AMTRAK

NOTICE OF PUBLIC INFORMATION MEETINGS

Zoo to Paoli Electrification Transmission Line Project
Public Officials' Meetings

April 25, 2012
7:00 p.m.
Harcum College
Room 104; Academic Center

April 30, 2012
7:00 p.m.
Radnor Middle School
Auxiliary Gym

Amtrak will hold a meeting at the above referenced dates, times, and locations for elected and appointed officials, agency representatives, and special interest groups to introduce the Zoo to Paoli Electrification Transmission Line Project and to discuss and receive input on the project from the community.

The 105-mile Keystone Corridor East rail line, operating from Harrisburg to Philadelphia, Pennsylvania, has been identified by the Federal Railroad Administration (FRA) as one of ten corridors in the country for potential high-speed rail projects. Along the 20-mile segment of the corridor between the Zoo and the Paoli substations, Amtrak plans to upgrade the existing overhead electrification system and the substation at Paoli. Many of the existing 40-50 foot high overhead electrification system support structures within the right-of-way between the Zoo and Paoli substations will be replaced with new towers. The new towers will be approximately 60-75 feet high, with some towers reaching 100 feet high at overhead bridges. No additional right-of-way or property will be acquired for these improvements.

The meetings are intended to introduce the project, provide a project schedule, share current plans for the conceptual design, and present the results of preliminary research and data collection on environmental features and cultural resources within the corridor. Since feedback from the community is a vital aspect of a project of this nature, you are encouraged to attend one of the meetings to provide your input and identify project issues.

This meeting is being held in a physically accessible facility. Please notify Amtrak at least 48 hours prior to the meeting if you have special needs for which this agency will need to make arrangements. The telephone number for making special arrangements is 610-286-0100.

For further information regarding this project, contact Daniel P. Tasker at Amtrak, 215-349-1416, Taskerd@amtrak.com or Daren Petroski at Burns Engineering, Inc., 215-979-7700 x7749, DPetroski@burns-group.com. For further information regarding this meeting, contact Daren Petroski at Burns Engineering, Inc., 215-979-7700 x7749, DPetroski@burns-group.com or Allen Heist at Stell Environmental Enterprises, Inc., 610-286-0100, aheist@stellee.com.

Summary of Preliminary Design Analysis for Existing Catenary Structures and Bryn Mawr Substation Building

The New York-Washington-Harrisburg portion of Amtrak was electrified by the Pennsylvania Railroad (PRR) in several stages between 1915 and 1940. The Philadelphia to Paoli route was the first stage of this program, built with 11 kV catenary (later raised to 12 kV) and a parallel 44 kV transmission network. The Philadelphia to Paoli route was eventually surrounded with the "final" PRR configuration of 12 kV catenary paralleled with 138 kV transmissions. Sometime after World War II, the 44 kV network was abandoned, leaving the original Philadelphia to Paoli route fed from the transmission network only at Zoo and Paoli substations, and Bryn Mawr substation was reduced to a switching station. Some of the original catenary structure aerial envelope that had been used for the 44 kV network was made available to PECO for a medium voltage commercial frequency line.

The 138 kV network had been built on the PRR Norristown line, providing a route for power to be transported between Safe Harbor via Parkesburg, to Zoo Substation in Philadelphia. The Norristown service was eventually given up, but the transmission lines remain on that right-of-way, which is now the Schuylkill Bikeway for much of its length. Some portions of the former Norristown Line are difficult to access.

The 22 miles between Zoo and Paoli now represent the longest distance between 138 kV substations on the entire electrified line. Maintenance of the transmission lines on the former Norristown line is difficult, for several reasons (the bikeway is a public park, some poles are shared with the ex-Reading Norristown line now operated by SEPTA, some parts of the transmission line right-of-way are accessible only by hiking over rough territory). To reinforce the power supply to the busy Philadelphia-Paoli route, and to consolidate rights of way and ease maintenance, Amtrak wants to build two new 138 kV lines between Paoli and Zoo over the Paoli railroad right-of-way.

Figure 1 - Existing Transmission Right of Way

Once built, the configuration of the Philadelphia to Paoli line would match most of the rest of Amtrak's 25 Hz railroad. Substation spacing between Philadelphia and Paoli would be about 10 miles, which is somewhat longer than exists over most of the New York to Washington line, but is not unreasonable with service levels currently supported with only the Bryn Mawr switching station.

Design issues with the installation of the new 138 kV transmission lines and new step down substation include the replacement of the existing catenary structures along the route and the removal of the Bryn Mawr substation building.

Catenary Structures – The existing catenary structures along the route are constructed with tapered tubular poles that are placed on either side of the right-of-way (RoW). The catenary for the line is supported from the poles via cross spans with back guys. The height of the existing structures varies with the majority of the structures being approximately 45 feet tall.

Figure 3 - Existing Catenary Structures

The structures are intended for replacement with PRR traditional H-sections with cross beams as seen in Figure 4, due to the following reasons:

- The original design of the existing catenary structures and foundations did not account for the additional structural loads which will be imposed by the addition of the new transmission lines.
- The conditions of the existing structures are marginal to poor and would need significant rehabilitation to remain in service.
- The height of the existing structures is inadequate to meet the Amtrak and National Electric Safety Code (NESC) requirements for clearances from 138 kV circuits.

Figure 4 - Typical K Frame Structure

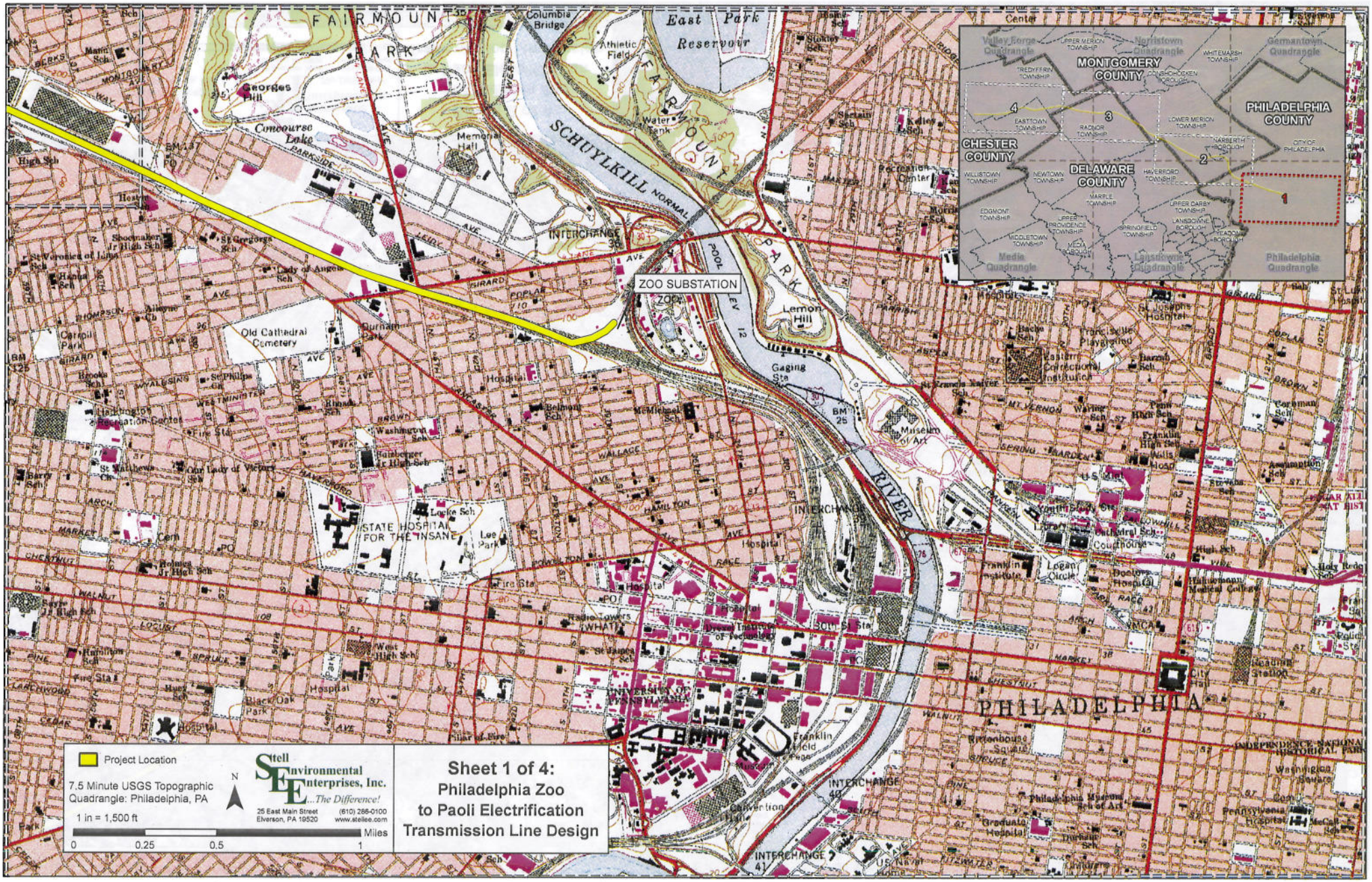
Substation Building – The existing substation building at Bryn Mawr was originally used for the operation of the 44 kV distribution system as well as supporting the 44 kV and 12 kV electrical equipment. The 44 kV equipment at the substation was abandoned in the 1940's and is not currently in service. The existing site is as seen in Figure 2.

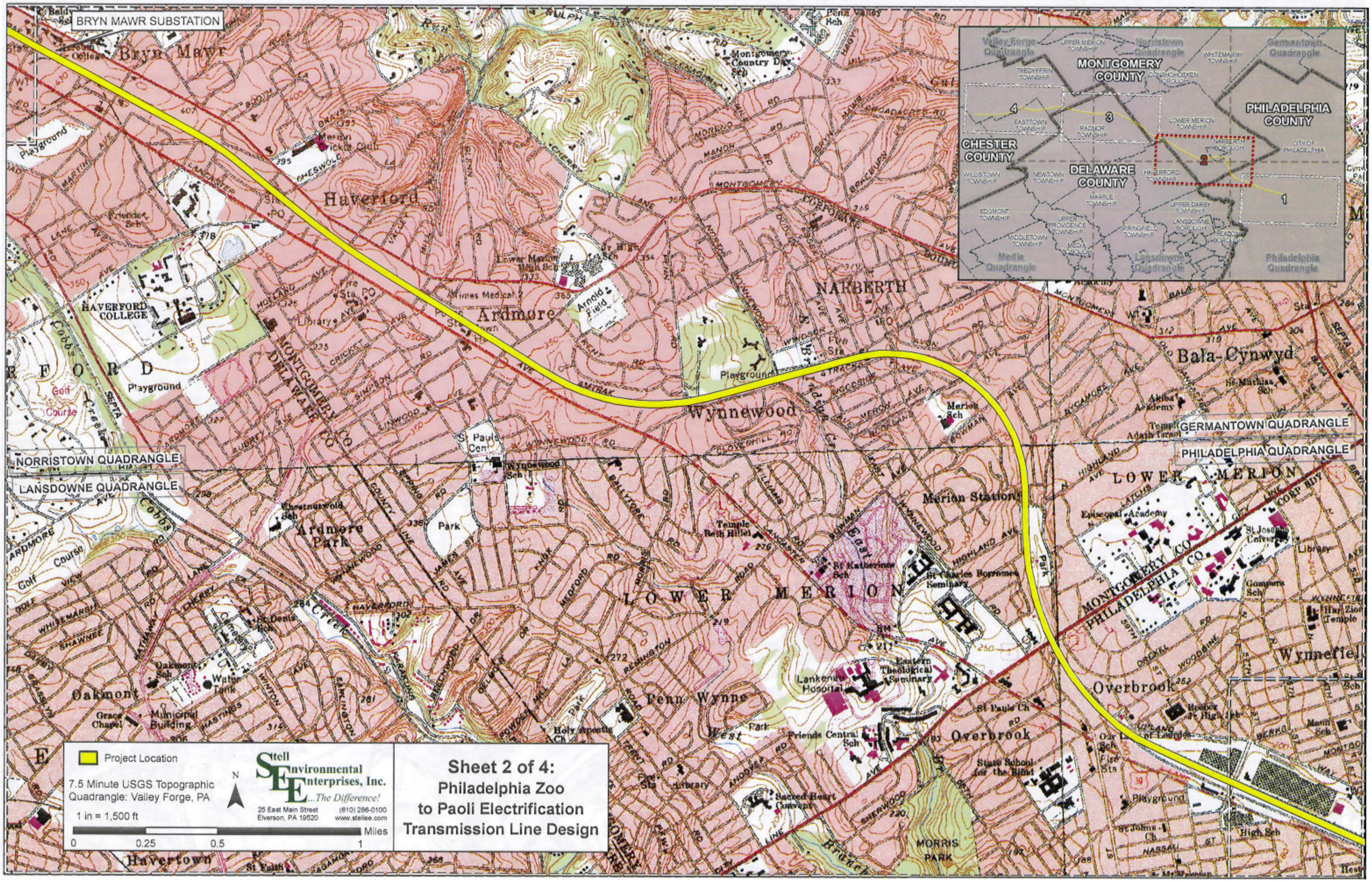
The new equipment required for the substation includes 2 each 4.5 MVA traction power transformers (12' H x 10'W x 8'L); new transmission switching structures on the east and west end of the substation with aerial cables connecting between them

Due to the limited area available at the site and the significant additions required to the site the existing substation building will need to be removed to fit the new substation on the available land. See preliminary substation layout included below.

Figure 5 - Bryn Mawr Aerial Photo

Figure 6 - Paoli Substation, 138 kV Structures


ZOO SUBSTATION
MONTGOMERY COUNTY
PHILADELPHIA COUNTY
CHESTER COUNTY
DELAWARE COUNTY
Project Location
7.5 Minute USGS Topographic Quadrangle: Philadelphia, PA
1 in = 1,500 ft
0
0.25
0.5
1
Miles
N
Stell Environmental Enterprises, Inc.
...The Difference!
25 East Main Street
Elverson, PA 19520
(610) 286-0100
www.stellee.com
Sheet 1 of 4:
Philadelphia Zoo
to Paoli Electrification
Transmission Line Design


BRYN MAWR SUBSTATION
Bryn Mawr
Haverford
HAVERFORD COLLEGE
Ardmore
NARBERTH
Wynnewood
Bala-Cynwyd
NORRISTOWN QUADRANGLE
LANSDOWNE QUADRANGLE
GERMANTOWN QUADRANGLE
PHILADELPHIA QUADRANGLE
Ardmore Park
LOWER MERION
Merion Station
Penn Wynne
Overbrook
Wynnefield
Oakmont
Havertown
MORRIS PARK
MONTGOMERY CO
DELAWARE CO
PHILADELPHIA CO
MONTGOMERY COUNTY
PHILADELPHIA COUNTY
CHESTER COUNTY
DELAWARE COUNTY
Project Location
7.5 Minute USGS Topographic Quadrangle: Valley Forge, PA
1 in = 1,500 ft
0 0.25 0.5 1 Miles
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(610) 286-0100 www.stellee.com
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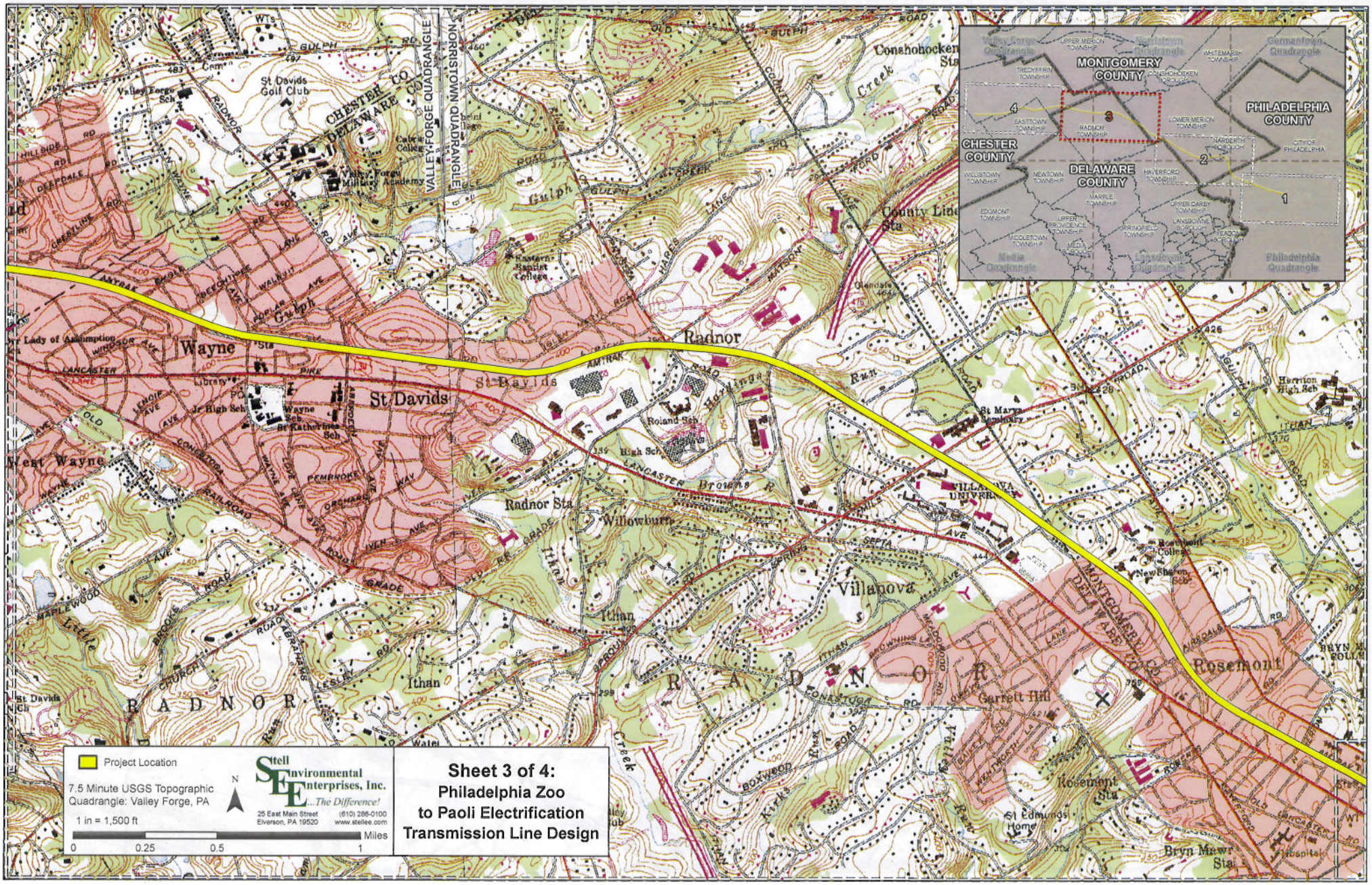
MONTGOMERY COUNTY
PHILADELPHIA COUNTY
CHESTER COUNTY
DELAWARE COUNTY
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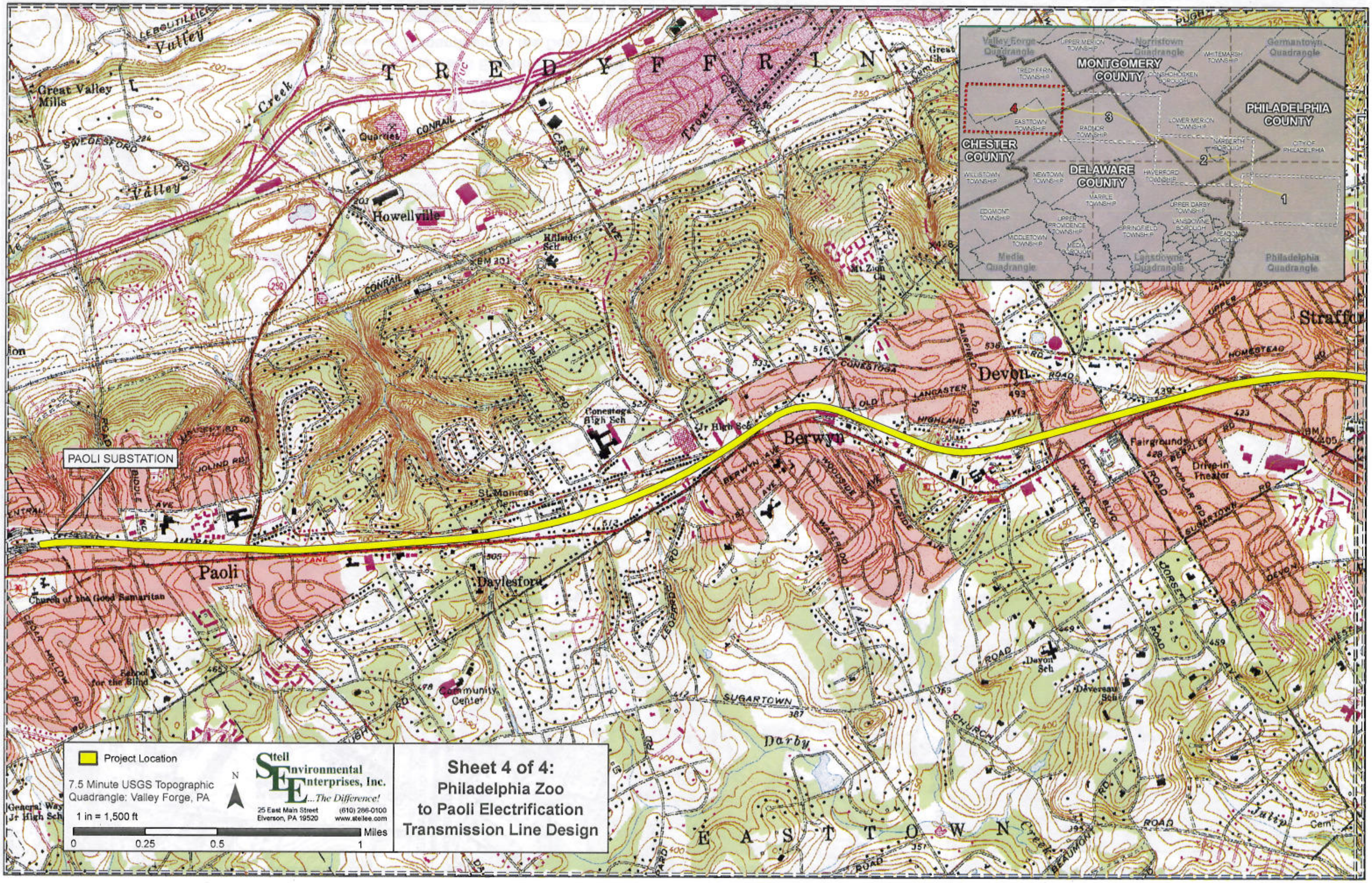

Sheet 4 of 4:
Philadelphia Zoo
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Project Location
7.5 Minute USGS Topographic
Quadrangle: Valley Forge, PA
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N
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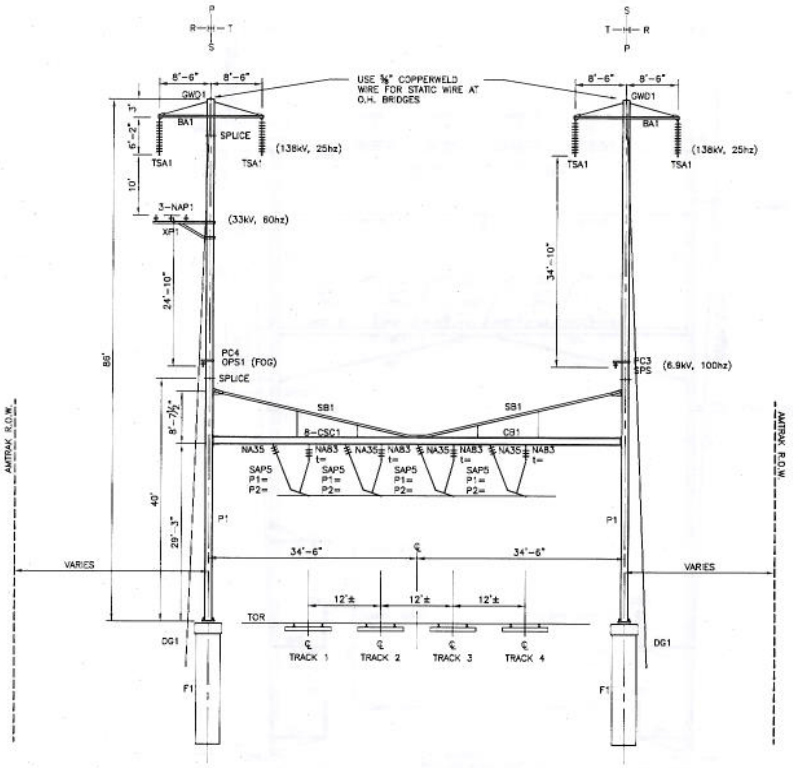
Elverson, PA 19520
(610) 286-0100
www.steilee.com
PAOLI SUBSTATION
Paoli
Berwyn
Devon
Daylesford
Howellville
TREDYFFRIN
EASTTOWN
CHESTER COUNTY
MONTGOMERY COUNTY
DELAWARE COUNTY
PHILADELPHIA COUNTY

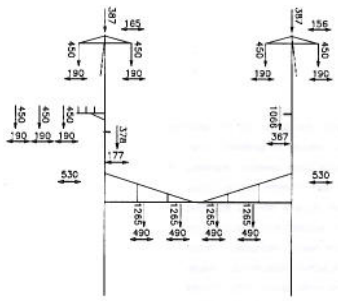
BILL OF MATERIALS			
MARK	DESCRIPTION	REF. DWG.	QUANTITY
NAB3	MESSENGER SUPPORT	ET-xx	4
NA35	MESSENGER SUPPORT	ET-xx	4
SAP5	REGISTRATION ASSEMBLY	ET-xx	4
GWD1	GROUND WIRE ASSEMBLY	ET-xx	2
TSA1	TRANSMISSION WIRE SUPPORT	ET-xx	4
NAP1	PECO WIRE SUPPORT	ET-xx	3
OPS1	FOG WIRE SUPPORT	ET-xx	1
SPS	SIGNAL POWER SUPPORT	ET-xx	1
PC3	SLIDING CLAMP	S-xx	1
PC4	SLIDING CLAMP	S-xx	1
P1	POLE	S-xx	2
F1	FOUNDATION	S-xx	2
SB1	SAG BRACE	S-xx	2
CB1	CROSS BEAM	S-xx	1
BA1	TRANSMISSION BRACKET -DOUBLE	S-xx	2
XP1	PECO BRACKET	S-xx	1
CSC1	SLIDING BRACKET	S-xx	8
DG1	DOWNGUY ASSEMBLY	S-xx	2
DGA	DOWNGUY ANCHOR FOUNDATION	S-xx	2



STRUCTURE ERECTION DIAGRAM P-

STATION 00+0

LOOKING TOWARDS HARRISBURG



LOADING DIAGRAM

1/2" RADIAL ICE, 40 MPH WIND, 300' MAX SPAN

(NOT TO SCALE)

CLEARANCE NOTES:

1. CLEARANCE OF 138kV OVER ROADWAY SHALL BE 35' WORST CASE.
2. CLEARANCE OF 33kV PECO OVER ROADWAY SHALL BE 18.5' PER NESC RULE 232, TABLE 232-1.
3. CLEARANCE OF 33kV PECO OVER OTHER PECO WIRES SHALL BE 2' PER NESC RULE 233, TABLE 233-1.

WORK STATEMENT:

1. INSTALL FOUNDATIONS.
2. INSTALL POLES, CROSS BEAM AND SAG BRACES.
3. INSTALL TRANSMISSION BRACKETS.
4. INSTALL LONGITUDINAL DOWN GUYS.
5. INSTALL STATIC, TRANSMISSION, INSULATED SIGNAL POWER AND PECO WIRES.
6. TRANSFER FOG AND EXISTING INSULATED SIGNAL POWER WIRES TO NEW STRUCTURE.
7. INSTALL SLIDING BEAM CLAMPS AND MESSENGER SUPPORTS.
8. TRANSFER CATENARY WIRES TO NEW STRUCTURE.
9. ADJUST HANGERS IN CATENARY SPANS AND REPROFILE CATENARY.
10. DEMO OLD CAT POLES AND FOUNDATIONS.

0 10 20

SCALE: 1"=10'-0"

15% DESIGN SUBMISSION

No.	Revisions	Date	By

AMTRAK

OFFICE OF
Chief Engineer
Engineering
National Railroad Passenger Corporation
30TH Street Station-Philadelphia, Pennsylvania 19104

Approved	Date

THE Burns GROUP IN ASSOCIATION WITH Baker AECOM

ZOO TO PAOLI TRANSMISSION ELECTRIFICATION

STRUCTURAL ERECTION DIAGRAM

TANGENT TRACK OH BRIDGE (WITH PECO)

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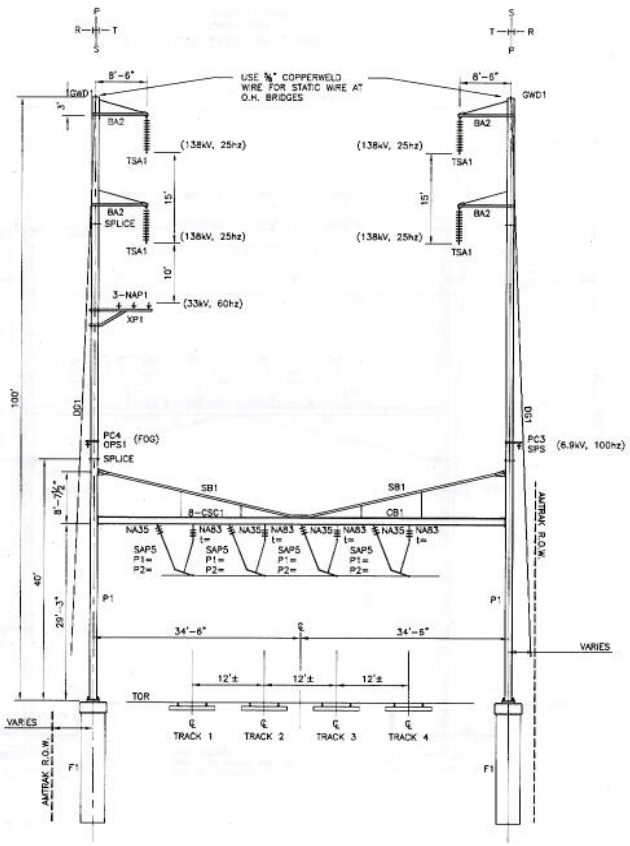

STRUCTURE ERECTION DIAGRAM P—

STATION 00+0
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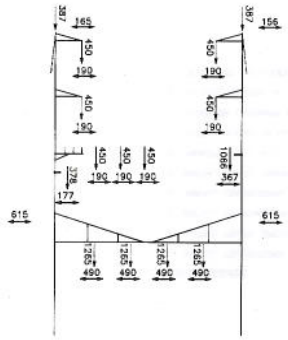

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1/2" RADIAL ICE, 40 MPH WIND, 300' MAX SPAN
(NOT TO SCALE)

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NA83	MESSENGER SUPPORT	ET-xx	4
NA35	MESSENGER SUPPORT	ET-xx	4
SAP5	REGISTRATION ASSEMBLY	ET-xx	4
GWS1	GROUND WIRE ASSEMBLY	ET-xx	2
TSA1	TRANSMISSION WIRE SUPPORT	ET-xx	4
NAP1	PECO WIRE SUPPORT	ET-xx	3
OPS1	FOG WIRE SUPPORT	ET-xx	1
SPS	SIGNAL POWER SUPPORT	ET-xx	1
PC3	SLIDING CLAMP	S-xx	1
PC4	SLIDING CLAMP	S-xx	1
P1	POLE	S-xx	2
F1	FOUNDATION	S-xx	2
SB1	SAG BRACE	S-xx	2
CB1	CROSS BEAM	S-xx	1
BA2	TRANSMISSION BRACKET - SINGLE	S-xx	4
XP1	PECO BRACKET	S-xx	1
CSC1	SLIDING BRACKET	S-xx	8
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ZOO TO PAOLI TRANSMISSION ELECTRIFICATION
STRUCTURAL ERECTION DIAGRAM
TANGENT TRACK, STACKED (WITH PECO)

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BILL OF MATERIALS			
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NAP1	PECO WIRE SUPPORT	ET-xx	3
OPS1	FOG WIRE SUPPORT	ET-xx	1
SPS	SIGNAL POWER SUPPORT	ET-xx	1
PC3	SLIDING POLE CLAMP	S-xx	1
PC4	SLIDING CLAMP	S-xx	1
P1	POLE	S-xx	2
F1	FOUNDATION	S-xx	2
SB1	SAG BRACE	S-xx	2
CB1	CROSS BEAM	S-xx	1
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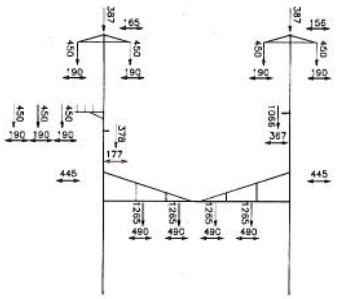

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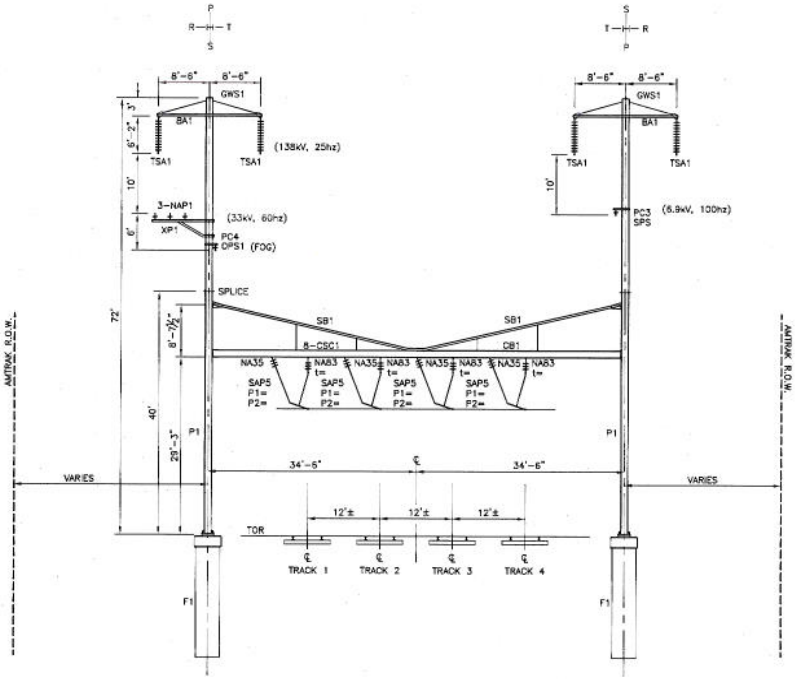

STRUCTURE ERECTION DIAGRAM P-
STATION 00+0
LOOKING TOWARDS HARRISBURG

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ZOO TO PAOLI TRANSMISSION
ELECTRIFICATION
STRUCTURAL ERECTION DIAGRAM
TANGENT TRACK (WITH PECO)

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