitized based on aerial imagery.
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2022) and ESRI (2021)	Miles of federal, state and local lands crossed by the ROW. No public lands are crossed by the ROW.

Table 4-2. Quantitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	USFWS, Pennsylvania Department of Conservation and Natural Resources (DCNR), PA Game Commission (PAGC), and PA Fish and Boat Commission (PAFBC) (2025)	Known occurrences; locations of potential habitat based on land use.
Engineering and Constructability		
Route length	Measured in GIS	Length of total alignment in miles.
Number and severity of angled structures	Developed in GIS	Count the anticipated number of heavy angled structures, used to determine engineering costs for transmission line structures.
Number of road crossings and length of roads paralleled	Pennsylvania Department of Transportation (PADOT) roads (2024) and ESRI streets (2013)	Count the number of federal, state, and local roadway crossings and measurement of the miles of the route parallel to existing roadways.
Number of transmission line crossings	PPL Electric, Homeland Infrastructure Foundation-Level Data (HIFLD) (2024)	Count the number of 69 kV or greater transmission lines crossed by the centerline.
Airfield and heliports within 1 mile of the route centerline	GNIS (2024) and the Federal Aviation Administration (FAA) database (2025)	Distance from airfields and heliports.
Interstate oil and gas pipeline crossings	Enverus (2025)	Pipeline data is approximate.
Abandoned mine lands	Pennsylvania Department of Environmental Protection Abandoned Mine Land Inventory Sites (2025)	The abandoned mine lands dataset delineates previously mined areas (surface or underground). The data should not be considered a complete accounting of all previously mined areas.
Length of transmission line parallel	PPL Electric and HIFLD (2024)	Measure the miles of the route parallel to existing high voltage transmission lines.
Railroads crossed	National Transportation Atlas Database (NTAD) (2024)	Count the number of railroad corridors crossed by centerline.
Communication towers within 1,000 feet of the centerline	Federal Communications Commission (FCC) (2024)	A nationwide dataset of towers and antennas permitted by the FCC.

2.6.2 Qualitative Routing Criteria

The Siting Team also considered qualitative routing criteria based on the team's expertise in siting, designing and constructing high voltage transmission lines. Qualitative criteria are identified in **Table 4-3**.

Table 4-3. Qualitative Siting Criteria		
Siting Criteria	**Source**	**Description**
Built Environment		
Aesthetic impacts	Expert opinion	Anticipated visual impacts based on topography, structure type and height, tree clearing, land use and presence of existing infrastructure.
Land use impacts	Expert opinion, comprehensive plans, public open house	Anticipated or perceived impacts on communities and their values, individual residences, commercial facilities or institutional uses.
Public comments	Public open house	Comments received during the April 30, 2025, open house meeting.
Engineering and construction feasibility	Expert opinion	Anticipated engineering and construction challenges based on experience on similar projects.

2.6.3 Route Reconnaissance

Prior to field reconnaissance, some key features, such as residences, outbuildings, recognized places of worship, cemeteries, and commercial buildings were mapped based on publicly available building footprint data augmented by aerial imagery interpretation. Between July and October 2024, Siting Team members conducted field inspections throughout the Study Area. The team members examined potential routes by automobile from points of public access and correlated observed features to information shown on aerial photography, USGS 7.5-minute topographic maps, road maps, locally available development sketch maps, and other information. Relevant features were viewed, verified, and recorded on laptop computers displaying aerial photography using GIS software supported by real-time Global Positioning System ("GPS") tracking for positional information in the vehicle.

3.0 ROUTE DEVELOPMENT

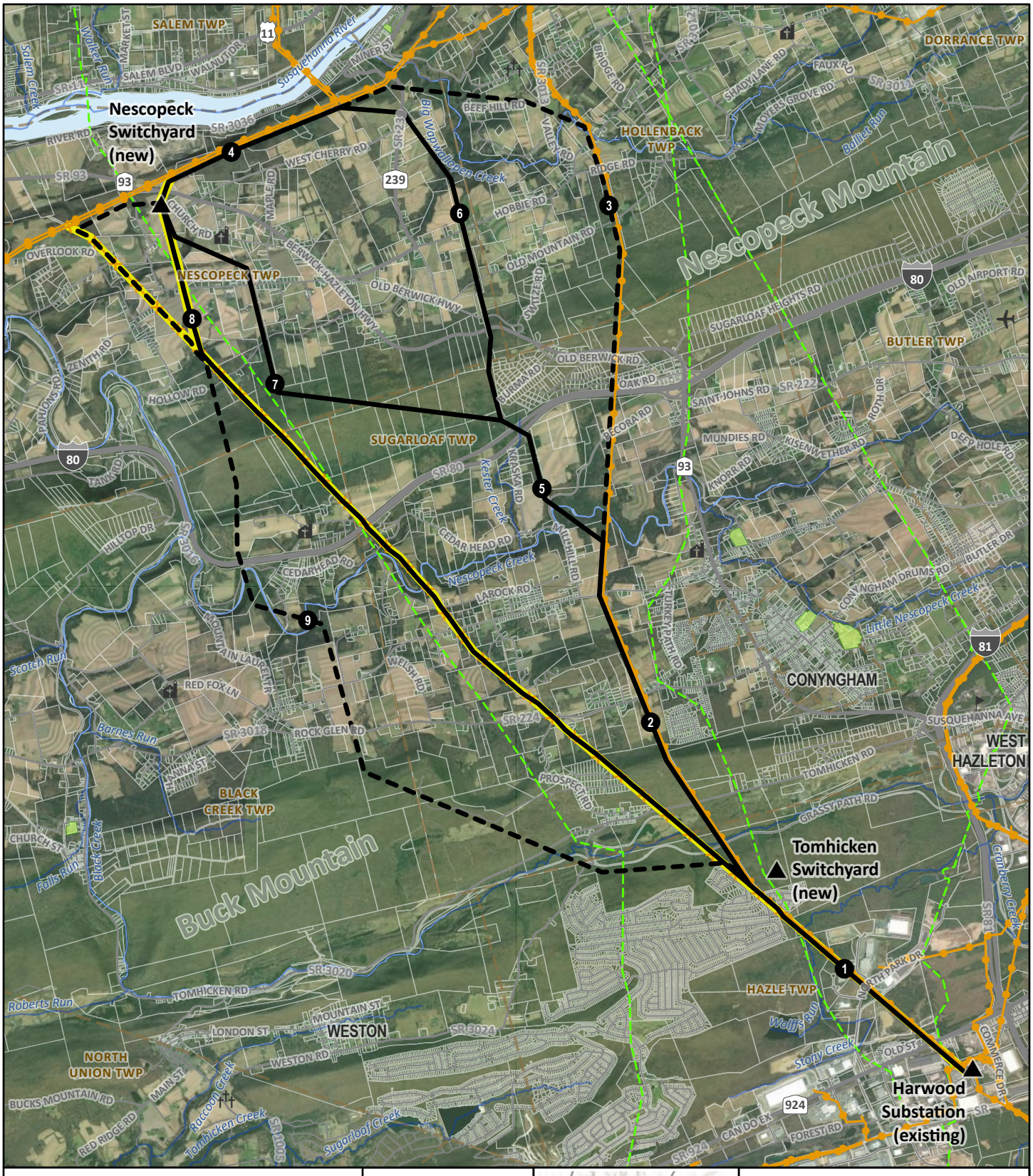
3.1 Potential Route Development

The Siting Team developed a series of Potential Routes based on the routing process, guidelines and criteria developed in **Section 2.0**. Potential Routes are an early iteration of the routing process that involves the development of conceptually based routes and general consideration of these routes with respect to constraints and opportunity features in the Study Area (see **Figure 4-1**).

The Siting Team first developed initial Potential Routes to avoid large area constraints where feasible and maximize the distance between small area constraints while avoiding circuitous routes and minimizing sharp angles. Where feasible, Potential Routes were sited to use existing/unmaintained ROW (including the vacant 69 kV ROW and future use corridor) or parallel existing transmission lines. Where no other routing opportunities existed, the Siting Team sought to draw routes predominantly along parcel boundaries, although the diversity of parcel sizes and the presence of localized constraints necessitated the development of some diagonal alignments. The Potential Route identification effort resulted in a network of nine unique links that could be considered to route the new line from the proposed Nescopeck Switchyard to the Tomhicken Switchyard and the existing Harwood Substation. **Figure 4-3** shows the resulting network of Potential Routes evaluated by the Project Team.

Nescopeck Switchyard is located approximately 0.2 miles south of the existing Sunbury-Susquehanna 230 kV and Sunbury-Susquehanna 500 kV transmission lines. Within the western portion of the Study Area, existing ROW was identified as the primary siting opportunity (see **Section 2.5**). As shown in **Figure 4-3**, Potential Route 8 is an alignment that either uses existing and unmaintained ROW (including the future use corridor) for its entire length (8.4 miles) between proposed the Nescopeck Switchyard and Potential Route 1. Potential Route 9 is the western-most feasible pathway identified within the Study Area. From the proposed Nescopeck Switchyard, Potential Route 9 uses a brief diagonal alignment to proceed northwest for approximately 0.3 mile to reach the existing Sunbury-Susquehanna #2 500 kV Transmission Line and parallel the south side of its existing ROW for approximately 0.5 mile. At this point, Potential Route 9 uses or parallels the existing ROW for the retired Harwood-Berwick 69 kV line.

Figure 4-3. Potential Route Network


Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
Nescopeck Mountain
Buck Mountain
SALEM TWP
DORRANCE TWP
HOLLENBACK TWP
NESCOPECK TWP
SUGARLOAF TWP
BUTLER TWP
CONYNGHAM
WEST HAZLETON
BLACK CREEK TWP
HAZLE TWP
NORTH UNION TWP
WESTON
Susquehanna River
Nescopeck Creek
Little Nescopeck Creek
Big Wapwallopen Creek
Kester Creek
Scotch Run
Barnes Run
Roberts Run
Falls Run
Black Creek
Tomhicken Creek
Sugarloaf Creek
Stony Creek
Wolf's Run
Cranberry Creek
Ballet Run
Substation or Switchyard
Study Area
Future Use Corridor
Potential Route
Removed Potential Route
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Pipeline
Local Park or Recreation Area
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)
Coordinate System:
State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-3. Potential Route Network
ppl
WSP
0
0.5
1
Miles
N

Within the eastern portion of the Study Area, the Siting Team developed Potential Routes 2 and 3, which would parallel the west side of the existing Susquehanna-Harwood 230 kV Transmission Line to the greatest extent practicable (2.8 miles). Within the northeastern-most portion of the Study Area, Potential Route 3 necessitated a diagonal alignment to minimize impacts to Wapwallopen Gorge, reduce ROW tree clearing amounts, and reduce circuity of an overall route. The resulting 1.8-mile-long cross-country portion of Potential Route 3, which generally crosses northwest to southeast, allows it to parallel an additional 1 mile of transmission facilities along the southside of the existing Susquehanna-Wescosville 500 kV Transmission Line. The Siting Team also identified Potential Route 4, which parallels the south side of the existing 500 kV transmission facilities (the Sunbury-Susquehanna #2 500 kV Transmission Line) for an additional approximately 2 miles from the proposed Nescopeck Switchyard.

Potential Routes 5, 6, and 7 represent two feasible pathways within the north-central portion of the Study Area. Since there are no existing ROW or suitable linear energy paralleling opportunities within this portion of the Study Area, Potential Routes 5, 6, and 7 are entirely cross-country. However, the Siting Team identified suitable parcel boundary paralleling opportunities for Potential Routes 5 and 6, totaling approximately 1 mile. When combined, Potential Routes 5 and 6 provide a direct pathway from the existing Sunbury-Susquehanna 500 kV Transmission Line ROW to the existing Susquehanna-Harwood 230 kV Transmission Line that is approximately 1 mile shorter than Potential Route 3 (5.1 miles versus 6.2 miles, respectively).

The existing Harwood Substation is located at the intersection of several existing 69 kV transmission lines (Harwood-Valmont, Harwood-Humboldt #1 and #2, Harwood-East Hazleton #1, and Harwood-Jenkins #1) and several existing 230 kV transmission lines (Susquehanna-Harwood, Siegfried-Harwood, and Harwood-East Palmerton). When transmission lines cross, PPL Electric's general practice is to site the lower voltage line beneath the higher voltage line. From a reliability perspective, this allows PPL Electric to maintain the lower voltage line without interrupting service on the higher voltage line.

Based on the designed bay arrangement, only one feasible option was identified to exit the existing Harwood Substation property from the southwest. The existing Harwood Substation and its surrounding area is constrained by mixed-use commercial/industrial development along PA-924.

As a result, the Siting Team identified only one feasible pathway to continue northwestward after exiting the existing Harwood Substation (Potential Route 1) as shown in **Figure 4-3**. Potential Route 1 is approximately 2.7 miles long and exclusively uses portions of the retired Harwood-Berwick 69 kV Transmission Line ROW, which is currently unmaintained. From here, the Siting Team developed conceptual routes to Tomhicken Switchyard and Nescopeck Switchyard that minimized potential impacts to the natural and built environment. These conceptual routes had various links created to identify options in particularly challenging areas.

3.2 Potential Route Review and Evaluation

The Siting Team subsequently reviewed and evaluated the Potential Route Network. During these conversations, comparative data, aerial photos, and notes taken during the field reconnaissance were reviewed. The major environmental and land use factors considered in this evaluation were: wetlands, ponds, and other stream crossings, tree clearing requirements, amount of new ROW required, proximity of residences and other buildings, known or suspected historic sites, and incremental aesthetic impact. Engineering factors were also considered during the Potential Route evaluation, including extent of ROW paralleling opportunities and areas that presented engineering and construction challenges (e.g., the number of angle structures required, transmission line crossings, and oil/gas pipeline crossings).

As shown in **Figure 4-3** and discussed in **Section 3.1** above, Potential Routes 2 and 3 maximize paralleling opportunities along the westside of the existing Susquehanna-Harwood 230 kV Transmission Line to the greatest extent practicable. From a combined system resiliency and reliability perspective, PPL Electric identified significant concerns with paralleling two extra-high voltage ("EHV") transmission lines for extended lengths. Long parallel alignments of other HV or EHV transmission lines can increase the potential for localized severe weather events to damage both lines, and/or damage one line in a manner that forces outages on both lines. Impacts to the grid of a combined outage is greater when both lines are at the EHV level providing bulk power transfer to larger areas of the grid that can be a challenge when scheduling planned outages for normal operations and maintenance of even one of the lines. With this consideration, in addition to increased length and a higher number of nearby residences, the Siting Team dismissed Potential Route 3 from further consideration.

For the Nescopeck-Tomhicken #1 500/230 kV Transmission Line and the Nescopeck-Harwood #1 500/230 kV Transmission Line, finding a direct, non-circuitous pathway between the Project's two final endpoints (the proposed Nescopeck Switchyard and the existing Harwood Substation) and the new Tomhicken Switchyard that minimizes impacts to the surrounding natural and built environments is the primary goal of the siting process. Limited siting opportunities are located within the western portion of the Study Area and there are also concentrations of residential development along local roads such as Tomhicken Road, Rock Glen Road, West Country Road, Mount Laurel Trail, and Cedar Head Road. As a result, Potential Route 9 is primarily cross-country and uses several diagonal alignments, which would significantly increase the number of angled structures required for building the new transmission line. Additionally, Potential Route 9 was anticipated to require a significantly larger amount of ROW tree clearing. These combined constructability considerations necessitated eliminating Potential Route 9 from further consideration.

The remaining links were assembled into Alternative Routes, as shown in **Figure 4-4** and further evaluated in **Section 4.0** below.

3.3 Agency Consultation

As part of the route development process, the Siting Team contacted various federal, state, and local agencies to inform them of the Project and request data to be used during route analysis. The agencies contacted are identified in the following sections. Copies of correspondence with federal and state agencies are provided in **Attachment 14**.

3.3.1 Federal Agencies

As described in **Attachment 3**, an online preliminary Pennsylvania Natural Diversity Inventory ("PNDI") review was conducted for the Potential Routes on September 26, 2025. The preliminary screening results indicate that further coordination with the PGC, DCNR, and USFWS is required to determine potential impacts. After selecting the Proposed Route, PPL Electric obtained a final PDNI for the Project, which maintained a requirement of further coordination with USFWS. Additional details are included in **Section 7.0** and a copy of the USFWS response is presented in **Attachment 14**.

3.3.2 State Agencies

The preliminary PNDI obtained for the Potential Routes, dated September 26, 2025, included responses from the DCNR, PGC, and PFBC. No further coordination is required for the PFBC; however, further coordination is required with DCNR and PGC. After selecting the Proposed Route, PPL Electric obtained a final PDNI for the Project, which maintained a requirement of further coordination with USFWS. Additional details are included in **Section 7.0** and a copy of the USFWS response is presented in **Attachment 14**.

On November 6, 2025, PPL Electric conducted an on-line review through the Pennsylvania Historical and Museum Commission ("PHMC")/Bureau of Historic Preservation ("BHP") Cultural Resource Geographic Information System ("CRGIS") on-line inventory of cultural resources. The review involved identifying all known prehistoric and historic period archaeological sites and all known historic architectural resources and historic districts within the Study Area in accordance with PUC regulations (*see* 52 Pa. Code § 57.72). A list of architectural and archaeological resources identified in the CRGIS within the Study Area is included in the tables in **Attachment 15**. PPL Electric will conduct an on-line review through the Pennsylvania State Historic Preservation Office ("SHPO") PA-SHARE in second quarter of 2026. Based on prior projects completed in the Project ROW, no impacts to archeological and historic architectural resources are anticipated (see **Attachment 14).**

3.3.3 Local

On May 22, 2025, PPL Electric met with the Sugarloaf Township Manager, Senior Chairman of the Board, Vince Chairman and Secretary/Treasurer to discuss the project.

On May 30, 2025, PPL Electric met with three Supervisors of Black Creek Township to discuss the project.

Additionally, PPL Electric will continue to coordinate with each municipality throughout the course of the Project.

3.4 Alternative Route Development

The Siting Team developed three Alternative Routes from the remaining Potential Route Network and re-labeled them as Routes A, B, and B1.[5] The Alternative Routes are summarized below and shown in **Figure 4-4**.

Alternative Route A (Proposed Route)

Route A is approximately 11.2 miles long and located within Black Creek, Hazle, Nescopeck, and Sugarloaf Townships, Luzerne County.

Departing the proposed Nescopeck Switchyard, Alternative Route A proceeds southward through the future use corridor for 1.4 miles. At this point, Alternative Route A continues southeastward for 9.7 miles within the previously acquired ROW corridor to reach the new Tomhicken Switchyard and the existing Harwood Substation, which is partially cleared in this section as a remnant of the retired Harwood-Berwick 69 kV transmission line.

Overall, Alternative Route A utilizes an existing right-of-way for 100% of its total alignment and requires approximately 100 acres of new ROW acquisition due to the ROW being expanded.[6]

Alternative Route B

Route B is approximately 12 miles long and located within Hazle, Nescopeck, and Sugarloaf Townships, Luzerne County.

Starting at the proposed Nescopeck Switchyard, Alternative Route B proceeds generally southeastward along a cross-country alignment for approximately 5.8 miles. At this point, Alternative Route B turns to continue southward by paralleling the existing Susquehanna-Harwood 230 kV Transmission Line for 3.5 miles. The remainder of its alignment (approximately 2.7 miles) continues southeastward within the previously acquired future use corridor to the new Tomhicken Switchyard and the existing Harwood Substation, which is also occupied in this section by the existing Susquehanna-Harwood 230 kV Transmission Line.

[5] Alternative Route B1 is 59% similar to Alternative Route B. Together, they represent two alternatives within the north-central portion of the Project Study Area.
[6] The acreage of new ROW acquisition was calculated based on GIS desktop review of existing easements and rights and is therefore subject to minor inconsistencies.

Overall, Alternative Route B parallels a combination of existing transmission line and future use corridor for 54% of its total length and would require approximately 244 acres of new ROW acquisition.

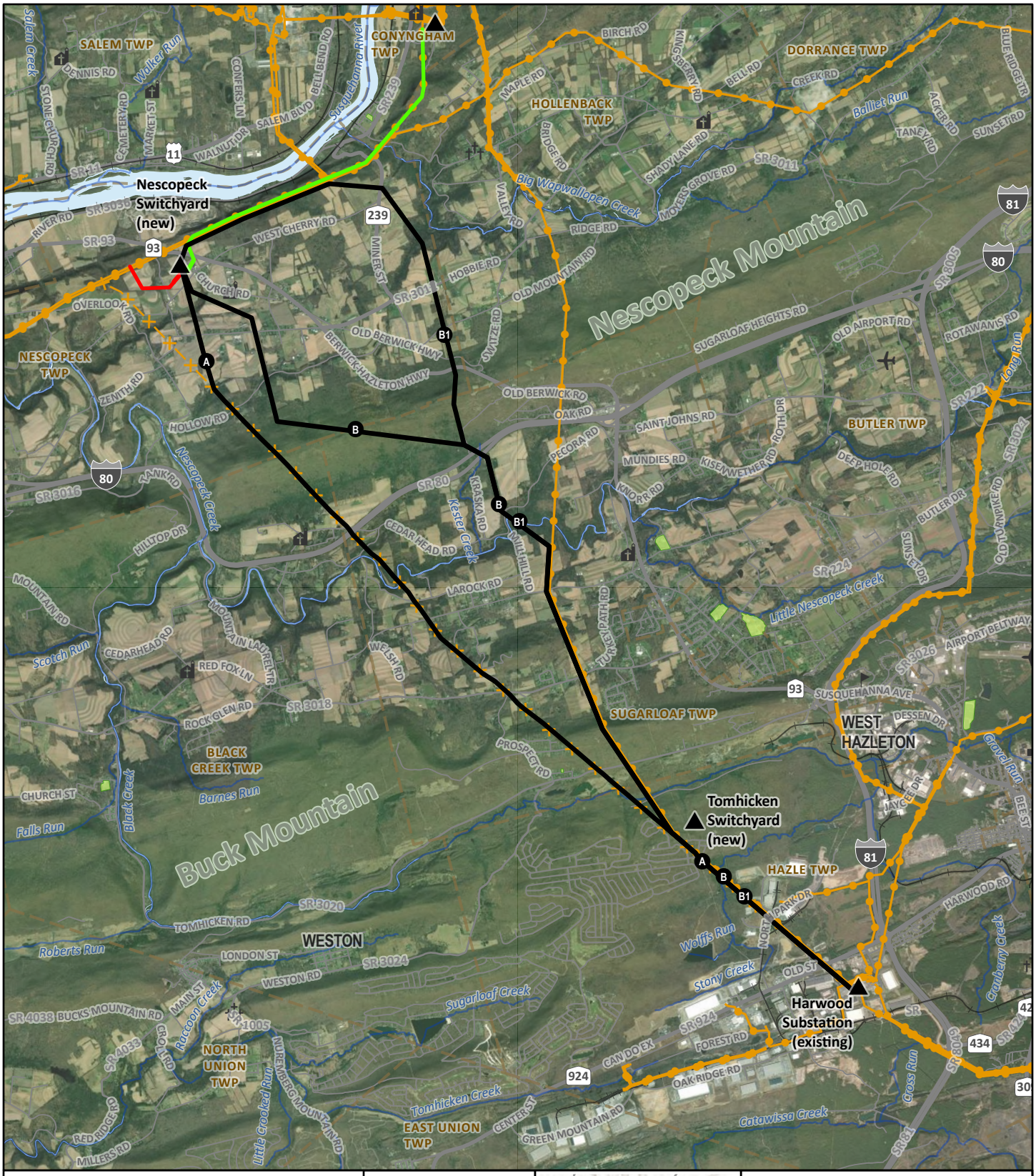
Alternative Route B1

Route B1 is 13.2 miles long and located within Hazle, Nescopeck, and Sugarloaf Townships, Luzerne County.

From the proposed Nescopeck Switchyard, Alternative Route B1 proceeds northeastward for approximately 0.2 miles to reach the existing Sunbury-Susquehanna #2 500 kV Transmission Line and parallel the south side of its ROW for approximately 2.3 miles, proceeding eastward. At this point, Alternative Route B1 turns away from the existing line and travels generally south in a cross-country alignment for 5.1 miles until reaching the existing Susquehanna-Harwood 230 kV Transmission Line. From here, Alternative Route B1 shares the next 3.5 miles of its alignment with Alternative Route B, paralleling the existing Susquehanna-Harwood 230 kV Transmission Line. Like Alternative Routes A and B, the remaining 2.7 miles of its alignment proceeds southeast to the new Tomhicken Switchyard and the existing Harwood Substation within the previously acquired ROW corridor, which is also occupied in this section by the existing Susquehanna-Harwood 230 kV Transmission Line.

Overall, Alternative Route B1 shares approximately 59% of its total alignment with Alternative Route B and parallels a combination of existing future line or existing ROW for 60% of its total length. Alternative Route B1 would require approximately 263 acres of new ROW acquisition.

Figure 4-4. Alternative Routes


Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
A
B
B1
SALEM TWP
CONYNGHAM TWP
HOLLENBACK TWP
DORRANCE TWP
NESCOPECK TWP
SUGARLOAF TWP
BUTLER TWP
WEST HAZLETON
HAZLE TWP
BLACK CREEK TWP
WESTON
NORTH UNION TWP
EAST UNION TWP
Nescopeck Mountain
Buck Mountain
Big Wapwallopen Creek
Little Nescopeck Creek
Sugarloaf Creek
Tomhicken Creek
Catawissa Creek
Susquehanna River
Nescopeck Creek
Kester Creek
Black Creek
Scotch Run
Falls Run
Barnes Run
Roberts Run
Raccoon Creek
Stony Creek
Wolfs Run
Gravel Run
Cranberry Creek
Cross Run
Little Crooked Run
Long Run
Bollier Run
Walker Run
Salem Creek
Tomhicken Creek
Lehigh Valley Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Local Park or Recreation Area
Municipality Boundary
Railroad
Substation or Switchyard
Alternative Route
Tap Line
Rebuilt 230 kV Transmission Lines
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-4. Alternative Routes
ppl
WSP
0 0.5 1 Miles
N

3.5 Rebuilt 230 kV Transmission Lines Development

As discussed in **Attachment 2**, PPL Electric identified a proposed solution to address the customer load growth at Tomhicken Switchyard, as well as additional load growth requests in the Hazleton area. To support the combined growth by reinforcing the 230 kV system, PPL Electric also identified the need to bifurcate and rebuild a section of the existing Sunbury-Susquehanna #1 230 kV Transmission Line. The rebuilt 230 kV transmission lines are summarized below and shown on **Figure 4-4**.

Susquehanna-Nescopeck #1 and #2 230 kV Transmission Line

The Siting Team evaluated an approximately 800-foot-wide buffer area of the existing Sunbury-Susquehanna 230 kV Transmission Line. It was immediately determined that rebuilding within the existing 150-foot-wide ROW was feasible for the rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines since no major constraints were identified within existing ROW and the surrounding area. As such, the initial approximately 4-mile-long alignment identified for the Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines is located entirely within existing ROW. From here, the Susquehanna-Nescopeck #1 and #2 230 kV Transmission Line turns south for approximately 0.3 miles, crossing Berwick Hazleton Highway, then turns southwest for 0.1 mile, crossing Church Road, to interconnect the new Nescopeck Switchyard. This combined 0.4-mile alignment crosses predominantly agricultural land.

Sunbury-Nescopeck #1 230 kV Transmission Line (Tap Line)

The Sunbury-Nescopeck #1 230 kV Transmission Line, also referred to as the Tap Line, is located west of the new Nescopeck Switchyard. Starting from an existing structure along the Sunbury-Susquehanna 230 kV Transmission Line, the Tap Line heads south for approximately 0.3 mile, then turns to continue southeastward for approximately 0.6 mile. The combined 0.9-mile-long Tap Line crosses predominantly agricultural land and undeveloped forest.

4.0 ALTERNATIVE ROUTE EVALUATION

This section further discusses the Alternative Routes and provides a quantitative and qualitative analysis of potential impacts to local communities, the environment and cultural resources. In addition, the Siting Team evaluated existing land uses, cultural resources, natural features, and threatened and endangered species along the rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and Sunbury-Nescopeck #1 230 kV Tap Line. The Alternative Routes and rebuilt 230 kV transmission lines were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

4.1 Natural Environment Impacts

Natural environment impacts include potential impacts to vegetation and habitat, surface waters, and conservation and recreation lands. Potential impacts discussed in this section are based on publicly available maps and data as well as consultation with federal and state agencies (see **Section 4.5**). A comparison of the natural environment considerations for the Alternative Routes is presented in **Table 4-4**.

Table 4-4. Natural Environment[7]

Resource Criteria	Unit	Alternative Route		
		A	B	B1
Wetlands/Streams				
NHD stream crossings	count	12	10	8
NHD waterbody crossings	count	2	1	3
NWI riparian buffers crossed by the ROW	acres	1.6	1.6	1.3
PFO/PSS wetlands in the ROW (NWI)	acres	0.9	0.9	0.9
PEM wetlands in the ROW (NWI)	acres	-	-	-
FEMA Floodplain				
100-Year Floodplain in the ROW	acres	6.1	4.5	4.8
Regulatory Floodway in the ROW	acres	1.3	-	-
Forest Clearing				
Forest clearing based on imagery	acres	66.5	142.5	159.2
Sensitive Species				
CNHI-Core Habitat acres crossed by the centerline	miles	0.9	0.9	1.2
Soils				
Prime Farmland	acres	49.8	66.1	70.8

[7] All calculations were based on the desired 200-foot-wide ROW.

Table 4-4. Natural Environment[7]				
Resource Criteria	Unit	Alternative Route		
		A	B	B1
Farmland of Statewide Importance	acres	41.5	36.0	56.0
Not Prime Farmland	acres	179.2	189.9	195.6
Topography/Slope				
Steep slopes (20%+) crossed by the centerline	miles	2.9	2.5	2.8

4.1.1 Soil and Water Resources

Prime farmland and farmland of statewide importance are special categories of highly productive cropland that are recognized and described by the NRCS. Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops. Soils that do not meet the prime farmland category but are still recognized for their productivity may qualify as farmland of statewide importance. As shown in **Table 4-4** above, the Alternative Routes traverse between approximately 50 and 71 acres of areas identified as prime farmland and between approximately 36 and 56 acres of areas identified as farmland of statewide importance. Farmland in the vicinity of the Alternative Routes includes croplands, and grasslands that could be used for grazing or hay production. Permanent impacts to farmlands are anticipated to be minimal due to the use of the monopole tower structures for this Project, which have smaller footprints compared with lattice or H-frame structures. Therefore, none of the Alternative Routes are expected to significantly impact prime farmland or farmland of statewide importance.

Transmission construction activities such as vegetation clearing, access road construction, grading, and foundation construction can impact soils by disturbing the native structure of the soil and thereby creating areas of higher erosion potential, compaction, and lower soil permeability/ fertility. The severity of soil impacts depends on several variables including vegetation cover, the slope of the land, soil particle size, thickness of the soil profile, depth to a restrictive layer, and soil moisture content. During construction of the Project's ROW and access roads, prime farmland and/or farmland of statewide importance may be removed temporarily from productivity; permanent structures such as transmission towers would remove only a small portion of the right-of-way for the transmission tower footprint (foundation diameter of 6 to 10 feet) from further productivity. Access roads are normally temporary impacts so crop production and grazing can

resume after construction is completed. Furthermore, once transmission structure construction is completed, normal agricultural uses will continue to be permitted within the ROW.

Unvegetated soil surfaces are more susceptible to erosion and loss of soil productivity. Removing stumps during tree clearing increases the potential for soil erosion, and leaving topsoil exposed increases the potential of loss by wind and water. Best management practices ("BMPs") to minimize erosion impacts may include leaving stumps in the ground, covering exposed soil, and reseeding after construction. PPL Electric will obtain all necessary permits and employ specified BMPs to minimize soil erosion during construction activities. In agricultural areas, farming activities will continue to occur within the ROW following construction. In forested areas, the ROW will be revegetated with compatible species and maintained in accordance with PPL Electric's Vegetation Management Program (see **Attachment 12**).

Other indirect impacts to surface waters, such as sedimentation and erosion of surrounding soils can also result from ground-disturbing activities. Typically, sedimentation is easily controlled with proper perimeter controls around the transmission line construction area. BMPs may include the implementation of sediment control measures such as silt fencing, access road drainage management measures, and rapid reseeding of disturbed soil areas. PPL Electric will coordinate with the PADEP and obtain and comply with the necessary storm water permits for construction of the Project. As a result of implementing mitigation measures similar to those discussed above and the limited footprint of permanent impacts on soil productivity created by the structures themselves, any impacts to soils are likely minor for all three Alternative Routes.

Direct impacts on hydrologic features are often minimized or avoided by spanning wetlands, rivers, or drainages, when feasible. In the absence of other constraints, engineers typically seek to place structures at high points in topography, inherently resulting in the avoidance of structure placement that impacts water or wetland features in low-lying areas. However, in a few rare instances, such as at crossings of large wetland areas or complexes, a structure may need to be placed within a wetland. In these instances, the area of wetland loss is limited to the area of the footprint of the structure foundation. Other impacts may include conversion of a forested wetland to a scrub/shrub or herbaceous wetland. Hydrological resources crossed by the Alternative Routes,

including USFWS NWI wetlands, USGS NHD streams and waterbodies, and FEMA 100-year floodplain and regulatory floodway areas, are shown in **Figure 4-5**.

Where wetland impacts cannot be avoided, PPL Electric will coordinate with the U.S. Army Corps of Engineers ("USACE") concerning potential impacts on jurisdictional wetlands and will attempt to minimize permanent impacts when feasible and practical. To this end, PPL Electric will implement a range of BMPs during the design, construction, and operational phases to avoid or minimize impacts on wetlands. These practices may include the consideration of designs that limit clearing forests near drainages and in areas of steep topography, requiring the use of wetland mats to minimize impacts of construction traffic, and avoiding construction during seasonally wet periods in certain areas.

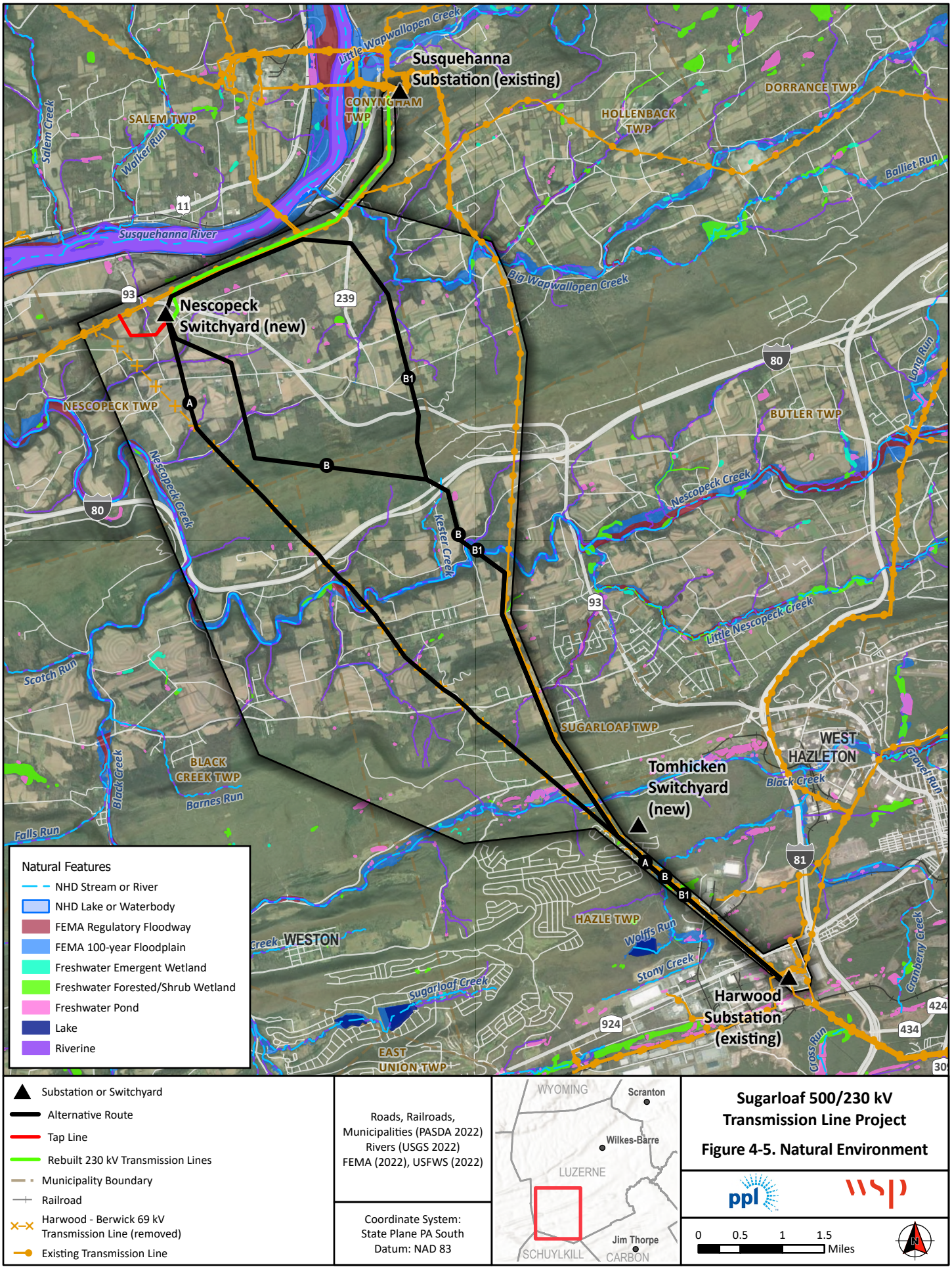
Alternative Route Comparison

As a result of implementing mitigation measures similar to those discussed above and the limited footprint of permanent impacts on soil productivity created by the structures themselves, any impacts to soils are likely minor for all Alternative Routes.

Each of the Alternative Routes crosses approximately 0.9 acres of NWI palustrine forested ("PFO")/Palustrine Scrub-Shrub ("PSS") wetlands in their 200-foot-wide ROWs (see **Table 4-4** above), which is crossed by their shared 2.7-mile alignment. However, reduced permanent impacts are anticipated for this wetland since it would be crossed within PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line. As shown in **Table 4-4** above, the Alternative Routes are anticipated to cross between 1.3 and 1.6 acres of NWI riparian buffers in their 200-foot-wide ROWs. No NWI palustrine emergent ("PEM") wetlands are crossed by the Alternative Routes.

Alternative Routes were also analyzed for number of NHD waterbody crossings and stream crossings, including streams, rivers, or drainages that can be perennial, seasonal, intermittent, or ephemeral, as well as FEMA 100-year floodplain and regulatory floodway crossings. As shown in **Table 4-4**, the Alternative Routes cross between 8 and 12 NHD streams and between one and three NHD waterbodies. All of the streams crossed by the Alternative Routes have existing PADEP Chapter 93 designations (see **Section 1.4**). Where they intersect I-80, Alternative Routes B and B1 cross Kester Creek, a HQ-CWF stream.

Figure 4-5. Natural Environment


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
CONYNGHAM TWP
SALEM TWP
HOLLENBACK TWP
DORRANCE TWP
NESCOPECK TWP
BUTLER TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
EAST UNION TWP
WEST HAZLETON
WESTON
Little Wapwallopen Creek
Big Wapwallopen Creek
Susquehanna River
Salem Creek
Walker Run
Balliet Run
Long Run
Nescopeck Creek
Kester Creek
Little Nescopeck Creek
Scotch Run
Black Creek
Barnes Run
Falls Run
Gravel Run
Wolffs Run
Stony Creek
Sugarloaf Creek
Cranberry Creek
Cross Run
A
B
B1
11
80
81
93
239
924
424
434
Natural Features
NHD Stream or River
NHD Lake or Waterbody
FEMA Regulatory Floodway
FEMA 100-year Floodplain
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine
Substation or Switchyard
Alternative Route
Tap Line
Rebuilt 230 kV Transmission Lines
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Roads, Railroads, Municipalities (PASDA 2022)
Rivers (USGS 2022)
FEMA (2022), USFWS (2022)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-5. Natural Environment
ppl
WSP
0 0.5 1 1.5 Miles
N

Because it bisects the Study Area from east to west, all Alternative Routes cross Nescopeck Creek and its associated 100-year floodplain for between 4.5 and 6.1 acres within the 200-foot-wide ROWs. Alternative Route A additionally requires crossing 1.3 acres of regulatory floodway associated with Nescopeck Creek. Regardless of the route selected, PPL Electric will minimize in-stream, waterbody, floodplain/regulatory floodway, and wetland impacts, by spanning or avoiding them to the extent practical.

Alternative Route A is anticipated to significantly reduce potential impacts to wetlands, streams, and waterbodies since it uses PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line to the greatest extent practicable. Although this ROW is currently unmaintained, vegetation removal for a new 500/230 kV transmission line is considerably reduced because of the previous routine maintenance along the Harwood-Berwick 69 kV Transmission Line.

4.1.2 Wildlife Habitat

The Alternative Routes predominantly cross undeveloped forest or agricultural areas within the Study Area. During construction, trees and other tall-growing vegetation within the forested portions of the ROW would be removed to maintain appropriate clearances for the conductors. Upon completion of construction, compatible species would be permitted to regrow and would be maintained in accordance with PPL Electric's Vegetation Management Program (see **Attachment 12**) in these areas. In forested areas, a desired 200-foot-wide ROW will be cleared and maintained.

In agricultural areas, minimal vegetation clearing would be required and permanent impacts would be limited to the structures and/or their foundations and any areas requiring permanent access roads. After construction, access roads can be re-vegetated with native grasses or agricultural crops. For areas where an access road was cut into the landscape, the access road can either be reclaimed back to the original grade or the roadbed left in place and re-vegetated for future access needs. Whether or not an access road is reclaimed would depend on several factors, including landowner negotiations and need to access that particular section of the transmission line in the future.

Two CNHI Core Habitats are crossed by the Alternative Routes:

- Humboldt Barren is a ridgetop dwarf tree forest natural community on a broad, high elevation (1,500-1,700 feet) occurs at this site, part of which is considered a scrub oak shrubland natural community. The site, located within the southern-most portion of the Study Area, is unusual among Luzerne County ridgetop barrens in having pitch pine (*Pinus rigida*) that is at least as abundant as scrub oak (*Quercus ilicitfolia*) over much of the site. Suitable habitat for several snake species is present among the conglomerate slabs and boulders at the site.
- Wapwallopen Gorge crosses the northeastern portion of the Study Area and characterizes Big Wapwallopen Creek's steeply-sided, forested ravine. The gorge, which is locally known as the Powderhole, has some historical significance with many remnants of a turn-of-the-century gunpowder plant that can be found along the edge of the gorge.

Impacts to wildlife would vary depending on the type of impact and nature of the species impacted. Short-term impacts may include temporary displacement from an area due to construction-related noise or temporary modifications in habitat. Longer-term impacts occur if the habitat for the species is permanently removed, such as with the conversion of forested habitat to shrub-scrub or emergent vegetation, or less obviously, when the Project introduces a new feature that degrades the overall quality of the habitat for certain species.

Alternative Route Comparison

The potential for impacts to vegetation and wildlife habitats and sensitive species can be assessed by comparing each Alternative Route with respect to the anticipated acreage or mileage of those habitats in the ROW or crossed by the centerline.

As shown in **Table 4-4** above, Alternative Routes B and B1 would require more than double the ROW tree clearing of Alternative Route A. Furthermore, the majority of the required ROW tree clearing for Alternative Route A occurs within PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line, which has younger growth stages of forested cover due to previous routine vegetation maintenance of the corridor.

All three Alternative Routes cross 0.9 miles of CNHI Core Habitat (Humboldt Barren) in the same location due to their shared alignment near the existing Harwood Substation. Since this crossing occurs within PPL Electric's existing ROW that has been previously disturbed for the maintenance

of the former Harwood-Berwick 69 kV Transmission Line, no significant impacts are anticipated to Humboldt Barren. Alternative Route B1 crosses an additional 0.3 miles of CNHI Core Habitat through Wapwallopen Gorge.

As stated in **Section 4.5** and **Attachment 3**, an online review was conducted for the Potential Routes on September 26, 2025. This review requested information from the four agencies responsible for the protection of endangered, threatened, or species of special concern within the Project area: PFBC, PGC, DCNR, and the USFWS. Following the selection of the Proposed Route and its subsequent adjustments (see **Section 4.4.1**), a final online PNDI review was submitted on December 5, 2025. The final online PNDI review noted potential impact to screw stem, a vascular plant species (see **Attachment 14**).

4.1.3 Natural Environment Summary

Alternative Routes

From a combined natural environment resources perspective, Alternative Route A is anticipated to significantly reduce potential impacts to wetlands, streams, waterbodies, and wildlife habitat since it uses PPL Electric's existing ROW for the retired Harwood-Berwick 69 kV Transmission Line to the greatest extent practicable. Although this ROW is currently unmaintained, vegetation removal for a new 500/230 kV transmission line is considerably reduced because of the previous routine maintenance along the Harwood-Berwick 69 kV Transmission Line. Regardless of the route selected, disturbance to farmland soils is generally limited to structure footprints and/or their foundations.

Field wetland delineations were conducted within the right-of-way of the Sugarloaf 500/230 kV Transmission Line Project. PPL Electric anticipates that project engineering can minimize wetland and stream impacts through spanning and avoidance. PPL Electric will obtain and adhere to all required state and federal permits, as well as any conditions imposed on those permits.

To avoid impacts to protected bat species (tricolored bat, Indiana bat, and northern long-eared bat), the Company will adhere to seasonal clearing restrictions, only clearing trees greater than 3 inches diameter at breast height ("dbh") between October 1 and March 15, and will coordinate with USFWS prior to construction. Monarch butterflies are a proposed federally threatened species and

have a known range that is crossed by the Alternative Routes. Regardless of the route selected, areas cleared within the ROW will be re-vegetated with compatible species and maintained in accordance with PPL Electric's Vegetation Management Plan.

Rebuilt 230 kV Transmission Lines and Tap Line

Soils and Water Resources

The 800-foot-wide buffer area evaluated for the rebuilt 230 kV Transmission Lines and Tap Line is located on variable terrain adjacent to and south of the Susquehanna River and is primarily surrounded by undeveloped forest. Within this portion of the Study Area, topography generally ranges between approximately 800 feet and 1,200 feet above mean sea level ("msl"). Soils present within the Project Area predominantly consist of silty loams, ranging between 3 and 60 percent slopes.

Big Wapwallopen Creek, including its associated FEMA 100-year floodplain and regulatory floodway areas, crosses the rebuilt 230 kV Transmission Lines from northwest to southeast between County Road and Wapwallopen Road. Otherwise, two smaller NWI resources were identified within the 800-foot-wide buffer area, including one freshwater pond and one PFO/PSS wetland.

Wildlife Habitat

The majority of the 800-foot-wide buffer area evaluated for the rebuilt 230 kV Transmission Lines crosses CNHI Core Habitat for Wapwallopen Gorge (see **Section 4.1.2**), Council Cup Cliffs, and Susquehanna Riverlands. The Council Cup Cliffs is an NHA site consisting of an extensive cliff, a significant geological feature, which is an erosional remnant cut into the Trimmers Rock Formation of the mudstone and siltstones overlooking the North Branch of the Susquehanna River, and an extensive Virginia pine-mixed hardwood shale woodland Natural Community. The Susquehanna Riverlands NHA is comprised of aquatic and riparian habitats that support four species of concern. Potential impacts to these NHAs are minimized by rebuilding the 230 kV Transmission Lines entirely within existing ROW.

On February 3, 2026, an online PNDI review was conducted to identify state-specific wildlife habitats and sensitive species for a 150-foot-wide corridor of the rebuilt 230 kV Transmission Lines and Tap Line. Based on this review, the preliminary screening results indicate further coordination with PGC and USFWS is required to determine potential impacts. Specifically, the PGC response requests further coordination to determine potential impacts to the peregrine falcon, a state special concern species. The USFWS response indicates that the rebuilt 230 kV Transmission Lines and the Tap Line are located within the range of the federally listed northern long-eared bat. PPL is currently coordinating directly with these agencies per the PNDI response.

The PNDI review also included a response from DCNR stating that no further action was required and recommending conservation measures to minimize the Project's impact on a state geologic feature of special concern and a state plant community of concern.

4.2 Built Environment Impacts

Built environment impacts include direct and indirect impacts to residential, commercial and industrial development, institutional uses (e.g., schools, places of worship, and cemeteries), cultural resources, and land use. Construction of a new transmission line can result in changes in land use and aesthetic impacts to residents, commuters and travelers, employees, and recreational users. A comparison of the built environment considerations for the Alternative Routes is presented in **Table 4-5**. Topographic maps identifying known built environment elements and constraints within established distances of the Alternative Routes are specified in the PA PUC siting regulations are included in **Figures 4-6, Pages 1 through 10.**

Table 4-5. Built Environment				
Resource Criteria	**Unit**	**Alternative Route**		
		A	**B**	**B1**
Municipalities Crossed				
Black Creek Township	miles	1.0	-	-
Hazle Township	miles	3.4	3.3	3.2
Nescopeck Township	miles	2.4	5.7	5.0
Sugarloaf Township	miles	4.3	3.0	5.0
Human Environment				
Residences within ROW[8]	count	-	-	-
Residences within 250 feet of the centerline	count	11	2	2
Residences within 500 feet of the centerline	count	37	9	6
Outbuildings within ROW	count	1	1	-
Outbuildings within 250 feet of the centerline	count	16	3	4
Commercial/Industrial Buildings within 500 feet of the centerline	count	12	13	12
Cemeteries within 500 feet of the centerline	count	-	-	-
Places of Worship within 500 feet of the centerline	count	-	-	-
Parcels crossed in ROW	count	88	72	83
Landowners crossed in ROW	count	57	43	50
Parcels without existing ROW	count	10	30	27
Parcels crossed by existing ROW	count	78	42	55
Parcels crossed by existing ROW	percent	89%	58%	66%
Cultural Resources				
Architectural resources within 0.25 mile of the centerline	count	2	2	8
Architectural resources within one mile of the centerline	count	7	20	44
Archaeology Sites in ROW	count	-	-	-
Archaeology Sites within 1,000 feet	count	-	-	-
Agricultural Easement and Security Areas				
Agricultural Easements in ROW	acres	3.5	29.1	29.1
Agricultural Security Areas in ROW	acres	6.1	48.9	48.9

[8] The desired ROW width is 200 feet.

Figure 4-6. Constraint/Topography Maps

Susquehanna River
Gould Island
Pond Creek
Little Wapwallopen Creek
Walker Run
Hess Mountain
Council Cup
SALEM TWP
CONYNGHAM TWP
SLOCUM TWP
DORRANCE TWP
HOLLENBACK TWP
Susquehanna Substation (existing)

- Substation
- Alternate Route 2-mile Buffer
- Rebuilt 230 kV Transmission Lines
- Existing Transmission Line
- Municipality Boundary
- Historic Building or Site
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

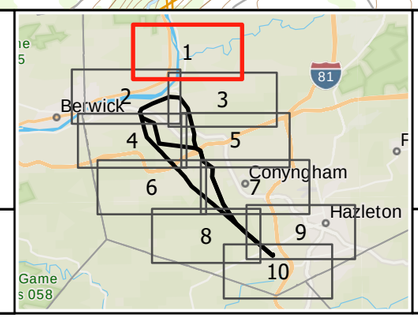


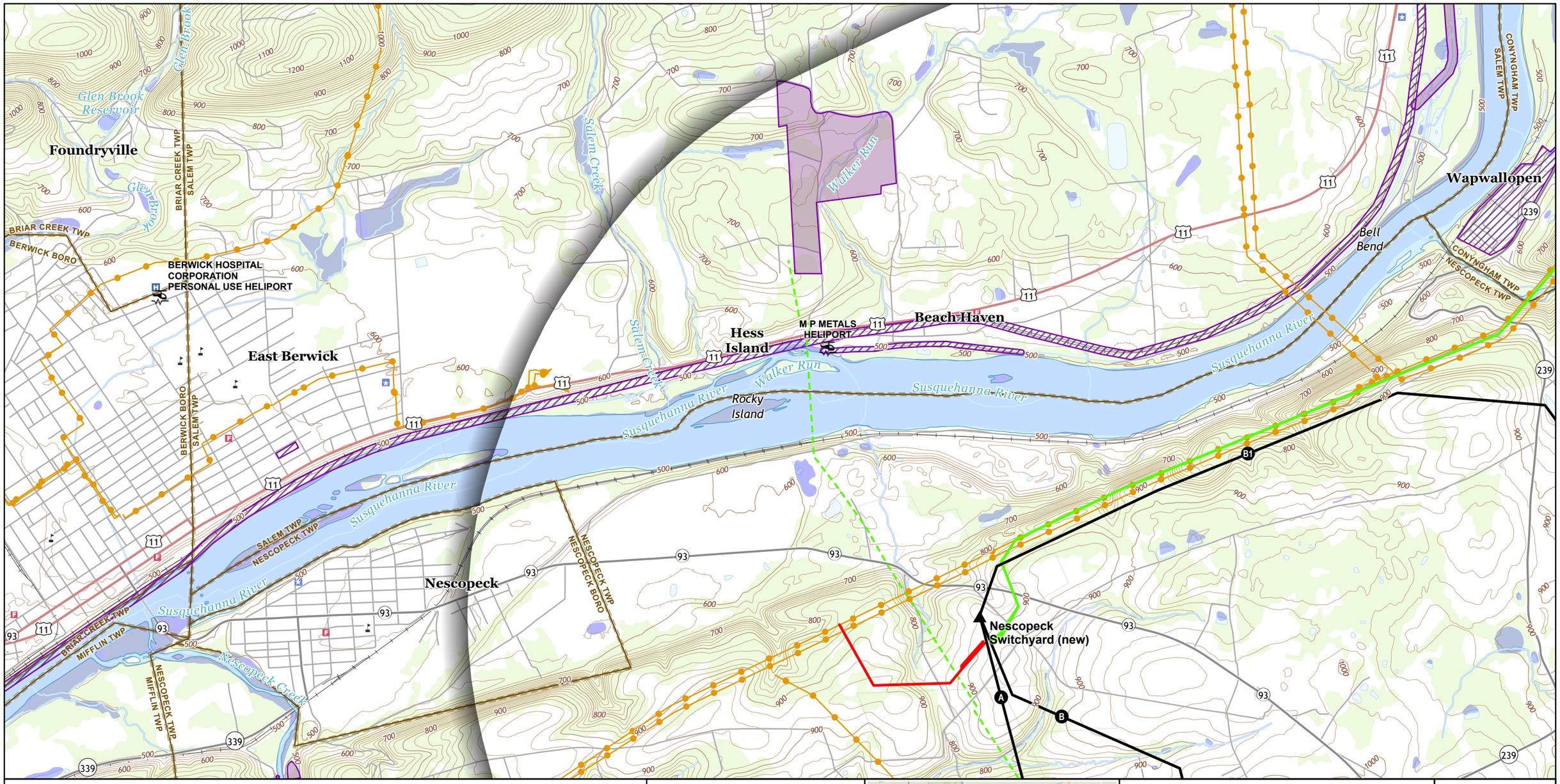
Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000



- Substation
- Alternative Route
- Alternate Route 2-mile Buffer
- Tap Line
- Rebuilt 230 kV Transmission Lines
- Existing Transmission Line
- Natural Gas Pipeline
- Municipality Boundary
- Parcel Boundary
- Heliport
- Historic Building or Site
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

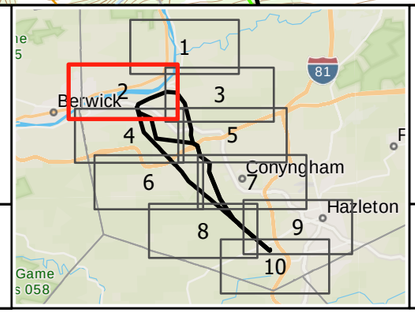


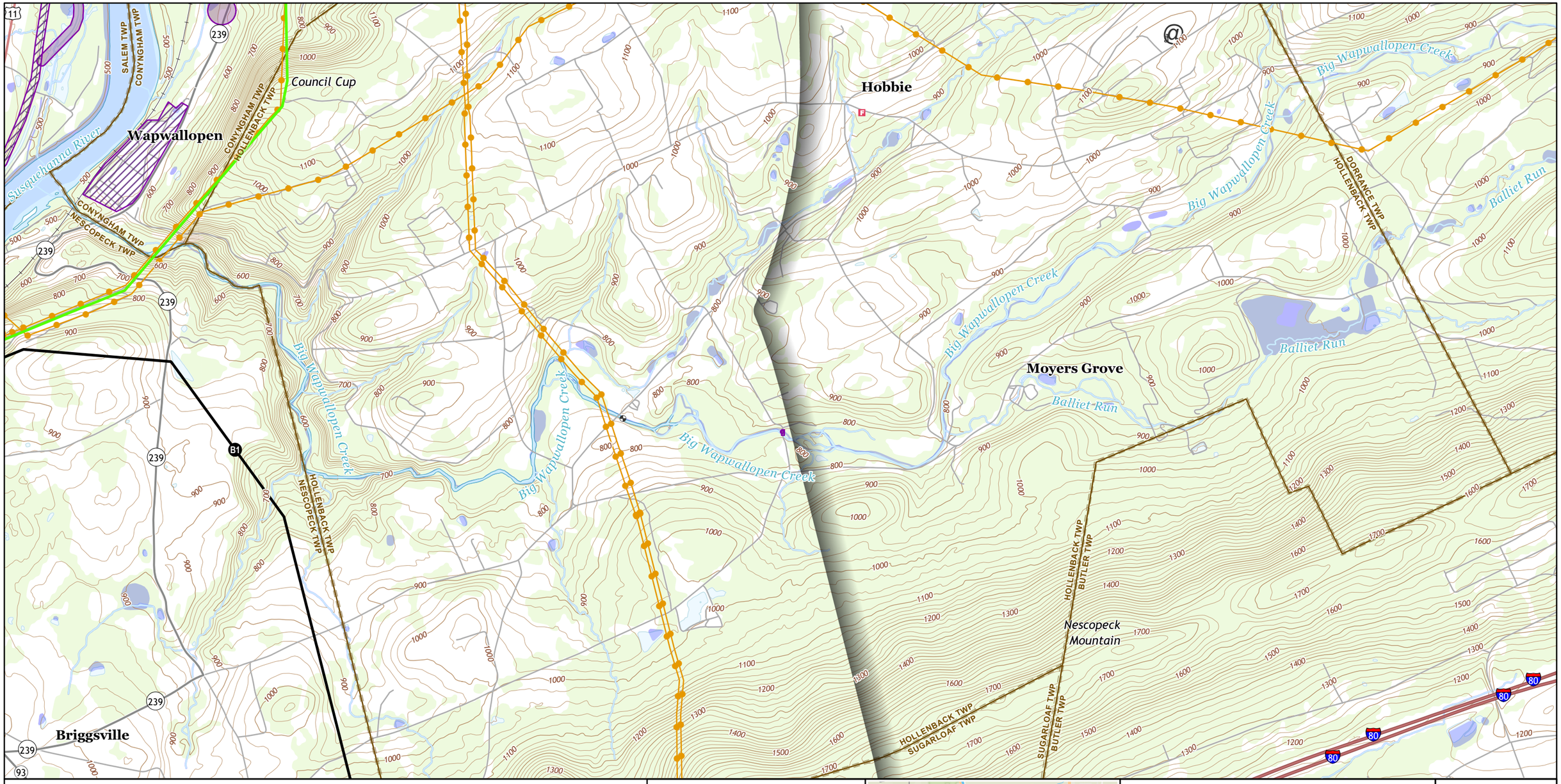
Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000



- Alternative Route
- Alternate Route 2-mile Buffer
- Rebuilt 230 kV Transmission Lines
- Existing Transmission Line
- Municipality Boundary
- Historic Building or Site
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

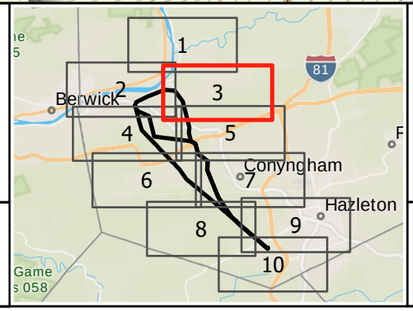


Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000

Alternative Route
Alternate Route 2-mile Buffer
Tap Line
Rebuilt 230 kV Transmission Lines
Existing Transmission Line
Natural Gas Pipeline
Municipality Boundary
Parcel Boundary
Historic Building or Site
Historic District
NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

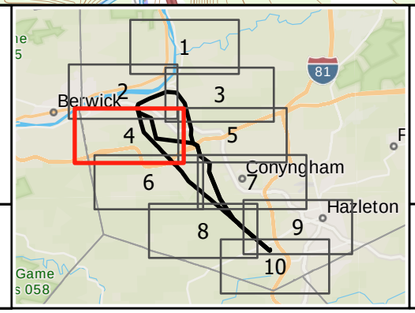


Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000

Nescopeck Mountain

DOUBLE D SKYRANCH AIRPORT

HOLLENBACK TWP
NESCOPECK TWP

HOLLENBACK TWP
SUGARLOAF TWP

NESCOPECK TWP
SUGARLOAF TWP

HOLLENBACK TWP
BUTLER TWP

BUTLER TWP
SUGARLOAF TWP

Nescopeck Creek

Kester Creek

- Alternative Route
- Alternate Route 2-mile Buffer
- Existing Transmission Line
- Municipality Boundary
- Parcel Boundary
- Airport
- Historic Building or Site
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

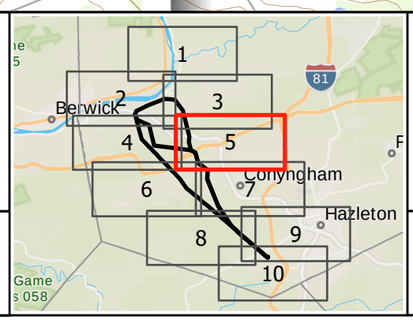
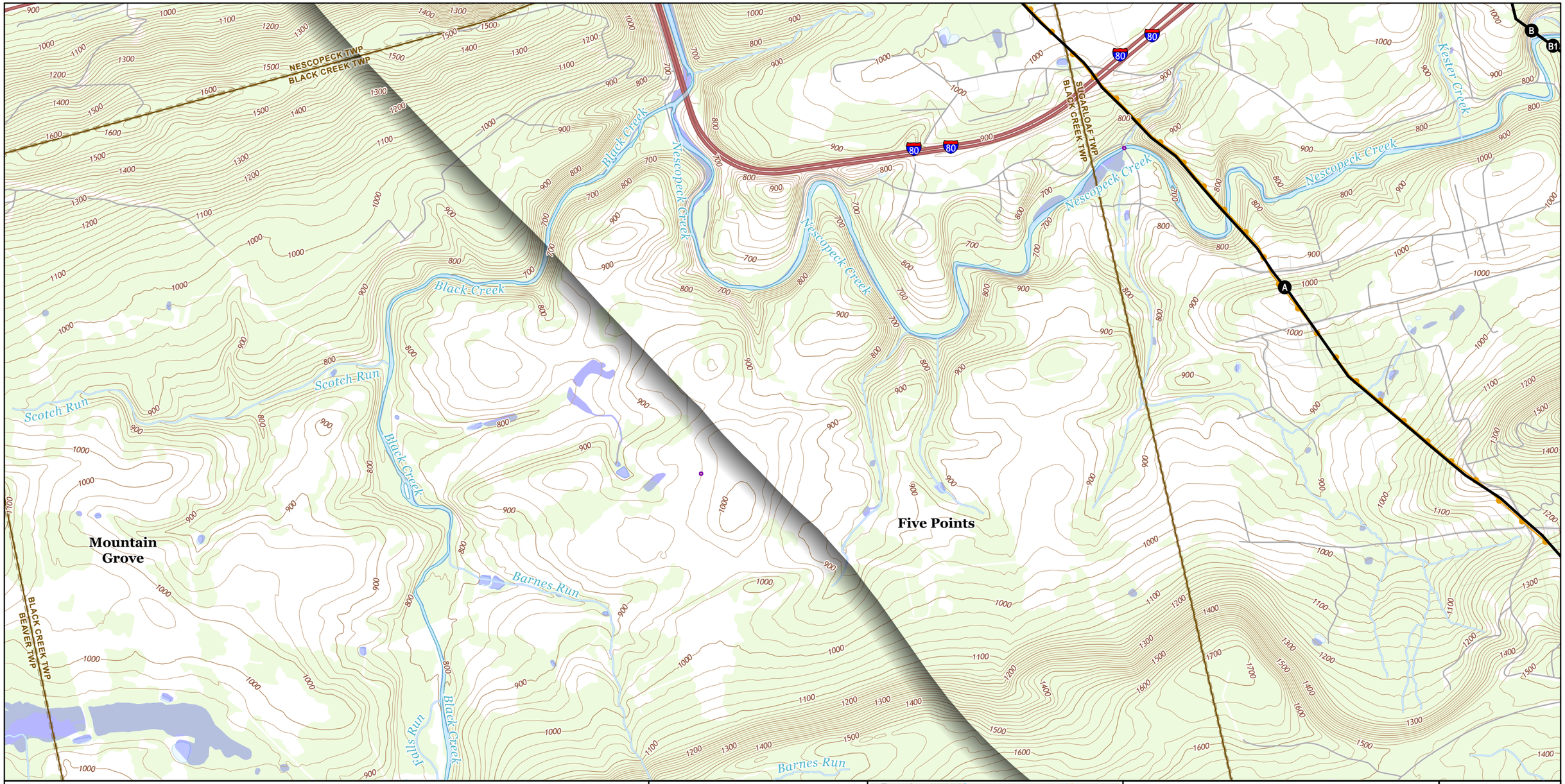


Figure 4-6
Constraints/Topography

0 2,000 4,000 Feet

N

1:24,000



Alternative Route
Alternate Route 2-mile Buffer
Existing Transmission Line
Municipality Boundary
Parcel Boundary
Historic Building or Site
NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

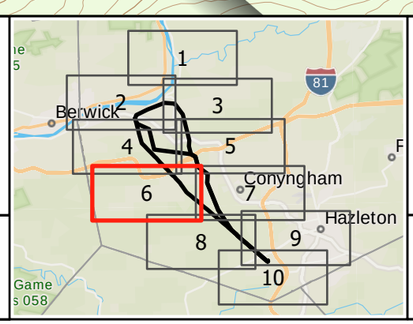


Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000

Alternative Route
Alternate Route 2-mile Buffer
Existing Transmission Line
Natural Gas Pipeline
Municipality Boundary
Parcel Boundary
Airport
Historic Building or Site
Historic District
NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

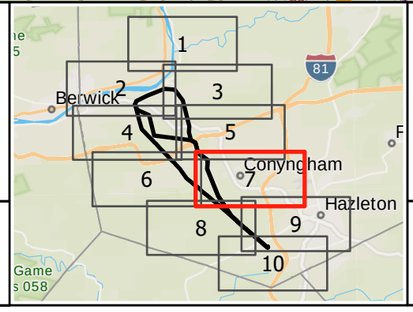


Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000

Substation
Alternative Route
Alternate Route 2-mile Buffer
Existing Transmission Line
Natural Gas Pipeline
Municipality Boundary
Parcel Boundary
Historic District
NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

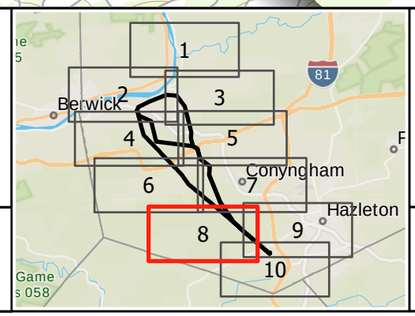


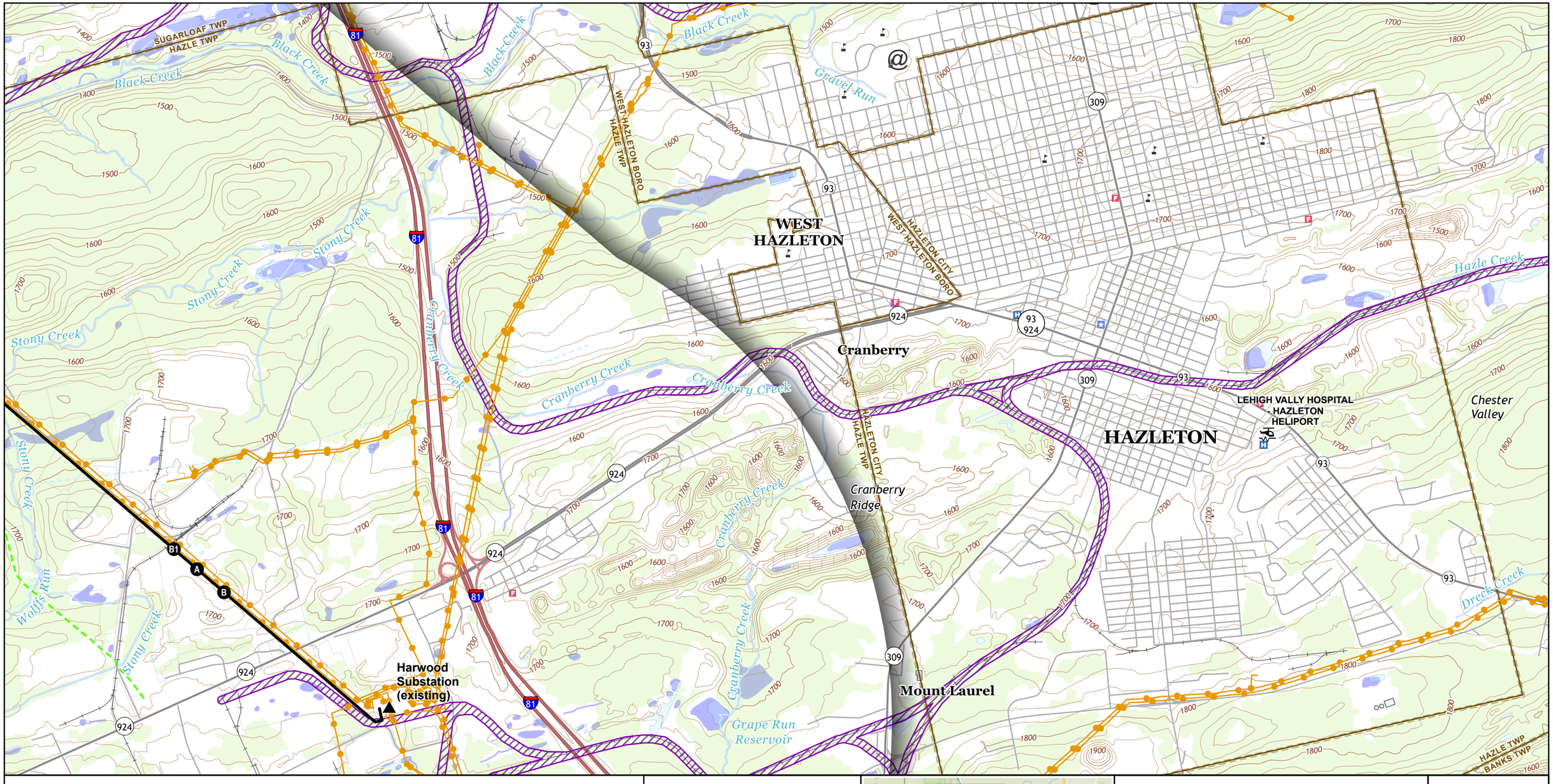
Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000



- Substation
- Alternative Route
- Alternate Route 2-mile Buffer
- Existing Transmission Line
- Natural Gas Pipeline
- Municipality Boundary
- Parcel Boundary
- Heliport
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

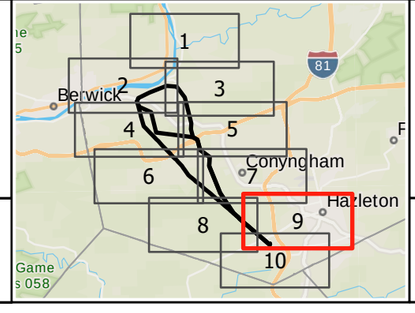


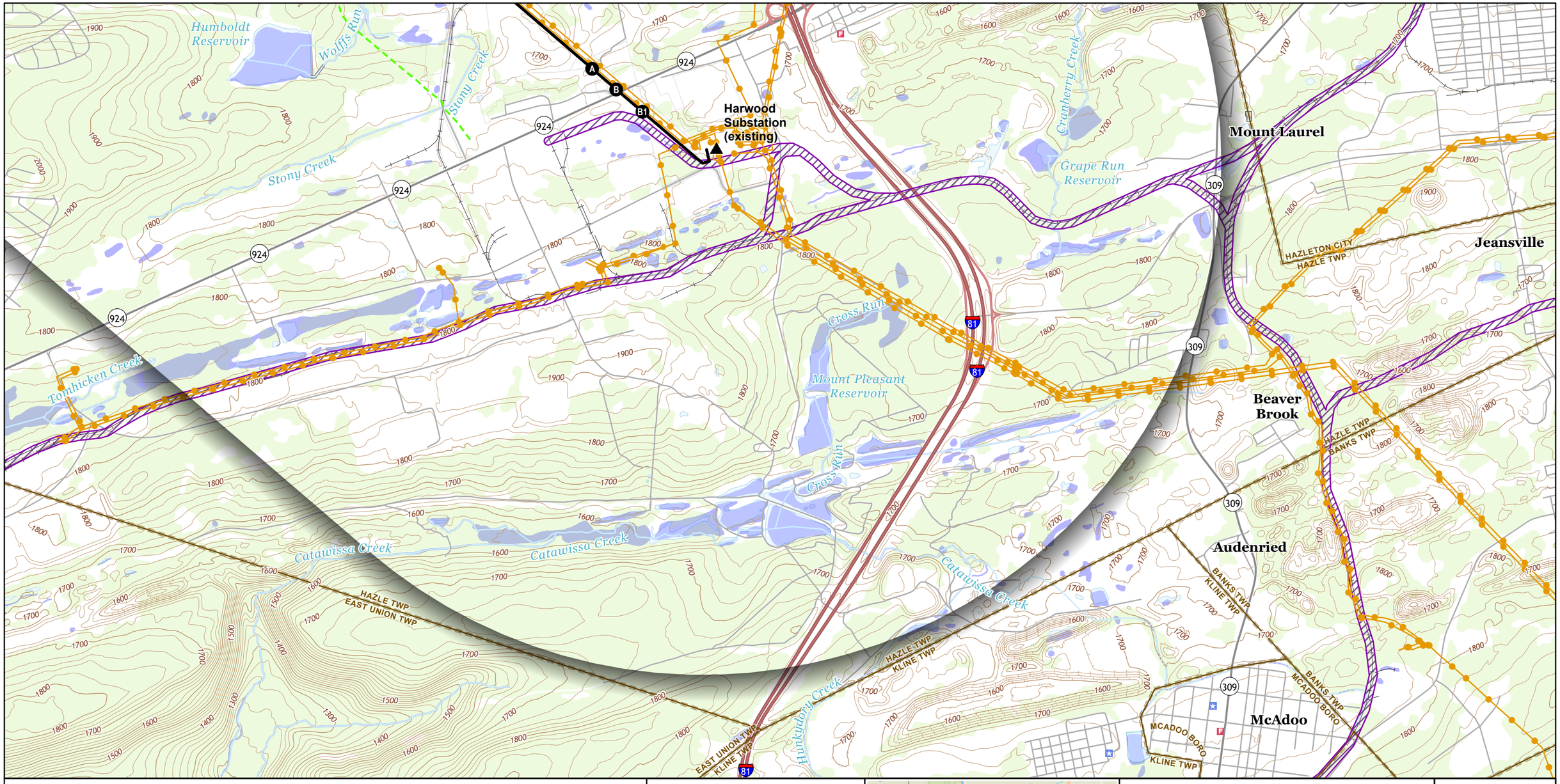
Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

1:24,000



- Substation
- Alternative Route
- Alternate Route 2-mile Buffer
- Existing Transmission Line
- Natural Gas Pipeline
- Municipality Boundary
- Parcel Boundary
- Historic District
- NWI Wetland

Sources:
Roads, Townships (PASDA 2019)
Pipeline (NPMS 2022)
USGS Topographic Basemap (2022)
Aviation Facilities (FAA 2022)
Historic Structures (PHMC 2022)
Wetlands (USFWS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

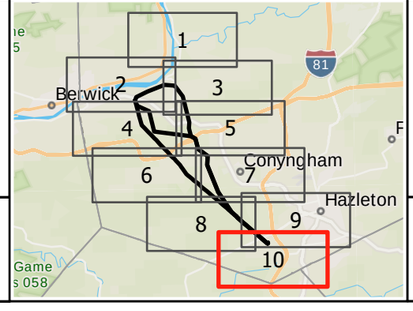


Figure 4-6
Constraints/Topography

ppl wsp

0 2,000 4,000 Feet

N

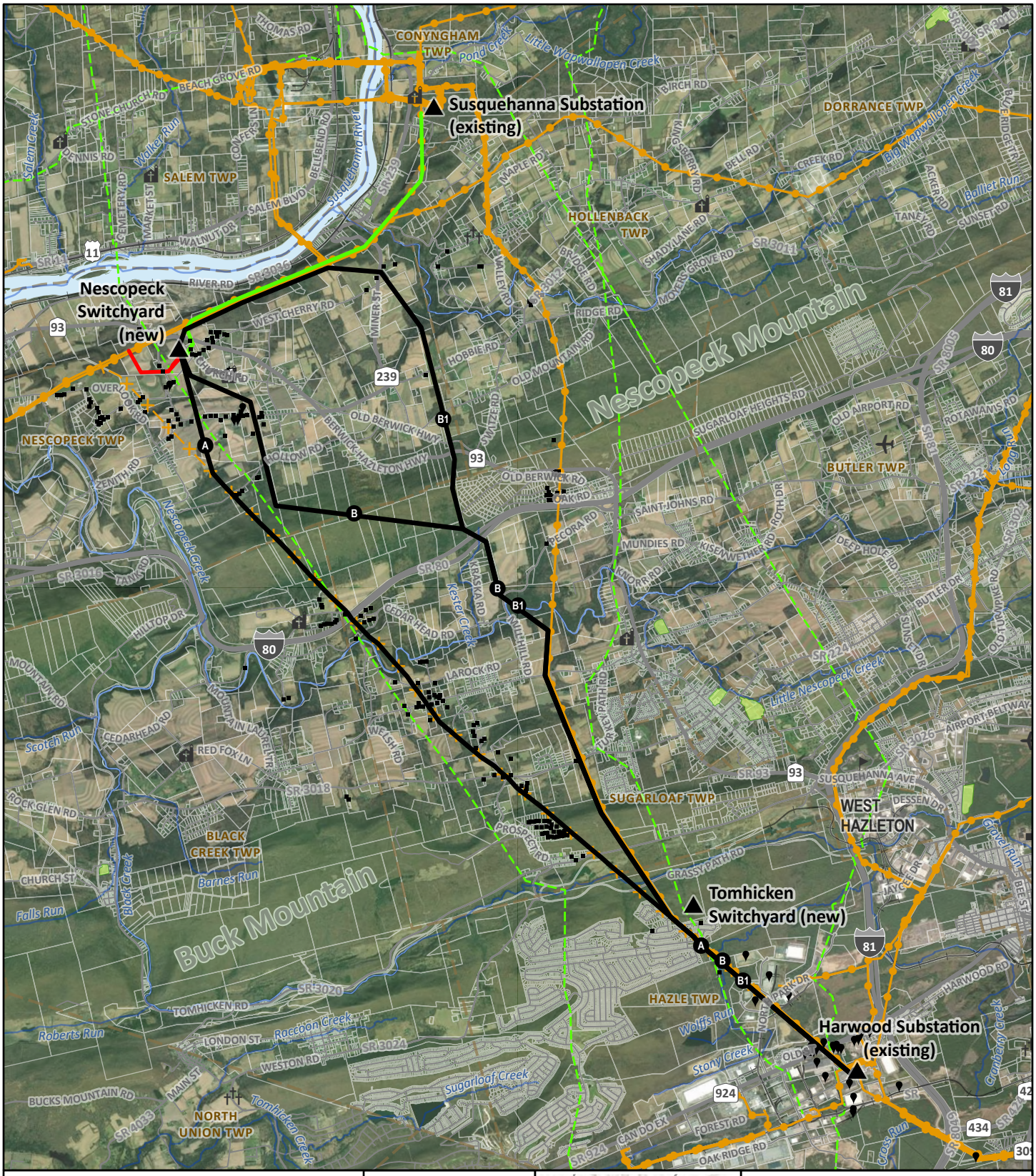
1:24,000

4.2.1 Land Use

The Study Area is located within Black Creek, Hazle, Hollenbeck, Nescopeck, and Sugarloaf Townships in Luzerne County, Pennsylvania. Existing land use within the Study Area is primarily characterized by agricultural cropland and undeveloped forest followed by scattered concentrations of residential development. Forested cover is predominantly located along Nescopeck Mountain and Buck Mountain. Otherwise, forested wetlands or riparian areas are sparsely interspersed throughout the Study Area, primarily concentrated adjacent to streams and waterbodies, including Nescopeck Creek, Kester Creek, and Black Creek. Agricultural cropland and pasture/hayfield generally occur along the flatter valleys and hillsides of the variable terrain. Single-family residences and mixed-use commercial/industrial properties within the Study Area are generally located in areas adjacent to roadway corridors near Briggsville to the north, or west of Sybertsville in the central/southern portion of the Study Area.

In addition, there is substantial utility development within the Study Area, including a natural gas pipeline, transmission lines, switchyards, and substations. General land use within the vicinity of the Alternative Routes is shown in **Figure 4-7** below. The Siting Team worked to develop routes that minimized impacts to residential, industrial, and developed property to the extent possible. As a result, no residences are located within any Alternative Route's proposed 200-foot-wide ROW.

Figure 4-7. Land Use


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
Nescopeck Mountain
Buck Mountain
CONYNGHAM TWP
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
HAZLE TWP
BLACK CREEK TWP
NORTH UNION TWP
WEST HAZLETON
Substation or Switchyard
Business
Cemetery
Place of Worship
Residence
Alternative Route
Tap Line
Rebuilt 230 kV Transmission Lines
Municipality Boundary
Railroad
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Pipeline
Local Park or Recreation Area
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-7. Land Use
0 0.5 1 1.5 Miles

Alternative Route Comparison

In general, land uses crossed by all three Alternative Routes are anticipated to be similar since they each avoid densely populated areas and parallel existing linear infrastructure (e.g., existing overhead transmission lines or transmission line right-of-way corridors) or property lines for much of their total alignment. Regardless of the route chosen, a new 500/230 kV transmission line will result in at least some aesthetic impact to the existing landscape. Still, the Siting Team prioritized paralleling and utilizing existing linear utility infrastructure and corridors, as well as parcel boundaries, to address viewshed and aesthetic impacts.

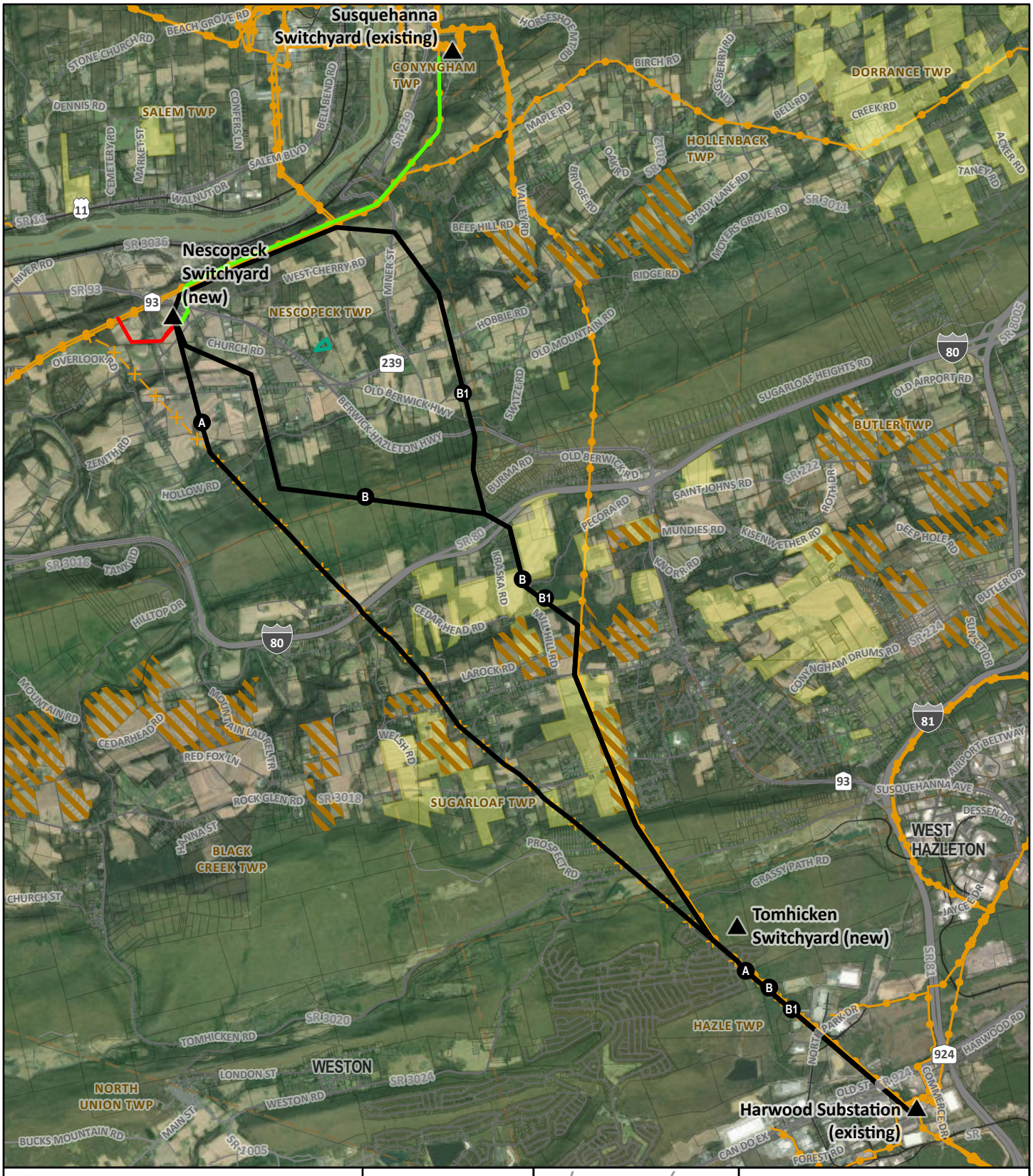
As shown in **Table 4-5** above, all three Alternative Routes cross a similar mileage through Hazle Township (3.2 and 3.4 miles). Alternative Route A crosses one additional mile through Black Creek Township, 2.4 miles in Nescopeck Township, and 4.3 miles in Sugarloaf Township. Alternative Routes B and B1 cross between 5 and 5.7 miles in Nescopeck Township and between 3 and 5 miles in Sugarloaf Township. Overall, Alternative Route A is the shortest route identified for the Project (11.2 miles), while Alternative Route B and B1 range between 1 and 2.2 miles longer than Alternative Route A, respectively.

Alternative Route A crosses significantly less agricultural security areas and easement areas than Alternative Routes B and B1, as shown in **Figure 4-8** below and **Table 4-5** above. No federal agricultural conservation easements are crossed by the Alternative Routes. Electric transmission lines are permitted in agricultural security and/or easement areas and do not have a significant impact on the use of the property for agricultural purposes. PPL Electric attempted to reduce agricultural impacts by paralleling property boundaries and roads. Additionally, PPL Electric will also work with the landowners to further minimize the impact of the Proposed Route on their farming practices.

None of the Alternative Routes contain residences within the 200-foot-wide ROW. As shown in **Table 4-5** above, Alternative Route A crosses the most parcels and landowners; however, the majority (89 percent) of these properties are already crossed by existing ROW. Additionally, Alternative Route A minimizes clearing trees, which acts as a primary viewshed screen, to the greatest extent practicable by using existing ROW wherever possible. The existing ROW is predominantly cleared and will require minimal maintenance clearing or vegetation clearing.

No hospitals, places of worship, cemeteries, or schools were identified within the Study Area or in proximity to the Alternative Routes (see **Figure 4-7**). Additionally, no airports are located within 2 miles of either of the Alternative Routes; therefore, construction and operation of either route is not expected to interfere with airport operations or flight plans. If necessary, however, PPL Electric will file the appropriate documentation with both the Federal Aviation Administration and the PennDOT Bureau of Aviation to ensure the proposed line will not be a hazard to the airport's flight operations.

Figure 4-8. Agricultural Resources


Susquehanna Switchyard (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
CONYNGHAM TWP
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
BLACK CREEK TWP
HAZLE TWP
WEST HAZLETON
WESTON
NORTH UNION TWP
A
B
B1
Substation or Switchyard
Alternative Route
Tap Line
Rebuilt 230 kV Transmission Lines
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Municipality Boundary
Railroad
Agricultural Security Area
Agricultural Conservation Easement
Federal Agricultural Conservation Easement
Parcel Boundary
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover, NLCD (USGS 2021, 2022)
PASDA/WeConservePA (2022)
Coordinate System:
State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-8. Agricultural Resources
ppl
WSP
0
0.5
1
1.5
Miles
N

4.2.2 Recreation/Aesthetics

Transmission lines can impact recreation areas by limiting the amount of usable space and alter the aesthetics of the space. Construction could potentially negatively affect access to recreational areas by temporarily: (1) blocking access roads, trails, or other facility entrances; (2) closing roads during specific construction activities; (3) disrupting traffic; and (4) creating detours, possibly making access more difficult. Construction could also temporarily impact the rural setting and the scenic integrity of the area due to increased construction-related traffic, noise, dust, brightly colored signage, and number of people coming to the area. Large cranes and/or helicopters are typically used during the construction of the line, creating an increased temporary disturbance in both the visual, aesthetic, and peaceful nature of some areas. The Project would mitigate or reduce these impacts by entering into a road or transportation agreement with the local county government, which will take into consideration local traffic patterns and local scenic resources.

As described in **Section 1.4**, the Project Study Area is characterized predominantly by agricultural land (cropland or hayfield/pasture) and undeveloped forested cover. Residential areas are scattered throughout the exurban landscape, most of which appear as agricultural homesteads or single-family homes. Mixed-use commercial/industrial development is concentrated to the southern portion of the Study Area, along the State Route 924 (PA-924) corridor. Large, contiguous areas of dense forested cover are concentrated predominantly along the Nescopeck Mountain and Buck Mountain ranges, which both bisect the Study Area from east to west, or along the riparian corridors of Big Wapwallopen Creek, Black Creek, Nescopeck Creek. Smaller, fragmented woodlots are dispersed throughout the Study Area, which are used for screening purposes between agricultural and residential properties.

There are several public hiking trails and camping/picnic areas throughout Wapwallopen Gorge, located within the northeastern portion of the Study Area. The gorge, which is known locally as the Powderhole, has some historical significance with many remnants of a turn of the century gunpowder plant that can be found along the edge of the gorge. A small local park, Tomhicken Playground, is located within the southwestern portion of the Study Area in proximity to Tomhicken Road. Within its southernmost portion, the Study Area narrowly crosses undeveloped areas of Eagle Rock Resort, which is already crossed by PPL Electric's maintained ROW for the

existing Susquehanna-Harwood 230 kV Transmission Line and unmaintained ROW from the retired Harwood-Berwick 69 kV Transmission Line. Additionally, Eagle Rock Resort's skiing hills and golf course are located outside of the Study Area, distanced approximately 3 miles southwest of PPL Electric's existing Harwood Substation. No additional recreational areas were identified within or adjacent to the Study Area.

Alternative Routes Comparison

No existing federal, state, or locally owned lands are crossed by the Alternative Routes. As previously stated in **Section 4.1.2** above, Alternative Route B1 crosses 0.3 miles through CNHI-core habitat for Wapwallopen Gorge. The Powderhole has publicly accessible trails and camping/picnic areas. If Alternative Route B1 were selected as the Proposed Route, access to the recreation areas of the Powderhole may be limited at times during construction. No other potential recreational impacts were identified for the Alternative Routes.

The Siting Team attempted to minimize tree clearing, which acts as a primary viewshed screen, by paralleling existing linear infrastructure or previously maintained transmission line ROW wherever possible. As listed in **Table 4-4** and described in **Section 4.1.2** above, Alternative Route A requires substantially less tree clearing because it utilizes existing, predominantly cleared ROW for the retired Harwood-Berwick 69 kV Transmission Line.

4.2.3 Cultural Resources

Transmission lines tend to not have significant indirect impacts on archaeological resources, which are usually located entirely below the ground surface. However, some sites have surface expression (e.g., foundations, walls, and cemeteries). Where practical, adverse impacts on identified sites would be mitigated by strategically locating access roads, staging areas, and structures.

Impacts on architectural historic properties would be primarily visual, created by the construction of new structures where none exist, the addition of a second transmission line next to an existing transmission line corridor (generally a lesser impact), and clearing of forested land. Impacts would vary based on local relief, [9] height of existing vegetation, and any intervening recent development.

[9] Local relief refers specifically to the quantitative measurement of vertical elevation change in a landscape. It is the difference between maximum and minimum elevations within a given area, usually of limited extent.

Physical impacts on architectural historic properties would be mitigated, where practical, by strategically locating access roads, staging areas, and structures.

Reasonable efforts will be made to avoid affecting archaeological resources. Where practical, archaeological resources identified in the transmission line corridor, in the direct path of any needed access roads, or at the locations of proposed work areas will be avoided by spanning any such resources or, if necessary, shifting tower positions, rerouting roads, and reconfiguring or relocating work areas as deemed necessary. PPL Electric will continue to consult with the Pennsylvania SHPO throughout the planning, design, and construction process and conduct field work and surveys as necessary during the project permitting process to minimize potential impacts to cultural resources. Therefore, impacts on archaeological resources are expected to be minimal.

Alternative Routes Comparison

As stated in **Attachment 3**, initial analysis of the Project's potential to affect cultural resources involved a review of the PHMC/BHP CRGIS on-line inventory of cultural resources. The review involved identifying all known prehistoric and historic period archaeological sites and all known historic architectural resources and historic districts within the Study Area in accordance with PUC regulations (*See* 52 Pa. Code § 57.72). A list of architectural and archaeological resources identified in the CRGIS within the Study Area is included in the tables in **Attachment 15**.

The number of known historic architectural resources within 0.25 miles and 1 mile of the centerline are identified in **Table 4-5** above. No known archaeological sites are located within 1,000 feet of the Alternative Routes. Additionally, none of the previously identified historic archaeological resources have been determined to be NRHP-listed at this time. Previously identified historic architectural resources eligible for inclusion in the NRHP are presented in **Table 4-6** below.

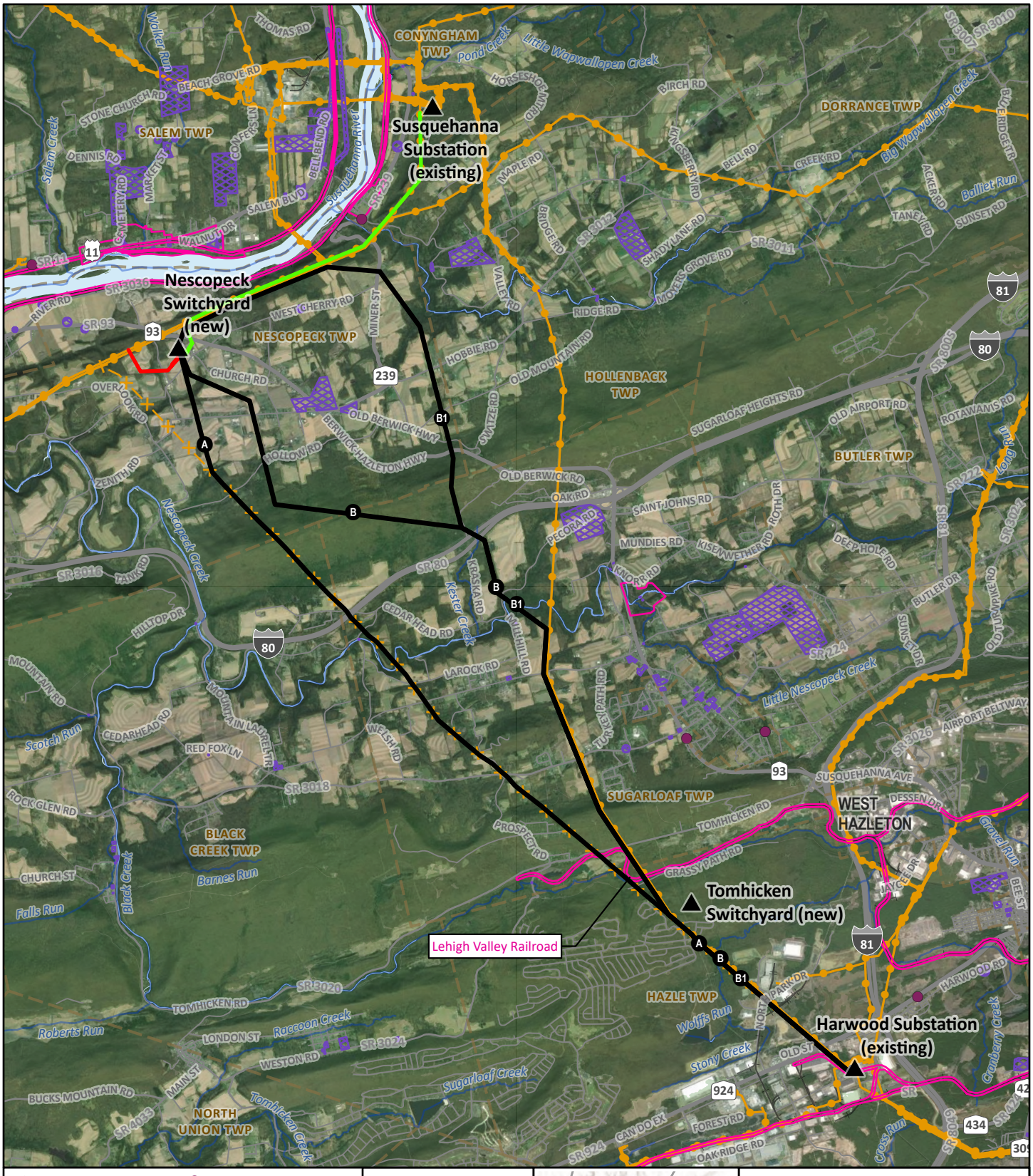
Table 4-66. NRHP Listed and Eligible Historic Architectural Resources within 1 mile of the Alternative Routes				
Resource Key No.	**Name**	**Type**	**Within 0.25 mile of Alternative Route(s)**	**Within 1 mile of Alternative Route(s)**
NRHP-Eligible Resources				
2004RE05532	Unnamed Bridge on Hollow Road	Bridge	A	A
Historic Districts				
2010RE00722	Lehigh Valley Railroad	Railroad	A, B, B1	A, B, B1
2010RE02609	Delaware, Lackawanna & Western Railroad	Railroad	-	B1

Known architectural resources (i.e., historic buildings, structures, districts, and roads) in the vicinity of the Alternative Routes are shown below on **Figure 4-9**. Known archaeological resources are not shown on the figures in this Application to protect any such sites; however, no known archaeological resources were identified within 1,000 feet of the Alternative Routes' centerlines.

As shown above in **Table 4-5**, all three Alternative Routes are located within 1 mile of the Lehigh Valley Railroad, NRHP-eligible historic district. As illustrated in **Figure 4-9**, all three Alternative Routes cross Lehigh Valley Railroad once upon their exit from the existing Harwood Substation and again near Tomhicken Road. Alternative Route B1 is also located within 1 mile of the Delaware, Lackawanna & Western Railroad, an NRHP-eligible historic district.

Alternative Route A is distanced approximately 0.1 miles northeast of an NRHP-eligible bridge, located on Hollow Road. During construction, PPL Electric will minimize potential impacts to the unnamed bridge on Hollow Road by identifying suitable haul routes elsewhere. Overall, Alternative Route A minimizes visual impacts to the surrounding historic resources best by utilizing the existing ROW for the retired Harwood-Berwick 69 kV Transmission Line for the majority of its alignment.

Figure 4-9. Cultural Resources


Susquehanna Substation (existing)
Nescopeck Switchyard (new)
Tomhicken Switchyard (new)
Harwood Substation (existing)
Lehigh Valley Railroad
CONYNGHAM TWP
SALEM TWP
NESCOPECK TWP
HOLLENBACK TWP
DORRANCE TWP
BUTLER TWP
SUGARLOAF TWP
HAZLE TWP
BLACK CREEK TWP
NORTH UNION TWP
WEST HAZLETON
Substation or Switchyard
Alternative Route
Tap Line
Rebuilt 230 kV Transmission Lines
Harwood - Berwick 69 kV Transmission Line (removed)
Existing Transmission Line
Historical Marker
Historical District
Architectural Resource
Municipality Boundary
Railroad
Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
PHMC (2025)
Coordinate System: State Plane PA South
Datum: NAD 83
WYOMING
Scranton
Wilkes-Barre
LUZERNE
Jim Thorpe
SCHUYLKILL
CARBON
Sugarloaf 500/230 kV Transmission Line Project
Figure 4-9. Cultural Resources
0 0.5 1 1.5 Miles

4.2.4 Built Environment Summary

Alternative Routes

In general, land uses crossed by all three Alternative Routes are anticipated to be similar since they each avoid densely populated areas and parallel existing linear infrastructure (e.g., existing overhead transmission lines or transmission line right-of-way corridors) or property lines for much of their total alignment. Still, Alternative Route A is notably favorable from a combined built environment perspective because it exclusively uses previously acquired ROW for the entirety of its alignment. A significant portion of the existing ROW was previously maintained for the retired Harwood-Berwick 69 kV Transmission Line. As a result, Alternative Route A significantly reduces the acreage of tree clearing required for a desired 200-foot-wide ROW, thereby reducing the viewshed and aesthetic impacts to the best extent practicable.

No existing recreational areas were identified in proximity to Alternative Routes A and B. During construction of the Project, Alternative Route B1 could limit access to the public recreation areas of the Powderhole (Wapwallopen Gorge) if it were to be selected as the Proposed Route.

No known archaeological sites are located within 1,000 feet of the Alternative Routes. All three Alternative Routes cross an NRHP-eligible historic railroad district identically upon their exit of the existing Harwood Substation, which is located within a predominantly mixed-use commercial/industrial area. For the Proposed Route, PPL Electric will take necessary measures during construction to avoid impacting the NRHP-eligible bridge located on Hollow Road by identifying suitable haul routes elsewhere. Overall, the Siting Team does not anticipate that the Project will result in adverse impacts to known cultural resources.

Rebuilt 230 kV Transmission Lines and Tap Line

Land Use

PPL Electric evaluated the existing land uses on the PPL Electric and customer-owned properties, within the existing ROW, and within 0.25 miles of the Rebuilt 230 kV Transmission Lines and the Tap Line (“Project Area”). This broader Project Area was reviewed to provide a sense of the landscape in which the Project is located. Based on review of current aerial maps, land use in the Project Area is 85% forest, 5% agriculture, and 10% existing utility ROW. The Project Area is

generally bounded to the north by the existing Susquehanna Switchyard and the new Nescopeck Switchyard; to the east by undeveloped forested land owned by the customer; to the south by commercial/industrial warehouses associated with Humboldt Industrial Park and Stony Creek; and to the west by residential properties within the community of Eagle Rock Resort. Land uses immediately surrounding the Project Area predominantly consist of vacant forested land or developed residential land.

The closest communications tower is located approximately 1.7 miles northeast of the Project. A gas transmission pipeline, operated by Sunoco, traverses southeast to northwest and is crossed by the Project three times. Another natural gas transmission pipeline, operated by UGI Energy Services, traverses north to south and is crossed by the Project once.

An abandoned railroad (Lehigh Valley Railroad) owned by Norfolk Southern traverses 0.4 miles north of the Project, generally in an east-west direction. Additionally, an existing PPL Electric distribution line crosses the Project in a general north/northwest to south/southeast direction between proposed Structures S5 and S6, as well as proposed Structures S2 and S3. The PPL Electric distribution line will be relocated within the customer's property as part of the Project.

The closest active airport relative to the Project Area is the Hazleton Regional Airport, a publicly owned facility, located approximately 3.8 miles northeast of the Project. Additionally, one private heliport, M P Metals, is located 1.2 miles northwest of the Project. PPL Electric does not anticipate any interference with airport or heliport operations since the Project consists of new electrical facilities that are of a similar height as the existing electrical facilities in the immediate Project Area. However, PPL Electric will file any required documentation with the Federal Aviation Administration.

Recreation/Aesthetics

The rebuilt 230 kV Transmission Lines and Tap Line will not affect any national parks or state parks. Potential impacts to Wapwallopen Gorge, an NHA with public hiking trails and camping/picnic areas, are avoided by rebuilding the 230 kV Transmission Lines entirely within existing and maintained ROW.

Cultural Resources

An online review of the Project Area and surrounding landscape was conducted through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site.

The Lehigh Railroad, an abandoned railroad, is located approximately 0.4 miles north of the Project Area. The NRHP-eligible district resource traverses in a general east-west direction and is not crossed or spanned by the Project. The Project will not affect the abandoned railroad.

Alternative Route A is located approximately 0.1 miles northeast of an NRHP-eligible bridge on Hollow Road. During construction, PPL Electric will minimize potential impacts to the unnamed bridge on Hollow Road by identifying suitable haul routes elsewhere. Overall, Alternative Route A minimizes visual impacts to the surrounding historic resources best by utilizing the existing ROW for the retired Harwood-Berwick 69 kV Transmission Line for the majority of its alignment.

PPL Electric is in the initial stage of coordination with the PHMC for the modifications being made to the transmission lines. This coordination will be required to receive permits to construct the Project and will be conducted in the near future. PPL Electric does not anticipate any impacts to SHPO listed or eligible structures or districts. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to avoid, minimize, and mitigate impacts to archaeological or historic architectural resources that may be located within the Project Area.

4.3 Engineering and Constructability Impacts

Constructability refers to the evaluation of engineering and construction considerations in relation to feasibility of a proposed transmission line. Constructability evaluates the use of existing transmission corridors, engineering challenges, and accessibility issues of a proposed route. Major factors that affect constructability include, but are not limited to, steep topography, condensed ROWs, high angles, proximity to major highways, and accessibility. Additional issues to consider when evaluating constructability are: ease of moving equipment, materials, and workers to the construction sites; relative ease of ensuring public and worker safety; logistical difficulties associated with obtaining the required easements for the transmission line; and the actual amount of time and materials needed for construction, which can correlate to the total length of the corridor

(i.e., longer lines require more materials and, often, a longer construction period). A comparison of the engineering and construction considerations for the Alternative Routes is presented in **Table 4-7**.

Table 4-7. Engineering and Constructability

Resource Criteria	Unit	Alternative Route		
		A	B	B1
Length and ROW				
Length	miles	11.2	12.0	13.2
200-foot-wide ROW	acres	270.5	292.0	321.6
Estimated new ROW acquisition	acres	99.8	243.8	262.7
Angles 15 - 30 degrees	count	6	3	6
Angles 30 - 45 degrees	count	1	2	1
Angles 45+ degrees	count	6	6	7
Uniqueness (length not overlapping other route)	percent	76%	36%	41%
Parcels within ROW	count	88	72	83
Parcels crossed by existing ROW	count	78	42	55
	percent	89%	58%	66%
Right-of-Way				
Existing ROW used/parallel	miles	11.2	2.7	2.7
Other transmission line parallel	miles	-	3.8	5.2
Parcel boundary parallel	miles	-	1.2	1.1
Total	miles	11.2	7.7	9.0
	percent	100%	64%	68%
Infrastructure Crossings				
Existing 69 kV Transmission Line	count	1	1	1
Oil and gas pipeline crossings	count	4	2	2
I-80	count	1	1	1
US Highway	count	-	-	-
State Highway	count	1	2	4
County/Local Road	count	9	7	7
Railroad	count	1	1	1
Topography/Slope				
Steep slopes (> 20%) crossed by the centerline	miles	2.9	2.5	2.8
DCNR abandoned mine land crossed by the centerline	miles	1.1	1.0	1.0

4.3.1 Transmission Right-of-Way

Using existing ROW reduces the amount of vegetation clearing and grading within the ROW and enables use of existing access roads. This reduces project engineering, construction and permitting costs and visual impacts. Paralleling existing infrastructure can provide opportunities to reduce the ROW width by overlapping a portion of the existing ROW and may also provide opportunities to use existing access roads. PPL Electric attempted to minimize route length and ROW acquisition. Where possible, PPL Electric considers using existing transmission ROW, paralleling existing transmission lines, or paralleling other infrastructure (i.e., existing transmission lines, roadways, railways or gas lines).

Alternative Route Comparison

All three Alternative Routes use approximately 2.7 miles of existing ROW from the existing Harwood Substation. However, Alternative Route A continues to utilize an existing corridor for the entirety of its alignment. The majority of this existing ROW was previously maintained for the retired Harwood-Berwick 69 kV Transmission Line.

Since paralleling the existing Susquehanna-Harwood 230 kV Transmission Line for a longer extent was identified as risk from a combined built environment and constructability perspective (see **Section 3.2**), limited existing linear energy infrastructure paralleling opportunities were identified within the north-central portion of the Study Area. As a result, Alternative Routes B and B1 parallel between 3.8 and 5.2 miles of additional 230 kV or 500 kV transmission lines. Although the ROWs do not overlap, paralleling the existing transmission lines reduces the incremental aesthetic impacts compared with routes that do not parallel existing infrastructure.

4.3.2 Engineering Considerations

Potential engineering challenges or difficulties are important to consider when routing a transmission line. Sharp angles, excessive road and stream crossings, narrow ROW alignments, steep topography, and unnecessary length are all elements that could ultimately require extensive engineering and can lead to increases in impacts and overall cost. For example, every turn in the line requires a different, and often more expensive and generally larger, type of structure. PPL Electric considered and attempted to minimize engineering challenges during the siting phase.

Alternative Routes Comparison

Based on preliminary engineering, Alternative Route A is the shortest and most direct route, minimizing the number of angles between 30 and 45 degrees and angles 45 degrees or greater (see **Table 4-7**). In contrast, Alternative Route B would require an additional angle between 30 and 45 degrees and B1 would require an additional angle 45 degrees or greater to circumnavigate various constraints throughout the north-central portion of the Study Area.

As previously discussed throughout this Attachment, the Project Study Area is characterized by variable and steep terrain that ranges between 505 and 1,795 feet above msl. As shown in **Table 4-7**, all three Alternative Routes cross a similar length of steep slopes (20 percent or greater), ranging between 2.5 and 2.9 miles. Additionally, the Alternative Routes cross a similar amount of DCNR abandoned mine land (approximately 1 mile). PPL Electric is aware of the potential geotechnical issues within the Project Study Area and will take this information into account when locating and designing transmission structures and foundations and associated improvements.

All three Alternative Routes require crossing the existing Harwood-Humboldt 69 kV Transmission Line as they exit the existing Harwood Substation to the northwest along their common alignment. No additional HV or EHV crossings are required for any of the Alternative Routes. Transmission line crossings may require specialized structures to maintain line clearances and support the conductors as one of the lines passes over the other. Specialized structures require additional engineering and reduce flexibility when attempting to site individual structures in a way that minimizes impact to farm fields and necessitate scheduled outages on both lines during construction and maintenance.

Because I-80 bisects the Study Area from east to west, each Alternative Route requires one interstate highway crossing. As they leave PPL Electric's existing Harwood Substation, each Alternative Route shares the same centerline for their initial 2.7 miles, crossing PA-924 and a railroad corridor as they parallel existing PPL Electric ROW. As a result of its circuity through the north-central portion of the Study Area, Alternative Route B1 requires two additional State Highway crossings (State Route 93 and State Route 239). Local road crossings were not considered to be a significant constraint for the Project since typical structures can span the minor transportation corridors easily. No U.S. highways are located within the Project Study Area.

Due to the orientations and locations of three existing oil/gas pipelines that traverse the Study Area, the Alternative Routes are anticipated to require between two and four pipeline crossings (see **Table 4-7**). Additional coordination with pipeline companies may be required and additional costs might be incurred for any potential interferences with the pipelines (i.e., cathodic protection).

4.3.3 Project Cost

PPL Electric evaluated the Alternative Routes from a relative cost perspective based on siting, real estate, engineering, procurement, and construction perspectives. It is important to note that relative costs change throughout the process as the project moves from siting to the design, permitting and construction phases of the Project.[10] The relative costs discussed below were developed during the siting process to compare order of magnitude costs.

Alternative Route Comparison

Alternative Route A is the shortest, most direct route and utilizes existing ROW exclusively for the entirety of its alignment. As such, the anticipated acquisition costs for Alternative Route A are considerably lower than Alternative Routes B and B1. Based on preliminary engineering, Alternative Route A requires the least number of angle structures, which will significantly reduce the cost of materials to build the proposed Sugarloaf 500/230 kV Transmission Line.

4.3.4 Engineering and Constructability Summary

Alternative Routes

From a combined engineering and constructability perspective, Alternative Route A is most favorable. It is the shortest, most direct alignment between the Nescopeck Switchyard, Tomhicken Switchyard, and Harwood Substation. Additionally, Alternative Route A utilizes existing ROW for the entirety of its alignment and requires the least number of angle structures.

Although each Alternative Route requires crossing I-80, experience suggests that perpendicular crossings of major highways are preferred by PennDOT. Therefore, Alternative Route A is also most favorable from an interstate highway crossing perspective.

[10] The relative costs were developed using costs for similar projects and without an in-depth analysis of field investigation. The actual cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

Due to the overall physiographic characteristics of the Study Area, the Siting Team anticipates similar topographic and geotechnical challenges regardless of the final Proposed Route. However, Alternative Route A utilizes an existing transmission line ROW for the entirety of its alignment, which could potentially reduce the number of those challenges.

Rebuilt 230 kV Transmission Lines and Tap Line

The rebuilt 230 kV Transmission Lines are located entirely within an existing 150-foot-wide ROW for the existing single-circuit Sunbury-Susquehanna #1 230 kV line. The rebuilt 230 kV Transmission Lines and Tap Line require installing 17 new structures, which will be constructed on properties owned by PPL Electric or where PPL Electric has existing ROW. A network of existing and new access roads will be utilized during construction of the rebuilt 230 kV Transmission Line and Tap Line.

5.0 SELECTION OF THE PROPOSED ROUTE

Based on a qualitative and quantitative review of information obtained from GIS data, existing easements, field reconnaissance, and extensive public outreach as well as engineering and financial estimates for this Project, the Siting Team selected **Alternative Route A as the Proposed Route** (see **Figure 4-4**). The Siting Team concludes that the cumulative environmental, engineering and constructability, and social and financial impacts associated with constructing Alternative Route A are more favorable when compared to Alternative Routes B and B1.

Overall, the 11.2-mile-long Proposed Route for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines is the most direct and shortest route, saving between 0.9 and 2.1 miles as compared to the other Alternative Routes. It is also the only route to utilize an existing transmission ROW corridor for the entirety of its alignment. The shortened length and use of existing ROW substantially reduces the amount of new acquisition needed to expand the existing ROW and complete the Project. Additionally, by maximizing the existing ROW for its entire alignment, the Proposed Route significantly reduces the number of new access roads and robust angle structures (greater than 45 degrees), and thereby specifically reduces overall impacts to constructability.

Furthermore, maximizing existing ROW opportunities significantly reduces impacts to the natural and human environments. Although the Proposed Route for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines crosses the most properties, minimal aesthetic impact is anticipated since the entire alignment utilizes an existing ROW corridor which already crosses the majority of those properties and formerly hosted the Harwood-Berwick 69 kV transmission line. In addition to reduced viewshed impacts by utilizing a corridor for a recently retired transmission line, the Proposed Route for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines minimizes impacts to residential and commercial or industrial properties to the best extent practicable by broadly avoiding road crossings in close proximity to houses. Alternative Route A also avoids circuitous cross-country options that increase new cumulative impacts. These route considerations will reduce right-of-way acquisition risks considerably.

Moreover, the rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines effectively minimize increasing the cumulative impacts of the overall Project since they will be constructed entirely within existing ROW or property owned by PPL.

Collectively, PPL Electric's Proposed Route for the new Nescopeck-Tomhicken #1 and Nescopeck-Harwood #1 500/230 kV Transmission Lines: (1) is most consistent with the siting guidelines listed in **Section 2.4**; (2) reasonably minimizes adverse impacts on existing land uses and the visual, natural, and human environments; (3) minimizes special design requirements and unreasonable costs; (4) right-of-way can be acquired with the least inconvenience on landowners and in a timely manner; and (5) can be constructed and operated in a safe, timely, and reliable manner. Based on this analysis and PPL Electric's extensive experience, the Proposed Route is the most suitable, constructable, and accessible route, with the lowest risk and least overall impacts.

A set of seven 8.5 x 11 aerial maps detailing the final Proposed Route are included at the end of this Attachment. The aerial photographs show the final Propose Route centerline, proposed edge of ROW, property boundaries, property owners along the ROW with property ID numbers corresponding to each owner, and other information required under 52 Pa. Code § 57.72(c)(13)(i).

6.0 PUBLIC OUTREACH

Public outreach is a significant component of the siting process. PPL Electric conducted extensive public outreach throughout the siting process, including regulatory agency consultation, public notification and open house meetings, and meetings with property owners.

Following the selection of the Proposed Route, PPL Electric representatives mailed letters to area landowners on April 7, 2025, providing information about the Project. The Project announcement, which referred to the Project as the "Sugarloaf 500/230 kV Project," included information on the construction of approximately 12 miles of new 500/230 kV transmission line and building the new Nescopeck and Tomhicken switchyards. The mailings to property owners included a letter providing an overview of the Project, a link to the project website (pplelectric.com/sugarloafproject) and project email address (SugarloafProject@pplweb.com). The mailing also included a fact sheet with additional information about construction and Project timelines, as well as contact information for the Lead Right of Way Agent, Matt Sly.

6.1 Outreach Media

Prior to conducting public open house meetings, PPL Electric's Regional Affairs Director contacted local officials to discuss the Project, as described in **Section 3.3.3**. On April 7, 2025, PPL Electric mailed public notices to all property owners located within 500 feet of the Proposed Route to notify them about the April 30, 2025, open house meeting. In addition, PPL Electric placed an advertisement in two local newspapers, *Press Enterprise* on April 17, 2025, and the *Hazleton Standard Speaker* on April 22, 2025, to announce the Project and public open house.

6.2 Public Open House

A public meeting was held on April 30, 2025, between 6 p.m. and 8 p.m. at the Valley Country Club, located at 79 Country Club Lane, Sugarloaf, PA 18249 to present the Proposed Route and provide information about the Sugarloaf 500/230 kV Transmission Line Project. At the meeting, attendees received a welcome packet including the Project fact sheet, Project frequently asked questions ("FAQs"), and electromagnetic field ("EMF") FAQs and comment cards. The public information meeting provided an opportunity for residents and other interested parties to review project information displays and discuss the Project with PPL Electric representatives. The fact sheet contained a brief statement on the Project need, a description of the siting process, and a

preliminary Project timeline. The public meeting was organized in an open house format and consisted of several stations that identified the Project processes. These stations included the following:

1. Welcome station located at the entrance for attendees to sign-in;
2. Project Need station providing an overall summary and explaining the planning process;
3. Route Selection station detailing the siting process and including aerial maps showing the Proposed Route and parcel boundaries;
4. Right-of-Way station explaining the easement acquisition process;
5. Engineering station detailing the specifications for the new transmission line;
6. Environmental station explaining the permitting process;
7. Construction station detailing the specifics for constructing the new transmission line; and
8. Next Steps station explaining the project schedule and how to stay informed.

Approximately 110 attendees signed in, and approximately 250 to 300 guests attended the public meeting. Most attendees lived in areas outside of the Study Area and several miles from the Proposed Route. Twelve comment cards were completed during the open house. The comments from attendees generally expressed opposition regarding the proposed location of the 500/230 kV line and suggested a parallel alignment adjacent to the existing Susquehanna-Harwood 230 kV transmission line (Potential Routes 2 and 3), which was a route reviewed extensively by the Siting Team (discussed in detail under **Section 4**). Other comments were geared towards the primary users of the power, proposed structure characteristics, general engineering parameters, perceived property value ramifications, and health and magnetic field details. PPL Electric reviewed these comments and followed up with the commenters to answer any outstanding questions.

6.3 Open House Debrief

After announcing the selection of the Proposed Route in April 2025, PPL Electric thoroughly reviewed the information obtained during the public meeting, along with the comments received. As a result, PPL Electric took the information received into consideration to address landowner concerns and make modifications to the Project plan, where practical. PPL Electric also reached out to affected landowners crossed by the rebuilt Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and rebuilt Sunbury-Nescopeck #1 230 kV Tap Line to discuss the Project. In

addition, the Siting Team began preparing the Full Siting Application pursuant to 52 Pa. Code Chapter 57, Subchapter G for PUC approval to construct the Project.

7.0 COMPLIANCE WITH POTENTIAL PERMIT AND MITIGATION REQUIREMENTS

This section describes the subsequent investigation and agency consultation activities that have been conducted for the Proposed Route. Additional information on the anticipated permits required for this Project are identified in **Attachment 7** and agency consultation letters are included in **Attachment 14**.

Wetlands and Waterways

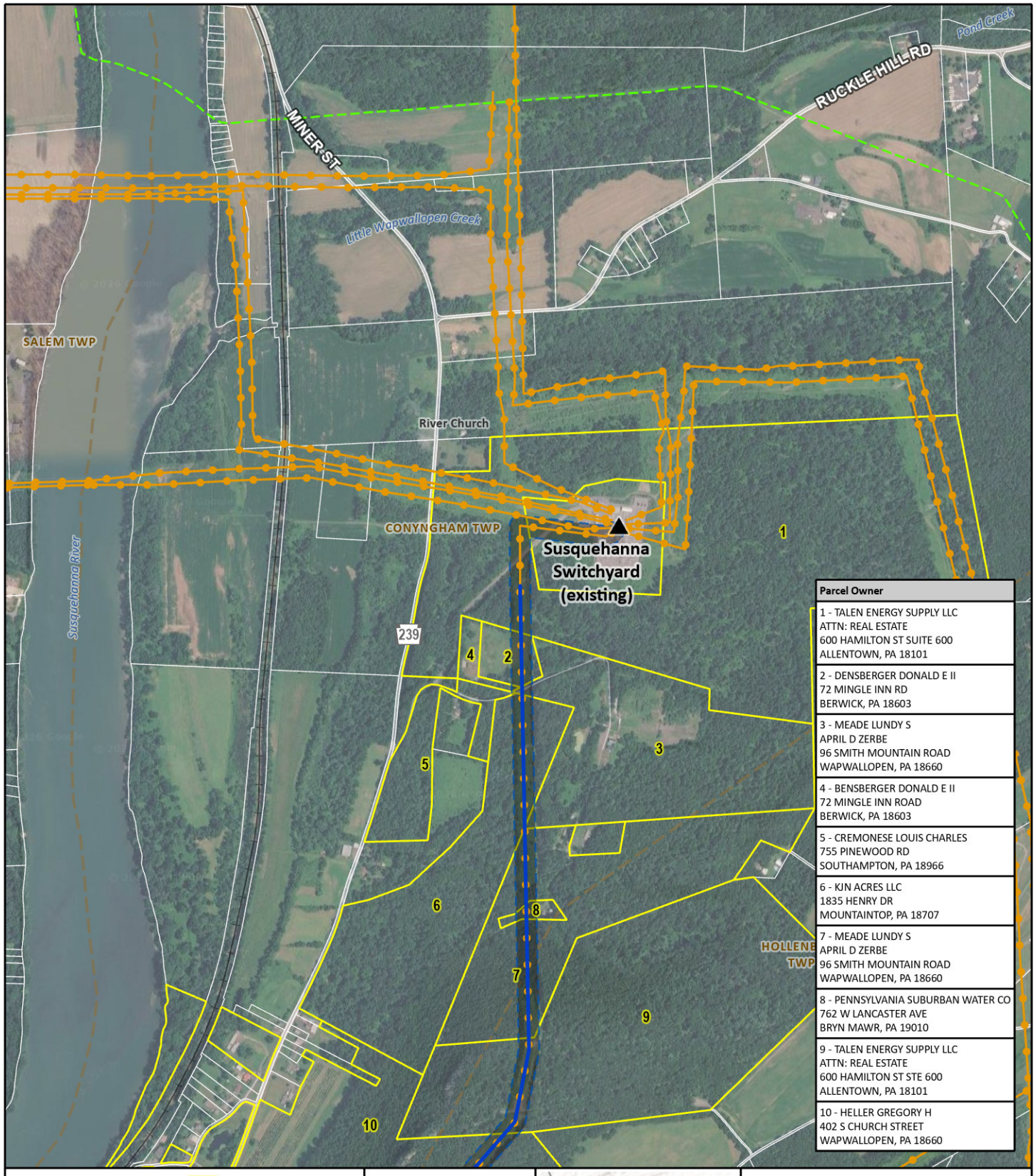
Wetlands and waterways within the right-of-way of the Project have been delineated using PADEP- and USACE-approved methodologies. The findings from the delineation were developed into a Wetland Delineation Report that will be filed with the Permit Application required for the construction of this Project. Information on the location of these features has been used by project engineers to help guide the placement of transmission poles and alignment of access roads. Based on current engineering design, no proposed poles will be located in a wetland area. Evaluation of the development of temporary versus permanent access roads through wetlands and across waterways is being conducted by project engineers. Unavoidable impacts to these features will be reviewed with the Luzerne CCD, PADEP, and USACE to determine the form and level of mitigation that will be required. Pre-application meetings with these agencies have been coordinated and discussions regarding the project are on-going.

State and Federally Threatened and Endangered Species Consultation

The Project's final online PNDI review noted potential impact to screw stem (*Bartonia paniculata ssp. paniculata*), a state rare vascular plant species. PPL Electric will conduct field surveys in 2026, during blooming season, to determine if the species is present. If present, PPL Electric will coordinate with DCNR on mitigation plans such as clear matting, which was used on a similar project in the area. PNDI also indicated impacts to long eared bat species known to occur in proximity to the Project Area. PPL will adhere to time of year restrictions for any tree clearing to mitigate impacts to the species. The remaining agencies reported no known impacts to threatened and endangered species and/or special concern species and resources within the Project Area.

Cultural Resource Consultation

PPL Electric will conduct an on-line review through the Pennsylvania State Historic Preservation Office (SHPO) PA-SHARE in second quarter of 2026. Based on prior projects completed in this right of way corridor, no impacts to archeological and historic architectural resources are anticipated.

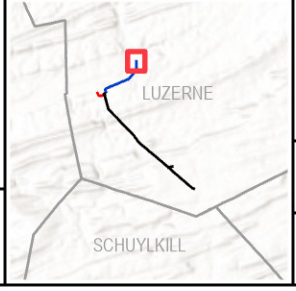


Parcel Owner
1 - TALEN ENERGY SUPPLY LLC ATTN: REAL ESTATE 600 HAMILTON ST SUITE 600 ALLENTOWN, PA 18101
2 - DENSBERGER DONALD E II 72 MINGLE INN RD BERWICK, PA 18603
3 - MEADE LUNDY S APRIL D ZERBE 96 SMITH MOUNTAIN ROAD WAPWALLOPEN, PA 18660
4 - BENSBERGER DONALD E II 72 MINGLE INN ROAD BERWICK, PA 18603
5 - CREMONESE LOUIS CHARLES 755 PINEWOOD RD SOUTHAMPTON, PA 18966
6 - KJN ACRES LLC 1835 HENRY DR MOUNTAINTOP, PA 18707
7 - MEADE LUNDY S APRIL D ZERBE 96 SMITH MOUNTAIN ROAD WAPWALLOPEN, PA 18660
8 - PENNSYLVANIA SUBURBAN WATER CO 762 W LANCASTER AVE BRYN MAWR, PA 19010
9 - TALEN ENERGY SUPPLY LLC ATTN: REAL ESTATE 600 HAMILTON ST STE 600 ALLENTOWN, PA 18101
10 - HELLER GREGORY H 402 S CHURCH STREET WAPWALLOPEN, PA 18660

Substation or Switchyard
Rebuilt 230 kV Transmission Lines
Existing 150-foot ROW
Parcels Crossed
Railroad
Existing Transmission Line
Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83



Sugarloaf 500/230 kV Transmission Line Project

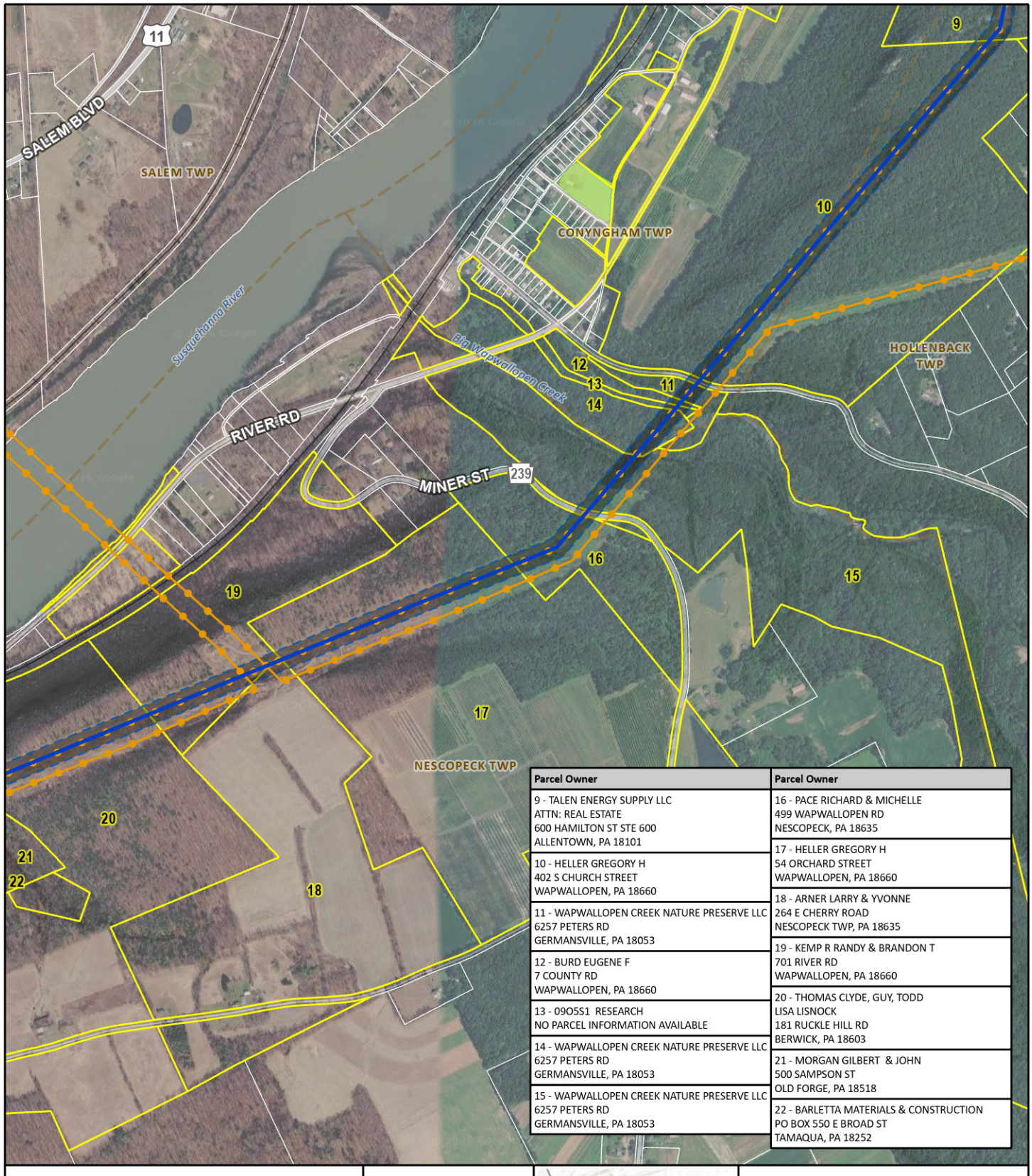
Aerial Exhibit (Page 1 of 10)

ppl

wsp

0 500 1,000 Feet

N

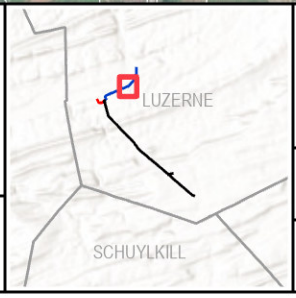


Parcel Owner	Parcel Owner
9 - TALEN ENERGY SUPPLY LLC ATTN: REAL ESTATE 600 HAMILTON ST STE 600 ALLENTOWN, PA 18101	16 - PACE RICHARD & MICHELLE 499 WAPWALLOPEN RD NESCOPECK, PA 18635
10 - HELLER GREGORY H 402 S CHURCH STREET WAPWALLOPEN, PA 18660	17 - HELLER GREGORY H 54 ORCHARD STREET WAPWALLOPEN, PA 18660
11 - WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053	18 - ARNER LARRY & YVONNE 264 E CHERRY ROAD NESCOPECK TWP, PA 18635
12 - BURD EUGENE F 7 COUNTY RD WAPWALLOPEN, PA 18660	19 - KEMP R RANDY & BRANDON T 701 RIVER RD WAPWALLOPEN, PA 18660
13 - 09O5S1 RESEARCH NO PARCEL INFORMATION AVAILABLE	20 - THOMAS CLYDE, GUY, TODD LISA LISNOCK 181 RUCKLE HILL RD BERWICK, PA 18603
14 - WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053	21 - MORGAN GILBERT & JOHN 500 SAMPSON ST OLD FORGE, PA 18518
15 - WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053	22 - BARLETTA MATERIALS & CONSTRUCTION PO BOX 550 E BROAD ST TAMAQUA, PA 18252

Rebuilt 230 kV Transmission Lines
Existing 150-foot ROW
Parcels Crossed
Railroad
Existing Transmission Line
Local Park or Recreation Area

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83



Sugarloaf 500/230 kV Transmission Line Project

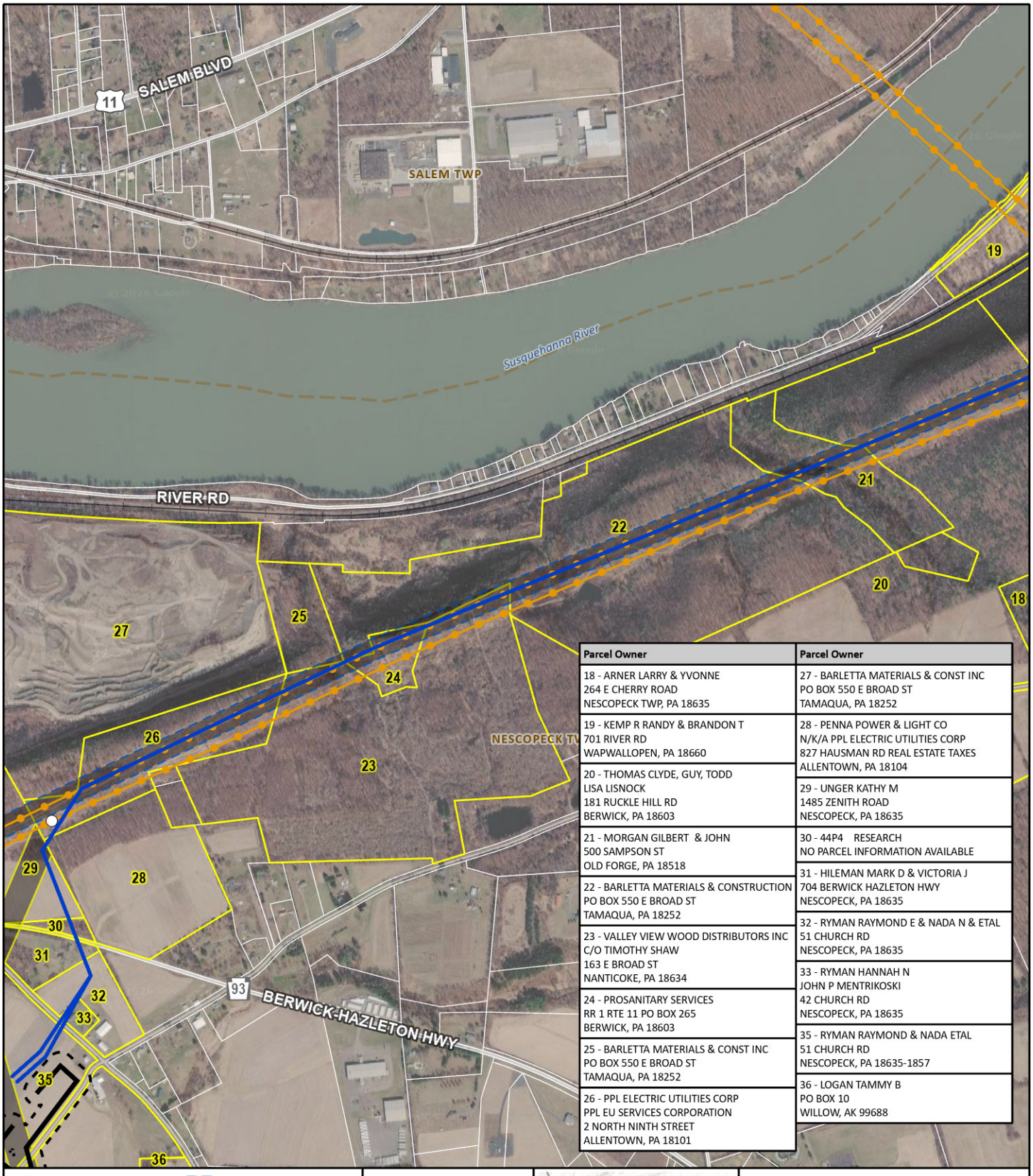
Aerial Exhibit (Page 2 of 10)

ppl

wsp

0 500 1,000 Feet

N

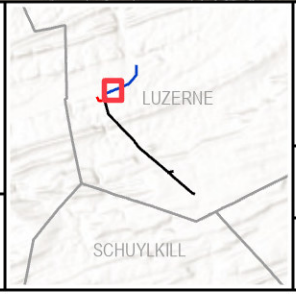


Parcel Owner	Parcel Owner
18 - ARNER LARRY & YVONNE 264 E CHERRY ROAD NESCOPECK TWP, PA 18635	27 - BARLETTA MATERIALS & CONST INC PO BOX 550 E BROAD ST TAMAQUA, PA 18252
19 - KEMP R RANDY & BRANDON T 701 RIVER RD WAPWALLOPEN, PA 18660	28 - PENNA POWER & LIGHT CO N/K/A PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104
20 - THOMAS CLYDE, GUY, TODD LISA LISNOCK 181 RUCKLE HILL RD BERWICK, PA 18603	29 - UNGER KATHY M 1485 ZENITH ROAD NESCOPECK, PA 18635
21 - MORGAN GILBERT & JOHN 500 SAMPSON ST OLD FORGE, PA 18518	30 - 44P4 RESEARCH NO PARCEL INFORMATION AVAILABLE
22 - BARLETTA MATERIALS & CONSTRUCTION PO BOX 550 E BROAD ST TAMAQUA, PA 18252	31 - HILEMAN MARK D & VICTORIA J 704 BERWICK HAZLETON HWY NESCOPECK, PA 18635
23 - VALLEY VIEW WOOD DISTRIBUTORS INC C/O TIMOTHY SHAW 163 E BROAD ST NANTICOKE, PA 18634	32 - RYMAN RAYMOND E & NADA N & ETAL 51 CHURCH RD NESCOPECK, PA 18635
24 - PROSANITARY SERVICES RR 1 RTE 11 PO BOX 265 BERWICK, PA 18603	33 - RYMAN HANNAH N JOHN P MENTRIKOSKI 42 CHURCH RD NESCOPECK, PA 18635
25 - BARLETTA MATERIALS & CONST INC PO BOX 550 E BROAD ST TAMAQUA, PA 18252	35 - RYMAN RAYMOND & NADA ETAL 51 CHURCH RD NESCOPECK, PA 18635-1857
26 - PPL ELECTRIC UTILITIES CORP PPL EU SERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101	36 - LOGAN TAMMY B PO BOX 10 WILLOW, AK 99688

- Structure to be Raised
- Proposed Route
- Rebuilt 230 kV Transmission Lines
- Proposed 200-foot ROW
- Existing 150-foot ROW
- Existing ROW
- Parcels Crossed
- Railroad
- Existing Transmission Line

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83

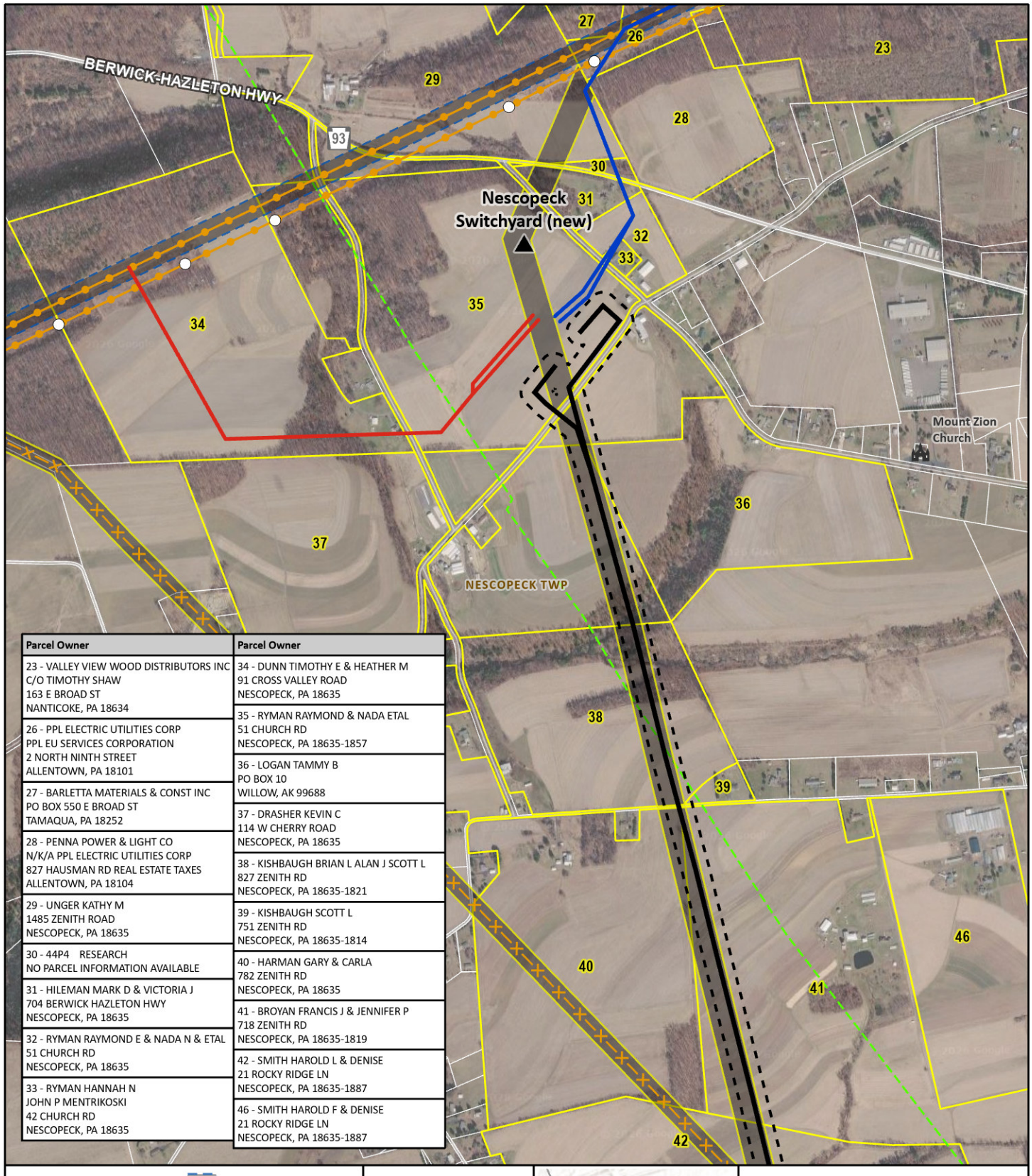


Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 3 of 10)

ppl wsp

0 500 1,000 Feet



Parcel Owner	Parcel Owner
23 - VALLEY VIEW WOOD DISTRIBUTORS INC C/O TIMOTHY SHAW 163 E BROAD ST NANTICOKE, PA 18634	34 - DUNN TIMOTHY E & HEATHER M 91 CROSS VALLEY ROAD NESCOPECK, PA 18635
26 - PPL ELECTRIC UTILITIES CORP PPL EU SERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101	35 - RYMAN RAYMOND & NADA ETAL 51 CHURCH RD NESCOPECK, PA 18635-1857
27 - BARLETTA MATERIALS & CONST INC PO BOX 550 E BROAD ST TAMAQUA, PA 18252	36 - LOGAN TAMMY B PO BOX 10 WILLOW, AK 99688
28 - PENNA POWER & LIGHT CO N/K/A PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104	37 - DRASHER KEVIN C 114 W CHERRY ROAD NESCOPECK, PA 18635
29 - UNGER KATHY M 1485 ZENITH ROAD NESCOPECK, PA 18635	38 - KISHBAUGH BRIAN L ALAN J SCOTT L 827 ZENITH RD NESCOPECK, PA 18635-1821
30 - 44P4 RESEARCH NO PARCEL INFORMATION AVAILABLE	39 - KISHBAUGH SCOTT L 751 ZENITH RD NESCOPECK, PA 18635-1814
31 - HILEMAN MARK D & VICTORIA J 704 BERWICK HAZLETON HWY NESCOPECK, PA 18635	40 - HARMAN GARY & CARLA 782 ZENITH RD NESCOPECK, PA 18635
32 - RYMAN RAYMOND E & NADA N & ETAL 51 CHURCH RD NESCOPECK, PA 18635	41 - BROYAN FRANCIS J & JENNIFER P 718 ZENITH RD NESCOPECK, PA 18635-1819
33 - RYMAN HANNAH N JOHN P MENTRIKOSKI 42 CHURCH RD NESCOPECK, PA 18635	42 - SMITH HAROLD L & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887
	46 - SMITH HAROLD F & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887

- Substation or Switchyard
- Structure to be Raised
- Proposed Route
- Tap Line
- Rebuilt 230 kV Transmission Lines
- Proposed 200-foot ROW
- Existing 150-foot ROW
- Existing ROW
- Parcels Crossed
- Harwood - Berwick 69 kV Transmission Line (removed)
- Existing Transmission Line
- Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83

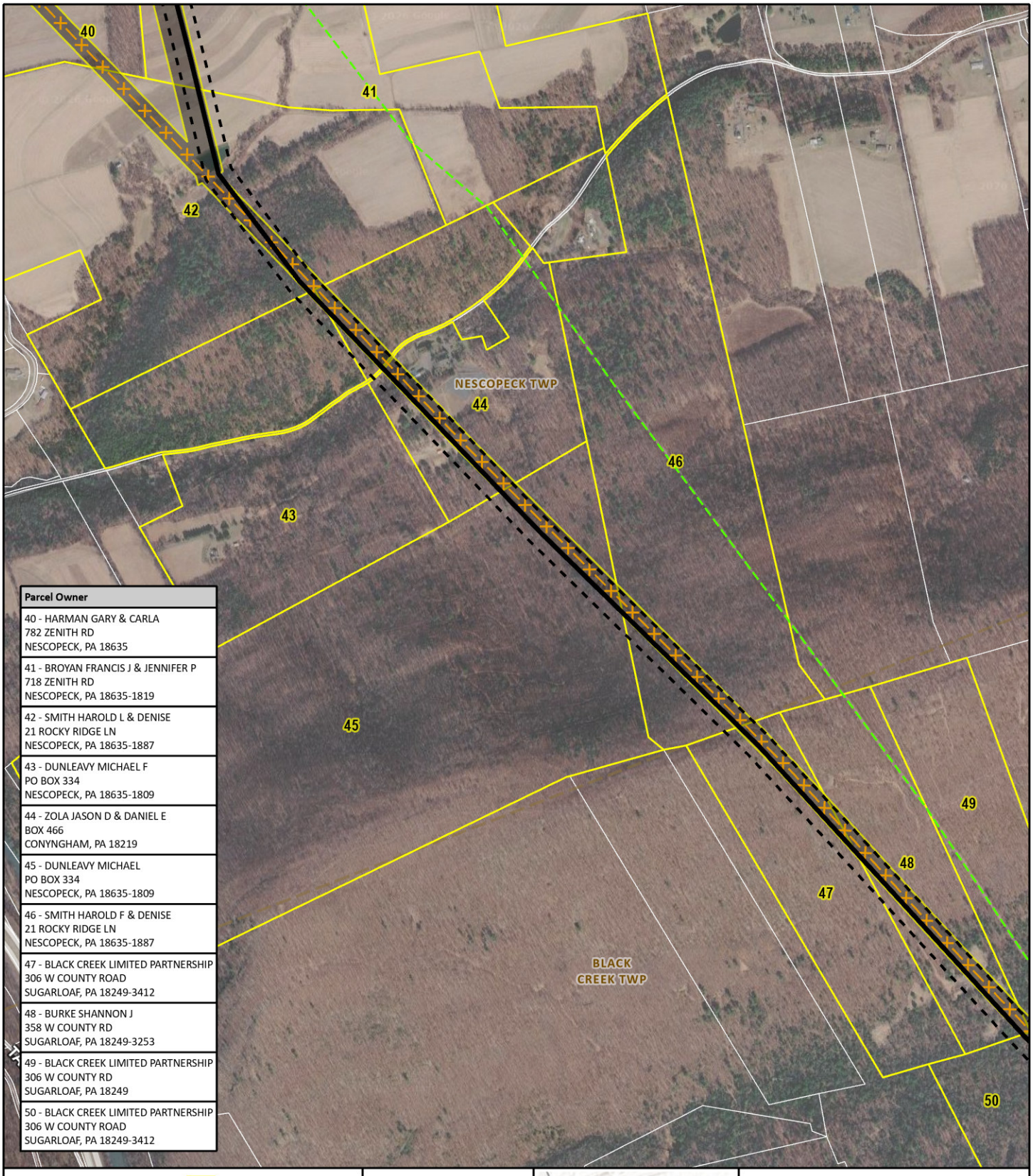


Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 4 of 10)

ppl wsp

0 500 1,000 Feet



Parcel Owner
40 - HARMAN GARY & CARLA 782 ZENITH RD NESCOPECK, PA 18635
41 - BROYAN FRANCIS J & JENNIFER P 718 ZENITH RD NESCOPECK, PA 18635-1819
42 - SMITH HAROLD L & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887
43 - DUNLEAVY MICHAEL F PO BOX 334 NESCOPECK, PA 18635-1809
44 - ZOLA JASON D & DANIEL E BOX 466 CONYNGHAM, PA 18219
45 - DUNLEAVY MICHAEL PO BOX 334 NESCOPECK, PA 18635-1809
46 - SMITH HAROLD F & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887
47 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412
48 - BURKE SHANNON J 358 W COUNTY RD SUGARLOAF, PA 18249-3253
49 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249
50 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412

Proposed Route
Proposed 200-foot ROW
Existing ROW
Parcels Crossed
Harwood - Berwick 69 kV Transmission Line (removed)
Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83



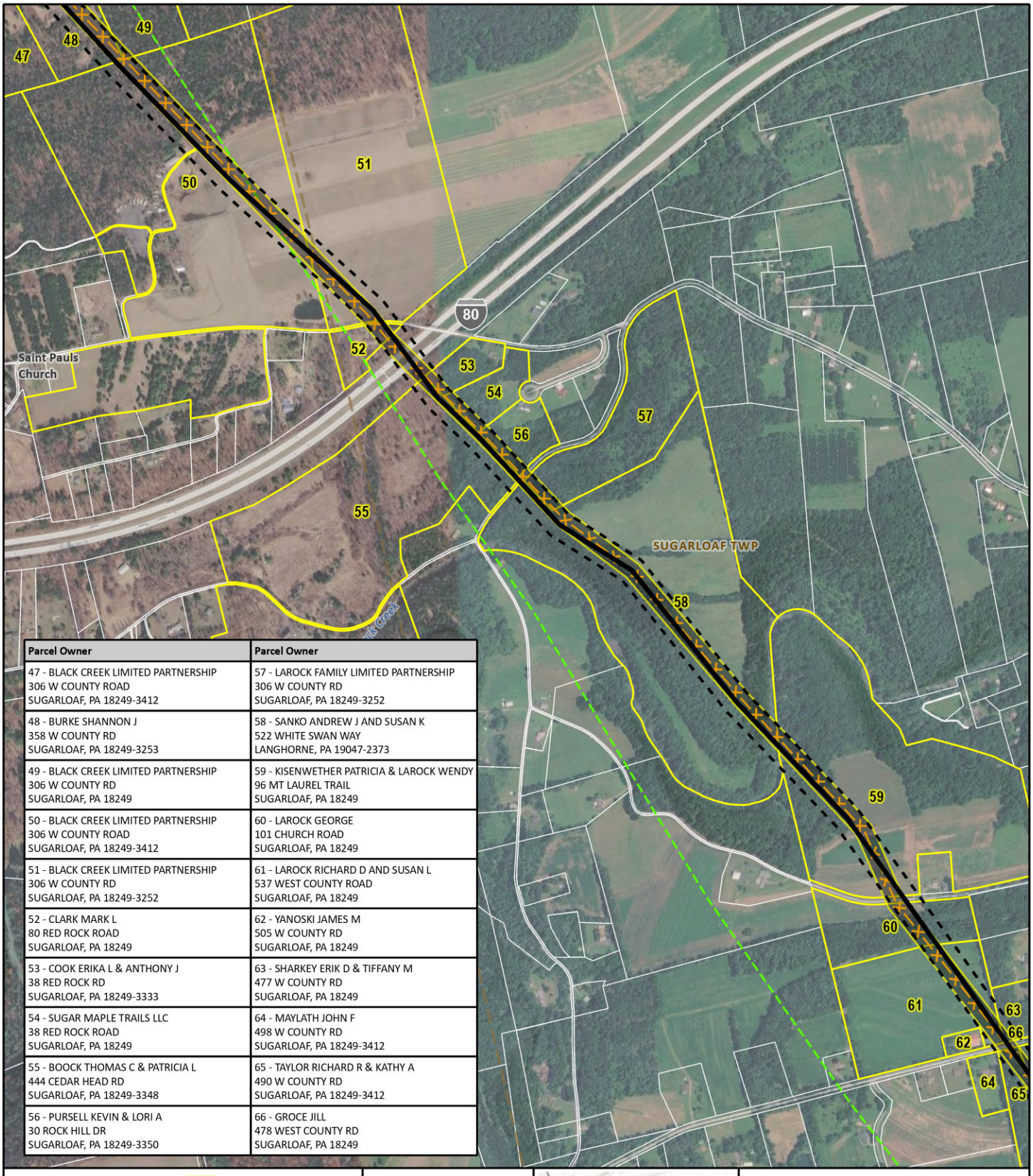
Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 5 of 10)

ppl wsp

0 500 1,000 Feet

N



Parcel Owner	Parcel Owner
47 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412	57 - LAROCK FAMILY LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249-3252
48 - BURKE SHANNON J 358 W COUNTY RD SUGARLOAF, PA 18249-3253	58 - SANKO ANDREW J AND SUSAN K 522 WHITE SWAN WAY LANGHORNE, PA 19047-2373
49 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249	59 - KISENWETHER PATRICIA & LAROCK WENDY 96 MT LAUREL TRAIL SUGARLOAF, PA 18249
50 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412	60 - LAROCK GEORGE 101 CHURCH ROAD SUGARLOAF, PA 18249
51 - BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249-3252	61 - LAROCK RICHARD D AND SUSAN L 537 WEST COUNTY ROAD SUGARLOAF, PA 18249
52 - CLARK MARK L 80 RED ROCK ROAD SUGARLOAF, PA 18249	62 - YANOSKI JAMES M 505 W COUNTY RD SUGARLOAF, PA 18249
53 - COOK ERIKA L & ANTHONY J 38 RED ROCK RD SUGARLOAF, PA 18249-3333	63 - SHARKEY ERIK D & TIFFANY M 477 W COUNTY RD SUGARLOAF, PA 18249
54 - SUGAR MAPLE TRAILS LLC 38 RED ROCK ROAD SUGARLOAF, PA 18249	64 - MAYLATH JOHN F 498 W COUNTY RD SUGARLOAF, PA 18249-3412
55 - BOOCK THOMAS C & PATRICIA L 444 CEDAR HEAD RD SUGARLOAF, PA 18249-3348	65 - TAYLOR RICHARD R & KATHY A 490 W COUNTY RD SUGARLOAF, PA 18249-3412
56 - PURSELL KEVIN & LORI A 30 ROCK HILL DR SUGARLOAF, PA 18249-3350	66 - GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249

Proposed Route
Proposed 200-foot ROW
Existing ROW
Parcels Crossed
Harwood - Berwick 69 kV Transmission Line (removed)
Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83

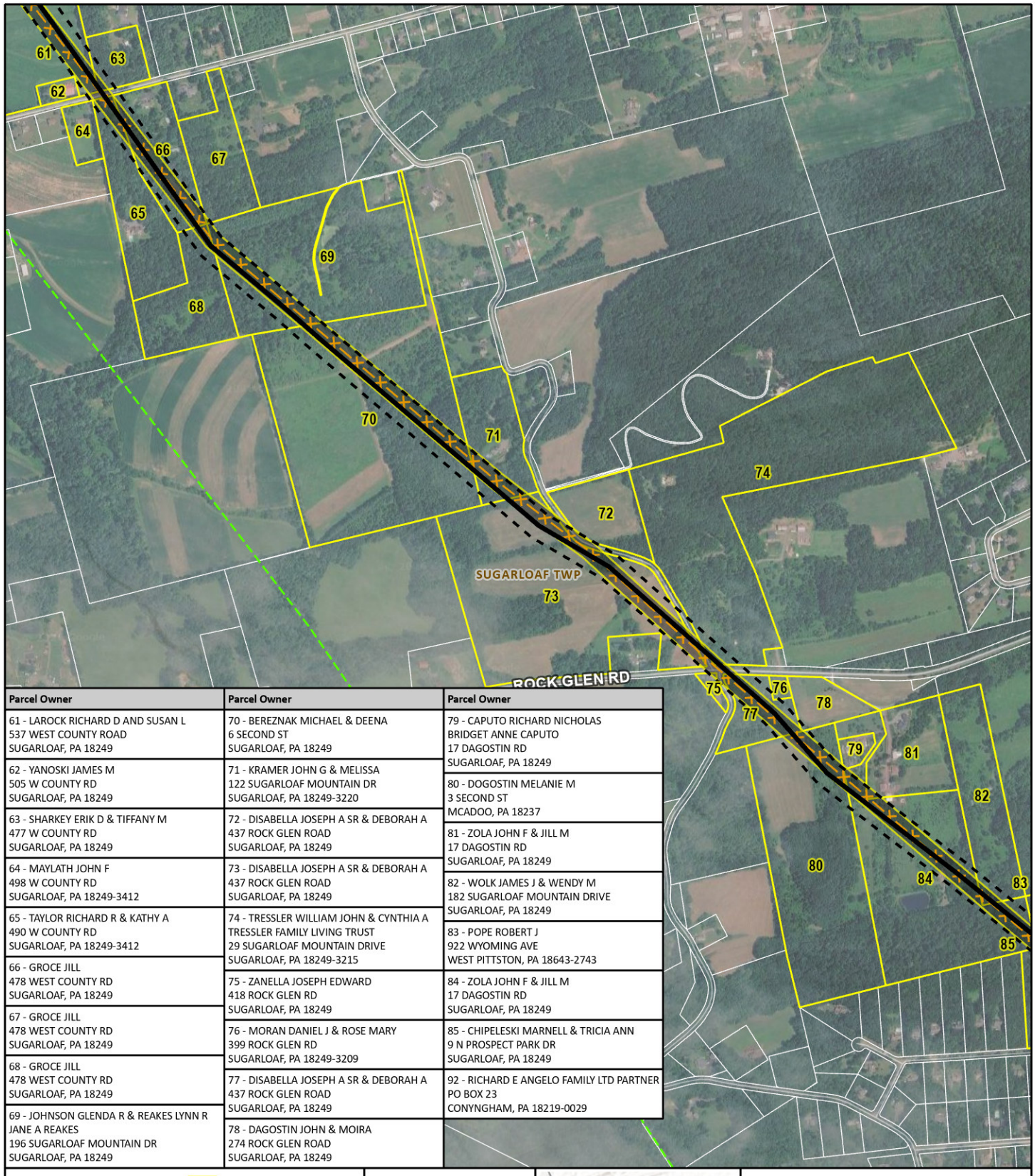


Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 6 of 10)

ppl
wsp

0 500 1,000 Feet

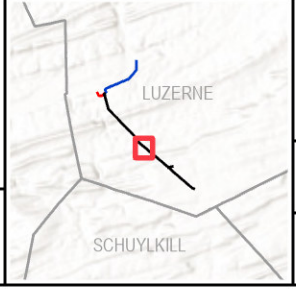


Parcel Owner	Parcel Owner	Parcel Owner
61 - LAROCK RICHARD D AND SUSAN L 537 WEST COUNTY ROAD SUGARLOAF, PA 18249	70 - BEREZNAK MICHAEL & DEENA 6 SECOND ST SUGARLOAF, PA 18249	79 - CAPUTO RICHARD NICHOLAS BRIDGET ANNE CAPUTO 17 DAGOSTIN RD SUGARLOAF, PA 18249
62 - YANOSKI JAMES M 505 W COUNTY RD SUGARLOAF, PA 18249	71 - KRAMER JOHN G & MELISSA 122 SUGARLOAF MOUNTAIN DR SUGARLOAF, PA 18249-3220	80 - DOGOSTIN MELANIE M 3 SECOND ST MCADOO, PA 18237
63 - SHARKEY ERIK D & TIFFANY M 477 W COUNTY RD SUGARLOAF, PA 18249	72 - DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249	81 - ZOLA JOHN F & JILL M 17 DAGOSTIN RD SUGARLOAF, PA 18249
64 - MAYLATH JOHN F 498 W COUNTY RD SUGARLOAF, PA 18249-3412	73 - DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249	82 - WOLK JAMES J & WENDY M 182 SUGARLOAF MOUNTAIN DRIVE SUGARLOAF, PA 18249
65 - TAYLOR RICHARD R & KATHY A 490 W COUNTY RD SUGARLOAF, PA 18249-3412	74 - TRESSLER WILLIAM JOHN & CYNTHIA A TRESSLER FAMILY LIVING TRUST 29 SUGARLOAF MOUNTAIN DRIVE SUGARLOAF, PA 18249-3215	83 - POPE ROBERT J 922 WYOMING AVE WEST PITTSTON, PA 18643-2743
66 - GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249	75 - ZANELLA JOSEPH EDWARD 418 ROCK GLEN RD SUGARLOAF, PA 18249	84 - ZOLA JOHN F & JILL M 17 DAGOSTIN RD SUGARLOAF, PA 18249
67 - GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249	76 - MORAN DANIEL J & ROSE MARY 399 ROCK GLEN RD SUGARLOAF, PA 18249-3209	85 - CHIPELESKI MARNELL & TRICIA ANN 9 N PROSPECT PARK DR SUGARLOAF, PA 18249
68 - GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249	77 - DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249	92 - RICHARD E ANGELO FAMILY LTD PARTNER PO BOX 23 CONYNGHAM, PA 18219-0029
69 - JOHNSON GLENDA R & REAKES LYNN R JANE A REAKES 196 SUGARLOAF MOUNTAIN DR SUGARLOAF, PA 18249	78 - DAGOSTIN JOHN & MOIRA 274 ROCK GLEN ROAD SUGARLOAF, PA 18249	

Proposed Route
Proposed 200-foot ROW
Existing ROW
Parcels Crossed
Harwood - Berwick 69 kV Transmission Line (removed)
Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83

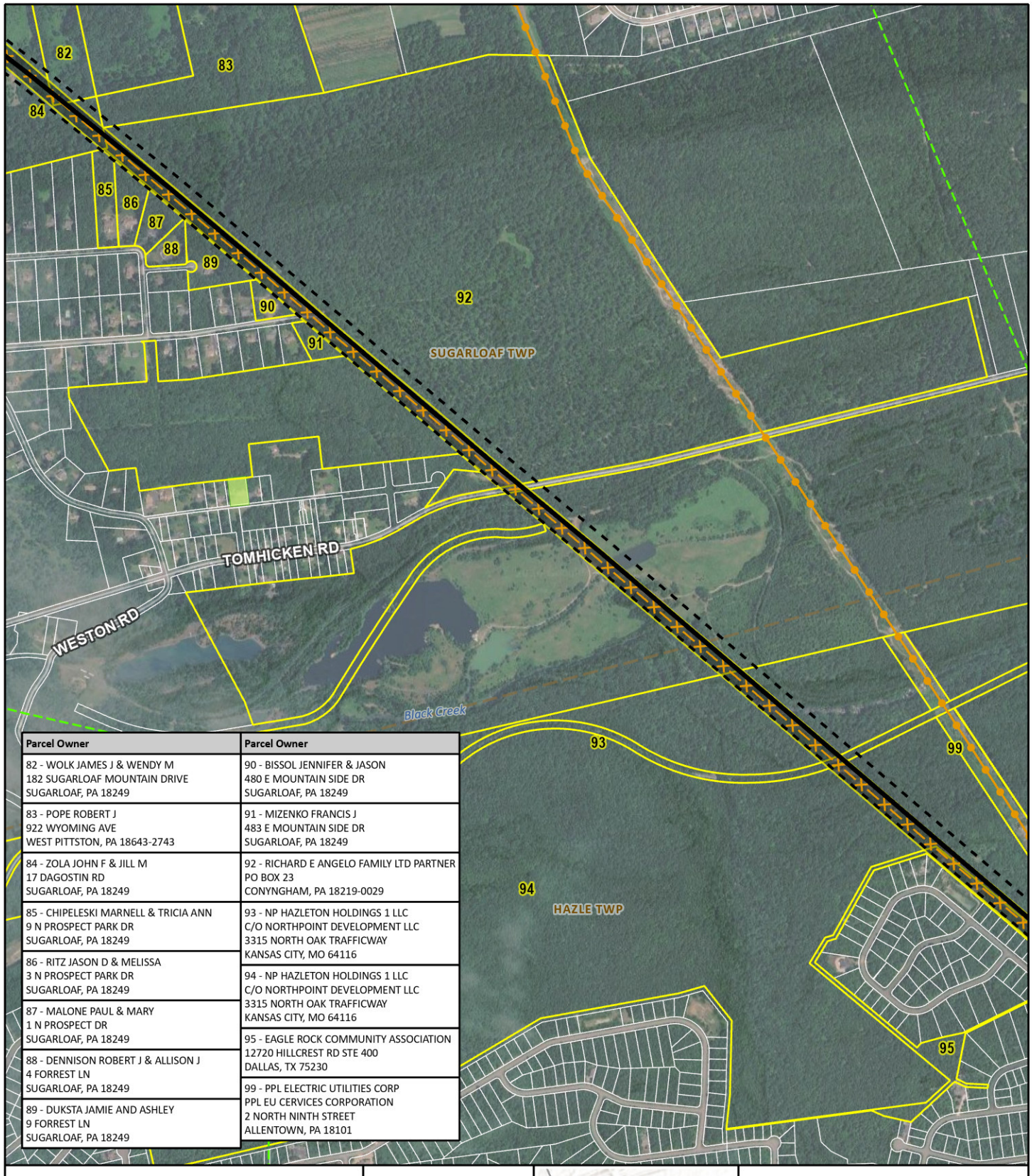


Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 7 of 10)

ppl
wsp

0 500 1,000 Feet

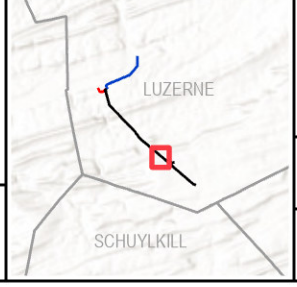


Parcel Owner	Parcel Owner
82 - WOLK JAMES J & WENDY M 182 SUGARLOAF MOUNTAIN DRIVE SUGARLOAF, PA 18249	90 - BISSOL JENNIFER & JASON 480 E MOUNTAIN SIDE DR SUGARLOAF, PA 18249
83 - POPE ROBERT J 922 WYOMING AVE WEST PITTSTON, PA 18643-2743	91 - MIZENKO FRANCIS J 483 E MOUNTAIN SIDE DR SUGARLOAF, PA 18249
84 - ZOLA JOHN F & JILL M 17 DAGOSTIN RD SUGARLOAF, PA 18249	92 - RICHARD E ANGELO FAMILY LTD PARTNER PO BOX 23 CONYNGHAM, PA 18219-0029
85 - CHIPELESKI MARNELL & TRICIA ANN 9 N PROSPECT PARK DR SUGARLOAF, PA 18249	93 - NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116
86 - RITZ JASON D & MELISSA 3 N PROSPECT PARK DR SUGARLOAF, PA 18249	94 - NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116
87 - MALONE PAUL & MARY 1 N PROSPECT DR SUGARLOAF, PA 18249	95 - EAGLE ROCK COMMUNITY ASSOCIATION 12720 HILLCREST RD STE 400 DALLAS, TX 75230
88 - DENNISON ROBERT J & ALLISON J 4 FORREST LN SUGARLOAF, PA 18249	99 - PPL ELECTRIC UTILITIES CORP PPL EU CERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101
89 - DUKSTA JAMIE AND ASHLEY 9 FORREST LN SUGARLOAF, PA 18249	

- Proposed Route
- Proposed 200-foot ROW
- Existing ROW
- Parcels Crossed
- Harwood - Berwick 69 kV Transmission Line (removed)
- Existing Transmission Line
- Pipeline
- Local Park or Recreation Area

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83

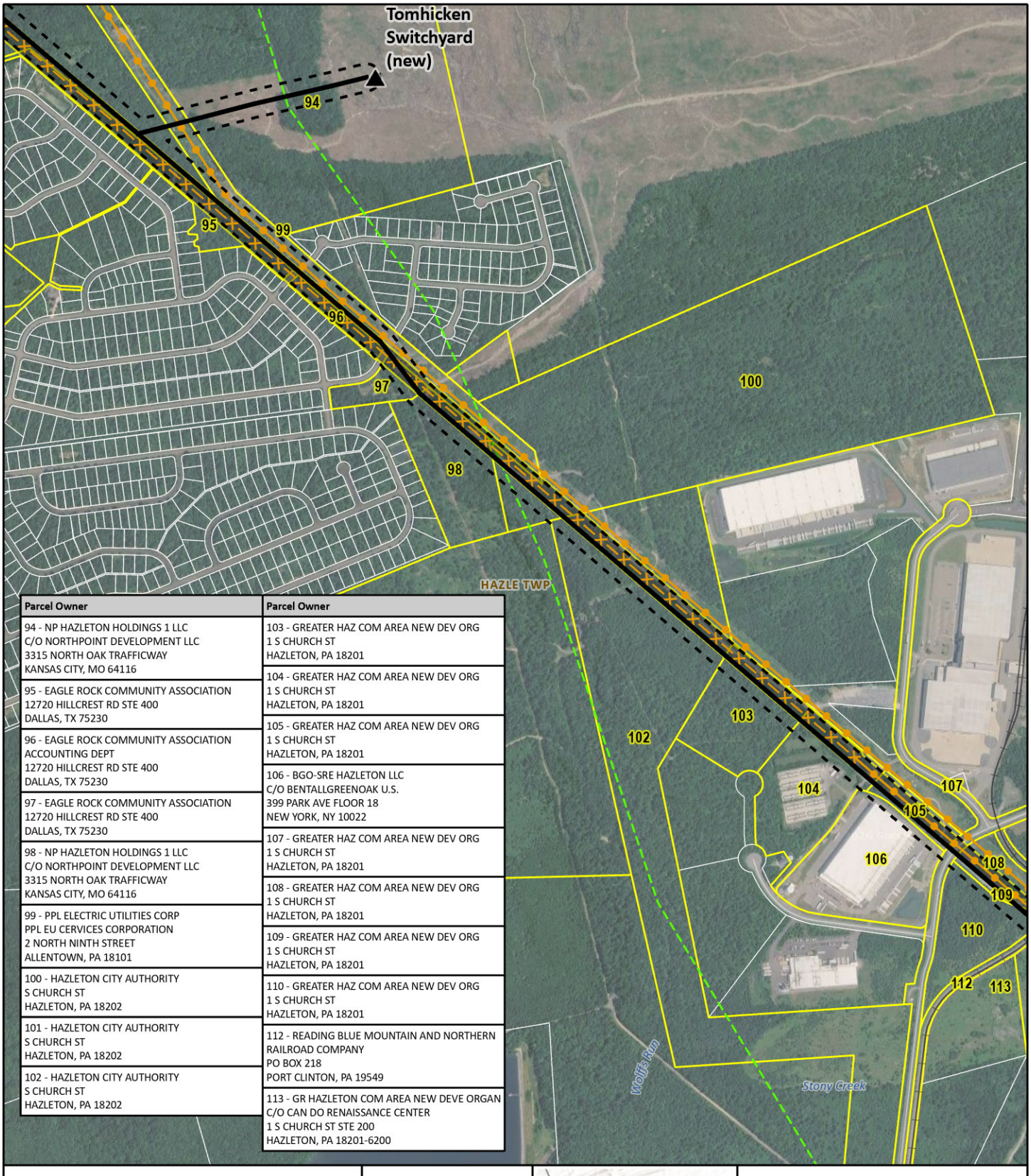


Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 8 of 10)

ppl wsp

0 500 1,000 Feet



Parcel Owner	Parcel Owner
94 - NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116	103 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
95 - EAGLE ROCK COMMUNITY ASSOCIATION 12720 HILLCREST RD STE 400 DALLAS, TX 75230	104 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
96 - EAGLE ROCK COMMUNITY ASSOCIATION ACCOUNTING DEPT 12720 HILLCREST RD STE 400 DALLAS, TX 75230	105 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
97 - EAGLE ROCK COMMUNITY ASSOCIATION 12720 HILLCREST RD STE 400 DALLAS, TX 75230	106 - BGO-SRE HAZLETON LLC C/O BENTALLGREENOAK U.S. 399 PARK AVE FLOOR 18 NEW YORK, NY 10022
98 - NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116	107 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
99 - PPL ELECTRIC UTILITIES CORP PPL EU CERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101	108 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
100 - HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202	109 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
101 - HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202	110 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
102 - HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202	112 - READING BLUE MOUNTAIN AND NORTHERN RAILROAD COMPANY PO BOX 218 PORT CLINTON, PA 19549
	113 - GR HAZLETON COM AREA NEW DEVE ORGAN C/O CAN DO RENAISSANCE CENTER 1 S CHURCH ST STE 200 HAZLETON, PA 18201-6200

- Substation or Switchyard
- Proposed Route
- Proposed 200-foot ROW
- Existing ROW
- Parcels Crossed
- Railroad
- Harwood - Berwick 69 kV Transmission Line (removed)
- Existing Transmission Line
- Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83



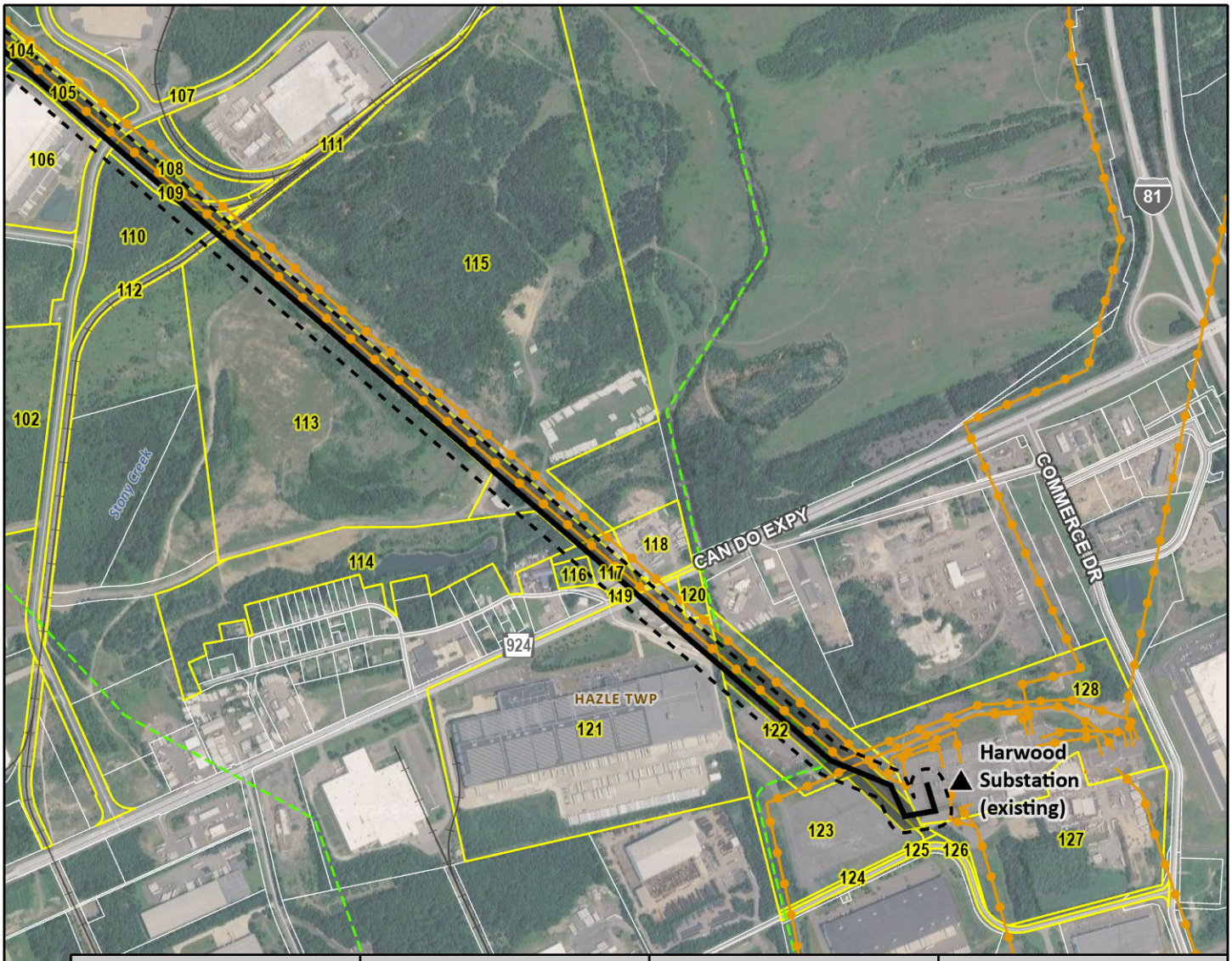
Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 9 of 10)

ppl wsp

0 500 1,000 Feet

N



Parcel Owner	Parcel Owner	Parcel Owner	Parcel Owner
102 - HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202	109 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	115 - MARUSHIN THOMAS JOHN 566 STATE ROUTE 93 SUGARLOAF, PA 18249-3126	122 - PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104
104 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	110 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	116 - BILLMAN THOMAS E 17 FRONT STREET HAZLE TOWNSHIP, PA 18202	123 - HUMBOLDT REALTY LP 822 SOUTH AVENUE W WESTFIELD, NJ 07090
105 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	111 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	117 - BAIDWAN INVESTMENTS LLC 9 JENNIFER LANE SUGARLOAF, PA 18249	124 - GREATER HAZLETON CANDO INC 1 SOUTH CHURCH ST SUITE 200 HAZLETON, PA 18201
106 - BGO-SRE HAZLETON LLC C/O BENTALLGREENOAK U.S. 399 PARK AVE FLOOR 18 NEW YORK, NY 10022	112 - READING BLUE MOUNTAIN AND NORTHERN RAILROAD COMPANY PO BOX 218 PORT CLINTON, PA 19549	118 - BAIDWAN INVESTMENTS LLC 9 JENNIFER LANE SUGARLOAF, PA 18249	125 - TOWNSHIP OF HAZLE 101 WEST 27TH STREET HAZLE TOWNSHIP, PA 18202
107 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	113 - GR HAZLETON COM AREA NEW DEVE ORGAN C/O CAN DO RENAISSANCE CENTER 1 S CHURCH ST STE 200 HAZLETON, PA 18201-6200	119 - NO PARCEL INFORMATION AVAILABLE	126 - GREATER HAZLETON CANDO INC 1 SOUTH CHURCH ST SUITE 200 HAZLETON, PA 18201
108 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	114 - GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201	120 - HAZLE TWP SUPERVISORS 23RD PEACE STS HAZLETON, PA 18202	127 - 2J 2N BROTHERS LLC 100 COMMERCE DR HAZLETON, PA 18201
		121 - HUMBOLDT REALTY C/O ROMARK MANAGEMENT LLC 822 SOUTH AVENUE W WESTFIELD, NJ 07090	128 - PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104

Substation or Switchyard
Proposed Route
Proposed 200-foot ROW
Existing ROW
Parcels Crossed
Railroad
Existing Transmission Line
Pipeline

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2021, 2022)
Pipelines (Enverus 2025)

Coordinate System:
State Plane PA South
Datum: NAD 83



Sugarloaf 500/230 kV Transmission Line Project

Aerial Exhibit (Page 10 of 10)

0 500 1,000 Feet

Attachment 5

ATTACHMENT 5
SUGARLOAF 500/230 kV
TRANSMISSION LINE PROJECT
ENEGINEERING DESCRIPTION

TABLE OF CONTENTS

1.0 Introduction 5-1

2.0 Proposed Line Design 5-3

3.0 Design Considerations 5-5

4.0 Magnetic Field Management Plan 5-7

5.0 Right of Way Requirements 5-8

6.0 Construction Techniques and Execution for Typical Single Pole 138 kV Transmission Structures 5-9

LIST OF TABLES

Table 5-1. Design Minimum Conductor Clearances for 1590 kcmil 54/19 stranding ACSR 5-5

Table 5-2. Conductor Thermal Rating 1590 kcmil 54/19 (257°F) 125°C Maximum Conductor Temperature 5-6

LIST OF FIGURES

Figure 5-1. Typical Double Circuit 500 kV Steel Monopole Vertical Structure 5-11

Figure 5-2. Typical Double Circuit 500 kV Steel Monopole (0° to 60° Line Angle) 5-12

Figure 5-3. Typical Double Circuit 500 kV Steel Monopole Angle Structure 5-13

Figure 5-4. Typical Double Circuit 500 kV Steel Monopole Tangent Structure 5-14

Figure 5-5. Typical Double Circuit 500 kV Steel Monopole Tension Structure 5-15

Figure 5-6. Typical Double Circuit 500 kV Steel Monopole Suspension Structure 5-16

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") is requesting approval from the Pennsylvania Public Utility Commission ("PUC" or the "Commission") to construct a new double-circuit 500/230 kV transmission line between the new Nescopeck 500/230 kV Switchyard, new Tomhicken 230 kV Switchyard, and existing Harwood 230/69 kV Substation. Specifically, as part of the Project, PPL Electric proposes to address the Customer load growth at Tomhicken 230 kV Switchyard, as well as additional load requests in the Hazleton area by:

1) Rebuilding approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard");
2) Constructing a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard;
3) Raising 0.5 mile of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lies and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and
4) Constructing a new double-circuit 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard"), and existing Harwood 230/69 kV Substation ("Harwood Substation"). After traveling 8.4 miles, the eastern circuit ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 mile as a single-circuit transmission line to the new Tomhicken 230 kV Switchyard. At Structure 41 (**Page 6 of 7** of the **Aerial Exhibit** in **Attachment 4**), the western circuit ("Nescopeck-Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

Collectively, the new and rebuilt transmission lines are referred to in this application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project". The Project is located between the existing Susquehanna 230 kV Switchyard and Harwood 230/69 kV Substation through Conyngham, Hollenback, Nescopeck, Black Creek, Sugarloaf, and Hazle townships, Luzerne County, Pennsylvania. The need for the Project is explained further in **Attachment 2**.

2.0 PROPOSED LINE DESIGN

In addition to constructing approximately 11.2 miles of new double-circuit 500/230 kV transmission line, the Project also involves rebuilding 4.4 miles of the existing Sunbury-Susquehanna #1 230 kV Transmission Line, breaking the existing 230 kV line and terminating its resulting ends into the proposed Nescopeck Switchyard. The rebuilt Sunbury-Nescopeck #1 230 kV line will operate as single-circuit, while the rebuilt Susquehanna-Nescopeck #1 and #2 230 kV lines will operate as double-circuit. To accommodate rebuilding part of the existing 230 kV transmission lines, an approximately 0.5-mile-long section of the existing Sunbury-Susquehanna 500 kV Transmission Line will be raised for 3 spans for the 230 kV line undercrossing near State Route 93 (SR 93) and Cross Valley Road in Nescopeck Township. The 230 kV transmission line currently parallels the north side of the Sunbury-Susquehanna 500 kV Transmission Line corridor (see **Page 4** of the **Aerial Exhibit** in **Attachment 4**).

The selection of the preferred route for the Sugarloaf 500/230 kV Transmission Line Project is further explained in **Attachment 4**.

Sugarloaf 500/230 kV Transmission Line

The Sugarloaf 500/230 kV Transmission Line will be installed on new single-shaft steel poles. The proposed transmission line will require the installation of approximately 90 structures ranging in height from 150 to 205 feet, with an average height of approximately 165 feet. All 90 structures will be self-supported (i.e., no guy wires), will be installed on concrete foundations, and will have an average span length of approximately 912 feet.

The proposed structures will include approximately 39 tangent suspension structures, 7 angle suspension structures, and 26 tension structures that will be single pole weathering tubular steel structures equipped with steel arms and installed on concrete foundations. There also will be approximately 18 tension structures that will be two pole weathering tubular steel structures installed on concrete foundations. The proposed structure types are shown in **Figures 5-1 through 5-7**.

Susquehanna-Nescopeck and Sunbury-Nescopeck 230 kV Transmission Lines

The existing 230 kV transmission lines are composed of double bundle 1033.5 ACSR[1] with dual alumoweld overhead ground wire. These conductor and ground wires are supported by a series of transmission line structures that include 17 single-circuit steel lattice tower structures between Susquehanna Switchyard and the proposed Nescopeck Switchyard and 3 single-circuit steel lattice tower structures located west of Cross Valley Road and the proposed Nescopeck Switchyard (shown on **Page 4** of the **Aerial Exhibit** in **Attachment 4**). The existing towers range in height from approximately 95 feet to 130 feet with an average height of 105 feet.

The proposed structures for the rebuilt 230 kV transmission lines and short sections connecting to the proposed Nescopeck Switchyard will range in height from approximately 95 feet to 150 feet with an average height of approximately 125 feet. The rebuilt 230 kV transmission lines will be constructed with new steel monopoles, high capacity conductors, and two Optical Ground Wires ("OPGW"). The rebuilt Susquehanna-Nescopeck Transmission Lines will include installation of approximately 20 structures, including 12 tension structures and 8 suspension structures, installed on concrete foundations. The proposed Sunbury-Nescopeck 230 kV transmission Line will include installation of approximately 6 structures, including 3 tension structures, 1 suspension structure and 2 transposition structures installed on concrete foundations.

Sunbury-Susquehanna 500 kV Transmission Line Riser Structures

As shown in the **Aerial Exhibit** in **Attachment 4**, to complete the rebuilt 230 kV transmission lines, PPL Electric will raise 5 existing structures (3 spans) along the Sunbury-Susquehanna 500 kV Transmission Line. The existing structures are steel H-frame structures and are on average 145 feet in height. The proposed steel H-frame or 3-pole structures will range between 150 feet to 250 feet with an average height of 200 feet. The proposed structures will be self-supported (i.e., no guy wires) and installed on concrete foundations.

[1] ACSR stands for aluminum conductor steel reinforced.

3.0 DESIGN CONSIDERATIONS

The proposed double-circuit line described above will be designed and constructed to meet, and generally exceed, all National Electrical Safety Code ("NESC") minimum standards. Design specifications and safety rules practiced by PPL Electric are included in **Attachment 13**. The proposed Sugarloaf 500/230 kV Transmission Line will consist of six power conductors and two overhead ground wires. Each conductor will be 1590 kcmil,[2] 54/19 ACSR. The overhead ground wires will be a 216 fiber 0.791-inch diameter OPGW. The overhead ground wires will provide lightning protection on the proposed line and will also be used for telecommunication purposes. The proposed Sugarloaf 500/230 kV Transmission Lines will be designed and constructed as a double-circuit 500 kV line but initially will operate as a double-circuit 230 kV line until load growth in the area makes it necessary to increase the operating voltage.

The minimum conductor to ground clearance for the proposed 500/230 kV line will be 31.4 feet, which occurs at a maximum conductor temperature of 257°F (125°C). **Table 5-1** and **Table 5-2** identify the designed minimum conductor clearances and the conductor thermal ratings of the conductors, respectively.

Table 5-1. Design Minimum Conductor Clearances for 1590 kcmil 54/19 stranding ACSR*

Condition	Single Circuit Design Clearance-to-Ground
Normal load average weather 60°F (16°C) ambient temperature.	31.4 feet
Predicted extreme thermal load @ 257°F (125°C) conductor temperature.	31.4 feet
NESC (Rule 250C) Extreme wind load, 60°F (16°C).	31.4 feet
Extreme weather condition NESC (Rule 250D) 1 inch ice, 4 lbs. wind, 15°F (-9°C)	31.4 feet

* Clearances based on a maximum tension of 9,900 pounds at 1 inch ice, 15°F, 4 lbs. wind and a average span of 600 feet.

[2] A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm².

Table 5-2. Conductor Thermal Rating 1590 kcmil 54/19 (257°F) 125°C Maximum Conductor Temperature			
Condition	**Ambient Temperature (°C)**	**Wind Speed (Knots)**	**Ampacity (Amps)**
Summer Normal	35	0	4,500
Winter Normal	10	0	5,500
Summer Emergency	35	2.533	5,000
Winter Emergency	10	2.533	6,500

4.0 MAGNETIC FIELD MANAGEMENT PLAN

PPL Electric's Magnetic Field Management Program is summarized in **Attachment 11** and is applied to new and reconstructed transmission line projects. The Company does not believe that the current scientific evidence demonstrates that magnetic fields cause any adverse health effects or pose a health or safety danger to the public. Nevertheless, PPL Electric has determined, as a matter of policy, to design its new and rebuilt transmission lines to reduce magnetic fields when that can be done at low or no cost and consistent with functional requirements. PPL Electric's Magnetic Field Management Program has been developed to implement that policy decision. In order to reduce the potential for exposure to magnetic fields, the program generally prescribes the use of a line design that provides five feet higher ground clearances and reverses phasing of new double circuit lines where it is feasible to do so at low or no cost. The implementation of additional modifications will be considered, provided those modifications can be made at low or no cost and are consistent with functional requirements.

Consistent with the program, the conductors for this Project will have ground clearances that are approximately three feet higher than the required NESC minimum ground clearance for 500/230 kV lines[3]. As explained above, the proposed transmission line will be constructed as a single-circuit transmission line. Since this proposed transmission line will operate as a single-circuit, reverse phasing is not feasible at this time. Where it is feasible to do so at low or no cost, PPL Electric will select a phasing arrangement for the proposed transmission line that lowers the magnetic field. PPL Electric will select the best circuit/phase arrangement to reduce the potential exposure to electric magnetic fields where it is feasible to do so at low or no cost.

[3] PPL Electric has designed the 230 kV transmission line to the latest 500 kV construction standards.

5.0 RIGHT OF WAY REQUIREMENTS

PPL Electric's current standard ROW width for a double-circuit 500/230 kV transmission line is 200 feet. The ROW width is determined by the structure type, design tensions, span length, and conductor "blowout" (the distance the wires are moved by a crosswind). The aerial maps provided at the end of **Attachment 4** identify the location of the proposed ROW.

Status of Right-of-Way Negotiations

There is a total of 88 deed properties that are owned by a total of 69 property owners along the route selected for the proposed Sugarloaf 500/230 kV Transmission Line. At the time of this filing, 36 formal easement and right of way ("ROW") agreements have been executed. Although negotiations continue with the remaining property owners, PPL Electric is separately filing for approval of the condemnation of ROW and easements across a certain portion of the lands owned by 27 property owners[4], pursuant to Section 1511(c) of the Business Corporation Law of 1988, 15 Pa.C.S. § 1511(c).

[4] PPL Electric did not need ROW and easements from all of the remaining 37 property owners, which is why the Company is filing 27 condemnation applications and not 37.

6.0 CONSTRUCTION TECHNIQUES AND EXECUTION FOR TYPICAL SINGLE POLE 500 KV TRANSMISSION STRUCTURES

The following is a summarized, non-technical explanation of the typical construction activity that is associated with new transmission line construction for single poles, which are either directly embedded into the ground or installed on a concrete foundation. This is not to be misconstrued as all-encompassing and may vary based on specific site/service conditions at each project. Actual construction steps may not necessarily occur in this particular order:

- The project manager will review the construction plans with PPL Electric personnel that will be constructing the line, including all permits and conditions that apply (such as erosion and sediment control, wetland encroachments, and storm water management), as well as any agreements made with specific property owners for work done on their lands.
- Professional land surveyors will stake the locations of all poles to be constructed, as well as the edge of ROWs and locate any wetland or streams previously sited during field work.
- All wetlands/waters are delineated in the field, located by land surveyors, and specifically shown to the construction manager prior to work commencing.
- During the installation of access roads, poles, and hanging of the wire, approved "best management practices" are implemented to assure that the soil will be stabilized and not erode during storm events while the Project is under construction. Any temporary wetland encroachments (usually roads) will be removed according to the permit conditions. Whenever practical, PPL Electric will utilize timber matting in wetland areas to minimize disturbance to the wetland vegetation and topography.
- Construction roads will be constructed, approximately 14 to 16 feet in width, with a stone surface to support the equipment that will be transporting materials to the pole sites. Those vehicles are usually cranes, concrete trucks (if foundations are involved), boom trucks, and pickups. The roads will be built as provided for in the construction drawings as per the erosion and sediment control plan, the National Pollutant Discharge Elimination System ("NPDES") permit, and/or the wetland encroachment permit plan. The plan may require these roads to be temporary in nature, returning to vegetative cover when the work is complete. Landowners may wish to have the roads remain intact for shared use between PPL Electric for line inspection and maintenance and property owner use. Much of the

routine maintenance to the line, once built, will be by helicopter or 4 wheel drive pickup truck.

- The foundation poles will be installed using drilled concrete foundations constructed with an auger or drill rig, followed by crane setting of the pole. After drilling the foundation shaft, usually 6 to 12 feet in diameter, to the required depth, reinforcing steel and anchor bolts (or an embedded stub section) will be installed. The shaft will then be filled with structural concrete and allowed to cure to the specified specification. Once the foundation has cured to the required design strength, the pole will be set using a crane, secured to the anchor bolts (or connected to the embedded section), and properly aligned and torqued. The top of the foundations typically extend an average of 1 foot above the ground.
- Once the poles are in place along the line route, the wires will be installed using utility trucks to attach the wires to each pole and equipment and manpower will be used to pull the wires along from pole to pole. Helicopter stringing/pulling may be utilized in restricted access or environmentally sensitive areas.
- The project manager will oversee the stabilization of the site including the successful establishment of vegetation on all previously disturbed areas during construction.

Typical examples of the proposed structures are depicted in **Figures 5-1** through **5-6**.

Figure 5-1. Typical Double Circuit 500 kV Steel Monopole Vertical Tension Structure

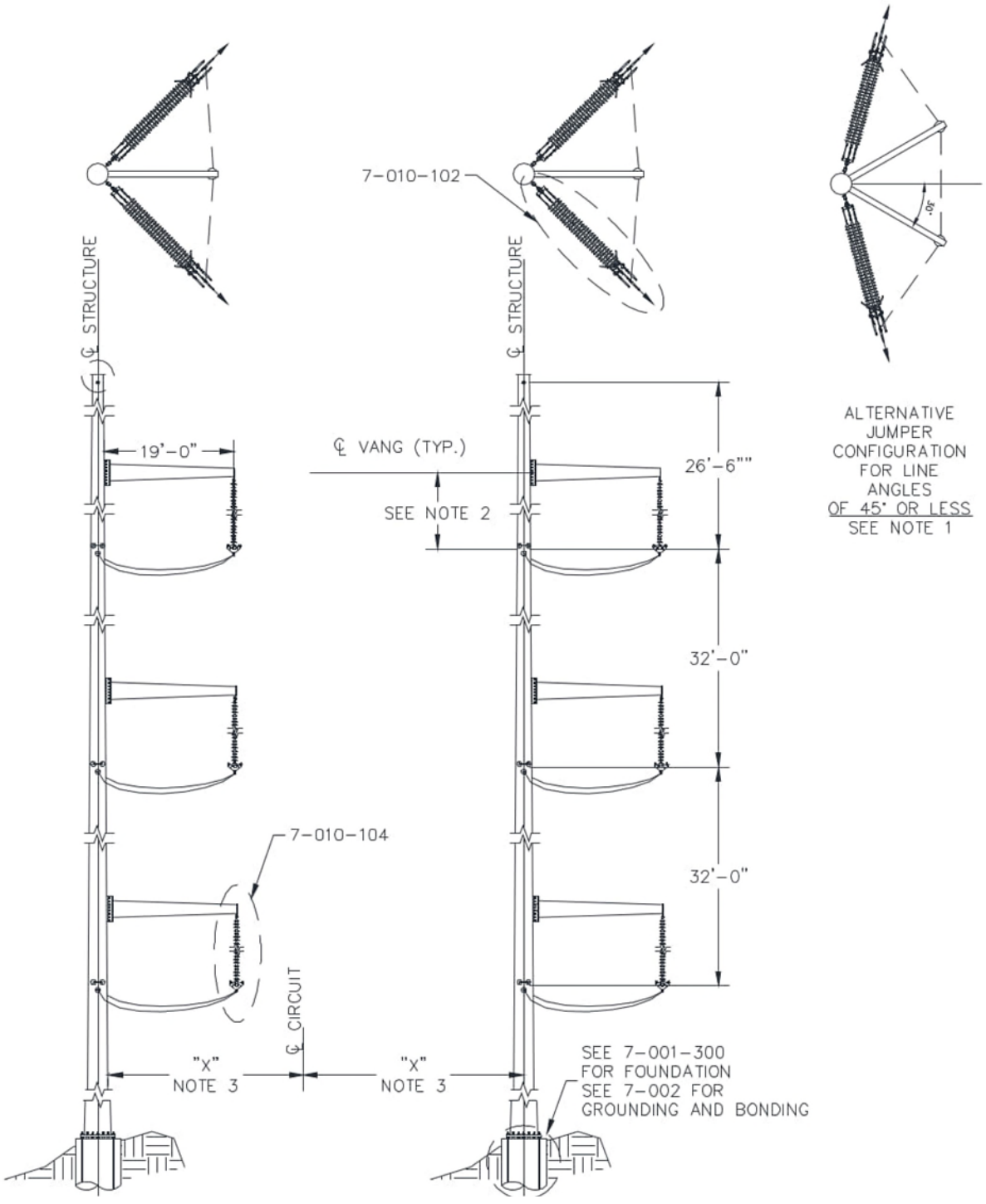


Figure 5-2. Typical Double Circuit 500 kV Steel Monopole Vertical Tension (0° to 60° Line Angle) Structure

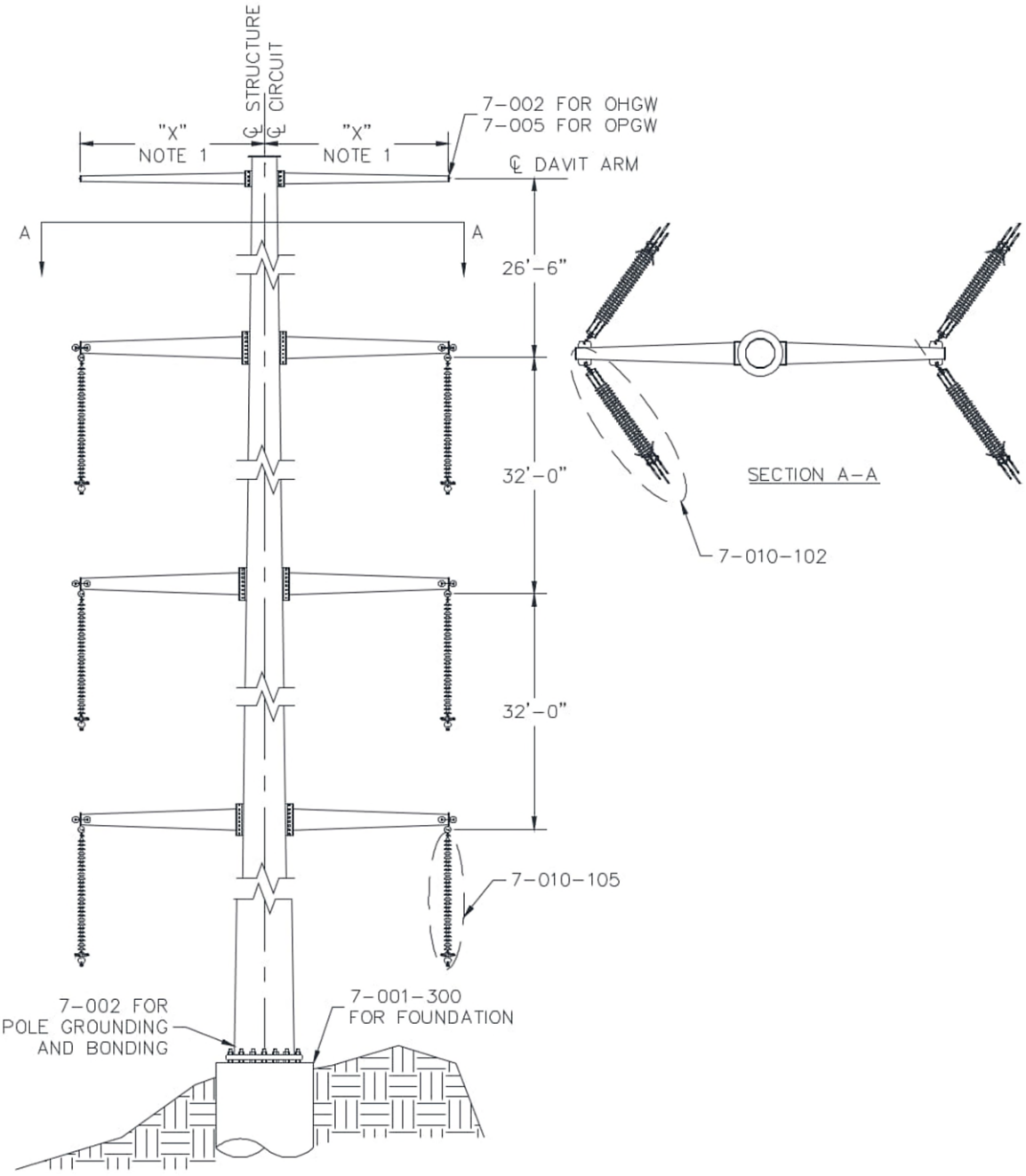


Figure 5-3. Typical Double Circuit 500 kV Steel Monopole Angle Suspension Structure

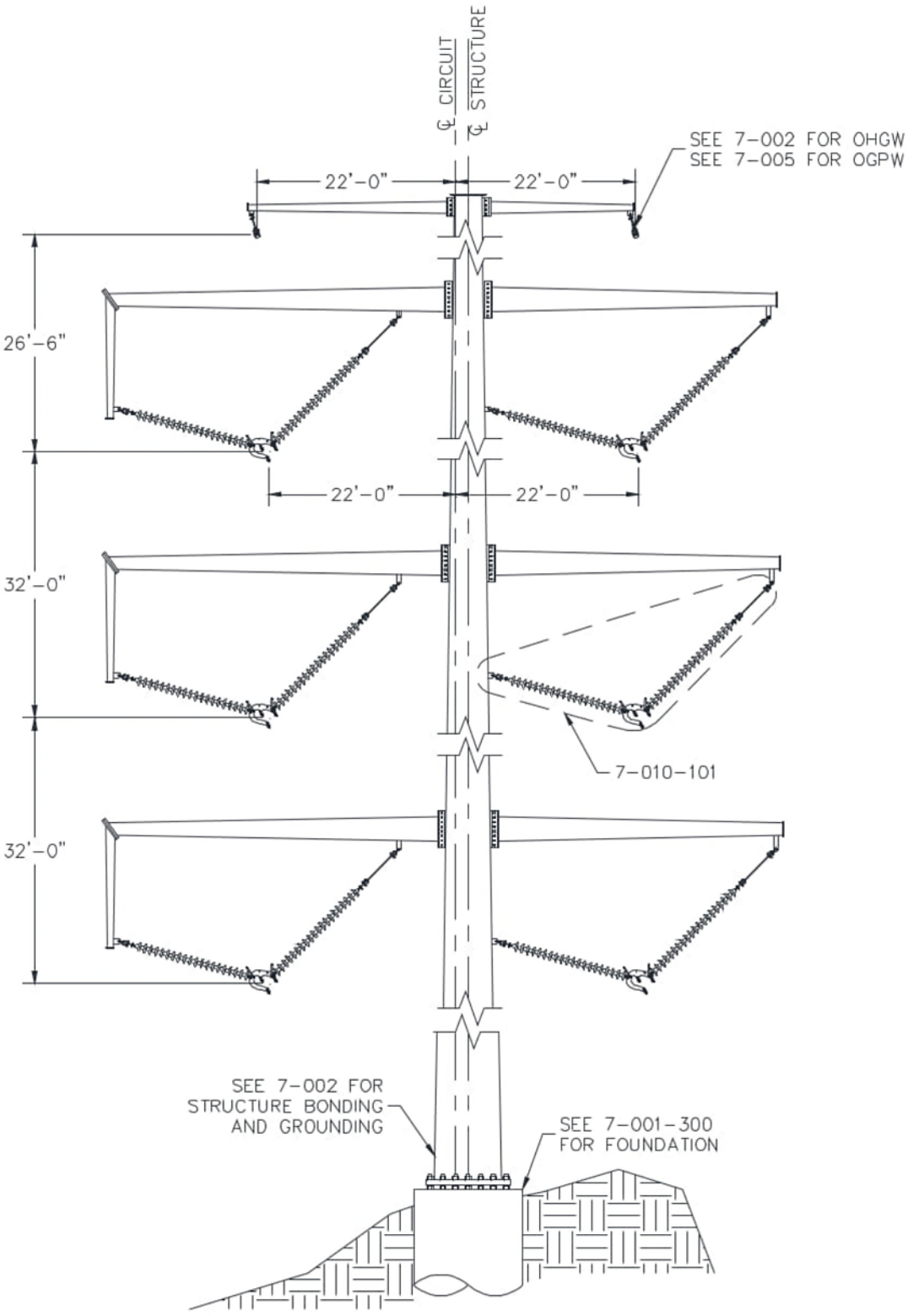


Figure 5-4. Typical Double Circuit 500 kV Steel Monopole Tangent Suspension Structure

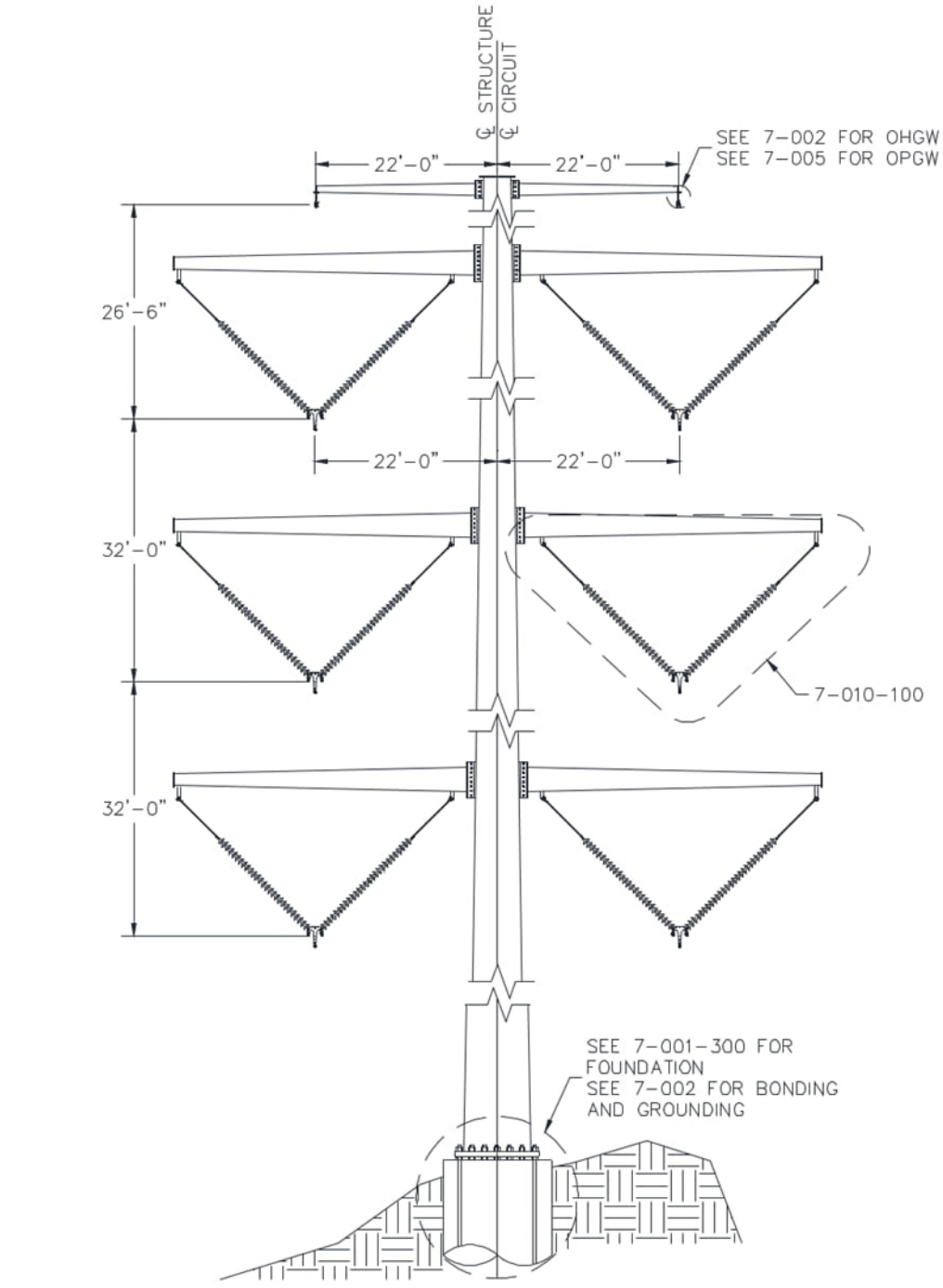


Figure 5-5. Typical Double Circuit 500 kV Steel Monopole Tension on Arm Structure

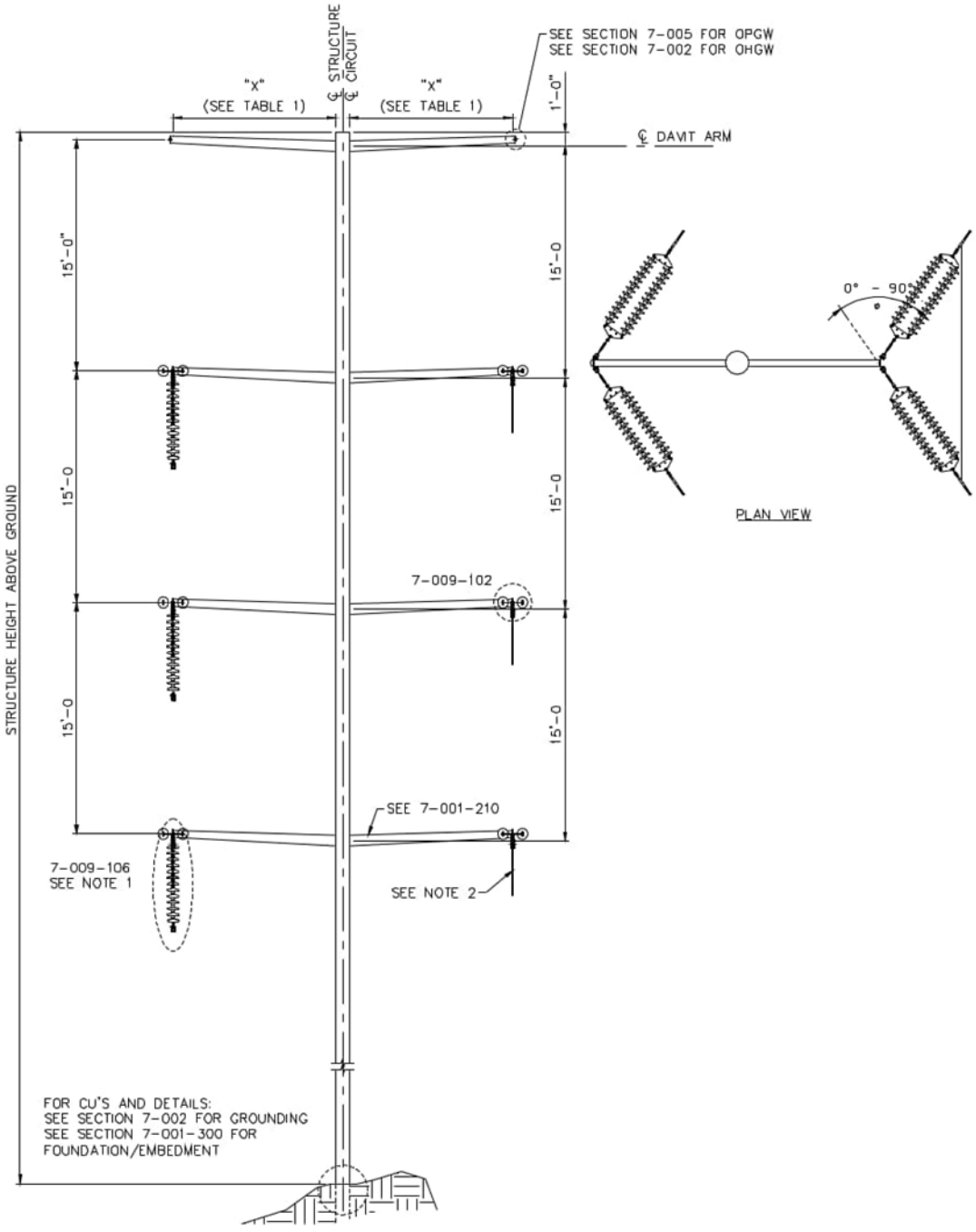
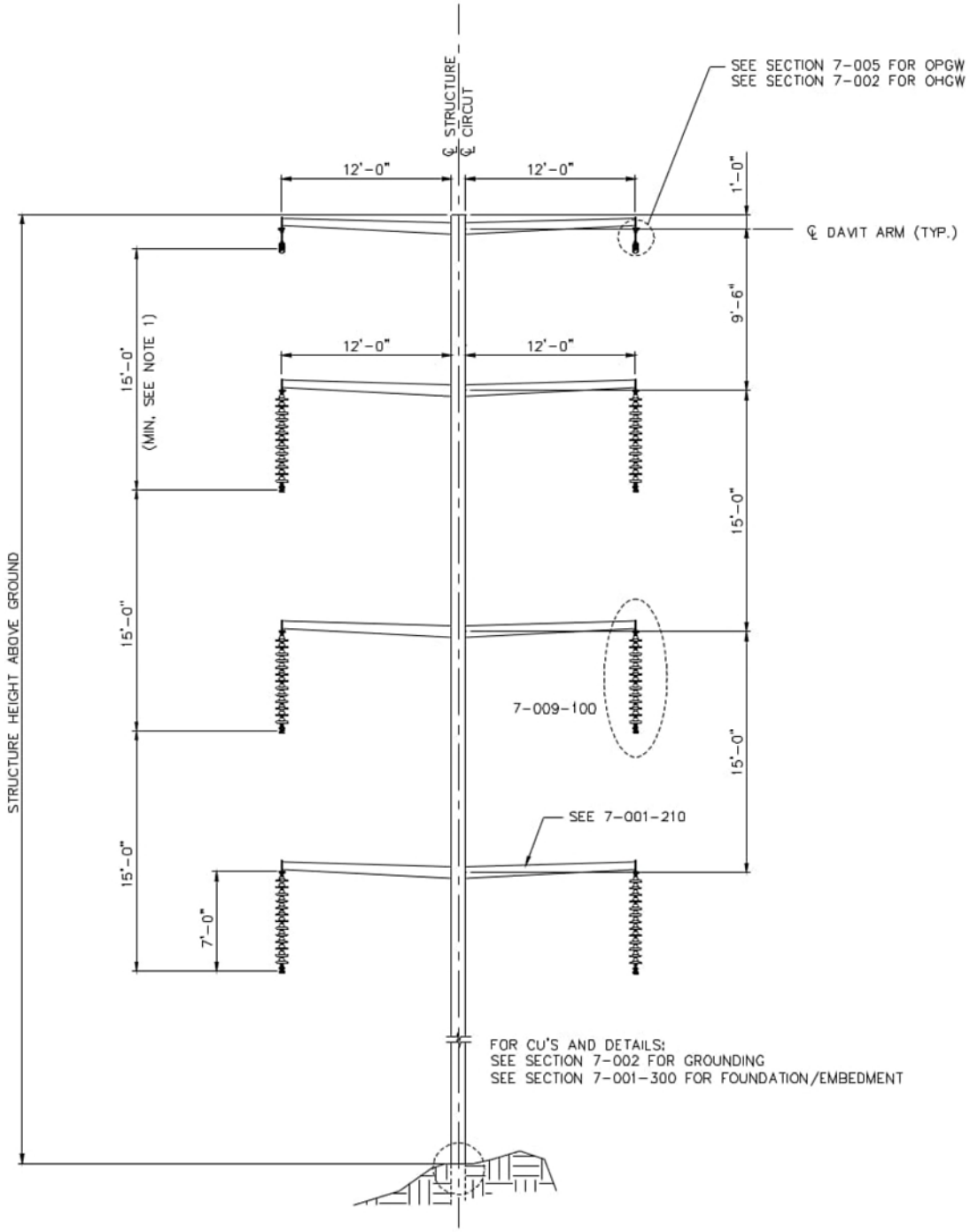


Figure 5-6. Typical Double Circuit 500 kV Steel Monopole 0° to 1° Suspension Structure



Attachment 6

ATTACHMENT 6
SUGARLOAF 500/230 KV TRANSMISSION LINE PROJECT
LIST OF OWNERS OF PROPERTY
WITHIN THE RIGHT-OF-WAY

Parcel Number	Property Owner/Address
1	TALEN ENERGY SUPPLY LLC ATTN: REAL ESTATE 600 HAMILTON ST SUITE 600 ALLENTOWN, PA 18101
2	DENSBERGER DONALD E II 72 MINGLE INN RD BERWICK, PA 18603
3	MEADE LUNDY S APRIL D ZERBE 96 SMITH MOUNTAIN ROAD WAPWALLOPEN, PA 18660
4	BENSBERGER DONALD E II 72 MINGLE INN ROAD BERWICK, PA 18603
5	CREMONESE LOUIS CHARLES 755 PINEWOOD RD SOUTHAMPTON, PA 18966
6	KJN ACRES LLC 1835 HENRY DR MOUNTAINTOP, PA 18707
7	MEADE LUNDY S APRIL D ZERBE 96 SMITH MOUNTAIN ROAD WAPWALLOPEN, PA 18660
8	PENNSYLVANIA SUBURBAN WATER CO 762 W LANCASTER AVE BRYN MAWR, PA 19010
9	TALEN ENERGY SUPPLY LLC ATTN: REAL ESTATE 600 HAMILTON ST STE 600 ALLENTOWN, PA 18101
10	HELLER GREGORY H 402 S CHURCH STREET WAPWALLOPEN, PA 18660
11	WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053

Parcel Number	Property Owner/Address
12	BURD EUGENE F 7 COUNTY RD WAPWALLOPEN, PA 18660
13	09O5S1 RESEARCH NO PARCEL INFORMATION AVAILABLE
14	WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053
15	WAPWALLOPEN CREEK NATURE PRESERVE LLC 6257 PETERS RD GERMANSVILLE, PA 18053
16	PACE RICHARD & MICHELLE 499 WAPWALLOPEN RD NESCOPECK, PA 18635
17	HELLER GREGORY H 54 ORCHARD STREET WAPWALLOPEN, PA 18660
18	ARNER LARRY & YVONNE 264 E CHERRY ROAD NESCOPECK TWP, PA 18635
19	KEMP R RANDY & BRANDON T 701 RIVER RD WAPWALLOPEN, PA 18660
20	THOMAS CLYDE, GUY, TODD LISA LISNOCK 181 RUCKLE HILL RD BERWICK, PA 18603
21	MORGAN GILBERT & JOHN 500 SAMPSON ST OLD FORGE, PA 18518
22	BARLETTA MATERIALS & CONSTRUCTION PO BOX 550 E BROAD ST TAMAQUA, PA 18252
23	VALLEY VIEW WOOD DISTRIBUTORS INC C/O TIMOTHY SHAW 163 E BROAD ST NANTICOKE, PA 18634
24	PROSANITARY SERVICES RR 1 RTE 11 PO BOX 265 BERWICK, PA 18603

Parcel Number	Property Owner/Address
25	BARLETTA MATERIALS & CONST INC PO BOX 550 E BROAD ST TAMAQUA, PA 18252
26	PPL ELECTRIC UTILITIES CORP PPL EU SERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101
27	BARLETTA MATERIALS & CONST INC PO BOX 550 E BROAD ST TAMAQUA, PA 18252
28	PENNA POWER & LIGHT CO N/K/A PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104
29	UNGER KATHY M 1485 ZENITH ROAD NESCOPECK, PA 18635
30	44P4 RESEARCH NO PARCEL INFORMATION AVAILABLE
31	HILEMAN MARK D & VICTORIA J 704 BERWICK HAZLETON HWY NESCOPECK, PA 18635
32	RYMAN RAYMOND E & NADA N & ETAL 51 CHURCH RD NESCOPECK, PA 18635
33	RYMAN HANNAH N JOHN P MENTRIKOSKI 42 CHURCH RD NESCOPECK, PA 18635
34	DUNN TIMOTHY E & HEATHER M 91 CROSS VALLEY ROAD NESCOPECK, PA 18635
35	RYMAN RAYMOND & NADA ETAL 51 CHURCH RD NESCOPECK, PA 18635-1857
36	LOGAN TAMMY B PO BOX 10 WILLOW, AK 99688
37	DRASHER KEVIN C 114 W CHERRY ROAD NESCOPECK, PA 18635

Parcel Number	Property Owner/Address
38	KISHBAUGH BRIAN L ALAN J SCOTT L 827 ZENITH RD NESCOPECK, PA 18635-1821
39	KISHBAUGH SCOTT L 751 ZENITH RD NESCOPECK, PA 18635-1814
40	HARMAN GARY & CARLA 782 ZENITH RD NESCOPECK, PA 18635
41	BROYAN FRANCIS J & JENNIFER P 718 ZENITH RD NESCOPECK, PA 18635-1819
42	SMITH HAROLD L & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887
43	DUNLEAVY MICHAEL F PO BOX 334 NESCOPECK, PA 18635-1809
44	ZOLA JASON D & DANIEL E BOX 466 CONYNGHAM, PA 18219
45	DUNLEAVY MICHAEL PO BOX 334 NESCOPECK, PA 18635-1809
46	SMITH HAROLD F & DENISE 21 ROCKY RIDGE LN NESCOPECK, PA 18635-1887
47	BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412
48	BURKE SHANNON J 358 W COUNTY RD SUGARLOAF, PA 18249-3253
49	BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249
50	BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY ROAD SUGARLOAF, PA 18249-3412

Parcel Number	Property Owner/Address
51	BLACK CREEK LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249-3252
52	CLARK MARK L 80 RED ROCK ROAD SUGARLOAF, PA 18249
53	COOK ERIKA L & ANTHONY J 38 RED ROCK RD SUGARLOAF, PA 18249-3333
54	SUGAR MAPLE TRAILS LLC 38 RED ROCK ROAD SUGARLOAF, PA 18249
55	BOOCK THOMAS C & PATRICIA L 444 CEDAR HEAD RD SUGARLOAF, PA 18249-3348
56	PURSELL KEVIN & LORI A 30 ROCK HILL DR SUGARLOAF, PA 18249-3350
57	LAROCK FAMILY LIMITED PARTNERSHIP 306 W COUNTY RD SUGARLOAF, PA 18249-3252
58	SANKO ANDREW J AND SUSAN K 522 WHITE SWAN WAY LANGHORNE, PA 19047-2373
59	KISENWETHER PATRICIA & LAROCK WENDY 96 MT LAUREL TRAIL SUGARLOAF, PA 18249
60	LAROCK GEORGE 101 CHURCH ROAD SUGARLOAF, PA 18249
61	LAROCK RICHARD D AND SUSAN L 537 WEST COUNTY ROAD SUGARLOAF, PA 18249
62	YANOSKI JAMES M 505 W COUNTY RD SUGARLOAF, PA 18249
63	SHARKEY ERIK D & TIFFANY M 477 W COUNTY RD SUGARLOAF, PA 18249

Parcel Number	Property Owner/Address
64	MAYLATH JOHN F 498 W COUNTY RD SUGARLOAF, PA 18249-3412
65	TAYLOR RICHARD R & KATHY A 490 W COUNTY RD SUGARLOAF, PA 18249-3412
66	GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249
67	GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249
68	GROCE JILL 478 WEST COUNTY RD SUGARLOAF, PA 18249
69	JOHNSON GLENDA R & REAKES LYNN R JANE A REAKES 196 SUGARLOAF MOUNTAIN DR SUGARLOAF, PA 18249
70	BEREZNAK MICHAEL & DEENA 6 SECOND ST SUGARLOAF, PA 18249
71	KRAMER JOHN G & MELISSA 122 SUGARLOAF MOUNTAIN DR SUGARLOAF, PA 18249-3220
72	DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249
73	DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249
74	TRESSLER WILLIAM JOHN & CYNTHIA A TRESSLER FAMILY LIVING TRUST 29 SUGARLOAF MOUNTAIN DRIVE SUGARLOAF, PA 18249-3215
75	ZANELLA JOSEPH EDWARD 418 ROCK GLEN RD SUGARLOAF, PA 18249
76	MORAN DANIEL J & ROSE MARY 399 ROCK GLEN RD SUGARLOAF, PA 18249-3209

Parcel Number	Property Owner/Address
77	DISABELLA JOSEPH A SR & DEBORAH A 437 ROCK GLEN ROAD SUGARLOAF, PA 18249
78	DAGOSTIN JOHN & MOIRA 274 ROCK GLEN ROAD SUGARLOAF, PA 18249
79	CAPUTO RICHARD NICHOLAS BRIDGET ANNE CAPUTO 17 DAGOSTIN RD SUGARLOAF, PA 18249
80	DOGOSTIN MELANIE M 3 SECOND ST MCADOO, PA 18237
81	ZOLA JOHN F & JILL M 17 DAGOSTIN RD SUGARLOAF, PA 18249
82	WOLK JAMES J & WENDY M 182 SUGARLOAF MOUNTAIN DRIVE SUGARLOAF, PA 18249
83	POPE ROBERT J 922 WYOMING AVE WEST PITTSTON, PA 18643-2743
84	ZOLA JOHN F & JILL M 17 DAGOSTIN RD SUGARLOAF, PA 18249
85	CHIPELESKI MARNELL & TRICIA ANN 9 N PROSPECT PARK DR SUGARLOAF, PA 18249
86	RITZ JASON D & MELISSA 3 N PROSPECT PARK DR SUGARLOAF, PA 18249
87	MALONE PAUL & MARY 1 N PROSPECT DR SUGARLOAF, PA 18249
88	DENNISON ROBERT J & ALLISON J 4 FORREST LN SUGARLOAF, PA 18249
89	DUKSTA JAMIE AND ASHLEY 9 FORREST LN SUGARLOAF, PA 18249

Parcel Number	Property Owner/Address
90	BISSOL JENNIFER & JASON 480 E MOUNTAIN SIDE DR SUGARLOAF, PA 18249
91	MIZENKO FRANCIS J 483 E MOUNTAIN SIDE DR SUGARLOAF, PA 18249
92	RICHARD E ANGELO FAMILY LTD PARTNER PO BOX 23 CONYNGHAM, PA 18219-0029
93	NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116
94	NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116
95	EAGLE ROCK COMMUNITY ASSOCIATION 12720 HILLCREST RD STE 400 DALLAS, TX 75230
96	EAGLE ROCK COMMUNITY ASSOCIATION ACCOUNTING DEPT 12720 HILLCREST RD STE 400 DALLAS, TX 75230
97	EAGLE ROCK COMMUNITY ASSOCIATION 12720 HILLCREST RD STE 400 DALLAS, TX 75230
98	NP HAZLETON HOLDINGS 1 LLC C/O NORTHPOINT DEVELOPMENT LLC 3315 NORTH OAK TRAFFICWAY KANSAS CITY, MO 64116
99	PPL ELECTRIC UTILITIES CORP PPL EU CERVICES CORPORATION 2 NORTH NINTH STREET ALLENTOWN, PA 18101
100	HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202
101	HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202

Parcel Number	Property Owner/Address
102	HAZLETON CITY AUTHORITY S CHURCH ST HAZLETON, PA 18202
103	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
104	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
105	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
106	BGO-SRE HAZLETON LLC C/O BENTALLGREENOAK U.S. 399 PARK AVE FLOOR 18 NEW YORK, NY 10022
107	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
108	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
109	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
110	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
111	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
112	READING BLUE MOUNTAIN AND NORTHERN RAILROAD COMPANY PO BOX 218 PORT CLINTON, PA 19549
113	GR HAZLETON COM AREA NEW DEVE ORGAN C/O CAN DO RENAISSANCE CENTER 1 S CHURCH ST STE 200 HAZLETON, PA 18201-6200

Parcel Number	Property Owner/Address
114	GREATER HAZ COM AREA NEW DEV ORG 1 S CHURCH ST HAZLETON, PA 18201
115	MARUSHIN THOMAS JOHN 566 STATE ROUTE 93 SUGARLOAF, PA 18249-3126
116	BILLMAN THOMAS E 17 FRONT STREET HAZLE TOWNSHIP, PA 18202
117	BAIDWAN INVESTMENTS LLC 9 JENNIFER LANE SUGARLOAF, PA 18249
118	BAIDWAN INVESTMENTS LLC 9 JENNIFER LANE SUGARLOAF, PA 18249
119	NO PARCEL INFORMATION AVAILABLE
120	HAZLE TWP SUPERVISORS 23RD PEACE STS HAZLETON, PA 18202
121	HUMBOLDT REALTY C/O ROMARK MANAGEMENT LLC 822 SOUTH AVENUE W WESTFIELD, NJ 07090
122	PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104
123	HUMBOLDT REALTY LP 822 SOUTH AVENUE W WESTFIELD, NJ 07090
124	GREATER HAZLETON CANDO INC 1 SOUTH CHURCH ST SUITE 200 HAZLETON, PA 18201
125	TOWNSHIP OF HAZLE 101 WEST 27TH STREET HAZLE TOWNSHIP, PA 18202
126	GREATER HAZLETON CANDO INC 1 SOUTH CHURCH ST SUITE 200 HAZLETON, PA 18201
127	2J 2N BROTHERS LLC 100 COMMERCE DR HAZLETON, PA 18201

Parcel Number	**Property Owner/Address**
128	PPL ELECTRIC UTILITIES CORP 827 HAUSMAN RD REAL ESTATE TAXES ALLENTOWN, PA 18104

Attachment 7

ATTACHMENT 7
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
AGENCY PERMIT REQUIREMENTS

Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
Local Agencies				
Luzerne County Conservation District (CCD)	Erosion & Sedimentation Control Plan and Site Restoration or PCSM Plan	3/19/2027	Plan submission for June 2026	Construction activities the disturb greater than 5,000 square feet require an E&S plan
Commonwealth of Pennsylvania Agencies				
PA Department of Conservation & Natural Resources (DCNR) – Bureau of Forestry (plants)	State rare, threatened, and endangered species consultation and approval. Online PNDI review conducted on 12/3/2025; one potential impacts.	3/19/2027	Pending	Determination of potential impact to state listed and candidate threatened and endangered species and habitat.
PA Fish & Boat Commission (PFBC) (fish, reptiles, amphibians)	State rare, threatened, and endangered species consultation and approval. Online PNDI review conducted on 12/3/2025; no known impacts.	NA	No further action needed	Determination of potential impact to state listed and candidate threatened and endangered species and habitat.
PA Game Commission (PGC) (birds and mammals)	State rare, threatened, and endangered species consultation and approval. Online PNDI review conducted on 12/3/2025; potential impacts	3/19/2027	Pending	Determination of potential impact to state listed and candidate threatened and endangered species and habitat.
U.S. Fish & Wildlife Service (USFWS)	State rare, threatened, and endangered species consultation and approval. Online PNDI review conducted on 12/3/2025; two known impacts,	3/19/2027	Pending	Determination of potential impact to state listed and candidate threatened and endangered species and habitat.
PA Department of Environmental Protection (PADEP)	NPDES Permit for Stormwater Discharges Associated with Construction Activities (Chapter 102) (Individual NPDES due to HQ watershed)	3/19/2027	Pending	Discharge of storm water associated with construction activities (25 Pa. Codes § 92; § 93, Water Quality Standards; and §102, Erosion and Sediment Control).

Agency	Permits, Approvals, or Documentation	Anticipated Approval Date	Status of Permit or Approval	Regulated Activity
PA Department of Environmental Protection (PADEP)	Waters/wetland obstruction and encroachment permits or waivers (Chapter 105) • §105.12(a)(3) waivers for clear span aerial crossings of wetland and streams using monopole structures on either side. • §105.12(a)(3) waivers for monopole structure placement in wetlands.	3/19/2027	Pending	• Activities in watercourses, floodways, bodies of water (incl. wetlands) (25 Pa. Code §105). • Floodplains obstructed by highways and public utilities (25 Pa. Code §106).
PA State Historic Preservation Office (SHPO)	Investigation and approval of cultural, archaeological, and historic resources associated with federal and state permits.	8/1/2026	Pending	Compliance with Section 106 of National Historic Preservation Act; Eligibility for listing on the State and/or Federal National Register of Historic Places.
PA Department of Transportation (PennDOT)	Three (3) Temporary access road driveway HOP permits and (1) aerial crossing over I80	3/19/2027	Pending	Work within or aerially crossing PennDOT rights of way.
Federal Agencies				
U.S. Army Corps of Engineers (USACE) – Baltimore District	Clean Water Act Section 404/401 permits for regulated waters/wetlands encroachments	NA	NA	Reporting activities associated with regulated waters/wetlands encroachments

Attachment 8

ATTACHMENT 8
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
LIST OF GOVERNMENTAL AGENCIES, MUNICIPALITIES AND OTHER PUBLIC ENTITIES RECEIVING THE APPLICATION OR NOTICE OF FILING

Application Recipients

State Agencies

Pennsylvania Bureau of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Allison Kaster

Pennsylvania Department of Environmental Protection
400 Market Street, 10th Floor
Rachel Carson State Office Building
Harrisburg, Pennsylvania 17101
Attn: Regional Permit Coordination Office

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Darryl A. Lawrence, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: NazAarah Sabree, Small Business Advocate

County/Municipality Agencies

Luzerne County Council Office
200 N. River Street
Wilkes-Barre, PA 18711
Attn: Sharon Lawrence, Chief Clerk

Luzerne County Planning Commission
200 N. River Street
Wilkes-Barre, PA 18711
Attn: Daniel G. Reese, Interim Director

Luzerne County Conservation District
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Josh Longmore, Executive Director

Luzerne County Farmland Preservation Board
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Jen Merryman, Program Administrator

Black Creek Township
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Jennifer Hall, Secretary

Black Creek Township Planning Committee
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Judy Knelly, President

Black Creek Township Board of Supervisors
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Randall Yacowatz, Chairman

Conyngham Township
10 Pond Hill Road
Mocanaqua, PA 18655
Attn: Edward Whitebread, Supervisor

Conyngham Township
10 Pond Hill Road
Mocanaqua, PA 18655
Attn: Thomas Kubasek Chairman

Hazle Township
P.O. Box 506
Harleigh, PA 18225
Attn: Anthony Griguoli, Chairman

Hazle Township
P.O. Box 506
Harleigh, PA 18225
Attn: Jim Montone, Secretary/Treasurer

Hazle Township Planning Department
67 North Church Street
Hazleton, PA 18201
Attn: Joseph Ferdinand, Esq., Solicitor

Hollenback Township
665 E County Road
Wapwallopen, PA 18660
Attn: Frank Hanley

Nescopeck Township
429 Berwick Hazleton Highway,
Nescopeck, PA 18635
Attn: Carolyn Superko, Secretary

Nescopeck Township Supervisors
429 Berwick Hazleton Highway
Nescopeck, PA 18635
Attn: Michael Winder, Chairman

Nescopeck Township Planning Commission
429 Berwick Hazleton Highway
Nescopeck, PA 18635
Attn: Walter Lear, Chairperson

Sugarloaf Township
858 Main Street
Sugarloaf, PA 18249
Attn: Elizabeth Tolan, Township Supervisor

Sugarloaf Township Board of Supervisors
858 Main Street
Sugarloaf, PA 18249
Attn: Joseph DiSabella, Sr., Chairman

Notice of Filing Recipients

Federal Agencies

U.S. Army Corps of Engineers
Baltimore District Regulatory Branch
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Public Affairs Office, Planning Division

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Attn: Jodie Mamuscia, Field Office Supervisor

State Agencies

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street Harrisburg, Pennsylvania 17120-0093
Attn: Catherine N. Lantzy, Chief Counsel

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: Timothy Haydt, Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
450 Robinson Lane
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Pennsylvania Department of Conservation and Natural Resources
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17105-8767
Attn: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Department of Transportation
Keystone Building
400 North Street, Ninth Floor
Harrisburg, Pennsylvania 17120
Attn: Jeffrey Spotts, Chief Counsel

Elected Officials

Pennsylvania State Senate

Senator David G. Argall
29th District
Senate Box 203029
Harrisburg, PA 17120-3028

Senator Lynda Schlegel Culver
27th District
Senate Box 203027
Harrisburg, PA 17120-3028

Pennsylvania House of Representatives

State Representative Dane Watro
116th District
Luzerne County District Office
145 East Broad Street
Hazleton, PA 18201

State Representative Jamie Walsh
117th District
Luzerne County District Office
669 State Route 93
Sugarloaf, PA 8249

Attachment 9

ATTACHMENT 9
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
LIST OF GOVERNMENTAL AGENCIES, MUNICIPALITIES AND OTHER PUBLIC ENTITIES CONTACTED

Federal Agencies

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Contact: Lesa Lindsay

State Agencies

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building,
Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0093
Attn: Ms. Emma Diehl, Division Manager

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Contact: David J. Gustafson, Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
450 Robinson Lane
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17105-8767
Contact: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Department of Transportation
Keystone Building
400 North Street, Fifth Floor
Harrisburg, Pennsylvania 17120
Contact: Jeffrey Spotts, Chief Counsel

County/Municipal Agencies

Luzerne County Council Office
200 N. River Street,
Wilkes-Barre, PA 18711
Attn: Sharon Lawrence, Chief Clerk

Luzerne County Planning Commission
200 N. River Street,
Wilkes-Barre, PA 18711
Attn: Daniel G. Reese, Interim Director

Luzerne County Conservation District
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Josh Longmore, Executive Director

Luzerne County Farmland Preservation Board
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Jen Merryman, Program Administrator

Black Creek Township
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Jennifer Hall, Secretary

Black Creek Township Planning Committee
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Judy Knelly, President

Black Creek Township Board of Supervisors
1980 Tomhicken Road
Bloomsburg, PA 17815
Attn: Randall Yacowatz, Chairman

Conyngham Township
10 Pond Hill Road
Mocanaqua, PA 18655
Attn: Edward Whitebread, Supervisor

Conyngham Township
10 Pond Hill Road
Mocanaqua, PA 18655
Attn: Thomas Kubasek Chairman

Hazle Township
P.O. Box 506,
Harleigh, PA 18225
Attn: Anthony Griguoli, Chairman

Hazle Township
P.O. Box 506,
Harleigh, PA 18225
Attn: Jim Montone, Secretary/Treasurer

Hazle Township Planning Department
67 North Church Street
Hazleton, PA 18201
Attn: Joseph Ferdinand, Esq., Solicitor

Hollenback Township
665 East County Road
Wapwallopen, PA 18660
Attn: Frank Hanley

Nescopeck Township
429 Berwick Hazleton Highway,
Nescopeck, PA 18635
Attn: Carolyn Superko, Secretary

Nescopeck Township Supervisors
429 Berwick Hazleton Highway,
Nescopeck, PA 18635
Attn: Michael Winder, Chairman

Nescopeck Township Planning Commission
429 Berwick Hazleton Highway,
Nescopeck, PA 18635
Attn: Walter Lear, Chairperson

Sugarloaf Township
858 Main Street
Sugarloaf, PA 18249
Attn: Elizabeth Tolan, Township Supervisor

Sugarloaf Township Board of Supervisors
858 Main Street
Sugarloaf, PA 18249
Attn: Joseph DiSabella, Sr., Chairman

Elected Officials

Pennsylvania Senate

Senator David G. Argall
29th District
Senate Box 203029
Harrisburg, PA 17120-3028

Senator Lynda Schlegel Culver
27th District
Senate Box 203027
Harrisburg, PA 17120-3028

Pennsylvania House of Representatives

State Representative Dane Watro
116th District
Luzerne County District Office
145 East Broad Street
Hazleton, PA 18201

State Representative Jamie Walsh
117th District
Luzerne County District Office
669 State Route 93
Sugarloaf, PA 8249

Attachment 10

ATTACHMENT 10
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
LIST OF LOCATIONS APPLICATION CAN BE VIEWED BY THE PUBLIC

Black Creek Township
1980 Tomhicken Road
Bloomsburg, PA 17815

Conyngham Township
10 Pond Hill Road
Mocanaqua, PA 18655

Hazle Township
67 North Church Street
Hazleton, PA 18201

Hollenback Township
665 E County Road
Wapwallopen, PA 18660

Nescopeck Township
429 Berwick Hazleton Highway
Nescopeck, PA 18635

Sugarloaf Township
858 Main Street
Sugarloaf, PA 18249

Attachment 11

ATTACHMENT 11
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
PPL ELECTRIC MAGNETIC FIELD MANAGEMENT PROGRAM

PPL Electric Utilities

MAGNETIC FIELD MANAGEMENT

PPL Electric Utilities Corporation

EU00547114
Revision Date: August 5, 2019

TABLE OF CONTENTS

Introduction……1

Summary of PPL EU'S Magnetic Field Management Program……...4

Magnetic Field Management Program Guidelines …...……...5

Overhead Lines……...…….5

Underground Transmission Lines……6

Calculated Magnetic Fields Using Typical PPL Framing and Loadings……...7

INTRODUCTION

At PPL Electric Utilities Corp. (PPL EU), magnetic field management means investigating and implementing methods based on an optimized cost approach to reduce magnetic fields in new or rebuilt transmission lines. This document explains PPL EU's Magnetic Field Management Program.

PPL EU's View

Panels of scientists that have researched EMF (Electric Magnetic Field) generally have drawn two main conclusions. First, the large body of evidence does not demonstrate that EMF are harmful. Second, additional research is recommended to explore questions raised in some studies.

Given these conclusions, PPL EU is taking a reasoned approach when considering EMF in our design process. PPL EU's approach to EMF has five elements:

- Providing EMF educational information to customers and employees
- Providing magnetic field measurements to customer upon request
- Establishing and implementing a Magnetic Field Management Program to reduce magnetic fields in new or rebuilt facilities
- Integrating EMF educational information in the public outreach process that PPL EU undertakes in the siting of transmission lines
- Supporting additional research

For more information related to EMF, visit https://www.pplelectric.com/reliability/delivering-electricity/emf.aspx.

EMF Are All Around Us

Electric and magnetic fields occur in nature. For instance, the earth has a magnetic field, which makes the needle on a compass point north.

Electric and magnetic fields also surround every wire that carries electricity, such as power lines, electrical appliances, home and building wiring, and currents flowing on water pipes. EMF are made up of two components: Electric Fields and Magnetic Fields. Public and scientific interest has focused on the magnetic fields.

Electric Fields

Electric fields are produced by the voltage of a power line. The higher the voltage, the higher the electric field. If a wire is energized—has voltage present—an electric field is present. For example, an appliance doesn't have to be turned on to create an electric field – only plugged in. Electric fields diminish with distance and can be blocked or partially shielded by objects such as trees and houses.

Magnetic Fields

Magnetic fields are created by the current or flow of electricity through a wire. The higher the current, the greater the magnetic field strength. Because magnetic fields only occur when current is flowing, magnetic fields are present only when the power is turned on. Magnetic fields also diminish with distance, but unlike electric fields, are not blocked by common objects. Magnetic fields usually are measured in a unit called a milligauss (mG). Figure 1 shows examples of magnetic field strengths.

Examples of Magnetic Field Sources* (in milligauss)	
Coffee makers	7
Distribution line upper level of typical average	20
Dishwashers	20
500 kV transmission line typical average at edge of right-of-way	30
Distribution line typical maximum above underground	40
Florescent lights	40
Distribution line typical maximum under overhead line	70
Blenders	70
500 kV transmission line typical average under the line	87
Toasters	100
Hair dryers	300
Can openers	600

*People typically change activities and locations during a day, so we are exposed to a variety of sources of EMF and a wide range of field levels. In the table above, field levels are taken from the U.S. National Institute of Environmental Health Sciences (NIEHS) EMF Questions & Answers, pages 33-35 (median level at 6 inches from appliances), page 36 (distribution lines), and page 37 (transmission lines). As noted by NIEHS, field levels of transmission lines can approximately double during peak loads, which occur about 1% of the time.

Figure 1 Examples of Magnetic Field Sources
(From PPL's EMF Website)

SUMMARY OF PPL EU's
MAGNETIC FIELD MANAGEMENT PROGRAM

Under its Magnetic Field Management Program, PPL EU has changed the way it builds and rebuilds some of its transmission lines. These guidelines are applied to new and rebuilt transmission facilities.

PPL EU has criteria limits for magnetic and electric fields of rebuilt and newly constructed lines. Implementing guidance based on IEEE Standard C95.6, PPL EU has selected a Maximum Permissible Exposure (MPE) limit for magnetic fields levels of 9,040mG.

The magnetic field calculations used in this document for the design of PPL EU's overall Magnetic Field Management Plan assume balanced load conditions among the phases and a fixed typical level of current, typical framing and PPL EU clearance above ground and are a representation of an existing transmission line. These levels were calculated using BPA's (Bonneville Power Administration) CAFEP calculator.

Under actual operating conditions, magnetic field levels may vary a minor amount due to the conductor and the electrical configuration.

MAGNETIC FIELD MANAGEMENT PROGRAM GUIDELINES

The guidelines for magnetic field management are noted below, with discussion points for each.

OVERHEAD LINES

NEW OR REBUILT TRANSMISSION LINES

69/138/230 kV Transmission Lines

- Since typical magnetic fields from 69 kV, 138 kV & 230 kV transmission lines designed to PPL EU standards are significantly below the PPL EU magnetic field limit, no additional magnetic field mitigation in necessary. By PPL EU standard framing and clearance criteria, the typical calculated magnetic fields at the edge of the right of way (ROW) are significantly less than the established PPL EU Limit. Refer to Table 2 & 3 for calculated magnetic field.

345/500 kV Transmission Lines

- Studies are required for each new transmission line with voltages of 345 kV and above to determine magnetic field levels with respect to the PPL EU limit. Such studies could include analysis of magnetic field reduction measures such as additional minimum ground clearances, increasing conductor tensions, using reduced-phase spacing, installing the second circuit initially, and/or adding a second set of conductors that are reverse phased and operated in parallel with the first set, if warranted.

RECONDUCTORING OR ADDING ADDITIONAL CIRCUITS TO EXISTING TRANSMISSION LINES

When reconductoring or adding additional circuits to existing transmission lines, PPL EU will ensure that the modification to the line shall conform to the PPL EU criteria limit on a case-by-case basis if it can be completed at a reasonable cost.

When reconductoring existing transmission lines or adding additional circuits, low-cost alternatives may not exist; however, the following steps will be taken:

- For a single-circuit line, modifications such as reduced-phase spacing will be evaluated dependent on voltage class.
- For double-circuit lines, application of reverse phasing will be evaluated.

UNDERGROUND TRANSMISSION LINES

Underground transmission lines are required due to environmental or land use factors or restrictions on available clearances, PPL EU will evaluate magnetic field and any warranted remediation on a case-by-case basis.

Table 2: 69/138 kV CIRCUIT TRANSMISSION LINES CALCULATED MAGNETIC FIELDS USING BPA's CAFEP CALCULATOR

Type of Construction	Magnetic Field (mG) at the Edge of the ROW for 69kV, 868A	Magnetic Field (mG) at the Edge of the ROW for 138kV, 1139A
Single Ckt – Vertical	32	48
Single Ckt – Delta	20	35
Single Ckt – Horizontal	44	67
Double Ckt – Same Phasing	54	78
Double Ckt – Reverse Phasing	11	20

Assuming the edge of right of way is 50 feet from the centerline of the transmission line - phase currents are balanced between phases. Calculations are based on a minimum ground clearance of 22.2ft and 23.6ft for 69kV and 138kV respectively.

Table 3: 230 kV CIRCUIT TRANSMISSION LINES CALCULATED MAGNETIC FIELDS USING BPA's CAFEP CALCULATOR

Type of Construction	Magnetic Field (mG) at the Edge of the ROW for 230kV, 1640A
Single Ckt - Vertical	45
Single Ckt – Delta	37
Single Ckt – Horizontal	84
Double Ckt – Same Phasing	77
Double Ckt – Reverse Phasing	21

Assuming the edge of right of way is 75 feet from the centerline - phase currents are balanced between phases. Calculations are based on a minimum ground clearance of 26ft

Attachment 12

ATTACHMENT 12
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
PPL ELECTRIC VEGETATION MANAGEMENT PROGRAM

PPL ELECTRIC UTILITIES SPECIFICATION FOR TRANSMISSION VEGETATION MANAGMENT

LA-79827-14

EFFECTIVE JULY 5, 2022

Prepared by Stephen Dahl – Forester

TABLE OF CONTENTS

1.0 PURPOSE/SCOPE 2

2.0 RESPONSIBILITY 2

3.0 APPLICABILITY 3

4.0 ACRONYMS AND ABBREVIATIONS 4

5.0 PROPERTY OWNER NOTIFICATION AND REFUSALS 5

6.0 CLEARING REQUIREMENTS 6

7.0 DISPOSITION OF CLEARED VEGEATION 13

8.0 HERBICIDE APPLICATIONS 14

9.0 COMPLIANCE AND EXCEPTIONS 15

10.0 WORK UNIT DEFINITIONS 15

11.0 ATTACHMENTS 15

12.0 RECORD RETENTION 16

13.0 REVISION HISTORY 17

© 2022 PPL Electric Utilities Corporation. All rights reserved.

1.0 PURPOSE/SCOPE

This document outlines the methods and procedures for Vegetation Management (VM) activities associated with the establishment and maintenance of PPL Electric Utilities Corporation (PPL EU) transmission circuits operating at or above 69 kilovolts.

2.0 RESPONSIBILITY

All Contractors performing vegetation maintenance activities on PPL EU rights-of-way or adjacent areas shall have a thorough knowledge of PPL EU specifications. A copy of this and other appropriate specifications (provided by the Contractor) must be always on the work site. The Contractor shall make reasonable accommodations for non-English speaking employees.

The Contractor Shall:

- Take the necessary safety precautions to prevent injury to human life or damage to property and shall carry on its operations with a minimum of interference to traffic or inconvenience to the public.
- In the event of an on-the-job injury or Contractor caused electrical interruption, follow the procedures outlined in the most recent version of the following documents:

"Vegetation Management Contractor Reporting Requirements for Safety Incidents or Property Damage"
or
"Vegetation Management Contractor Reporting Requirements for Electrical System Events"

- Follow all applicable rules and regulations of federal, state, and local agencies.
- Report to PPL EU without intentional delay, all accidents or incidents resulting in injury to workmen or the public or property damage.
- Complete all work as specified by PPL EU and as documented in easement agreements.
- Notify PPL EU of any changes which may be required to work schedules including property owner requests.
- Make changes to work schedules only upon PPL EU authorization.
- Provide all supervision, labor, and equipment necessary for the execution of the work. All personnel must be adequately trained in safety and vegetation management techniques including species identification. PPL EU Authorized Representatives reserve the right to reject any personnel or equipment that do not meet PPL EU standards.
- Maintain copies of all permits obtained by PPL EU on the job site.
- Be responsible for obtaining and maintaining copies of all local permits on the job site.
- Keep all roads open to traffic, as per the most recent revision of The Pennsylvania Department of Transportation Publication 213 (Temporary Traffic Control Guidelines).

© 2022 PPL Electric Utilities Corporation. All rights reserved.

- Be familiar with all designated wetlands within any job site and keep mechanical equipment outside any such designated wetlands unless specifically approved by a PPL EU Environmental Professional. Upon approval by the PPL EU Environmental Professional, vehicles may only be taken into wetlands by using existing roads or using temporary matting.
- Obtain prior consent from a PPL EU Environmental Professional before traversing any access roads which have been restored by PPL EU or any PPL EU Contractors.
- Re-grade and seed any deep cuts, ruts, stump holes, mounded areas, or general soil disturbance caused by the vegetation management operations when, in the opinion of the PPL EU Authorized Representative, they could cause future ground erosion, interfere with line access, or have otherwise caused property damage.
- Without intentional delay, restore and stabilize (e.g., rake out, seed, and mulch) any earth disturbance created during vegetation management activities. If the earth disturbance results in an agency inspection or formal complaint, the PPL EU Environmental professional shall be notified by phone within 4 hours of the event.
- Clean up all debris and rubbish resulting from work as the work progresses, leaving the area in a condition satisfactory to the PPL EU Authorized Representative.
- Take precautions to preserve all survey stakes, hubs, and property corners. Those destroyed shall be replaced at Contractor's expense.
- Without intentional delay, repair or replace all fences or gates damaged by Contractor at Contractor's expense.
- Take adequate care to assure that gates are not left open. If existing fences or gates along a right-of-way are in a state of disrepair prior to the start of clearing, the property owner shall be so notified. In all cases the Contractor shall close and lock all gates behind them.
- Submit daily crew locations to the Regional PPL EU Authorized Representatives.

3.0 APPLICABILITY

The provisions outlined in this specification and additional referenced documents within shall be the primary methods and procedures implemented by all Contractors performing vegetation management activities directly or indirectly for PPL Electric Utilities. Changes to PPL EU Vegetation Management specifications may be made from time to time to stay current with business objectives and regulatory environments. Changes to PPL EU Vegetation Management specifications shall be made at the sole discretion of PPL EU. Any deviation from PPL EU Vegetation Management methods and procedures must be approved in writing by a PPL EU Authorized Representative or the PPL EU Supervisor of Vegetation Management.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

4.0 ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
DEP	Department of Environmental Protection
E&S	Erosion and Sedimentation
EU	Electric Utilities
FAC-003	NERC Standard for Transmission Owner Vegetation Management
FERC	Federal Energy Regulatory Commission
GF	General Foreman (Contractor Representative)
IROL	Interconnection Reliability Operating Limit
kV	kilovolt = 1000 volts
MVCD	Minimum Vegetation Clearance Distance[1]
NERC	North American Electric Reliability Corporation
NPDES	National Pollutant Discharge Elimination System
OGC	Office of General Counsel
OSHA	Occupational Safety and Health Administration
PA	The Commonwealth of Pennsylvania
PPL EU	PPL Electric Utilities Corporation
RMC	Records Management Coordinator
ROW	Right-of-way
TCC	Transmission Control Center
TSO	Transmission System Operator
TVMP	Transmission Vegetation Management Program (EU-NERC-OPS-13)
VM	Vegetation Management
WSZ	Wire Security Zone
WZ/BZ	Wire Zone / Border Zone

The term “Contractor” refers to a business, employee, or agent thereof executing vegetation management activities under contract for PPL EU in accordance with this specification and all other applicable PPL EU policies and procedures.[2]

The term “PPL EU Authorized Representative” refers to an individual is who given authority by the PPL EU Supervisor of Vegetation Management to make decisions and perform quality assurance inspections on behalf of PPL EU.

[1] MVCD – Minimum Vegetation Clearance Distance required to prevent flashover according to FAC-003. MVCD is less than WSZ and shall not be interpreted as an acceptable line clearance at the time of maintenance.

[2] Requirements exclusive to planning contractors are noted as such. Otherwise, Contractor refers to all PPL EU Vegetation Management Contractors.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

5.0 PROPERTY OWNER NOTIFICATION AND REFUSALS

The planning contractor shall be responsible for notifying all property owners and other stakeholders of the intent to perform vegetation management activities unless such notification has been completed and provided in writing to the Contractor by PPL EU.

5.1 General Notification Requirements

- Contractor personnel directly involved in contacting customers are required to have identification, complete with photograph associating them with their employer and/or must possess a PPL EU Contractor Employee badge issued by PPL EU[3]. Identification shall be prominently displayed while engaged in customer contact activities.
- The Contractor may begin operations only after notification to proceed is received from PPL EU.
- The planning contractor shall furnish proof of notification to PPL EU upon request.
- Refusals shall be referred to a PPL EU Authorized Representative.

5.2 Property Owner Refusal Process

The following process shall be followed when required clearances cannot be achieved on any transmission line because of a property owner refusal. **In all cases, the Contractor may not negotiate any work that is below PPL EU specifications.**

- Following initial property owner notification by the planning contractor, if a property owner refuses to allow the Contractor access to the property to perform needed VM work, the planning contractor will notify the responsible PPL EU Authorized Representative and prepare a written Line Clearance Refusal Form documented in work management software.
- The planning contractor will secure a copy of the appropriate right-of-way (ROW) agreement if applicable to determine PPL EU's rights and will provide a copy of the agreement to the landowner if necessary.
- The planning Supervisor will then make an additional attempt to resolve the property owner refusal within two weeks. The planning Supervisor shall make every effort to successfully resolve the refusal before turning it over to PPL EU.
- PPL EU Authorized Representatives may negotiate with landowners however all negotiations must result in the maintenance of adequate line clearance throughout the vegetation management cycle length.
- In the event of an emergent refusal during the work process, the contractor general foreperson is encouraged to contact the property owner and resolve the refusal. In the event the contractor general foreperson cannot resolve the refusal, the contractor general foreperson shall without intentional delay notify the PPL EU Authorized Representative in writing.
- If the property owner still offers resistance, legal assistance/guidance will be requested from PPL EU OGC.

[3] Refer to Contractor Badging Process in the latest version of PPL EU Vegetation Contractor Orientation document.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

5.3 Notification of State[3] and Federal Agencies[4]

All planned vegetation management activities on state and federal lands shall be identified by the planning contractor before the beginning of the annual contract start date. For each work location the easement language shall be reviewed by the Contractor to identify restrictions. If the land is under license agreement, the Contractor will prepare all appropriate notification materials including draft permit applications for PPL EU review. The PPL EU Authorized Representative shall submit the final application to the federal/state agency. Vegetation Management activities may not commence until PPL EU receives confirmation from the applicable agency that all notification and permit requirements have been achieved. Any Contractor who begins work on state or federal land without the express permission of the land manager and the PPL EU Authorized Representative will be responsible for paying all applicable fines as well as being subject to possible contract termination.

6.0 CLEARING REQUIREMENTS

6.1 General Requirements

All re-clearing and herbicide treatments performed on PPL EU rights-of-way must adhere to the following requirements:

A. The entire transmission corridor width shall be treated in accordance with the voltage hierarchy concept.

Voltage Hierarchy in a Common Corridor

Vegetation management work within transmission corridors containing multiple PPL EU facilities shall be maintained following the schedule for the highest operating voltage circuit that is energized within the corridor. During the maintenance cycle for the highest voltage circuit in a corridor, all circuits within the transmission corridor shall be maintained during the highest voltage cycle. When lower voltage circuits are undergoing cycle maintenance, any portion of a lower voltage circuit occurring within a corridor containing a higher voltage circuit shall be passed over and therefore maintained when the highest voltage circuit is scheduled.

Example 1: A 230kV circuit runs parallel with a 69kV circuit for 15 spans. If the 230kV circuit is scheduled for maintenance then the entire corridor is managed. If the 69kV circuit is scheduled, the portion of the 69kV circuit within the common corridor area is not maintained until the 230 kV vegetation management cycle

[3] State Agencies include but are not limited to Pennsylvania Game Commission and Pennsylvania Department of Conservation and Natural Resources – Bureau of Forestry

[4] All work within the National Park Service - Delaware Water Gap National Recreation Area is subject to the provisions of the latest version of the PPL EU Vegetation Maintenance and Condition Monitoring Plan for Susquehanna – Roseland.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

Example 2: Multiple transmission circuits of the same operating voltage run parallel for 10 spans, there are no higher voltage circuits within the corridor. Since the circuits are of the same operating voltage, the higher numbered circuit shall be the ruling circuit within the corridor. The corridor shall be managed following the schedule of the ruling circuit until such a time that a higher operating voltage circuit is energized within the common corridor.

In all cases every circuit within a transmission corridor shall be treated at the same time.

B. Any vegetation, which could grow into the Wire Security Zone (defined in Table1), shall be treated to remove the potential hazard[5]. Treatment could involve cutting to ground line, and or applying herbicides, depending on easement and site restrictions.

C. Trees shall be felled in a manner that minimizes damage to those trees and/or shrubs which are to be preserved. All stumps shall be cut as low to the ground as practical. Stumps shall be cut parallel to the ground with no sharp splinters or points remaining. Where existing usable fences are attached to trunks of trees to be felled, the trees shall be cut at a height approximately 6" above the top wire strand, unless otherwise specified. The continuity of all electric fences shall be maintained. All stumps shall be treated with the appropriate herbicide for species and site conditions.

Table 1
Right-of-Way Clearing Widths and Minimum Conductor-to-Vegetation Clearances

Line Voltage	Desired Clearing Width[6]	Wire Security Zone	Minimum Acceptable Clearance[7] Under / Around
69-138 kV	100’	7’	22’/ 13’
230 kV	150’	14’	25’/ 18'
500 kV	200’	17’	32’/ 23’

[5] No corrective remediation pruning actions required for encroachments of “under” WSZ where compatible species or annual seasonal crops are in the WSZ to the extent vegetation is not expected to encroach into the MVCD. Species acceptability shall be confirmed through on-site review by vegetation management personnel to determine that vegetation growth has been maximized or dead and that the vegetation presents no threat that MVCD could be breached. See the latest version of PPL Electric Utilities FAC-003 Transmission Vegetation Program Document.

[6] Some lines may have agreements specifying different widths. It is not the practice of PPL EU to clear adjacent un- used rights-of-way beyond the clearing widths listed.

[7] Where possible, these distances are the Minimum Acceptable Clearances at time of maintenance where pre- existing agreements do not allow the full implementation of wire zone-border zone management.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

D. Hazard and Danger Trees

To ensure reliability, vegetation management operations must extend to trees located outside the clearing widths given in Table 1. Hazard trees are a subset of danger trees as defined in ANSI standards (ANSI A300 Part 7). Accordingly, ***a danger tree*** is any tree on or off the right-of-way which would either strike the conductor or pass within the minimum conductor clearances noted in Table 2. ***A hazard tree is*** a danger tree which is structurally unsound and therefore presents an increased risk to safety and reliability. A PPL EU Authorized Representative will work with vegetation management Contractors to approve the removal of hazard trees during line clearing/maintenance operations.

Table 2
Clearance for Hazard and Danger Trees

Line Voltage	Hazard and Danger Tree Clearance (Minimum Clearance for Falling Vegetation)[8]
69-230 kV	5’
500 kV	10’

Hazard Trees are defined as trees having one or more of the following characteristics:

1. Decay, cankers, and or hollows present in the main trunk of the tree.
2. Animal and or mechanical damage present in the main trunk of the tree showing visible signs of decay to the extent that it affects its structural integrity.
3. Disease and or insect damage that has affected the tree to such an extent that the trees survival to the next maintenance cycle is in doubt.
4. Root systems exposed to such an extent that the integrity of the tree is reduced.
5. Leaning and or over-crowned trees that cannot be pruned without removing their tops.
6. Splits and or cracks that are to such an extent that the splitting is affecting the integrity of the tree. Trees with Horizontal cracks should be made a high priority for removal.
7. Dead or dying trees that can strike the conductor or pass within the minimum conductor clearances shall be removed.
8. Species known to be weak wooded and or poorly rooted and therefore prone to an increased risk of failure.
9. All co-dominant stems should be considered for removal

[8] Additional clearance to be added to total tree height when assessing hazard and danger trees to prevent flashover.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

6.2 Initial Clearing of a New Right-of-Way or Transmission Line Rebuild

When initially clearing a transmission corridor for a new transmission circuit or transmission line rebuild, all vegetation shall be cleared from the limits of the right-of-way with the exception of grasses and herbaceous or non-woody plants. This is necessary to both establish the extent of the new right-of-way and to accommodate the many construction activities that will occur within the right-of-way to install new foundations, tower structures, and conductors. After the initial clearing of a new right-of-way, PPL EU shall maintain the right-of-way in accordance with §6.3.

Initial clearing of a new right-of-way must adhere to these requirements:

A. All vegetation shall be cleared from the limits of the right-of-way with the exception of herbaceous or non-woody plants. Any mowed areas shall be treated with an appropriate cut stubble application wherever easement rights and regulation allow. Any vegetation that is hand cut shall be treated with the appropriate herbicide whenever easement rights and regulation allow. All debris shall be handled in accordance with the provisions of this document, or as specified by a PPL EU Authorized Representative, and/or by applicable agreements.[9][10]

B. The edge of the right-of-way shall be trimmed “Ground to Sky”. Ground to sky means that all branches overhanging into the easement area shall be removed. All required tree pruning shall conform to the latest approved edition of ANSI Z133 Safety Standards, ANSI A-300 Plant Maintenance, and OSHA 1910.269 as a minimum to assure safety and industry standards are maintained.

C. All off corridor hazard trees shall be removed including edge trees which cannot be properly pruned to the standards outlined above.

D. All stumps and hardwood brush which have not been mechanically removed shall be treated with herbicides to prevent the growth and regrowth of non-compatible vegetation. All applications shall be made under the direction of PA Certified Commercial Pesticide Applicators and done in accordance with product labels and all applicable laws. Herbicide applications may be applied during the following growing season upon mutual agreement of the vegetation Contractor and PPL EU.

E. When required, off right-of-way access roads and structure pad sites shall be cleared of all vegetation. This clearing shall be specified by project management personnel.

F. While general clearing activities (e.g., maintenance) do not generally require job specific environmental permits, the clearing of a new right-of-way will often be done as part of a larger capital job with unique environmental permits. Unless specifically directed otherwise by the PPL EU Environmental Professional, the vegetation clearing contractor will need to review and ensure compliance with any constraints or limitations detailed in the site-specific permit (i.e., General NPDES, General Permit, Joint Permit, etc.).

[9] Exceptions for ravine crossings are described in item D of § 6.3.1of this document.
[10] Wetland Vegetation Management is described in § 6.4 of this document.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

6.3 Vegetation Cycle Maintenance for Existing Circuits

6.3.1 Wire Zone/ Border Zone

The Wire Zone/ Border Zone (WZ/BZ) method of managing transmission rights-of-way is the preferred vegetation management method of PPL EU. Wire Zone/ Border Zone shall be applied where the WZ/BZ method is not explicitly prohibited by easement restriction.

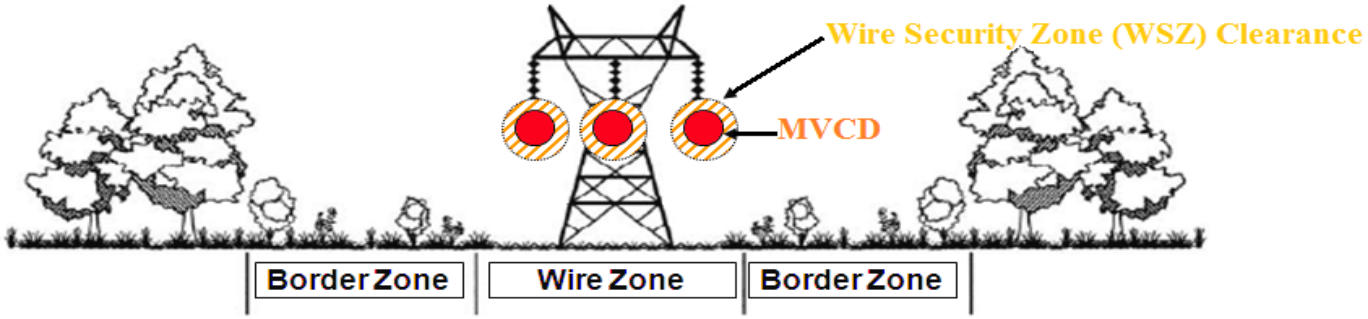
A. The ***Wire Zone*** is defined as that area of the right-of-way corridor that extends from the centerline to a distance ten (10) feet from the outer most conductors. All woody stems shall be controlled in the wire zone. Only Grasses, Ferns, and Herbaceous Plants may be preserved in the Wire Zone.

B. The ***Border Zone*** is defined as that area of the right-of-way corridor that extends from the limits of the Wire Zone to the limits of the easement boundary. Low growing trees and shrubs may be preserved in the border zone.

C. The area outside the easement boundary shall be managed for Hazard Trees.

D. The only exception to the above applies to non-compatible trees growing in ravines, gullies, or on side hills where topography is such that vegetation at a species maximum height will never encroach into the maximum sag wire security zone. In those areas non-compatible species may be preserved across with entire corridor at the desecration of the PPL EU Authorized Representative.

Wire Zone – Border Zone Concept



© 2022 PPL Electric Utilities Corporation. All rights reserved.

Where wire zone/ border zone cannot be applied due to an existing documented easement restriction or other limitation such as a documented site or environmental concern, the following procedures may be utilized as appropriate to the site conditions present.

6.3.2 Selective Clearing

A. All compatible species[11] shall be preserved to the greatest extent possible. Those, which would violate the wire security zone before the next scheduled treatment, shall be removed[12].

B. Any species that exhibits growth characteristics which may violate PPL EU clearances in its lifetime are considered a “non-compatible species” and shall be removed to the greatest extent possible.

C. Selective clearing is an acceptable practice for 69 kilovolt transmission lines which are not designated as an element of an IROL (Interconnection Reliability Operating Limit).

6.3.3 Restricted Clearing

A. All compatible species shall be preserved, wherever possible. Those which would violate the wire security zone before the next scheduled treatment shall be pruned or removed to obtain required “Minimum Acceptable Clearance” (defined in Table 1).

B. Any non-compatible species, which have violated or would violate the wire security zone before the next scheduled treatment shall be removed.

C. The remaining non-compatible species shall be preserved until the time comes when they can no longer be effectively pruned to maintain line clearance throughout the vegetation management maintenance cycle. This means that smaller (young) trees of non-compatible species are temporarily retained. As an adequate compatible cover becomes established over time, these non-compatible species shall be removed.

---

[11] Compatible species guidelines are located in the “attachments” section of this document.

[12] No corrective remediation pruning actions required for encroachments of “under” WSZ where compatible species or annual seasonal crops are in the WSZ to the extent vegetation is not expected to encroach into the MVCD.
Species acceptability shall be confirmed through on-site review by vegetation management personnel to determine that vegetation growth has been maximized or dead and that the vegetation presents no threat that MVCD could be breached

© 2022 PPL Electric Utilities Corporation. All rights reserved.

6.3.4 Centerline Agreements

Some PPL EU rights-of-way may be described under what is referred to as a Centerline Agreement. Centerline Agreements establish the location of the centerline of the right-of-way; however, they do not define the total width of the easement or the distance from the centerline to the edge of the right-of-way.

A. Rights-of-way with centerline agreements shall be cleared to the existing large tree edge or at a minimum to 20’ from the outmost conductor, whichever distance is greater.

B. Any tree at or beyond the large tree edge with limbs encroaching within 20’ of the outermost conductor shall be pruned back to the main stem from ground to sky.

6.3.5 Tree Pruning

Tree pruning for apical clearance is only considered when specified within the language of pre-existing right-of-way agreements and may only be undertaken with PPL EU authorization. Removal of vegetation that poses a clearance concern is the preferred method of management.

All trees will be pruned by the guidelines detailed in the most current revision of the American National Standard for Tree Care Operations (ANSI A300). All pruning cuts should be made back to lateral branches at least one-third the diameter of the limb being removed or to the branch collar of the parent stem.

Every effort shall be made during the pruning process, to prevent damage to surrounding property and/or the tree itself. Tree gaffs or hooks will not be permitted in any maintained yard tree to be pruned. They will, however, be permitted in any tree to be removed or in forest trees to be pruned, unless objected to by the property owner.

6.4 Wetland Vegetation Management

Wetlands are defined in Section 404 of the Federal Clean Water Act and PA DEP’s Chapter 105 regulations as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions including swamps, marshes, bogs, and similar areas.

Note: Wetlands may have standing water, have plants that are adapted to wet conditions, and/or contain hydric soils. Not all wetlands have visible water or classic wetland plants (i.e., cat tails) so it is imperative the wetland surveys are completed, and the areas noted on the plans and/or in the field. The contractor shall use a combination of the National Wetlands Inventory and actual field observations to make a final wetlands determination.

- “Drop and lop” (see § 7.2 of this document) shall be the preferred method for the disposal of woody debris in wetlands. The intention of drop and lop is to minimize impacts to the wetland by leaving woody debris where it falls.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

- Special care will be made to ensure that felled trees, logs, slash, brush, and chips do not impede any running water or seasonally dry waterways or drainage culverts. Slash will be compacted in such a manner that it will not be carried away by high water.
- Mechanical Equipment shall not be used in wetlands unless specifically approved by a PPL EU Environmental Professional. Upon approval by the PPL EU Environmental Professional, vehicles may only be taken into wetlands by using existing roads or through the use of temporary matting.

7.0 DISPOSITION OF CLEARED VEGETATION

The procedures and equipment used for the disposition of cleared vegetation should minimize disturbance to both the right-of-way soil cover and to the vegetation that is to remain within the right-of-way. All disposal operations shall closely follow (by no more than 3 days) clearing operations to keep work confined to one area and to prevent unsightly and unsafe conditions. **Wind Rowing as described below, shall be the preferred method of debris disposition** unless otherwise specified by a PPL EU Authorized Representative or as required by site conditions or permit restriction.

7.1 Wind Rowing

A. Timber Piles (6" or larger in diameter)

- All timber shall be placed in neat piles along the edge of the right-of-way, away from areas of preserved compatible vegetation. Under normal conditions timber piles will be interspersed with slash piles.
- Timber shall be stacked in tree length piles unless otherwise specified, in piles not greater in length than the longest tree length. A separation of at least 10' shall be provided on either side of each pile.
- All access roads, trails and streams (including their banks) shall be kept clear. Piling shall not be done where piles would be highly visible from any improved road.
- When working in a floodway or floodplain, all timber piles shall be placed on the side of the ROW furthest from the river/water source to the greatest extent possible.

B. Slash Piles

- All slash (i.e., trees less than 6" in diameter, treetops, and limbs) shall be stacked in flattened mounds along the edge of the right-of-way, away from areas of preserved compatible vegetation.
- Slash piles shall be dressed of excessively protruding limbs and compacted to keep visual obstruction to a minimum. Generally, they should not exceed 5-6' in height, except where site conditions are such that higher piles are acceptable (e.g., depressions, rough terrain in remote areas). Compaction of piles may be facilitated by use of equipment employed in the associated clearing operation.
- The length of a slash pile should not be any greater than a tree length timber pile, and its width limited so as not to interfere with access road construction or conductor stringing. A separation of at least 10' shall be provided on either side of each pile.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

- All roads, trails, and streams (including their banks) shall be kept clear. No piling shall be undertaken where piles would be highly visible from any improved roads, at other locations involving high public visibility, or near tower or pole sites.
- When working in a floodway or floodplain, all slash piles shall be placed on the side of the ROW furthest from the river/water source to the greatest extent possible.

7.2 Drop and Lop

- All non-compatible vegetation shall be cut so that it falls toward the edge of the right-of-way, away from any designated access paths. After trees are felled, all long limbs shall be removed from the trunk, and the tree shall be bucked in order to keep the vegetation as close to the ground as possible.
- If necessary, trees and/or slash shall be moved to create a clear path for wire stringing, as needed.
- In all areas where drop and lop is implemented, the Contractor shall establish a path for reasonable access between structures.

7.3 Chipping

- All timber shall be stacked, according to the procedure described under “Wind Rowing” above.
- All slash shall be fed through a mechanical chipper immediately after cutting.
- Unless otherwise specified, chips may be randomly scattered on the right-of-way, except in the following areas: fields, along city streets, park areas, within wetlands, and on the banks of streams or ponds. In such areas, chips must be disposed of at an acceptable site.

8.0 HERBICIDE APPLICATIONS

Herbicide Applications:

- Shall be performed in accordance with the latest version of “PPL EU Herbicide Application Policy”
- Contractor employees shall possess appropriate Commercial Applicator/Technician certification and the Contractor shall have a pesticide application business license, in compliance with the Pennsylvania Pesticide Control Act of 1973 (3 P. S. § § 111.21—111.61).
- The Contractor shall maintain a record of all required property owner contacts on log sheets. These records will be submitted to a PPL EU Authorized Representative at his/her request and at the completion of each line.
- All target species will be adequately treated to produce the necessary control. A responsible Contractor Representative will review all prior year herbicide applications for quality control. The Contractor shall retreat at their own expense until the desired results are obtained.
- Vehicles used for application and property owner contacts must have Contractor identification of suitable size lettering as approved by a PPL EU Authorized Representative.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

9.0 COMPLIANCE AND EXCEPTIONS

All vegetation management activities shall be performed in accordance with the latest version of NERC FAC-003 and the latest version of EU-NERC-OPS-013.

In addition to the exceptions specifically authorized herein, the PPL EU Supervisor of Vegetation Management, or his or her designee, may from time to time grant an exception to PPL EU's documented vegetation maintenance strategies, procedures, processes or specifications related to this document for good cause, including, but not limited to, such factors as safety conditions, weather, ice, flooding, emergencies, disasters, labor disputes, or legal limitations. Any such exceptions shall be in writing.

10.0 WORK UNIT DEFINITIONS

Refer to latest version of the PPL EU Transmission Unit Descriptions Table.

11.0 ATTACHMENTS

Compatible Species List[13] (Does not include Horticultural plant varieties)

I. SMALL TREES[14]

a) Flowering Dogwood (*Cornus florida*)
b) Redbud (*Cercis canadensis*)
c) Hawthorn (*Crataegus spp.*)
d) Blue Beech (American Hornbeam) (*Carpinus caroliniana*)
e) Shadbush (Juneberry, Serviceberry) (*Amelanchier spp*.)
f) Eastern Red Cedar (*Juniperus virginia*)
g) Northern White Cedar (*Thuja occidentalis*)
h) Dwarf Willow (*Salix spp*.)
i) Deciduous Holly (Winterberry) (*Ilex verticillata*)

II. LARGE SHRUBS

a) Alder (*Alnus spp.*)
b) Witch-hazel *(Hamamelis virginiana*)
c) Spicebush (*Lindera benzoin*)
d) Common Chokecherry (*Prunus virginiana*)
e) Elderberry (*Sambucus spp.)*
f) Rhododendron (*Rhododendron spp.*)
g) Virburnum (*Viburnum spp*.)
h) Dogwood (*Cornus spp.)*
i) Smooth (Dwarf) Sumac (*Rhus glabra*)
j) Staghorn Sumac (*Rhus typhina*)
k) Chokeberry (*Pyrus arbutifolia*)

© 2022 PPL Electric Utilities Corporation. All rights reserved.

III. SMALL SHRUBS

a) Mountain Laurel (*Kalmia latifolia*)
b) American Yew-Ground Hemlock (*Taxus canadensis*)
c) Sweetfern (*Comptonia peregrina*)
d) Honeysuckle (*Lonicera spp.)*
e) Huckleberries (*Gaylussacia spp*.)
f) Blueberries (*Vaccinium spp*.)
g) Viburnum (*Viburnum spp*.)
h) Meadowsweet (*Spirea spp*.)
i) Wintergreen (*Gaultheria procumbens*)
j) Trailing Arbutus (*Epigaea repens*)
k) Blackberry (*Rubus allegheniensis*)
l) Raspberry (*Rubus occidentalis*)
m) Hazlenut or Filbert (*Corylus spp*.)
n) Scrub Oak (*Quercus spp*.)

IV. ALL NATIVE GRASSES, FERNS AND HERBACEOUS PLANT

12.0 RECORD RETENTION

12.1 Record retention shall be consistent with the PPL Corporation Records Management Project Retention Schedule.

12.2 This document shall be reviewed annually by the Supervisor of Vegetation Management in Electric Utilities.

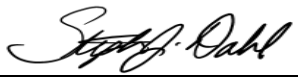
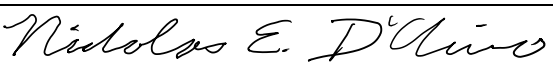
12.3 The review shall be facilitated by the Records Management Coordinator (RMC).

[13] This list is not all inclusive and is meant to be a guideline. These species are to be preserved as appropriate in accordance with this and other PPL EU Vegetation Management Specifications. Some species represented on this list as compatible may require removal due to site conditions, regulatory requirements, and other needs of PPL EU to build, operate, and maintain a safe and reliable transmission system.

[14] These species shall be evaluated on an individual basis. Over mature specimens can exceed 40’ in height and must be removed if they become a clearance threat.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

13.0 REVISION HISTORY

Prepared by:	
	Stephen Dahl - Forester
Approved by:	
	Nicholas E. D'Amico - Supervisor – Vegetation Management

Revision	Date	Revision Comments
14	07/05/2022	• Removed requirement to submit weekly transmission locations to TSO. • Updated Manager of Vegetation Management to Supervisor of Vegetation Management. • Removed footnote reference to Vegetation Management Contractor Portal. • Remove CARC from Acronyms and Abbreviations. • Updated acronym definition of TVMP. • Updated responsibilities for property owner notification. • Updated language for property owner refusals. • Removed references to access roads from Selective and Restrictive clearing sections. • Removed requirement to notify PPL EU ROW department of sub-standard ROW widths from Centerline Agreement Section. • Updated chipping definition in section 7.3. • Removed work unit definition discussion and replaced with reference to the latest version of the PPL Transmission Unit Descriptions table. • Minor grammatical corrections.
13	06/01/2018	• Removed Reviewed By section
12	10/1/2017	• Edited Example 2 of section 6.1 General Requirements, Section A • Added Work Unit Definitions section • Edited Section 6.2 A.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

11	01/01/2017	• Update to Wire Security Zone and Minimum Acceptable Clearance Distance Table. • Update to Initial Clearing of New Right-Of-Way or Transmission Line Rebuild section language related to herbicide treatment of vegetation removal. • Updated to Wire Zone/Border Zone section language related to herbicide treatment of vegetation removal. • Added Reviewed by section to the Revision History section.
10	12/22/2014	• Reformatted entire document into preferred PPL EU format. • Removed Roman numeral section numbers. • Added expanded Responsibility section. • Removed herbicide mix tables from body, created herbicide supporting document. • Added Voltage Hierarchy concept to beginning in 2016. • Added no remediation required for annual crops or dead vegetation that will never encroach into MVCD. • Added Hazard tree terminology, replaced references to danger trees with hazard tree in most cases. • Removed transmission line cross section diagrams. • Updated clearing width table. • Removed referenced to retired TVMP and previous versions of LA-79827. • Further defined WZ/BZ concept. • Updated WZ/BZ diagram. • Reduced applicability of pruning in favor of removing non-compatible vegetation. • Replaced debris disposal with debris disposition. • Established wind rowing as the preferred method of debris disposition. • Added requirements to restore earth disturbance. • Added requirement to not access any restored areas or wetlands with mechanical equipment without contacting PPL EU Environmental professional. • All references to Forester or LCI replaced with PPL EU Authorized Representative. • All references to company representative replaced with PPL EU Authorized Representative. • All references to PPL Electric changed to PPL EU • Added sub-section describing centerline rights-of-way. • Added footnote to reference PPL EU Vegetation Contractor Orientation Document. • Added Acronyms and Abbreviations section. • Added Compliance and Exceptions section. • Added Record Retention section.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

09	09/12/2013	• Simplified Document Title • Section I, Updated scope to include compliance with all permits and laws. • Section II, Added “Initial Clearing of a New Right-of-Way” • Section III, Updated verbiage. • Table 3, Removed American Chestnut as a Compatible Species • Section IV removed references to burning brush as an acceptable method of debris disposal. • Table 4, Updated list of Approved Herbicides and Spray Mixtures • Section VI removed references to burning brush. • Section VI, Updated instructions for reporting Electrical System Events and on the job injuries.
08	12/01/2010	• Section III, Part A updated to add Wire Zone-Border Zone management technique to be used where applicable and not sole management technique. • Section III, Part A, sections 2 and 3 updated to clarify acceptable/non-compatible species and possible exceptions to WZ-BZ. • Acceptable Species Table 3 specified as to not include horticultural plant varieties. • Section III, Part A, section 4 amended to reflect pruning is not preferred for trees under wires. All pruning to be completed with PPL authorization • Section V, parts A & B amended to reflect new herbicide application techniques (cut-stubble). • Table 4 Amended to reflect updates to approved herbicide mix alternatives. • Section IV, remove reference to PPL Specification A-118231 as it was retired. • Amended applicable footnotes to reference current Specification, LA-79827-8, for species acceptability.
07	07/01/2009	• Section III updated to add Wire Zone-Border Zone Management technique to be used where applicable. • Herbicide Alternative 6 amended to remove Oust and replaced with Escort into mix. • Amended applicable footnotes to reference current Specification, LA-79827-7, for species acceptability.

© 2022 PPL Electric Utilities Corporation. All rights reserved.

06	03/01/2009	• Specification update to add clarification footnotes to Section II – Clearing Requirements, Section III Clearing Procedures, and Table 1 Right-of-Way Clearing Widths and Conductor-to Vegetation Clearances to note: “No corrective remediation pruning actions required for encroachments of WSZ (only) where maximum-sag conductor conditions have been identified, species acceptability- per PPL EU Specification LA-79827-6 confirmed, and vegetation growth has been determined to be maximized or vegetation is dead.”
05	03/01/2008	• Update specification for NERC FAC-003-1 compliance requirements of defined clearance 1 and 2 as applicable to lines operated at 200kV or above. • Updated acceptable use herbicides, adjuvants and mixture alternatives. • Added additional contractor requirement in event of work-related interruption or identification of imminent threat. • Remove references to PP&L throughout and replace with PPL Electric Utilities.
04	12/31/1993	• Update specifications to more current vegetation management practices and materials.
00	1970	• Earliest known reference to LA-79827-0

© 2022 PPL Electric Utilities Corporation. All rights reserved.

Attachment 13

ATTACHMENT 13
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
PPL ELECTRIC DESIGN CRITERIA AND SAFETY PRACTICES

TABLE OF CONTENTS

1.0 DESIGN CONSIDERATIONS 13-1

2.0 PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES 13-4

3.0 PERSONNEL SAFETY RULES 13-5

4.0 MAGNETIC FIELD MANAGEMENT PLAN 13-6

LIST OF TABLES

Table 13-1. 69 kV Vertical Clearance to Ground 13-2

Table 13-2. 138 kV Vertical Clearance to Ground 13-2

Table 13-3. 230 kV Vertical Clearance to Ground 13-3

Table 13-4. 500 kV Vertical Clearance to Ground 13-3

1.0 DESIGN CONSIDERATIONS

The Sugarloaf 500/230 kV Transmission Line Project will be designed according to, and generally exceed, all National Electric Safety Code ("NESC") minimum standards. The NESC is a set of rules to safeguard people during the installation, operation, and maintenance of electric power lines. The NESC contains the basic provisions considered necessary for the safety of employees and the public. Although it is not intended as a design specification, its provisions establish minimum design requirements. PPL Electric Utilities Corporation ("PPL Electric" or the "Company") has developed design specifications and safety rules which meet or surpass all requirements specified by the NESC.

The NESC includes loading requirements and clearances for the design, construction, and operation of power lines. The "loads" on conductors and supporting structures are the mechanical forces that develop from the weight of the conductors, the weight of ice on the conductors, plus wind pressure on the conductors and supporting structures. Loading requirements are the loads on the conductors and structures that are anticipated assuming certain ice and wind conditions. Loading requirements always contain "safety factors" to allow for unknown or unanticipated contingencies. The clearances and loading requirements contained in the NESC were developed to ensure public safety and welfare.

PPL Electric transmission line design standards meet or surpass the NESC standards. For example, the relative order of grades of construction for conductors and supporting structures is B, C, and N; Grade B being the highest. According to the NESC standards, construction Grades B, C, or N may be used for transmission lines (except at crossings of railroad tracks and limited access highways where Grade B construction is specified). However, PPL Electric designs all of its transmission lines for Grade B construction. The use of Grade B design and construction specifies enhancements such as increased safety factors.

Another example is the design parameters utilized to account for ice and wind loadings on the wires and structure. The conductor sags and tensions along with the structure loading used in line designs are the result of various ice and wind combinations, PPL Electric transmission lines are designed to exceed NESC requirements with additional load cases to account for various ice and wind loading conditions not required by NESC. This means that PPL Electric lines are designed to operate safely

and reliably during inclement weather even more severe than assumed by the NESC. In addition, PPL Electric transmission lines are designed with more clearance to the ground than required by the NESC. **Tables 13-1 through 13-4** compare PPL Electric and NESC ground clearances for lines of various voltages. For this Project, PPL Electric applied their 230 and 500 kV design requirements. The 230 and 500 kV ground clearances provide similar to slightly enhanced clearances for the new transmission lines. **Table 13-3** details ground clearances that will meet or exceed those required for 230 kV. **Table 13-4** details ground clearances that will meet or exceed those required for 500 kV.

Table 13-1. 69 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**Minimum Conductor Clearances**
Roads, streets, alleys	19.2 Ft.	22.2 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	19.2 Ft.	22.2 Ft.
Spaces accessible to pedestrians only	15.2 Ft.	22.2 Ft.
Railroad tracks	27.2 Ft.	30.2 Ft.

Table 13-2. 138 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**Minimum Conductor Clearances**
Roads, streets, alleys	20.6 Ft.	23.6 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	20.6 Ft.	23.6 Ft.
Spaces accessible to pedestrians only	16.6 Ft.	23.6 Ft.
Railroad tracks	28.6 Ft.	31.6 Ft.

Table 13-3. 230 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**Minimum Conductor Clearances**
Roads, streets, alleys	22.4 Ft.	25.5 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	22.4 Ft.	25.5 Ft.
Spaces accessible to pedestrians only	18.4 Ft.	25.5 Ft.
Railroad tracks	30.4 Ft.	33.5 Ft.

Table 13-4. 500 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**Minimum Conductor Clearances**
Roads, streets, alleys	28.4 Ft.	31.4 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	28.4 Ft.	31.4 Ft.
Spaces accessible to pedestrians only	24.4 Ft.	31.4 Ft.
Railroad tracks	36.4 Ft.	39.4 Ft.

A relay protection system is used to protect the public safety and welfare as well as equipment and the transmission system. Relay protection is installed for all transmission lines to automatically de-energize the line in the unlikely event that the line or supporting structure fails and the line contacts the ground.

2.0 PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES

To ensure continued public safety and integrity of service, a periodic maintenance and inspection program is implemented for every transmission line. The program is administered through the use of helicopter patrols, with supplemental foot patrols as needed. Helicopter patrols are performed on all lines on a predetermined frequency, depending on voltage level. The two-man helicopter crew flies parallel, to the left, and above the line so that the observer can look for signs of line damage or deterioration and observe clearances between vegetation and conductors. The observations are included in a report that is forwarded to the appropriate department for corrective action.

3.0 PERSONNEL SAFETY RULES

Overall PPL Electric designs and constructs projects with high regards to public safety and follows or exceeds all codes and requirements.

The following are a few of the PPL Electric safety rules that demonstrate the Company's concern for employee and contractor safety:

- Work procedures have been developed to allow work to be performed on energized facilities in a safe manner. When lines or apparatus are removed from service to be worked on, the Energy Control Process system is applied. This system provides that a red tag must be physically placed on the control handle of the de-energized equipment.
    - The red tag may be removed only after proper authorization to energize the equipment.
    - Various other tags are used for limited operations and informational purposes.
    - Employees or contractors will not apply or remove a tag or change the status of tagged equipment unless authorized.
- Temporary safety grounds are used on de-energized facilities for employee lineman safety during maintenance, construction, or reconstruction work. Safety grounds are wires connecting the de-energized facility to an electrical ground. If the facility should be energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury.
- Before applying grounds, a test is done to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability.
- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.

4.0 MAGNETIC FIELD MANAGEMENT PLAN

PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. In order to lower magnetic field exposures, the program generally prescribes the use of a line design that provides ground clearances higher than the required minimum NESC ground clearance and reverse phasing of new double circuit lines where it is feasible to do so at low or no cost. The implementation of additional modifications to reduce magnetic field levels, are considered, provided those modifications can be made at low or no cost and will not interfere with the operation of the line. PPL Electric's Magnet Field Management Program is provided as **Attachment 11**.

Attachment 14

ATTACHMENT 14
SUGARLOAF 500/230KV
TRANSMISSION LINE PROJECT
AGENCY COORDINATION

As described in **Attachment 4**, an online Pennsylvania Natural Diversity Inventory ("PNDI") review was conducted for the Proposed Route on December 5, 2025. Specific agencies reviewing the Project include the United States Fish and Wildlife Service ("USFWS"), Pennsylvania Game Commission ("PGC"), Pennsylvania Fish & Boat Commission ("PFBC"), and Pennsylvania Department of Conservation and Natural Resources ("DCNR"). The final online PNDI review noted potential impact to the Screw-Stem (*Bartonia paniculata ssp. paniculata*). PPL Electric will conduct field surveys in 2026, during blooming season, to determine if the species is present. If present, PPL Electric will coordinate with DCNR on mitigation plans such as clear matting which was used on a similar project in area for mitigation. The PNDI also indicated impacts to long eared bat species known to occur in proximity to the Project. PPL Electric will adhere to time-of-year restrictions for any tree clearing to mitigate impacts to species. The remaining agencies reported no known impacts to threatened and endangered species and/or special concern species and resources within the Project Area.

PPL Electric will conduct an online review through the Pennsylvania State Historic Preservation Office ("SHPO") PA-SHARE in the second quarter of 2026. Based on prior projects completed in this right of way ("ROW") corridor, no impacts to archeological and historic architectural resources are anticipated.

After the Proposed Route was announced to the public at the April 30, 2025, public open house meeting, some slight modifications were made to the route, based on landowner requests. These modifications resulted in the revised Proposed Route, which is the subject of this filing.

As required by Pennsylvania Title 25, Chapter 102, a National Pollutant Discharge Elimination System ("NPDES") Permit for Construction Activities is required, and coordination with the Pennsylvania Department of Environmental Protection ("PADEP") has begun. Because High-Quality waters are present, an Individual Permit is being obtained for the Project. Coordination of the NPDES Permit has also begun with the Luzerne County Conservation District ("LCCD").

Wetlands and waterways within the ROW of the Sugarloaf 500/230 kV Transmission Line Project have been delineated using PADEP- and U.S. Army Corps of Engineers ("USACE")-approved methodologies. The findings from the delineation were developed into a Wetland Delineation Report that will be filed with the Permit Application required for the construction of this Project. Information on the location of these features has been used by project engineers to help guide the placement of transmission poles and alignment of access roads. Based on current engineering design, no proposed poles will be in a wetland area. Evaluation of the development of temporary versus permanent access roads through wetlands and across waterways is being conducted by project engineers. Unavoidable impacts to these features will be reviewed with LCCD, PADEP, and USACE to determine the form and level of mitigation that will be required. Pre-application meetings with these agencies have been coordinated and discussions regarding the project are on-going.

Highway Occupancy Permits ("HOPs") are required through the Pennsylvania Department of Transportation ("PennDOT") for limited access at three locations for the project. PPL Electric will continue to coordinate with PennDOT to obtain these permits.

A Notice of Proposed Construction must be reviewed by the Federal Aviation Administration ("FAA") for any structures greater than 200 feet in height or located within 20,000 feet of an airport, or for those structures whose filing is requested after running the Notice Criteria Tool[1] to determine if there is potential interference with airport operations. PPL Electric will consult with the FAA and prepare all items pertaining to the required Notice of Proposed Construction.

[1] A tool used to determine if a company meets the requirements to file notice of construction.

Attachment 15

The following table identifies National Register of Historic Places ("NRHP") listed, eligible and potentially eligible or unevaluated cultural resources located within 2 miles of the Alternative Routes. Ineligible resources are not included in this Attachment. Previously identified cultural resources located within the Study Area are discussed in **Attachment 3**, **Section 2.4** and resources located within 1 mile of the Alternative Routes are discussed in **Attachment 4**, **Section 4.2.3**.

Table 15-1
Historic Architectural Sites within 2 Miles of the Alternative Routes

Resource Number	Name	Municipality[1]	Type	NRHP Status	Within Study Area[2]
1988RE00918	Bridge No. 45802	Hollenback Twp	Structure	Eligible	No
1988RE00945	Bridge No. 57310, Nescopeck Creek Bridge	Sugarloaf Twp	Structure	Eligible	No
1995RE34805	L.R. 40029 Bridge 40 2 0 0029 0 03387	Salem Twp	Structure	Undetermined	No
1995RE39256	Foothills Farm	Sugarloaf Twp	Building	Undetermined	No
1998RE01317	Keller Road Historic District	Sugarloaf Twp	District	Undetermined	No
2004RE04097	Luzerne County Bridge No. 54706	Black Creek Twp	Structure	Eligible	No
2004RE05532	Bridge - SR 7230	Sugarloaf Twp	Structure	Eligible	Yes
2004RE10207	Wapwallopen Creek Bridge	Hollenback Twp	Structure	Eligible	No
2005RE00609	North Branch Canal segment	Salem Twp	District	Undetermined	No
2008RE00415	North Branch of the Pennsylvania Canal	Salem Twp	Structure	Eligible	No

[1] All included resources are located in Luzerne County.
[2] Some previously identified cultural resources are located outside of the project Study Area, but within 2 miles of the Alternative Routes.

Table 15-1
Historic Architectural Sites within 2 Miles of the Alternative Routes

Resource Number	Name	Municipality[1]	Type	NRHP Status	Within Study Area[2]
2008RE00419	House at 944 Berwick-Hazelton Highway	Nescopeck Twp	Building	Undetermined	No
2008RE00531	Wapwallopen Historic District	Conyngham Twp	District	Undetermined	No
2008RE00638	Union Reformed & Lutheran Church	Conyngham Twp	Building	Eligible	No
2008RE01115	Harter, A.K. Farm	Conyngham Twp	Building	Eligible	No
2008RE01254	House at 29 Bell Bend Road	Salem Twp	Building	Undetermined	No
2009RE00215	Egrie House	Nescopeck Twp	Building	Undetermined	No
2010RE00722	Lehigh Valley Railroad	West Hazleton Boro, Sugarloaf Twp, Hazle Twp	District	Eligible	Yes
2010RE02609	Delaware, Lackawanna & Western Railroad	Salem Twp	District	Eligible	No
2018RE00787	Betts Property	Hollenback Twp	Building	Undetermined	No
2018RE00793	Everard and Dieterich Family Cemetery	Hollenback Twp	Site	Undetermined	No
2019RE02827	604 River Rd.	Nescopeck Twp	Building	Undetermined	No
2019RE05879	524 River Rd.	Nescopeck Twp	Building	Undetermined	No
2019RE16550	512 River Rd.	Nescopeck Twp	Building	Undetermined	No
2019RE16551	526 River Rd.	Nescopeck Twp	Building	Undetermined	No
2019RE26877	762 River Rd.	Nescopeck Twp	Building	Undetermined	No
2022RE11471	Panetta's Car Mart	Salem Twp	Building	Undetermined	No
2022RE11472	MelRoe's Family Restaurant	Salem Twp	Building	Undetermined	No
2022RE11473	942 Salem Boulevard	Salem Twp	Building	Undetermined	No
2022RE11474	145 Bell Bend Road	Salem Twp	Building	Undetermined	No
2022RE11475	Beach Haven Speedway	Salem Twp	Site	Undetermined	No

Table 15-1
Historic Architectural Sites within 2 Miles of the Alternative Routes

Resource Number	Name	Municipality[1]	Type	NRHP Status	Within Study Area[2]
2022RE11476	A. W. Holloway Store	Salem Twp	Building	Undetermined	No
2022RE11477	Beach Haven Schoolhouse	Salem Twp	Building	Undetermined	No
2022RE11478	Salem Township Fairgrounds	Salem Twp	Building	Undetermined	No
2022RE11479	Mifflin House	Salem Twp	Building	Undetermined	No
2022RE11480	Beach Haven Cemetery	Salem Twp	Site	Undetermined	No
2022RE11481	E. Brockway House	Salem Twp	Building	Undetermined	No
2022RE11482	C. H. Rinehimer Equipment	Salem Twp	Building	Undetermined	No
2022RE11514	Zeiser Concrete Burial Vaults	Nescopeck Boro	Building	Undetermined	No
2022RE11515	A. Keen Farm	Nescopeck Twp	Building	Undetermined	Yes
2022RE11516	374 Berwick-Hazleton Highway	Nescopeck Twp	Building	Undetermined	Yes
2022RE11517	140 Wapwallopen Road	Nescopeck Twp	Building	Undetermined	Yes
2022RE11522	Briggs Farm	Nescopeck Twp	Building	Undetermined	Yes
2022RE11523	146 Beef Hill Drive	Hollenback Twp	Building	Undetermined	Yes
2022RE11524	147 Beef Hill Drive	Hollenback Twp	Building	Undetermined	Yes
2022RE11525	J. Cragle Farm	Hollenback Twp	Building	Undetermined	Yes
2022RE11526	Squig's Place	Hollenback Twp	Building	Undetermined	No
2022RE12038	116 Winfield Village Road	Black Creek Twp	Building	Undetermined	Yes
2022RE12039	108 Winfield Village Road	Black Creek Twp	Building	Undetermined	Yes
2022RE12040	869 West County Road	Black Creek Twp	Building	Undetermined	Yes
2022RE12041	863 West County Road	Black Creek Twp	Building	Undetermined	Yes
2022RE12054	30 Rock Glen Road	Sugarloaf Twp	Building	Undetermined	No

Table 15-1
Historic Architectural Sites within 2 Miles of the Alternative Routes

Resource Number	Name	Municipality[1]	Type	NRHP Status	Within Study Area[2]
2022RE12068	Valley Center	Sugarloaf Twp	Building	Undetermined	No
2022RE12069	Valley Plaza	Sugarloaf Twp	Building	Undetermined	No
2022RE12070	Valley Scoops	Sugarloaf Twp	Building	Undetermined	No
2022RE12071	Order of Friars of the Slavo - Byzantine Rite	Sugarloaf Twp	Building	Undetermined	No
2022RE12072	SCAG Power Equipment	Sugarloaf Twp	Building	Undetermined	No
2022RE12073	RJ Precision Machining	Sugarloaf Twp	Building	Undetermined	No
2022RE12074	299 West County Road	Sugarloaf Twp	Building	Undetermined	Yes
2022RE12075	Pecora's Dairy/Milkhouse Creamery	Sugarloaf Twp	Building	Undetermined	Yes
2022RE12076	28 Twain Circle	Conyngham Boro	Building	Undetermined	No
2022RE12077	30 Twain Circle	Conyngham Boro	Building	Undetermined	No
2022RE12078	Conyngham Public Pool	Conyngham Boro	Building	Undetermined	No
2022RE12079	357/359 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12080	382 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12081	399 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12082	396 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12083	395 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12084	390 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12085	329 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12086	330 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12087	317 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12089	321 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12090	410 Main Street	Conyngham Boro	Building	Undetermined	No
2022RE12091	427 Main Street	Conyngham Boro	Building	Undetermined	No

Table 15-1
Historic Architectural Sites within 2 Miles of the Alternative Routes

Resource Number	Name	Municipality[1]	Type	NRHP Status	Within Study Area[2]
2022RE12092	5 East Benjamin Avenue	Conyngham Boro	Building	Undetermined	No
2022RE12093	65 West Benjamin Avenue	Conyngham Boro	Building	Undetermined	No
2022RE12094	69 West Benjamin Avenue	Conyngham Boro	Building	Undetermined	No
2022RE12095	75 West Benjamin Avenue	Conyngham Boro	Building	Undetermined	No
2022RE12096	550 PA-93	Sugarloaf Twp	Building	Undetermined	No
2024RE00003	88 Walnut Drive Salem Township	Salem Twp	Building	Undetermined	No
2024RE04961	155 Bell Bend Road	Salem Twp	Building	Undetermined	No
2024RE04962	215 Salem Boulevard	Salem Twp	Building	Undetermined	No
2024RE04963	North Side of Klines Road	Salem Twp	Building	Undetermined	No
2024RE04964	37 Bell Bend Road	Salem Twp	Building	Undetermined	No
2024RE04965	65 Bell Bend Road	Salem Twp	Building	Undetermined	No
2024RE04966	81 Bell Bend Road	Salem Twp	Building	Undetermined	No
2024RE04967	1059 Salem Boulevard	Salem Twp	Building	Undetermined	No
2024RE04968	4221 Market Street	Salem Twp	Building	Undetermined	No
2024RE04969	129 Bell Bend Road	Salem Twp	Building	Undetermined	No
2024RE04970	193 Salem Boulevard	Salem Twp	Building	Undetermined	No
2024RE04971	197 Salem Boulevard	Salem Twp	Building	Undetermined	No
2024RE04972	1021 Salem Boulevard	Salem Twp	Building	Undetermined	No

Table 15-2
Archaeology Sites within 2 Miles of the Alternative Routes

Site ID	Type	NRHP Status	Within Study Area[3]
36LU0015	Pre-Contact	Keeper DOE	No
36LU0016	Pre-Contact	Keeper DOE	No
36LU0020	Pre-Contact	Undetermined	No
36LU0021	Both Pre-Contact and Historic	Undetermined	No
36LU0022	Pre-Contact	Undetermined	No
36LU0023	Pre-Contact	Undetermined	No
36LU0024	Pre-Contact	Undetermined	No
36LU0025	Pre-Contact	Undetermined	No
36LU0043	Both Pre-Contact and Historic	Undetermined	No
36LU0056	Pre-Contact	Undetermined	No
36LU0187	Pre-Contact	Undetermined	No
36LU0188	Pre-Contact	Undetermined	No
36LU0216	Historic	Undetermined	No
36LU0270	Pre-Contact	Eligible	No
36LU0351	Pre-Contact	Undetermined	Yes

[3] Some previously identified cultural resources are located outside of the project Study Area, but within 2 miles of the Alternative Routes.

Attachment 16

ATTACHMENT 16
SUGARLOAF 500/230 KV
TRANSMISSION LINE PROJECT
PUBLIC NOTICE REQUIREMENTS

PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to:

1) Rebuild approximately 4.4 miles of the existing single-circuit Sunbury-Susquehanna #1 230 kilovolt ("kV") Transmission Line for double-circuit 230 kV operation ("Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines") from the existing Susquehanna Switchyard to the proposed Nescopeck 230 kV Switchyard ("Nescopeck Switchyard");
2) Construct a new approximately 0.9-mile-long 230 kV transmission line tap for future 230 kV double-circuit operation ("Sunbury-Nescopeck #1 230 kV Transmission Line" or "Tap Line") from the existing single-circuit Sunbury-Susquehanna #1 230 kV Transmission Line to the new Nescopeck Switchyard;
3) Raise approximately 0.5 miles of the Sunbury-Susquehanna 500 kV Transmission Line to accommodate the undercrossing of the proposed Susquehanna-Nescopeck #1 and #2 230 kV Transmission Lines and the proposed Sunbury-Nescopeck #1 230 kV Transmission Line; and
4) Construct a new 11.2-mile-long 230 kV transmission line for future double-circuit 500 kV capacity between the proposed Nescopeck Switchyard, new Tomhicken 230 kV Switchyard ("Tomhicken Switchyard")[1], and existing Harwood 230/69 kV Substation ("Harwood Substation"). After traveling 8.4 miles, the eastern circuit ("Nescopeck-Tomhicken #1 500/230 kV Transmission Line") turns east for approximately 0.3 mile as a single-circuit transmission line to the new Tomhicken Switchyard. At Structure 41 (**Page 9 of 10** of the **Aerial Exhibit** in **Attachment 4**), the western circuit ("Nescopeck-Harwood #1 500/230 kV Transmission Line") continues south for approximately 2.5 miles as a single-circuit transmission line from outside the Tomhicken Switchyard to the existing Harwood Substation.

[1] The Tomhicken Switchyard has not yet been constructed. It is the subject of a Letter of Notification ("LON") which was filed on December 19, 2025, at Docket No. A-2025-3059443. A decision has not yet been issued in this matter.

Collectively, the new and rebuilt transmission lines are referred to in this application as the "Sugarloaf 500/230 kV Transmission Line Project" or the "Project." The Project is required to accommodate multiple customers' requests to serve new and future load in the area. Pursuant to Subchapters G and I of the Commission regulations,[2] and the Commission's Interim Siting Guidelines,[3] PPL Electric has provided packets of information to fully notify landowners who will be subject to the rights-of-way and easements for the proposed Project. These packets of information include the following:

- A Cover Letter from a PPL Electric Senior Real Estate Specialist;
- A Disclosure of Eminent Domain Power of Electric Utilities Required by 52 Pa. Code § 57.91;
- Notification of Right-of-Way Maintenance Practices Required by 52 Pa. Code § 57.91;
- PPL Electric's Internal Practices for Dealing with the Public on Power Line Project Required by 52 Pa. Code § 69.3102;
- Notification to Contact the Commission or Office of Consumer Advocate for Improper Land Agent Practices;
- A Brochure on Electromagnetic Fields;
- A Brochure on Vegetation Management;
- A Glossary of Real Estate Terms; and
- A Request for Survey Permission.

Following this Attachment is a representative information packet that was sent to all landowners that PPL Electric negotiated with to acquire rights of way for the Project. In addition, copies of the Application and supporting Attachments or Notice of Filing are being served in accordance with the provisions of Section 57.74 of the Commission's regulations.[4]

[2] 52 Pa. Code §§ 57.71-57.77, 57.91-57.93.
[3] 52 Pa. Code §§ 69.3101-69.3107.
[4] 52 Pa. Code § 57.74.

INFORMATION PACKET

Chris Monroe
Sr. Right of Way Agent

PPL Electric Utilities
5000 W. Tilghman Street, Suite 157
Allentown, PA 18104
Tel. 570-231-5141

DATE

LANDOWNER
ADDRESS

RE: Nescopeck – Harwood/Tomhicken Double Circuit 500 kV Transmission Line
Parcel #:

Dear LANDOWNER

PPL Electric Utilities Corporation (PPL Electric) is planning to build the Nescopeck – Harwood/Tomhicken Double Circuit 500 kV transmission line in your area. I am notifying you of this proposed project as required by the Pennsylvania Public Utility Commission since we would like to place the transmission line on your property.

Enclosed are notices required by the Pennsylvania Public Utility Commission that provide important information regarding eminent domain, right-of-way maintenance practices, and land agent conduct. Also enclosed is PPL's Internal Practices for Dealing with the Public on Power Line Projects. The Pennsylvania Public Utility Commission's regulations require that PPL provide you with this information at least 15 days in advance of our discussions. For your convenience, I have also enclosed information on electromagnetic fields and a brochure on vegetation management, as well as a glossary of real estate terms.

If you have any questions or concerns, please feel free to contact me at 205-826-8177 or email: chris.monroe@contractlandstaff.com.

I kindly request that you sign, in the space provided, on the following page to indicate that you have received this information.

Sincerely,

Chris Monroe
Sr. Right of Way Agent
Transmission ROW/Land Acquisitions
Representing PPL Electric Utilities Corporation

I acknowledge receiving the information referred to in the letter above and understand that it does not obligate me in any way.

_____

Date _____

Phone _____

Attachments:
- Disclosure of Eminent Domain Power
- Notification of Right-of-Way Maintenance Practices
- Internal Practices for Dealing with the Public on Power Line Project
- Notification Regarding Land Agent Practices
- Information on Electromagnetic Fields
- Brochure on Vegetation Management
- Glossary of Real Estate Terms

Chris Monroe
Sr. Right of Way Agent

PPL Electric Utilities
5000 W. Tilghman Street, Suite 157
Allentown, PA 18104
Tel. 570-231-5141

DATE

LANDOWNER
ADDRESS

Parcel ID:

RE: Survey Permission

In order for PPL Electric Utilities Corporation [PPL] to design its transmission line, various surveys may need to be performed first. This survey work can include but are not limited to, property boundary location surveys, topographic survey, utility easement locating, environmental and archaeological surveys, core borings, soil resistivity testing, infiltration testing, etc. All PPL employees and contractors will be able to provide their company identification upon request.

Please sign in the space provided below to indicate the granting of your permission for PPL or its agents or contractors to perform surveys on your property.

Sincerely,

Chris Monroe
Sr. Right of Way Agent
Transmission ROW/Land Acquisitions
Representing PPL Electric Utilities Corporation

I hereby grant PPL or its agents or contractors permission to enter onto my property for the purpose of performing the above various surveys.

Signed: _____ Print Name: _____

Date: _____ Title: _____

Phone: _____

DISCLOSURE of
EMINENT DOMAIN POWER

The Pennsylvania Public Utility Commission requires PPL Electric Utilities Corporation to give you the following information:

PPL Electric Utilities Corporation (PPL) is planning to build the Nescopeck – Harwood/Tomhicken Double Circuit 500 kV transmission line in your area. Since a field survey and detailed engineering have not been completed, the physical dimensions of the proposed lines and the type and height of supporting structures to be used cannot be precisely determined at this time. However, based on past experience it is expected that the poles will range in height from approximately 100' to 240' with an average height of around 200'. Actual pole heights will be determined during engineering. PPL currently plans to acquire a right of way corridor 200 feet in width to accommodate the 500 kV transmission line.

Since the route could affect your property, a representative of the utility will contact you in the near future to discuss the utility'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 of PPL Electric Utilities Corporation 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 AN 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 Public Utility Commission, for the construction of transmission lines if the utility is unable to negotiate an agreement to buy a 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?

The company cannot condemn your house or a reasonable "curtilage" around your house. Generally, "curtilage" includes the land or buildings within 100 meters of your house which are used for your domestic purposes. However, the 100 meters 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 a certificate. 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, PA17120.

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 of 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.

NOTIFICATION of
RIGHT-OF-WAY MAINTENANCE
PRACTICES

The Pennsylvania Public Utility Commission requires that PPL Electric Utilities Corporation give you the following information on the right of way maintenance practices for the 500 kV line:

The methods currently used by PPL Electric Utilities Corporation are set forth in PPL Electric Utilities Corporation “Program for Vegetation Management”, which will be made available to you for your inspection upon request. If you wish further information concerning right of way maintenance methods, you may contact the person named on the cover letter. 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 or application of herbicides. 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 the 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 which are important to you. These conditions can be part of the negotiations between you and the utility company for your land, since a right of way agreement is a legal contract between a landowner and a utility company. It is important for you to understand also that the maintenance methods used by the utility company 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 damages resulting from improper maintenance of the right of way must be settled with the utility, its contractors, or in the local Court of Common Pleas at your own expense. The Commission cannot award damages for violations of the right of way agreement.

INTERNAL PRACTICES
for
DEALING WITH THE PUBLIC ON POWER LINE PROJECT

PPL Corporation has a long-standing commitment to conducting business in an honest and ethical manner. Consistent with expectations for our employees and representatives laid out in the PPL Standards of Conduct and Integrity, and the Standards of Conduct and Integrity for Suppliers, PPL Electric Utilities Corporation's employees, contractors and agents who interact with members of the public (including landowners along proposed rights of way) in activities such as planning, real estate and right-of-way transactions, siting, and construction of power lines and other facilities will:

- Act with integrity at all times.
- Treat people courteously and in a professional manner.
- Be forthright and honest in all actions and communications.
- Comply with applicable laws and regulations.
- Seek to avoid conflicts of interest.
- Accept responsibility for actions and decisions.
- Be responsible stewards of the environment.
- Place a high priority on the safety of the public and our representatives and employees.

NOTIFICATION REGARDING
LAND AGENT PRACTICES

PPL Electric Utilities Corporation is planning to build the Nescopeck – Harwood/Tomhicken Double Circuit 500 kV transmission line. Since the route could affect your property, a representative from PPL Electric Utilities Corporation will contact you in the near future to discuss the utility's plans as they may affect your property.

The Pennsylvania Public Utility Commission requires PPL Electric Utilities Corporation to provide you the following contact information for concerns regarding the practices of the land agents acting on behalf of PPL Electric Utilities Corporation in connection with the construction of the 500 kV transmission line:

Law Bureau
Pennsylvania Public Utility Commission
400 North Street, 3rd Floor, 4 North
Harrisburg, PA 17120
717-787-5000

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, PA 17101-1923
Phone: 717-783-5048 or toll free 800-684-6560 (PA only) Fax: 717-783-7152
Email: consumer@paoca.org

GLOSSARY of REAL ESTATE TERMS

ABSTRACT OF TITLE: The condensed history of ownership to a particular parcel of real estate, consisting of a summary of ownership from a given time to the present owner.

ACRE: A measure of land equal to 43,560 square feet.

APPRAISAL: An estimate of the value of property; the process through which conclusions of property value are reached.

APPRECIATION: An increase in the worth or value of a property.

CHAIN OF TITLE: A history of ownership of a particular property (see abstract of title).

CONDEMNATION: A judicial or administrative proceeding to exercise the power of eminent domain through which private property is taken for public use.

CONDUCTOR: The wire which carries electric energy.

CONVEYANCE: A transfer of property ownership.

DEED: A written document that, when executed and delivered, conveys title to or an interest in real estate.

DEED RESTRICTIONS: Clauses in a deed limiting the use of the property.

DEPRECIATION: A loss of value in property.

EASEMENT: A right to use the land of another for a specific purpose (e.g., as a right of way for utilities.)

EGRESS: The right to exit a tract of land.

EMINENT DOMAIN: The right of a government, municipal body or public utility to acquire property for public use. (See condemnation)

ENCROACHMENT: An intrusion, such as a house, sign, wall or fence, that intrudes on another's property or right of way.

FAIR MARKET VALUE: The highest price which a willing buyer would pay and the lowest price a willing seller would accept.

FEE OR FEE SIMPLE: The complete and absolute ownership of real estate.

GRANT: The transfer of property rights through a legal document.

GRANTEE: One who acquires property or any property rights from another person.

GRANTOR: One who transfers property or any property rights to another person.

INGRESS: The right to enter a tract of land.

KV: Kilovolt or 1000 volts (138 kV = 138 x 1000)

LIEN: A claim against real or personal property for satisfaction of a debt.

METES-AND-BOUNDS DESCRIPTION: The legal description of a parcel of land that begins at a well-marked point and follows the boundaries, using directions and distances.

MONUMENT: A fixed natural or artificial object used to establish real estate boundaries.

OPTION: The right to purchase a certain property at stated terms, price and time.

RECORDING: The act of entering documents in the Recorder of Deeds office established in each county.

RIGHT OF WAY: Used interchangeably with the word easement. (See easement)

SURVEY: A process of scientifically measuring the quantity and location of a parcel of land.

TAX MAP: Maps used by the county Tax Assessment office showing the locations of properties.

TITLE: Evidence of ownership of land.

ZONING: Regulations pertaining to the use of land and/or buildings.

EMF and Health Information **FACT SHEET**

What is EMF?
"EMF" is an abbreviation for "electric and magnetic fields" and "electromagnetic fields." Power lines, appliances, and home wiring all produce electric and magnetic fields. "EMF" is also often used by people as shorthand for just "magnetic fields," which some people are concerned about, so that is what "EMF" refers to here.

Is EMF "radiation" like medical X-rays or ultraviolet sunlight? No. Radiation from medical X-rays and from the ultraviolet part of sunlight is strong enough to damage DNA. EMF from power lines, appliances, and home wiring is not.

What are the EMF levels from common sources? (in milligauss)

Examples of EMF Sources*	
Coffee makers	7
Electricity distribution line – upper level of typical average	20
Dishwashers	20
500 kV electricity transmission line -- typical average at end of right of way	30
Electricity distribution line -- typical maximum above underground line	40
Florescent lights	40
Electricity distribution line -- typical maximum under overhead line	70
Blenders	70
500 kV electricity transmission line -- typical average under line	87
Toasters	100
Hair dryers	300
Can openers	600

* *People typically change activities and locations during a day, so we are exposed to a variety of sources of EMF and a wide range of field levels. In the table above, field levels are taken from the U.S. National Institute of Environmental Health Sciences (NIEHS) EMF Questions & Answers, pages 33-35 (median level at 6 inches from appliances), page 36 (distribution lines), and page 37 (transmission lines). As noted by NIEHS, field levels of transmission lines can approximately double during peak loads, which occur about 1% of the time.*

What conclusions have public health authorities reached about whether EMF causes health effects?
The EMF health research has been examined by governmental public health authorities and public health organizations in over 160 reports. The World Health Organization has examined the reports on the research and says on its website:

> "Based on a recent in-depth review of the scientific literature, the World Health Organization concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields."
>
> (http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html, section 2, "Conclusions from scientific research.")

Q. Are there any exposure limits for EMF in Pennsylvania?
A. Pennsylvania has not adopted any electric or magnetic field exposure limits.

Q. What is PPL Electric Utilities doing about EMF?
A. PPL Electric Utilities has a magnetic field management program to design and build new lines when practicable in ways that reduce magnetic fields at low or no cost to our customers. For example, the options we will consider for new lines include:

- Reversing the phases of new overhead double-circuit transmission lines, which can result in some cancellation of magnetic fields from the line and lowers the magnetic fields at the edge of the right of way.
- Building new transmission and distribution lines higher than previous designs because the level of magnetic fields at ground level will be lower.

Magnetic field management is considered in the process we use to site new facilities, balancing cost and function with land use and environmental concerns.

Q. Where can I get additional information on EMF?
A. This guide contains detailed information on EMF. More information is also available at the PPL Electric Utilities website at **www.PPLElectric.com/EMF.** If you would like to speak with someone at PPL Electric Utilities about EMF, please call **1-800-DIAL-PPL (1-800-342-5775).**

ppl
PPL Electric Utilities

Vegetation management is critical to electric reliability

Millions of people served by PPL Electric Utilities depend on having reliable power for their homes and businesses. Effective vegetation management along high-voltage transmission lines is a critical part of maintaining that reliability.

PPL Electric Utilities operates thousands of miles of high-voltage transmission lines. Our vegetation management program is designed to promote the safe and reliable operation of the electric grid while making sure that we are sensitive to the concerns of property owners and our obligations to electric customers.



PPL Electric Utilities' right to do this work
The vegetation management work we do will depend on the specific rights we have for each property. We will be happy to discuss these rights with you in advance of any work.

To schedule a meeting with a PPL Electric Utilities representative, email us at **PPLVegetationManagement@pplweb.com.**

For further information, visit **pplelectric.com/vegetation.**



TREE LINE USA®

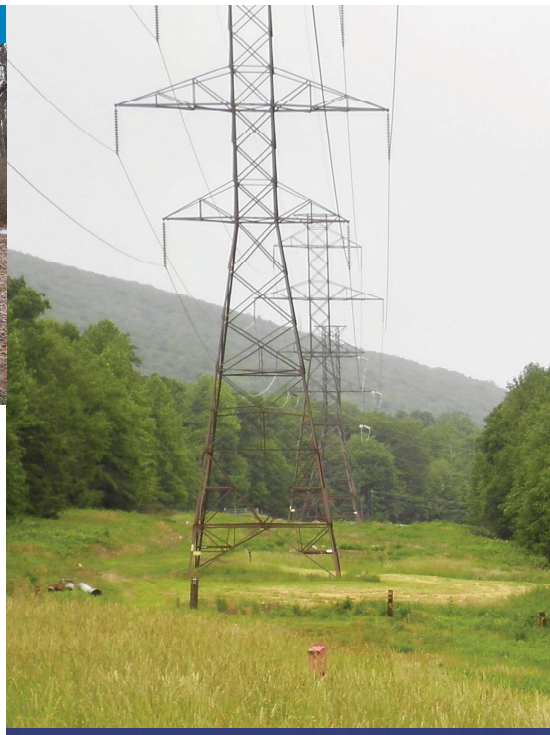
An award-winning program

PPL Electric Utilities is a proud recipient of the **Tree Line USA award** from the **Arbor Day Foundation and the National Association of State Foresters.** The groups seek to promote proper utility arboriculture and public education through annual worker training, quality tree care, tree planting and public education, energy conservation and collaboration with community groups. For information about planting the right tree in the right place, visit arborday.org.

PPL Electric Utilities works with state and local conservation, land management and environmental groups to advance common goals of electric reliability and environmental stewardship.

ppl™
PPL Electric Utilities
pplelectric.com/vegetation

1/2019



Transmission Line Vegetation Management

Keeping your electric service reliable





Transmission Line Vegetation Management

Trees on other vegetation must be kept away from power lines. They are the top cause of storm-related power outages.

If trees get too close to power lines, the result can be a serious power outage. There is also the potential of a serious safety risk to you and to our employees.

We have an obligation to keep the grid safe and reliable and oversight is provided at both the state and federal levels.

Events like the Northeast Blackout of 2003 and the Halloween 2011 snowstorm involved prolonged outages caused by trees. Our vegetation management program is aimed at limiting the effects of trees on the grid.

We take a proactive approach to vegetation management

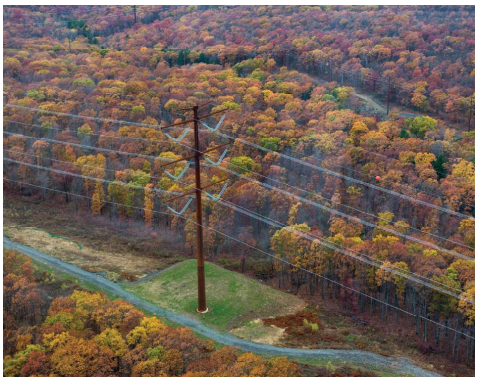
PPL trims and clears its transmission line rights of way in a much more comprehensive way than in the past. Coupled with investments in new poles, wires, equipment and technology, we've been able to substantially improve reliability for customers.

Our pledge to you

We maintain our transmission line rights of way according to a schedule that allows us to cover our entire system over a period of several years.

We know removing and trimming trees is not always popular, but it is the right thing to do on behalf of everyone who depends on the grid.

- We pledge to communicate with property owners well in advance of scheduled work.
- We pledge to work in a professional manner, and to work within the limits of the rights we have to perform this work on each property.
- We pledge to treat all property with care.
- We pledge to strike a careful balance between landowner concerns and the need to keep the grid safe and reliable.





Details of the work we will do

Reducing tree-related power outages is important everywhere, especially along transmission lines which carry high-voltage electricity over long distances.

When it comes to transmission line vegetation management, we view the rights of way in two main sections. The area directly under the wires, plus an additional 10 feet is called the wire zone. The rest of the right of way is called the border zone. What kind of vegetation is allowed in the rights of way depends on the voltage of the line, but in all cases it must be compatible with PPL's job to reduce the threat from trees and other vegetation.

Hazard trees – Sometimes, trees near the right of way fall into poor condition because of disease, storms or other factors. In order to prevent these trees from falling onto our lines, we remove them at no cost to the property owner. Those who decline the removal of a hazard tree could be liable for the cost of repairs to the power line due if it is damaged by the hazard tree.

Benefits to birds – Managing transmission line rights of way creates openings and edges that provide opportunities for native plants to grow and attract birds. According to the National Audubon Society, there are many birds that favor shrub lands and thrive along edge habitat.

Compatible species* –

SMALL TREES
Flowering Dogwood
Redbud
Hawthorn
American Hornbeam
Shadbush (Juneberry, Serviceberry)
Eastern Red Cedar
Northern White Cedar
Dwarf Willow
Deciduous Holly (Winterberry)

All native grasses, ferns and non-woody plants

LARGE SHRUBS
Alder
Witch-hazel
Spicebush
Common Chokecherry
Elderberry
Rhododendron
Viburnum
Dogwood
Smooth (Dwarf) Sumac
Staghorn Sumac
Chokeberry

SMALL SHRUBS
Mountain Laurel
American Yew
Sweetfern
Honeysuckle
Huckleberries
Blueberries
Viburnum
Meadowsweet
Wintergreen
Trailing Arbutus
Blackberry
Raspberry
Hazlenut
Scrub Oak

**This list is not all inclusive and is meant as a guide. Mature specimens of any species may be removed for operational, safety or reliability reasons.*