

Before the
Pennsylvania Public Utility Commission

**SOUTH AKRON-PRINCE
#1 & #2 138 kV LINE**

**ATTACHMENTS IN SUPPORT OF THE
Letter of Notification**

Application Docket No. _____

Submitted by: PPL Electric Utilities Corporation

SUMMARY

This Letter of Notification is being 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 approval to reinsulate the entire, approximately 12 mile long, South Akron-Prince #1 and #2 138 kV Transmission Line. In addition, 15 structures along the existing Line will be replaced with new steel poles, and a new overhead optical ground wire will be installed. The existing Line is currently constructed for and operated at 138 kV and will continue to operate at 138 kV at the conclusion of this Project.

This Project is located in the Townships of West Earl, Warwick, Manheim, Upper Leacock, and East Lampeter and the City of Lancaster, Lancaster County. The proposed upgrades are needed to improve the reliability and operating performance of the existing transmission Line.

The total estimated cost of the proposed Project is \$3.9 million. Subject to the Commission's approval, construction is scheduled to begin in September, 2012 to support the Project's in-service date of April, 2013.

This document, which describes the need for the Project and discusses the engineering and siting analysis for the proposed construction, consists of the following attachments:

Attachment 1	Necessity Statement
Attachment 2	Engineering Description
Attachment 3	Environmental Assessment
Attachment 4	PPL Electric Design Criteria and Safety Practices
Attachment 5	PPL Electric Magnetic Field Management Program
Attachment 6	List of Owners of Property within the Right-of-Way
Attachment 7	List of Involved Governmental Agencies, Municipalities, and Other Public Entities

PPL ELECTRIC UTILITIES SERVICE TERRITORY



Attachment 1

**ATTACHMENT 1
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
NECESSITY STATEMENT**

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**ATTACHMENT 1
SOUTH AKRON – PRINCE #1 AND #2 138 kV LINE
NECESSITY STATEMENT**

A. INTRODUCTION

With Commission approval, PPL Electric plans to reinsulate the 12 mile long South Akron – Prince #1 and #2 138 kV Line between the South Akron 230-138-69 kV and Prince 138-12 kV Substations. In addition, PPL Electric intends to install a fiber optical path between the aforementioned substations. Finally, 15 existing structures will be replaced with new steel poles. This Project is located in the Townships of West Earl, Warwick, Manheim, Upper Leacock, and East Lampeter and the City of Lancaster, Lancaster County. The proposed upgrades are needed to improve the reliability and safety of the existing transmission Line.

B. EXISTING SYSTEM

The South Akron-Prince #1 and #2 138 kV Line dates back to the 1950's. Electrical power normally flows from the South Akron Substation through PPL Electric's Leola, North Bridgeport, East Lancaster and Prince Substations that serve local customer loads. Also, customer substations owned by Dart, Burle and Donelley Gravure receive transmission service from this Line. In total, approximately 19,675 customers are supplied from the substations supplied by these transmission facilities. The load forecast indicates that for the summer of 2012 the South Akron-Prince #1 and #2 Lines will be supplying around 59 MW and 69 MW of load respectively.

See Figure 1 on page 4 for the existing transmission system configuration. The transmission system configuration will not be changed by the Project.

Presently, the South Akron – Prince #1 and #2 Line is supported by a total of 114 structures. These structures are a mix of wood poles, lattice steel towers and steel monopoles. There are 10 wooden poles which range in height from 50 to 70 feet; 80 lattice towers which range in height from 80 to 115 feet; and 24 steel monopoles which range in height from 65 to 125 feet.

C. DEFINITION OF THE PROBLEM

This Project aims to resolve problems related to the performance, reliability and safety of PPL Electric's transmission system. According to PPL Electric's Reliability Principles and Practices (RP&P), a load serving line should not exceed approximately 2 outages per year per 20-mile circuit or 0.1 outages/mile for both momentary and permanent outages. This is equivalent to 1.2 interruptions per year for this 12 mile long line. In recent years, average outage rates of the South Akron-Prince #1 and #2 Lines have exceeded the line performance standards set by PPL Electric's RP&P with 2.1 and 2 outages per year respectively.

With the intention of improving the Line's performance, PPL Electric gathered historical information and an engineering review was carried out to study the condition of the structures and conductors associated with the lines. During the investigation, it was found that most of the insulator assemblies date back to the 1950's when the structures were originally installed. Most of the suspension towers are insulated with six (6) bell porcelain insulator assemblies, which do not meet PPL Electric's current 138 kV design standard. In addition, the aging insulators have deteriorated over time and have contributed to the poor performance of the line. The insulators no longer function properly due to their age and the vintage design which does not meet the current insulation requirements for a 138 kV line.

Additionally, the structural loading analysis identified certain structures which do not meet current PPL Electric 138 kV design standards for structural loading.

Finally, the existing vintage steel shield wire of the South Akron-Prince #1 and #2 Line has deteriorated.

D. PROPOSED SOLUTION

In order improve the performance and safety of the South Akron-Prince #1 and #2 Lines, PPL Electric plans to replace all of the insulators along the lines with insulators which perform better and meet current PPL Electric 138 kV design standards.

In order to bring all of the structures up to current design criteria, PPL Electric will replace 15 structures due to their insufficient structural capacity. Some additional lattice steel towers will be reinforced by adding or replacing members to meet current design criteria.

Problems associated with the vintage shield steel wire will be addressed. PPL Electric plans to replace it with an Optical Ground Wire (OPGW) due to its age and as a part of the new South Lancaster fiber ring plan. Retaining the current shield wires would leave the conductors exposed to possible failure of the aged wire. By replacing the wire, the reliability of the South Akron-Prince #1 and #2 Lines would be increased. In addition, the new OPGW allows for a reliable communications path between PPL Electric facilities.

These system upgrades will improve the reliability and increase the safety of the Line. This work will be completed in part within existing PPL Electric right-of-way and in part on property owned in fee by PPL Electric.

The total estimated cost of this project is \$3.9 million. Subject to the Commission's approval, the proposed transmission line construction is scheduled to begin in September, 2012 in order to support a scheduled in-service date of April, 2013.

E. FUNCTIONAL ALTERNATIVES

No other reasonably economical functional alternatives were identified that would resolve the problems outlined above.

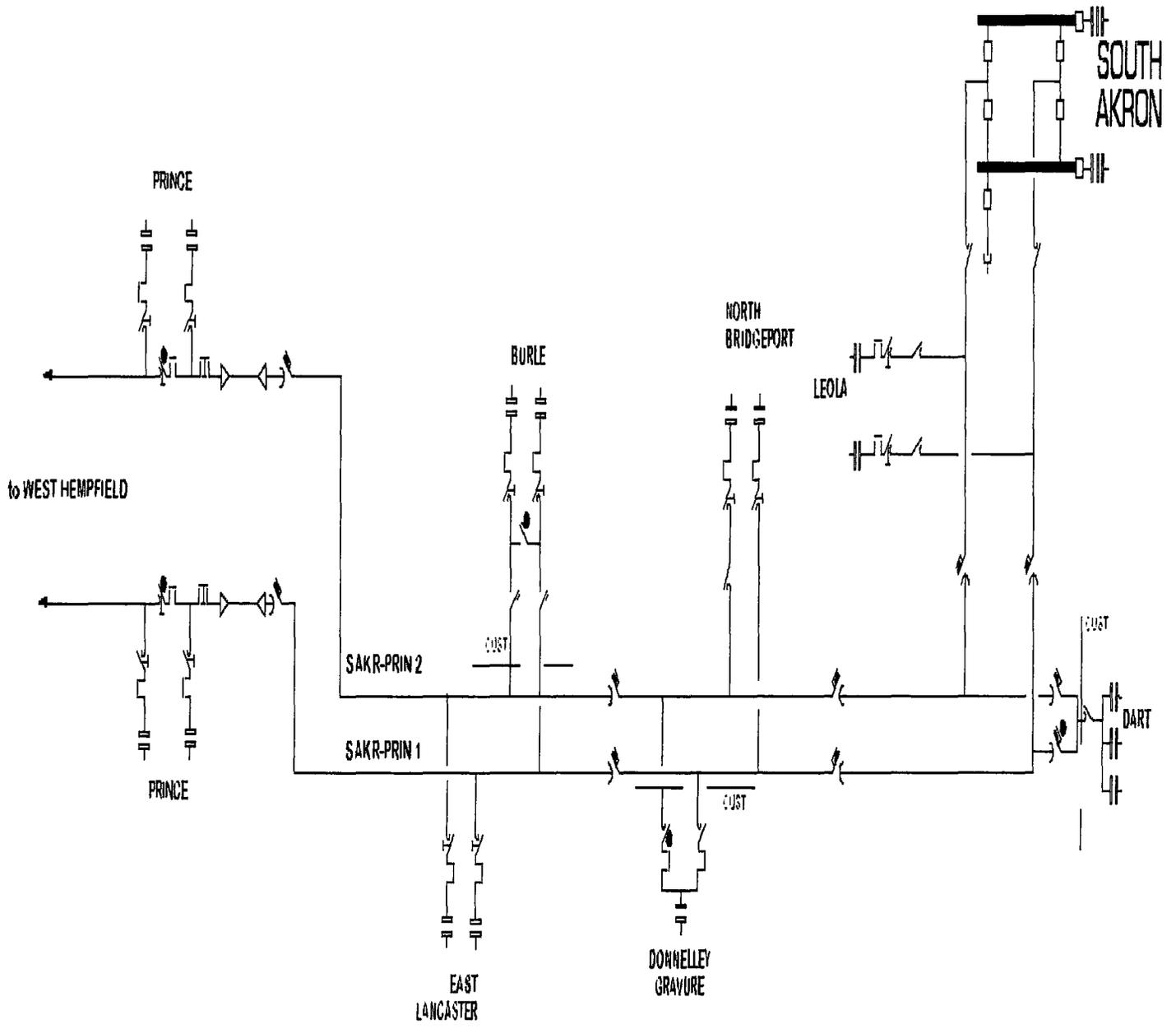


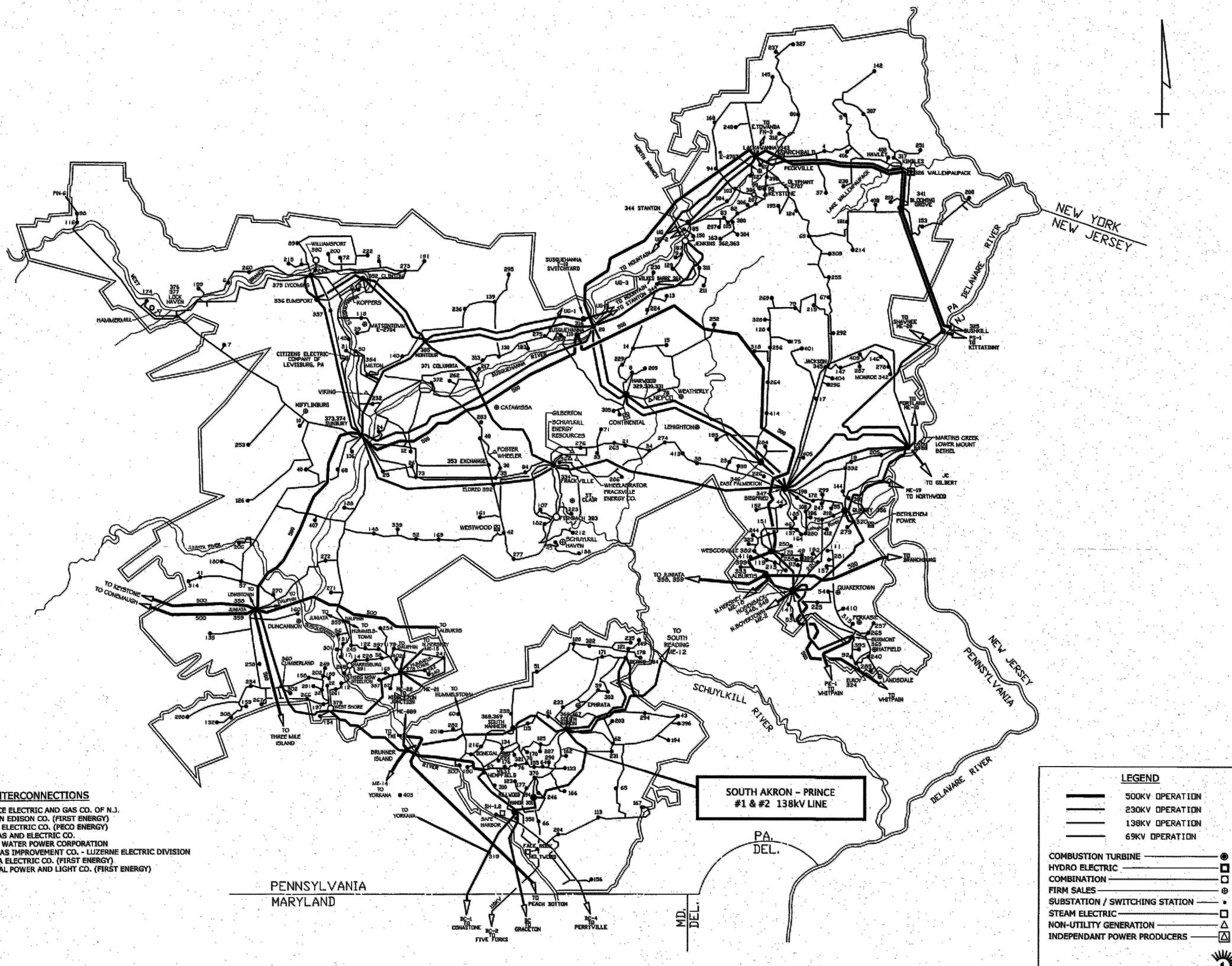
FIGURE 1

SUBSTATION LISTING

- | | | |
|------------------------|-------------------------|-------------------------------|
| 1. WEST WILLIAMSPORT | 136. SELINGSGROVE | 271. HALIFAX |
| 2. FAIRFIELD | 137. SUMNER | 272. MILLERSBURG |
| 3. MONTGOMERY | 138. AUBURN | 273. MUNCY |
| 4. VARDEN | 139. ROHRSBURG | 274. HAUTO |
| 5. HONESDALE | 140. DERRY | 275. BERWICK |
| 6. JERSEY SHORE | 141. EAST GREENVILLE | 276. SHEMANDOH |
| 7. LOGANTOWN | 142. WEST DAMASCUS | 277. PINE GROVE |
| 8. VALMONT | 143. NEW COLUMBIA | 278. STROUDSBURG |
| 9. RIVER | 144. FARMERSVILLE | 279. FREEMANSBURG |
| 10. LIMESTONE | 145. GREENVILLE | 280. ALLENTOWN |
| 11. * | 146. NORTH STROUDSBURG | 281. BINGEN |
| 12. REED | 147. TANNERSVILLE | 282. RHEIMS |
| 13. WRIGHT | 148. ELIZABETHVILLE | 283. CLEVELAND |
| 14. ST. JOHNS | 149. WYOMISSING | 284. LITTLE GAP |
| 15. FREELAND | 150. EXETER | 285. ORVILLA |
| 16. * | 151. CRACKERSPORT | 286. TUSCARORA |
| 17. GILBERT | 152. SCHWECKSVILLE | 287. BARTONSVILLE |
| 18. * | 153. HEMLOCK | 288. ALTON PARK |
| 19. CHERRY HILL | 154. MT. ALLEN | 289. SALEM |
| 20. SUSQUEHANNA 230KV | 155. PRINCE | 290. NORTH BRIDGEPORT |
| 21. TAMANEND | 156. WAKEFIELD | 291. HAMPDEN |
| 22. WHITE HILL | 157. COOPERSBURG | 292. CAMELBACK |
| 23. PALMERTON | 158. WERTZVILLE | 293. SILVER SPRING |
| 24. HAMILTON | 159. WEST CARLISLE | 294. BRECKNOCK |
| 25. HUNTER | 160. BENVENUE | 295. BENTON |
| 26. FAIRVIEW | 161. HEGINS | 296. MCMICHAELS |
| 27. * | 162. LEOLA | 297. HIGHTSTOWN |
| 28. * | 163. YATESVILLE | 298. NEWVILLE |
| 29. MONTOUR PUMP | 164. CENTRAL ALLENTOWN | 299. POINTE NORTH |
| 30. MT. CARMEL | 165. OBERLIN | 300. MARIETTA |
| 31. KELLY | 166. STRASBURG | 301. CENTER CITY |
| 32. SPORTING HILL | 167. ATGLEN | 302. NEW KINGSTOWN |
| 33. MAHANAY CITY | 168. BROOKSIDE | 303. REAMSTOWN |
| 34. GREENWOOD | 169. WILLIAMSTOWN | 304. DUPONT |
| 35. MOWERY | 170. EAST PETERSBURG | 305. HUMBOLT |
| 36. ALTAMOUNT | 171. WERNERSVILLE | 306. CEDAR AVE. |
| 37. HAMLIN | 172. NORTH BETHLEHEM | 307. INDIAN ORCHARD |
| 38. ASHFIELD | 173. WEST ALLENTOWN | 308. NOTTINGHAM |
| 39. SOUTH SLATINGTON | 174. FLEMINGTON | 309. NORTH COOLBAUGH |
| 40. SOUTH MIDDLESBURG | 175. NECKESVILLE | 310. LETORT |
| 41. WALKER | 176. DONERVILLE | 311. EAST MOUNTAIN |
| 42. FRAILEY | 177. MILLERSVILLE | 312. JERMYN |
| 43. MORGANTOWN | 178. SHILLINGTON | 313. BLOOMSBURG |
| 44. EGYPT | 179. DUKE | 314. MIFFLINTOWN |
| 45. CRESSONA | 180. MCALLISTERSVILLE | 315. RIDGE ROAD |
| 46. SOUTH WHITEHALL | 181. NEWFOUNDLAND | 316. SUSQUEHANNA |
| 47. * | 182. MARLIN | 317. T-10 SW. YARD |
| 48. BEAR GAP | 183. WEST BERWICK | 317. KIMBLES |
| 49. SALISBURY | 184. KEYSER AVENUE | 318. CHRISTMANS |
| 50. SOUTH MILTON | 185. NICKLES CREEK | 319. OTTER CREEK |
| 51. HEIDELBERG | 186. EAST ALLENTOWN | 320. STEEL CITY |
| 52. LYKENS | 187. PINE RIDGE | 321. MCGOVERNVILLE |
| 53. UPPER HANOVER | 188. DALMATIA | 322. ROBESONIA |
| 54. RICHLAND | 189. PENNSBORO | 323. SOUTH FOGELSVILLE |
| 55. MACADA | 190. NORTH COLUMBIA | 324. ELROY |
| 56. ROCKVILLE | 191. HUGHESVILLE | 325. BUSHKILL |
| 57. THOMPSONTOWN | 192. SOUTH ALLENTOWN | 326. WALLENPAUPACK |
| 58. PAXTON | 193. WEISSPORT | 327. ELK MOUNTAIN |
| 59. COCALICO | 194. HONEYBROOK | 328. JACK FROST |
| 60. EAST ELIZABETHTOWN | 195. MOSCOW | 329. HARWOOD 230/69KV |
| 61. WARWICK | 196. * | 330. HARWOOD CTG |
| 62. EARL | 197. ROSSMOYNE | 331. HARWOOD 69/12KV |
| 63. HEMPFIELD | 198. NORTHAMPTON | 332. NAZARETH |
| 64. EAST LANCASTER | 199. WOOLRICH | 333. ALBURTIS |
| 65. KINZER | 200. FAXON | 334. FRACKVILLE |
| 66. MT. NEBO | 201. ELIZABETHTOWN | 335. * |
| 67. MT. POCONO | 202. ENOLA | 336. ELMSPORT |
| 68. PENNS | 203. TERRE HILL | 337. ALLENWOOD |
| 69. GOULDSBORO | 204. BUCK | 338. * |
| 70. DILLERVILLE | 205. MT. BETHEL | 339. GRATZ |
| 71. GIRARD MANOR | 206. RICHFIELD | 340. HOCKERSVILLE |
| 72. KEENHAWK | 207. SCOTTSBORO | 341. BLOOMING GROVE |
| 73. GOWEN CITY | 208. TWIN LAKES | 342. MONROE |
| 74. * | 209. HARLEIGH | 343. LACKAWANNA #8 |
| 75. ELLIOT HEIGHTS | 210. TAFTON | 344. STANTON |
| 76. ROHRERSTOWN | 211. BEAR CREEK | 345. JACKSON |
| 77. MACUNGIE | 212. ORWIGSBURG | 346. EAST PALMERTON |
| 78. EAST HAZLETON | 213. EAST TEXAS | 347. SIEGFRIED |
| 79. WAGNERS | 214. CANDENIS | 348. HOSENSACK 230/69KV |
| 80. EAST CARBONDALE | 215. LINDEN | 349. HOSENSACK 500KV |
| 81. EYON | 216. MT. JOY | 350. CONESTOGA |
| 82. MINDOKA | 217. WEST BLOOMSBURG | 351. MANOR |
| 83. OLD FORGE | 218. MINSI TRAIL | 352. CLINTON |
| 84. FOUNTAIN SPRINGS | 219. LAKE NAOMI | 353. EXCHANGE |
| 85. SULLIVAN TRAIL | 220. LANARK | 354. MILTON |
| 86. * | 221. * | 355. DAUPHIN |
| 87. SWATARA | 222. MONTOURSVILLE | 356. QUARRY SUB. |
| 88. * | 223. PORT CARBON | 357. STEELTON |
| 89. HEPBURN | 224. BLYTHEBURN | 358. JUNIATA 500/230KV |
| 90. * | 225. MILFORD | 359. JUNIATA 230/69KV |
| 91. * | 226. TREICHLERS | 360. CUMBERLAND |
| 92. FRANCONIA | 227. ROSEVILLE | 361. DONEGAL |
| 93. ENHAUS | 228. RUTHERFORD | 362. JENKINS 230/69KV |
| 94. MORGAN | 229. HARTLAND | 363. JENKINS CTG |
| 95. THROOP | 230. PARRISH | 364. WILKES-BARRE |
| 96. * | 231. WEST NEW HOLLAND | 365. BUXMONT |
| 97. * | 232. POINT | 366. SOUTH AKRON 230/138/69KV |
| 98. CHAPMAN | 233. LINCOLN | 367. SOUTH AKRON 69/12KV |
| 99. SUBURBAN | 234. MIDDLETON | 368. SOUTH HANHEIM 69/12KV |
| 100. * | 235. STATE HILL | 369. SOUTH HANHEIM 230/69KV |
| 101. * | 236. MILLVILLE | 370. ENGLESIDE |
| 102. * | 237. TINKER | 371. COLUMBIA |
| 103. PROVIDENCE | 238. LAKEVILLE | 372. DANVILLE |
| 104. * | 239. NORTH HANHEIM | 373. SUNBURY |
| 105. AVOCA | 240. HATFIELD | 374. HUMMELS WHARF |
| 106. * | 241. HERSHEY | 375. LYCOMING |
| 107. CASS | 242. SOUTH HERSHEY | 376. LOCK HAVEN CTG |
| 108. CATAQUA | 243. SOUTH WILLIAMSPORT | 377. LOCK HAVEN 69/12KV |
| 109. * | 244. FOGELSVILLE | 378. HUMMELSTOWN |
| 110. SUSQUEHANNA 500KV | 245. WINDSOR | 379. WEST SHORE |
| 111. SEIDERSVILLE | 246. WEST WILLOW | 380. MONTAGE |
| 112. ROSEMONT | 247. WESTGATE | 381. SOUTH FARMERSVILLE |
| 113. QUARRYVILLE | 248. EDELA | 382. WESCOVILLE |
| 114. LAWNTON | 249. SUMNERDALE | 383. FISHBACH |
| 115. LITZ | 250. DORNEYVILLE | 384. BERKS |
| 116. RENVO | 251. BOHEMIA | 385. MONTAUR |
| 117. WALNUT | 252. WHITE HAVEN | 386. SUBURBAN YARD |
| 118. WATSON | 253. LAURELTON | 387. * |
| 119. TREXLETTOWN | 254. LINGLESTOWN | 388. * |
| 120. LAVINO | 255. POCONO FARMS | 389. MACK |
| 121. SPRING | 256. HICKORY RUN | 390. WILLIAMSPORT |
| 122. COLONIAL PARK | 257. BLOOMING GLEN | 391. HARRISBURG |
| 123. WEST LANCASTER | 258. SHERMANDSDALE | 392. ELDRID |
| 124. MADISONVILLE | 259. * | 393. * |
| 125. NEFFSVILLE | 260. LARRY CREEK | 394. MILLWOOD |
| 126. BEAVERTOWN | 261. SPANGLER HILLS | 395. TELFORD |
| 127. BELMONT | 262. EAST DANVILLE | 396. TWIN VALLEY |
| 128. LAKE HARMONY | 263. DELANO | 397. DEVONSHIRE |
| 129. GEORGETOWN | 264. CARBON | 398. JESSUP |
| 130. SCOTT | 265. SELLERSVILLE | 399. SCHOENECK |
| 131. NORTH HARRISBURG | 266. MECHANICSBURG | 400. HAWLEY |
| 132. MOUNT ROCK | 267. CARLISLE | 401. EFFORT MOUNTAIN |
| 133. GREENLAND | 268. CEDAR | 402. COPPERTONE |
| 134. LANDISVILLE | 269. ARROWHEAD | 403. RED FRONT |
| 135. GREEN PARK | 270. NEWPORT | 404. APPENZELL |

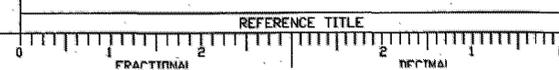
* - SUBSTATIONS THAT HAVE BEEN RETIRED.
 # - SITE OF THE EXISTING 230KV SUBSTATION AND PROPOSED 500KV SYBSTATION.

INTERCONNECTIONS
 PS PUBLIC SERVICE ELECTRIC AND GAS CO. OF N.J.
 ME METROPOLITAN EDISON CO. (FIRST ENERGY)
 PE PHILADELPHIA ELECTRIC CO. (PECO ENERGY)
 BC BALTIMORE GAS AND ELECTRIC CO.
 SH SAFE HARBOR WATER POWER CORPORATION
 UP THE UNITED GAS IMPROVEMENT CO. - LUZERNE ELECTRIC DIVISION
 PN PENNSYLVANIA ELECTRIC CO. (FIRST ENERGY)
 JC JERSEY CENTRAL POWER AND LIGHT CO. (FIRST ENERGY)



ACCT - 805201	PPL ELECTRIC UTILITIES	
SCALE - NONE	ELECTRICAL SYSTEM MAP	
BY - CDW	SOUTH AKRON - PRINCE #1 & #2 138KV LINE	
APPROVED	DATE	PPL ELECTRIC UTILITIES
G. HAKUN III	7/17/95	
PPL DRAWING NO.	SHEET NO.	REV.
D191830	1	103

PPL 01 FORM 4877 4/7/90



REFERENCE TITLE	NUMBER	REFERENCE TITLE	NUMBER	NO.	DATE	ACCT.	BY	REVIEWED	APPROVED
				1001	2/1/91	10013559	ADDED FOUNTAIN HILL 69-12 KV SUB AND FOUNTAIN HILL #1 & #2 138/69KV TAP	mg	DJG
				103	02/15/92	10015727	ADDED SOUTH AKRON - PRINCE #1 & #2 138KV LINE	mg	DJG
				102	1/13/92	10016114	REVISED DRAWING TO REFLECT CURRENT CONDITIONS	mg	LRK
				101	1/22/91	388362	ADDED LANSFORD 69-12 KV SUB AND LANSFORD 69KV TAP	mg	JBW

Attachment 2

**ATTACHMENT 2
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
ENGINEERING DESCRIPTION**

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MAP

MAPS	AERIAL PLOT PLAN – DRAWING.....	ATTACHMENT 2 MAP POCKET
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ATTACHMENT 2
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
ENGINEERING DESCRIPTION

A. DESCRIPTION OF PROPOSED LINE

PPL Electric proposes to reinsulate all electric utility structures and replace an existing overhead ground wire with optical ground wire along the approximately 12 mile long existing South Akron-Prince #1 and #2 138 kV Transmission Line. In addition, PPL Electric will replace 15 existing structures with new steel poles and reinforce certain other structures with new or additional members.

The Project will start at PPL Electric's existing South Akron Substation in West Earl Township, Lancaster County and end at a point approximately 100 feet east of New Holland Avenue near the border of Manheim Township and the City of Lancaster, Lancaster County. The Line is currently, and will continue to be, designed for and operated as a double-circuit 138 kV line. This Project is located in the Townships of West Earl, Warwick, Manheim, Upper Leacock, and East Lampeter and the City of Lancaster, Lancaster County. The proposed upgrades are needed to improve the reliability and safety of the existing transmission Line. Refer to the aerial plot plan at the end of Attachment "2" which depicts the location of these facilities.

The purpose of the proposed Project is to increase the operating reliability and safety of the electric system and add a reliable communication path between South Akron and Prince Substations. The Project involves three principle activities. First, insulators will be replaced. In recent years, the existing Line has experienced outages which have been attributed to the existing insulators. Many of the existing insulators date back to the original installation of the tower line in the 1950's. PPL Electric intends to improve the reliability of this Line by replacing the existing insulators. The condition and age of the insulators, coupled with the operating voltage of the Line, have been linked to the outages. PPL Electric will utilize a mix of porcelain and polymer insulators dependant on the type of structure and required clearances. The type of insulators used on each structure will be selected to provide the best application for each

structure type. A majority of the structures will have one additional insulator bell added to the middle and bottom insulator assembly.

Second, select structures will be replaced or reinforced. Presently, approximately 114 structures support the existing 12 mile 138 kV double-circuit transmission line. Of these, 15 structures will be replaced while others will be reinforced by adding or replacing steel members of the lattice tower. These structures are being replaced because they do not meet PPL Electric's structural loading criteria. These problems were discovered through structural loading analyses which were done on each structure; these analyses were done because PPL Electric will be replacing one of the existing overhead ground wires on this Line with optical ground wire.

Eight wood poles will be replaced with eight steel monopoles; these structures will be directly embedded at the approximate same locations as the existing poles. The new monopoles will be approximately the same height (60'-70') as the existing wood poles. In addition, five lattice tower structures will be replaced by one or two pole steel structures which will be installed on concrete foundations. Again, the new steel structures will be approximately the same height (80'-90') as the existing lattice tower structures and installed at the approximate same locations. Also, two light duty steel pole structures will be replaced by two custom steel monopole structures which will be approximately the same height as the existing steel poles (75' and 120'). These poles will be installed at the approximate same locations as the existing poles and will be installed on concrete foundations or direct embedded. Spans along the existing line vary in length and will remain the same when this Project is complete.

The South Akron-Prince #1 and #2 138 kV Transmission Line will remain in place and continue to operate at 138 kV after this project is completed. The existing double-circuit, which will remain in place, consists of 556.5 thousand circular mills (kcml)¹, 24/7 stranding aluminum conductor steel reinforced ("ACSR") conductor, 795 kcml, 30/19 stranding ACSR conductor, and 795 kcml, 37 strand aluminum power conductor types which are dependant on type of construction. The minimum conductor to ground clearance for the Line occurs in a section

¹ KCMIL wire size is the equivalent cross sectional area in thousands of circular mils. A circular mil is the area of a circle with a diameter of one thousandth (0.001) of an inch.

which is composed of 556.5 kcml, 24/7 ACSR stranding. This conductor type also limits the line's power flow (ampacity) for which the below table is generated.

This project will be designed to meet or exceed National Electric Safety Code (NESC) minimum standards. Additional design criteria and safety rules practiced by PPL Electric are included in Attachment 4. The existing minimum conductor-to-ground clearance will be 21.5 feet. This minimum clearance occurs at a maximum thermal conductor temperature of 257°F. The design minimum conductor ground clearances and conductor thermal ratings are as follow

TABLE 1
DESIGN MINIMUM CONDUCTOR CLEARANCES
FOR 556.5 KCMIL 24/7 STRAND ACSR*

<u>Condition</u>	<u>Double-Circuit Design Clearance-to-Ground</u>
Normal load, average weather (60°F conductor temperature)	28.8 feet
Predicted extreme thermal load (257°F conductor temperature)	21.5 feet
Predicted extreme wind load conditions (25 lbs., 60°F wire temperature)	36.7 feet
Predicted NESC 250D extreme ice & wind, (1-inch ice, 4 lbs. wind, 15°F)	25.2 feet

*Clearances based on a maximum tension of 9,095 pounds initial tension at 1-inch ice, 4 lbs. wind, 15°F and a ruling span of 577 feet.

TABLE 2
CONDUCTOR THERMAL RATING
556.5 KCMIL 24/7 ACSR
257°F MAXIMUM CONDUCTOR TEMPERATURE

<u>Condition</u>	<u>Ambient Temperature °F</u>	<u>Wind Speed Knots</u>	<u>Ampacity Amps</u>
Summer Normal	95	0	806
Winter Normal	50	0	929
Summer Emergency	95	1.5	1054
Winter Emergency	50	1.5	1187

B. MAGNETIC FIELD MANAGEMENT

PPL Electric's Magnetic Field Management Program, summarized in Attachment 5, and is applied to new and reconstructed transmission line projects. Current scientific evidence does not demonstrate 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. To reduce magnetic field exposures, the program generally prescribes the use of a line design that provides five feet higher ground clearance and reverses phasing of new double-circuit lines where it is feasible to do so at low or no cost.

An increased structure height of five additional feet will not be utilized for this Project because the majority of the existing structures will remain. To achieve an increase in ground clearance height, many of the structures along the approximately 12 mile long South Akron-Prince #1 and #2 138 kV Line would need to be replaced or modified. The cost of increasing the poles heights exceeds the cost threshold of the "low or no cost" policy. The existing ground clearances identified in this report will not be changing as a result of this Project. Reverse phasing is presently used on the South Akron-Prince #1 and #2 Line. PPL Electric will continue to reduce Magnetic Fields from the Line through the use of reverse phasing after the Project is complete.

C. RIGHT-OF-WAY STATUS

The proposed pole project will be constructed entirely within the existing PPL Electric-owned right-of-way or on property owned by PPL Electric for the South Akron-Prince #1 and #2 138 kV Transmission Line. The existing right-of-way width for the approximately 12 mile long line varies from 50 feet to 125 feet wide. In addition, there is a section of undefined width right-of-way. No additional right-of-way is required for this project.



FIGURE 1 - TYPICAL EXISTING WOOD POLE TO BE REPLACED

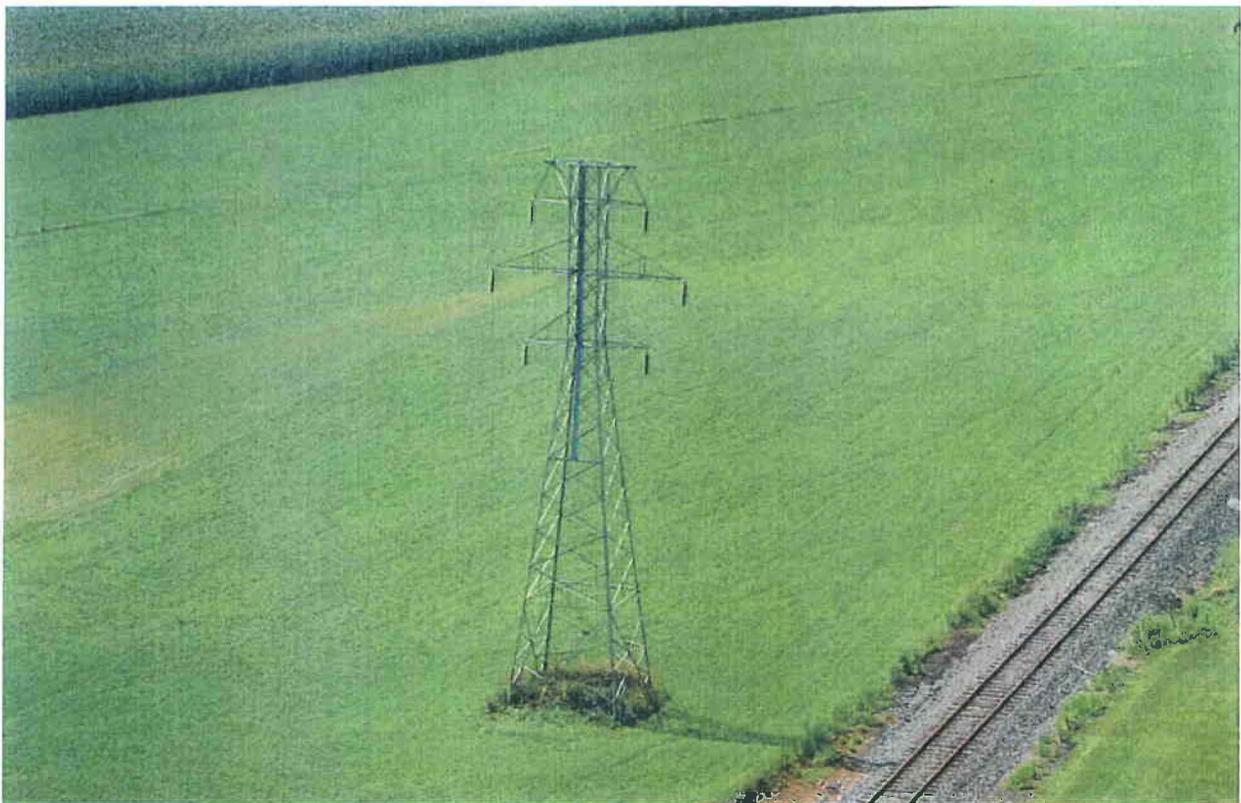


FIGURE 2 - TYPICAL EXISTING LATTICE TOWER TO BE REPLACED OR REINSULATED

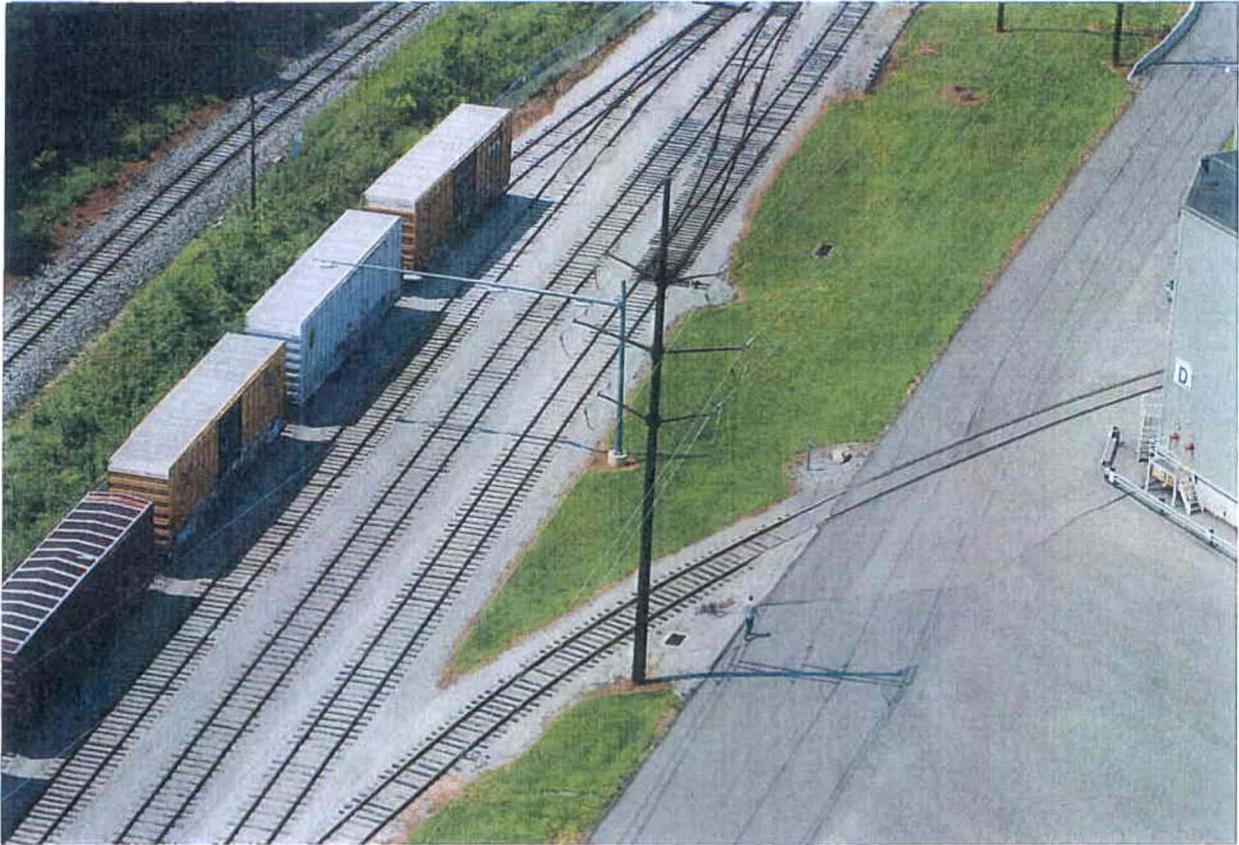


FIGURE 3 - TYPICAL EXISTING STEEL POLE TO BE REPLACED OR REINSULATED

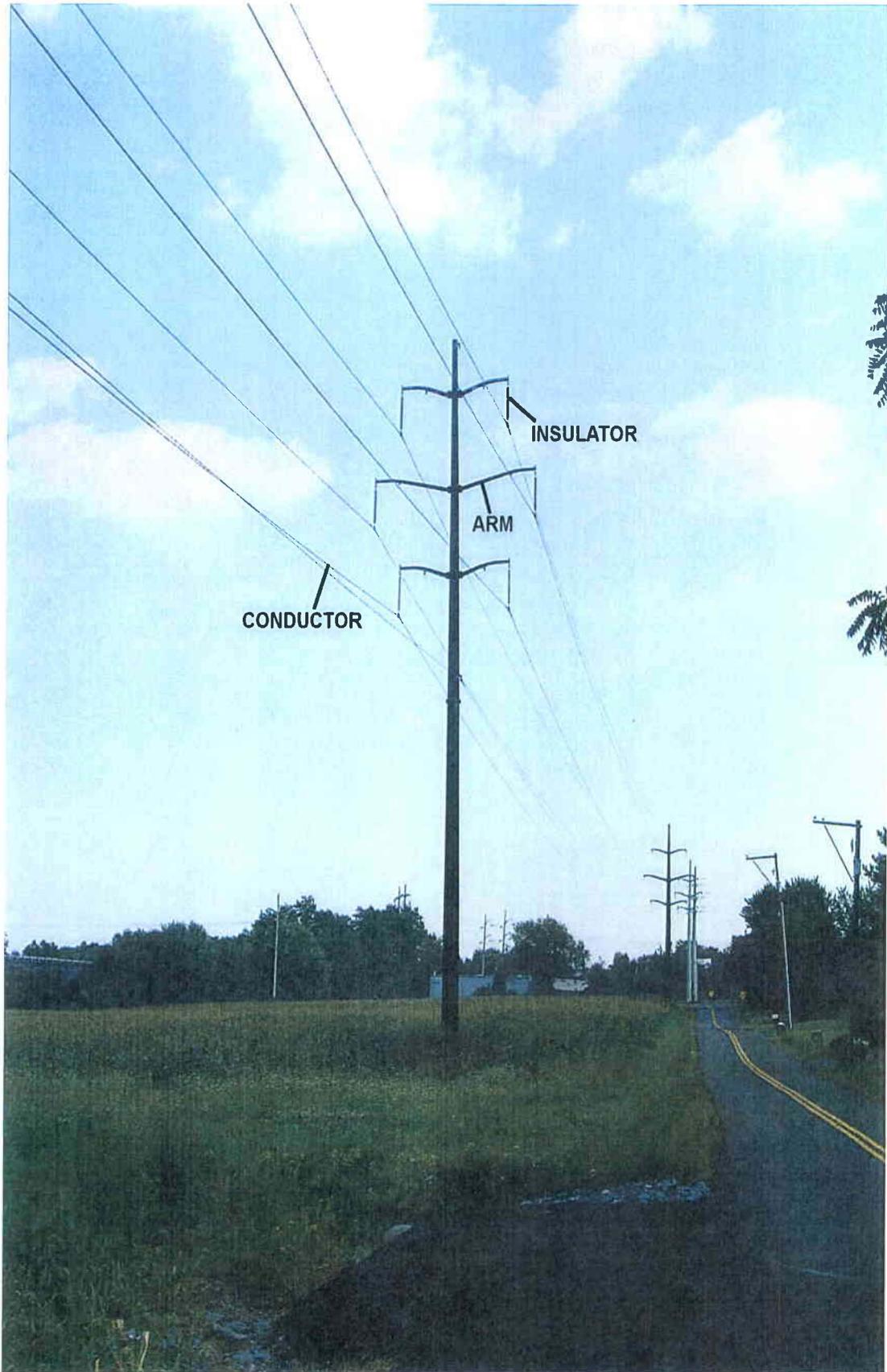
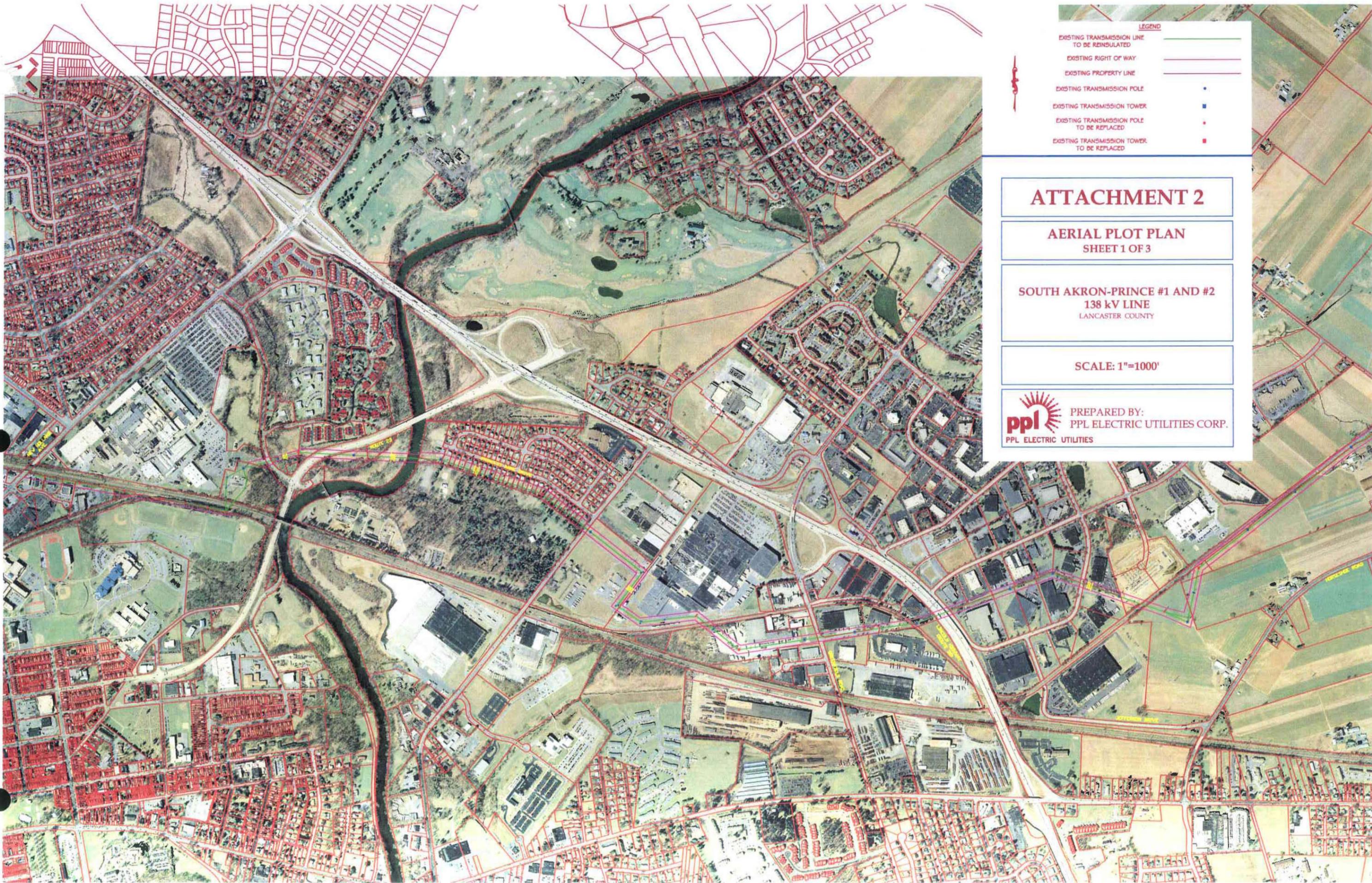


FIGURE 4 - PROPOSED 138 kV STEEL POLE



LEGEND

EXISTING TRANSMISSION LINE TO BE REINSULATED	
EXISTING RIGHT OF WAY	
EXISTING PROPERTY LINE	
EXISTING TRANSMISSION POLE	
EXISTING TRANSMISSION TOWER	
EXISTING TRANSMISSION POLE TO BE REPLACED	
EXISTING TRANSMISSION TOWER TO BE REPLACED	

ATTACHMENT 2

AERIAL PLOT PLAN
SHEET 1 OF 3

SOUTH AKRON-PRINCE #1 AND #2
138 kV LINE
LANCASTER COUNTY

SCALE: 1"=1000'

 PREPARED BY:
PPL ELECTRIC UTILITIES CORP.
PPL ELECTRIC UTILITIES



LEGEND

- EXISTING TRANSMISSION LINE TO BE REINSULATED 
- EXISTING RIGHT OF WAY 
- EXISTING PROPERTY LINE 
- EXISTING TRANSMISSION POLE 
- EXISTING TRANSMISSION TOWER 
- EXISTING TRANSMISSION POLE TO BE REPLACED 
- EXISTING TRANSMISSION TOWER TO BE REPLACED 

ATTACHMENT 2

AERIAL PLOT PLAN
SHEET 2 OF 3

SOUTH AKRON-PRINCE #1 AND #2
138 kV LINE
LANCASTER COUNTY

SCALE: 1"=1000'

 **PREPARED BY:**
PPL ELECTRIC UTILITIES CORP.
PPL ELECTRIC UTILITIES



LEGEND

- EXISTING TRANSMISSION LINE TO BE REINSULATED 
- EXISTING RIGHT OF WAY 
- EXISTING PROPERTY LINE 
- EXISTING TRANSMISSION POLE 
- EXISTING TRANSMISSION TOWER TO BE REPLACED 
- EXISTING TRANSMISSION TOWER TO BE REPLACED 

ATTACHMENT 2

AERIAL PLOT PLAN
SHEET 3 OF 3

SOUTH AKRON-PRINCE #1 AND #2
138 kV LINE
LANCASTER COUNTY

SCALE: 1"=1000'

 PREPARED BY:
PPL ELECTRIC UTILITIES CORP.
PPL ELECTRIC UTILITIES

Attachment 3

**ATTACHMENT 3
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
ENVIRONMENTAL ASSESSMENT**

TABLE OF CONTENTS

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**ATTACHMENT 3
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
ENVIRONMENTAL ASSESSMENT**

A. INTRODUCTION

PPL Electric is seeking Commission approval to make certain modifications to the existing South Akron – Prince #1 and #2 138 kV Line in order to increase the safety, reliability and operating performance of the line. As part of this Project, PPL Electric plans to replace all of the existing insulators along the Line, install a new overhead fiber optic ground wire, replace 15 existing structures with new steel poles in the same location as the existing structure and reinforce certain lattice steel towers by replacing or adding members. The existing line is currently operated at 138 kV and will continue to operate at 138 kV when the Project has been completed.

The proposed Project was reviewed with representatives of West Earl, Warwick, Manheim, Upper Leacock, and East Lampeter Townships, the City of Lancaster, and Lancaster County. The Townships, the City and the County had no objection. A list of involved governmental agencies, municipalities and other public entities is included as Attachment 7.

B. LAND USE

The Project is located in part on property owned in fee by PPL Electric and in part within existing PPL Electric transmission line right-of-way. Both the property owned in fee and the right-of-way contain existing electrical facilities which will be upgraded. No additional property rights are required to complete this Project.

Land use in the area is mixed. Uses include agricultural, residential, recreational, commercial, and industrial. Land use impacts are anticipated to be minimal due to the fact that the project is located in areas that contain existing PPL Electric facilities which will be upgraded. Interference with existing land uses will be further minimized because, where possible, PPL Electric will use previously established access roads for construction.

No nearby communication towers, pipelines or other utilities will be affected by the proposed construction. The closest point of the Smoketown Airport is approximately 1.8 miles from the construction. PPL Electric will file the appropriate documentation, if necessary, with both the Federal Aviation Administration and the PennDOT Bureau of Aviation to ensure that the proposed Project will not be a hazard to the airport's flight operations. PPL Electric does not anticipate any problem due to the pre-existing electrical facilities in the vicinity and the fact that the structure heights will remain the same.

C. CULTURAL RESOURCES

The proposed reconfiguration was reviewed by the Pennsylvania Historical and Museum Commission (PHMC). The PHMC has determined that there may be historic buildings, structures, and/or archaeological resources in the project area. Correspondence from the PHMC, dated January 23, 2012, indicates that the proposed activities associated with this project should have no effect on these resources (File No. ER 2012-0517-071-A). No further investigations are required. If, however, PPL Electric becomes aware of any previously unidentified resources that would be affected by the construction, the Bureau for Historic Preservation will be contacted immediately

D. NATURAL FEATURES

The proposed construction will not affect any unique geological, scenic, or natural areas. The Fruitville Quarry Fossil Site is located approximately 3.5 miles from the area where the Project will occur. This feature will not be affected due to its distance from the project, the extensive development between the feature and the Project, and the fact that PPL Electric is proposing limited modifications to existing facilities. Conestoga Pines Park, a City of Lancaster Park, is located near the proposed project. No impacts are anticipated due to the fact that PPL Electric is proposing limited modifications to existing facilities which are located in this area. PPL Electric did not identify any other National Natural Landmarks, parks, recreational facilities, or natural areas located near the project area.

Limited vegetation management may be required for this Project. Only minimal vegetation removal may be needed because the Project is being completed entirely within existing PPL Electric right-of-way and on PPL Electric fee-owned property, which are currently cleared of trees. In areas where vegetation management is required to complete the Project, PPL Electric will apply its “Specifications for Initial Clearing and Control of Vegetation On or Adjacent to Electric Line Right-of-Way Through Use of Herbicides, Mechanical and Hand Clearing Techniques” to mitigate any impacts.

PPL Electric has retained DiGioia Gray to identify and delineate all wetlands and watercourses within the existing right-of-way. These features have been identified, delineated and added to the construction plans. None of the structures to be replaced are in wetlands or watercourses. PPL Electric will obtain all permits necessary from the Pennsylvania Department of Environmental Protection and the United States Army Corps of Engineers and will comply with all conditions placed on the permits. In addition, PPL Electric will acquire any required soil erosion and sedimentation control permits and comply with any conditions placed on those permits.

E. THREATENED AND ENDANGERED SPECIES

PPL Electric has coordinated with state and federal agencies to obtain information regarding threatened and endangered species in close proximity to the Project. Rick Mellon of Mellon Biological Services has been retained by PPL Electric to coordinate with these agencies. To date, a review of the Pennsylvania Natural Diversity Inventory (“PNDI”) records under the jurisdiction of the Department of Conservation and Natural Resources (DCNR), the Pennsylvania Fish and Boat Commission (PAFBC), and the Pennsylvania Game Commission (PGC) have been completed. These agencies indicate that there are no impacts to species of special concern under their jurisdiction (PNDI # 021641). The above referenced findings are documented in correspondence from the DCNR dated January 3, 2012, the PAFBC dated January 31, 2012, and the PGC dated February 10, 2012.

PPL Electric is awaiting a response from the United States Fish and Wildlife Service in reference to PNDI records under their jurisdiction. Any conflicts with species of concern will be resolved prior to starting construction in areas of potential impacts.

Attachment 4

The National Electrical Safety Code (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 Corp. (PPL Electric) has developed design specifications and safety rules which meet or surpass all provisions specified by the NESC.

Engineering Design Criteria and Parameters

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 such things as larger-minimum crossarm dimensions, larger-minimum conductor size, and increased safety factors.

Another example is the design parameters utilized to account for ice and wind loadings on the overhead ground wire (OHGW) and power conductors. The NESC standard ice and wind design magnitudes for the PPL Electric territory are 0.5 inch thickness of radial ice combined with four pounds per square foot horizontal wind pressure (equivalent to 40-mile per hour wind velocity). The conductor sags and tensions used in line designs are the result of various ice and wind combinations, depending on the elevation at the line location and line design voltage. The conductor sags and tensions used in the design of all PPL Electric transmission lines are at least 0.5-inch ice combined with eight pounds wind pressure (equivalent to 57 miles per hour wind velocity). 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. The tables below compare PPL Electric and NESC ground clearances for lines of various voltages.

138 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Electric Design</u>
Roads, streets, alleys	21 Ft.	30 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	21 Ft.	30 Ft.
Spaces accessible to pedestrians only	17 Ft.	30 Ft.
Railroad tracks	31 Ft.	35 Ft.

230 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Electric Design</u>
Roads, streets, alleys	23 Ft.	32 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	23 Ft.	32 Ft.
Spaces accessible to pedestrians only	19 Ft.	32 Ft.
Railroad tracks	31 Ft.	36 Ft.

500 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Electric Design</u>
Roads, streets, alleys	28 Ft.	53 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	28 Ft.	53 Ft.
Spaces accessible to pedestrians only	24 Ft.	53 Ft.
Railroad tracks	38 Ft.	53 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.

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 and structure climbing patrols. A number of helicopter patrols are performed on all lines annually. 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.

Foot and structure climbing patrol programs for a transmission line begin approximately three to five years after the line is energized, unless a helicopter patrol reports a need for earlier action. The frequency of foot patrols varies from once every year to once every several years depending on line type and age.

An assigned foot patroller checks right-of-way conditions, including access roads, bridges, pole washouts, tower footers, vegetation height and clearance to conductors, pole and tower deterioration and, with the use of binoculars, insulators, and condition of hardware. Identified problems are included in a report that is forwarded to the appropriate department for corrective action.

A scheduled line outage is required to perform an overhead patrol because of "hands-on" inspection of hardware. Overhead patrols are conducted on a schedule determined by line age, operating record, and observed general condition. The necessary repairs are also done during the inspection outage.

Personnel Safety Rules

The following are a few of the PPL Electric safety rules that demonstrate the Company's concern for employee 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 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 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. The conductor size and attachment clamps of temporary safety grounds must be capable of conducting anticipated fault currents. Rubber gloves, rubber sleeves, and additional rubber protective equipment are used as required when applying or removing temporary safety grounds to or from the lines or apparatus to be grounded. An approved nonconductive working stick of sufficient length to allow workers to maintain the following required minimum clearances is used to test that the line has been de-energized and to apply temporary safety grounds:

<u>Voltage-kV</u>	<u>Minimum Clearance</u>
138	3'-7"
230	5'-3"
500	11'-3"

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. When ground pins are used to establish proper ground points, they are driven to a depth of not less than four feet as near vertical as possible.

- 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.

Attachment 5



**MAGNETIC
FIELD
MANAGEMENT
PPL Electric Utilities
Corporation**

Attachment 11

DECEMBER 2004

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INTRODUCTION

At PPL Electric Utilities Corp. (PPL EU), magnetic field management means investigating and implementing methods at low or no cost to reduce magnetic fields in new or rebuilt transmission and distribution lines. This document explains PPL EU's Magnetic Field Management Program, which is part of PPL EU's larger Electric and Magnetic Fields (EMF) policy.

PPL EU's View

Some people are worried that electric and magnetic fields are harming their health. Others think the scientific research does not show a problem at all, and still others believe there's just too much scientific uncertainty to draw any conclusions.

Here's what we do know now. Various panels of scientists that have reviewed the EMF research 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 in responding to the EMF issue. PPL EU's approach to the EMF issue consists of five elements:

- Providing EMF information to customers and employees
- Providing magnetic field measurements
- Establishing and implementing a magnetic field management program to reduce magnetic fields in new or rebuilt facilities when it can be done at no, or low, cost
- Integrating EMF in the public involvement process that PPL EU undertakes in the siting of transmission lines
- Have supported additional research

EMF Are All Around Us

Electric and magnetic fields occur in nature and in all living things. The earth, for instance, has a magnetic field, which makes the needle on a compass point north.

Electric fields and magnetic fields of a different type also surround every wire that carries electricity. In everyday life, these EMF arise from several basic sources, including power lines, electrical appliances, home and building wiring, other utility lines and cables, and currents flowing on water pipes. Though they often occur together, EMF are made up of two separate components:

Electric Fields

Electric fields are produced by the voltage—or electrical pressure—on a wire. The higher the voltage, the higher the electric field. As long as a wire is energized—has voltage present—an electric field is present (see Figure 1). In other words, an appliance, or an electric power line, doesn't actually have to be turned on to create an electric field. It just has to be 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. Generally speaking, the higher the current, the higher the magnetic field. Because they only occur when current is flowing, magnetic fields are present only when the power is turned on (see Figure 1). Magnetic fields also diminish with distance, but—unlike electric fields—are not blocked by common objects. In recent years, public and scientific interest has turned toward the magnetic field component of EMF because of some scientific studies regarding these fields.

Figure 1

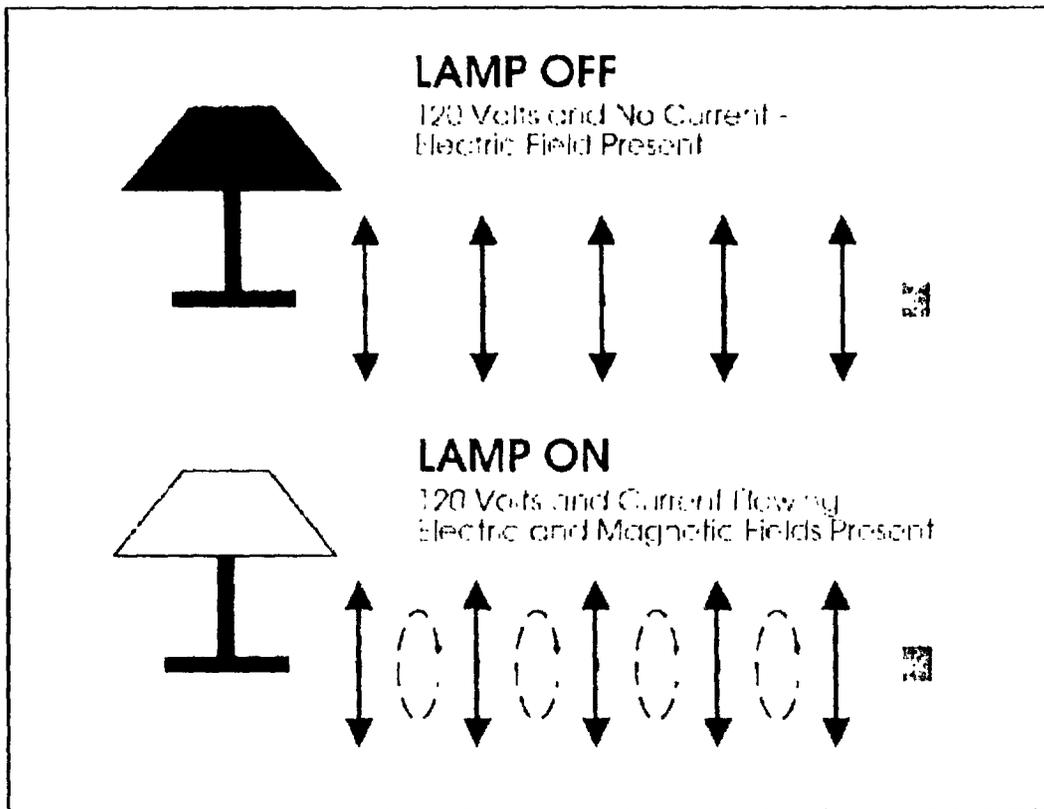


Figure 2

Magnetic field strengths decrease with distance Magnetic fields are measured in milligauss		Source: "EMF In Your Environment", U.S. Environmental Protection Agency 1992		
		At 6 inches	At 1 foot	At 2 feet
Clothes dryer		2 to 10	* to 3	*
Microwave oven		100 to 300	1 to 200	1 to 30
Toaster		5 to 20	* to 7	*
Power drill		100 to 200	20 to 40	3 to 6
Can opener		500 to 1500	40 to 300	3 to 30
Mixer		30 to 600	5 to 100	* to 10
Hair dryer		1 to 700	* to 70	* to 10
Color television		Data not available	* to 20	* to 8

FIGURE 2 * The magnetic field measurement at this distance from the operating appliance could not be distinguished from background measurements taken before the appliance had been turned on.

Measuring Magnetic Fields

Magnetic fields usually are measured in a unit called a milligauss. Magnetic field levels found in the living areas of homes typically range from less than 1 milligauss to about 4 milligauss according to the U.S. Environmental Protection Agency. They can be higher in some cases. The levels next to appliances can exceed 1,000 milligauss (1 gauss). Figures 2 and 3 show how the strength of the field falls off as you move away from the source, just as the heat of a campfire grows weaker as you walk away from it. For overhead power lines, the strength of the magnetic fields is dependent upon a number of factors that will be explained later. Those factors produce a magnetic field that drops off rapidly as you move away from the power line.

Figure 3

Sample Magnetic Field Levels in Milligauss				
Type of Overhead Power Line	Distance from the line			
	Under the line	50 ft.	100 ft.	200 ft.
220 kV and 500 kV	5-400	5-250	1-75	0.5-20
69 kV and 138 kV	3-80	0.5-2.5	0.1-10	0.1-3
12 kV and below	0.4-20	0.1-1	-	-

The magnetic field values provided in this table represent a general range of values associated with the types of overhead power lines listed and are provided for illustration. There will be circumstances in which there will be magnetic field levels above or below the range of values provided due to variations in such factors as height of the wires, current flow and so on.

DEVELOPMENT OF PPL EU's MAGNETIC FIELD MANAGEMENT PROGRAM

One element of our response to EMF concerns expressed by some of our customers is PPL EU's Magnetic Field Management Program. The program was initiated in March 1991 because PPL EU believes it makes good sense, as a matter of policy, to respond to the concerns expressed by some of our customers and to reduce magnetic fields in new and rebuilt facilities where it can be done with either no-cost or low-cost design changes.

This document updates the original program which has been revised several times since 1991. These guidelines were developed by PPL EU's EMF Working Group.

VARIABLES THAT AFFECT MAGNETIC FIELDS

Magnetic fields from transmission and distribution lines are a function of a number of design variables. The following parameters affect the magnetic field levels produced by transmission and distribution lines:

- Current
- Height of conductors above ground
- Configuration of conductors
- Distance from the line

EFFECT OF PHASE CURRENT ON MAGNETIC FIELDS

At power frequencies (i.e., 60 hertz), the magnetic field level is a function of the current or flow of electricity through a wire. Keeping all other parameters the same, the magnetic field is proportional to the current. Hence, if the current increases by 25 percent, the resulting magnetic field level will increase by 25 percent.

The overall load current on any line varies with the demand for power. It's usually highest during daytime hours and lowest at night. There also are weekly, monthly, seasonal and yearly variations.

The difference in the currents between each phase in a multiphase line also can affect the magnetic field. This difference is called phase unbalance. For a constant load, a statistical analysis of this phase unbalance can be made to determine its effect on the magnetic field. Close to the line, there is very little effect. However, the phase unbalance slows the rate at which the magnetic field decreases with distance from the line.

EFFECT OF CONDUCTOR CONFIGURATION ON MAGNETIC FIELDS

In the transmission and distribution of power, utilities like PPL EU presently use both three-phase and single-phase lines. Each phase on a three-phase power line has either a single conductor or a bundle of two or more conductors. In a three-phase system, the ground-level magnetic field is a result of the fields produced by the currents in each of the phases. Placing the three phases as close together as possible (compaction) creates some field cancellation, and the ground-level magnetic field is reduced. However, appropriate phase separation is required for the reliable operation of the line. In addition, the arrangement of the phases can create some field cancellation and reduction of the ground-level magnetic field.

EFFECT OF DISTANCE FROM THE MAGNETIC FIELD SOURCE

Magnetic field strength diminishes with the vertical and lateral distances from the magnetic field source. Increasing the height of the conductors above ground is useful for magnetic field reduction at ground level, but may result in increased structure costs and increased aesthetic impact of the structures. Another possible method of increasing the distance to the magnetic field source is to increase the right-of-way requirements. By keeping buildings off increased rights of way, thereby requiring the public to live and work further away from lines, exposure to magnetic fields produced by the lines can be reduced. Increases in right of way are not always practical and may increase costs significantly, however.

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 and distribution lines. These design changes reduce magnetic field levels (assuming balanced circuit loadings and phase currents) by up to 69 percent in most of the company's new transmission lines. These guidelines now are being applied to new and reconstructed transmission facilities, based on this program.

The distribution component of the program focuses on 12 kV lines, the company's standard distribution voltage. It concentrates on the three-phase, primary 12 kV lines, since these are the most heavily loaded facilities and often are located in densely populated areas. The guidelines in this program are being applied to these three-phase, primary 12 kV lines.

A maximum 3-5 percent change in estimated cost was used as the limit for the guidelines since this value is consistent with low cost, is within estimating accuracy and is likely to have little impact on overall line costs.

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 level of current, not necessarily representative of specific transmission or distribution lines. These levels were calculated using the Electric Power Research Institute's ENVIRO computer program. Under actual operating conditions, the magnetic field levels that result may vary due to such things as actual load per circuit, overall current on each phase conductor and the electrical configuration and operation of each line.

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

- 1. Balance transmission circuit loads and phase currents as much as possible.**
 - PPL EU should continue to make every effort to balance loadings between the two circuits of a double circuit line when planning new or rebuilt facilities to maximize the effects of reverse phasing.
 - PPL EU should continue the practice of balancing single-phase loads across the three phases of the distribution system. (Unbalanced phase currents on the distribution system are reflected through to the transmission system.)
 - Unbalanced phase currents result in higher magnetic fields that do not drop off as quickly with distance as do the fields resulting from balanced phase currents.
 - For a 5 percent phase current unbalance, the magnetic field 50 feet from the centerline of a single circuit 138 kV line could be more than twice the value than if the same line had balanced phase circuits.
 - Balanced phase currents on each three-phase distribution circuit also reduce magnetic fields from the distribution circuits themselves. In addition, they reduce magnetic fields on the transmission system from which the distribution system circuits are supplied and connected through substations.
 - Apart from magnetic field considerations, balanced phase currents on each three-phase distribution circuit also reduce line losses and improve the system voltage.

2. Continue with the present practice of using long-span construction as the PPL EU 138/69 kV standard

- Structure designs for short-span and long-span construction are illustrated on Charts I and II, respectively.
 - Short-span design does not significantly reduce magnetic fields when compared to long-span design even though it is more compact than long-span design. Comparison of the magnetic field values from Chart III indicates essentially the same values. Therefore, short-span design should not be used solely to reduce magnetic fields.
 - PPL EU will continue to use long-span construction for 138/69 kV double-circuit lines and for single-circuit/future-double-circuit lines.
 - For single-circuit/future-double-circuit lines, PPL EU will continue to install two conductors on the top positions and one in the middle position as shown in Chart IV.
 - This arrangement minimizes magnetic fields as shown in Chart V by placing the three initial conductors higher on the structure, which increases the ground clearances, and by placing the conductors in a triangular configuration.

3. Compact design structures are not a low-cost alternative and should be used for magnetic field reduction only in special applications.

Chart VI illustrates the compact design structure.

- The compact design increases the initial installation costs by 79 percent when compared to the long-span design but reduces the magnetic field from 9 mG to 3 mG (about 67 percent) at the edge of the 100-foot-wide right of way as shown on Chart III.

4. Reverse phase new or rebuilt double-circuit transmission lines for all voltage levels.

- Reverse phasing was adopted by PPL EU in March 1991 for double-circuit 138/69 kV transmission lines and in April 1992 for all other double circuit transmission lines. Reverse phasing is shown in Chart VII. Reverse phasing will reduce the magnetic fields when the current flow on both circuits is in the same

direction. Calculated values contained here are based on balanced and equal phase currents on both circuits.

- Reverse phasing reduces the magnetic field of a double circuit 138 kV single pole transmission line from 29 mG to 9 mG (about 69 percent) at the edge of the 100-foot-wide right of way as shown on Chart III.
- Reverse phasing reduces the magnetic field of a double circuit 230 kV single pole transmission line from 49 mG to 16 mG (about 67 percent) at the edge of the 150-foot-wide right of way as shown on Chart VIII.
- Reverse phasing reduces the magnetic field of a double-circuit 500 kV single pole transmission line from 37 mG to 21 mG (about 43 percent) at the edge of the 200-foot-wide right of way as shown on Chart IX.
- When new or rebuilt double-circuit lines require tapping existing double-circuit lines, PPL EU will review the existing lines to determine if reverse phasing can be provided at low cost.
- Computer modeling is required to develop the optimum phasing and overall conductor arrangements for lines added to, or rebuilt in, multiple-line corridors.
 - Merely adding a reverse-phase double-circuit line to an existing transmission line corridor or reverse phasing a rebuilt line in the multiple-line corridor will not necessarily produce lower magnetic field levels at the edge of the corridor right of way.
 - The corridor must be computer modeled with all the lines, existing phase conductor locations and currents. Then, magnetic field calculations must be made varying the phase arrangements of the new or reconstructed line to determine the appropriate phasing arrangement.
 - Current flow direction on a line also must be considered. For example, a reverse-phased line should have the current flowing in the same direction on both circuits. If the current flow is in the opposite direction for one circuit, reverse phasing will not produce the lowest magnetic field and another phase arrangement that produces lower fields may need to be utilized.

5. Increase the minimum ground clearance for all new transmission lines.

138/69 kV Transmission Lines

- Increasing the minimum line design ground clearance from 25 feet to 30 feet may add up to about 5 percent to the installed cost of a new double-circuit single pole 138/69 kV line. For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. With long-span reverse-phase design, the magnetic field is reduced from 9 mG to 7 mG (about 22 percent) at the edge of a 100-foot-wide right of way as shown in Chart X.
 - In the actual design of transmission lines to include higher minimum ground clearances, there may be limited segments (such as highway crossings, severe slopes and transmission line crossing locations) where National Electrical Safety Code (NESC) minimum ground clearances may need to be used. The NESC minimum ground clearances are less than the increased ground clearance discussed previously.

230 kV Transmission Lines

- Increasing the minimum line design ground clearances from 27 feet to 32 feet may add up to about 5 percent to the cost of a single-circuit single-pole line (current standard). For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. By increasing the clearances, the magnetic field is reduced from 30 mG to 28 mG (about 7 percent) at the edge of a 150-foot-wide right of way.
- Increasing clearances from 27 feet to 32 feet could theoretically add up to about 2.8 percent to the cost of a double-circuit single-pole line (current standard) and reduce the magnetic field of a reverse-phase line from 16 mG to 15 mG (about 6 percent) at the edge of a 150-foot-wide right of way. Chart XI is a summary of this data.
- Studies are required for each new 230 kV line to determine optimum structure types, ground clearances, configurations and designs to reduce field levels. Such

studies could include analysis of reduction measures such as additional minimum ground clearances, increasing conductor tensions, using reduced phase spacing (a "Delta" configuration on a single-circuit line), 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 (bundled/split phase).

500 kV Transmission Lines

- Increasing ground clearances from 33 feet to 53 feet may add up to about 4.5 percent to the cost of a single-circuit "H-frame" line (current standard). For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. By increasing the clearances, the magnetic field is reduced from 42 mG to 35 mG (about 17 percent) at the edge of a 200-foot-wide right of way.
- Increasing ground clearances from 33 feet to 53 feet could theoretically add up to 2.8 percent to the cost of a double-circuit "H-frame" line (current standard) and reduces the magnetic field of a reverse-phase line from 21 mG to 16 mG (about 24 percent) at the edge of a 200-foot-wide right of way. Chart XII is a summary of this data.
- Studies are required for each new 500 kV line to determine optimum structure types, ground clearances, configurations and designs to reduce field levels. Such studies could include analysis of reduction measures such as additional minimum ground clearances, increasing conductor tensions, using reduced-phase spacing (a "Delta" configuration on a single circuit line), 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 (bundled/split phase).

RECONDUCTORING OR ADDING ADDITIONAL CIRCUITS TO EXISTING TRANSMISSION LINES

When reconductoring or adding additional circuits to existing transmission lines, PPL EU will evaluate low-cost or no-cost options for magnetic field management on a case-by-case basis.

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, the use of a Delta arrangement or other modifications on the existing structure, with reduced-phase spacing, will be evaluated.
- For double-circuit lines, application of reverse phasing may reduce the magnetic field under the line and within the right of way and will be evaluated.
- For single- and double-circuit lines, evaluate using higher conductor tensions that can increase the minimum line design ground clearance.

DISTRIBUTION LINES

At the 12 kV distribution level, new main three-phase lines will continue to be constructed with five feet of additional ground clearance.

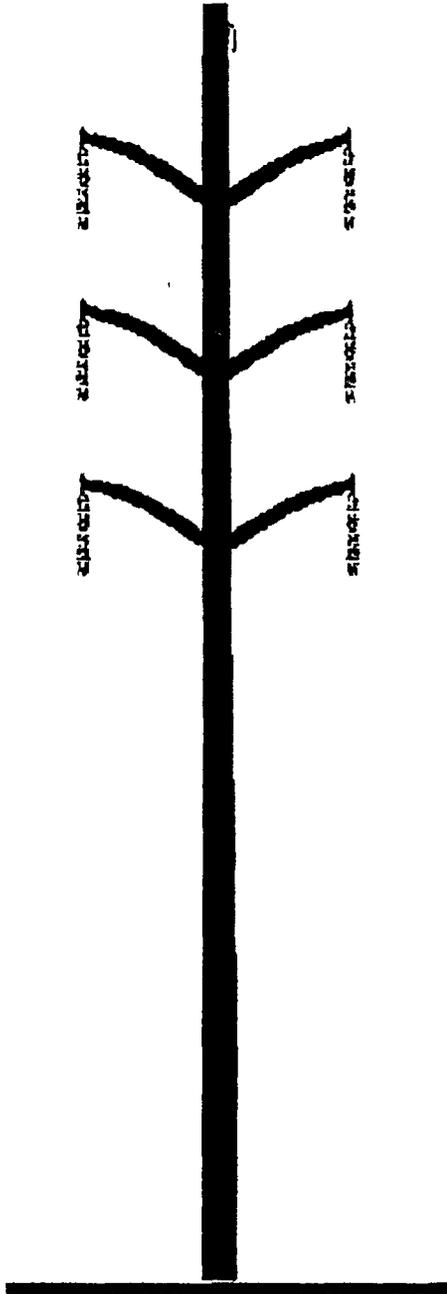
- Main lines are the most heavily loaded sections of a distribution line and therefore have the highest magnetic fields associated with them.
- Increasing the ground clearance by five feet reduces the magnetic field under the line from 14 mG to 11 mG using the standard eight-foot crossarm design. These values are based on increasing pole heights from 45 feet to 50 feet and a typical operating current of 300 amps per phase.
- Chart XIII is a summary of this data. Increasing ground clearance by five feet could theoretically add about 5 percent to the cost of a typical distribution line.

UNDERGROUND TRANSMISSION LINES

Underground transmission lines are required due to environmental or land use factors or restrictions on available clearances, PPL EU will evaluate options for magnetic field management techniques on a case-by-case basis.

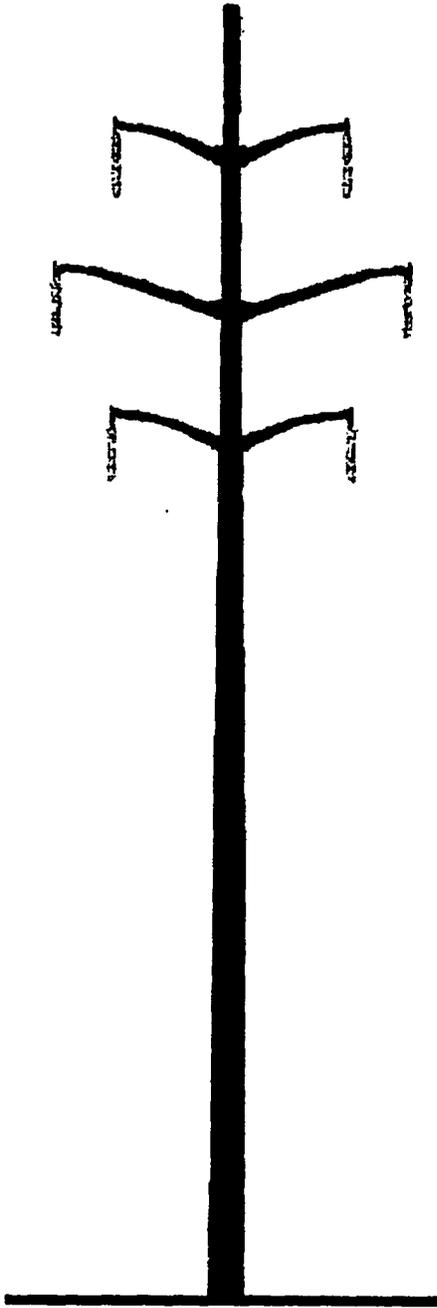
- The phase arrangement that produces the lowest field will be determined.
- The depth of burial of the line will be determined considering the cost of excavation and the location of other buried utilities in the area.
- The use of steel pipe ferromagnetic shielding that reduces magnetic fields will be evaluated.

Short-Span Construction



- More compact design
- Should not be used solely to reduce magnetic fields
- Typical conductor data:
 - 1 3/8" HS steel overhead ground wire - 7.3 feet sag
 - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 10.0 feet sag
 - Average span - 400 feet

Long-Span Construction Remains PPL EU 138 kV Standard



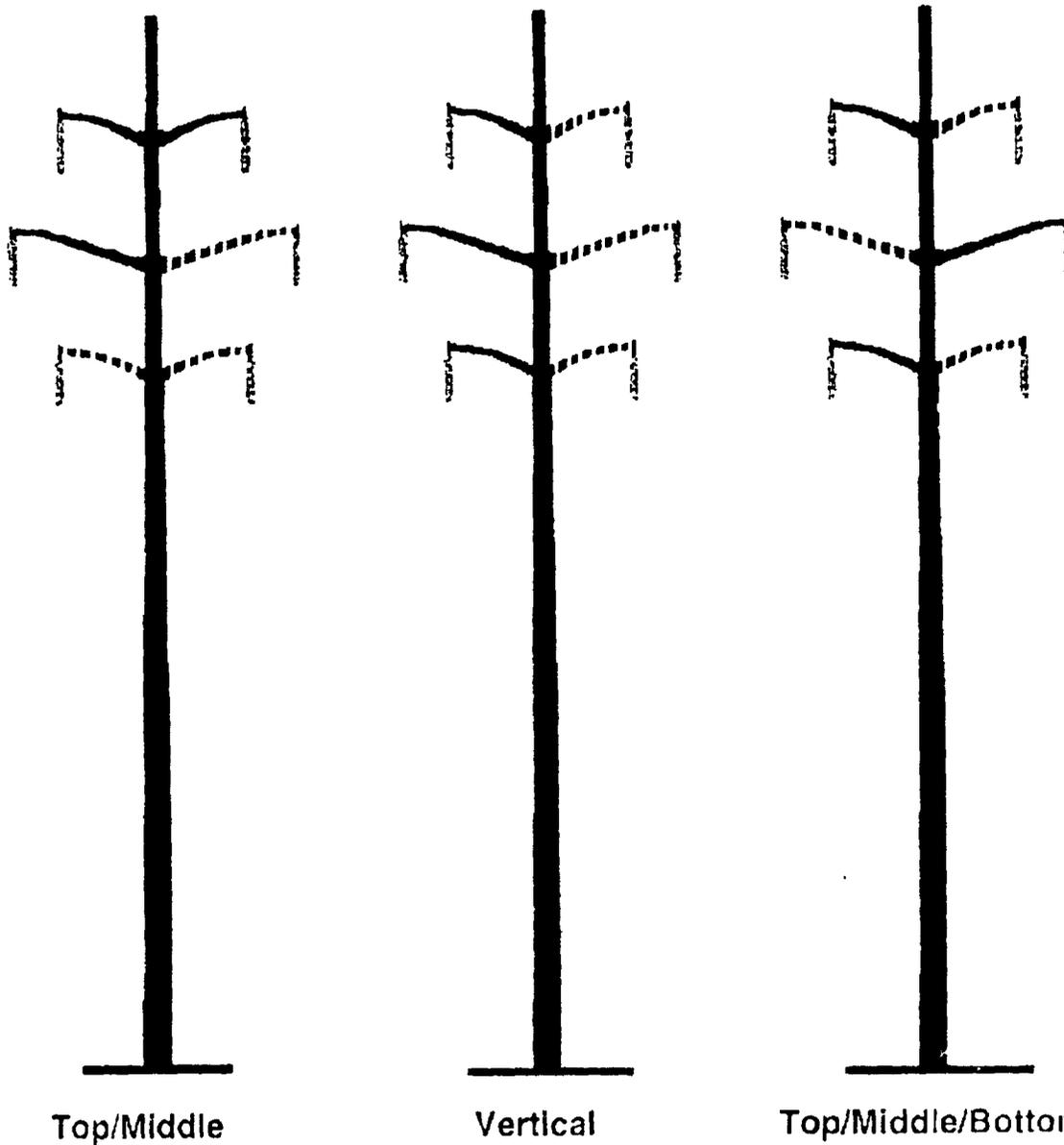
- Lower cost alternative
- Reduces magnetic fields due to higher structures
- Typical conductor data:
 - 1 3/8" HS steel overhead ground wire - 17.3 feet sag
 - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 23.0 feet sag
 - Average span - 600 feet

**138/69 kV REVERSE-PHASE TRANSMISSION LINES
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SHORT SPAN (CHART I)	30
SHORT SPAN (REVERSE PHASE)	8
LONG SPAN (CHART II)	29
LONG SPAN (REVERSE PHASE)	9
COMPACT (CHART VI)	14
COMPACT (REVERSE PHASE)	3

The edge of right of way is 50 feet from the line centerline.
The 400 ampere phase current is balanced between phases.
Calculations are based on a minimum ground clearance of 25 feet.
LONG SPAN, SHORT SPAN and COMPACT are double-circuit lines.

Typical Single-Circuit Structure Designs



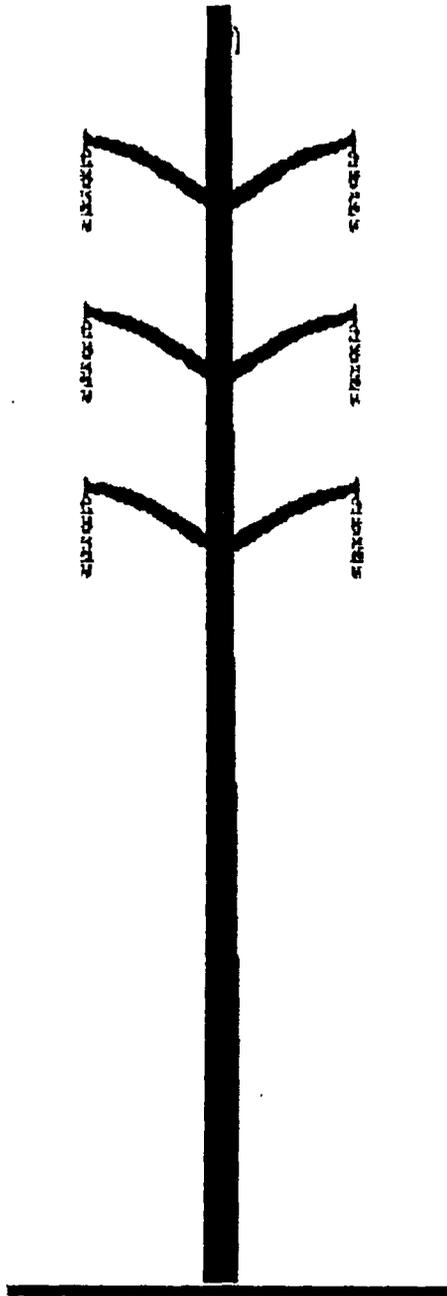
——— initial single circuit
- - - - - future second circuit

**138/69 kV SINGLE CIRCUIT TRANSMISSION LINES
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
TOP/MIDDLE/BOTTOM	20
VERTICAL	17
TOP/MIDDLE	12

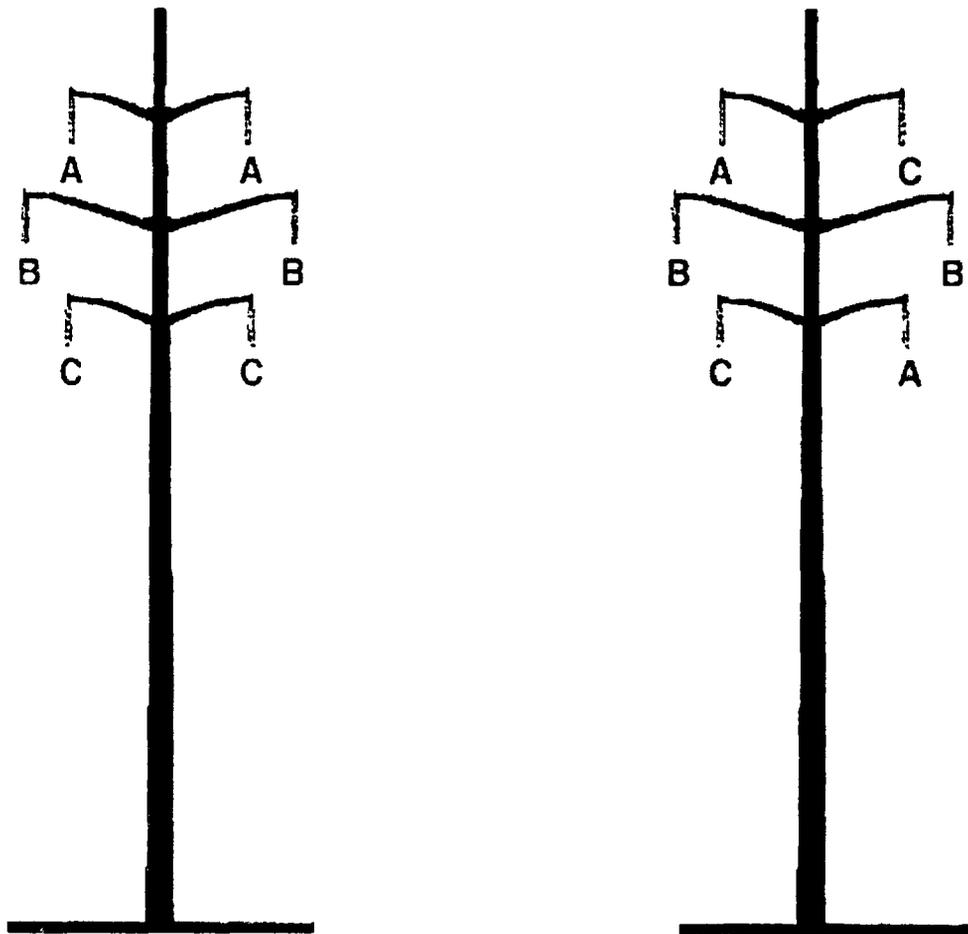
The edge of right of way is 50 feet from the line centerline.
The 400 ampere phase current is balanced between phases.
Calculations are based on a minimum ground clearance of 25 feet.

Compact Design Structure



- Minimize magnetic fields due to compact design
- Not a low-cost alternative
- Typical conductor data:
 - 1 3/8" HS steel overhead ground wire - 9.0 feet sag
 - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 9.0 feet sag
 - Average span - 300 feet

Reverse Phasing of Double-Circuit Transmission Lines



From: → → → → To:

Reverse phasing also can be one of the following phase arrangements:

A	B		B	A		B	C		C	A		C	B
C	C	or	C	C	or	A	A	or	B	B	or	A	A
B	A		A	B		C	B		A	C		B	C

**230 kV REVERSE-PHASE TRANSMISSION LINES
CALCULATED MAGNETIC FIELDS AT 800 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
DOUBLE CIRCUIT POLE	49
DOUBLE CIRCUIT POLE (REVERSE-PHASE)	16

The edge of right of way is 75 feet from the line centerline.
The 800 ampere phase current is balanced between phases.
Calculations are based on a minimum ground clearance of 27 feet.

**500 kV REVERSE-PHASE TRANSMISSION LINES
CALCULATED MAGNETIC FIELDS AT 1100 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
DOUBLE CIRCUIT POLE	37
DOUBLE CIRCUIT POLE (REVERSE PHASE)	21

The edge of right of way is 100 feet from the line centerline.
The 1,100 ampere phase current is balanced between phases.
Calculations are based on a minimum ground clearance of 33 feet.

**INCREASED 138/69 kV MINIMUM GROUND CLEARANCE
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT TOP/MIDDLE	25	12
SINGLE CIRCUIT TOP/MIDDLE	30	10
LONG SPAN	25	29
LONG SPAN	30	26
LONG SPAN (REVERSE PHASE)	25	9
LONG SPAN (REVERSE PHASE)	30	7

The edge of right of way is 50 feet from the line centerline.
The 400 ampere phase current is balanced between phases.

**INCREASED 230 kV MINIMUM GROUND CLEARANCE
CALCULATED MAGNETIC FIELDS AT 800 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT TOP/MIDDLE	27	30
SINGLE CIRCUIT TOP/MIDDLE	32	28
DOUBLE CIRCUIT POLE	27	49
DOUBLE CIRCUIT POLE	32	46
DOUBLE CIRCUIT POLE (REVERSE PHASE)	27	16
DOUBLE CIRCUIT POLE (REVERSE PHASE)	32	15

The edge of right of way is 75 feet from the line centerline.
The 800 ampere phase current is balanced between phases.

**INCREASED 500 kV MINIMUM GROUND CLEARANCE
CALCULATED MAGNETIC FIELDS AT 1,100 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT "H" STRUCTURE	33	42
SINGLE CIRCUIT "H" STRUCTURE	53	35
DOUBLE CIRCUIT POLE	33	37
DOUBLE CIRCUIT POLE	53	31
DOUBLE CIRCUIT POLE (REVERSE PHASE)	33	21
DOUBLE CIRCUIT POLE (REVERSE PHASE)	53	16

The edge of right of way is 100 feet from the line centerline.
The 1,100 ampere phase current is balanced between phases.

**12 KV DISTRIBUTION LINES
CALCULATED MAGNETIC FIELDS AT 300 AMPERES**

TYPE CONSTRUCTION	POLE HEIGHT FEET	MAGNETIC FIELD IN MILLIGAUSS*	
		AT CENTERLINE	AT 30 FEET FROM CENTERLINE
STANDARD CROSSARM	45	14	7
STANDARD CROSSARM	50	11	6

* Field level under the line at mid-span based on 300 amps, balanced loading, one meter above ground level.

Attachment 6

ATTACHMENT 6
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
LIST OF OWNERS OF PROPERTY WITHIN THE RIGHT OF WAY

121 Stoney Ridge Llc
259 Brook Farms Rd
Lancaster, PA 17601

Victor M Acosta
Cabral Victor Alfonso
1654 Princess Anne Drive
Lancaster, PA 17601

Dennis S & Dennis E Adams
152 Brian Dr
Ephrata, PA 17522

John S Et Al Adidala
Aka Benyehuda Dawadshard
49 Timberline Dr
Leola, PA 17540

Alspach Properties Llc
1633 Wilson Avenue
Lancaster, PA 17603

Amtrack Tax & Ins
400 N Capital St Nw
Washington, DC 20001

Barry R & Nancy B Ault
2043 Main St
Narvon, PA 17555

Abner A & Arie S Beiler
2040 Pine Drive
Lancaster, PA 17601

David L & Nancay S Beiler
231 A Lynwood Rd
Ronks, PA 17572

Wilmer L & Annie E
Beinhower
147 Zooks Mill Rd
Ephrata, PA 17522

Maxine E Benner
320 Cardinal Lane
Leola, PA 17540

William L & Fay L Bennett
1514 Princess Anne Dr
Lancaster, PA 17601

Berg Real Estate Ltd Prtn &
C/O Serfileo Ltd
2900 Macarthur Blvd
Northbrook, IL 60062

Ada Ruth & Samuel S Blank
568 Gibbons Rd
Bird In Hand, PA 17505

Blue Ball National Bank
Po Box 580
Blue Ball, PA 17506

William A & Bonnie L Britigan
308 Southview Dr
Ephrata, PA 17522

Gary & Janelle Burkholder
210 Cocalico Creek Rd
Ephrata, PA 17522

Melvin & Elva Burkholder
110 Cocalico Creek Rd
Ephrata, PA 17522

Burle Business Park Lp
1004 New Holland Avenue
Lancaster, PA 17601

Bypass Develop
2165 Junction Rd
Manheim, PA 17545

Calumet Enterprises
2209 Old Philadelphia Pk
Lancaster, PA 17602

Calumet Enterprises
2205 Old Philadelphia Pk
Lancaster, PA 17602

Walter & Tammie Carpenter
101 Forest Hill Rd
Leola, PA 17540

John & Jennifer Carrier
1518 Princess Anne Drive
Lancaster, PA 17601

Diane M Chapman
337 Cardinal Lane
Leola, PA 17540

City Of Lancaster
150 Pitney Rd
Lancaster, PA 17601

City of Lancaster
120 N Duke Street
Po Box 1599
Lancaster, PA 17608-1599

Cocalico Creek Realty Lp
Po Box 339
Brownstown, PA 17508

Gilbert & Patricia Colbey
1634 Princess Anne Dr
Lancaster, PA 17601

Bradford A & Diane M Collier
140 Brian Drive
Ephrata, PA 17522

Colyur Associates Llc
26 Cocalico Creek Rd
Ephrata, PA 17522

Conestoga Valley Community
Ctr
333 W Main St
Leola, PA 17540

Jacob F & Diane L Conrad
P O Box 255
Brownstown, PA 17508

Dean R & Valerie A Cooper
343 Hilltop Dr
Leola, PA 17540

Creek Hill Industrial Develop
259 Brook Farms Rd
Lancaster, PA 17601

Deer Ford Association
320 Granite Run Dr
Po Box 3330
Lancaster, PA 17604

Edward J & Teri A Dougherty
1550 Piness Anne Dr
Lancaster, PA 17601

Ds Waters Of America Inc
5660 New Northside Drive
Atlanta, GA 30328

Hallowell Dunlap
53 Timberline Dr
Leola, PA 17540

East Coast Chelsea Village
160 Clubhouse Rd
King Of Prussia, PA 19406

Frank H & Nancy B Eckman
334 Sun Valley Dr
Leola, PA 17540

Eden Manor Recreation Club
1500 Princess Anne Drive
Lancaster, PA 17601

Franchot & Sarah Egry
134 Brian Drive
Ephrata, PA 17522

Eight Hundred Two
802 New Holland Ave
Suite 200
Lancaster, PA 17602

Christ U & Rachel Esh
2469 Horseshoe Rd
Lancaster, PA 17601

Robert K li Eshleman
1526 Princess Anne Dr
Lancaster, PA 17601

Duane A & Annette J Faul
1530 Princess Anne Dr
Lancaster, PA 17601

Sandra L Fichthorn
326 Cardinal Lane
Leola, PA 17540

Laura T Finch
318 Cardinal Lane
Leola, PA 17540

Daniel & Barbie Ann Fisher
112 Forest Hill Rd
Leola, PA 17540

Joel K & Linda M Fisher
104 Forest Hill Rd
Leola, PA 17540

Rick L Fisher
1485 Clay Rd
Lititz, PA 17543

Timothy Lee & Carol Ann
Foltz
3966 Oregon Pike
Ephrata, PA 17522

Friendship Community
1149 East Oregon Rd
Lititz, PA 17543

Michael A & Julie A Fulton
1646 Princess Anne Dr
Lancaster, PA 17601

G & M Associates Of
Lancaster
233 N Duke St
Lancaster, PA 17602

Daniel Jay & Vicki Rae
Gabow
1662 Princess Anne Drive
Lancaster, PA 17601

Gamber Kauffman & Et Al
800 N New Holland Ave
Lancaster, PA 17602

Barry L & Gail E Gehman
3938 Oregon Pk
Ephrata, PA 17522

Wilmer R Gentry
303 Hilltop Drive
Ephrata, PA 17522

David R & Katie L Glick
334 Stormstown Rd
Bird In Hand, PA 17505

Emanuel L & Sadie S Glick
197 Quarry Rd
Leola, PA 17540

Gideon S & Lizzie E Glick
200 Stone Quarry Rd
Leola, PA 17540

Henry S & Linda K Glick
343 Quarry Rd
Leola, PA 17540

Larry G & Judy I Goltsch
59 Timberline Dr
Leola, PA 17540

Keith T Graham
25 Rosewood Dr
Po Box443
Brownstown, PA 17508

Todd & Stephanie Griffen
1554 Princess Anne Drive
Lancaster, PA 17601

Gordon S & Nancy S Groff
1606 Princess Anne Drive
Lancaster, PA 17601

Harry E & Lois E Haas
107 Peters Rd
New Holland, PA 17557

John C & Gloria M Heiler
45 Timberline Dr
Leola, PA 17540

Carmen M Hernandez
1562 Princess Anne Drive
Lancaster, PA 17601

High Properties Et Al
P O Bx 10008
Lancaster, PA 17605

Highway Transportation
Equipment Co
51 Industrial Cir
Lancaster, PA 17601

Velma M Hoover
20 Cocalico Creek Rd
Ephrata, PA 17522

Wilmer S & Lena Z Hoover
15 Tobacco Rd
Ephrata, PA 17522

Barry L & Linda L Hoppes
1546 Princess Anne Dr
Lancaster, PA 17601

Ronald L & Luann M Horst
1610 Princess Anne Dr
Lancaster, PA 17601

Louetta W Hurst
2150 Stonecrest Drive
Lancaster, PA 17601

Gerald & Patricia Imhoff
3951 Oregon Pk
Ephrata, PA 17522

K&S Group Llc
48 Queen Rd
Gordonville, PA 17529

Sandra J Killian
1618 Princess Anne
Lancaster, PA 17601

Alvin S & Naomi S King
202 Shreiner Rd
Leola, PA 17540

Alvin & Ruth King
3888 Oregon Pk
Leola, PA 17540

Anna King & David Glick
186 Quarry Rd
Leola, PA 17540

Daniel E & Anna M King
338 Willow Rd
Lancaster, PA 17601

David B & Lizzie King
1927 Horseshoe Rd
Lancaster, PA 17602

Isaac & Rebecca King
1975 Horseshoe Rd
Lancaster, PA 17601

Timothy E King
1525 Nissley Rd
Landisville, PA 17538

Agri Inc Kirby
Po Box 6277
Lancaster, PA 17607

Jack A & M Jayne Kline
148 Brian Drive
Ephrata, PA 17522

Lancaster Area Sewer
Authority
130 Centerville Rd
Lancaster, PA 17603

Randall L & Diane M Lapp
20 Leven Rd
Gordonville, PA 17529

J Harold & Patricia Y Leaman
2554 Creek Hill Rd
Lancaster, PA 17601

Lop Limited Partnership
10 Corporate Cir Suite
New Castle, DE 19720

Donald & Sara Jane Lutz
43 Timberline Dr
Leola, PA 17540

Maerz Family Trust
338 Sun Valley Drive
Leola, PA 17540

Harry J & A Marie Malark
1658 Princess Anne Dr
Lancaster, PA 17601

Orlando Centeno & Linda
Maldonado
1558 Princess Anne Dr
Lancaster, PA 17603

Manco Properties Lp
5 Blueberry Circle
Lancaster, PA 17602

Eric Anthony Marsden
151 Brian Drive
Ephrata, PA 17522

Chester B & Ruth Ann Martin
336 Sun Valley Dr
Leola, PA 17540

Donna L Mast
3957 Oregon Pk
Ephrata, PA 17522

Lloyd & Donna Mast
47 Timberline Dr
Leola, PA 17540

Nancy L Matranga
147 Brian Drive
Ephrata, PA 17522

David J & Julie S May
339 Hilltop Dr
Leola, PA 17540

Wanda & Jerad Mellette
1642 Princess Anne Dr
Lancaster, PA 17602

Jere & Heather Mellinger
1653 Lititz Pk Suite 104
Lancaster, PA 17601

Robert J Mellinger
14 Deerfield Rd
Lancaster, PA 17603

Messner Properties Llc
Po Box 333
Landisville, PA 17538

Craig R & Jessica L H Miller
3967 Oregon Pike
Ephrata, PA 17522

John & Concetta Mongiovi
779 Barrwick Lane
Lancaster, PA 17603

National Railroad Passenger
30Th Street Station
Philadelphia, PA 19104

Timothy & Rosie
Newswanger
33 Park Avenue
Ephrata, PA 17522

PPL Elecltric
2 N 9Th St
Allentown, PA 18101

Penn Dot
Twenty-First & Herr Sts
Harrisburg, PA 17103

Pennsylvania Lines Llc
C/O Norfolk Southern
110 Franklin Rd
Roanoke, VA 24042

Thomas Iii Perkins
Donna Snyder
703 W Ridge Pk
Limerick, PA 19468

R R Donnelly & Sons
300 Lang Blvd
Grand Island, NY 14072

Rehm Investments
C/O Geraldine Rehm
632 S Spruce St
Lititz, PA 17543

Larry & Lisa Ressler
3985 Oregon Pk
Ephrata, PA 17522

Joseph D Rick
1780 Newport Rd
Ephrata, PA 17522

Philip E & Lisa Risser
400 Shreiner Rd
Leola, PA 17540

J Robert & Jeanne G Rissler
55 Timberline Dr
Leola, PA 17540

Daniel A & Viginia Roy
1542 Princess Anne Drive
Lancaster, PA 17601

Ruhls Family Real Est
245 Witmer Rd
Reinholds, PA 17569

Marlin & Jeanette Rutt
144 Zooks Mill Rd
Ephrata, PA 17522

John J & Sheila M Sagerer
1602 Princess Anne Dr
Lancaster, PA 17601

Sam T & Catherine L Saylor
1630 Princess Anne Drive
Lancaster, PA 17601

Samuel & Catherine Saylor
1630 Princess Anne Drive
Lancaster, PA 17601

Robert H & Arlene B Schaal
61 Timberline Dr
Leola, PA 17540

R L & Donna J Schoenberger
342 Hilltop Dr
Leola, PA 17540

School District Of Lancaster
1020 Lehigh Ave
Po Box 150
Lancaster, PA 17608

Sexton Family Partnership
Ltd
53 Industrial Circle
Lancaster, PA 17601

Shippen Realty Partners
1032 Buchanan Ave
Lancaster, PA 17603

Lloyd E & Priscilla S Smoker
21 Locust Ln
Leola, PA 17540

Daniel & Sadie Smucker
415 Rose Hill Road
Ephrata, PA 17522

Marian S Smucker
2001 Jarvis Rd
Lancaster, PA 17601

Jose M Soto
Montanez Ivelisse Ni
1534 Princess Anne Dr
Lancaster, PA 17601

Guy E Jr & Sharon L Spade
1538 Princess Anne Dr
Lancaster, PA 17601

Danny L & Betty J Stanley
148 Zooks Mill Rd
Ephrata, PA 17522

Stillmeadow Associates Lp &
Stillmeadow Assoc Lane
2555 Kingston Rd
York, PA 17402

Stobro Co
C/O Oberholtzer Don
Po Box 376
Lititz, PA 17543

Barbie & Mervin Stoltzfus
182 Quarry Rd
Leola, PA 17540

Daniel & Katie Stoltzfus
674 Hartman Station Rd
Lancaster, PA 17602

John F & Martha S Stoltzfus
1666 Princess Ann Dr
Lancaster, PA 17601

Mervin & Miriam Stoltzfus
2440 Creek Hill Rd
Lancaster, PA 17601

Roger Stoner &
Lynda Lueck-Stoner
1650 Princess Anne Dr
Lancaster, PA 17601

Tom Swift
19 Conestoga Rd
Lancaster, PA 17602

Jill Suzanne Trego
324 Cardinal Lane
Leola, PA 17540

Randall G & Clara M Usner
143 Brian Dr
Ephrata, PA 17522

Alejandro & Juanita
Vazquez
1638 Princess Anne Dr
Lancaster, PA 17602

Ferdinand Velez
1614 Princess Anne Drive
Lancaster, PA 17601

Louis & Kathryn Weaver
141 Tobacco Road
Ephrata, PA 17522

Linford & Diane Wenger
140 Zooks Mill Rd
Ephrata, PA 17522

West Earl Water Authority
P O Box 202
Brownstown, PA 17508

Dawson L li Wynn &
Arazelis Wynn
1622 Princess Anne Drive
Lancaster, PA 17601

Raymond & Wanda Yates
3934 Oregon Pk
Ephrata, PA 17522

Zimco Partners Lp
204 S Conestoga View Dr
Akron, PA 17501

Mahlon N Zimmerman
204 S Conestoga View Dr
Akron, PA 17504

Amos G & Naomi E Zook
284 Zooks Ln
Leola, PA 17540

Elam & Mima Zook
277 Quarry Rd
Leola, PA 17540

Attachment 7

ATTACHMENT 7
SOUTH AKRON-PRINCE #1 AND #2 138 kV LINE
LIST OF INVOLVED GOVERNMENTAL AGENCIES, MUNICIPALITIES
AND OTHER PUBLIC ENTITIES

1. Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Mr. Douglas C. McLearn, Chief

2. Pennsylvania Department of Transportation
Commonwealth Keystone Building
400 North Street, 8th Floor
Harrisburg, Pennsylvania 17120
Attn: Barry J. Schoch, P.E., Secretary

3. Department of Environmental Protection
P.O. Box 2063
Market Street State Office Building
Harrisburg, Pennsylvania 17105-2063
Attn: Office of Field Operations

4. Lancaster County Planning Commission
150 North Queen Street, Suite 320
Lancaster, PA 17603
Attn: James Cowhey, Executive Director

5. Lancaster County Board of Commissioners
150 North Queen Street, Suite 715
Lancaster, PA 17603
Attn: Dennis Stuckey, Chairman

6. City of Lancaster
120 North Duke Street
P.O. Box 1599
Lancaster, PA 17608-1599
Attn: Richard Gray, Mayor

7. City of Lancaster
120 North Duke Street
P.O. Box 1599
Lancaster, PA 17608-1599
Attn: Pat Brogan, Chief of Staff

8. Lancaster City Planning Commission
120 North Duke Street
P.O. Box 1599
Lancaster, PA 17608-1599
Attn: Craig Lenhard, Secretary
9. Lancaster City Council
120 North Duke Street
P.O. Box 1599
Lancaster, PA 17608-1599
Attn: Louise Williams, President
10. Manheim Township Planning Commission
1840 Municipal Drive
Lancaster, PA 17601
Attn: Jeffrey Sturla, Chairperson
11. Manheim Township Board of Commissioners
1840 Municipal Drive
Lancaster, PA 17601
Attn: Lawrence Downing, President
12. East Lampeter Township Planning Commission
2250 Old Philadelphia Pike
Lancaster, PA 17602
Attn: John Keylor, Chairperson
13. East Lampeter Township Board of Supervisors
2250 Old Philadelphia Pike
Lancaster, PA 17602
Attn: David Buckwalter, Chairperson
14. Warwick Township Planning Commission
315 Clay Road
P.O. Box 308
Lititz, PA 17543-0308
Attn: Thomas Zug, Chairperson
15. Warwick Township Board of Supervisors
315 Clay Road
P.O. Box 308
Lititz, PA 17543-0308
Attn: W. Logan Myers III, Chairperson

16. West Earl Township Planning Commission
157 West Metzler Road
PO Box 787
Brownstown, PA 17508
Attn: Dean Weinhold, Chairperson

17. West Earl Township Board of Supervisors
157 West Metzler Road
PO Box 787
Brownstown, PA 17508
Attn: Harold Keppley, Chairperson

18. Upper Leacock Township Planning Commission
36 Hillcrest Avenue
PO Box 325
Leola, PA 17540-0325
Attn: Ed Hinkle, Chairperson

19. Upper Leacock Township Board of Supervisors
36 Hillcrest Avenue
PO Box 325
Leola, PA 17540-0325
Attn: Ronald Simmons, Chairperson