

ATSI Transmission Zone M-3 Process Sammis – Star 345 kV Line

Need Number: ATSI-2024-027
Process Stage: Solution Meeting - 07/08/2025
Previously Presented: Need Meeting - 04/02/2024

Project Driver(s):

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Global Factors

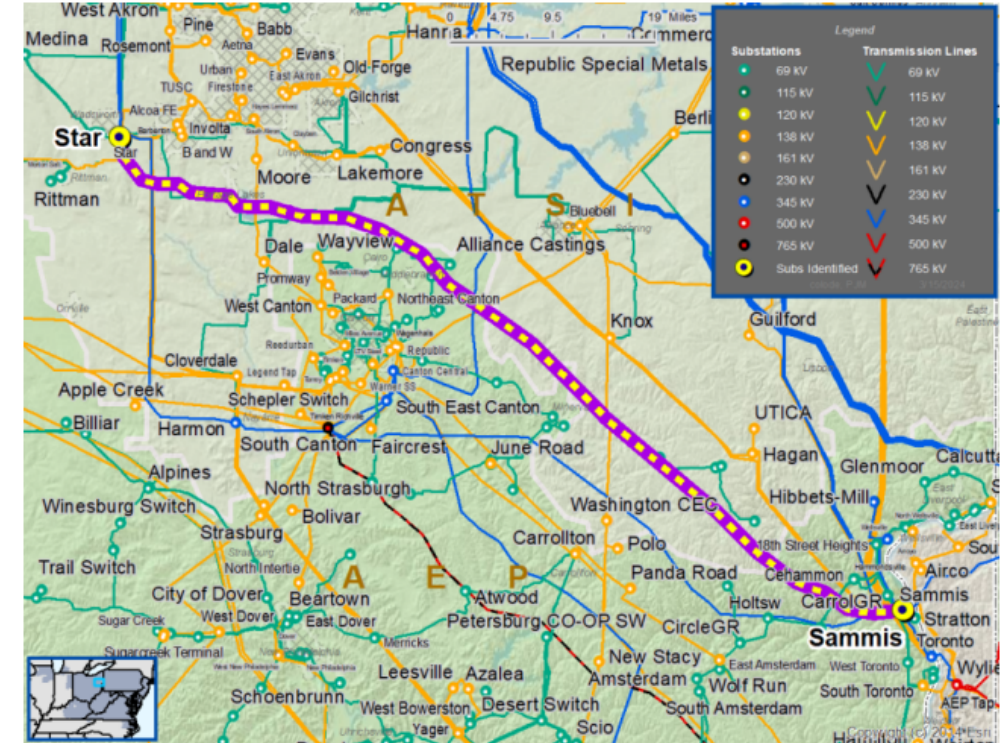
- Past system reliability/performance

Line Condition Rebuild/Replacement

- System characteristics including structural capacity needs
- Current design criteria, applicable codes and industry best practices

Problem Statement:

- The Sammis – Star 345 kV Line was constructed approximately 65 years ago. It is approximately 68.6 miles long and consists of 375 steel lattice towers and 22 wood pole H-frame structures.
- Suspension towers are susceptible to cascading failures. A tornado-induced tower failure destroyed 13 towers due to cascading.
- Current modeling techniques indicate the steel towers do not have the structural strength to withstand NESC required load cases, nor the additional wind and ice load cases required by FirstEnergy.
- Existing Transmission Line Ratings:
 - 1382 / 1712 / 1637 / 2116 MVA (SN/SE/WN/WE)





ATSI Transmission Zone M-3 Process Sammis – Star 345 kV Line

Need Number: ATSI-2024-027
Process Stage: Solution Meeting - 07/08/2025

Proposed Solution:
Sammis – Star 345 kV Line

- Rebuild the existing Sammis – Star 345 kV line (approximately 68.6 miles)

At Sammis and Star substations:

- Replace line relaying

Transmission Line Ratings:
Sammis – Star 345 kV Line:

- Before Proposed Solution: 1382 / 1712 / 1637 / 2116 MVA (SN/SE/WN/WE)
- After Proposed Solution: 2504 / 2883 / 2505 / 3033 MVA (SN/SE/WN/WE)

Alternatives Considered:
Maintain line in existing condition with elevated risk of failure due to suspension towers susceptible to cascading failures.

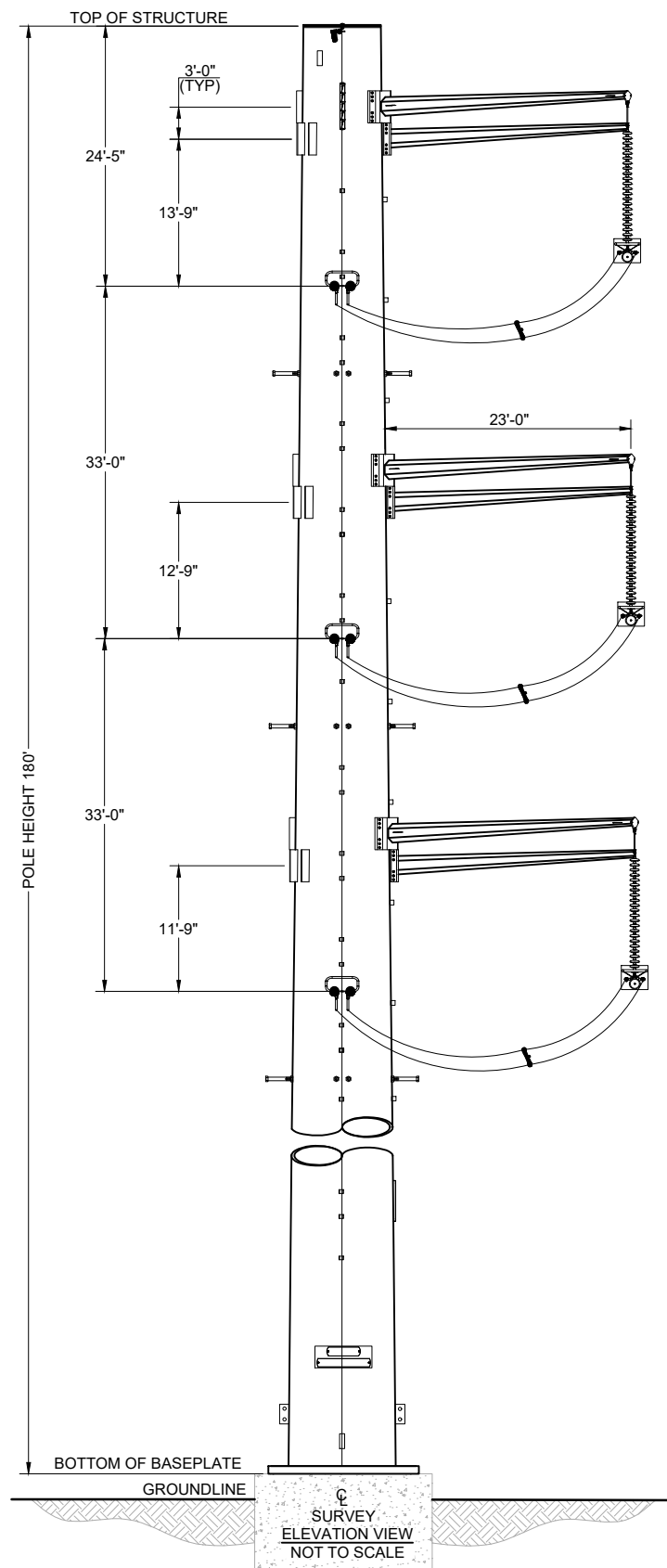
Estimated Project Cost: \$343.70M
Projected In-Service: 5/30/2031
Project Status: Conceptual
Model: 2024 RTEP model for 2029 Summer (50/50)



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Exhibit 5

Parcel Number	Acreage	Easement Status	Agricultural District (Yes/No)	Agricultural District Expiration Year
27-03034-000, 27-00633-000	124.85, 74.85	Yes	No	N/A
27-03036-001	30.04	Yes	No	N/A
27-01599-000	53.52	Yes	Yes	2026
01-00167-001, 01-00167-000	58.16, 50.00	Yes, Yes	Yes, No	N/A
27-00356-000	36.26	Yes	Yes	2028
27-00205-000	38.43	Yes	Yes	2026
27-01627-000	55.06	Yes	Yes	2026
27-01543-000	116.23	Yes	Yes	2029
27-00656-000	66.2	Yes	Yes	N/A
27-00240-000, 27-00023-000	81.00, 100	Yes	Yes, Yes	2029, 2029
27-00086-000, 27-00085-000	80.0, 50.00	Yes	Yes, Yes	2026, 2026
27-00137-001	31.00	Yes	Yes	2028
27-00609-000, 27-00045-000	359.58, 145.95	Yes	No	N/A
27-01493-000	96.4	Yes	No	N/A
27-01423-007	9.43	Yes	No	N/A
27-00275-000, 27-00273-000	2, 44.66	Yes	No	N/A
27-00287-000	6.1	Yes	No	N/A
27-00540-000, 27-00541-000	7.7, 20.87	Yes	No	N/A
27-00076-000	152.12	Yes	No	N/A
27-00525-000	29	Yes	No	N/A
27-00240-000, 27-00023-000	81, 100	Yes	No	N/A
27-00175-000	103.28	Yes	No	N/A
27-01488-000	5.1	Yes	No	N/A
27-00517-000	40.6	Yes	No	N/A
27-01536-000	20.06	Yes	No	N/A
27-00014-000	12.85	Yes	No	N/A
27-01668-000	1.88	Yes	No	N/A
27-01508-000, 01-00524-000, 01-00519-000	9.55, 109.6, 245.97	Yes	No	N/A
01-00212-000, 01-00212-002	226.75, 38.97	Yes	No	N/A



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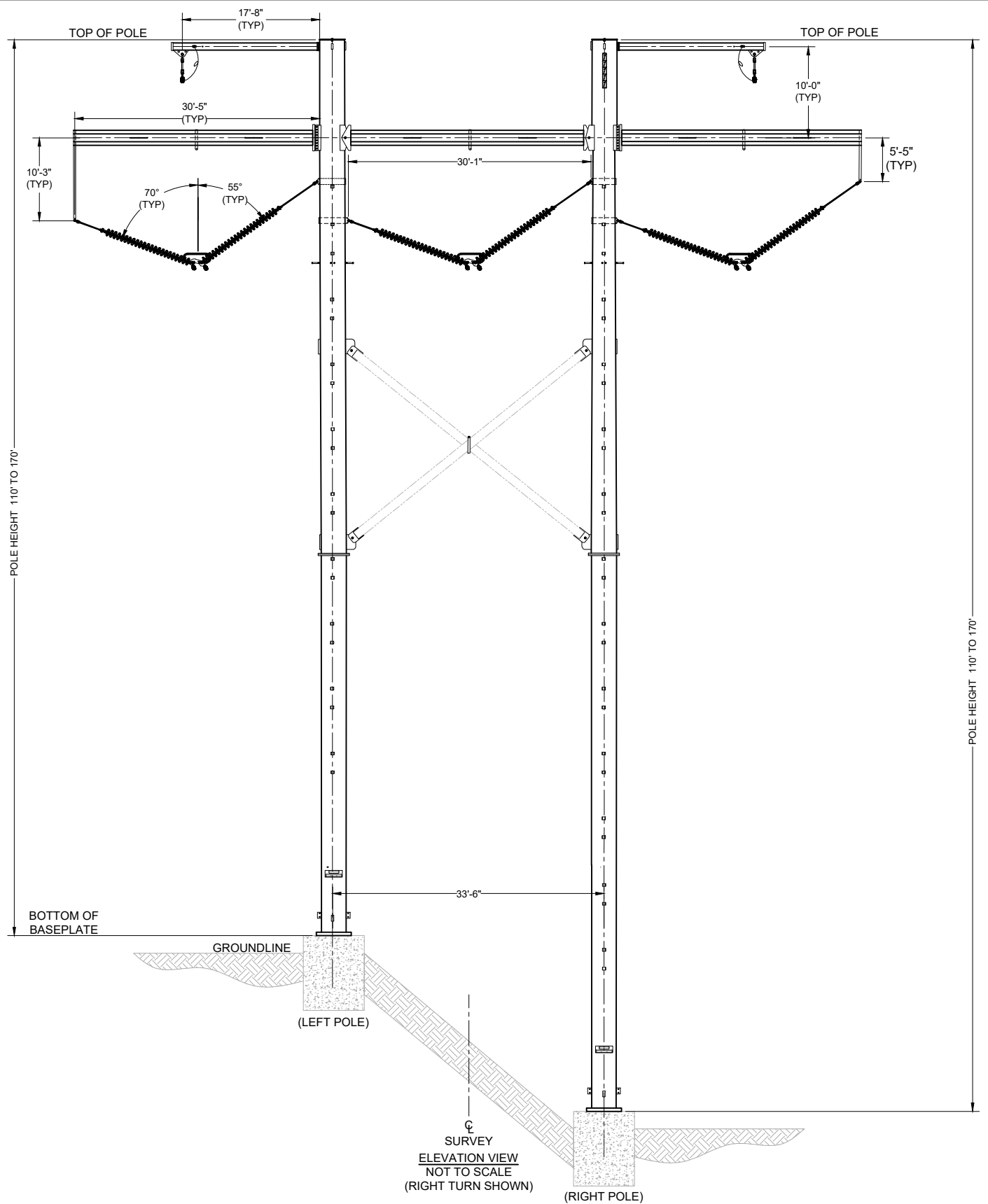
Exhibit 6

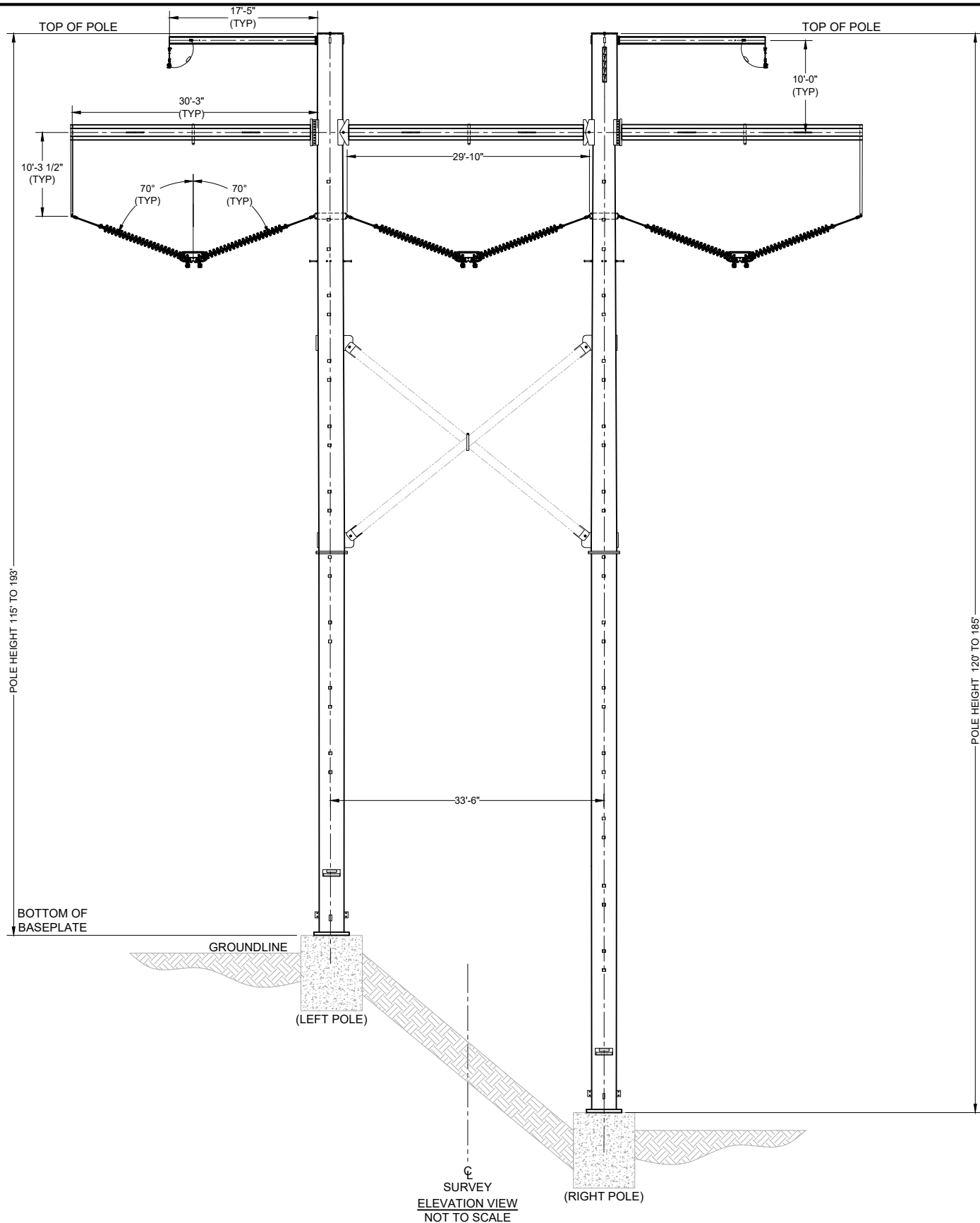
SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL POLE DEADEND
(0-15°)

PAPER SIZE: 8.5X11

SCALE: NTS

SINGLE CIRCUIT STEEL H-FRAME SUSPENSION
V-STRING (2°-10°)



POLE HEIGHT 115' TO 183'

POLE HEIGHT 120' TO 185'

PAPER SIZE: 8.5X11

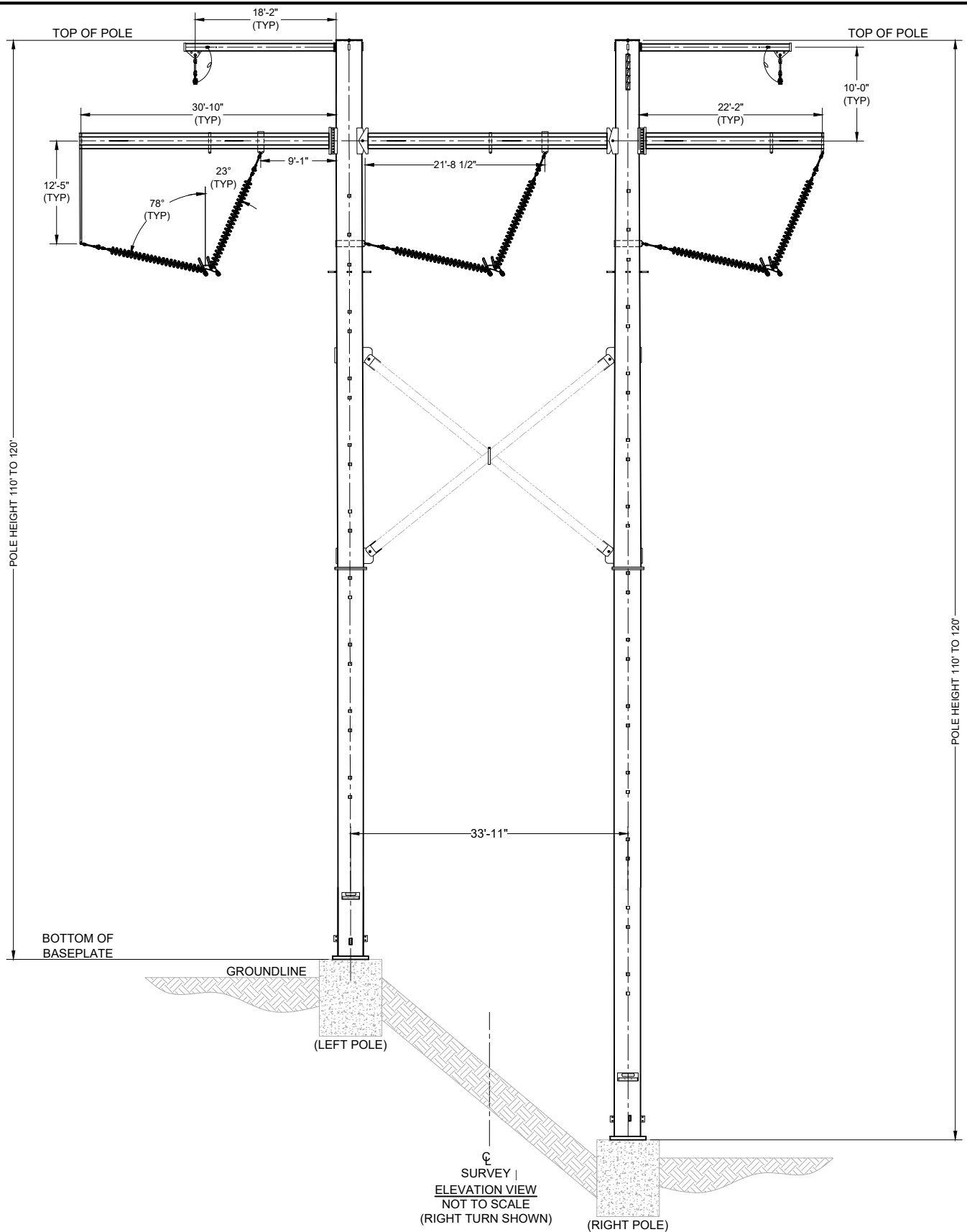
SCALE: NTS

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Exhibit 8

SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL H-FRAME SUSPENSION
FLAT V-STRING (0°-2°)



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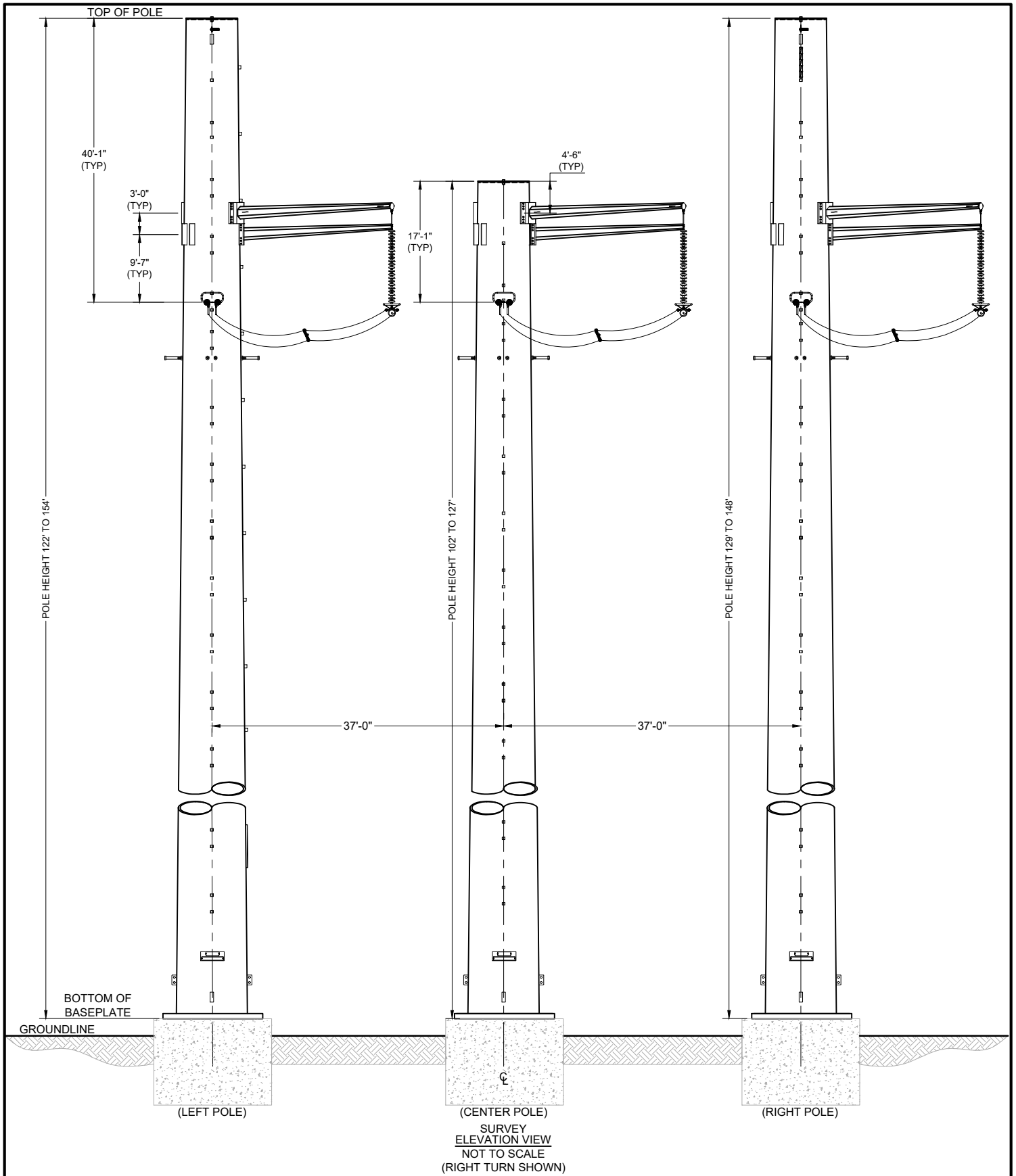
Exhibit 9

SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL H-FRAME SUSPENSION
V-STRING (10°-30°)

PAPER SIZE: 8.5X11

SCALE: NTS



ATSI

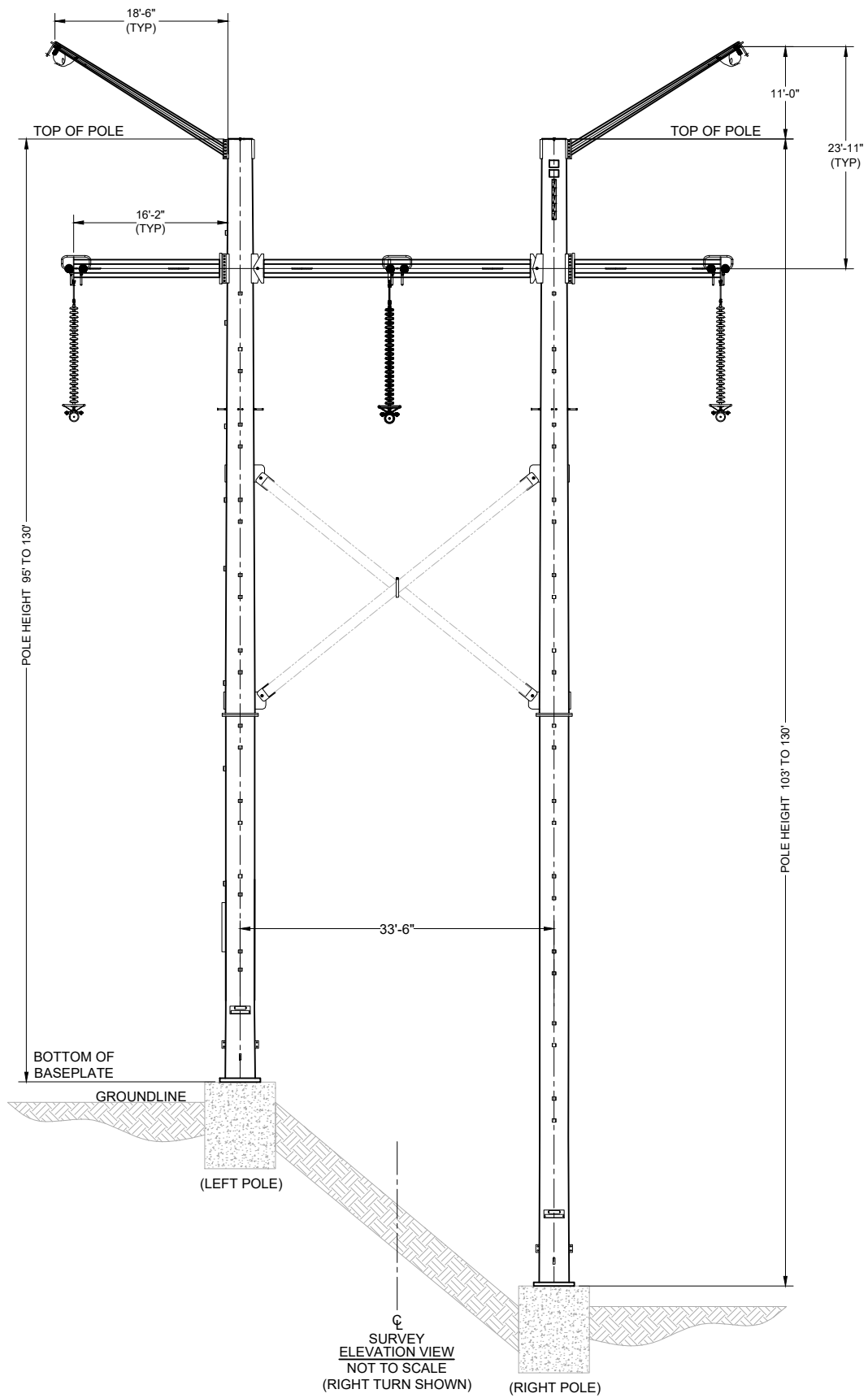
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Exhibit 10

SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL 3-POLE DEADEND
(0°-35°)

SCALE: NTS



ATSI

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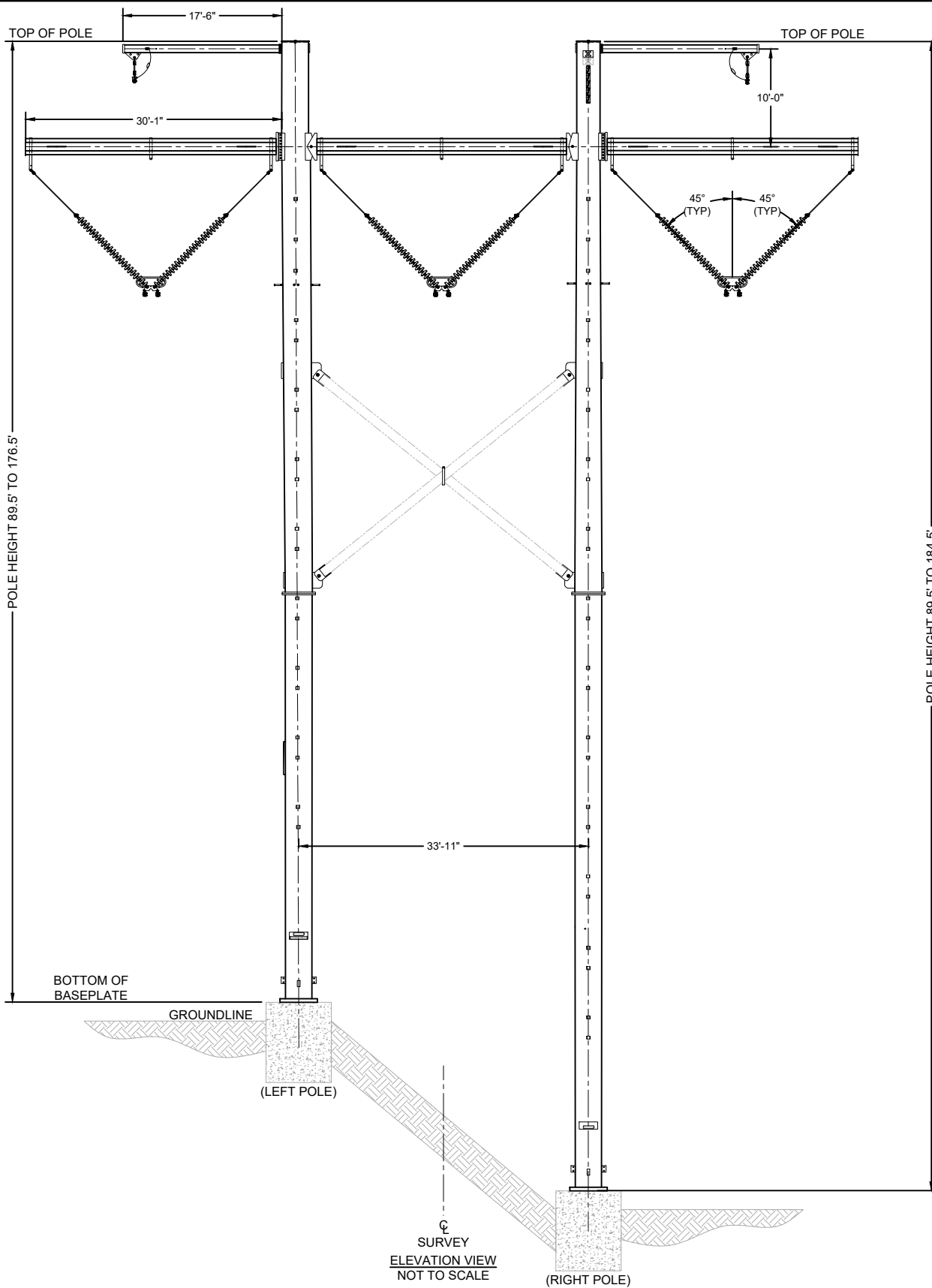
Exhibit 11

SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL H-FRAME STRAIN
(0°-35°)

PAPER SIZE: 8.5X11

SCALE: NTS



ATSI

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Exhibit 12

SAMMIS-STAR 345 kV TRANSMISSION LINE REBUILD PROJECT
(SAMMIS SUBSTATION TO STRUCTURE 39 SEGMENT)

SINGLE CIRCUIT STEEL H-FRAME SUSPENSION
(0°-2°)

PAPER SIZE: 8.5X11

SCALE: NTS



In reply refer to:
2026-JEF-67959

April 16, 2026

Justin D. McKissick, MA, RPA
Senior Archaeologist/Project Manager
TRC Environmental Corporation
317 Carson Street, Suite 113
Pittsburg, PA 15219
Email: JMcKissick@trccompanies.com

RE: Section 106 Review: Sammis-Star 345kV Rebuild Project-Phase I, Jefferson County, Ohio

Dear Mr. McKissick:

This letter is in response to the correspondence received on March 26, 2026, concerning the above-referenced project in Jefferson County, Ohio. We appreciate the opportunity to comment on this project. The comments of the State Historic Preservation Office (SHPO) are made in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended, (54 U.S.C. 306108 [36 CFR 800]).

The proposed project will involve the Phase I rebuild of approximately 8.35 mi of existing Sammis-Star 345kV transmission line. The rebuild will include replacement of 38 towers, the majority of which will be changed from lattice tower to steel H-frames with existing heights ranging from 84 ft to 169 ft to new heights ranging from 89.8 ft to 199.8 ft. The direct Area of Potential Effect (APE) totals approximately 136.95 acres, with a maximum width of approximately 115 ft wide and 8.35 mi long. According to our records, no historic properties, districts, or previously recorded archaeological sites are documented within the proposed work areas.

Based on the information provided, a review of our database and records, and previous disturbances to the project area, it is the SHPO's opinion that, as proposed, the project will have no effect on historic properties. Therefore, no further coordination is required, unless the scope of work changes or archaeological resources are discovered during the course of the project. In such a situation, this office should be contracted as required by 36 CFR § 800.13. If you have any questions concerning this review, please contact me via email at broddy@ohiohistory.org. Thank you for your cooperation.

Sincerely,

A handwritten signature in blue ink that reads "Bridget C. Roddy".

Bridget C. Roddy, Project Reviews Manager-Archaeology
Resource Protection and Review
State Historic Preservation Office

RPR Serial No. 1113421



Office of Real Estate & Land Management

Tara Paciorek - Chief
2045 Morse Road – E-2
Columbus, Ohio 43229-6693

March 20, 2026

Jenna Slabe
TRC Companies, Inc.
1382 West 9th Street, Suite 400
Cleveland, Ohio 44113

Re: 26-0315_Sammis-Star 345kV

Project: The proposed project involves the rebuilding of approximately 8 miles of the existing Sammis-Star 345kV transmission line.

Location: The proposed project is located in Saline and Brush Creek townships, Jefferson County, Ohio.

Center Coordinates: (40.5293, -80.7078)

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

Natural Heritage Database: The Natural Heritage Database has the following data within one mile of the project area:

Shale Barren Pussy-toes (*Antennaria virginica*), T
Common Oak Fern (*Gymnocarpium dryopteris*), E
Carolina Catchfly (*Silene caroliniana* ssp. *pennsylvanica*), T
American Eel (*Anguilla rostrata*), T
Eastern Hellbender (*Cryptobranchus alleganiensis*), E
Channel Darter (*Percina copelandi*), T
Longhead Darter (*Percina macrocephala*), E
River Darter (*Percina shumardi*), T
Longnose Dace (*Rhinichthys cataractae*), SC
Cerulean Warbler (*Setophaga cerulea*), SC
Beech-sugar maple forest plant community

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. Records for high quality plant communities indicate the presence of sites that are in our inventory of the best remaining examples of Ohio's pre-settlement ecosystems.

The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features.

The species listed above are not recorded within the boundaries of the specified project area. However, please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

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

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree clearing is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree clearing inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in clusters of dead leaves on tree limbs. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree and/or tree limb clearing only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with a Diameter Breast Height (DBH) $\geq 20''$ if possible.

For every project, the DOW also recommends that a winter bat habitat assessment is conducted to determine if potential hibernacula are present within the project area. This is to limit possible disturbances that seasonal tree clearing and/or subsurface work (e.g., trenching, blasting, etc.) may cause to hibernating bats. Potential hibernacula include rocky outcroppings, caves, and underground mines. Direction on how to conduct winter habitat assessments can be found in the joint guidance [OHIO DIVISION OF WILDLIFE AND U.S. FISH AND WILDLIFE SERVICE \(OH-FIELD OFFICE\) JOINT GUIDANCE FOR BAT SURVEYS](#). If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile permanent tree clearing buffer around the hibernaculum entrance. Limited summer or winter tree clearing may be acceptable after consultation with the DOW. If a habitat assessment for projects

involving subsurface disturbance finds that a potential hibernaculum is present within 5 miles of the project area, please consult with Eileen Wyza for project recommendations. If no tree clearing or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

This project must not have an impact on native mussels. This applies to both listed and non-listed species, as all species of mussel are protected in Ohio. Per the Ohio Mussel Survey Protocol (2025), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the [Ohio Mussel Survey Protocol](#). If there is no in-water work proposed, impacts to mussels are not likely.

The project is within the range of the following listed fish species.

State Endangered

goldeye (*Hiodon alosoides*)

Ohio lamprey (*Ichthyomyzon bdellium*)

State Threatened

American eel (*Anguilla rostrata*)

channel darter (*Percina copelandi*)

paddlefish (*Polyodon spathula*)

river darter (*Percina shumardi*)

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. This long-lived, entirely aquatic salamander inhabits perennial streams with large flat rocks. In-water work in hellbender streams can reduce availability of large cover rocks and can destroy hellbender nests and/or kill adults and juveniles. The contribution of additional sediment to hellbender streams can smother large cover rocks and gravel/cobble substrate (used by juveniles), making them unsuitable for refuge and nesting. Projects that contribute to altered flow regimes (e.g., by increasing areas of impervious surfaces or modifying the floodplain) can also adversely affect hellbender habitat. Due to the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonius*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be

impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

Due to the potential for impacts to federally listed species, as well as to state-listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Natural Areas and Preserves: The Division of Natural Areas and Preserves has the following Rare Plant comments.

Three rare plant species, shale barren pussy-toes (*Antennaria virginica*, state threatened), Carolina catchfly (*Silene caroliniana ssp. pensylvanica*, state threatened), and common oak fern (*Gymnocarpium dryopteris*, state endangered), have been recorded within the footprint of the proposed Sammis-Star 345kV project. Due to the possible disruption of these species, a pre-construction survey of the proposed project site, including all laydown areas, should be conducted to ensure that these plants and any other rare species within the proposed construction limits are avoided and not impacted. Long term protection of rare flora species should also be considered and should include limiting the use of herbicidal spraying in their vicinity. For survey coordination or further discussion, please contact the Division of Natural Areas and Preserves' Chief Botanist, Rick Gardner. Mr. Gardner can be contacted directly at richard.gardner@dnr.ohio.gov or (614) 265-6419.

Water Resources: The Division of Water Resources has not conducted a project specific review and/or comments, however, the guidance provided below should be reviewed by the Environmental Review applicant for applicability on this project and subsequent compliance.

If the subject project is in a floodplain regulated by the Federal Emergency Management Agency (FEMA), the [local floodplain administrator](#) should be contacted concerning the possible need for any floodplain permits or approvals. The FEMA National Flood Hazard Layer (NHFL) Viewer [website](#) can be utilized to see if the project is in a FEMA regulated floodplain. If the project is not in a FEMA regulated floodplain, then no further action is required.

Ohio Revised Code (ORC) Section 1521.16 mandates that any owner of a property or a facility that has the capacity of withdrawing 100,000 gallons per day (gpd) of water from groundwater, surface water, or both must register with the Division of Water Resources' [Water Withdrawal Facilities Registration \(WWFR\) Program](#) and report their withdrawals annually.

Additional coordination may be required depending on the location of the withdrawal and consumptive use. Restrictions or permitting may be required for:

- New or increased consumptive use of water averaging 2 million gallons per day (mgd) within 30 days within the Ohio River basin.
- New or increased withdrawal and consumptive water use in the Lake Erie watershed averaging 1 million gallons per day (mgd) or more in 90 days.
- New or increased water withdrawal directly from Lake Erie averaging 2.5 million gallons per day (mgd) or more in 90 days.
- Diversion or movement of water across the Ohio River and Lake Erie basin divide.

If the project does not involve activities that are subject to water withdrawal regulatory requirements as described above, then no further action is required. For more information, visit the [Water Inventory & Planning website](#).

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew (Environmental Services Administrator) at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Expiration: ODNR Environmental Reviews are typically valid for 2 years from the issuance date. If the scope of work, project area, construction limits, and/or anticipated impacts to natural resources have changed significantly from the original project submittal, then a new Environmental Review request should be submitted.

From: Eileen.Wyza@dnr.ohio.gov
To: [Slabe, Jenna](#)
Cc: [Falkinburg, Brad](#); [Molnar, Maggie](#)
Subject: [EXTERNAL] RE: Desktop Hibernacula Assessment: FirstEnergy's Sammis-Star 345kV Rebuild Project: Phase I
Date: Wednesday, June 17, 2026 10:23:53 AM
Attachments: [image002.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image001.png](#)

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Hello Jenna,

Thank you for the nudge!

Per review of the desktop survey provided for FirstEnergy's Sammis-Star 345kV Rebuild Project, the Ohio Division of Wildlife concurs with your assessment that no caves, cliffs, or mine openings occur in the project area. Despite the presence of an abandoned underground mine in the project area, the lack of portals and appropriate habitat suggests that this project is not likely to impact hibernating bats. DOW approves of the proposed avoidance plan to minimize risk to hibernating bats.

Should any reported conditions change before or during construction, please contact me for additional guidance.

Thank you,

Eileen Wyza, Ph.D.

(she/her/hers)

Wildlife Biologist

Ohio Division of Wildlife

Phone: 614-265-6764

Email: Eileen.Wyza@dnr.ohio.gov

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Please consider the environment before printing this email.

From: Slabe, Jenna <JSlabe@trccompanies.com>
Sent: Tuesday, June 16, 2026 3:10 PM
To: Wyza, Eileen <Eileen.Wyza@dnr.ohio.gov>
Cc: Falkinburg, Brad <BFalkinburg@trccompanies.com>; Molnar, Maggie <MMolnar@trccompanies.com>
Subject: RE: Desktop Hibernacula Assessment: FirstEnergy's Sammis-Star 345kV Rebuild Project: Phase I

Hi Eileen,

Just wanted to follow up again on this desktop hibernacula submittal. We have been having issues with emails getting through to agencies, so let me know if you need anything or if I need to resend any of the attachments.

Thank you!

Jenna Slabe, PWS
Ecologist

1382 W 9th St, Suite 400, Cleveland, OH 44113
C 330.998.0481 | JSlabe@trccompanies.com
TRCcompanies.com



From: Slabe, Jenna
Sent: Tuesday, May 26, 2026 1:42 PM
To: Eileen Wyza <eileen.wyza@dnr.ohio.gov>
Cc: Falkinburg, Brad <BFalkinburg@trccompanies.com>; Molnar, Maggie <MMolnar@trccompanies.com>
Subject: Desktop Hibernacula Assessment: FirstEnergy's Sammis-Star 345kV Rebuild Project: Phase I

Good afternoon,

Following up on my previous email from May 7th regarding FirstEnergy's proposed Sammis-Star 345kV Rebuild Project: Phase I.

Let us know if there is anything else you need to complete your review.

Thank you!

Jenna Slabe, PWS
Ecologist

1382 W 9th St, Suite 400, Cleveland, OH 44113
C 330.998.0481 | JSlabe@trccompanies.com
TRCcompanies.com



From: Slabe, Jenna
Sent: Thursday, May 7, 2026 2:52 PM
To: Eileen Wyza <eileen.wyza@dnr.ohio.gov>
Cc: Falkinburg, Brad <BFalkinburg@trccompanies.com>; Molnar, Maggie <MMolnar@trccompanies.com>
Subject: Desktop Hibernacula Assessment: FirstEnergy's Sammis-Star 345kV Rebuild Project: Phase I

Eileen,

In response to ODNR's DOW recommendations (26-0315; Attached), TRC completed a desktop hibernacula assessment to determine if potential hibernaculum is present within FirstEnergy's proposed Sammis-Star 345kV Rebuild Project: Phase I located in Brush Creek and Saline Townships, and the Village of Stratton, Jefferson County, Ohio.

Please let us know if you have any questions on the provided desktop assessment or require any additional information, thank you!

Jenna Slabe, PWS

Ecologist

1382 W 9th St, Suite 400, Cleveland, OH 44113

☎ 330.998.0481 | JSlabe@trccompanies.com

TRCcompanies.com



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From: [Ruggiero, Augustine](#)
To: [DeSarro, Mike A](#)
Subject: FW: [EXTERNAL] 26-0315_TRC - Sammis-Star 345kV - ODNR Comments
Date: Thursday, August 6, 2026 1:08:39 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)

From: Richard.Gardner@dnr.ohio.gov <Richard.Gardner@dnr.ohio.gov>
Sent: Wednesday, May 20, 2026 10:06 AM
To: Given, Emma <EGiven@trccompanies.com>
Cc: Falkinburg, Brad M (Ruszala, Amy M) <bfalkinburg@trccompanies.com>; Molnar, Maggie <MMolnar@trccompanies.com>; Ruggiero, Augustine <aruggiero@firstenergycorp.com>
Subject: RE: [EXTERNAL] 26-0315_TRC - Sammis-Star 345kV - ODNR Comments

External Sender, use caution with links/attachments. Click 'Report Message' in Outlook if suspicious.

Good morning Emma,

Division of Natural Areas and Preserves field botanist Shaun Pogacnik visited the site discussed in previous emails that had rare plants in or near the project area. He did a thorough search on Tuesday, May 19. He found appropriate habitat but no individuals of shale barren pussytoes (*Antennaria virginica*) or Carolina catchfly (*Silene caroliniana* var. *pennsylvanica*). With these results no further coordination is necessary with our division.

Thank you.

Rick Gardner

Chief Botanist

Division of Natural Areas and Preserves

richard.gardner@dnr.ohio.gov

(614) 265-6419

Ohio Department of Natural Resources

2045 Morse Road Building H3

Columbus, Ohio 43229

ohiodnr.gov



**Department of
Natural Resources**

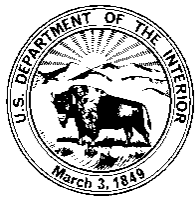
Confidentiality Notice: This message is intended solely for the addressee(s). If you receive this message by mistake, please let me know.

From: Given, Emma <EGiven@trccompanies.com>
Sent: Monday, May 11, 2026 8:00 AM
To: Gardner, Richard <Richard.Gardner@dnr.ohio.gov>
Cc: Falkinburg, Brad <BFalkinburg@trccompanies.com>; Molnar, Maggie <MMolnar@trccompanies.com>; Ruggiero, Augustine <aruggiero@firstenergycorp.com>
Subject: RE: [EXTERNAL] 26-0315_TRC - Sammis-Star 345kV - ODNR Comments

Hi Rick,

Following up on our conversation from last week regarding parcels for the upcoming survey, we shared the highlighted

United States Department of the Interior



FISH AND WILDLIFE SERVICE

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



February 24, 2026

Project Code: 2026-0049276

Dear Ms. Slabe:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Bridges and culverts have also been used as roosts. Additionally, northern long-eared bats have been observed roosting in other human-made structures, such as buildings, barns, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Restrictions for Federally Listed Bat Species: Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. If bridges or culverts will be impacted, we recommend reviewing Appendix K in the most recent "Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines" to determine if the bridge/culvert may be suitable roost habitat. We recommend impacts to suitable bridges and culverts only occur from October 1 and March 31. These seasonal restrictions are recommended to avoid adverse effects to Indiana bats and northern long-eared bats. Please note that, because Indiana bat and/or northern long-eared

bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for these species.

Federally Proposed Species: On September 14, 2022, the Service proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered under the ESA. The bat faces extinction due to the impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. During spring, summer, and fall, this species roosts primarily among leaf clusters of live or recently dead trees, emerging at dusk to hunt for insects over waterways and forest edges. While white-nose syndrome is by far the most serious threat to the tricolored bat, other threats now have an increased significance due to the dramatic decline in the species' population. These threats include disturbance to bats in roosting, foraging, commuting, and over-wintering habitats. Mortality due to collision with wind turbines, especially during migration, has also been documented across their range. Conservation measures for the Indiana bat and northern long-eared bat will also help to conserve the tricolored bat.

On December 12, 2024 the Service proposed to list the monarch butterfly (*Danaus plexippus plexippus*) as threatened under the ESA. Monarch butterflies are found throughout Ohio and some populations migrate vast distances across multiple generations each year. Many monarchs fly between the U.S., Mexico and Canada – a journey of over 3,000 miles. Monarch populations have declined significantly in recent years. Threats include habitat loss – particularly the loss of milkweed, the monarch caterpillar's sole food source – and mortality resulting from pesticide use. The Service recommends the following actions to maintain habitat and avoid impacts to monarchs in Ohio: revegetate disturbed areas with native plant species including nectar-producing plants and milkweed endemic to the area; limit mowing monarch habitat from March 15 to August 31 when monarchs are breeding and from September 1 to October 31 when large numbers of monarchs are migrating; and avoid the use of pesticides and herbicides in and near monarch habitat.

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus is it important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.ohio.gov.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,



Erin Knoll
Field Office Supervisor

cc: Matthew.Stooksbury@dnr.ohio.gov
Eileen.Wyza@dnr.ohio.gov

Surface Water Delineation Report

**Sammis-Star 345kV Rebuild
Project: Phase I**

**Brush Creek and Saline Townships,
and the Village of Stratton, Jefferson
County, Ohio**

April 2026

Prepared For:



FirstEnergy Corporation
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TRC Project Number: 630103.0000



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ACRONYMS AND DEFINITIONS

1987 Manual	United States Army Corps of Engineers 1987 Wetland Delineation Manual
APT	Antecedent Precipitation Tool
AWS	Agricultural Water Supply
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
EWH	Exceptional Warmwater Habitat
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FirstEnergy	FirstEnergy Corporation
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
IWS	Industrial Water Supply
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
OAC	Ohio Administrative Code
OBL	Obligate Wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PCR	Primary Contact Recreation
PEM	Palustrine Emergent
Project	Sammis-Star 345kV Rebuild Project: Phase I
Project Study Area	Approximately 137 acres, located in Brush Creek and Saline Townships, and the Village of Stratton, Jefferson County, Ohio
QHEI	Qualitative Habitat Evaluation Index
Redox	Redoximorphic
Regional Supplements Report	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)
TNW	Traditional Navigable Waterway
TRC	TRC Environmental Corporation
UNT	Unnamed Tributary
UPL	Obligate Upland
USACE	United States Army Corps of Engineers
USDA-NRCS	United States Department of Agriculture – Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
WWH	Warmwater Habitat

1.0 Introduction

On behalf of FirstEnergy Corporation (FirstEnergy), TRC Environmental Corporation (TRC) performed a surface water delineation for the Sammis-Star 345kV Rebuild Project: Phase I (Project). The proposed Project Study Area is approximately 137 acres and is located in Brush Creek and Saline Townships, and the Village of Stratton, in Jefferson County, Ohio. The proposed Project involves the rebuild of the Phase 1 portion (Sammis Substation to Structure #41084) of the existing Sammis-Star 345kV transmission line. On behalf of FirstEnergy, TRC has prepared this Surface Water Delineation Report (Report) for the Project. A site location map of the Project Study Area can be found in **Appendix A, Figure 1**.

TRC personnel performed field investigations to evaluate and delineate surface water resources (i.e., wetlands and streams) located within the Project Study Area on November 7-8, and 11, 2024, November 12-13, 2025, and March 20, 2026. The delineations were conducted by qualified wetland scientists in accordance with the United States Army Corps of Engineers (USACE) parameters. The objective was to evaluate and delineate potential surface water resources within the Project Study Area, such that the resources could be considered during each phase of the Project. This Report describes the surface water delineation methodology implemented and the existing surface water resources identified within the Project Study Area during field investigations.

The Project Study Area is located between the approximate coordinates: 40.531652, -80.633922 (eastern terminus) and 40.558020, -80.781000 (western terminus) and is located in Brush Creek and Saline Townships, and the Village of Stratton, in Jefferson County, Ohio.

The Project Study Area is comprised of an existing, maintained utility right-of-way within agricultural, industrial, and residential land use and forested habitat. Based upon review of available historic aerial imagery (1985-2025), land use surrounding the Project Study Area in years prior to the field investigation was dominated by forested habitat and agricultural and residential land use. The existing, maintained utility ROW is observed in the 1985 historical aerial mapping. The Project Study Area is accessed along the roadway right-of-way, through approved private land-owner property, and via existing, maintained access roads. **Appendix A, Figure 1** and **Figure 2**, provide further information on the location of the proposed Project Study Area.

1.1 Statement of Qualifications

TRC has extensive experience managing and conducting wetland delineations and threatened and endangered species habitat surveys across the United States. TRC's biologists and ecologists have been trained to properly and consistently apply the methods set forth in the 1987 Corps of Engineers *Wetland Delineation Manual (1987 Manual)* (USACE, 1987) and applicable regional supplements. They have direct experience identifying and documenting indicators of hydrophytic vegetation, wetland hydrology, and hydric soil and are experienced in dealing with naturally problematic and disturbed conditions. Additionally, they are experienced in reviewing and identifying appropriate habitat conditions for threatened and endangered species.

Jeffrey Vandever is a Professional Wetland Scientist and supervised field delineations for this Project. Mr. Vandever has ten years of experience performing environmental site assessments, habitat assessments, wetland delineations, and environmental monitoring. He has authored due diligence reports, delineation reports, monitoring reports, USACE Section 401 and Section 404 permit applications, PADEP Chapter 102 and Chapter 105 permit applications. He has provided these services for projects in the renewable energy industry, oil/gas industry, transportation industry, and private residential/commercial industry throughout Pennsylvania, Ohio, New York, West Virginia, and Virginia. Jeff has additional expertise in technical writing, field safety, GIS services, and project management.

Jenna Slabe is a certified Professional Wetland Scientist with over seven years of experience as an Ecologist conducting field-based research within a variety of ecosystems. Ms. Slabe assisted in authoring reports and permitting related to this Project. She specializes in stream and wetland delineations, habitat assessments, plant and animal surveys/identification, and waterway permitting. Ms. Slabe has conducted USACE protocol wetland delineations in states across the country including Colorado, Iowa, Michigan, Nebraska, New Mexico, North Dakota, Ohio, South Dakota, Texas, Utah, and Wyoming. In the office, she supports the preparation and submission of technical reports and permitting documents for transportation, power, mining, oil/gas and renewable energy projects for clients in both the private and public sector. She has completed numerous Section 404 Permit applications including Nationwide Permit applications, USACE Pre-construction Notification's, and Permit Determinations for the Ohio Department of Transportation.

2.0 Methodology

To complete the surface water delineation and evaluation of the Project Study Area, TRC followed the guidelines and methods outlined by the USACE and Ohio Environmental Protection Agency (OEPA), as described within this section.

2.1 Wetland Parameters

Delineations were completed following the *1987 Manual* (USACE, 1987) Level 2 Routine Approach (Part IV, Section D., Subsection 2 - Onsite Inspection Necessary), including the determination that normal environmental conditions are present as well as the means and methods laid out within the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE, 2012) (*Regional Supplement*).

Furthermore, the March 6, 1992 guidance memorandum (Williams, 1992) emphasizes a three-parameter approach to wetland boundary determination in the field. This approach involves the following:

- i. Evidence of wetland hydrology;
- ii. Presence of hydric soils; and
- iii. Predominance of hydrophytic vegetation as defined by the *2022 National Wetland Plant List* (USACE, 2023).

Positive indicators of all three parameters are normally present in wetlands and serve to distinguish between both dry land and transitional plant communities.

2.1.1 Hydrology

The *1987 Manual* and *Regional Supplements* provide guidelines for determining the presence of wetland hydrology. Criteria for wetland hydrology are met if the area is inundated or saturated at the soil surface during the growing season for a time sufficient to develop hydric soils and to support hydrophytic vegetation.

2.1.2 Hydric Soils

Hydric soils are defined as soils “that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil” (Federal Register, 1994). Hydric soil indicators described in the United States Department of Agriculture – Natural Resources Conservation Service’s (USDA-NRCS) *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils Version 9.2* (USDA, NRCS, 2025) were used to identify and document hydric soils per the *Regional Supplements*.

2.1.3 Hydrophytic Vegetation

To determine the presence of hydrophytic vegetation, the dominant and non-dominant species in each major vegetative stratum (e.g., tree, shrub/sapling, herbaceous, and woody vine) were identified and recorded.

Plants are placed into indicator status categories depending on their probability of occurring in a wetland in accordance with the USACE’s *The National Wetland Plant List: 2022 wetland ratings* (USACE, 2023). There are five indicator status categories for plants:

1. Obligate wetland plants (OBL): plants that occur almost always (>99%) in wetlands in natural conditions, but which may also occur rarely (<1%) in non-wetlands;
2. Facultative wetland plants (FACW): plants that occur usually (>67-99%) in wetlands but also occur (1-33%) in non-wetlands;
3. Facultative plants (FAC): plants with a similar likelihood (33-67%) of occurring in both wetlands and non-wetlands;
4. Facultative upland plants (FACU): plants that occur sometimes (1-<33%) in wetlands, but occur more often (>67-99%) in non-wetlands; and
5. Obligate upland plants (UPL): plants that occur rarely (<1%) in wetlands but occur almost always (>99%) in non-wetlands under natural conditions.

A prevalence of dominant species that are FAC, FACW, and/or OBL indicates the presence of hydrophytic vegetation.

2.2 USACE Wetland Delineation

Qualified wetland scientists from TRC conducted surface water field investigations on November 7-8, and 11, 2024, November 12-13, 2025, and March 20, 2026. The surface water field investigations were conducted within the predetermined Project Study Area (**Appendix A, Figure 1**) that was developed in accordance with the Project location information provided by FirstEnergy. Surface water delineations were conducted using the Level 2 Federal Routine Determination Method presented in the *1987 Manual* and *Regional Supplements*, including clarifications and interpretations provided in the March 6, 1992 guidance memorandum (Williams, 1992), and the USACE and Environmental Protection Agency (EPA) guidance on jurisdictional forms (USACE, 2016). USACE Wetland Determination Data Forms – Eastern Mountains and Piedmont Region are provided within **Appendix D**.

Hydrology was determined based on a number of indicators that are divided into two categories, primary and secondary. The *1987 Manual* defines hydrology as present when at least one primary indicator or two secondary indicators are identified. One primary indicator is sufficient to determine if hydrology is present; however, if these are absent then two or more of the secondary indicators are required to determine hydrology. If other probable hydrologic evidence was found, then this was subsequently documented on the data form.

Soils were examined in the field by using a tile spade and/or auger, generally to a depth of at least 22 inches below the soil surface, until refusal, or positive hydric soil indicators were met above 22 inches, whichever was shallower. Soil coloration was identified using a Munsell Soil Color Chart (Munsell Color Company, 2009). Other characteristics, such as the presence of redoximorphic (Redox) concentrations and depletions and soil texture were also recorded. Redox concentrations and depletions are created when the soil is saturated and has anaerobic conditions (without oxygen gas) which leads to changes in the chemical processes in the soil that produce visible color changes in the soil. Hydric characteristics such as organic soil layers, depleted matrix, gleying, and hydrogen sulfide odor, were noted when observed. Soils at both wetland (if present) and dry land data plot locations were characterized and recorded on the data form.

The presence of hydrophytic vegetation was determined using the procedures described in the *Regional Supplements* and recorded on the data form. Vegetation in both dry land and wetland communities was characterized using a real dominance method, with a radius of 30-feet around the soil sample location for trees and woody vines, 15-foot radius for saplings and shrubs, and a 5-foot radius for herbaceous plants. Plant communities meeting the “50/20” Rule or meeting one of the other indicators set forth in the *1987 Manual*, *Regional Supplements*, and guidance memorandums are considered hydrophytic for the purposes of the wetland classification criteria. In areas where the vegetation was disturbed or not identifiable due to seasonal conditions, soil and hydrology characteristics, and professional judgment/experience were utilized in assessing the primary determining factors for classification as wetlands.

If the soils, hydrology, and vegetation characteristics at a survey point indicated that it was within a wetland, the boundary of the wetland was determined, and the approximate boundary was flagged using wetland flagging and recorded using a handheld Juniper Systems Geode and

Trimble R1 with sub-meter accuracy. Areas observed to have problematic or difficult situations were delineated utilizing the procedures identified in the *Regional Supplements*, Section 5 – “Difficult Wetland Situations in the Eastern Mountains and Piedmont Region”. Data from the Global Positioning System (GPS) survey was downloaded and integrated into a Geographic Information System database for the proposed work areas and used to make the accompanying figures. Identified wetlands were classified according to Cowardin et al. (Cowardin, Carter, Golet, & LaRoe, 1979). Photographs are included in **Appendix C**.

2.3 Ohio Environmental Protection Agency’s Ohio Rapid Assessment Method

According to the Ohio Wetland Water Quality Standards, a wetland quality category (Category 1, Category 2, or Category 3) must be assigned for each wetland if a project will require discharge of dredged or fill material into jurisdictional wetlands. In general, Category 1 wetlands are considered to be of “low quality”, Category 2 wetlands are considered to be of “moderate quality,” and Category 3 wetlands are considered to be of “high quality.”

The OEPA has developed the Ohio Rapid Assessment Method (ORAM), which can be utilized to evaluate wetland habitat quality based on the apparent functions and values of the wetland resource. The two primary components of the ORAM are the Narrative Rating and the Quantitative Rating. TRC completed ORAM (Version 5.0) Quantitative Rating forms for all the wetland resources identified within the Project Study Area. Each delineated wetland resource received a provisional category designation based on the results of the ORAM Narrative and Quantitative Ratings and review of narrative criteria in the Ohio Administrative Code (OAC) 3745-1-54(C) (Mack, 2000). OEPA ORAM Rating and Categorization Forms are provided within **Appendix D**.

2.4 USACE Waterbody Identification

During field investigations, other waterbody features including streams, ponds, lakes, etc. were investigated. Streams within the Project Study Area were identified by the presence of an ordinary high-water mark (OHWM) and scoured channel or defined bed and banks. The OHWM was delineated based on the OHWM as defined in 33 Code of Federal Regulations (CFR) Part 328.3 and 33 CFR 329.4 (as applicable), in accordance with the Regulatory Guidance Letter No. 05-05 and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE, 2005; USACE and EPA, 2025). All streams identified in the Project Study Area that were wider than five feet were demarcated via GPS from bank-to-bank. Streams that were less than five feet wide had the centerline demarcated. Streams identified during the course of the investigation were classified as perennial, intermittent, or ephemeral waterways in accordance with the rationale defined by the USACE Pittsburgh District.

The Project Study Area was also investigated for areas that were considered “open water” by the USACE. Open waters within the Project Study Area were delineated based on the USACE, *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification* (USACE, 2005). According to the USACE, an open water is an area that in a year with normal patterns of

precipitation has water flowing or standing above ground to the extent that an OHWM can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” may include rivers, lakes, and ponds. Artificial “open water” features may include stormwater retention basins, fish hatchery ponds, drainage tile pump stations, etc.

2.5 OEPA Waterbody Quality Quantification

In addition, streams were evaluated utilizing OEPA approved methods for stream habitat assessment which include the Qualitative Habitat Evaluation Index (QHEI) (OEPA, 2006) (Rankin, 1989) and/or the Headwater Habitat Evaluation Index (HHEI) (OEPA, 2020) assessment method. These approved assessment methods provide an empirical, quantified evaluation of streams as required by the State of Ohio for permitting and mitigation purposes. These methods assess stream habitat to provide a qualitative index (or score) to determine the level of compensatory mitigation that may be needed for impacts to waters of the United States (i.e., streams).

Use of the QHEI or HHEI assessment method is determined based on the size of the stream's drainage area and/or the stream's pool depths. Where coverage was available, the drainage area was calculated using automated basin characteristics from StreamStats v 4.31.1 (USGS, 2019).

2.5.1 *Qualitative Habitat Evaluation Index*

Following OEPA guidance, streams with a drainage area of greater than 1.0 square mile (2.6 square kilometers) or which have pools with maximum depths over 15.8 inches (40.0 centimeters), as determined by measuring pool depth within the stream, were evaluated using the QHEI. Data on these streams were collected on the QHEI form provided by the OEPA. The QHEI is composed of six principal metrics: substrate, instream cover, channel morphology, riparian zone and bank erosion, pool/glide and riffle-run quality, and map gradient. Each metric is scored separately and summed to obtain the total QHEI score. Using the scoring methods associated with these forms, the stream is placed into the following general narrative ranges, dependent upon stream size; for smaller streams (≤ 20 sq. mi): Excellent >70 , Good 55-69, Fair 43-54, Poor 30-42, and Very Poor <30 ; for larger streams (>20 sq. mi): Excellent >75 , Good 60-74, Fair 45-59, Poor 30-44, and Very Poor <30 .

2.5.2 *Headwater Habitat Evaluation Index*

The HHEI was utilized to score streams with a drainage area of <1.0 square mile (2.6 square kilometers). Data on these streams was collected on the HHEI forms, provided by the OEPA (OEPA, 2020). Observational data regarding the physical nature of the stream corridor including stream flow, riparian zone land use and buffer width, and channel modification was recorded. Measurements included bankfull width, maximum pool depth, and substrate composition.

3.0 Results

3.1 Site Description

The Project Study Area is approximately 137 acres located in Brush Creek and Saline Townships, and the Village of Stratton, Jefferson County, Ohio. The Project Study Area is located within two (2) sub-watersheds (12-Digit Hydrologic Unit Code [HUC]): Hardin Run-Ohio River: 050301011106 and Hollow Rock Run-Yellow Creek: 050301010804 (USGS, 2022).

The Project Study Area is shown on the Salineville, OH and Wellsville, OH United States Geological Survey 7.5-minute series topographic quadrangles (**Appendix A, Figure 1**) (USGS, 2023).

There are thirteen (13) United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) features mapped within the Project Study Area. The thirteen (13) NWI features are all classified as riverine (**Appendix A, Figure 4**) (USFWS, 2023).

The USGS National Hydrography Dataset (NHD) (USGS, 2018) Downloadable Data Collection from The National Map is a comprehensive set of digital spatial data that encodes information about naturally occurring and constructed bodies of surface water (e.g., lakes, ponds, and reservoirs), paths through which water flows (e.g., canals, ditches, streams, and rivers) and related entities such as point features (e.g., springs, wells, stream gages, and dams). There are thirteen (13) NHD streams mapped within the Project Study Area (**Appendix A, Figure 4**).

According to Federal Emergency Management Agency Flood Insurance Rate Map Panels 39019C0250C (eff. 6/4/2010), 39029C0400E (eff. 5/2/2012), 39029C0425E (eff. 5/2/2012), 39081C0050D (eff. 4/5/2006), 39081C0062D (eff. 4/5/2006), 39081C0065D (eff. 4/5/2006), 39081C0067D (eff. 4/5/2006), 39081C0068D (eff. 4/5/2006), and 39081C0069D (eff. 4/5/2006), portions of the proposed Project along Brush Creek and Yellow Creek are located within a mapped 100-year floodplain (**Appendix A, Figure 4**) (FEMA, 2024).

The USACE Antecedent Precipitation Tool (APT) Version 3.0 (USACE, 2025) was used to collect 90-day antecedent precipitation data. The following nearby (~22 miles or less) weather stations were used for collecting APT data for the 2024, 2025, and 2026 field investigations: New Cumberland L/D, Chester 0.2 SSW, Wellsville 1.9 N, Montgomery L&D, Steubenville, and Glenwillard Dashields L&D. Compared to historical data, antecedent hydrologic conditions in 2024 and 2026 were considered to be drier than normal. Typical conditions for the time of year (wet season) were not observed, and the drought index reported a severe drought (USACE, 2025). Antecedent hydrologic conditions in 2025 were considered to be normal, compared to historical data. However, typical conditions for the time of year (wet season) were not observed in the 2025 field investigations, and the drought index reported a severe drought (USACE, 2025). APT results are provided within **Appendix B**.

The USDA-NRCS Web Soil Survey (USDA-NRCS, 2016) was used to identify the soil types contained within the Project Study Area (**Appendix A, Figure 3**). **Table 1** provides a summary of the soils identified within proposed Project Study Area.

Table 1. Soils Type Summary

Map Unit Symbol	Map Unit Name	Hydric Status	Acres Within Project Study Area	Percent Cover in Project Study Area
BmD	Berks-Guernsey complex, 15 to 25 percent slopes	Non-Hydric	5.61	4.10%
BmE	Berks-Guernsey complex, 25 to 40 percent slopes	Non-Hydric	3.00	2.19%
BmC	Berks-Guernsey complex, 8 to 15 percent slopes	Non-Hydric	0.69	0.51%
BkB	Berks channery silt loam, 3 to 8 percent slopes	Non-Hydric	0.06	0.05%
BkC	Berks channery silt loam, 8 to 15 percent slopes	Non-Hydric	1.84	1.34%
BkD	Berks shaly silt loam, 15 to 25 percent slopes	Non-Hydric	1.29	0.94%
CkD	Clarksburg silt loam, 15 to 25 percent slopes	Non-Hydric w/ Hydric Inclusions	4.14	3.02%
CnB	Coshocton silt loam, 1 to 7 percent slopes	Non-Hydric	0.71	0.52%
EbC2	Elba silty clay loam, 8 to 15 percent slopes, eroded	Non-Hydric	1.08	0.79%
GoD	Gilpin-Coshocton silt loams, 15 to 25 percent slopes	Non-Hydric	5.15	3.76%
GoC	Gilpin-Coshocton silt loams, 8 to 15 percent slopes	Non-Hydric	4.92	3.59%
GpC	Gilpin-Lowell silt loams, 8 to 15 percent slopes	Non-Hydric	1.86	1.36%
GnB	Gilpin silt loam, 3 to 8 percent slopes	Non-Hydric	3.08	2.25%
GnC	Gilpin silt loam, 8 to 15 percent slopes	Non-Hydric	10.04	7.33%
HfE	Hazleton-Summitville complex, 15 to 40 percent slopes	Non-Hydric	22.15	16.18%
HgE	Hazleton-Westmoreland complex, 25 to 40 percent slopes	Non-Hydric	0.96	0.70%
HgF	Hazleton-Westmoreland complex, 40 to 70 percent slopes	Non-Hydric	5.81	4.24%
KeB	Keene silt loam, 3 to 8 percent slopes	Non-Hydric	0.14	0.10%
Mwf6F	Morristown channery silty clay loam, 25 to 70 percent slopes, unreclaimed	Non-Hydric w/ Hydric Inclusions	1.34	0.98%
Mwc3B	Morristown silty clay loam, 0 to 8 percent slopes, reclaimed	Non-Hydric	0.76	0.56%
Mwc3F	Morristown silty clay loam, 25 to 70 percent slopes, reclaimed	Non-Hydric	0.26	0.19%
Mwc3D	Morristown silty clay loam, 8 to 25 percent slopes, reclaimed	Non-Hydric	5.39	3.93%
Omm1C1	Omulga silt loam, mixed substratum, 6 to 12 percent slopes	Non-Hydric	0.60	0.44%
RcB	Richland silt loam, 1 to 7 percent slopes	Non-Hydric w/ Hydric Inclusions	1.59	1.16%

Map Unit Symbol	Map Unit Name	Hydric Status	Acres Within Project Study Area	Percent Cover in Project Study Area
StD	Steinsburg-Rigley variant fine sandy loams, 15 to 25 percent slopes	Non-Hydric	6.54	4.78%
StB	Steinsburg-Rigley variant fine sandy loams, 3 to 8 percent slopes	Non-Hydric	0.05	0.03%
StC	Steinsburg-Rigley variant fine sandy loams, 8 to 15 percent slopes	Non-Hydric	6.37	4.65%
Ur	Urban land	Non-Hydric	1.10	0.80%
W	Water	Non-Hydric	0.23	0.17%
WeB	Wellston silt loam, 1 to 7 percent slopes	Non-Hydric	0.09	0.07%
WtF	Westmoreland-Berks complex, 40 to 70 percent slopes	Non-Hydric	38.76	28.31%
WvA	Wheeling silt loam, 0 to 3 percent slopes	Non-Hydric	1.31	0.96%
Total			136.95	100.00%
Notes: Accessed online March 2026 at: http://websoilsurvey.sc.egov.usda.gov .				

3.2 Surface Water Resource Field Delineations

TRC performed field investigations on November 7-8, and 11, 2024, November 12-13, 2025, and March 20, 2026. During the 72 hours prior to the 2024 field investigation, the surrounding area averaged 0.04 inches of rainfall per day, and the average high temperature was 63 degrees Fahrenheit. During the 72 hours prior to the 2025 field investigation, the surrounding area averaged 0.16 inches of rainfall per day, and the average high temperature was 41 degrees Fahrenheit. During the 72 hours prior to the 2026 field investigation, the surrounding area averaged 0.07 inches of rainfall per day, and the average high temperature was 40 degrees Fahrenheit. During the field investigations, overall on-site observations of hydrology revealed normal and drier than normal conditions. The results of the APT are discussed in Section 3.1 and can be found in **Appendix B**. Native and non-native herbaceous vegetation was observed within the Project Study Area. The USACE maintains the final authority that determines jurisdiction; therefore, statements about jurisdiction within this Report are preliminary and subject to final determination by the USACE and EPA.

3.2.1 Wetlands

During the field investigations, four (4) wetlands were identified and delineated within the Project Study Area. The delineated wetland boundaries and sample points are shown on **Figure 5** in **Appendix A**. Representative photographs of sample points and other areas of interest are provided in **Appendix C**. Data was collected and recorded on the USACE Wetland Determination Data Forms – Eastern Mountains and Piedmont Region (**Appendix D**) and wetland functional assessments were completed for each delineated wetland using the ORAM (**Appendix D**). Delineated wetlands within the Project Study Area are summarized in **Table 2**.

Table 2. Delineated Wetland Features Summary

Wetland ID ¹	Latitude, Longitude	Delineation Date	Extends Outside Project Study Area (Y/N)?	Cowardin Classification within Study Area ²	Water Regime Modifier ³	Connection ⁴	Apparent Downstream Connectivity ⁵	Provisional Jurisdictional Status ⁶	ORAM Score	ORAM Category ⁷	Approximate Delineated Area within Project Study Area ⁸ (acres)
W-JDV-1	40.529374, -80.652334	11/07/2024	Y	PEM	Seasonally Flooded	Abutting	W-JDV-1 -> UNT to Goose Run (S-JDV-1) -> Goose Run -> Ohio River (TNW)	USACE Jurisdictional Wetland	22	Cat. 1	0.023
W-JDV-2	40.528019, -80.695520	11/07/2024	Y	PEM	Seasonally Flooded	Abutting	W-JDV-2 -> UNT to Tarburner Run (S-JDV-9) -> Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	USACE Jurisdictional Wetland	24	Cat. 1	0.050
W-JDV-3	40.536093, -80.727658	11/11/2024	Y	PEM	Seasonally Flooded	Abutting	W-JDV-3 -> UNT to Yellow Creek (S-JDV-11) -> Yellow Creek -> Ohio River (TNW)	USACE Jurisdictional Wetland	24	Cat. 1	0.036
W-TPT-1	40.553494, -80.755305	11/13/2025	Y	PEM	Seasonally Flooded	Abutting	W-TPT-1 -> Brush Creek -> Yellow Creek -> Ohio River (TNW)	USACE Jurisdictional Wetland	39	Cat. 2	0.018
Total:											0.127

Wetland ID ¹	Latitude, Longitude	Delineation Date	Extends Outside Project Study Area (Y/N)?	Cowardin Classification within Study Area ²	Water Regime Modifier ³	Connection ⁴	Apparent Downstream Connectivity ⁵	Provisional Jurisdictional Status ⁶	ORAM Score	ORAM Category ⁷	Approximate Delineated Area within Project Study Area ⁸ (acres)
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NOTES:

¹TRC resource identification.

²Cowardin Wetland Classification within Project Study Area (approximation based upon field identification and delineation) (Cowardin, Carter, Golet, & LaRoe, 1979): PEM – Palustrine Emergent.

³National Wetland Inventory Wetlands and Deepwater Map Code Diagram – Modifiers for non-tidal waters (USFWS, 2019)

⁴Connection to a jurisdictional waterway: Isolated or Abutting as determined by TRC; subject to USACE verification. Wetland connection is pending an update from EPA and USACE based on the EPA vs. Sackett case.

⁵TNW=Traditional Navigable Waterway, UNT=Unnamed Tributary.

⁶Jurisdiction status is based upon field observations and mapping review of apparent connectivity of the resource to Waters of the United States and the assumption that a preliminary jurisdictional determination process will be utilized for the project.

⁷ORAM Category assigned based on scoring breakpoints from Table 2 of the ORAM v. 5.0 Quantitative Score Calibration; scores falling within a “gray zone” or “modified” ranges have been assigned to the higher of the two categories.

⁸Area is rounded to nearest 0.001-acre, based upon GPS data.

3.2.2 *Streams and Waterbodies*

During the field investigations, twenty-four (24) streams were delineated within the Project Study Area. A detailed summary of the stream and/or waterbody resources identified is provided in **Table 3** and **Appendix A, Figure 5**. Data points were recorded to provide a characterization of the delineated stream resources located within the Project Study Area, which were recorded on the OEPA HHEI and QHEI data forms. HHEI and QHEI data forms are provided within **Appendix D**. Representative photographs of the described streams identified within the Project Study Area can be found in **Appendix C**.

Table 3. Delineated Stream and Waterbody Features Summary

Stream ID ¹ /Resource Name*	Latitude, Longitude	Delineation Date	Resource / Downstream Flow Path ²	Flow Regime ³	OEPA Use Designation ⁴	Existing Use Designation ⁵	HHEI Score ⁶	QHEI Score ⁷	Approximate Delineated Length within Project Study Area ⁸ (linear feet/acre)
S-JDV-1	40.529247, -80.652053	11/07/2024	S-JDV-1 -> Goose Run -> Ohio River (TNW)	Intermittent	N/A	Modified Class II PHW	36	-	137 feet (0.015 acre)
S-JDV-2	40.529493, -80.650610	11/07/2024	S-JDV-2 -> Goose Run -> Ohio River (TNW)	Intermittent	N/A	Modified Class II PHW	51	-	144 feet (0.020 acre)
S-JDV-3	40.5305004, -80.6422232	11/07/2024	S-JDV-3 -> S-JDV-4 -> Ohio River (TNW)	Ephemeral	N/A	Modified Class I PHW	21	-	53 feet (0.004 acre)
S-JDV-4	40.530581, -80.642087	11/07/2024	S-JDV-4 -> Ohio River (TNW)	Intermittent	N/A	Modified Class I PHW	16	-	179 feet (0.011 acre)
S-JDV-5 (Hollow Rock Run)	40.527421, -80.673383	11/7/2024	Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	Perennial	WWH, AWS, IWS, PCR	Fair	-	48.25	120 feet (0.077 acre)
S-JDV-6	40.526878, -80.683544	11/07/2024	S-JDV-6 -> Carter Run -> Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	Intermittent	N/A	Modified Class I PHW	25	-	157 feet (0.007 acre)
S-JDV-7	40.526845, -80.682904	.000000000 000011/07/2024	S-JDV-7 -> S-JDV-6 -> Carter Run -> Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Modified Class I PHW	21	-	151 feet (0.008 acre)
S-JDV-8	40.528184, -80.695633	11/07/2024	S-JDV-8 -> Tarburner Run -> Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	Intermittent	N/A	Modified Class II PHW	36	-	59 feet (0.007 acre)
S-JDV-9 (Tarburner Run)	40.528338, -80.698887	1/08/2024	Tarburner Run -> Hollow Rock Run -> Yellow Creek -> Ohio River (TNW)	Perennial	WWH, AWS, IWS, PCR	Modified Class III PHW	70	-	136 feet (0.016 acre)

Stream ID ¹ /Resource Name*	Latitude, Longitude	Delineation Date	Resource / Downstream Flow Path ²	Flow Regime ³	OEPA Use Designation ⁴	Existing Use Designation ⁵	HHEI Score ⁶	QHEI Score ⁷	Approximate Delineated Length within Project Study Area ⁸ (linear feet/acre)
S-JDV-10	40.528988, -80.704483	11/08/2024	S-JDV-10 -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Modified Class I PHW	21	-	123 feet (0.007 acre)
S-JDV-11 (Yellow Creek)	40.529764, -80.711453	11/08/2024	Yellow Creek -> Ohio River (TNW)	Perennial	EWI, AWS, IWS, PCR	Good	-	57.5	115 feet (0.213 acre)
S-JDV-12	40.530288, -80.716112	11/08/2024	S-JDV-12 -> Yellow Creek -> Ohio River (TNW)	Intermittent	N/A	Modified Class I PHW	25	-	280 feet (0.015 acre)
S-JDV-13	40.530307, -80.715733	11/08/2024	S-JDV-13 -> S-JDV-12 -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Modified Class I PHW	11	-	110 feet (0.005 acre)
S-JDV-14 (Lowery Run)	40.538376, -80.731348	11/11/2024	Lowery Run -> Yellow Creek -> Ohio River (TNW)	Perennial	WWI, AWS, IWS, PCR	Class III PHW	71	-	120 feet (0.037 acre)
S-JDV-15	40.533063, -80.722373	11/11/2024	S-JDV-15 -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Class I PHW	21	-	116 feet (0.007 acre)
S-JDV-16	40.534967, -80.725686	11/11/2024	S-JDV-16 -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Class I PHW	21	-	147 feet (0.010 acre)
S-JDV-17	40.536200, -80.727592	11/11/2024	S-JDV-17 -> Yellow Creek -> Ohio River (TNW)	Intermittent	N/A	Modified Class I PHW	26	-	119 feet (0.004 acre)
S-JDV-18	40.556734, -80.777036	11/11/2024	S-JDV-18 -> Brush Creek -> Yellow Creek -> Ohio River (TNW)	Intermittent	N/A	Class II PHW	66	-	158 feet (0.03 acre)
S-JDV-19	40.553601, -80.765553	11/11/2024	S-JDV-19 -> Brush Creek -> Yellow Creek -> Ohio River (TNW)	Perennial	N/A	Class II PHW	61	-	124 feet (0.026 acre)
S-JDV-20	40.553041, -80.764159	11/11/2024	S-JDV-20 -> S-JDV-19 -> Brush Creek -> Yellow Creek -> Ohio River (TNW)	Ephemeral	N/A	Modified Class I PHW	21	-	179 feet (0.009 acre)

[illegible]

4.0 Permitting Considerations

It is anticipated that due to the nature of the Project, jurisdictional resources may be temporarily impacted by the proposed Project activities. It is TRC's understanding that this Project would fall under Nationwide Permit (NWP) 57 - Electric Utility Line and Telecommunications Activities (USACE, 2026). This Project is located in Brush Creek and Saline Townships, and the Village of Stratton in Jefferson County, Ohio. The Project is located within the USACE Pittsburgh Regulatory District. Brush Creek and Saline Townships in Jefferson County, Ohio are not listed in Table 1 to Regional General Condition 6(a) (Threatened and Endangered Species), therefore, Regional General Condition 6(a) does not trigger the need for Section 404 Pre-Construction Notification (PCN). Assuming all other NWP 57 thresholds are met and not exceeded (USACE, 2026), a PCN may not be required. NWP 57 is subject to OEPA's General Limitations and Conditions for 401 Water Quality Certification. When a PCN is not required by the USACE, notification to OEPA is required for impacts to category 3 wetlands and/or wetland impacts ≥ 0.10 -acre. While TRC has scored all on-site wetlands as category 1 or 2, these ratings are provisional pending ORAM verification.

4.1 USACE Verification

The USACE has the authority to determine and/or verify the geographical boundaries of Waters of the United States in accordance with 33 CFR 328 and 33 CFR 329; therefore, the results of this Report are termed "preliminary" until verified and accepted by the USACE. This verification is part of the Jurisdictional Determination process, which is required for approval under Section 404 Clean Water Act, Section 401 Water Quality Certification, and/or isolated wetland permitting process through OEPA. It is the responsibility of any party that intends to discharge dredge or fill material into Waters of the United States to comply with all applicable regulations.

5.0 Limitations

This Report is limited in scope to the specific terms of the Agreement previously entered into between TRC and FirstEnergy. This Report represents the conditions within the Project Study Area identified herein, as of the inspection dates.

Should the Project change from the scope described herein, TRC should be immediately notified such that additional investigations may be conducted to amend the content of the Report herein. Human-induced and/or natural changes within the Project Study Area may occur after the date of this investigation and may result in changes to the presence, extent, and classification of the surface water resources identified within this Report.

6.0 References

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Appendix A

Figures