EMPIRE STATE LINE
345 kV TRANSMISSION LINE
ELECTRIC AND MAGNETIC FIELD (EMF) CALCULATION

Revision C

PRELIMINARY – NOT FOR CONSTRUCTION

Project No.: 13666-003

55 East Monroe Street
Chicago, IL 60603-5780 USA
312-269-2000
www.sargentlundy.com

ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this Electric and Magnetic Field (EMF) Calculation has been prepared, reviewed and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

CONTRIBUTORS

Prepared by:

03/06/2020

Justin Stiener
Associate

Date

Reviewed by:

03/06/2020

Erica Souza Nogueira Bretas
Senior Associate

Date

Approved by:

03/06/2020

Kunhal Parikh
Project Manager

Date

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
1.0 PURPOSE AND SCOPE 2
2.0 DESIGN INPUTS 3
3.0 METHODOLOGY 9
4.0 RESULTS 21
5.0 REFERENCES 40
6.0 ATTACHMENTS 41

LIST OF TABLES

TABLE 1 - PROPOSED LINE CABLE PROPERTIES 3
TABLE 2 - PROPOSED LINE RATING OUTPUT SUMMARY 3
TABLE 3 - EXISTING LINES - AMPACITIES 5
TABLE 4 - EMF RESULTS 21

LIST OF FIGURES

FIGURE 1 - EXISTING NYSEG (L#38 & L#39) CONFIGURATION 6
FIGURE 2 - EXISTING ROBINSON – STOLLE RD. (L#65) CONFIG 6
FIGURE 3 - EXISTING STOLLE RD. TO ROLL RD. (L#928) CONFIG 7
FIGURE 4 - EXISTING STOLLE RD. - PAVEMENT RD. (L#926) CONFIG 8
FIGURE 5 - EXISTING NYSEG (L#525) CONFIGURATION 8
FIGURE 6 - EXISTING & PROPOSED CROSS SECTION 1 10
FIGURE 7 - EXISTING & PROPOSED CROSS SECTION 2 11
FIGURE 8 - EXISTING & PROPOSED CROSS SECTION 3 12
FIGURE 9 - EXISTING & PROPOSED CROSS SECTION 4 13
FIGURE 10 - EXISTING & PROPOSED CROSS SECTION 5 14

FIGURE 11 - EXISTING & PROPOSED CROSS SECTION 6 15
FIGURE 12 - EXISTING & PROPOSED CROSS SECTION 7 16
FIGURE 13 - EXISTING & PROPOSED CROSS SECTION 8 17
FIGURE 14 - EXISTING & PROPOSED CROSS SECTION 9 18
FIGURE 15 - EXISTING & PROPOSED CROSS SECTION 10 19
FIGURE 16 - EXISTING & PROPOSED CROSS SECTION 11 20
FIGURE 17 - PROPOSED CROSS SECTION 1 EMF RESULTS 24
FIGURE 18 - PROPOSED CROSS SECTION 2 EMF RESULTS 25
FIGURE 19 - PROPOSED CROSS SECTION 3 EMF RESULTS 27
FIGURE 20 - PROPOSED CROSS SECTION 4 EMF RESULTS 28
FIGURE 21 - PROPOSED CROSS SECTION 5 EMF RESULTS 30
FIGURE 22 - PROPOSED CROSS SECTION 6 EMF RESULTS 31
FIGURE 23 - PROPOSED CROSS SECTION 7 EMF RESULTS 33
FIGURE 24 - PROPOSED CROSS SECTION 8 EMF RESULTS 34
FIGURE 25 - PROPOSED CROSS SECTION 9 EMF RESULTS 36
FIGURE 26 - PROPOSED CROSS SECTION 10 EMF RESULTS 37
FIGURE 27 - PROPOSED CROSS SECTION 11 EMF RESULTS 39

EXECUTIVE SUMMARY

NextEra Energy Transmission New York, INC (Owner) has requested Sargent & Lundy, L.L.C. (S&L) to provide engineering services for a 345kV transmission line, which interconnects the proposed Dysinger 345 kV Switchyard with the proposed East Stolle Rd 345kV Switchyard. The project is located in Erie and Niagara counties, New York; the line is approximately twenty (20) miles. The 345kV Transmission line has eleven (11) distinct segments.

As part of the deliverables, S&L will determine the electric and magnetic fields (EMF) for the Winter Normal ratings per the New York Independent System Operator (NYISO) Tie-line Rating Report. The calculation will be used to determine the maximum electric field (kV/m) and magnetic field (mG) within and at the edge of the right-of-way (ROW) for all eleven (11) unique segments.

1.0 PURPOSE AND SCOPE

1.1 DESCRIPTION

The purpose of this calculation is to determine the electric and magnetic fields (EMF) for the Winter Normal ratings per the New York Independent System Operator (NYISO) Tie-line Rating Report.

1.2 ELECTRIC AND MAGNETIC FIELD GUIDELINES

New York State Public Service Commission (NYPSC) set forth in Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions, and Authorizing, in Case 26520, Operation Pursuant to those Conditions No. 78-13 and Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities, NYPSC Cases 26529 and 26559, sets the guidance for electric and magnetic fields, respectively.

These opinions and cases set forth the requirement of the minimum electric and magnetic fields at the edge of the ROW. For electric fields determined by the proposed transmission line will not be greater than 1.6 kV/m at the edge of the ROW and measured, one meter (3.28 ft) above ground level, with the line at the rated voltage. The magnetic field strength by the proposed transmission line will not be greater than 200 mG at the edge of the ROW, measured at one meter (3.28 ft) above grade. The determination of the phase currents will be based on the Winter Normal rating from the NYISO Tie-line Rating Report. Finally, the conductor height will be calculated under normal conductor temperature (95°C).

2.0 DESIGN INPUTS

2.1 VERIFIED INPUTS

Table 1 - PROPOSED LINE CABLE PROPERTIES

Properties	Conductor	Underground Cable	OPGW	OHSW
Type	ACSR	XLPE	SFPOC	EHS STEEL
Size	795 kcmil	5000 kcmil	N/A	3/8"
Stranding	26/7	N/A	48 SMF	7-Strand
Diameter (in)	1.107	5.45	0.530	.36
Conductor Cross Sectional Area (in^2)	0.7263	N/A	N/A	N/A
Weight (lbs/ft)	1.093	23.6	0.365	0.273
Rated Tensile Strength (lbs)	31,500	N/A	18,800	15,400
Sub-conductor Horizontal Spacing (in)	18	N/A	N/A	N/A
Resistance, DC, 20°C (Ω/1000 ft)	.0214	N/A	N/A	N/A
Resistance, AC, 75°C (Ω/1000 ft)	.0263	N/A	N/A	N/A

*Properties from General Cable

Table 2 - PROPOSED LINE RATING OUTPUT SUMMARY

Case	Rating Condition	Thermal Rating (Amperes)	Apparent Power "S_{MVA}" (MVA)	Real Power "P_{MW}" (MW)
1	NYISO – Winter – Normal	1348.7	1611.85	1531.26
2	@ 90°C – UG Cable "5000 kcmil"	1453.7	1652	1569.4

*Real power considers a power factor of 0.95

2.2 UNVERIFIED INPUTS AND ASSUMPTIONS

Soil Conditions:

The soil resistivity value was calculated by taking an average of the resitivity values provided in geotechinical evalulation reports based on various locations along the Empire State Transmission Line. The soil resistivity value was assumed to be 137.5 Ω·m. The noted ground resistivity was then converted into the required ground conductivity input value as follows:

The inputs to the BPA program require the ground conductivity to be entered (mmhos/m = mS/m). Therefore, the reciprocal of the ground resistivity of 137 Ω·m = the ground conductivity of 7.30 mS/m

Electric Field Shielding

Shield from objects was not considered as part of this calculation.

Conductor Phasing

Conductor Phasing for the typical steel monopole tangent structure, conductors A, B, and C are assumed to be on the top arm, middle arm, and lower arm, respectively.

Conductor Phasing on adjacent lines were not provided. It is assumed that phasing on the adjacent transmission lines will produce the highest electric and magnetic fields.

Conductor Midspan Height

For proposed lines, the conductor midspand height was assumed to be at worst case sag with conductor at a temperature of 203°F (95°C). For existing lines, the conductor midspan height was assumed to be at a minimum NESC clearance to ground.

SW Midspan Height

Shield wire midspan height was assumed to be at 75% of the conductor sag at average ambient temperature (49°F).

Ground elevation

The ground elevation is less than 1000' and will be inputted as 0' based on the recommendation of the BPA program.

Existing Transmission Line Ampacities

Table 3 - EXISTING LINES - AMPACITIES

Item #	Line Name	kV	Conductor	OHGW	Amps	# Circuits
1	Lines # L38 & L39	345	2-1192 Bunting ACSR	3/8" EHS	3000	2
2	Line # L65	230	1192.5 Bunting ACSR	3/8" EHS	1690	1
3	Line # L928	115	1033.5 Bluebell AAC	3/8" EHS	732	1
4	Line # L926	115	1033.5 Ortolan ACSR	3/8" EHS	834	1
5	Line # L525	34.5	477 Cosmos AAC	3/8" EHS	946	1
6	Niagara-Rochester/ Niagara-Dysinger	345	2-795 Drake ACSR	3/8" EHS	2662	2
7	Stolle – Homer City	345	2-1033.5 Ortolan ACSR	3/8" EHS	1200	1
8	Somerset-Dysinger	345	2-1192 ACSR	3/8" EHS	3000	2

Above Winter Normal Ratings are based on the NYISO Gold Book. Shield wire is assumed to be 3/8" EHS.

Existing Conductor configuration

The existing NYSEG 345 kV transmission line (L#38 & 39) phase to phase seperation is 27 ft. The shield wire is located approximately 14' on either side of the center of the wood h-frame. The minimum clearance to ground for the 345 kV transmission line is 25.1' with a 10% overvoltage. (See Figure 1)

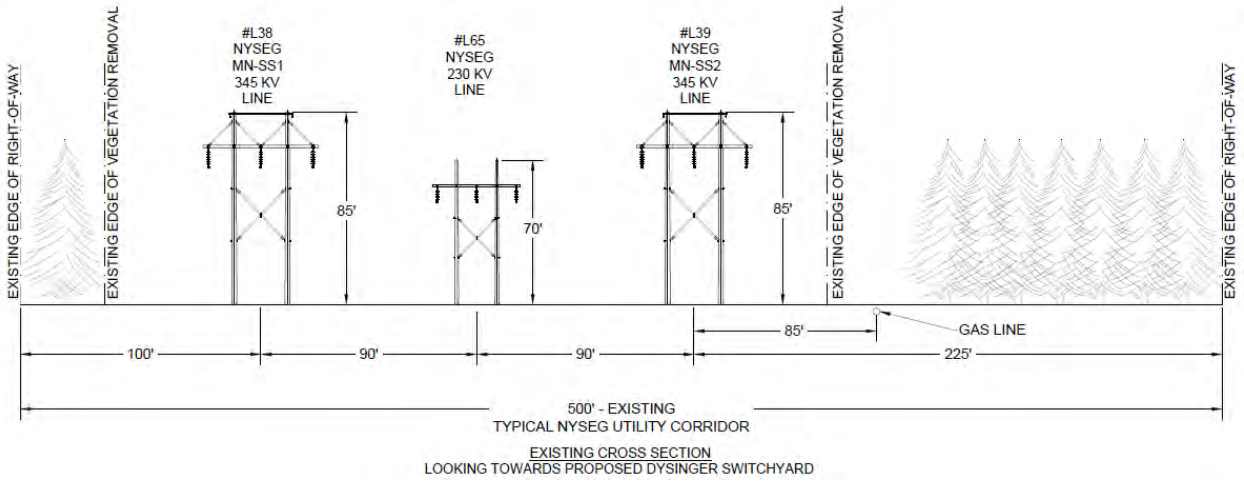


Figure 1 - EXISTING NYSEG (L#38 & L#39) CONFIGURATION

The existing Robinson – Stolle Rd. 230 kV transmission line (L#65) phase to phase seperation is 20 ft. The shield wire is located approximately 10.5’ on either side of the center of the wood h-frame. The minimum clearance to ground for the 230 kV transmission line is 22.5’ with a 5% overvoltage. (See Figure 2)

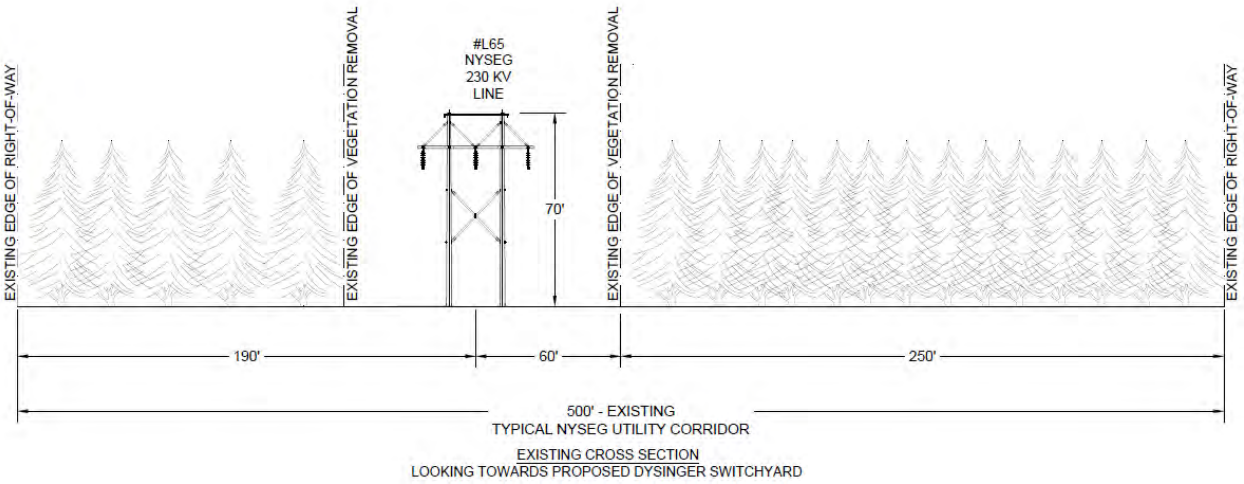


Figure 2 - EXISTING ROBINSON – STOLLE RD. (L#65) CONFIGURATION

The existing Stolle Rd. to Roll Rd. 115 kV transmission line (L#928) phase to phase seperation is 12 ft. The shield wire is located approximately 6.5’ on either side of the center of the wood h-frame. The minimum clearance to ground for the 115 kV transmission line is 20.1’ with a 5% overvoltage. (See Figure 3)

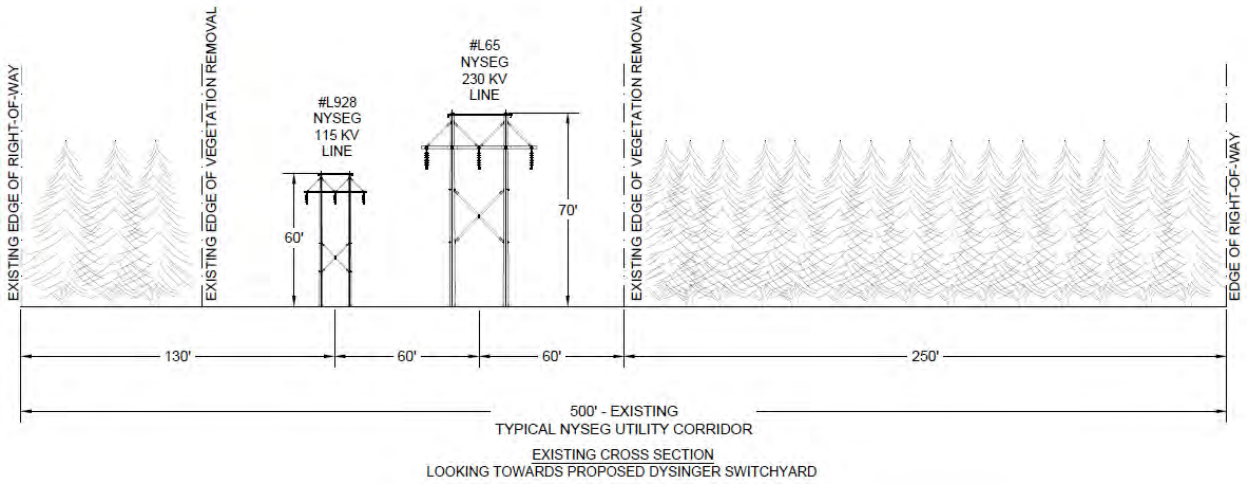


Figure 3 - EXISTING STOLLE RD. TO ROLL RD. (L#928) CONFIGURATION

The existing Stolle Rd. to Pavement Rd. 115 kV transmission line (L#926) phase to phase seperation is 12 ft. The shield wire is located approximately 6.5’ on either side of the center of the wood h-frame. The minimum clearance to ground for the 115 kV transmission line is 20.1’ with a 5% overvoltage. (See Figure 4)

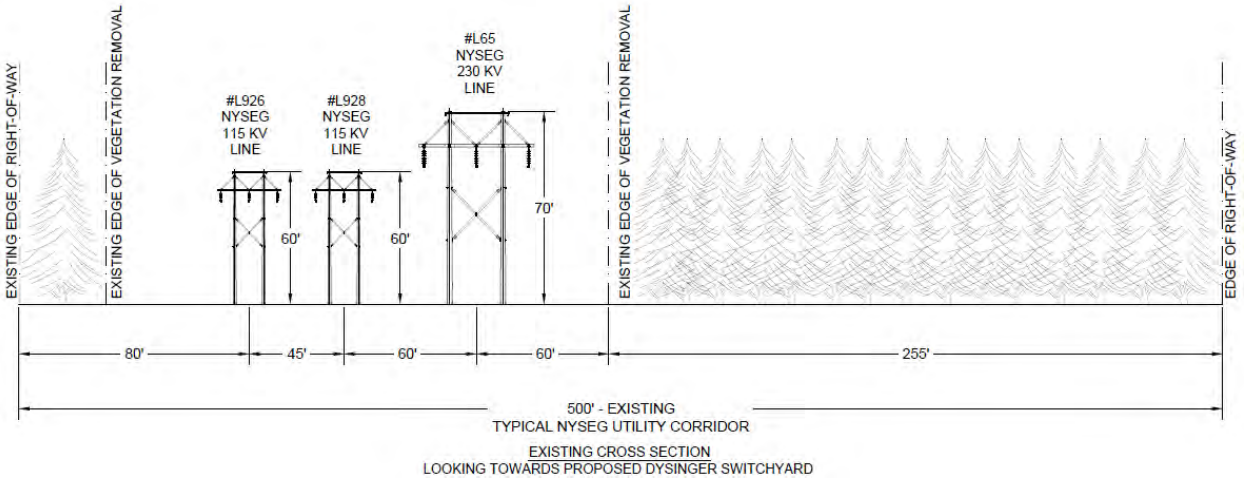


Figure 4 - EXISTING STOLLE RD. - PAVEMENT RD. (L#926) CONFIGURATION

The existing 34.5kV transmission line (L#525) phase to phase seperation is 9 ft for the lower arm and 7ft for the upper arm. The shield wire is located at the pole top approximately 7' from top conductor arm. The minimum clearance to ground for the 34.5 kV transmission line is 18.5' with a 5% overvoltage. (See Figure 5)

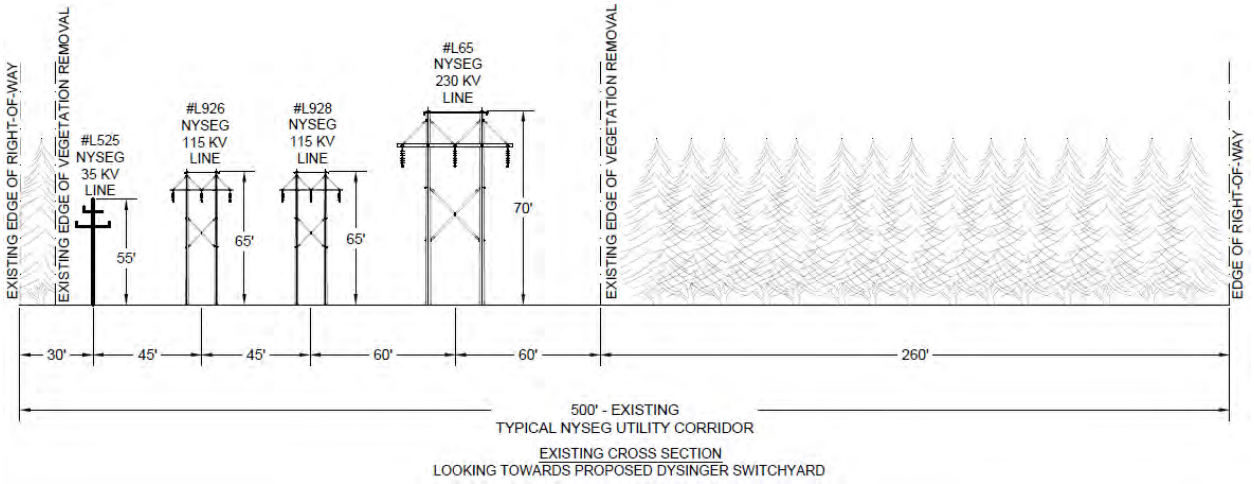


Figure 5 - EXISTING NYSEG (L#525) CONFIGURATION

3.0 METHODOLOGY

3.1 COMPUTER PROGRAMS USED

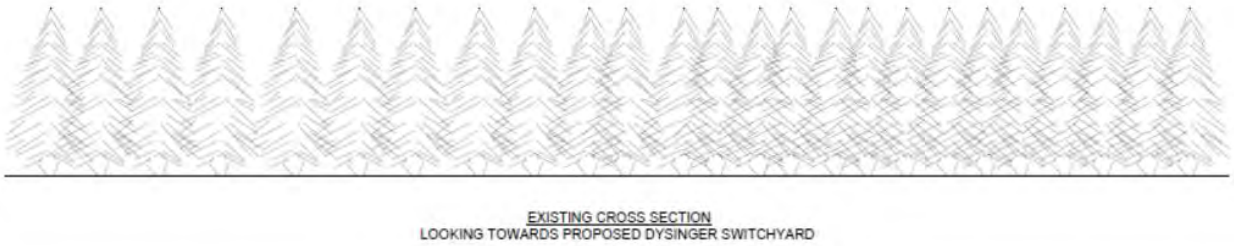
1. Local Computer: PL12209
2. Bonneville Power Adminstrative (BPA) Corona and Field Effects Program (Version 3.1)
3. nextera_empire_state_line_2-19-20.xyz (PLS CADD model file)
4. PLS CADD v.15.30 (V&V # 03.7.893-15.30)
5. AutoCAD v2018 (V&V # 03.2.085-2018)
6. MS Office (V&V # 03.2.435-16.0)
7. CYMCAP v7.2.2 (V&V #03.7.919-7.2.2)

3.2 CROSS SECTION STUDY AREA

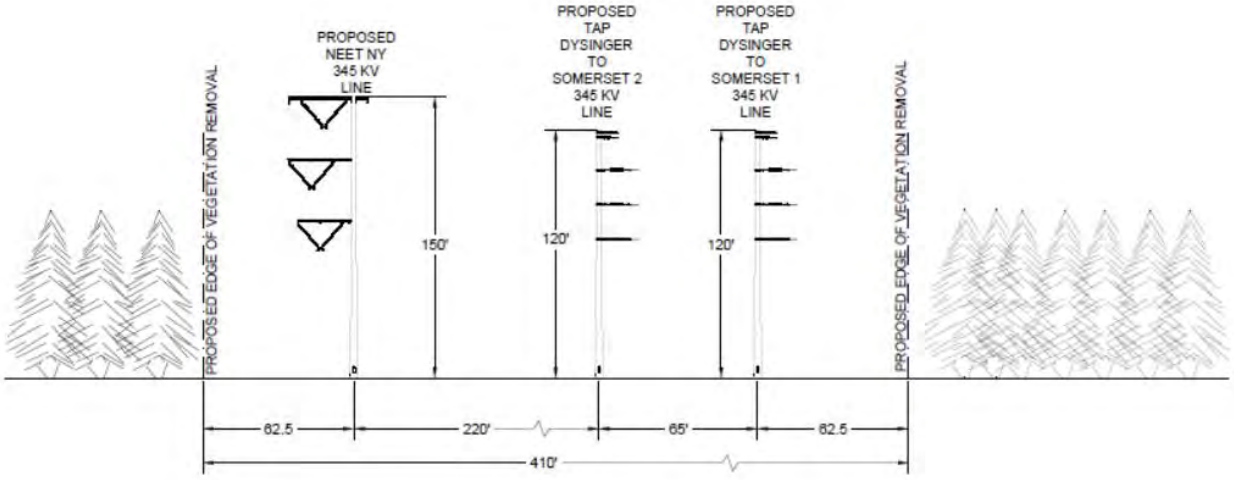
Eleven (11) ROW segments with unique electric and magnetic field (EMF) characteristics were identified in the EMF study off the entire transmission line corridor for the proposed project. These ROW segments have unique EMF characteristics due to the type and average height of structures, corridor widths, and/or co-location of other transmission facilities in the corridor.

Cross Section 1

The proposed cross section consists of three overhead 345kV transmission lines with steel monopoles spanning from Dysinger Take-Off to mile 0.134. The NEET ROW width is 410ft.



EXISTING CROSS SECTION
LOOKING TOWARDS PROPOSED DYSINGER SWITCHYARD



PROPOSED CROSS SECTION
LOOKING TOWARDS PROPOSED DYSINGER SWITCHYARD

Figure 6 - EXISTING & PROPOSED CROSS SECTION 1

Cross Section 2

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV transmission line spanning from mile 0.134 to mile 0.724. The two 345kV tie lines are to be removed. The NEET ROW width is 84ft.

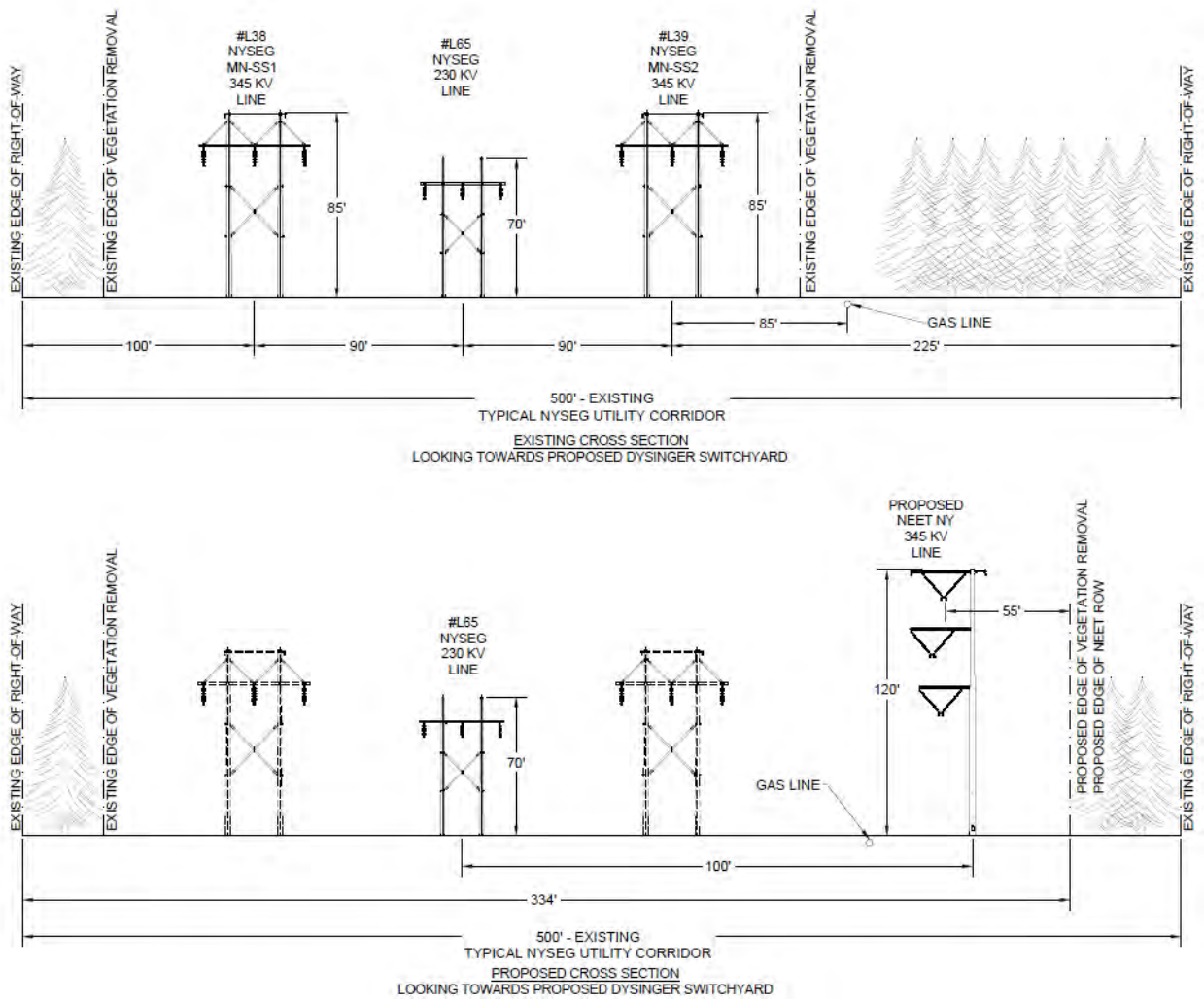


Figure 7 - EXISTING & PROPOSED CROSS SECTION 2

Cross Section 3

The proposed cross section consists of one overhead 345kV transmission line with steel monopole and adjacent 230kV transmission line spanning from mile 0.724 to mile 7.374. The NEET ROW width is 84ft.

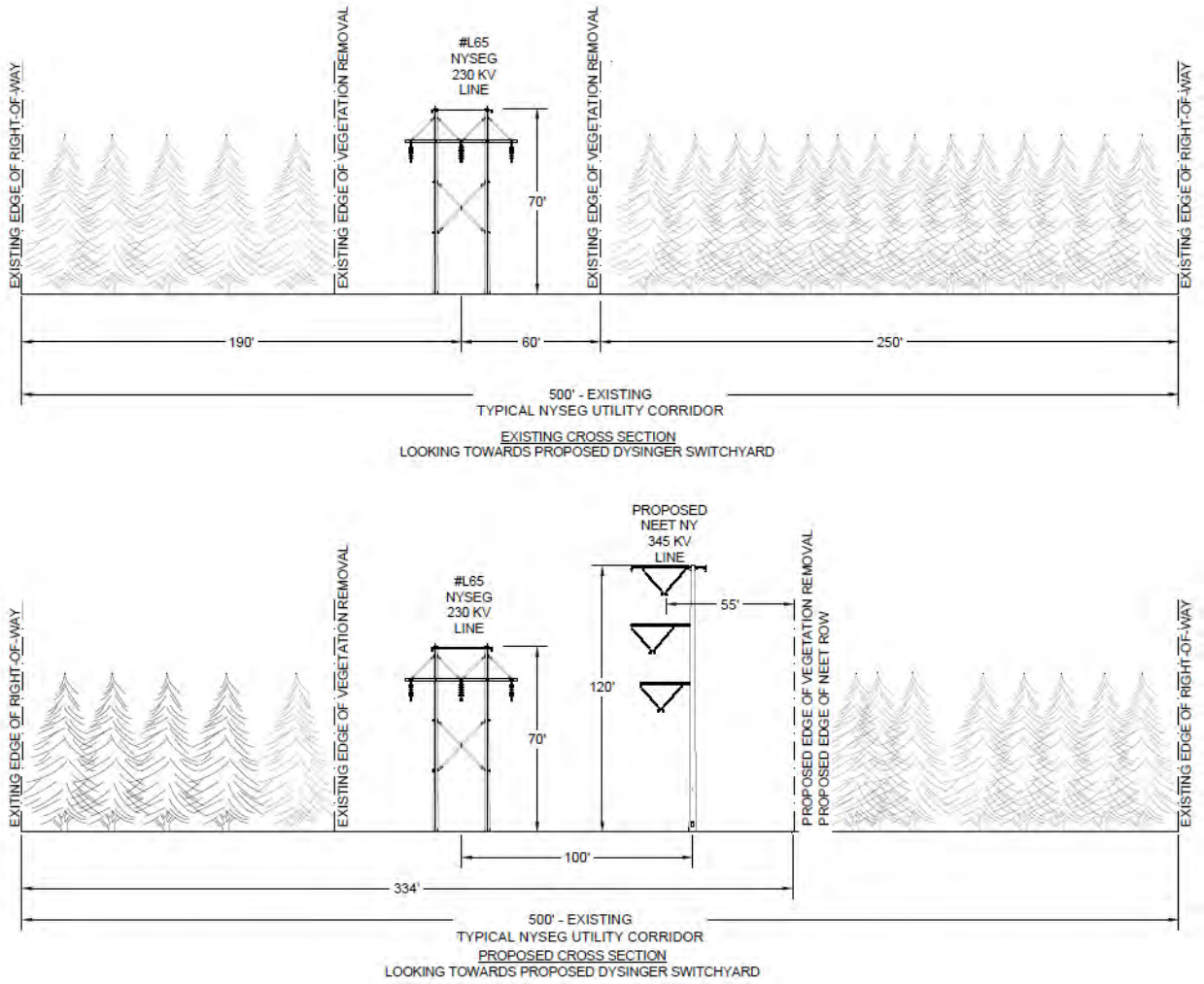


Figure 8 - EXISTING & PROPOSED CROSS SECTION 3

Cross Section 4

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV & 115kV transmission lines and 2 12" Brine Lines spanning from mile 7.374 to mile 8.764. The NEET ROW width is 84ft.

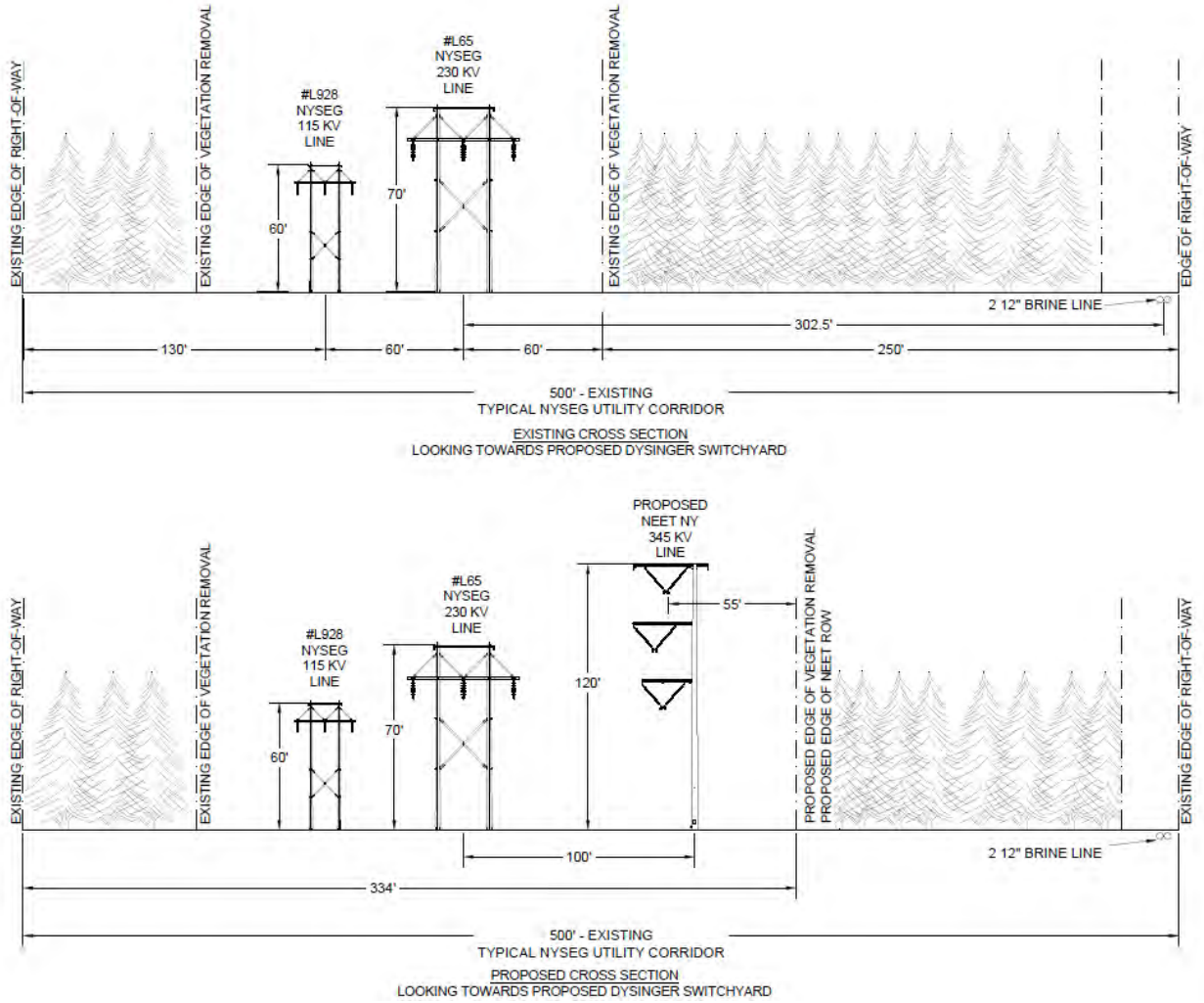


Figure 9 - EXISTING & PROPOSED CROSS SECTION 4

Cross Section 5

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV & 115kV transmission lines spanning from mile 7.374 to mile 13.164. The NEET ROW width is 84 ft.

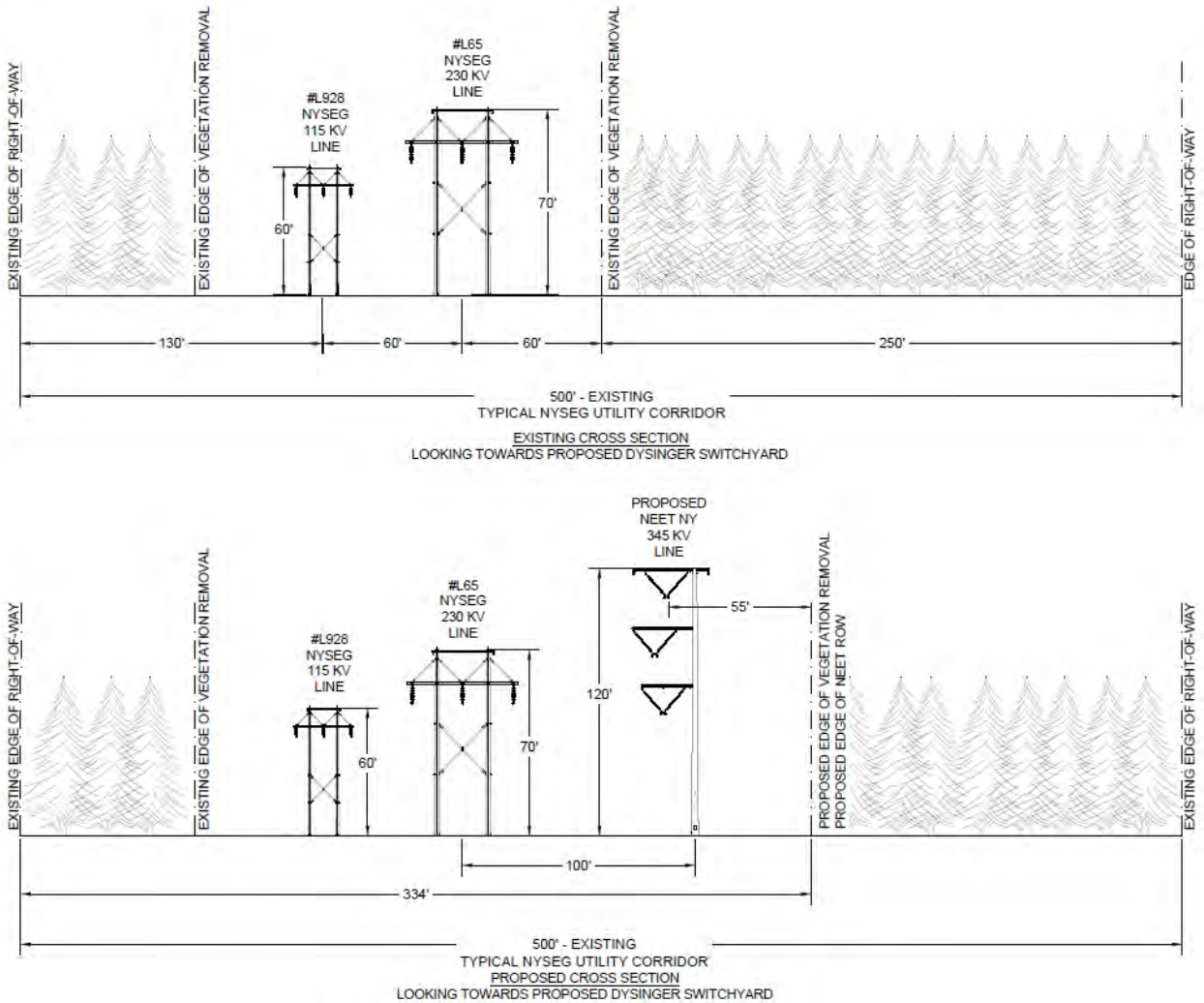


Figure 10 - EXISTING & PROPOSED CROSS SECTION 5

Cross Section 6

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV, 115kV & 34.5kV transmission lines spanning from mile 13.164 to mile 14.694. The NEET ROW width is 84 ft.

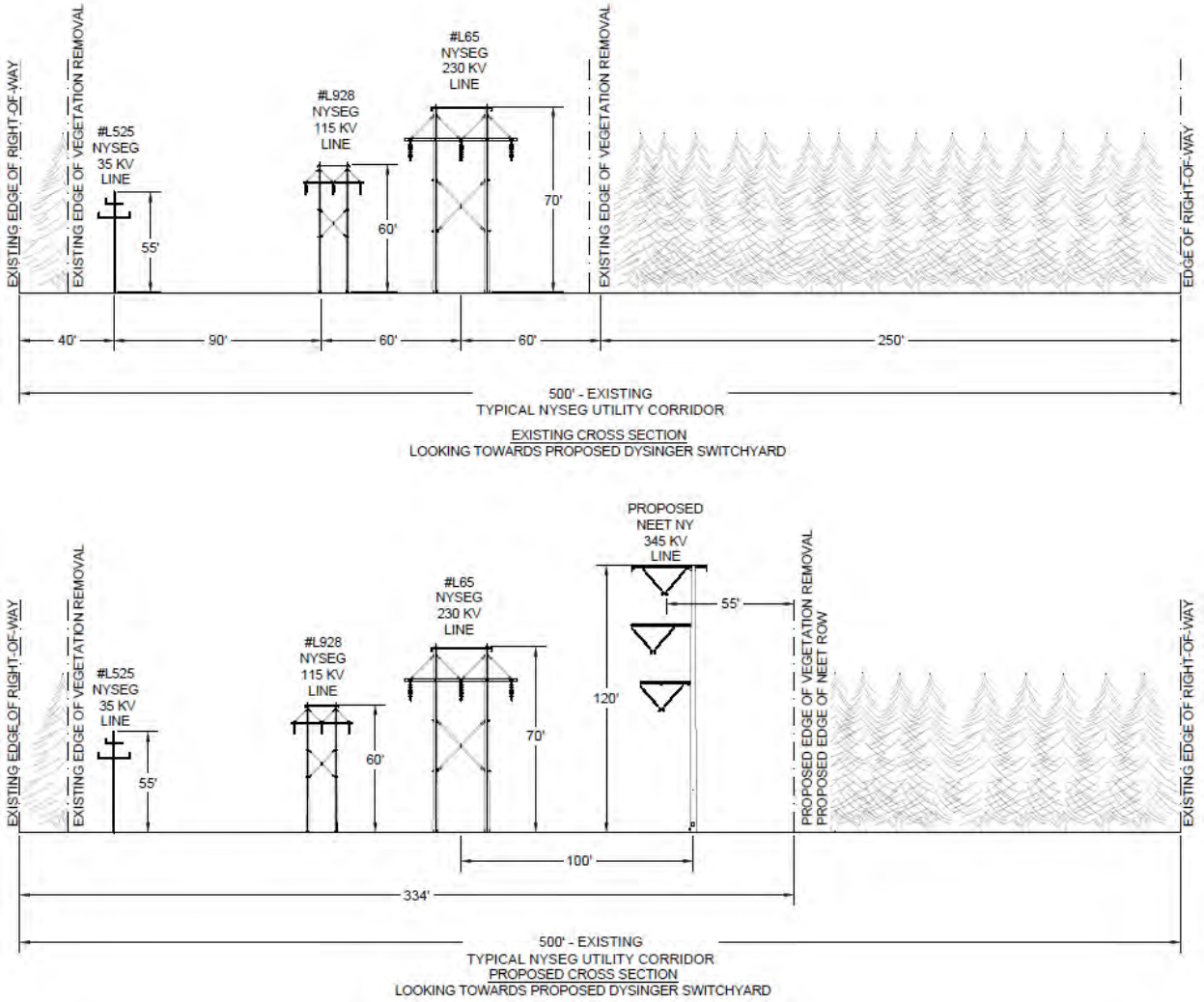


Figure 11 - EXISTING & PROPOSED CROSS SECTION 6

Cross Section 7

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV, 115kV, 115kV & 34.5kV transmission lines spanning from mile 14.694 to mile 15.324. The NEET ROW width is 84ft.

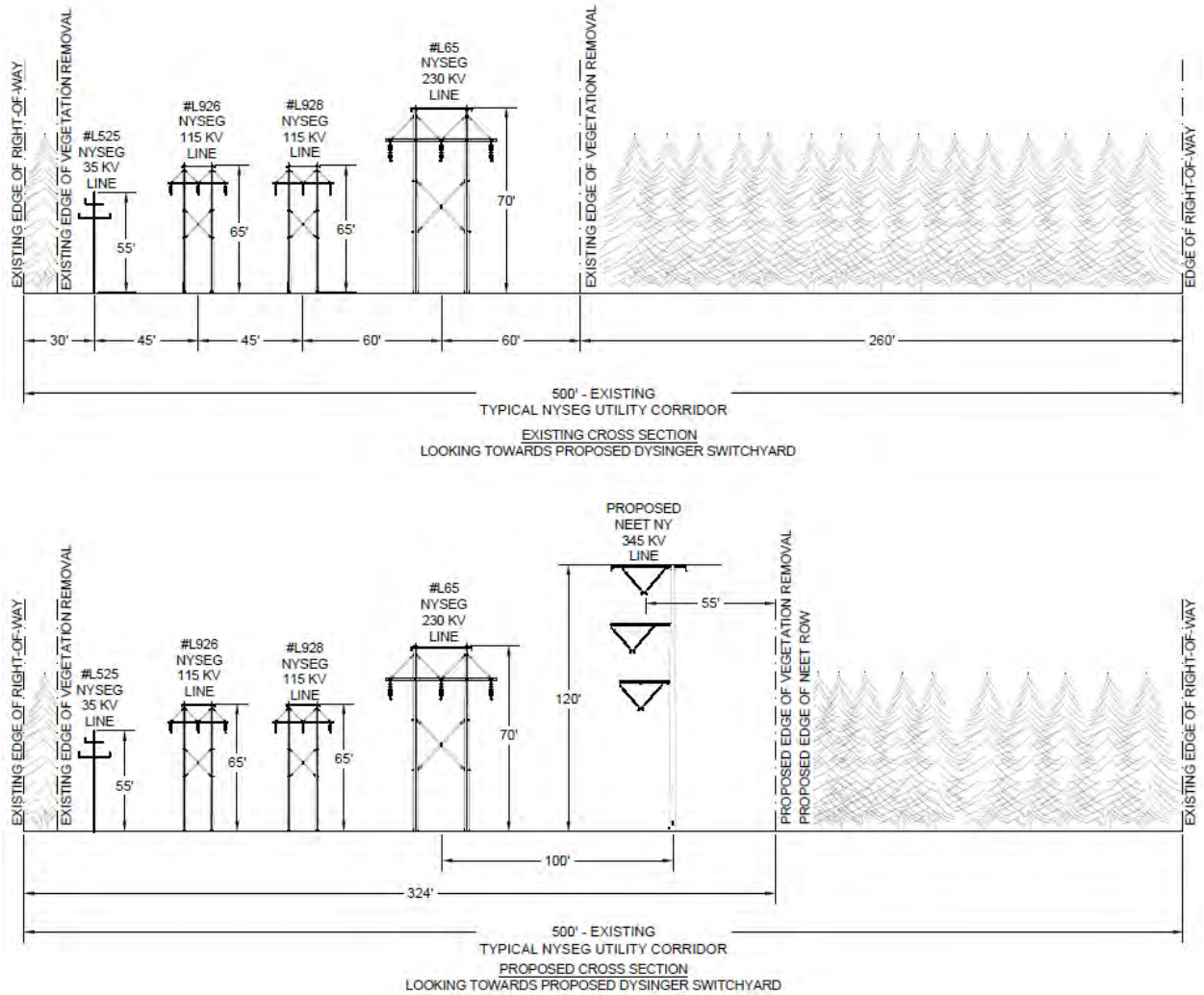


Figure 12 - EXISTING & PROPOSED CROSS SECTION 7

Cross Section 8

The proposed cross section consists of one overhead 345kV transmission line with steel monopoles and adjacent 230kV, 115kV, and 115kV transmission lines spanning from mile 15.324 to mile 20.544. The NEET ROW width is 84ft.

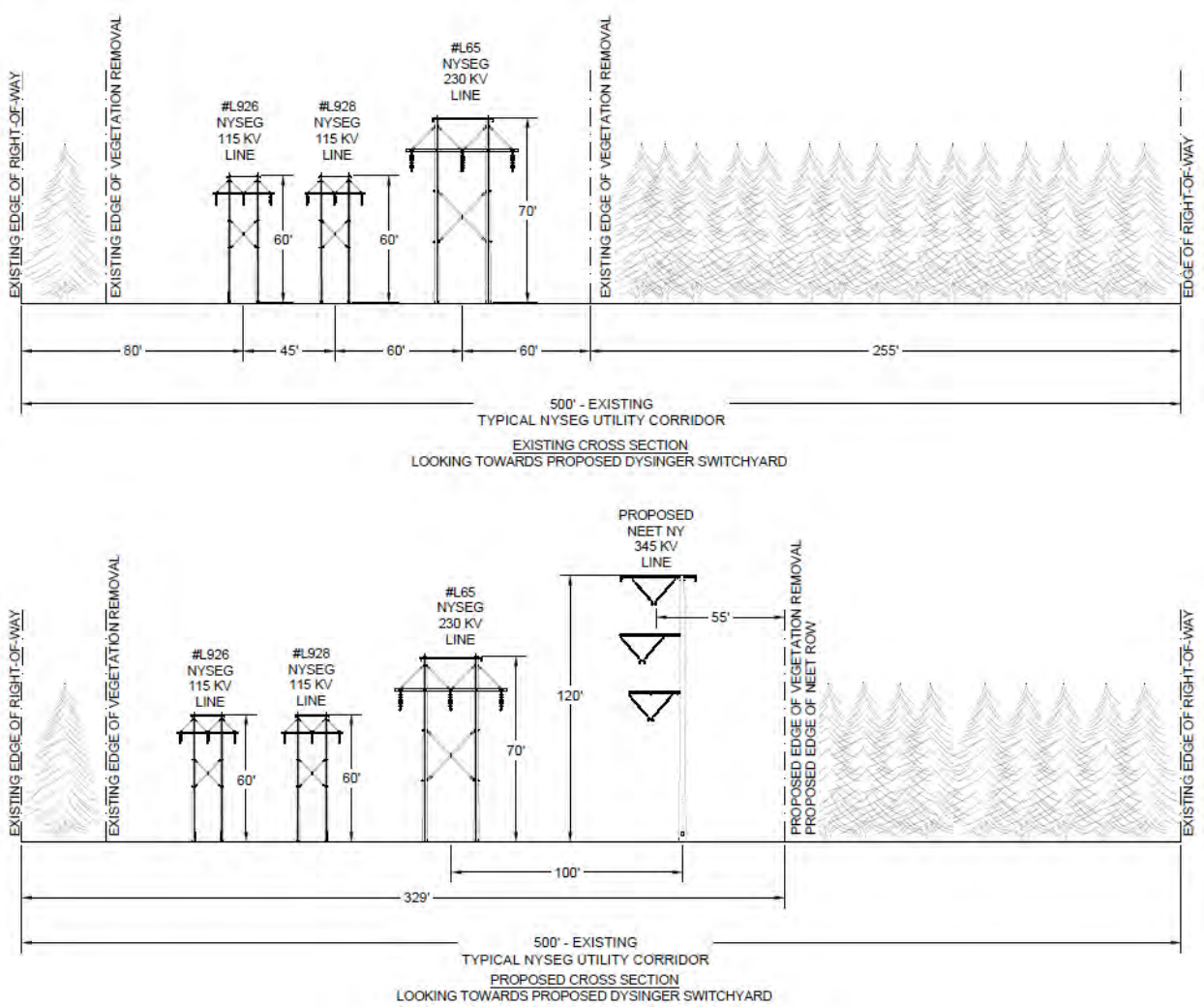


Figure 13 - EXISTING & PROPOSED CROSS SECTION 8

Cross Section 9

The proposed cross section consists of two double circuit overhead 345kV transmission lines with steel monopoles (Cut in from NYPA lines) spanning from NYPA Tap to Dysinger. The NEET ROW width is 325ft.

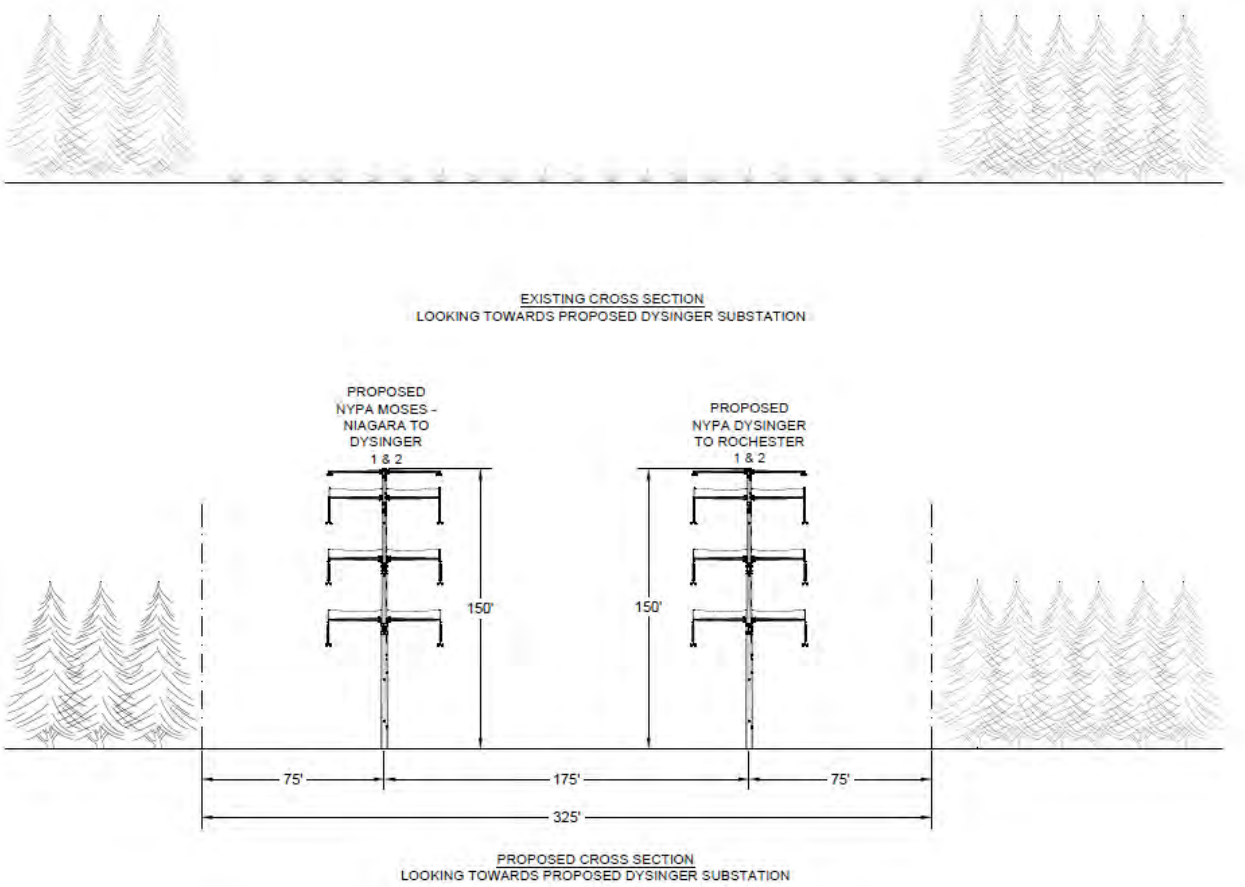


Figure 14 - EXISTING & PROPOSED CROSS SECTION 9

Cross Section 10

The proposed cross section consists of one double circuit overhead 345kV transmission line with steel monopoles spanning from East Stolle to Stolle Rd. The NEET ROW width is 150ft.

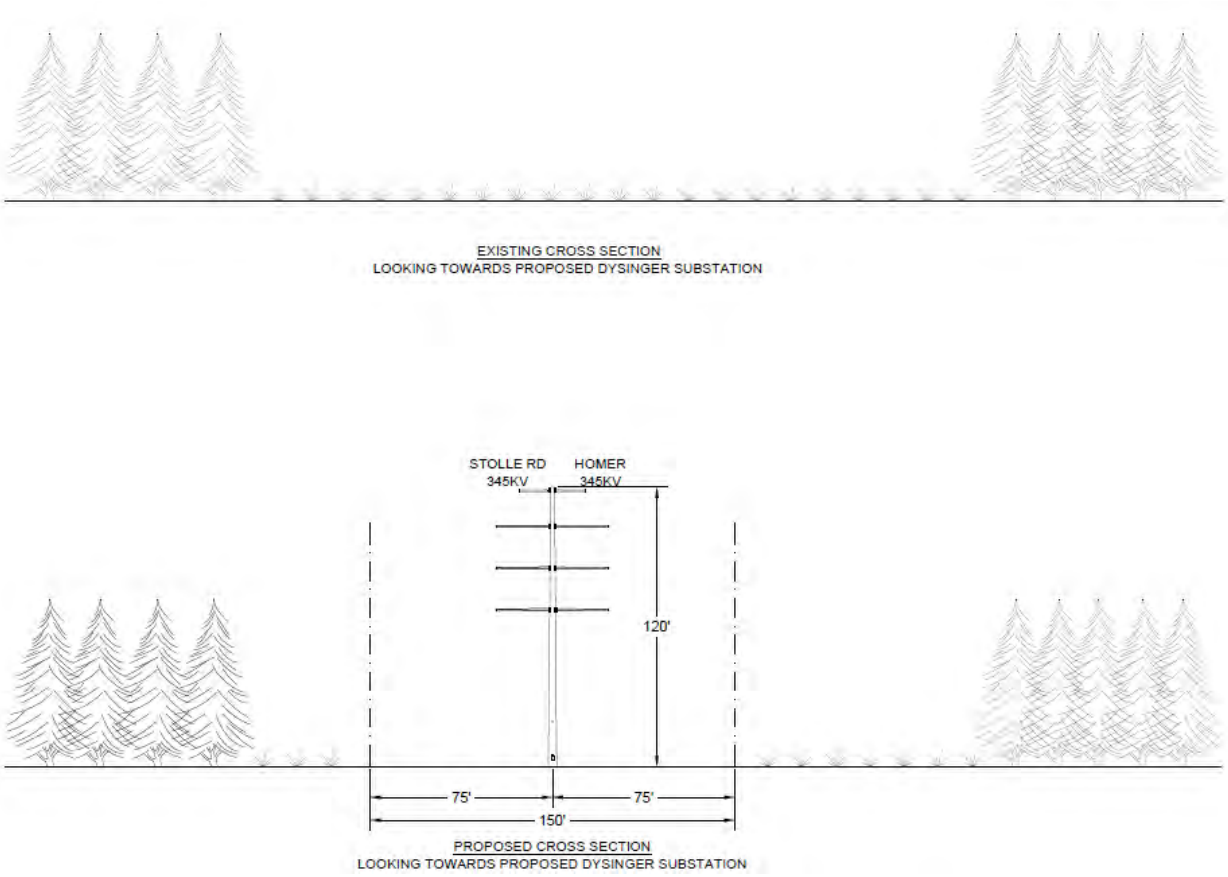


Figure 15 - EXISTING & PROPOSED CROSS SECTION 10

Cross Section 11

The proposed cross section consists of a 345kV underground transmission line and adjacent 345kV, 230kV, & 115kV transmission lines spanning from mile 10.17 to mile 10.568. The NEET ROW width is 84ft.

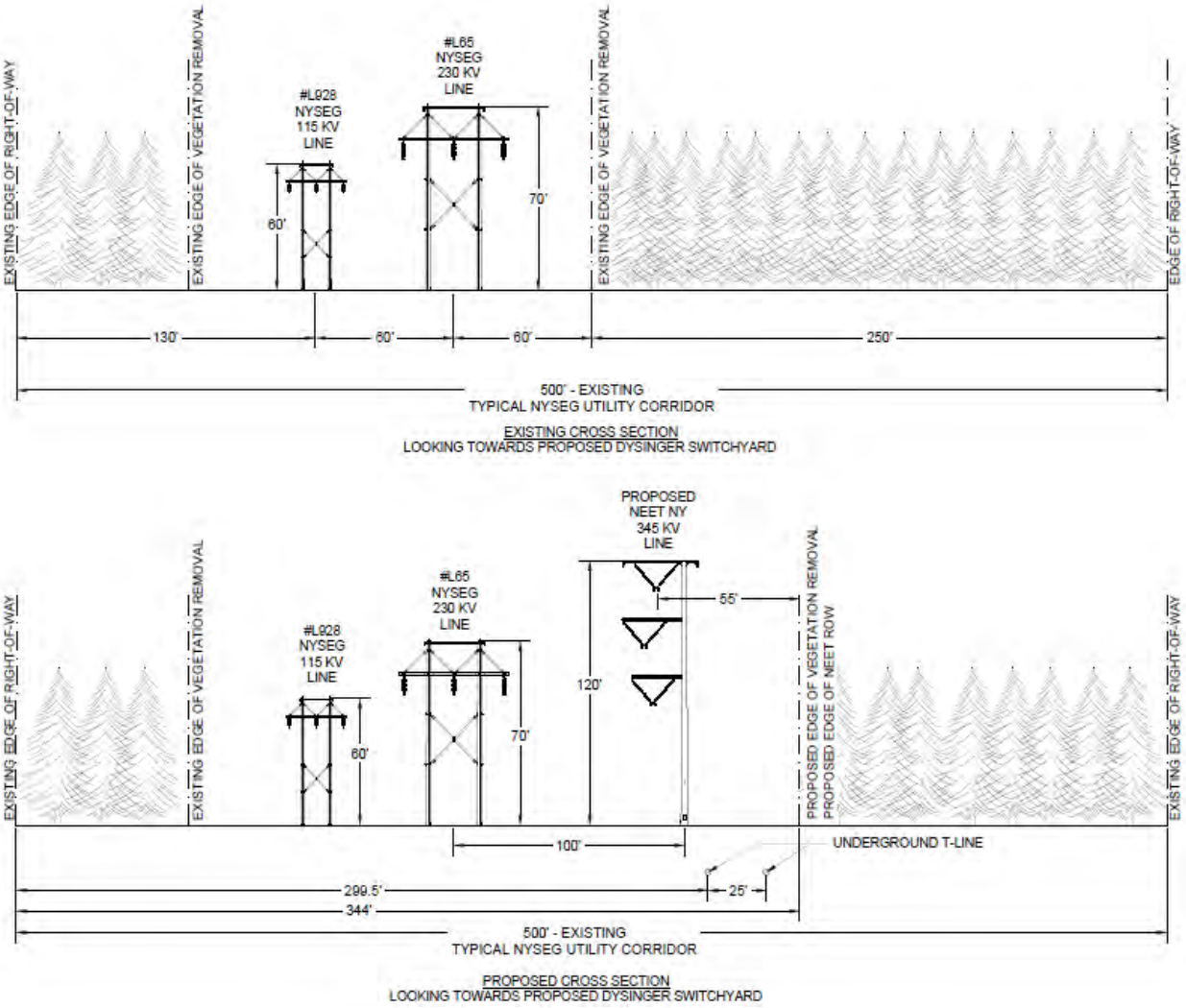


Figure 16 - EXISTING & PROPOSED CROSS SECTION 11

4.0 RESULTS

4.1 EMF RESULTS TABLE

The EMF results shown are for the available 500' ROW owned by NYSEG and the proposed ROW by NEET NY.

Table 4 - EMF RESULTS

Case Designation	Edge of NYSEG 500' Utility Corridor	Edge of Proposed NEET NY ROW	Within ROW Maximum EMF	NYPSC Criteria at Edge of ROW
Electric Field (kV/m)				
Existing ROW Segment 1	n/a	n/a	n/a	1.6 kV/m
Proposed ROW Segment 1	n/a	.82	5.84	1.6 kV/m
Existing ROW Segment 2	.09	n/a	7.06	1.6 kV/m
Proposed ROW Segment 2	.09	.74	4.78	1.6 kV/m
Existing ROW Segment 3	.03	n/a	4.47	1.6 kV/m
Proposed ROW Segment 3	.11	.26	8.95	1.6 kV/m
Existing ROW Segment 4	.04	n/a	4.52	1.6 kV/m
Proposed ROW Segment 4	.10	.27	8.96	1.6 kV/m
Existing ROW Segment 5	.04	n/a	4.52	1.6 kV/m
Proposed ROW Segment 5	.10	.27	8.96	1.6 kV/m
Existing ROW Segment 6	.10	n/a	4.51	1.6 kV/m
Proposed ROW Segment 6	.14	.43	7.38	1.6 kV/m
Existing ROW Segment 7	.20	n/a	4.52	1.6 kV/m
Proposed ROW Segment 7	.21	.51	6.46	1.6 kV/m
Existing ROW Segment 8	.10	n/a	4.52	1.6 kV/m
Proposed ROW Segment 8	.19	.30	8.48	1.6 kV/m
Existing ROW Segment 9	n/a	n/a	n/a	1.6 kV/m
Proposed ROW Segment 9	n/a	.68	6.11	1.6 kV/m
Existing ROW Segment 10	n/a	n/a	n/a	1.6 kV/m
Proposed ROW Segment 10	n/a	.28	6.94	1.6 kV/m
Existing ROW Segment 11	.04	n/a	4.52	1.6 kV/m
Proposed ROW Segment 11	.10	.12	8.96	1.6 kV/m
Magnetic Field (mG)				
Existing ROW Segment 1	n/a	n/a	n/a	200 mG
Proposed ROW Segment 1	n/a	75.60	170.80	200 mG
Existing ROW Segment 2	62.34	n/a	428.35	200 mG
Proposed ROW Segment 2	10.54	77.83	545.55	200 mG
Existing ROW Segment 3	10.67	n/a	516.29	200 mG
Proposed ROW Segment 3	11.07	93.68	545.38	200 mG

Table 4 - EMF RESULTS

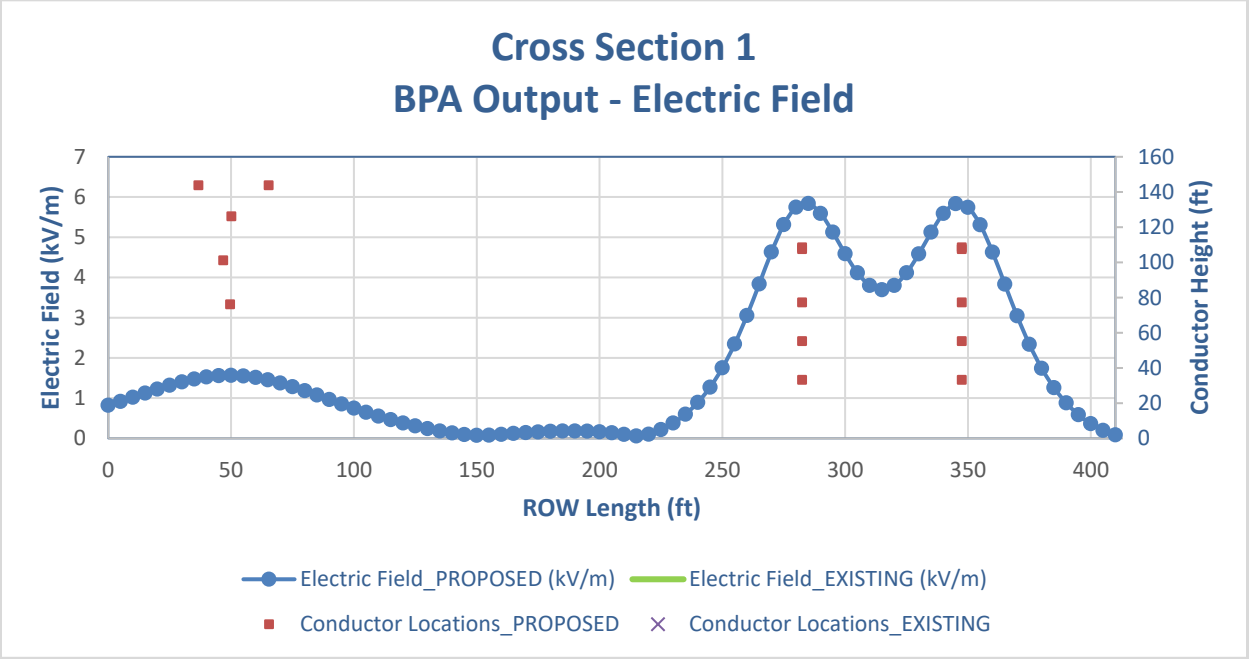
Case Designation	Edge of NYSEG 500' Utility Corridor	Edge of Proposed NEET NY ROW	Within ROW Maximum EMF	NYPSC Criteria at Edge of ROW
Existing ROW Segment 4	16.53	n/a	504.12	200 mG
Proposed ROW Segment 4	16.65	96.04	528.72	200 mG
Existing ROW Segment 5	16.53	n/a	504.12	200 mG
Proposed ROW Segment 5	16.65	96.04	528.72	200 mG
Existing ROW Segment 6	36.90	n/a	501.98	200 mG
Proposed ROW Segment 6	39.38	92.94	528.09	200 mG
Existing ROW Segment 7	64.66	n/a	495.76	200 mG
Proposed ROW Segment 7	67.39	91.98	522.41	200 mG
Existing ROW Segment 8	34.84	n/a	497.90	200 mG
Proposed ROW Segment 8	35.03	96.88	522.56	200 mG
Existing ROW Segment 9	n/a	n/a	n/a	200 mG
Proposed ROW Segment 9	n/a	99.92	164.62	200 mG
Existing ROW Segment 10	n/a	n/a	n/a	200 mG
Proposed ROW Segment 10	n/a	71.26	164.01	200 mG
Existing ROW Segment 11	16.53	n/a	504.12	200 mG
Proposed ROW Segment 11	16.99	78.52	530.99	200 mG

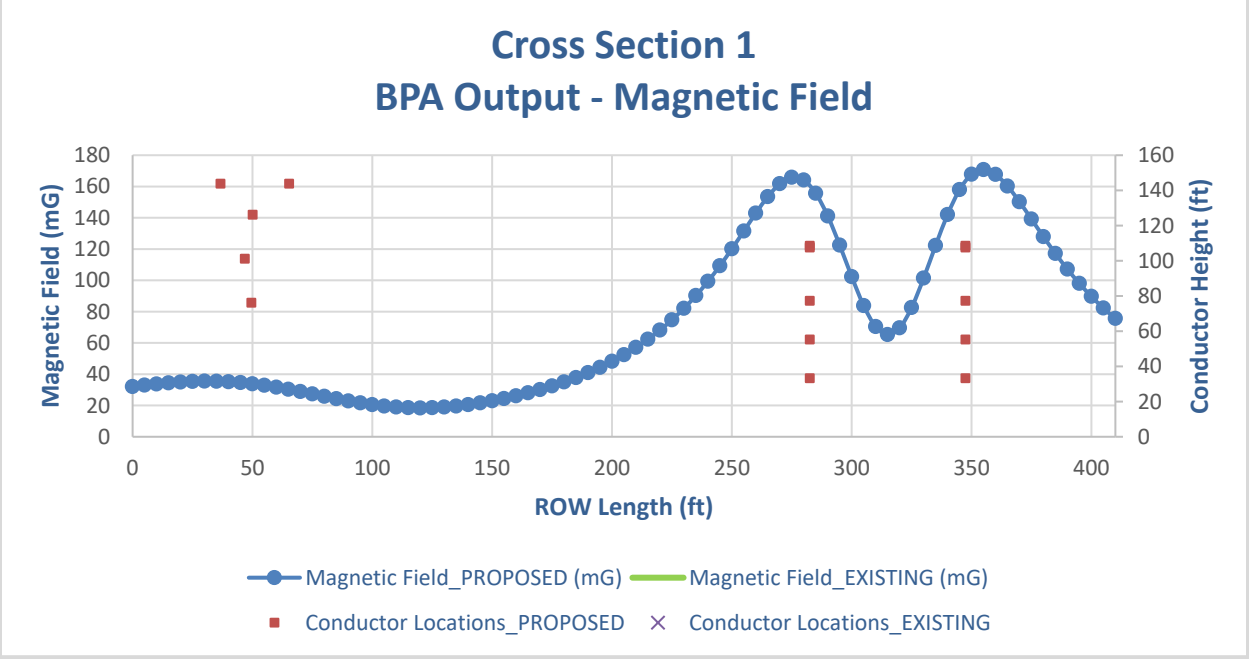
In conclusion, the results of the study show that the calculated electric and magnetic fields are acceptable when compared to the electric fields requirement of 1.6 kV/m, one meter (3.28 ft.) above ground level, and the magnetic field strength requirement is 200 mG, measured at one meter (3.28 ft.) above grade, at the existing NYSEG and proposed NEETNY edge of ROW.

See Appendix A for the inputs and results of the Bonneville Power Administration (BPA) Corona and Field Effects and CYMCAP (©CYME International) computer programs.

4.2 EMF PLOTS

Cross Section 1





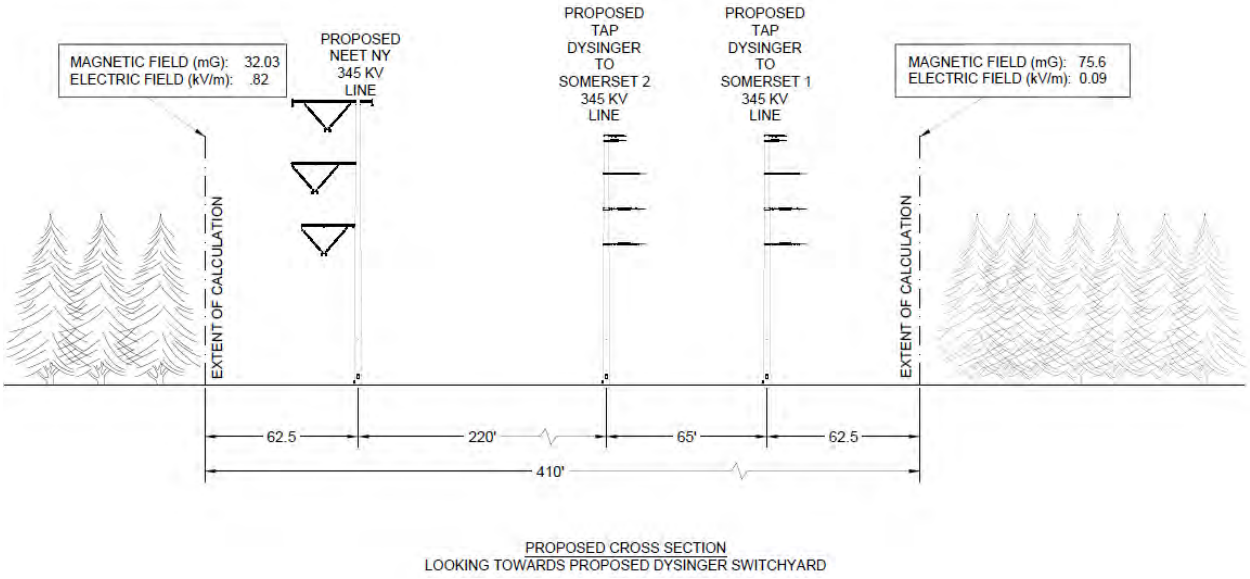
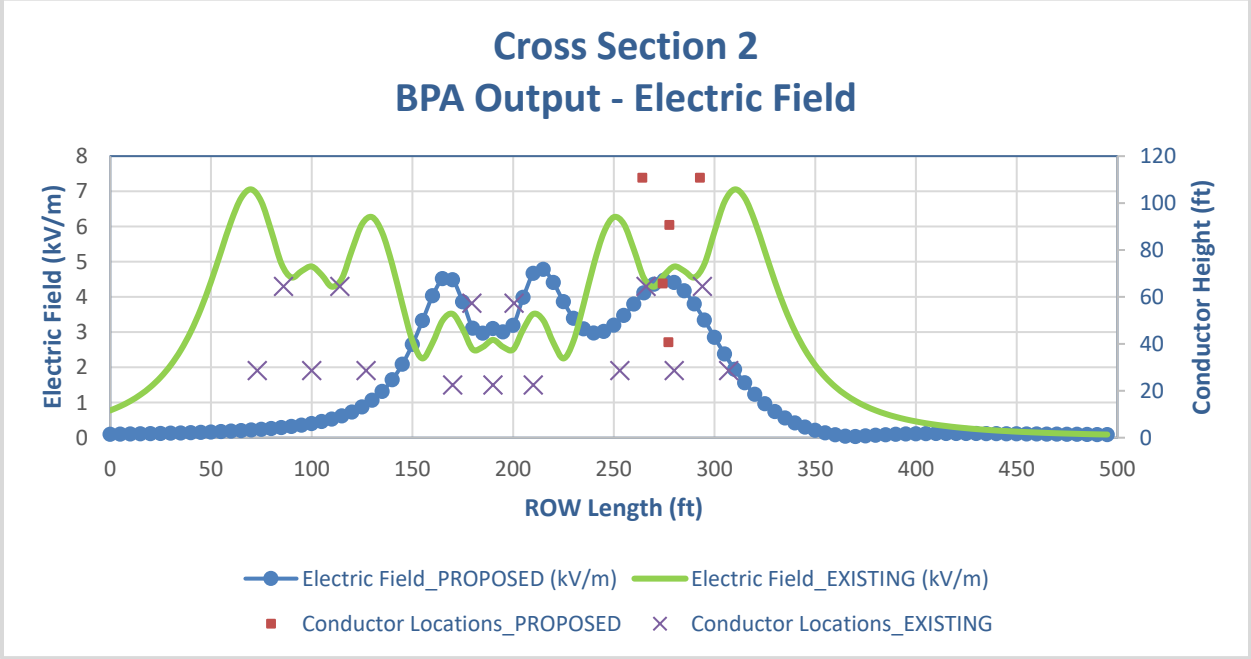
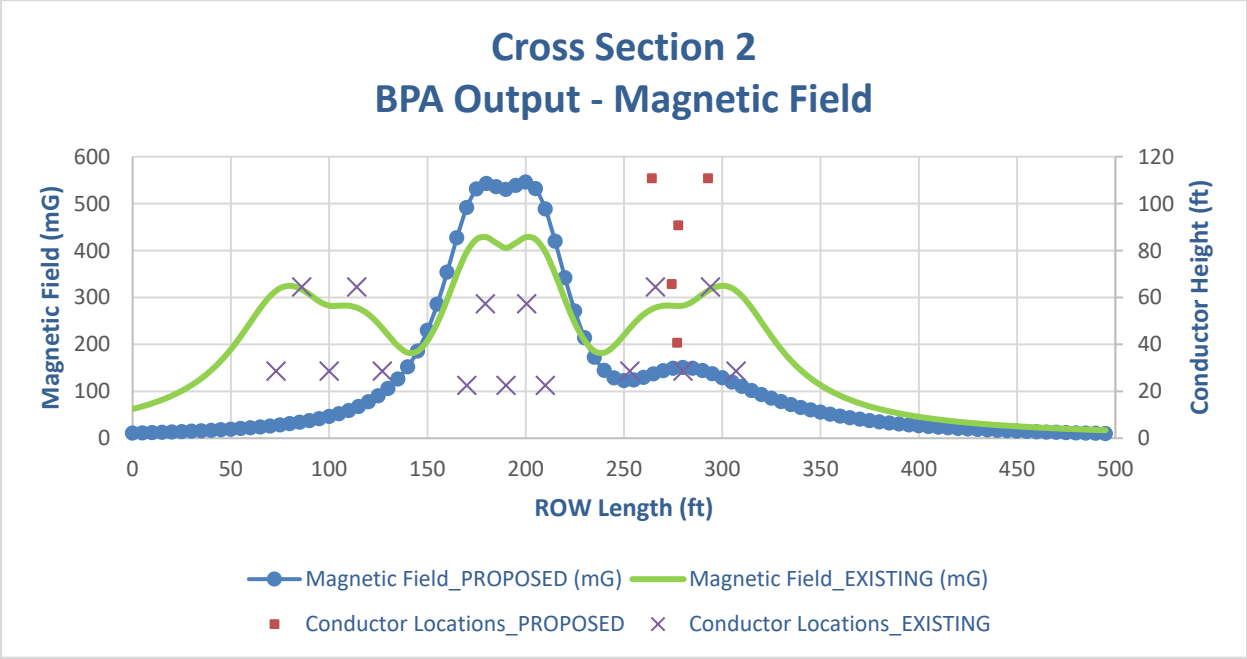


Figure 17 - PROPOSED CROSS SECTION 1 EMF RESULTS

Cross Section 2





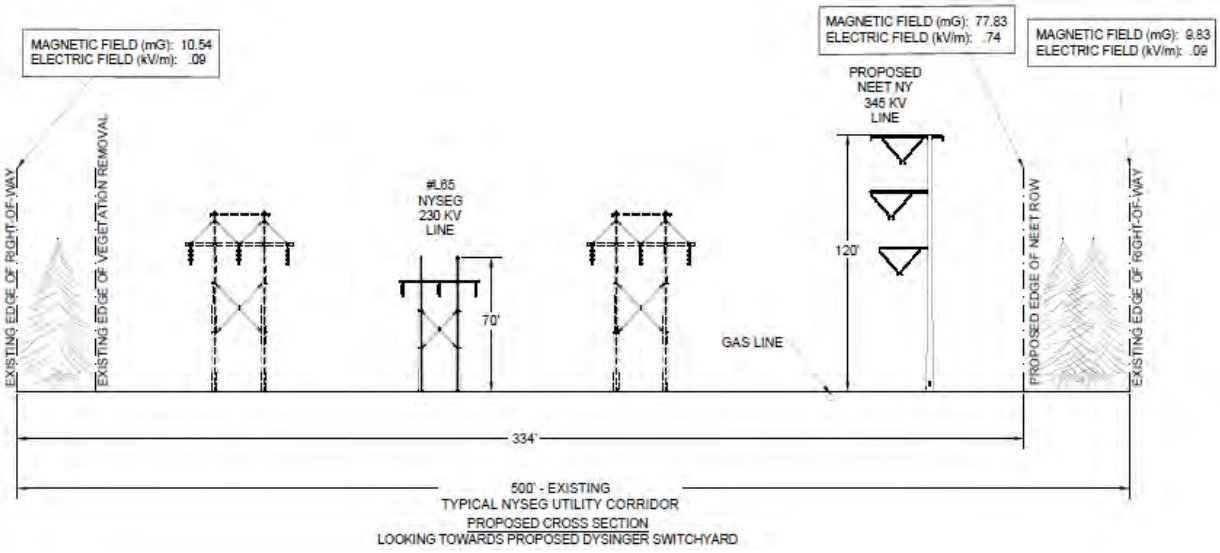
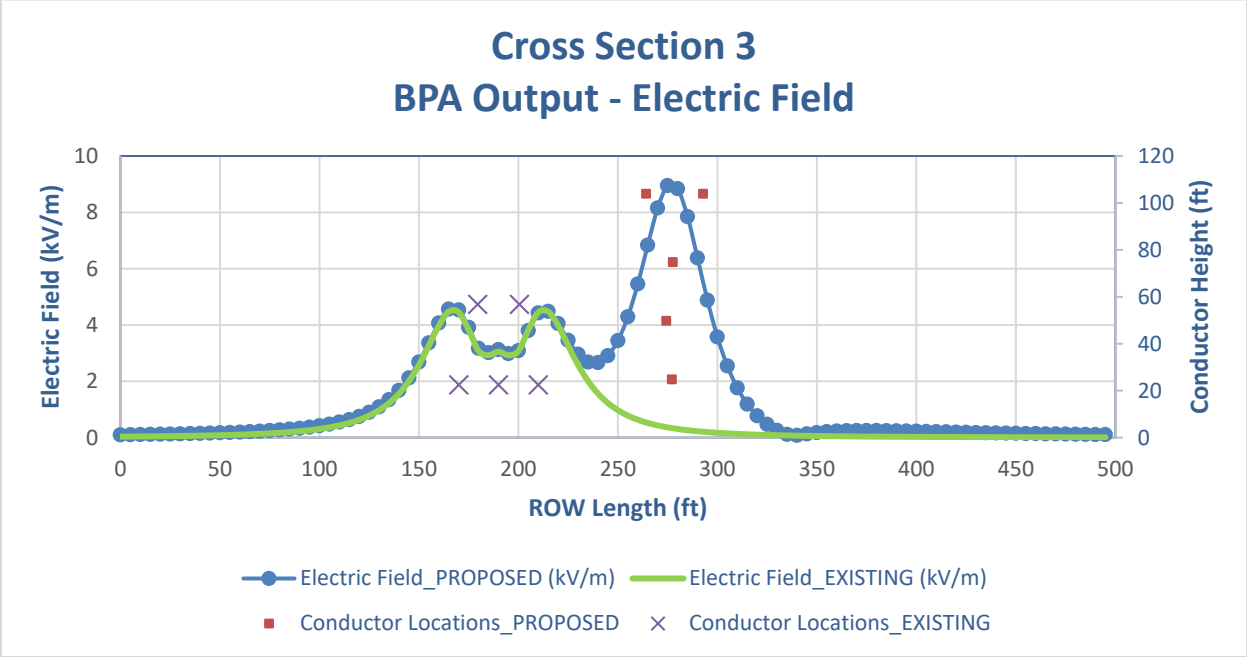
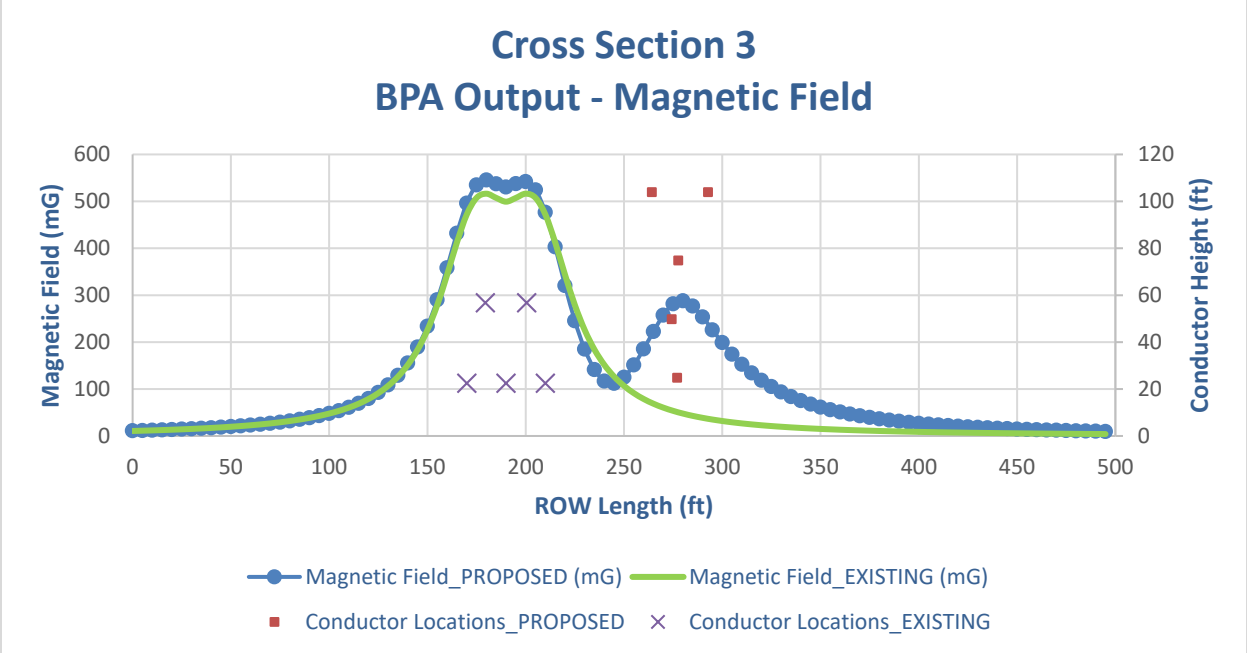


Figure 18 - PROPOSED CROSS SECTION 2 EMF RESULTS

Cross Section 3





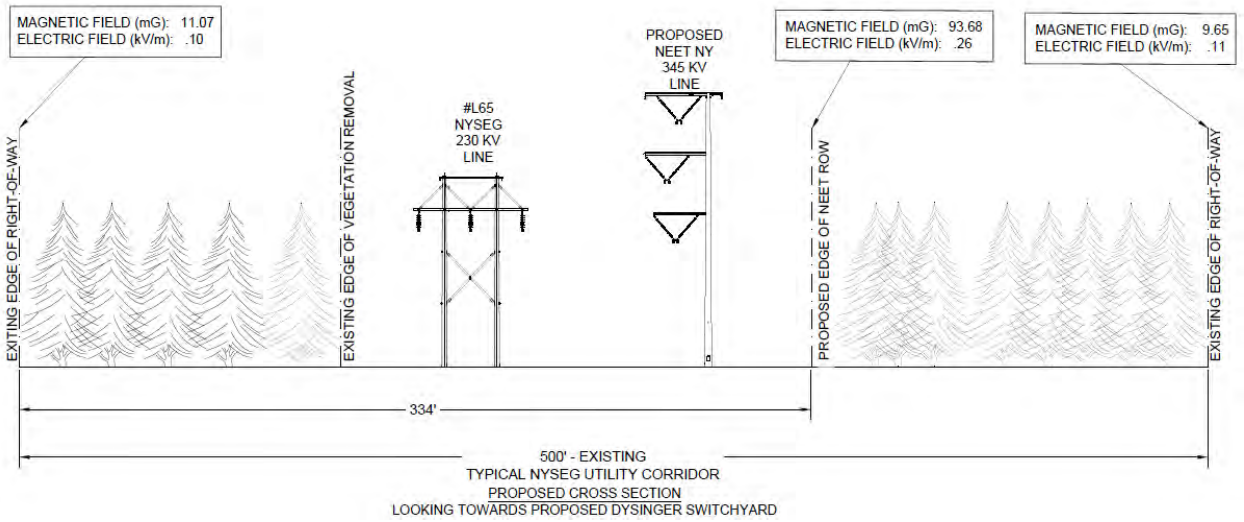
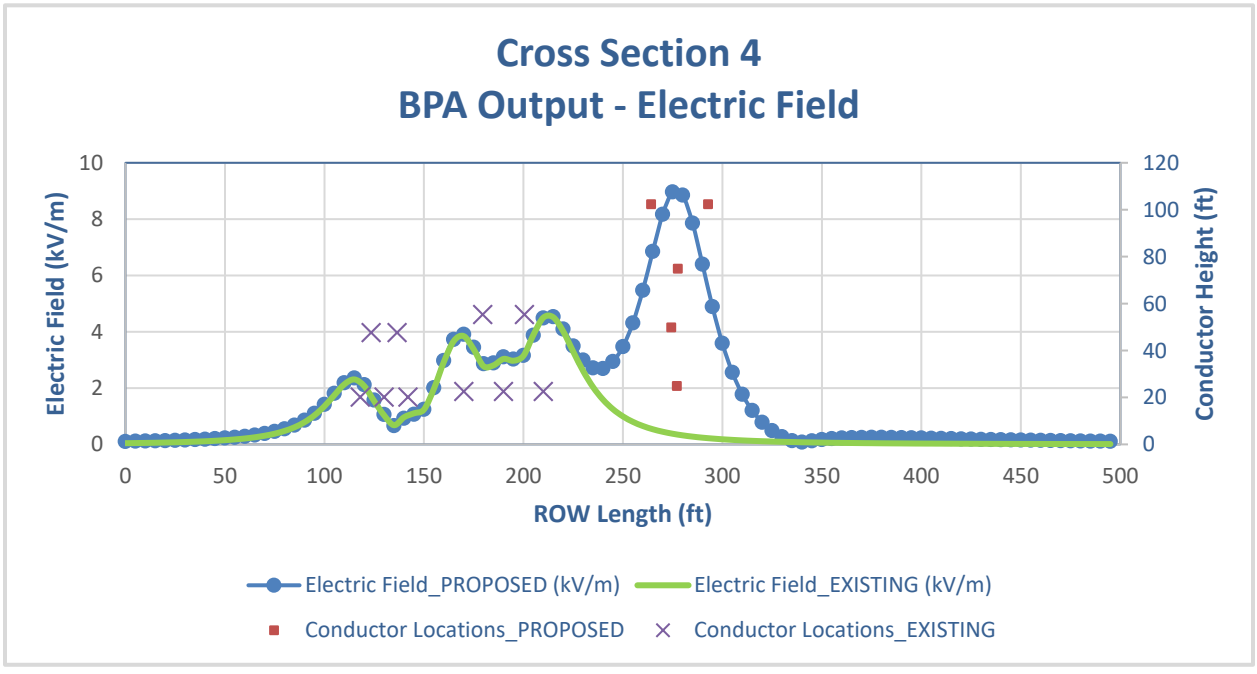


Figure 19 - PROPOSED CROSS SECTION 3 EMF RESULTS

Cross Section 4



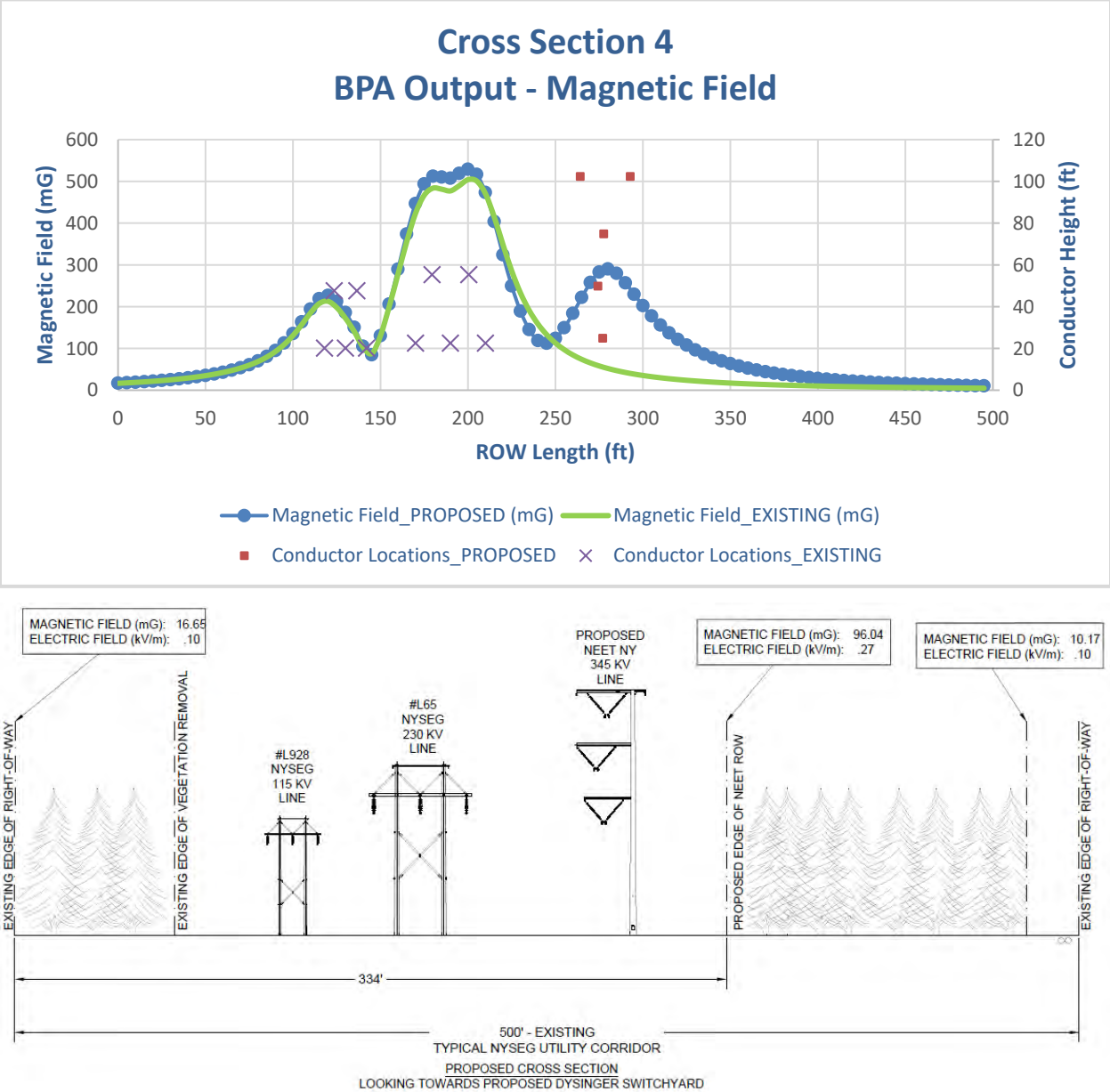
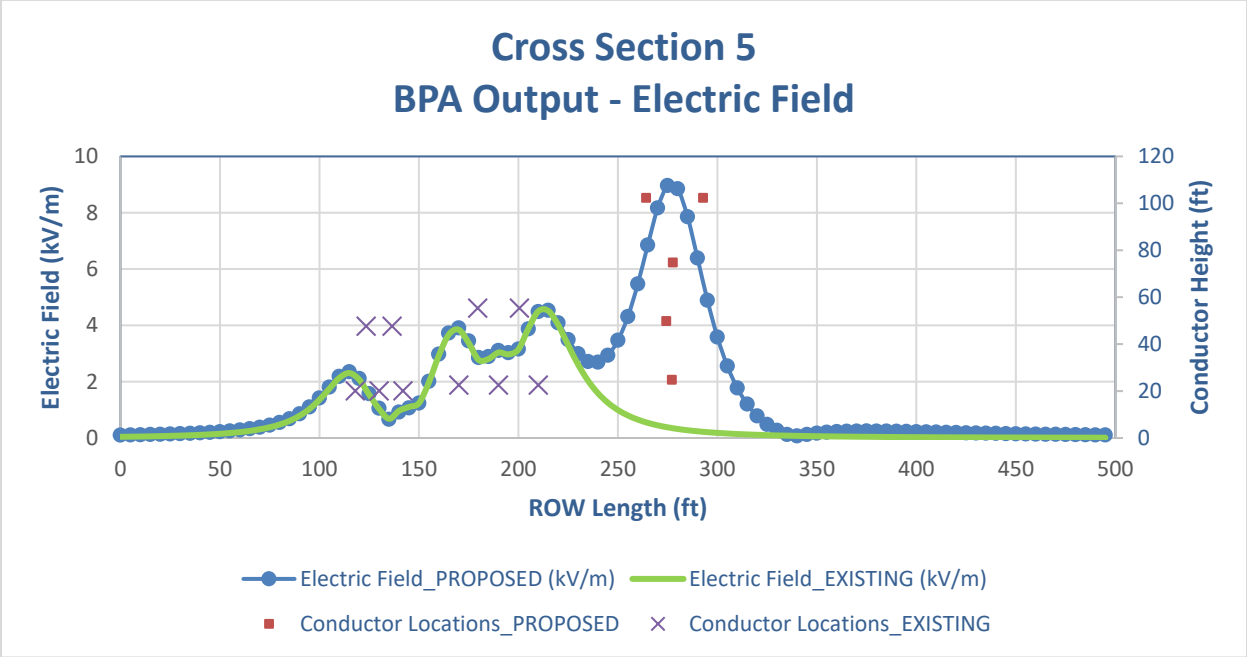
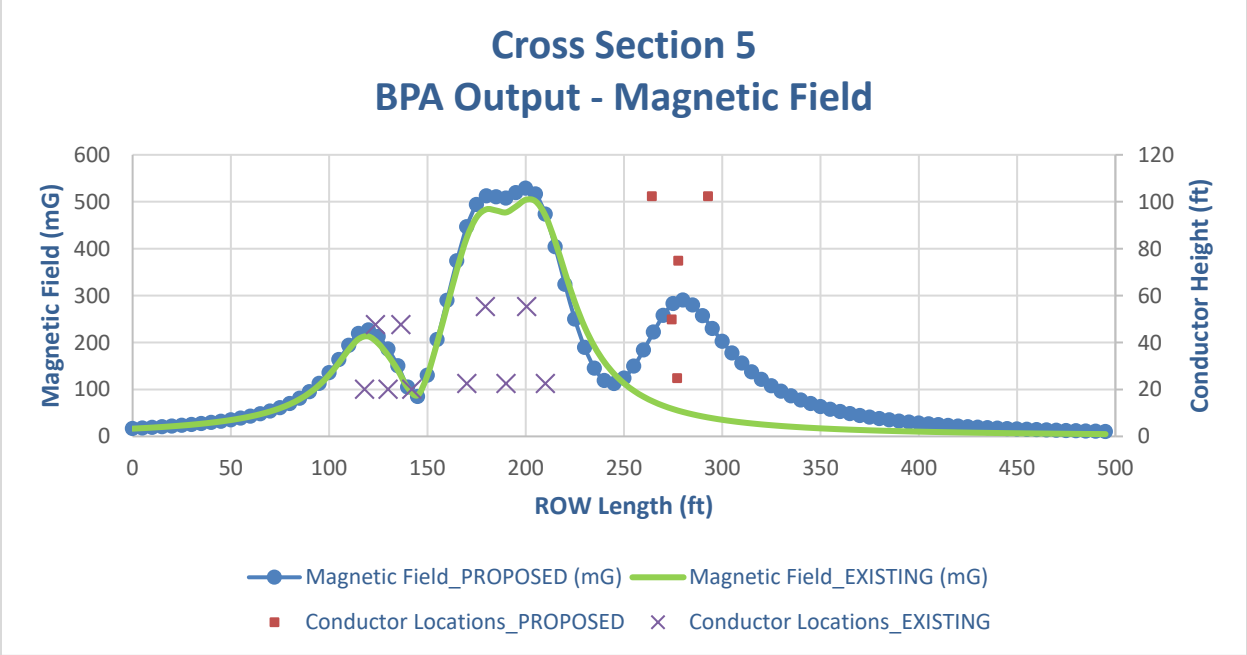


Figure 20 - PROPOSED CROSS SECTION 4 EMF RESULTS

Cross Section 5





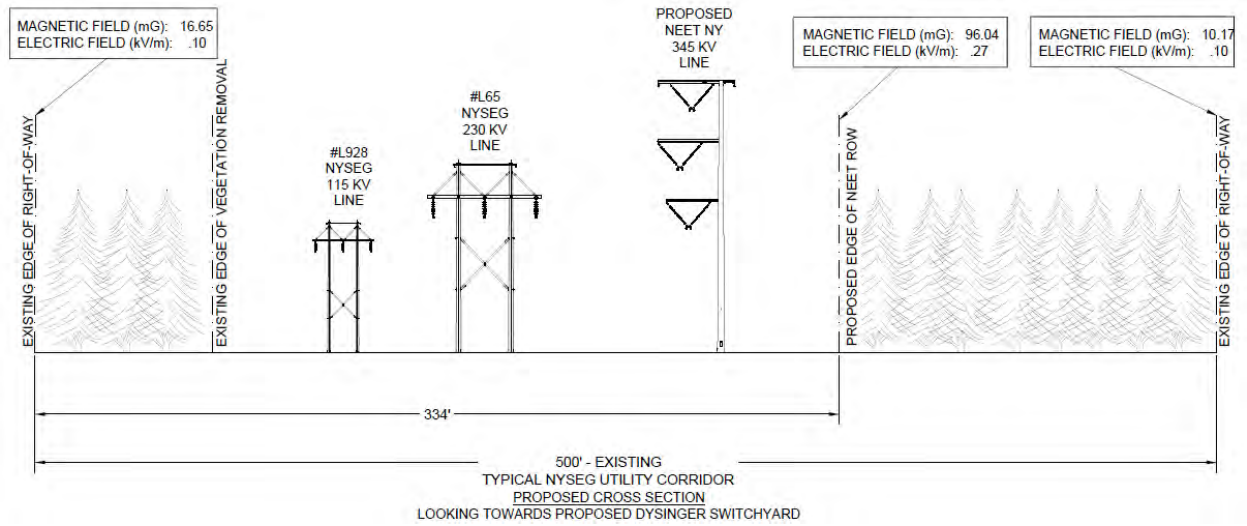
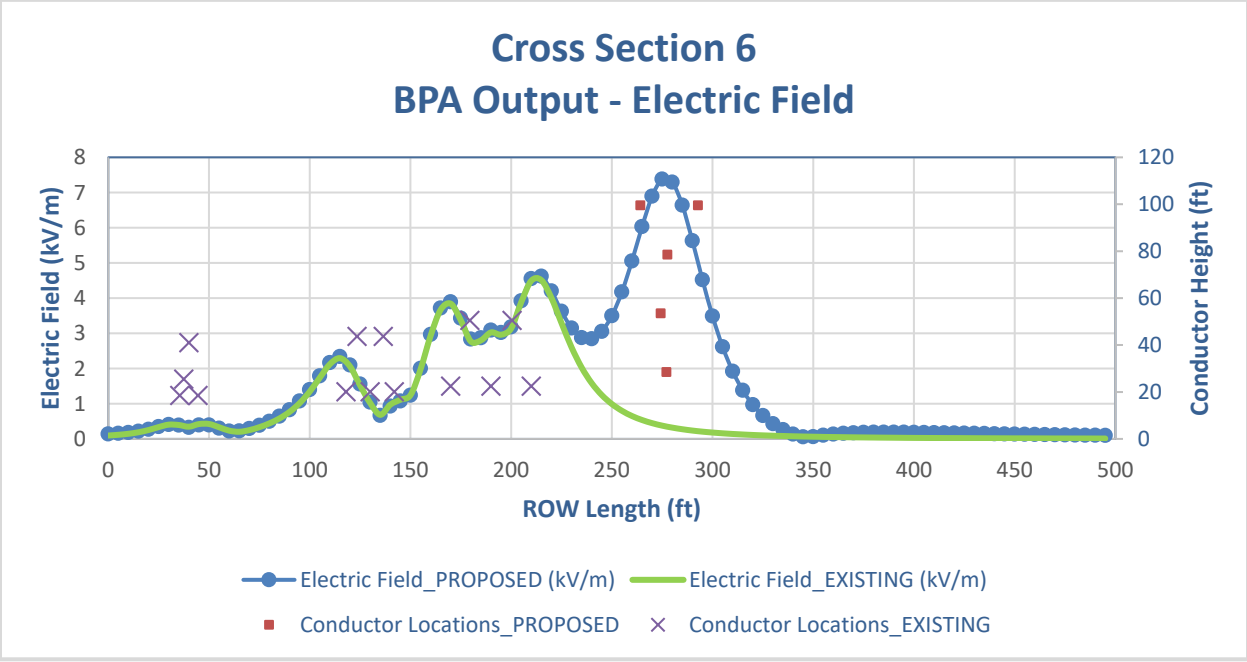
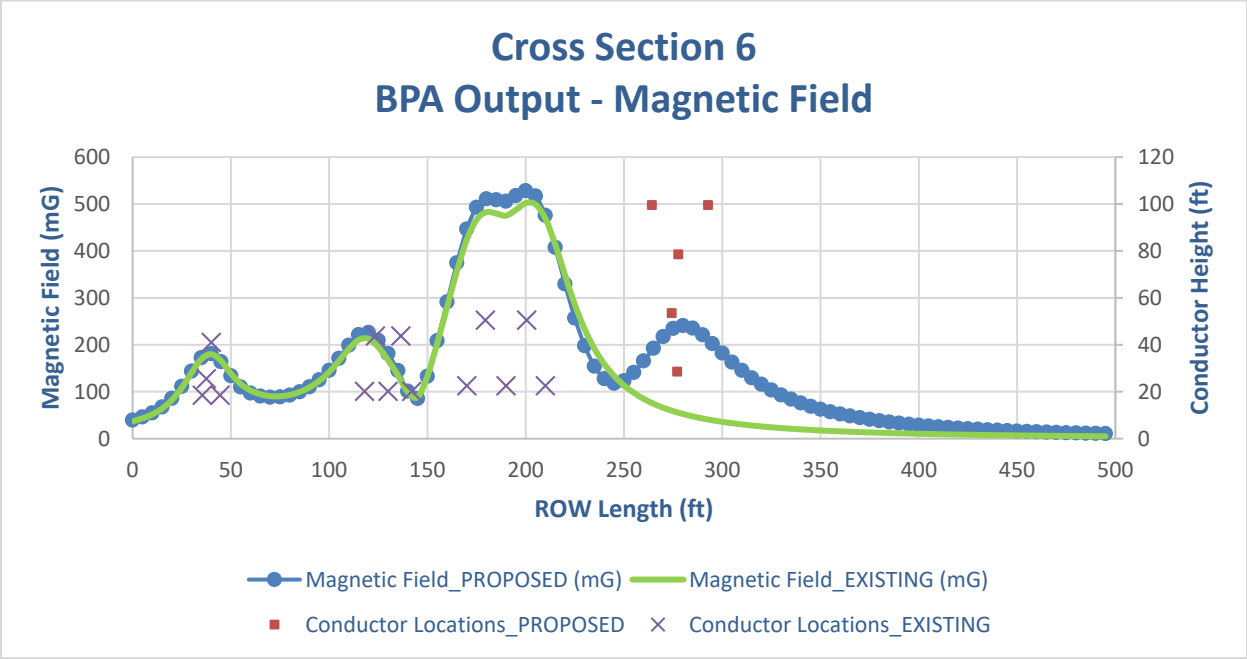


Figure 21 - PROPOSED CROSS SECTION 5 EMF RESULTS

Cross Section 6





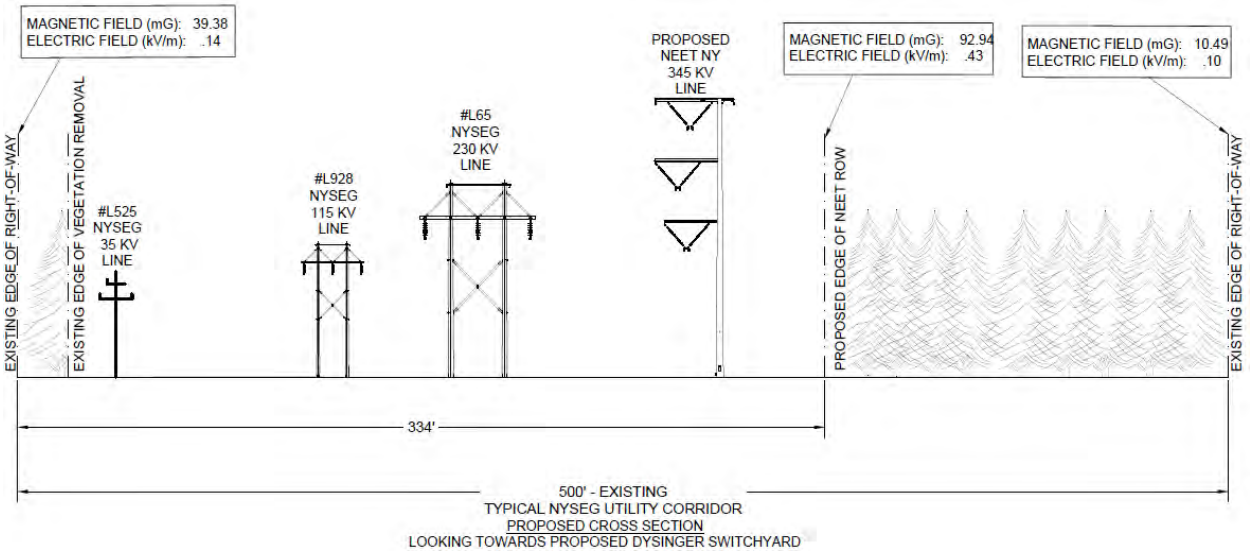
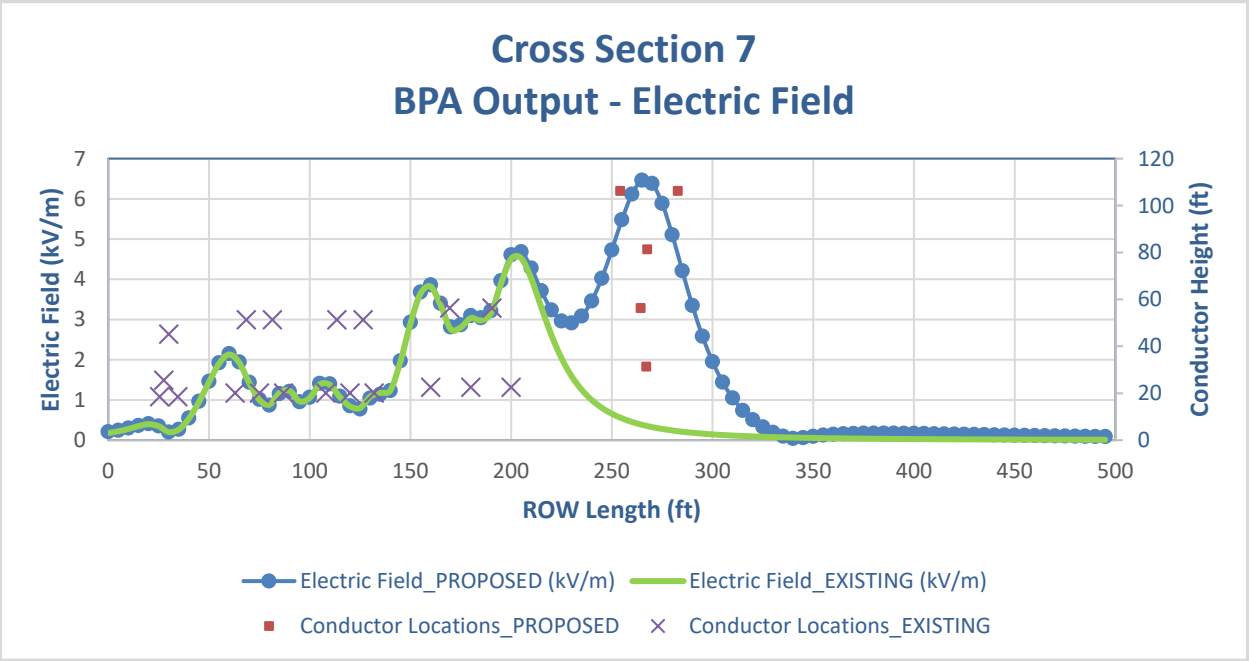
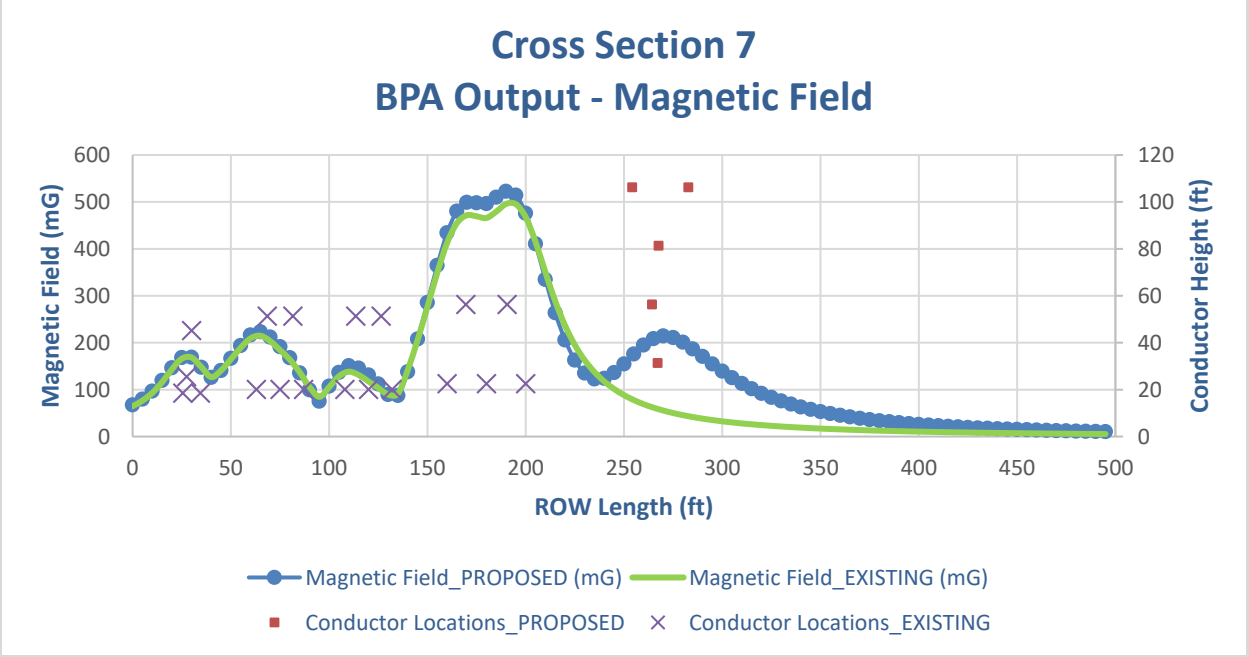


Figure 22 - PROPOSED CROSS SECTION 6 EMF RESULTS

Cross Section 7





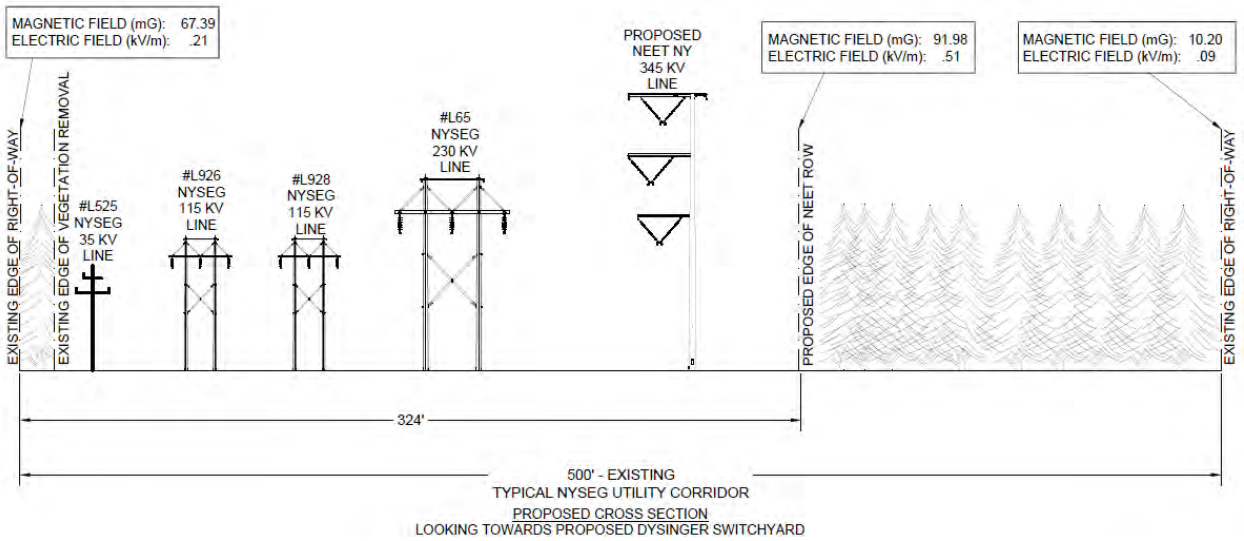
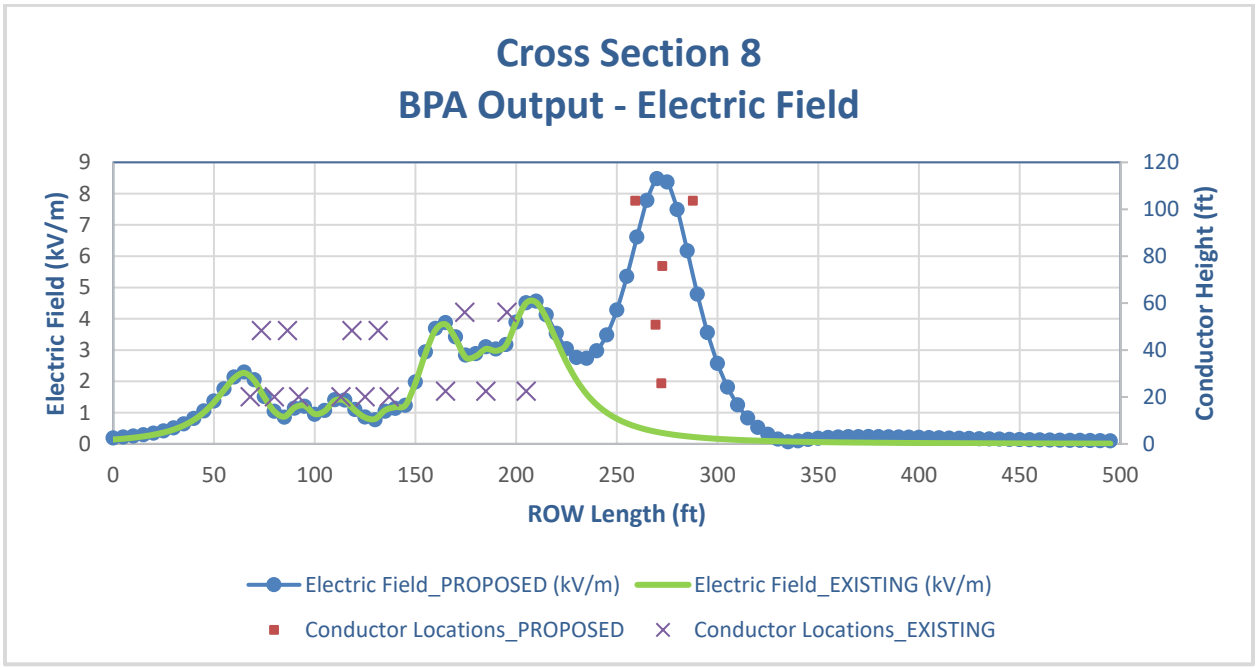
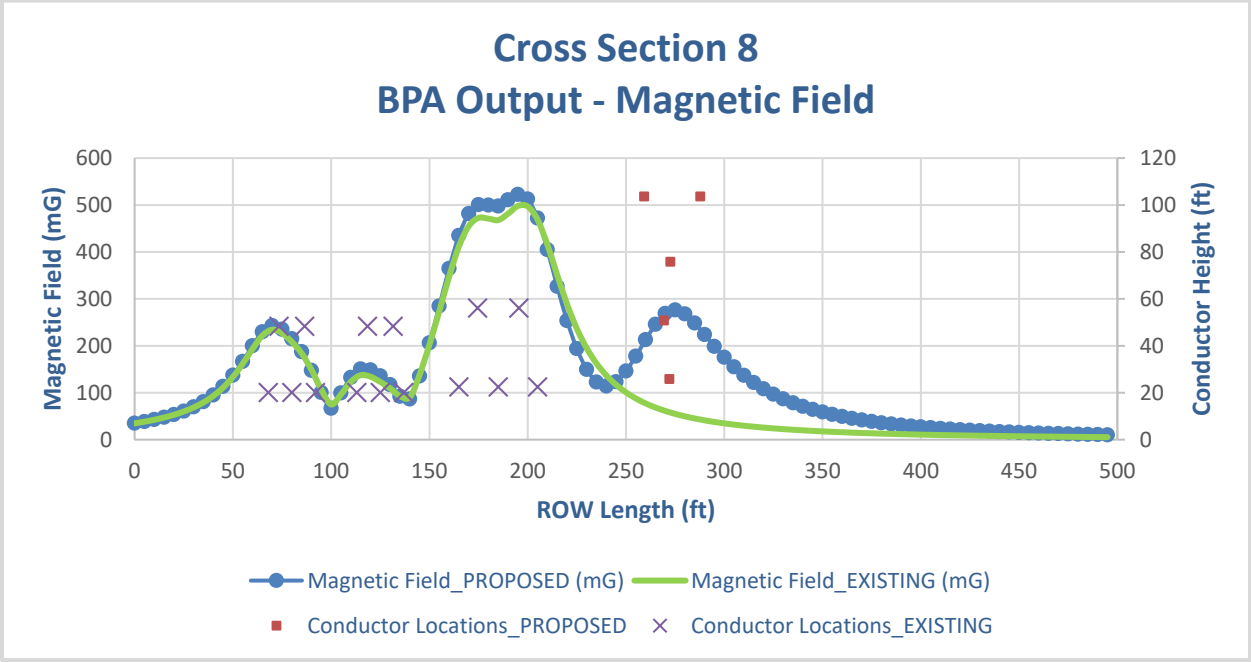


Figure 23 - PROPOSED CROSS SECTION 7 EMF RESULTS

Cross Section 8





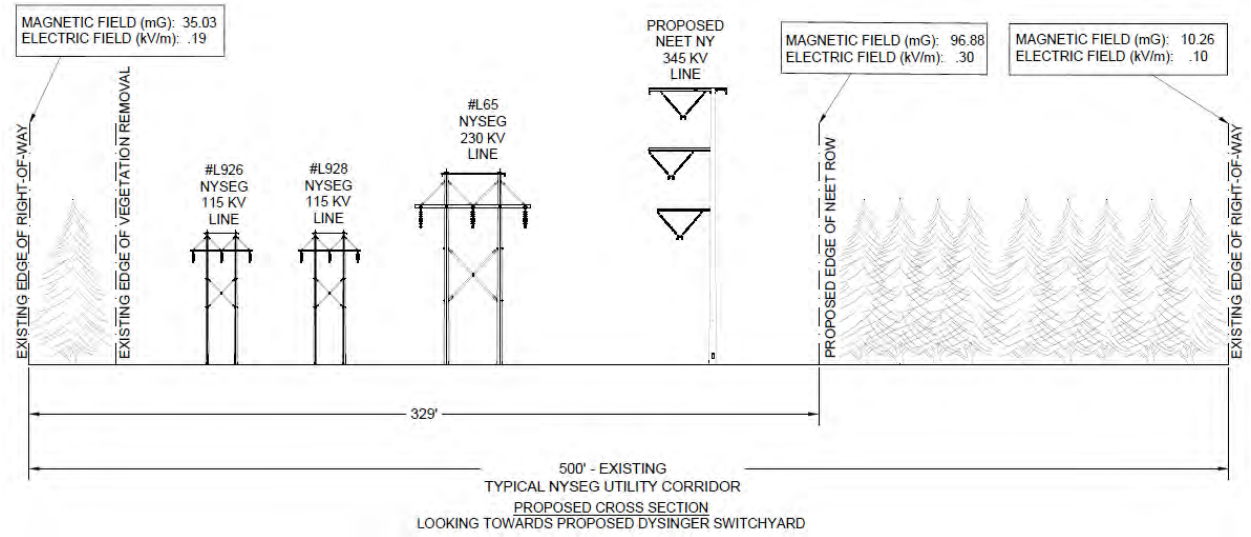
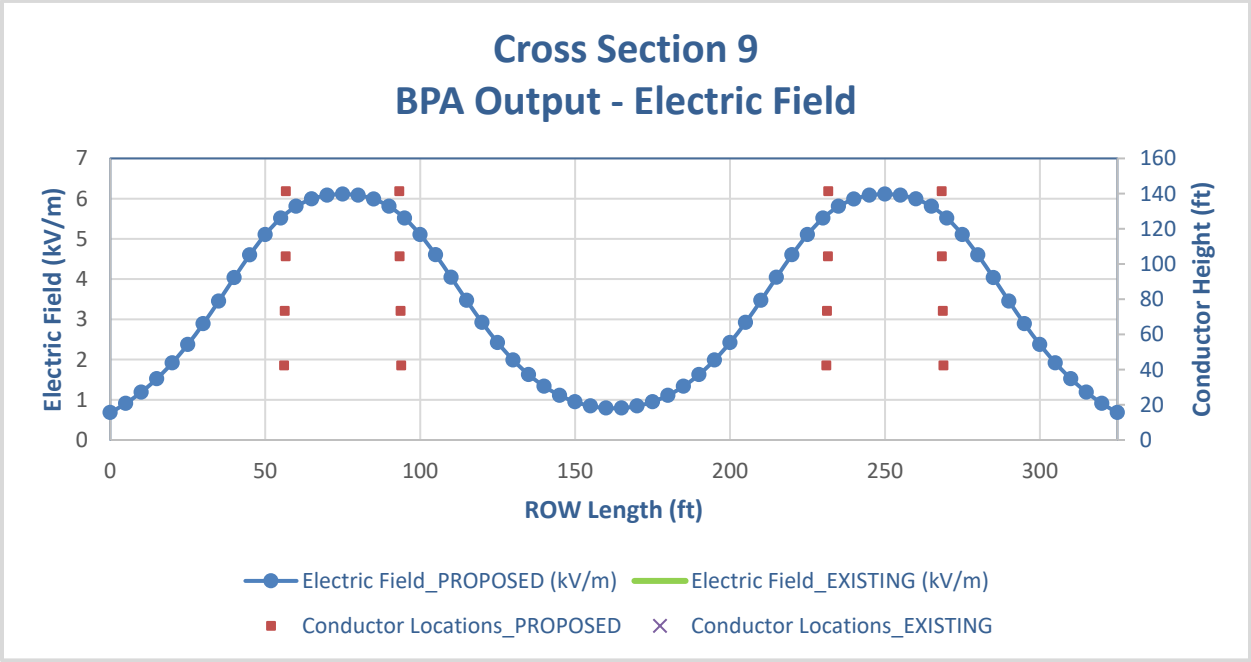
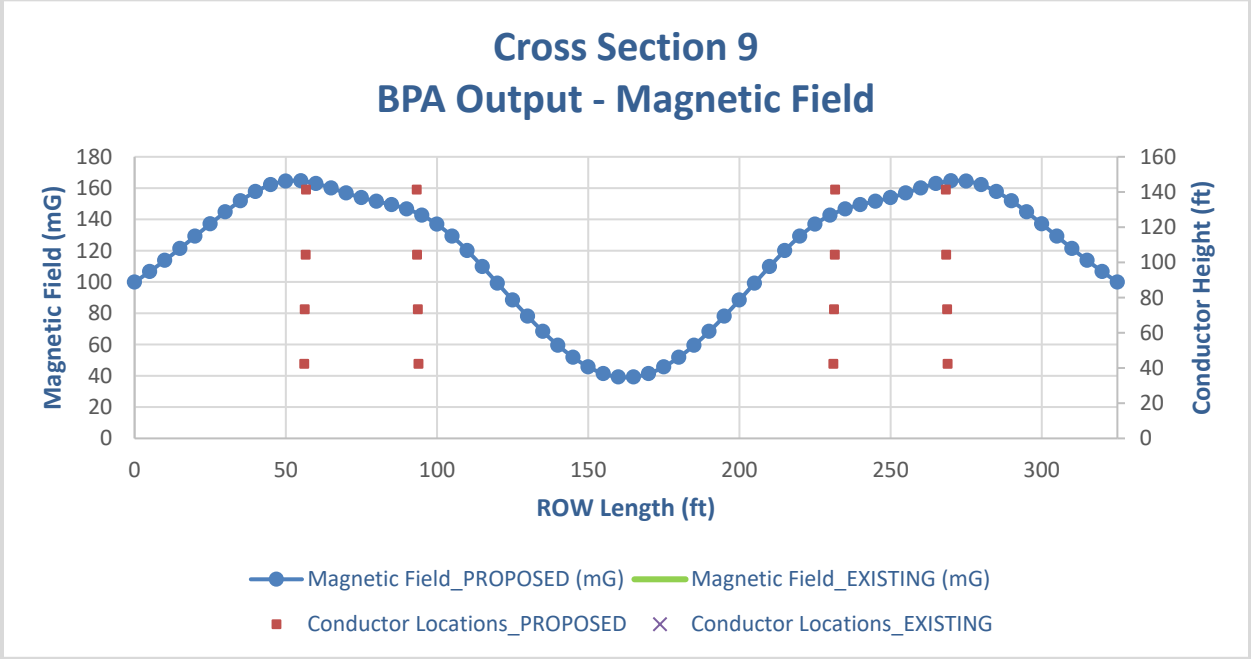


Figure 24 - PROPOSED CROSS SECTION 8 EMF RESULTS

Cross Section 9





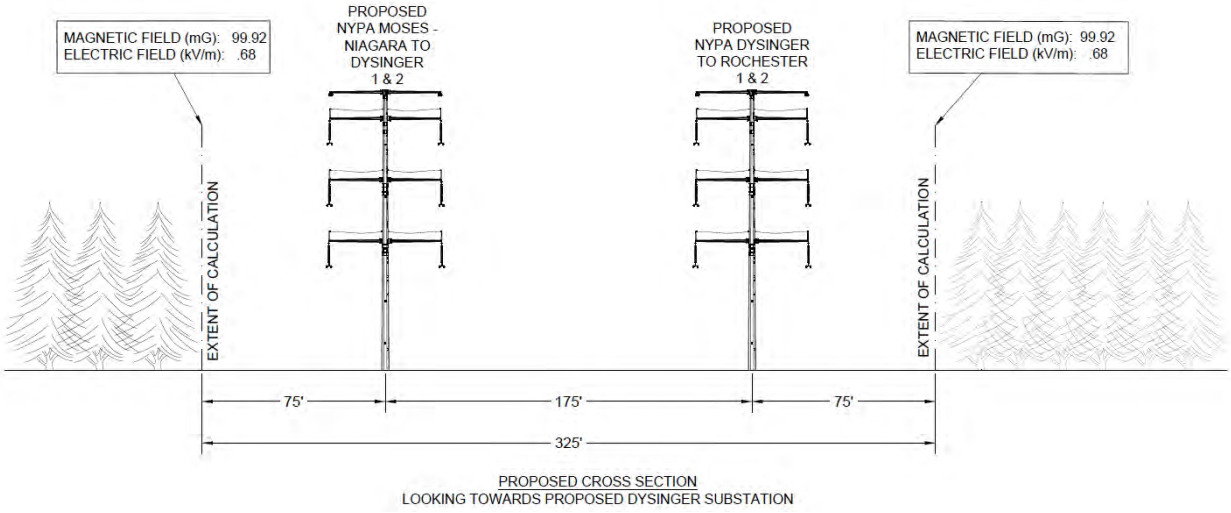
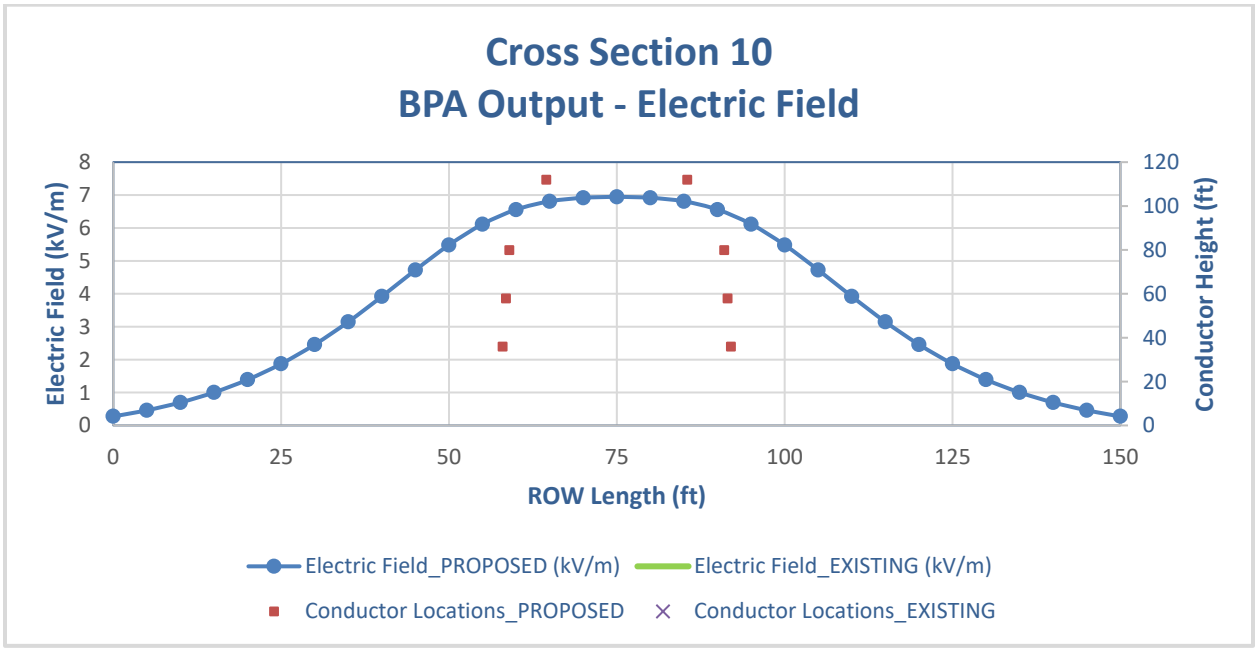
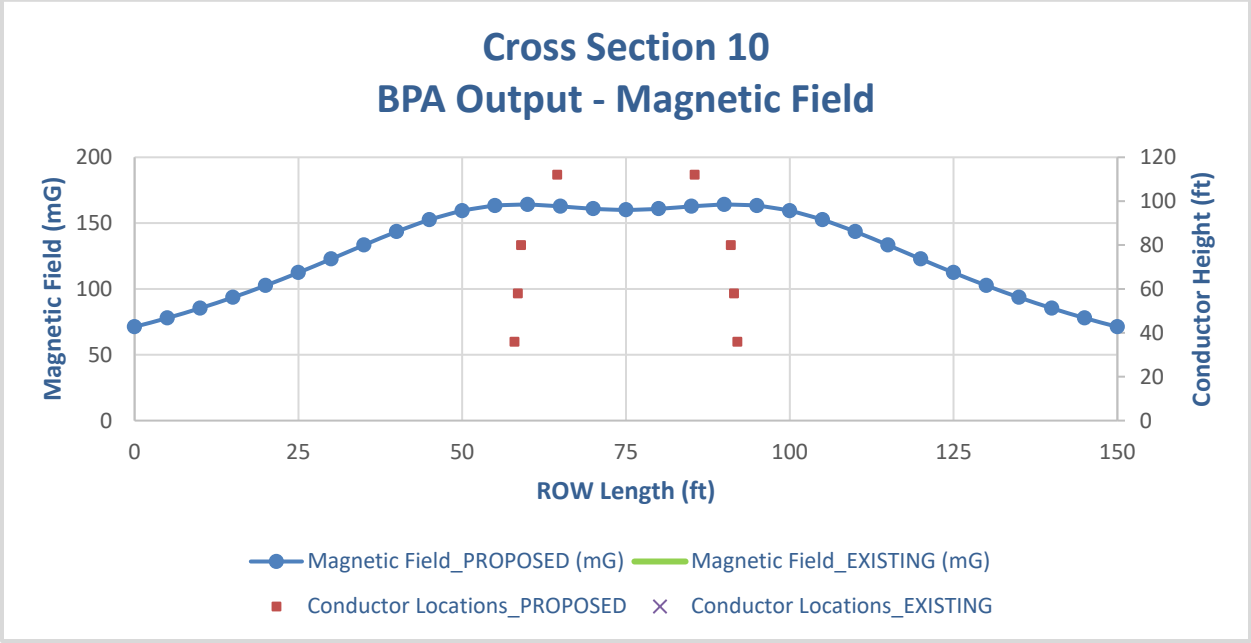


Figure 25 - PROPOSED CROSS SECTION 9 EMF RESULTS

Cross Section 10





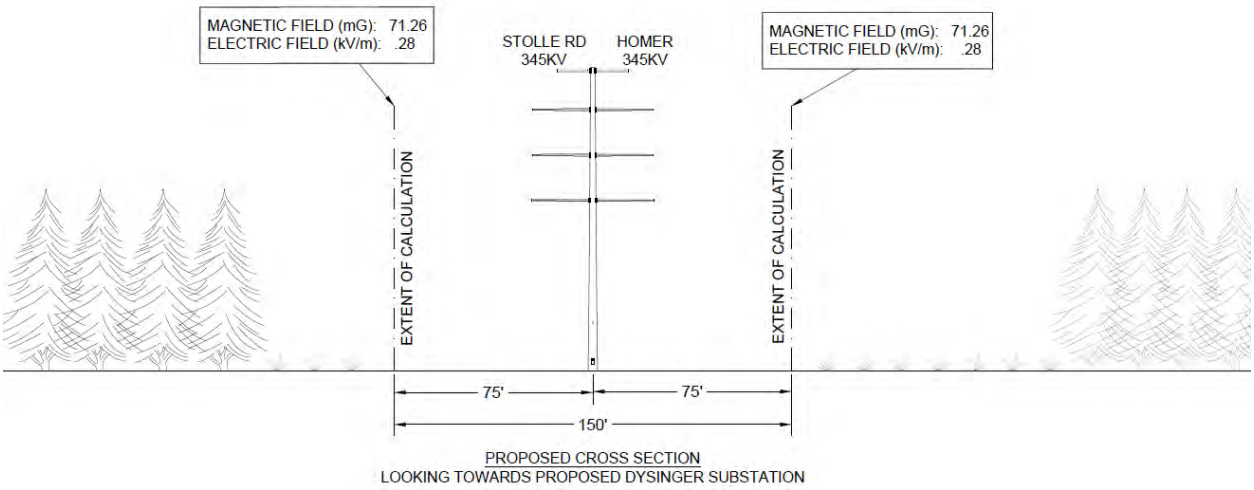
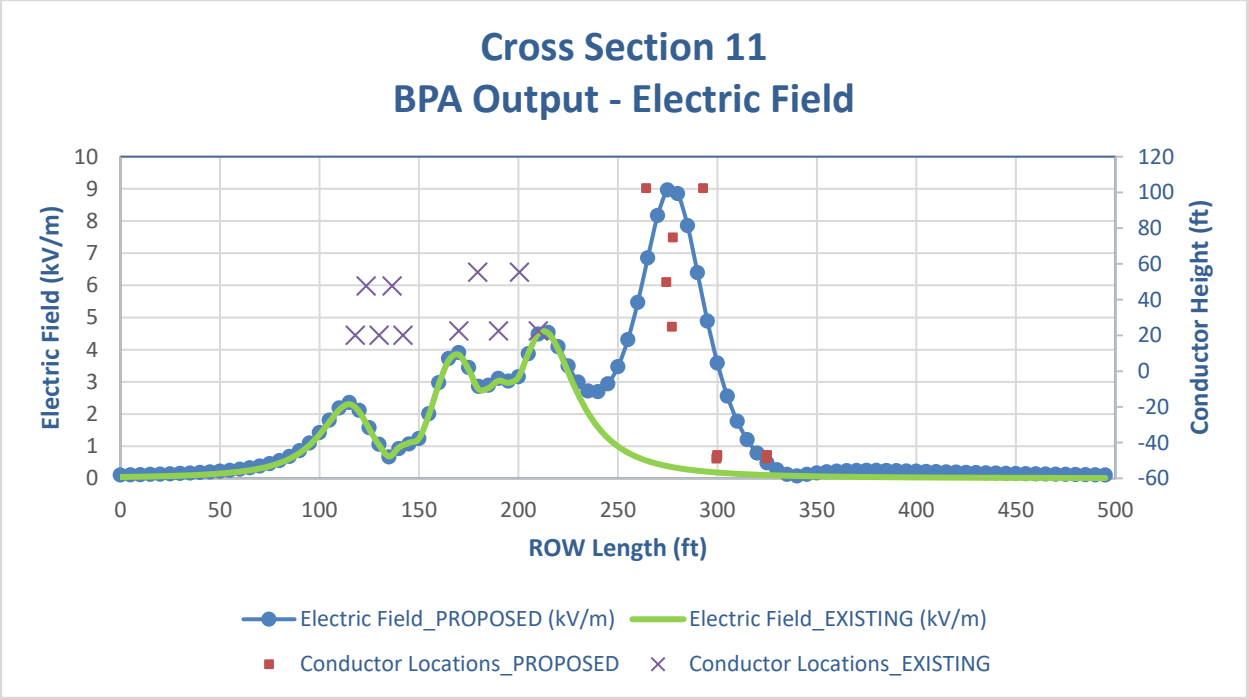
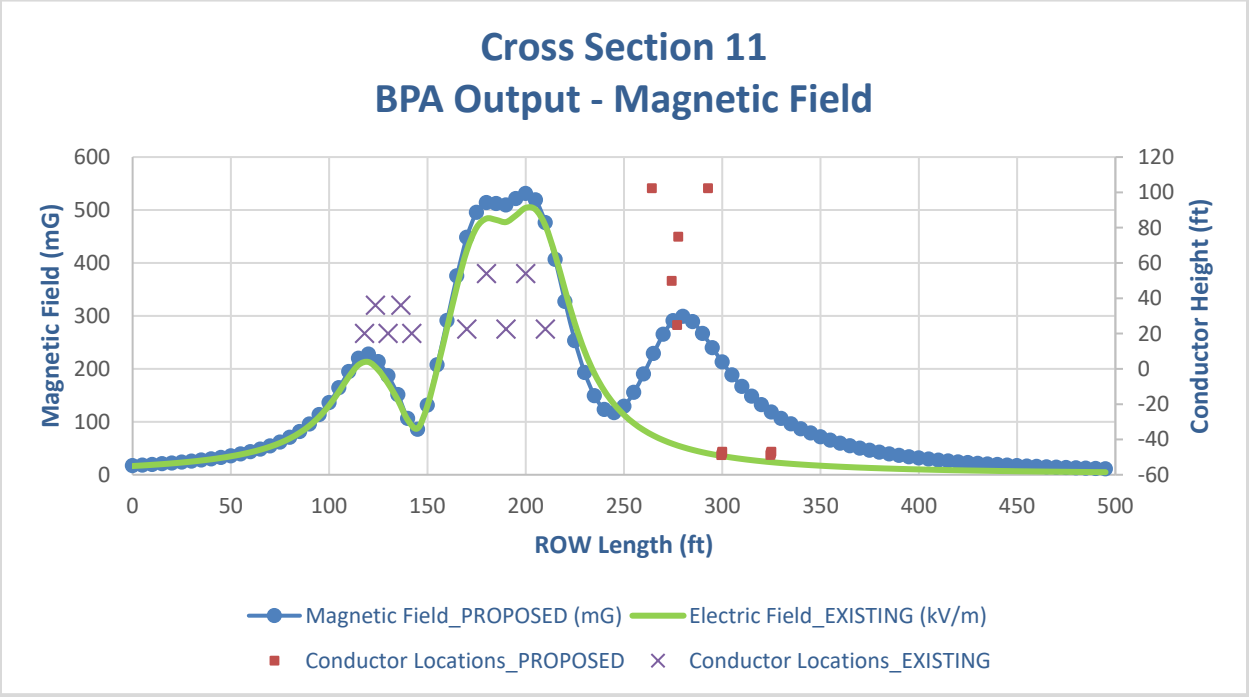


Figure 26 - PROPOSED CROSS SECTION 10 EMF RESULTS

Cross Section 11





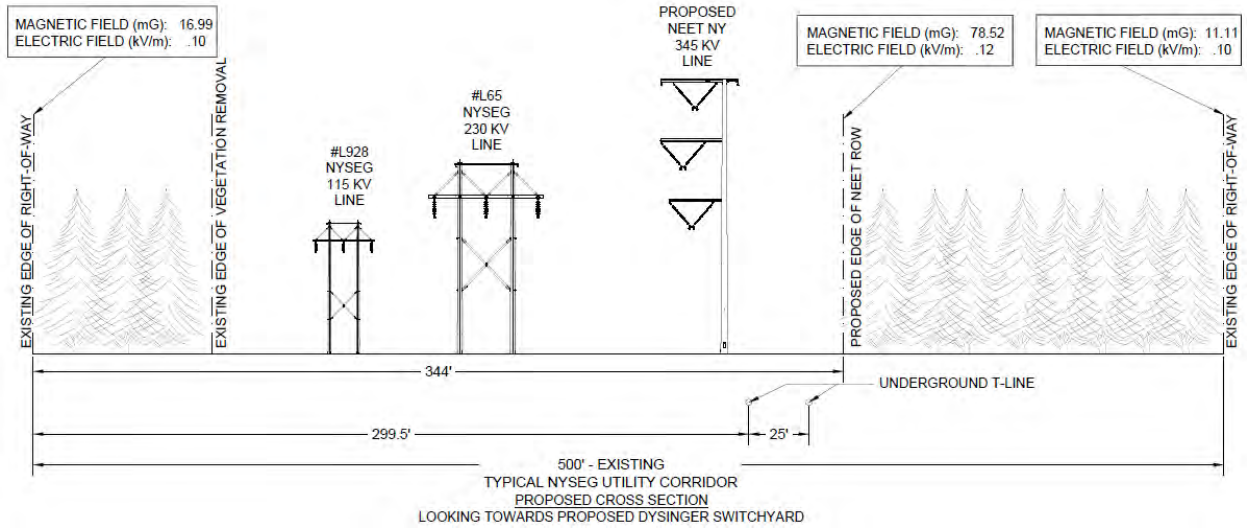


Figure 27 - PROPOSED CROSS SECTION 11 EMF RESULTS

5.0 REFERENCES

1. STATE OF NEW YORK PUBLIC SERVICE COMMISSION CASES 26529 and 26559 - Proceeding on Motion of the Commission as to Regulations Regarding Electric and Magnetic Field Standards for Transmission Lines – Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (Issued and Effective: September 11, 1990)

2. STATE OF NEW YORK PUBLIC SERVICE COMMISSION OPINION NO. 78-13 - Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions and Authorizing, in Case 26529, Operation Pursuant to those Conditions (Issued June 19, 1978)

3. New York Power Pool – Tie-Line Rating Task Force – Final Report on Tie-Line Rating (Approved November 1995)

4. EPRI AC Transmission Line Reference Book – 200 kV and Above, 2015 Edition (3002005659 Update November 2015)

5. S&L Empire State Line Conductor Rating Report Rev. A (S&L 13139-026-002, Dated 1/25/17)

6. S&L Empire State Line Design Criteria Rev. G (Dated 2/13/2020)

7. NYISO 2016 Load & Capacity Data, “Gold Book” (Released April 2016)

8. National Electrical Safety Code (NESC) - 2017 Edition (C2-2017)

6.0 ATTACHMENTS

1. Appendix A: EMF Study of Each Segment

Appendix A: EMF Study (ROW Segments 1-11)

ROW Segment -1

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    ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
    Û       C O R O N A   A N D   F I E L D      Û
    Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
    Û   Source: Bonneville Power Administration   Û
    ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                                  INPUT DATA LIST



                 3/ 5/2020          11:11:49
 CROSS SECTION 1,,,,,,,,,,
 VERTICAL MONOPOLE SINGLE CIRCUIT WITH 2 345KV NYPA LINES,,,,,,,,,,
 1,0, 9,15,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF 15 CONDUCTORS, OF WHICH  9 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'NEETNY-A','A',   50.10,  126.10, 2,   1.107,  18.000, 219.104,   0.000,   1.349,   0.000
 'NEETNY-B','A',   46.80,  101.10, 2,   1.107,  18.000, 219.104,-120.000,   1.349,   0.000
 'NEETNY-C','A',   49.60,   76.10, 2,   1.107,  18.000, 219.104, 120.000,   1.349,   0.000
 'DY-SS2-A','A',  282.50,   77.20, 2,   1.302,  18.000, 219.104,   0.000,   1.500,   0.000
 'DY-SS2-B','A',  282.50,   55.20, 2,   1.302,  18.000, 219.104,-120.000,   1.500,   0.000
 'DY-SS2-C','A',  282.50,   33.20, 2,   1.302,  18.000, 219.104, 120.000,   1.500,   0.000
 'DY-SS1-A','A',  347.50,   77.20, 2,   1.302,  18.000, 219.104,   0.000,   1.500,   0.000
 'DY-SS1-B','A',  347.50,   55.20, 2,   1.302,  18.000, 219.104,-120.000,   1.500,   0.000
 'DY-SS1-C','A',  347.50,   33.20, 2,   1.302,  18.000, 219.104, 120.000,   1.500,   0.000
 'NEETNY-1','A',   36.70,  143.80, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',   65.30,  143.80, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 'DY-SS2-S','A',  282.50,  108.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'DY-SS2-S','A',  282.50,  107.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'DY-SS1-S','A',  347.50,  108.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'DY-SS1-S','A',  347.50,  107.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 1,,,,,,,,,,
```

VERTICAL MONOPOLE SINGLE CIRCUIT WITH 2 345KV NYPA LINES,,,,,,,,,

	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
NEETNY-A	50.10	126.10	17.58	1.11	2	18.00	219.10	0.00	1.35	19.419
NEETNY-B	46.80	101.10	18.58	1.11	2	18.00	219.10	-120.00	1.35	27.817
NEETNY-C	49.60	76.10	17.22	1.11	2	18.00	219.10	120.00	1.35	16.982
DY-SS2-A	282.50	77.20	15.10	1.30	2	18.00	219.10	0.00	1.50	13.825
DY-SS2-B	282.50	55.20	16.73	1.30	2	18.00	219.10	-120.00	1.50	26.906
DY-SS2-C	282.50	33.20	15.99	1.30	2	18.00	219.10	120.00	1.50	20.046
DY-SS1-A	347.50	77.20	15.11	1.30	2	18.00	219.10	0.00	1.50	13.854
DY-SS1-B	347.50	55.20	16.73	1.30	2	18.00	219.10	-120.00	1.50	26.875
DY-SS1-C	347.50	33.20	15.99	1.30	2	18.00	219.10	120.00	1.50	20.061
NEETNY-1	36.70	143.80	9.64	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	65.30	143.80	7.29	0.53	1	0.00	0.00	0.00	0.00	0.000
DY-SS2-S	282.50	108.50	6.85	0.39	1	0.00	0.00	0.00	0.00	0.000
DY-SS2-S	282.50	107.50	7.24	0.39	1	0.00	0.00	0.00	0.00	0.000
DY-SS1-S	347.50	108.50	6.82	0.39	1	0.00	0.00	0.00	0.00	0.000
DY-SS1-S	347.50	107.50	7.21	0.39	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	48.6	23.6	64.0	47.0	21.3	0.000000	0.819	0.03203
5.0	48.7	23.7	64.3	47.3	21.5	0.000000	0.918	0.03292
10.0	48.8	23.8	64.6	47.6	21.6	0.000000	1.020	0.03373
15.0	48.9	23.9	64.8	47.8	21.8	0.000000	1.123	0.03441
20.0	49.0	24.0	65.0	48.0	21.9	0.000000	1.223	0.03495
25.0	49.1	24.1	65.2	48.2	22.1	0.000000	1.318	0.03532
30.0	49.1	24.1	65.4	48.4	22.1	0.000000	1.402	0.03549
35.0	49.2	24.2	65.5	48.5	22.2	0.000000	1.473	0.03544
40.0	49.2	24.2	65.6	48.6	22.3	0.000000	1.525	0.03515
45.0	49.3	24.3	65.6	48.6	22.3	0.000000	1.557	0.03461

50.0	49.3	24.3	65.6	48.6	22.3	0.000000	1.566	0.03384
55.0	49.3	24.3	65.6	48.6	22.3	0.001048	1.550	0.03284
60.0	49.3	24.3	65.5	48.5	22.2	0.125886	1.512	0.03166
65.0	49.3	24.3	65.3	48.3	22.1	0.441328	1.452	0.03031
70.0	49.3	24.3	65.2	48.2	22.0	0.724324	1.375	0.02885
75.0	49.3	24.3	65.0	48.0	21.9	0.914968	1.283	0.02733
80.0	49.3	24.3	64.7	47.7	21.8	1.023675	1.182	0.02580
85.0	49.3	24.3	64.5	47.5	21.6	1.074672	1.074	0.02430
90.0	49.2	24.2	64.2	47.2	21.4	1.088850	0.964	0.02289
95.0	49.2	24.2	63.9	46.9	21.2	1.080748	0.854	0.02161
100.0	49.2	24.2	63.6	46.6	21.0	1.059712	0.748	0.02050
105.0	49.2	24.2	63.2	46.2	20.8	1.031563	0.646	0.01959
110.0	49.1	24.1	62.9	45.9	20.6	0.999871	0.551	0.01893
115.0	49.1	24.1	62.5	45.5	20.4	0.966809	0.462	0.01853
120.0	49.1	24.1	62.2	45.2	20.1	0.933681	0.380	0.01839
125.0	49.1	24.1	61.8	44.8	19.9	0.901257	0.306	0.01854
130.0	49.1	24.1	61.4	44.4	19.7	0.869973	0.240	0.01894
135.0	49.1	24.1	61.1	44.1	19.4	0.840056	0.181	0.01960
140.0	49.1	24.1	60.7	43.7	19.2	0.811609	0.132	0.02049
145.0	49.1	24.1	60.4	43.4	19.0	0.784651	0.093	0.02160
150.0	49.1	24.1	60.0	43.0	18.7	0.759159	0.072	0.02292
155.0	49.1	24.1	59.6	42.6	18.5	0.735077	0.078	0.02443
160.0	49.1	24.1	59.3	42.3	18.3	0.712337	0.097	0.02613
165.0	49.2	24.2	58.9	41.9	18.0	0.690863	0.119	0.02803
170.0	49.2	24.2	58.6	41.6	17.8	0.670576	0.140	0.03013
175.0	49.2	24.2	58.3	41.3	17.6	0.651400	0.158	0.03245
180.0	49.3	24.3	58.0	41.0	17.9	0.633260	0.172	0.03500
185.0	49.4	24.4	57.6	40.6	18.2	0.616084	0.180	0.03782
190.0	49.5	24.5	57.3	40.3	18.6	0.599806	0.182	0.04093
195.0	49.5	24.5	57.0	40.0	19.0	0.584364	0.176	0.04436
200.0	49.6	24.6	57.5	40.5	19.4	0.569700	0.161	0.04817
205.0	49.7	24.7	58.2	41.2	19.8	0.555761	0.135	0.05239
210.0	49.9	24.9	58.9	41.9	20.2	0.542498	0.097	0.05710
215.0	50.0	25.0	59.7	42.7	20.6	0.529865	0.057	0.06234
220.0	50.1	25.1	60.4	43.4	21.1	0.517820	0.101	0.06820
225.0	50.3	25.3	61.2	44.2	21.6	0.506324	0.215	0.07476
230.0	50.4	25.4	62.0	45.0	22.0	0.495343	0.379	0.08208
235.0	50.6	25.6	62.8	45.8	22.5	0.484844	0.600	0.09025
240.0	50.8	25.8	63.7	46.7	23.0	0.474795	0.892	0.09932
245.0	51.0	26.0	64.5	47.5	23.6	0.465171	1.270	0.10930
250.0	51.2	26.2	65.3	48.3	24.4	0.455943	1.751	0.12011

255.0	51.4	26.4	66.0	49.0	25.3	0.447090	2.345	0.13150
260.0	51.6	26.6	67.1	50.1	26.3	0.438589	3.051	0.14294
265.0	51.8	26.8	68.7	51.7	27.2	0.430420	3.837	0.15350
270.0	52.0	27.0	70.0	53.0	28.0	0.422563	4.631	0.16174
275.0	52.2	27.2	71.1	54.1	28.7	0.415002	5.313	0.16586
280.0	52.3	27.3	71.6	54.6	29.1	0.407720	5.745	0.16411
285.0	52.4	27.4	71.6	54.6	29.1	0.407223	5.836	0.15567
290.0	52.4	27.4	71.1	54.1	28.7	1.284539	5.592	0.14114
295.0	52.4	27.4	70.0	53.0	28.0	1.869580	5.124	0.12248
300.0	52.3	27.3	68.7	51.7	27.2	2.009452	4.586	0.10236
305.0	52.3	27.3	67.1	50.1	26.3	1.964268	4.115	0.08381
310.0	52.3	27.3	66.0	49.0	25.3	1.861255	3.801	0.07039
315.0	52.2	27.2	65.3	48.3	24.4	1.747543	3.693	0.06527
320.0	52.2	27.2	66.0	49.0	25.3	1.639156	3.801	0.06959
325.0	52.3	27.3	67.1	50.1	26.3	1.540775	4.114	0.08260
330.0	52.3	27.3	68.7	51.7	27.2	1.453003	4.585	0.10136
335.0	52.3	27.3	70.0	53.0	28.0	1.375059	5.123	0.12225
340.0	52.3	27.3	71.1	54.1	28.7	1.305777	5.591	0.14205
345.0	52.3	27.3	71.7	54.7	29.1	1.243981	5.834	0.15794
350.0	52.2	27.2	71.7	54.7	29.1	1.195139	5.743	0.16778
355.0	52.1	27.1	71.1	54.1	28.7	2.029777	5.309	0.17080
360.0	51.9	26.9	70.0	53.0	28.0	2.575931	4.626	0.16773
365.0	51.6	26.6	68.7	51.7	27.2	2.681026	3.832	0.16026
370.0	51.4	26.4	67.1	50.1	26.3	2.604496	3.044	0.15022
375.0	51.2	26.2	66.0	49.0	25.3	2.473040	2.337	0.13911
380.0	50.9	25.9	65.3	48.3	24.4	2.333405	1.741	0.12789
385.0	50.7	25.7	64.5	47.5	23.6	2.201300	1.259	0.11714
390.0	50.4	25.4	63.6	46.6	23.0	2.081143	0.879	0.10714
395.0	50.2	25.2	62.8	45.8	22.5	1.973314	0.585	0.09800
400.0	50.0	25.0	62.0	45.0	22.0	1.876838	0.362	0.08973
405.0	49.7	24.7	61.2	44.2	21.5	1.790384	0.198	0.08228
410.0	49.5	24.5	60.4	43.4	21.1	1.712633	0.087	0.07560
415.0	49.3	24.3	59.6	42.6	20.6	1.642403	0.087	0.06961
420.0	49.1	24.1	58.9	41.9	20.2	1.578673	0.140	0.06424
425.0	48.9	23.9	58.2	41.2	19.8	1.520576	0.185	0.05942
430.0	48.8	23.8	57.5	40.5	19.4	1.467385	0.219	0.05508
435.0	48.6	23.6	56.8	39.8	19.0	1.418484	0.243	0.05118
440.0	48.4	23.4	56.2	39.2	18.6	1.373354	0.259	0.04766
445.0	48.2	23.2	55.6	38.6	18.2	1.331555	0.269	0.04447
450.0	48.1	23.1	55.0	38.0	17.9	1.292713	0.274	0.04158
455.0	47.9	22.9	54.4	37.4	17.5	1.256508	0.276	0.03895

460.0	47.8	22.8	53.9	36.9	17.2	1.222665	0.275	0.03657
465.0	47.6	22.6	53.4	36.4	16.8	1.190947	0.272	0.03438
470.0	47.5	22.5	52.9	35.9	16.5	1.161145	0.267	0.03239
475.0	47.4	22.4	52.4	35.4	16.2	1.133081	0.262	0.03056
480.0	47.2	22.2	52.0	35.0	15.9	1.106597	0.255	0.02888
485.0	47.1	22.1	51.5	34.5	15.6	1.081554	0.249	0.02734
490.0	47.0	22.0	51.1	34.1	15.3	1.057830	0.242	0.02592
495.0	46.9	21.9	50.7	33.7	15.1	1.035316	0.235	0.02460

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ROW Segment -2

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ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
Û       C O R O N A   A N D   F I E L D      Û
Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
Û   Source: Bonneville Power Administration   Û
ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                          INPUT DATA LIST


                 3/ 5/2020         11:14:00
 CROSS SECTION 2,,,,,,,,,,
 "VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65, 230KV",,,,,,,,,,
 1,0, 6,10,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF 10 CONDUCTORS, OF WHICH  6 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'L65-A   ','A',  170.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
 'L65-B   ','A',  190.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
 'L65-C   ','A',  210.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
 'NEETNY-A','A',  277.60,   90.70, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
 'NEETNY-B','A',  274.30,   65.70, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
 'NEETNY-C','A',  277.10,   40.70, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
 'NEETNY-1','A',  264.20,  110.80, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',  292.80,  110.80, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW1 ','A',  179.50,   57.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW2 ','A',  200.50,   57.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 2,,,,,,,,,,
 "VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65, 230KV",,,,,,,,,,



             DIST. FROM            MAXIMUM  SUBCON   NO. OF      SUBCON   VOLTAGE  PHASE    CURRENT  CORONA
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	CENTER OF TOWER (FEET)	HEIGHT (FEET)	GRADIENT (KV/CM)	DIAM. (IN)	SUBCON	SPACING (IN)	L-N (KV)	ANGLE (DEGREES)	LOSSES (kAmps)	LOSSES (KW/MI)
L65-A	170.00	22.50	13.91	1.30	1	0.00	139.40	0.00	1.69	3.284
L65-B	190.00	22.50	14.59	1.30	1	0.00	139.40	-120.00	1.69	4.486
L65-C	210.00	22.50	13.86	1.30	1	0.00	139.40	120.00	1.69	3.209
NEETNY-A	277.60	90.70	17.53	1.11	2	18.00	219.10	0.00	1.35	19.090
NEETNY-B	274.30	65.70	18.55	1.11	2	18.00	219.10	-120.00	1.35	27.626
NEETNY-C	277.10	40.70	17.53	1.11	2	18.00	219.10	120.00	1.35	19.133
NEETNY-1	264.20	110.80	8.89	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	292.80	110.80	6.68	0.53	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	179.50	57.30	1.67	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	200.50	57.30	0.92	0.39	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.4	18.4	47.8	30.8	12.5	0.000000	0.092	0.01054
5.0	43.5	18.5	48.0	31.0	12.6	0.000000	0.097	0.01109
10.0	43.6	18.6	48.2	31.2	12.8	0.000000	0.101	0.01169
15.0	43.7	18.7	48.4	31.4	13.0	0.000000	0.107	0.01234
20.0	43.8	18.8	48.6	31.6	13.1	0.000000	0.112	0.01305
25.0	43.9	18.9	48.8	31.8	13.3	0.000000	0.118	0.01382
30.0	44.0	19.0	49.0	32.0	13.5	0.000000	0.125	0.01467
35.0	44.1	19.1	49.2	32.2	13.6	0.000000	0.132	0.01560
40.0	44.2	19.2	49.4	32.4	13.8	0.000000	0.140	0.01663
45.0	44.3	19.3	49.6	32.6	14.0	0.000000	0.149	0.01777
50.0	44.4	19.4	49.9	32.9	14.2	0.000000	0.159	0.01904
55.0	44.5	19.5	50.1	33.1	14.3	0.000000	0.171	0.02046
60.0	44.7	19.7	50.4	33.4	14.5	0.000000	0.184	0.02204
65.0	44.8	19.8	50.6	33.6	14.7	0.000000	0.198	0.02383
70.0	44.9	19.9	50.9	33.9	14.9	0.000000	0.215	0.02586
75.0	45.1	20.1	51.2	34.2	15.1	0.000000	0.235	0.02816
80.0	45.2	20.2	51.4	34.4	15.3	0.000000	0.257	0.03080
85.0	45.3	20.3	51.7	34.7	15.5	0.000000	0.284	0.03383
90.0	45.5	20.5	52.0	35.0	15.7	0.000000	0.316	0.03735
95.0	45.6	20.6	52.3	35.3	16.0	0.000000	0.354	0.04146

100.0	45.8	20.8	52.6	35.6	16.2	0.000000	0.400	0.04630
105.0	46.0	21.0	53.0	36.0	16.4	0.000000	0.456	0.05204
110.0	46.1	21.1	53.3	36.3	16.6	0.000000	0.526	0.05893
115.0	46.3	21.3	53.6	36.6	16.9	0.000000	0.615	0.06726
120.0	46.5	21.5	54.0	37.0	17.1	0.000000	0.727	0.07746
125.0	46.7	21.7	54.4	37.4	17.4	0.000000	0.873	0.09009
130.0	46.9	21.9	54.7	37.7	17.6	0.000000	1.062	0.10594
135.0	47.2	22.2	55.1	38.1	17.9	0.000000	1.313	0.12610
140.0	47.4	22.4	56.9	39.9	19.0	0.000000	1.645	0.15203
145.0	47.7	22.7	59.2	42.2	20.3	0.000000	2.084	0.18571
150.0	48.0	23.0	61.8	44.8	21.7	0.000000	2.648	0.22950
155.0	48.3	23.3	64.4	47.4	23.3	0.000000	3.328	0.28552
160.0	48.7	23.7	67.0	50.0	25.0	0.000000	4.030	0.35354
165.0	49.0	24.0	69.1	52.1	26.5	0.000000	4.519	0.42710
170.0	49.3	24.3	69.9	52.9	27.1	0.000000	4.486	0.49137
175.0	49.6	24.6	69.1	52.1	26.5	0.337378	3.858	0.53104
180.0	49.8	24.8	69.5	52.5	27.5	0.350934	3.108	0.54270
185.0	50.0	25.0	71.6	54.6	29.0	0.284569	2.967	0.53582
190.0	50.1	25.1	72.4	55.4	29.6	0.234486	3.100	0.52993
195.0	50.2	25.2	71.6	54.6	29.0	0.706061	3.003	0.53859
200.0	50.2	25.2	69.5	52.5	27.5	0.700233	3.191	0.54555
205.0	50.2	25.2	68.9	51.9	26.3	0.580504	3.984	0.53174
210.0	50.2	25.2	69.7	52.7	27.0	0.489541	4.668	0.48831
215.0	50.2	25.2	68.9	51.9	26.3	0.750529	4.782	0.41950
220.0	50.2	25.2	66.9	49.9	24.9	0.713891	4.408	0.34176
225.0	50.2	25.2	65.0	48.0	24.0	0.610831	3.863	0.27084
230.0	50.2	25.2	65.6	48.6	24.4	0.531313	3.390	0.21399
235.0	50.3	25.3	66.2	49.2	24.7	0.471365	3.088	0.17220
240.0	50.4	25.4	66.8	49.8	25.1	0.424797	2.970	0.14426
245.0	50.5	25.5	67.4	50.4	25.5	0.387510	3.017	0.12841
250.0	50.6	25.6	67.9	50.9	26.2	0.356896	3.196	0.12248
255.0	50.7	25.7	68.4	51.4	26.9	0.331246	3.471	0.12379
260.0	50.8	25.8	69.4	52.4	27.5	0.309395	3.796	0.12947
265.0	50.9	25.9	70.2	53.2	28.1	0.290524	4.115	0.13687
270.0	51.0	26.0	70.9	53.9	28.5	0.274039	4.359	0.14380
275.0	51.0	26.0	71.2	54.2	28.7	0.259497	4.470	0.14862
280.0	51.0	26.0	71.2	54.2	28.7	0.255921	4.408	0.15036
285.0	50.9	25.9	70.8	53.8	28.4	1.074044	4.174	0.14872
290.0	50.8	25.8	70.1	53.1	28.0	1.682691	3.800	0.14404
295.0	50.6	25.6	69.2	52.2	27.4	1.907670	3.340	0.13707
300.0	50.4	25.4	68.1	51.1	26.8	1.950161	2.851	0.12864

305.0	50.2	25.2	67.3	50.3	26.1	1.904937	2.374	0.11952
310.0	50.0	25.0	66.7	49.7	25.4	1.823039	1.939	0.11029
315.0	49.7	24.7	66.1	49.1	24.7	1.729468	1.557	0.10133
320.0	49.5	24.5	65.4	48.4	24.3	1.635676	1.232	0.09286
325.0	49.3	24.3	64.8	47.8	23.9	1.546567	0.962	0.08502
330.0	49.1	24.1	64.1	47.1	23.5	1.463957	0.740	0.07783
335.0	48.8	23.8	63.5	46.5	23.1	1.388236	0.560	0.07129
340.0	48.6	23.6	62.8	45.8	22.7	1.319155	0.415	0.06537
345.0	48.4	23.4	62.2	45.2	22.3	1.256209	0.299	0.06003
350.0	48.2	23.2	61.6	44.6	22.0	1.198811	0.208	0.05521
355.0	48.0	23.0	60.9	43.9	21.6	1.146376	0.135	0.05086
360.0	47.8	22.8	60.4	43.4	21.2	1.098364	0.080	0.04695
365.0	47.6	22.6	59.8	42.8	20.9	1.054285	0.040	0.04342
370.0	47.4	22.4	59.2	42.2	20.5	1.013706	0.030	0.04022
375.0	47.2	22.2	58.7	41.7	20.2	0.976245	0.049	0.03734
380.0	47.1	22.1	58.2	41.2	19.9	0.941569	0.067	0.03472
385.0	46.9	21.9	57.7	40.7	19.6	0.909386	0.082	0.03235
390.0	46.7	21.7	57.2	40.2	19.3	0.879443	0.093	0.03019
395.0	46.6	21.6	56.7	39.7	19.0	0.851517	0.102	0.02823
400.0	46.4	21.4	56.3	39.3	18.7	0.825411	0.108	0.02644
405.0	46.2	21.2	55.8	38.8	18.4	0.800954	0.112	0.02480
410.0	46.1	21.1	55.4	38.4	18.1	0.777996	0.115	0.02330
415.0	45.9	20.9	55.0	38.0	17.8	0.756401	0.116	0.02193
420.0	45.8	20.8	54.6	37.6	17.6	0.736051	0.117	0.02067
425.0	45.7	20.7	54.3	37.3	17.3	0.716842	0.116	0.01951
430.0	45.5	20.5	53.9	36.9	17.1	0.698678	0.115	0.01843
435.0	45.4	20.4	53.5	36.5	16.8	0.681477	0.114	0.01745
440.0	45.3	20.3	53.2	36.2	16.6	0.665161	0.112	0.01653
445.0	45.1	20.1	52.9	35.9	16.3	0.649665	0.110	0.01568
450.0	45.0	20.0	52.5	35.5	16.1	0.634926	0.108	0.01490
455.0	44.9	19.9	52.2	35.2	15.9	0.620891	0.105	0.01417
460.0	44.8	19.8	51.9	34.9	15.7	0.607508	0.103	0.01349
465.0	44.6	19.6	51.6	34.6	15.5	0.594732	0.100	0.01285
470.0	44.5	19.5	51.4	34.4	15.3	0.582523	0.097	0.01226
475.0	44.4	19.4	51.1	34.1	15.1	0.570843	0.095	0.01171
480.0	44.3	19.3	50.8	33.8	14.9	0.559657	0.092	0.01119
485.0	44.2	19.2	50.6	33.6	14.7	0.548935	0.090	0.01071
490.0	44.1	19.1	50.3	33.3	14.5	0.538647	0.087	0.01025
495.0	44.0	19.0	50.1	33.1	14.3	0.528767	0.085	0.00983

1

ROW Segment -3

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ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
Û       C O R O N A   A N D   F I E L D      Û
Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
Û   Source: Bonneville Power Administration   Û
ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                            INPUT DATA LIST


                 3/ 5/2020         11:14:45
 CROSS SECTION 3,,,,,,,,,,
 VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV,,,,,,,,,,
 1,0, 6,10,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF 10 CONDUCTORS, OF WHICH  6 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'L65-A   ','A',  170.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
 'L65-B   ','A',  190.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
 'L65-C   ','A',  210.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
 'NEETNY-A','A',  277.60,   74.80, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
 'NEETNY-B','A',  274.30,   49.80, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
 'NEETNY-C','A',  277.10,   24.80, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
 'L65-SW1 ','A',  179.50,   56.80, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW2 ','A',  200.50,   56.80, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-1','A',  264.20,  103.90, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',  292.80,  103.90, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 3,,,,,,,,,,
 VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV,,,,,,,,,,



             DIST. FROM            MAXIMUM  SUBCON   NO. OF      SUBCON   VOLTAGE  PHASE    CURRENT  CORONA
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	CENTER OF TOWER (FEET)	HEIGHT (FEET)	GRADIENT (KV/CM)	DIAM. (IN)	SUBCON	SPACING (IN)	L-N (KV)	ANGLE (DEGREES)	LOSSES (kAmps)	LOSSES (KW/MI)
L65-A	170.00	22.50	13.87	1.30	1	0.00	139.40	0.00	1.69	3.230
L65-B	190.00	22.50	14.57	1.30	1	0.00	139.40	-120.00	1.69	4.455
L65-C	210.00	22.50	14.07	1.30	1	0.00	139.40	120.00	1.69	3.537
NEETNY-A	277.60	74.80	17.24	1.11	2	18.00	219.10	0.00	1.35	17.135
NEETNY-B	274.30	49.80	18.53	1.11	2	18.00	219.10	-120.00	1.35	27.367
NEETNY-C	277.10	24.80	18.26	1.11	2	18.00	219.10	120.00	1.35	24.877
L65-SW1	179.50	56.80	2.04	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	200.50	56.80	0.80	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	264.20	103.90	7.36	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	292.80	103.90	5.66	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.8	18.8	45.4	28.4	12.5	0.000000	0.097	0.01107
5.0	43.9	18.9	45.6	28.6	12.7	0.000000	0.101	0.01165
10.0	44.0	19.0	45.8	28.8	12.8	0.000000	0.106	0.01228
15.0	44.1	19.1	46.0	29.0	13.0	0.000000	0.112	0.01296
20.0	44.2	19.2	46.2	29.2	13.1	0.000000	0.117	0.01370
25.0	44.3	19.3	46.4	29.4	13.3	0.000000	0.124	0.01451
30.0	44.4	19.4	46.6	29.6	13.5	0.000000	0.131	0.01540
35.0	44.5	19.5	46.9	29.9	13.7	0.000000	0.139	0.01638
40.0	44.6	19.6	47.1	30.1	13.8	0.000000	0.147	0.01746
45.0	44.7	19.7	47.3	30.3	14.0	0.000000	0.157	0.01865
50.0	44.9	19.9	47.6	30.6	14.2	0.000000	0.168	0.01997
55.0	45.0	20.0	47.8	30.8	14.4	0.000000	0.180	0.02144
60.0	45.1	20.1	48.1	31.1	14.6	0.000000	0.193	0.02309
65.0	45.2	20.2	48.3	31.3	14.8	0.000000	0.209	0.02495
70.0	45.4	20.4	48.6	31.6	15.0	0.000000	0.226	0.02705
75.0	45.5	20.5	48.9	31.9	15.2	0.000000	0.247	0.02943
80.0	45.6	20.6	49.2	32.2	15.4	0.000000	0.271	0.03215
85.0	45.8	20.8	49.5	32.5	15.6	0.000000	0.298	0.03528
90.0	45.9	20.9	49.8	32.8	15.8	0.000000	0.331	0.03891
95.0	46.1	21.1	50.1	33.1	16.1	0.000000	0.370	0.04313

100.0	46.3	21.3	50.5	33.5	16.3	0.000000	0.418	0.04809
105.0	46.4	21.4	50.8	33.8	16.6	0.000000	0.476	0.05397
110.0	46.6	21.6	51.1	34.1	16.8	0.000000	0.548	0.06100
115.0	46.8	21.8	51.5	34.5	17.0	0.000000	0.638	0.06950
120.0	47.0	22.0	51.9	34.9	17.3	0.000000	0.752	0.07988
125.0	47.2	22.2	52.3	35.3	17.6	0.000000	0.899	0.09273
130.0	47.4	22.4	52.8	35.8	17.9	0.000000	1.091	0.10882
135.0	47.6	22.6	54.7	37.7	18.1	0.000000	1.344	0.12924
140.0	47.9	22.9	56.8	39.8	18.8	0.000000	1.678	0.15549
145.0	48.2	23.2	59.1	42.1	20.1	0.000000	2.118	0.18952
150.0	48.5	23.5	61.6	44.6	21.6	0.000000	2.684	0.23370
155.0	48.8	23.8	64.3	47.3	23.2	0.000000	3.366	0.29011
160.0	49.1	24.1	66.9	49.9	24.9	0.000000	4.070	0.35847
165.0	49.5	24.5	69.0	52.0	26.4	0.000000	4.562	0.43212
170.0	49.8	24.8	69.8	52.8	27.0	0.000000	4.534	0.49608
175.0	50.0	25.0	69.0	52.0	26.4	0.330067	3.915	0.53493
180.0	50.3	25.3	69.5	52.5	27.5	0.343329	3.172	0.54538
185.0	50.5	25.5	71.6	54.6	29.0	0.278402	3.019	0.53723
190.0	50.7	25.7	72.4	55.4	29.6	0.229404	3.126	0.53034
195.0	50.8	25.8	71.6	54.6	29.0	0.697195	2.982	0.53764
200.0	50.9	25.9	69.5	52.5	27.5	0.691752	3.083	0.54195
205.0	51.0	26.0	69.7	52.7	27.1	0.573351	3.804	0.52438
210.0	51.0	26.0	70.5	53.5	27.7	0.483405	4.429	0.47645
215.0	51.1	26.1	69.7	52.7	27.1	0.789688	4.484	0.40293
220.0	51.2	26.2	67.6	50.6	25.6	0.755419	4.050	0.32063
225.0	51.3	26.3	65.0	48.0	25.9	0.644055	3.455	0.24545
230.0	51.4	26.4	66.0	49.0	26.7	0.558297	2.959	0.18495
235.0	51.6	26.6	66.9	49.9	27.6	0.493947	2.682	0.14154
240.0	51.9	26.9	67.8	50.8	28.5	0.444178	2.663	0.11689
245.0	52.1	27.1	68.7	51.7	29.6	0.404481	2.911	0.11209
250.0	52.5	27.5	69.8	52.8	30.8	0.371993	3.444	0.12513
255.0	52.8	27.8	72.0	55.0	32.1	0.344846	4.290	0.15120
260.0	53.2	28.2	74.4	57.4	33.5	0.321775	5.453	0.18529
265.0	53.5	28.5	76.7	59.7	34.9	0.301890	6.835	0.22272
270.0	53.8	28.8	78.6	61.6	36.2	0.284549	8.156	0.25750
275.0	54.0	29.0	79.7	62.7	37.0	0.269274	8.952	0.28154
280.0	53.9	28.9	79.6	62.6	36.9	0.786205	8.840	0.28805
285.0	53.7	28.7	78.3	61.3	36.0	2.826095	7.848	0.27673
290.0	53.3	28.3	76.3	59.3	34.7	2.959150	6.383	0.25369
295.0	52.9	27.9	74.0	57.0	33.2	2.821598	4.879	0.22618
300.0	52.5	27.5	71.7	54.7	31.8	2.615560	3.576	0.19899

305.0	52.1	27.1	69.5	52.5	30.6	2.404773	2.544	0.17433
310.0	51.7	26.7	67.6	50.6	29.4	2.211619	1.764	0.15282
315.0	51.3	26.3	66.6	49.6	28.4	2.041286	1.189	0.13436
320.0	51.0	26.0	65.7	48.7	27.4	1.892872	0.771	0.11861
325.0	50.6	25.6	64.8	47.8	26.6	1.763708	0.470	0.10518
330.0	50.3	25.3	63.9	46.9	25.8	1.650904	0.257	0.09368
335.0	50.0	25.0	63.0	46.0	25.1	1.551856	0.115	0.08381
340.0	49.7	24.7	62.1	45.1	24.4	1.464359	0.077	0.07529
345.0	49.4	24.4	61.3	44.3	23.8	1.386593	0.129	0.06791
350.0	49.2	24.2	60.5	43.5	23.2	1.317063	0.175	0.06149
355.0	48.9	23.9	59.8	42.8	22.6	1.254551	0.208	0.05588
360.0	48.7	23.7	59.1	42.1	22.1	1.198055	0.230	0.05095
365.0	48.4	23.4	58.4	41.4	21.6	1.146750	0.243	0.04661
370.0	48.2	23.2	57.7	40.7	21.1	1.099950	0.249	0.04277
375.0	48.0	23.0	57.1	40.1	20.7	1.057083	0.251	0.03937
380.0	47.8	22.8	56.5	39.5	20.3	1.017670	0.250	0.03633
385.0	47.6	22.6	56.0	39.0	19.9	0.981304	0.246	0.03362
390.0	47.4	22.4	55.4	38.4	19.6	0.947641	0.240	0.03118
395.0	47.2	22.2	54.9	37.9	19.3	0.916386	0.233	0.02899
400.0	47.1	22.1	54.4	37.4	19.0	0.887284	0.226	0.02702
405.0	46.9	21.9	53.9	36.9	18.6	0.860118	0.218	0.02523
410.0	46.7	21.7	53.5	36.5	18.3	0.834695	0.210	0.02361
415.0	46.6	21.6	53.0	36.0	18.1	0.810851	0.202	0.02214
420.0	46.4	21.4	52.6	35.6	17.8	0.788439	0.194	0.02080
425.0	46.2	21.2	52.2	35.2	17.5	0.767332	0.186	0.01957
430.0	46.1	21.1	51.8	34.8	17.2	0.747416	0.178	0.01844
435.0	46.0	21.0	51.4	34.4	17.0	0.728592	0.171	0.01741
440.0	45.8	20.8	51.0	34.0	16.7	0.710768	0.164	0.01646
445.0	45.7	20.7	50.7	33.7	16.5	0.693867	0.157	0.01559
450.0	45.5	20.5	50.4	33.4	16.2	0.677816	0.151	0.01478
455.0	45.4	20.4	50.0	33.0	16.0	0.662551	0.144	0.01403
460.0	45.3	20.3	49.7	32.7	15.8	0.648015	0.139	0.01334
465.0	45.2	20.2	49.4	32.4	15.6	0.634156	0.133	0.01269
470.0	45.0	20.0	49.1	32.1	15.4	0.620925	0.128	0.01209
475.0	44.9	19.9	48.8	31.8	15.1	0.608280	0.123	0.01154
480.0	44.8	19.8	48.5	31.5	14.9	0.596182	0.118	0.01101
485.0	44.7	19.7	48.3	31.3	14.7	0.584596	0.113	0.01053
490.0	44.6	19.6	48.0	31.0	14.5	0.573488	0.109	0.01007
495.0	44.5	19.5	47.8	30.8	14.3	0.562829	0.105	0.00965

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ROW Segment -4

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    ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
    Û       C O R O N A   A N D   F I E L D      Û
    Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
    Û   Source: Bonneville Power Administration   Û
    ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                                INPUT DATA LIST



                 3/ 5/2020         11:15:44
 CROSS SECTIONS 4,,,,,,,,,,
 "VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV",,,,,,,,,,
 1,0, 9,15,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF 15 CONDUCTORS, OF WHICH  9 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'L928-A  ','A',  118.00,   20.10, 1,   1.170,   0.000,  69.700,   0.000,   0.732,   0.000
 'L928-B  ','A',  130.00,   20.10, 1,   1.170,   0.000,  69.700,-120.000,   0.732,   0.000
 'L928-C  ','A',  142.00,   20.10, 1,   1.170,   0.000,  69.700, 120.000,   0.732,   0.000
 'L65-A   ','A',  170.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
 'L65-B   ','A',  190.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
 'L65-C   ','A',  210.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
 'NEETNY-A','A',  277.60,   74.80, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
 'NEETNY-B','A',  274.30,   49.80, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
 'NEETNY-C','A',  277.10,   24.80, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
 'L928-SW1','A',  123.50,   47.60, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L928-SW2','A',  136.50,   47.60, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW1 ','A',  179.50,   55.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW2 ','A',  200.50,   55.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-1','A',  264.20,  102.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',  292.80,  102.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTIONS 4 & 5,,,,,,,,,,
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"VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV",,,,,,,,,,

	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
L928-A	118.00	20.10	8.01	1.17	1	0.00	69.70	0.00	0.73	0.060
L928-B	130.00	20.10	8.81	1.17	1	0.00	69.70	-120.00	0.73	0.110
L928-C	142.00	20.10	8.71	1.17	1	0.00	69.70	120.00	0.73	0.102
L65-A	170.00	22.50	14.18	1.30	1	0.00	139.40	0.00	1.69	3.720
L65-B	190.00	22.50	14.59	1.30	1	0.00	139.40	-120.00	1.69	4.480
L65-C	210.00	22.50	14.03	1.30	1	0.00	139.40	120.00	1.69	3.475
NEETNY-A	277.60	74.80	17.28	1.11	2	18.00	219.10	0.00	1.35	17.424
NEETNY-B	274.30	49.80	18.52	1.11	2	18.00	219.10	-120.00	1.35	27.329
NEETNY-C	277.10	24.80	18.25	1.11	2	18.00	219.10	120.00	1.35	24.819
L928-SW1	123.50	47.60	1.41	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW2	136.50	47.60	1.23	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	179.50	55.30	1.51	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	200.50	55.30	0.79	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	264.20	102.30	7.53	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	292.80	102.30	5.81	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.9	18.9	45.4	28.4	12.5	0.000000	0.100	0.01665
5.0	44.0	19.0	45.6	28.6	12.6	0.000000	0.106	0.01770
10.0	44.1	19.1	45.8	28.8	12.8	0.000000	0.112	0.01886
15.0	44.2	19.2	46.0	29.0	13.0	0.000000	0.120	0.02015
20.0	44.3	19.3	46.2	29.2	13.1	0.000000	0.128	0.02158
25.0	44.4	19.4	46.4	29.4	13.3	0.000000	0.138	0.02318
30.0	44.5	19.5	46.6	29.6	13.5	0.000000	0.150	0.02499
35.0	44.6	19.6	46.9	29.9	13.6	0.000000	0.163	0.02702
40.0	44.7	19.7	47.1	30.1	13.8	0.000000	0.179	0.02934
45.0	44.8	19.8	47.3	30.3	14.0	0.000000	0.197	0.03200

50.0	44.9	19.9	47.6	30.6	14.2	0.000000	0.220	0.03506
55.0	45.1	20.1	47.8	30.8	14.4	0.000000	0.247	0.03862
60.0	45.2	20.2	48.1	31.1	14.6	0.000000	0.282	0.04279
65.0	45.3	20.3	48.3	31.3	14.8	0.000000	0.325	0.04775
70.0	45.5	20.5	48.6	31.6	15.0	0.000000	0.380	0.05369
75.0	45.6	20.6	48.9	31.9	15.2	0.000000	0.453	0.06091
80.0	45.7	20.7	49.2	32.2	15.4	0.000000	0.549	0.06979
85.0	45.9	20.9	49.5	32.5	15.6	0.000000	0.679	0.08088
90.0	46.0	21.0	49.8	32.8	15.8	0.000000	0.856	0.09489
95.0	46.2	21.2	50.1	33.1	16.1	0.000000	1.097	0.11277
100.0	46.4	21.4	50.4	33.4	16.3	0.000000	1.417	0.13548
105.0	46.5	21.5	50.8	33.8	16.5	0.000000	1.805	0.16332
110.0	46.7	21.7	51.1	34.1	16.8	0.000000	2.183	0.19390
115.0	46.9	21.9	51.5	34.5	17.0	0.000000	2.352	0.21908
120.0	47.1	22.1	51.9	34.9	17.3	0.001334	2.112	0.22663
125.0	47.3	22.3	52.3	35.3	17.6	0.010068	1.571	0.21251
130.0	47.5	22.5	53.9	36.9	17.8	0.008096	1.055	0.18589
135.0	47.8	22.8	55.8	38.8	18.8	0.028301	0.661	0.15026
140.0	48.1	23.1	57.9	40.9	20.0	0.025277	0.920	0.10498
145.0	48.3	23.3	60.2	43.2	21.3	0.031353	1.064	0.08461
150.0	48.7	23.7	62.8	45.8	22.7	0.036552	1.237	0.13014
155.0	49.0	24.0	65.4	48.4	24.3	0.029964	2.008	0.20608
160.0	49.3	24.3	68.0	51.0	26.0	0.025075	2.973	0.28967
165.0	49.7	24.7	70.1	53.1	27.5	0.021592	3.724	0.37391
170.0	50.0	25.0	70.9	53.9	28.1	0.019009	3.904	0.44658
175.0	50.2	25.2	70.1	53.1	27.5	0.414042	3.444	0.49388
180.0	50.4	25.4	69.5	52.5	27.5	0.428407	2.857	0.51223
185.0	50.6	25.6	71.6	54.6	29.0	0.349014	2.889	0.51019
190.0	50.8	25.8	72.4	55.4	29.6	0.288996	3.105	0.50738
195.0	50.9	25.9	71.6	54.6	29.0	0.752525	3.023	0.51914
200.0	51.0	26.0	69.5	52.5	27.5	0.741245	3.157	0.52872
205.0	51.0	26.0	69.6	52.6	27.0	0.617468	3.872	0.51649
210.0	51.1	26.1	70.4	53.4	27.6	0.523259	4.485	0.47345
215.0	51.1	26.1	69.6	52.6	27.0	0.817581	4.531	0.40374
220.0	51.2	26.2	67.5	50.5	25.5	0.780146	4.090	0.32382
225.0	51.3	26.3	65.0	48.0	25.9	0.668089	3.491	0.24972
230.0	51.5	26.5	65.9	48.9	26.7	0.581573	2.992	0.18927
235.0	51.6	26.6	66.9	49.9	27.6	0.516373	2.713	0.14505
240.0	51.9	26.9	67.8	50.8	28.5	0.465735	2.691	0.11883
245.0	52.2	27.2	68.7	51.7	29.6	0.425188	2.936	0.11218
250.0	52.5	27.5	69.8	52.8	30.8	0.391891	3.466	0.12386

255.0	52.8	27.8	72.0	55.0	32.0	0.363981	4.309	0.14950
260.0	53.2	28.2	74.4	57.4	33.4	0.340195	5.469	0.18385
265.0	53.5	28.5	76.6	59.6	34.9	0.319643	6.849	0.22199
270.0	53.8	28.8	78.6	61.6	36.2	0.301680	8.168	0.25773
275.0	54.0	29.0	79.7	62.7	37.0	0.285825	8.962	0.28281
280.0	53.9	28.9	79.6	62.6	36.9	0.800741	8.849	0.29024
285.0	53.7	28.7	78.3	61.3	36.0	2.834914	7.856	0.27958
290.0	53.4	28.4	76.3	59.3	34.6	2.970649	6.392	0.25690
295.0	52.9	27.9	74.0	57.0	33.2	2.836515	4.888	0.22951
300.0	52.5	27.5	71.6	54.6	31.8	2.632281	3.585	0.20230
305.0	52.1	27.1	69.4	52.4	30.6	2.422169	2.554	0.17753
310.0	51.7	26.7	67.6	50.6	29.4	2.229096	1.774	0.15586
315.0	51.3	26.3	66.6	49.6	28.4	2.058551	1.200	0.13723
320.0	51.0	26.0	65.7	48.7	27.4	1.909786	0.782	0.12131
325.0	50.6	25.6	64.8	47.8	26.6	1.780210	0.481	0.10770
330.0	50.3	25.3	63.9	46.9	25.8	1.666974	0.267	0.09604
335.0	50.0	25.0	63.0	46.0	25.0	1.567494	0.123	0.08601
340.0	49.7	24.7	62.1	45.1	24.4	1.479575	0.072	0.07735
345.0	49.5	24.5	61.3	44.3	23.7	1.401402	0.121	0.06984
350.0	49.2	24.2	60.5	43.5	23.1	1.331485	0.167	0.06330
355.0	48.9	23.9	59.8	42.8	22.6	1.268604	0.200	0.05758
360.0	48.7	23.7	59.1	42.1	22.1	1.211757	0.222	0.05255
365.0	48.5	23.5	58.4	41.4	21.6	1.160119	0.235	0.04812
370.0	48.3	23.3	57.7	40.7	21.1	1.113002	0.242	0.04420
375.0	48.0	23.0	57.1	40.1	20.7	1.069835	0.244	0.04071
380.0	47.8	22.8	56.5	39.5	20.3	1.030136	0.243	0.03760
385.0	47.6	22.6	55.9	38.9	19.9	0.993498	0.239	0.03483
390.0	47.4	22.4	55.4	38.4	19.6	0.959576	0.234	0.03233
395.0	47.3	22.3	54.9	37.9	19.3	0.928073	0.227	0.03009
400.0	47.1	22.1	54.4	37.4	18.9	0.898736	0.220	0.02806
405.0	46.9	21.9	53.9	36.9	18.6	0.871343	0.212	0.02623
410.0	46.7	21.7	53.4	36.4	18.3	0.845705	0.205	0.02457
415.0	46.6	21.6	53.0	36.0	18.0	0.821654	0.197	0.02305
420.0	46.4	21.4	52.6	35.6	17.8	0.799044	0.189	0.02167
425.0	46.3	21.3	52.2	35.2	17.5	0.777747	0.181	0.02041
430.0	46.1	21.1	51.8	34.8	17.2	0.757649	0.174	0.01925
435.0	46.0	21.0	51.4	34.4	17.0	0.738648	0.167	0.01819
440.0	45.8	20.8	51.0	34.0	16.7	0.720656	0.160	0.01721
445.0	45.7	20.7	50.7	33.7	16.5	0.703591	0.153	0.01631
450.0	45.6	20.6	50.3	33.3	16.2	0.687383	0.147	0.01547
455.0	45.5	20.5	50.0	33.0	16.0	0.671968	0.141	0.01470

460.0	45.3	20.3	49.7	32.7	15.8	0.657285	0.135	0.01398
465.0	45.2	20.2	49.4	32.4	15.6	0.643284	0.130	0.01332
470.0	45.1	20.1	49.1	32.1	15.3	0.629917	0.125	0.01270
475.0	45.0	20.0	48.8	31.8	15.1	0.617140	0.120	0.01212
480.0	44.9	19.9	48.5	31.5	14.9	0.604914	0.115	0.01158
485.0	44.7	19.7	48.3	31.3	14.7	0.593204	0.111	0.01108
490.0	44.6	19.6	48.0	31.0	14.5	0.581976	0.106	0.01061
495.0	44.5	19.5	47.7	30.7	14.3	0.571201	0.102	0.01017

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ROW Segment -5

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    ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
    Û       C O R O N A   A N D   F I E L D       Û
    Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
    Û   Source: Bonneville Power Administration   Û
    ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                                INPUT DATA LIST



                    3/ 5/2020          11:15:44
 CROSS SECTIONS 5,,,,,,,,,,
 "VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV",,,,,,,,,,
 1,0, 9,15,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF 15 CONDUCTORS, OF WHICH  9 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'L928-A  ','A',  118.00,   20.10, 1,   1.170,   0.000,  69.700,   0.000,   0.732,   0.000
 'L928-B  ','A',  130.00,   20.10, 1,   1.170,   0.000,  69.700,-120.000,   0.732,   0.000
 'L928-C  ','A',  142.00,   20.10, 1,   1.170,   0.000,  69.700, 120.000,   0.732,   0.000
 'L65-A   ','A',  170.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
 'L65-B   ','A',  190.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
 'L65-C   ','A',  210.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
 'NEETNY-A','A',  277.60,   74.80, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
 'NEETNY-B','A',  274.30,   49.80, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
 'NEETNY-C','A',  277.10,   24.80, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
 'L928-SW1','A',  123.50,   47.60, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L928-SW2','A',  136.50,   47.60, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW1 ','A',  179.50,   55.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'L65-SW2 ','A',  200.50,   55.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-1','A',  264.20,  102.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',  292.80,  102.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTIONS 4 & 5,,,,,,,,,,
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"VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV",,,,,,,,,,

	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
L928-A	118.00	20.10	8.01	1.17	1	0.00	69.70	0.00	0.73	0.060
L928-B	130.00	20.10	8.81	1.17	1	0.00	69.70	-120.00	0.73	0.110
L928-C	142.00	20.10	8.71	1.17	1	0.00	69.70	120.00	0.73	0.102
L65-A	170.00	22.50	14.18	1.30	1	0.00	139.40	0.00	1.69	3.720
L65-B	190.00	22.50	14.59	1.30	1	0.00	139.40	-120.00	1.69	4.480
L65-C	210.00	22.50	14.03	1.30	1	0.00	139.40	120.00	1.69	3.475
NEETNY-A	277.60	74.80	17.28	1.11	2	18.00	219.10	0.00	1.35	17.424
NEETNY-B	274.30	49.80	18.52	1.11	2	18.00	219.10	-120.00	1.35	27.329
NEETNY-C	277.10	24.80	18.25	1.11	2	18.00	219.10	120.00	1.35	24.819
L928-SW1	123.50	47.60	1.41	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW2	136.50	47.60	1.23	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	179.50	55.30	1.51	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	200.50	55.30	0.79	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	264.20	102.30	7.53	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	292.80	102.30	5.81	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.9	18.9	45.4	28.4	12.5	0.000000	0.100	0.01665
5.0	44.0	19.0	45.6	28.6	12.6	0.000000	0.106	0.01770
10.0	44.1	19.1	45.8	28.8	12.8	0.000000	0.112	0.01886
15.0	44.2	19.2	46.0	29.0	13.0	0.000000	0.120	0.02015
20.0	44.3	19.3	46.2	29.2	13.1	0.000000	0.128	0.02158
25.0	44.4	19.4	46.4	29.4	13.3	0.000000	0.138	0.02318
30.0	44.5	19.5	46.6	29.6	13.5	0.000000	0.150	0.02499
35.0	44.6	19.6	46.9	29.9	13.6	0.000000	0.163	0.02702
40.0	44.7	19.7	47.1	30.1	13.8	0.000000	0.179	0.02934
45.0	44.8	19.8	47.3	30.3	14.0	0.000000	0.197	0.03200

50.0	44.9	19.9	47.6	30.6	14.2	0.000000	0.220	0.03506
55.0	45.1	20.1	47.8	30.8	14.4	0.000000	0.247	0.03862
60.0	45.2	20.2	48.1	31.1	14.6	0.000000	0.282	0.04279
65.0	45.3	20.3	48.3	31.3	14.8	0.000000	0.325	0.04775
70.0	45.5	20.5	48.6	31.6	15.0	0.000000	0.380	0.05369
75.0	45.6	20.6	48.9	31.9	15.2	0.000000	0.453	0.06091
80.0	45.7	20.7	49.2	32.2	15.4	0.000000	0.549	0.06979
85.0	45.9	20.9	49.5	32.5	15.6	0.000000	0.679	0.08088
90.0	46.0	21.0	49.8	32.8	15.8	0.000000	0.856	0.09489
95.0	46.2	21.2	50.1	33.1	16.1	0.000000	1.097	0.11277
100.0	46.4	21.4	50.4	33.4	16.3	0.000000	1.417	0.13548
105.0	46.5	21.5	50.8	33.8	16.5	0.000000	1.805	0.16332
110.0	46.7	21.7	51.1	34.1	16.8	0.000000	2.183	0.19390
115.0	46.9	21.9	51.5	34.5	17.0	0.000000	2.352	0.21908
120.0	47.1	22.1	51.9	34.9	17.3	0.001334	2.112	0.22663
125.0	47.3	22.3	52.3	35.3	17.6	0.010068	1.571	0.21251
130.0	47.5	22.5	53.9	36.9	17.8	0.008096	1.055	0.18589
135.0	47.8	22.8	55.8	38.8	18.8	0.028301	0.661	0.15026
140.0	48.1	23.1	57.9	40.9	20.0	0.025277	0.920	0.10498
145.0	48.3	23.3	60.2	43.2	21.3	0.031353	1.064	0.08461
150.0	48.7	23.7	62.8	45.8	22.7	0.036552	1.237	0.13014
155.0	49.0	24.0	65.4	48.4	24.3	0.029964	2.008	0.20608
160.0	49.3	24.3	68.0	51.0	26.0	0.025075	2.973	0.28967
165.0	49.7	24.7	70.1	53.1	27.5	0.021592	3.724	0.37391
170.0	50.0	25.0	70.9	53.9	28.1	0.019009	3.904	0.44658
175.0	50.2	25.2	70.1	53.1	27.5	0.414042	3.444	0.49388
180.0	50.4	25.4	69.5	52.5	27.5	0.428407	2.857	0.51223
185.0	50.6	25.6	71.6	54.6	29.0	0.349014	2.889	0.51019
190.0	50.8	25.8	72.4	55.4	29.6	0.288996	3.105	0.50738
195.0	50.9	25.9	71.6	54.6	29.0	0.752525	3.023	0.51914
200.0	51.0	26.0	69.5	52.5	27.5	0.741245	3.157	0.52872
205.0	51.0	26.0	69.6	52.6	27.0	0.617468	3.872	0.51649
210.0	51.1	26.1	70.4	53.4	27.6	0.523259	4.485	0.47345
215.0	51.1	26.1	69.6	52.6	27.0	0.817581	4.531	0.40374
220.0	51.2	26.2	67.5	50.5	25.5	0.780146	4.090	0.32382
225.0	51.3	26.3	65.0	48.0	25.9	0.668089	3.491	0.24972
230.0	51.5	26.5	65.9	48.9	26.7	0.581573	2.992	0.18927
235.0	51.6	26.6	66.9	49.9	27.6	0.516373	2.713	0.14505
240.0	51.9	26.9	67.8	50.8	28.5	0.465735	2.691	0.11883
245.0	52.2	27.2	68.7	51.7	29.6	0.425188	2.936	0.11218
250.0	52.5	27.5	69.8	52.8	30.8	0.391891	3.466	0.12386

255.0	52.8	27.8	72.0	55.0	32.0	0.363981	4.309	0.14950
260.0	53.2	28.2	74.4	57.4	33.4	0.340195	5.469	0.18385
265.0	53.5	28.5	76.6	59.6	34.9	0.319643	6.849	0.22199
270.0	53.8	28.8	78.6	61.6	36.2	0.301680	8.168	0.25773
275.0	54.0	29.0	79.7	62.7	37.0	0.285825	8.962	0.28281
280.0	53.9	28.9	79.6	62.6	36.9	0.800741	8.849	0.29024
285.0	53.7	28.7	78.3	61.3	36.0	2.834914	7.856	0.27958
290.0	53.4	28.4	76.3	59.3	34.6	2.970649	6.392	0.25690
295.0	52.9	27.9	74.0	57.0	33.2	2.836515	4.888	0.22951
300.0	52.5	27.5	71.6	54.6	31.8	2.632281	3.585	0.20230
305.0	52.1	27.1	69.4	52.4	30.6	2.422169	2.554	0.17753
310.0	51.7	26.7	67.6	50.6	29.4	2.229096	1.774	0.15586
315.0	51.3	26.3	66.6	49.6	28.4	2.058551	1.200	0.13723
320.0	51.0	26.0	65.7	48.7	27.4	1.909786	0.782	0.12131
325.0	50.6	25.6	64.8	47.8	26.6	1.780210	0.481	0.10770
330.0	50.3	25.3	63.9	46.9	25.8	1.666974	0.267	0.09604
335.0	50.0	25.0	63.0	46.0	25.0	1.567494	0.123	0.08601
340.0	49.7	24.7	62.1	45.1	24.4	1.479575	0.072	0.07735
345.0	49.5	24.5	61.3	44.3	23.7	1.401402	0.121	0.06984
350.0	49.2	24.2	60.5	43.5	23.1	1.331485	0.167	0.06330
355.0	48.9	23.9	59.8	42.8	22.6	1.268604	0.200	0.05758
360.0	48.7	23.7	59.1	42.1	22.1	1.211757	0.222	0.05255
365.0	48.5	23.5	58.4	41.4	21.6	1.160119	0.235	0.04812
370.0	48.3	23.3	57.7	40.7	21.1	1.113002	0.242	0.04420
375.0	48.0	23.0	57.1	40.1	20.7	1.069835	0.244	0.04071
380.0	47.8	22.8	56.5	39.5	20.3	1.030136	0.243	0.03760
385.0	47.6	22.6	55.9	38.9	19.9	0.993498	0.239	0.03483
390.0	47.4	22.4	55.4	38.4	19.6	0.959576	0.234	0.03233
395.0	47.3	22.3	54.9	37.9	19.3	0.928073	0.227	0.03009
400.0	47.1	22.1	54.4	37.4	18.9	0.898736	0.220	0.02806
405.0	46.9	21.9	53.9	36.9	18.6	0.871343	0.212	0.02623
410.0	46.7	21.7	53.4	36.4	18.3	0.845705	0.205	0.02457
415.0	46.6	21.6	53.0	36.0	18.0	0.821654	0.197	0.02305
420.0	46.4	21.4	52.6	35.6	17.8	0.799044	0.189	0.02167
425.0	46.3	21.3	52.2	35.2	17.5	0.777747	0.181	0.02041
430.0	46.1	21.1	51.8	34.8	17.2	0.757649	0.174	0.01925
435.0	46.0	21.0	51.4	34.4	17.0	0.738648	0.167	0.01819
440.0	45.8	20.8	51.0	34.0	16.7	0.720656	0.160	0.01721
445.0	45.7	20.7	50.7	33.7	16.5	0.703591	0.153	0.01631
450.0	45.6	20.6	50.3	33.3	16.2	0.687383	0.147	0.01547
455.0	45.5	20.5	50.0	33.0	16.0	0.671968	0.141	0.01470

460.0	45.3	20.3	49.7	32.7	15.8	0.657285	0.135	0.01398
465.0	45.2	20.2	49.4	32.4	15.6	0.643284	0.130	0.01332
470.0	45.1	20.1	49.1	32.1	15.3	0.629917	0.125	0.01270
475.0	45.0	20.0	48.8	31.8	15.1	0.617140	0.120	0.01212
480.0	44.9	19.9	48.5	31.5	14.9	0.604914	0.115	0.01158
485.0	44.7	19.7	48.3	31.3	14.7	0.593204	0.111	0.01108
490.0	44.6	19.6	48.0	31.0	14.5	0.581976	0.106	0.01061
495.0	44.5	19.5	47.7	30.7	14.3	0.571201	0.102	0.01017

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ROW Segment -6

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    ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
    Û       C O R O N A   A N D   F I E L D      Û
    Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
    Û   Source: Bonneville Power Administration   Û
    ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                           INPUT DATA LIST


                3/ 5/2020         11:17:08
CROSS SECTION 6,,,,,,,,,,
"VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV, L525 34.5
1,0,12,19,0.0,   0.50,   1.00,   0.00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 19 CONDUCTORS, OF WHICH 12 ARE ENERGIZED PHASES

OPTIONS: 'COMB',,,,,,,,,,
  5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
'L525-A  ','A',   37.50,   25.50, 1,   0.792,   0.000,  20.914,   0.000,   0.946,   0.000
'L525-B  ','A',   35.50,   18.50, 1,   0.792,   0.000,  20.914,-120.000,   0.946,   0.000
'L525-C  ','A',   44.50,   18.50, 1,   0.792,   0.000,  20.914, 120.000,   0.946,   0.000
'L928-A  ','A',  118.00,   20.10, 1,   1.170,   0.000,  69.700,   0.000,   0.732,   0.000
'L928-B  ','A',  130.00,   20.10, 1,   1.170,   0.000,  69.700,-120.000,   0.732,   0.000
'L928-C  ','A',  142.00,   20.10, 1,   1.170,   0.000,  69.700, 120.000,   0.732,   0.000
'L65-A   ','A',  170.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
'L65-B   ','A',  190.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
'L65-C   ','A',  210.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
'NEETNY-A','A',  277.60,   78.50, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
'NEETNY-B','A',  274.30,   53.50, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
'NEETNY-C','A',  277.10,   28.50, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
'L525-SW ','A',   40.00,   41.00, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L928-SW1','A',  123.50,   43.70, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L928-SW2','A',  136.50,   43.70, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW1 ','A',  179.50,   50.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW2 ','A',  200.50,   50.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'NEETNY-1','A',  264.20,   99.50, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
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'NEETNY-2','A', 292.80, 99.50, 1, 0.530, 0.000, 0.000, 0.000, 0.000, 0.000
100 0.0 5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
CROSS SECTION 6,,,,,,,,,,
"VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV, L525 34.5

	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
L525-A	37.50	25.50	3.66	0.79	1	0.00	20.91	0.00	0.95	0.000
L525-B	35.50	18.50	3.85	0.79	1	0.00	20.91	-120.00	0.95	0.000
L525-C	44.50	18.50	3.76	0.79	1	0.00	20.91	120.00	0.95	0.000
L928-A	118.00	20.10	8.02	1.17	1	0.00	69.70	0.00	0.73	0.060
L928-B	130.00	20.10	8.81	1.17	1	0.00	69.70	-120.00	0.73	0.110
L928-C	142.00	20.10	8.70	1.17	1	0.00	69.70	120.00	0.73	0.101
L65-A	170.00	22.50	14.18	1.30	1	0.00	139.40	0.00	1.69	3.731
L65-B	190.00	22.50	14.60	1.30	1	0.00	139.40	-120.00	1.69	4.507
L65-C	210.00	22.50	13.97	1.30	1	0.00	139.40	120.00	1.69	3.386
NEETNY-A	277.60	78.50	17.47	1.11	2	18.00	219.10	0.00	1.35	18.669
NEETNY-B	274.30	53.50	18.52	1.11	2	18.00	219.10	-120.00	1.35	27.323
NEETNY-C	277.10	28.50	18.01	1.11	2	18.00	219.10	120.00	1.35	22.741
L525-SW	40.00	41.00	0.77	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW1	123.50	43.70	1.48	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW2	136.50	43.70	1.12	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	179.50	50.50	1.66	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	200.50	50.50	1.23	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	264.20	99.50	8.71	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	292.80	99.50	6.62	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.8	18.8	46.0	29.0	12.5	0.000000	0.138	0.03938
5.0	43.8	18.8	46.2	29.2	12.6	0.000000	0.156	0.04590

10.0	43.9	18.9	46.4	29.4	12.8	0.000000	0.180	0.05476
15.0	44.0	19.0	46.6	29.6	12.9	0.000000	0.217	0.06729
20.0	44.1	19.1	46.8	29.8	13.1	0.000000	0.272	0.08547
25.0	44.3	19.3	47.0	30.0	13.3	0.000000	0.346	0.11128
30.0	44.4	19.4	47.2	30.2	13.5	0.000000	0.408	0.14350
35.0	44.5	19.5	47.4	30.4	13.6	0.000000	0.389	0.17212
40.0	44.6	19.6	47.7	30.7	13.8	0.000051	0.325	0.18082
45.0	44.7	19.7	47.9	30.9	14.0	0.000067	0.394	0.16382
50.0	44.8	19.8	48.1	31.1	14.2	0.000097	0.394	0.13384
55.0	44.9	19.9	48.4	31.4	14.4	0.000079	0.304	0.10970
60.0	45.1	20.1	48.7	31.7	14.5	0.000064	0.220	0.09688
65.0	45.2	20.2	48.9	31.9	14.7	0.000054	0.224	0.09043
70.0	45.3	20.3	49.2	32.2	14.9	0.000047	0.292	0.08792
75.0	45.5	20.5	49.5	32.5	15.2	0.000041	0.385	0.08866
80.0	45.6	20.6	49.8	32.8	15.4	0.000037	0.498	0.09246
85.0	45.8	20.8	50.0	33.0	15.6	0.000034	0.641	0.09949
90.0	45.9	20.9	50.4	33.4	15.8	0.000031	0.827	0.11019
95.0	46.1	21.1	50.7	33.7	16.0	0.000029	1.074	0.12525
100.0	46.2	21.2	51.0	34.0	16.3	0.000027	1.398	0.14544
105.0	46.4	21.4	51.3	34.3	16.5	0.000025	1.789	0.17086
110.0	46.6	21.6	51.7	34.7	16.7	0.000023	2.168	0.19891
115.0	46.8	21.8	52.0	35.0	17.0	0.000022	2.337	0.22134
120.0	47.0	22.0	52.4	35.4	17.2	0.001367	2.097	0.22608
125.0	47.2	22.2	52.8	35.8	17.5	0.010177	1.557	0.20950
130.0	47.4	22.4	53.9	36.9	17.8	0.008186	1.045	0.18116
135.0	47.7	22.7	55.8	38.8	18.8	0.028434	0.664	0.14487
140.0	47.9	22.9	57.9	40.9	20.0	0.025394	0.931	0.10104
145.0	48.2	23.2	60.2	43.2	21.3	0.031328	1.075	0.08536
150.0	48.5	23.5	62.8	45.8	22.7	0.036417	1.239	0.13277
155.0	48.9	23.9	65.5	48.5	24.4	0.029865	2.003	0.20833
160.0	49.2	24.2	68.1	51.1	26.1	0.025003	2.965	0.29106
165.0	49.6	24.6	70.1	53.1	27.5	0.021538	3.714	0.37436
170.0	49.9	24.9	70.9	53.9	28.2	0.018967	3.892	0.44618
175.0	50.1	25.1	70.1	53.1	27.5	0.415626	3.429	0.49284
180.0	50.3	25.3	69.6	52.6	27.6	0.430063	2.836	0.51081
185.0	50.5	25.5	71.6	54.6	29.0	0.350356	2.869	0.50859
190.0	50.6	25.6	72.5	55.5	29.7	0.290102	3.091	0.50572
195.0	50.7	25.7	71.6	54.6	29.0	0.757443	3.022	0.51773
200.0	50.8	25.8	69.6	52.6	27.6	0.746200	3.181	0.52808
205.0	50.8	25.8	69.4	52.4	26.8	0.621546	3.920	0.51710
210.0	50.9	25.9	70.2	53.2	27.4	0.526673	4.553	0.47560

215.0	50.9	25.9	69.4	52.4	26.8	0.808312	4.620	0.40755
220.0	50.9	25.9	67.3	50.3	25.3	0.770028	4.203	0.32925
225.0	51.0	26.0	65.0	48.0	25.0	0.660095	3.627	0.25667
230.0	51.1	26.1	65.9	48.9	25.8	0.575171	3.146	0.19763
235.0	51.3	26.3	66.7	49.7	26.6	0.511084	2.875	0.15430
240.0	51.5	26.5	67.6	50.6	27.5	0.461245	2.843	0.12747
245.0	51.7	26.7	68.4	51.4	28.5	0.421294	3.051	0.11759
250.0	51.9	26.9	69.2	52.2	29.5	0.388456	3.497	0.12328
255.0	52.2	27.2	71.1	54.1	30.6	0.360909	4.176	0.14078
260.0	52.5	27.5	73.0	56.0	31.8	0.337417	5.054	0.16538
265.0	52.7	27.7	74.8	57.8	32.9	0.317108	6.028	0.19244
270.0	52.9	27.9	76.3	59.3	33.9	0.299347	6.894	0.21716
275.0	53.0	28.0	77.0	60.0	34.4	0.283665	7.381	0.23446
280.0	53.0	28.0	77.0	60.0	34.3	0.480260	7.293	0.24059
285.0	52.8	27.8	76.1	59.1	33.7	2.257369	6.640	0.23513
290.0	52.6	27.6	74.6	57.6	32.7	2.591176	5.631	0.22098
295.0	52.2	27.2	72.7	55.7	31.6	2.579619	4.521	0.20222
300.0	51.9	26.9	70.8	53.8	30.5	2.451934	3.489	0.18217
305.0	51.6	26.6	68.9	51.9	29.4	2.289781	2.617	0.16283
310.0	51.2	26.2	67.4	50.4	28.3	2.127685	1.920	0.14514
315.0	50.9	25.9	66.5	49.5	27.4	1.977960	1.379	0.12938
320.0	50.6	25.6	65.7	48.7	26.5	1.843745	0.969	0.11555
325.0	50.3	25.3	64.8	47.8	25.7	1.724701	0.660	0.10347
330.0	50.0	25.0	64.0	47.0	24.9	1.619330	0.429	0.09294
335.0	49.7	24.7	63.1	46.1	24.2	1.525884	0.259	0.08376
340.0	49.4	24.4	62.3	45.3	23.5	1.442705	0.135	0.07574
345.0	49.2	24.2	61.6	44.6	23.0	1.368331	0.057	0.06871
350.0	48.9	23.9	60.8	43.8	22.5	1.301513	0.062	0.06254
355.0	48.7	23.7	60.1	43.1	22.1	1.241201	0.101	0.05710
360.0	48.5	23.5	59.4	42.4	21.7	1.186513	0.133	0.05229
365.0	48.2	23.2	58.8	41.8	21.3	1.136710	0.156	0.04802
370.0	48.0	23.0	58.1	41.1	20.9	1.091172	0.172	0.04423
375.0	47.8	22.8	57.5	40.5	20.5	1.049375	0.182	0.04084
380.0	47.6	22.6	57.0	40.0	20.2	1.010876	0.188	0.03781
385.0	47.4	22.4	56.4	39.4	19.8	0.975298	0.190	0.03509
390.0	47.3	22.3	55.9	38.9	19.5	0.942317	0.190	0.03264
395.0	47.1	22.1	55.4	38.4	19.2	0.911657	0.188	0.03043
400.0	46.9	21.9	54.9	37.9	18.9	0.883078	0.185	0.02843
405.0	46.7	21.7	54.4	37.4	18.6	0.856371	0.181	0.02661
410.0	46.6	21.6	54.0	37.0	18.3	0.831355	0.177	0.02496
415.0	46.4	21.4	53.5	36.5	18.0	0.807873	0.172	0.02345

420.0	46.3	21.3	53.1	36.1	17.7	0.785785	0.166	0.02208
425.0	46.1	21.1	52.7	35.7	17.4	0.764967	0.161	0.02082
430.0	46.0	21.0	52.3	35.3	17.2	0.745312	0.155	0.01966
435.0	45.8	20.8	51.9	34.9	16.9	0.726722	0.150	0.01859
440.0	45.7	20.7	51.6	34.6	16.7	0.709111	0.145	0.01761
445.0	45.6	20.6	51.2	34.2	16.4	0.692402	0.139	0.01670
450.0	45.4	20.4	50.9	33.9	16.2	0.676526	0.134	0.01586
455.0	45.3	20.3	50.6	33.6	16.0	0.661421	0.129	0.01508
460.0	45.2	20.2	50.3	33.3	15.7	0.647030	0.125	0.01436
465.0	45.1	20.1	50.0	33.0	15.5	0.633304	0.120	0.01369
470.0	44.9	19.9	49.7	32.7	15.3	0.620195	0.116	0.01306
475.0	44.8	19.8	49.4	32.4	15.1	0.607662	0.112	0.01248
480.0	44.7	19.7	49.2	32.2	14.9	0.595667	0.107	0.01193
485.0	44.6	19.6	48.9	31.9	14.7	0.584175	0.104	0.01142
490.0	44.5	19.5	48.7	31.7	14.5	0.573155	0.100	0.01094
495.0	44.4	19.4	48.4	31.4	14.3	0.562577	0.096	0.01049

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ROW Segment -7

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    ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
    Û       C O R O N A   A N D   F I E L D      Û
    Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
    Û   Source: Bonneville Power Administration   Û
    ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                                INPUT DATA LIST



                 3/ 5/2020         11:18:05
CROSS SECTION 7,,,,,,,,,,,
"VERTICAL MONOPOLE L-65 230KV, L928 115KV, L525 34.5kV, L926 115KV",,,,,
1,0,15,24,0.0,   0.50,   1.00,   0.00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 24 CONDUCTORS, OF WHICH 15 ARE ENERGIZED PHASES

OPTIONS: 'COMB',,,,,,,,,,,
  5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
'L525-A  ','A',   27.50,   25.50, 1,   0.792,   0.000,  20.900,   0.000,   0.946,   0.000
'L525-B  ','A',   25.50,   18.50, 1,   0.792,   0.000,  20.900,-120.000,   0.946,   0.000
'L525-C  ','A',   34.50,   18.50, 1,   0.792,   0.000,  20.900, 120.000,   0.946,   0.000
'L926-A  ','A',   63.00,   20.10, 1,   1.212,   0.000,  69.700,   0.000,   0.834,   0.000
'L926-B  ','A',   75.00,   20.10, 1,   1.212,   0.000,  69.700,-120.000,   0.834,   0.000
'L926-C  ','A',   87.00,   20.10, 1,   1.212,   0.000,  69.700, 120.000,   0.834,   0.000
'L928-A  ','A',  108.00,   20.10, 1,   1.170,   0.000,  69.700,   0.000,   0.732,   0.000
'L928-B  ','A',  120.00,   20.10, 1,   1.170,   0.000,  69.700,-120.000,   0.732,   0.000
'L928-C  ','A',  132.00,   20.10, 1,   1.170,   0.000,  69.700, 120.000,   0.732,   0.000
'L65-A   ','A',  160.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
'L65-B   ','A',  180.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
'L65-C   ','A',  200.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
'NEETNY-A','A',  267.60,   81.30, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
'NEETNY-B','A',  264.30,   56.30, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
'NEETNY-C','A',  267.10,   31.30, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
'L525-SW ','A',   30.00,   45.20, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L926-SW1','A',   68.50,   51.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L926-SW2','A',   81.50,   51.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
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'L928-SW1','A',  113.50,   51.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L928-SW2','A',  126.50,   51.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW1 ','A',  169.50,   56.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW2 ','A',  190.50,   56.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'NEETNY-1','A',  254.20,  106.20, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'NEETNY-2','A',  282.80,  106.20, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 7,,,,,,,,,,
 "VERTICAL MONOPOLE L-65 230KV, L928 115KV, L525 34.5kV, L926 115KV",,,,,
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	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
L525-A	27.50	25.50	3.48	0.79	1	0.00	20.90	0.00	0.95	0.000
L525-B	25.50	18.50	3.89	0.79	1	0.00	20.90	-120.00	0.95	0.000
L525-C	34.50	18.50	3.99	0.79	1	0.00	20.90	120.00	0.95	0.000
L926-A	63.00	20.10	7.88	1.21	1	0.00	69.70	0.00	0.83	0.062
L926-B	75.00	20.10	8.53	1.21	1	0.00	69.70	-120.00	0.83	0.103
L926-C	87.00	20.10	8.32	1.21	1	0.00	69.70	120.00	0.83	0.087
L928-A	108.00	20.10	8.38	1.17	1	0.00	69.70	0.00	0.73	0.080
L928-B	120.00	20.10	8.84	1.17	1	0.00	69.70	-120.00	0.73	0.113
L928-C	132.00	20.10	8.63	1.17	1	0.00	69.70	120.00	0.73	0.096
L65-A	160.00	22.50	14.21	1.30	1	0.00	139.40	0.00	1.69	3.773
L65-B	180.00	22.50	14.59	1.30	1	0.00	139.40	-120.00	1.69	4.491
L65-C	200.00	22.50	13.93	1.30	1	0.00	139.40	120.00	1.69	3.318
NEETNY-A	267.60	81.30	17.38	1.11	2	18.00	219.10	0.00	1.35	18.042
NEETNY-B	264.30	56.30	18.54	1.11	2	18.00	219.10	-120.00	1.35	27.526
NEETNY-C	267.10	31.30	17.87	1.11	2	18.00	219.10	120.00	1.35	21.663
L525-SW	30.00	45.20	1.01	0.39	1	0.00	0.00	0.00	0.00	0.000
L926-SW1	68.50	51.30	0.85	0.39	1	0.00	0.00	0.00	0.00	0.000
L926-SW2	81.50	51.30	0.54	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW1	113.50	51.30	0.73	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW2	126.50	51.30	0.89	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	169.50	56.30	1.26	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	190.50	56.30	0.89	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	254.20	106.20	7.91	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	282.80	106.20	6.06	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
0.0	43.8	18.8	46.9	29.9	12.8	0.000000	0.209	0.06739
5.0	43.9	18.9	47.1	30.1	13.0	0.000000	0.246	0.07964
10.0	44.0	19.0	47.3	30.3	13.2	0.000000	0.298	0.09646
15.0	44.1	19.1	47.5	30.5	13.3	0.000000	0.363	0.11931
20.0	44.2	19.2	47.7	30.7	13.5	0.000000	0.406	0.14654
25.0	44.3	19.3	47.9	30.9	13.7	0.000000	0.350	0.16809
30.0	44.5	19.5	48.1	31.1	13.8	0.000055	0.202	0.16897
35.0	44.6	19.6	48.4	31.4	14.0	0.000063	0.268	0.14732
40.0	44.7	19.7	48.6	31.6	14.2	0.000119	0.549	0.12598
45.0	44.8	19.8	48.9	31.9	14.4	0.000097	0.965	0.14049
50.0	44.9	19.9	49.1	32.1	14.6	0.000078	1.460	0.16659
55.0	45.1	20.1	49.4	32.4	14.8	0.000065	1.922	0.19395
60.0	45.2	20.2	49.7	32.7	15.0	0.000056	2.148	0.21623
65.0	45.3	20.3	49.9	32.9	15.2	0.001383	1.943	0.22328
70.0	45.5	20.5	50.2	33.2	15.4	0.010106	1.438	0.21184
75.0	45.6	20.6	50.5	33.5	15.6	0.008131	1.010	0.19142
80.0	45.8	20.8	50.8	33.8	15.8	0.025550	0.868	0.16775
85.0	45.9	20.9	51.1	34.1	16.1	0.022767	1.156	0.13565
90.0	46.1	21.1	51.4	34.4	16.3	0.026938	1.212	0.09929
95.0	46.3	21.3	51.8	34.8	16.5	0.030594	0.951	0.07518
100.0	46.5	21.5	52.1	35.1	16.8	0.025170	1.064	0.10710
105.0	46.7	21.7	52.5	35.5	17.0	0.021144	1.408	0.13665
110.0	46.9	21.9	52.9	35.9	17.3	0.020223	1.398	0.15076
115.0	47.1	22.1	53.2	36.2	17.5	0.030902	1.093	0.14566
120.0	47.3	22.3	54.0	37.0	17.9	0.026343	0.854	0.13092
125.0	47.5	22.5	55.9	38.9	18.9	0.045098	0.775	0.11185
130.0	47.8	22.8	58.0	41.0	20.1	0.040407	1.044	0.08933
135.0	48.1	23.1	60.3	43.3	21.4	0.044278	1.140	0.08750
140.0	48.4	23.4	62.9	45.9	22.8	0.047720	1.229	0.13781
145.0	48.8	23.8	65.5	48.5	24.5	0.040501	1.969	0.20794
150.0	49.1	24.1	68.2	51.2	26.2	0.035052	2.929	0.28534
155.0	49.5	24.5	70.2	53.2	27.6	0.031050	3.680	0.36470
160.0	49.8	24.8	71.0	54.0	28.2	0.027990	3.861	0.43420

165.0	50.0	25.0	70.2	53.2	27.6	0.430043	3.401	0.48026
170.0	50.2	25.2	69.6	52.6	27.6	0.444313	2.815	0.49897
175.0	50.4	25.4	71.6	54.6	29.0	0.363095	2.864	0.49797
180.0	50.5	25.5	72.4	55.4	29.6	0.301643	3.097	0.49617
185.0	50.6	25.6	71.6	54.6	29.0	0.765580	3.041	0.50974
190.0	50.6	25.6	69.6	52.6	27.6	0.753505	3.216	0.52241
195.0	50.7	25.7	69.2	52.2	26.6	0.628739	3.965	0.51426
200.0	50.7	25.7	70.0	53.0	27.2	0.533728	4.607	0.47584
205.0	50.7	25.7	69.2	52.2	26.6	0.806099	4.684	0.41062
210.0	50.7	25.7	67.1	50.1	25.1	0.767258	4.278	0.33459
215.0	50.8	25.8	65.1	48.1	24.8	0.658921	3.712	0.26365
220.0	50.9	25.9	65.9	48.9	25.3	0.575158	3.237	0.20569
225.0	51.0	26.0	66.7	49.7	26.0	0.511849	2.962	0.16273
230.0	51.2	26.2	67.5	50.5	26.8	0.462542	2.912	0.13504
235.0	51.4	26.4	68.2	51.2	27.7	0.422962	3.083	0.12254
240.0	51.6	26.6	68.9	51.9	28.7	0.390388	3.460	0.12392
245.0	51.8	26.8	70.5	53.5	29.7	0.363031	4.024	0.13604
250.0	52.0	27.0	72.1	55.1	30.7	0.339677	4.728	0.15471
255.0	52.2	27.2	73.6	56.6	31.6	0.319467	5.479	0.17571
260.0	52.4	27.4	74.8	57.8	32.4	0.301778	6.117	0.19493
265.0	52.4	27.4	75.4	58.4	32.8	0.286146	6.461	0.20860
270.0	52.4	27.4	75.4	58.4	32.8	0.375272	6.382	0.21409
275.0	52.2	27.2	74.6	57.6	32.3	1.920417	5.886	0.21097
280.0	52.0	27.0	73.4	56.4	31.5	2.354935	5.105	0.20093
285.0	51.8	26.8	71.9	54.9	30.5	2.404888	4.212	0.18666
290.0	51.5	26.5	70.2	53.2	29.5	2.317955	3.346	0.17062
295.0	51.2	26.2	68.5	51.5	28.5	2.183444	2.583	0.15451
300.0	50.9	25.9	67.2	50.2	27.6	2.040567	1.950	0.13928
305.0	50.6	25.6	66.5	49.5	26.7	1.904637	1.443	0.12536
310.0	50.3	25.3	65.7	48.7	25.9	1.780653	1.046	0.11287
315.0	50.0	25.0	64.9	47.9	25.1	1.669424	0.739	0.10178
320.0	49.7	24.7	64.1	47.1	24.4	1.570183	0.505	0.09198
325.0	49.4	24.4	63.3	46.3	23.7	1.481654	0.327	0.08333
330.0	49.2	24.2	62.5	45.5	23.3	1.402497	0.194	0.07570
335.0	48.9	23.9	61.8	44.8	22.9	1.331469	0.097	0.06896
340.0	48.7	23.7	61.1	44.1	22.4	1.267476	0.043	0.06300
345.0	48.5	23.5	60.4	43.4	22.0	1.209579	0.060	0.05771
350.0	48.2	23.2	59.7	42.7	21.6	1.156979	0.095	0.05301
355.0	48.0	23.0	59.1	42.1	21.2	1.108999	0.123	0.04882
360.0	47.8	22.8	58.5	41.5	20.9	1.065066	0.143	0.04508
365.0	47.6	22.6	57.9	40.9	20.5	1.024693	0.157	0.04173

370.0	47.4	22.4	57.3	40.3	20.2	0.987466	0.166	0.03871
375.0	47.2	22.2	56.8	39.8	19.8	0.953031	0.171	0.03600
380.0	47.1	22.1	56.3	39.3	19.5	0.921084	0.173	0.03355
385.0	46.9	21.9	55.8	38.8	19.2	0.891362	0.174	0.03134
390.0	46.7	21.7	55.3	38.3	18.9	0.863638	0.172	0.02932
395.0	46.6	21.6	54.8	37.8	18.6	0.837716	0.170	0.02749
400.0	46.4	21.4	54.4	37.4	18.3	0.813422	0.167	0.02583
405.0	46.2	21.2	53.9	36.9	18.0	0.790606	0.163	0.02430
410.0	46.1	21.1	53.5	36.5	17.7	0.769134	0.158	0.02290
415.0	45.9	20.9	53.1	36.1	17.4	0.748888	0.154	0.02162
420.0	45.8	20.8	52.8	35.8	17.2	0.729766	0.149	0.02044
425.0	45.7	20.7	52.4	35.4	16.9	0.711673	0.144	0.01936
430.0	45.5	20.5	52.0	35.0	16.7	0.694528	0.140	0.01836
435.0	45.4	20.4	51.7	34.7	16.5	0.678255	0.135	0.01743
440.0	45.3	20.3	51.4	34.4	16.2	0.662789	0.130	0.01657
445.0	45.1	20.1	51.0	34.0	16.0	0.648070	0.126	0.01577
450.0	45.0	20.0	50.7	33.7	15.8	0.634044	0.121	0.01503
455.0	44.9	19.9	50.4	33.4	15.5	0.620661	0.117	0.01434
460.0	44.8	19.8	50.1	33.1	15.3	0.607877	0.113	0.01370
465.0	44.7	19.7	49.8	32.8	15.1	0.595653	0.109	0.01310
470.0	44.5	19.5	49.6	32.6	14.9	0.583951	0.105	0.01253
475.0	44.4	19.4	49.3	32.3	14.7	0.572738	0.101	0.01201
480.0	44.3	19.3	49.0	32.0	14.5	0.561983	0.098	0.01151
485.0	44.2	19.2	48.8	31.8	14.3	0.551657	0.094	0.01105
490.0	44.1	19.1	48.6	31.6	14.2	0.541735	0.091	0.01061
495.0	44.0	19.0	48.3	31.3	14.0	0.532193	0.088	0.01020

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ROW Segment -8

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ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
Û       C O R O N A   A N D   F I E L D      Û
Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
Û   Source: Bonneville Power Administration   Û
ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                           INPUT DATA LIST


                3/ 5/2020          11:18:35
CROSS SECTION 8,,,,,,,,,,
"VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV, L926 115K
1,0,12,20,0.0,   0.50,   1.00,   0.00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 20 CONDUCTORS, OF WHICH 12 ARE ENERGIZED PHASES

OPTIONS: 'COMB',,,,,,,,,,
  5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
'L926-A  ','A',   68.00,   20.10, 1,   1.212,   0.000,  69.700,   0.000,   0.834,   0.000
'L926-B  ','A',   80.00,   20.10, 1,   1.212,   0.000,  69.700,-120.000,   0.834,   0.000
'L926-C  ','A',   92.00,   20.10, 1,   1.212,   0.000,  69.700, 120.000,   0.834,   0.000
'L928-A  ','A',  113.00,   20.10, 1,   1.170,   0.000,  69.700,   0.000,   0.732,   0.000
'L928-B  ','A',  125.00,   20.10, 1,   1.170,   0.000,  69.700,-120.000,   0.732,   0.000
'L928-C  ','A',  137.00,   20.10, 1,   1.170,   0.000,  69.700, 120.000,   0.732,   0.000
'L65-A   ','A',  165.00,   22.50, 1,   1.302,   0.000, 139.400,   0.000,   1.690,   0.000
'L65-B   ','A',  185.00,   22.50, 1,   1.302,   0.000, 139.400,-120.000,   1.690,   0.000
'L65-C   ','A',  205.00,   22.50, 1,   1.302,   0.000, 139.400, 120.000,   1.690,   0.000
'NEETNY-A','A',  272.60,   75.80, 2,   1.108,  18.000, 219.100,   0.000,   1.349,   0.000
'NEETNY-B','A',  269.30,   50.80, 2,   1.108,  18.000, 219.100,-120.000,   1.349,   0.000
'NEETNY-C','A',  272.10,   25.80, 2,   1.108,  18.000, 219.100, 120.000,   1.349,   0.000
'L926-SW1','A',   73.50,   48.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L926-SW2','A',   86.50,   48.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L928-SW1','A',  118.50,   48.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L928-SW2','A',  131.50,   48.30, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW1 ','A',  174.50,   56.10, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
'L65-SW2 ','A',  195.50,   56.10, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
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 'NEETNY-1','A',  259.20,  103.60, 1,   0.390,   0.000,   0.000,   0.000,   0.000,   0.000
 'NEETNY-2','A',  287.80,  103.60, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 100    0.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 8,,,,,,,,,,
 "VERTICAL MONOPOLE SINGLE CIRCUIT WITH L-65 230KV, L928 115KV, L926 115K
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	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
L926-A	68.00	20.10	7.84	1.21	1	0.00	69.70	0.00	0.83	0.060
L926-B	80.00	20.10	8.52	1.21	1	0.00	69.70	-120.00	0.83	0.102
L926-C	92.00	20.10	8.33	1.21	1	0.00	69.70	120.00	0.83	0.088
L928-A	113.00	20.10	8.38	1.17	1	0.00	69.70	0.00	0.73	0.080
L928-B	125.00	20.10	8.84	1.17	1	0.00	69.70	-120.00	0.73	0.113
L928-C	137.00	20.10	8.64	1.17	1	0.00	69.70	120.00	0.73	0.097
L65-A	165.00	22.50	14.19	1.30	1	0.00	139.40	0.00	1.69	3.752
L65-B	185.00	22.50	14.59	1.30	1	0.00	139.40	-120.00	1.69	4.481
L65-C	205.00	22.50	14.01	1.30	1	0.00	139.40	120.00	1.69	3.445
NEETNY-A	272.60	75.80	17.28	1.11	2	18.00	219.10	0.00	1.35	17.431
NEETNY-B	269.30	50.80	18.53	1.11	2	18.00	219.10	-120.00	1.35	27.383
NEETNY-C	272.10	25.80	18.18	1.11	2	18.00	219.10	120.00	1.35	24.217
L926-SW1	73.50	48.30	1.02	0.39	1	0.00	0.00	0.00	0.00	0.000
L926-SW2	86.50	48.30	0.56	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW1	118.50	48.30	0.78	0.39	1	0.00	0.00	0.00	0.00	0.000
L928-SW2	131.50	48.30	0.91	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW1	174.50	56.10	1.39	0.39	1	0.00	0.00	0.00	0.00	0.000
L65-SW2	195.50	56.10	0.78	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-1	259.20	103.60	7.46	0.39	1	0.00	0.00	0.00	0.00	0.000
NEETNY-2	287.80	103.60	5.76	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE=   0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY =   7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS

0.0	43.9	18.9	45.8	28.8	12.7	0.000000	0.190	0.03503
5.0	44.0	19.0	46.0	29.0	12.8	0.000000	0.216	0.03855
10.0	44.1	19.1	46.2	29.2	13.0	0.000000	0.248	0.04268
15.0	44.2	19.2	46.4	29.4	13.1	0.000000	0.290	0.04759
20.0	44.3	19.3	46.6	29.6	13.3	0.000000	0.343	0.05351
25.0	44.4	19.4	46.8	29.8	13.5	0.000000	0.414	0.06072
30.0	44.5	19.5	47.0	30.0	13.7	0.000000	0.508	0.06964
35.0	44.7	19.7	47.3	30.3	13.8	0.000000	0.637	0.08085
40.0	44.8	19.8	47.5	30.5	14.0	0.000000	0.812	0.09512
45.0	44.9	19.9	47.7	30.7	14.2	0.000000	1.052	0.11350
50.0	45.0	20.0	48.0	31.0	14.4	0.000000	1.370	0.13714
55.0	45.1	20.1	48.2	31.2	14.6	0.000000	1.758	0.16664
60.0	45.3	20.3	48.5	31.5	14.8	0.000000	2.134	0.20006
65.0	45.4	20.4	48.8	31.8	15.0	0.000000	2.297	0.22965
70.0	45.5	20.5	49.1	32.1	15.2	0.001277	2.049	0.24303
75.0	45.7	20.7	49.4	32.4	15.4	0.009635	1.510	0.23519
80.0	45.8	20.8	49.7	32.7	15.6	0.007747	1.044	0.21486
85.0	46.0	21.0	50.0	33.0	15.8	0.025062	0.855	0.18734
90.0	46.1	21.1	50.3	33.3	16.1	0.022345	1.139	0.14740
95.0	46.3	21.3	50.6	33.6	16.3	0.026678	1.199	0.10037
100.0	46.5	21.5	51.0	34.0	16.5	0.030457	0.943	0.06686
105.0	46.7	21.7	51.3	34.3	16.8	0.025036	1.066	0.09931
110.0	46.9	21.9	51.7	34.7	17.0	0.021012	1.411	0.13243
115.0	47.1	22.1	52.1	35.1	17.3	0.020092	1.401	0.15052
120.0	47.3	22.3	52.4	35.4	17.6	0.030755	1.096	0.14867
125.0	47.5	22.5	54.0	37.0	17.8	0.026207	0.856	0.13594
130.0	47.7	22.7	55.9	38.9	18.9	0.044949	0.773	0.11714
135.0	48.0	23.0	58.0	41.0	20.0	0.040269	1.040	0.09218
140.0	48.3	23.3	60.3	43.3	21.3	0.044188	1.136	0.08655
145.0	48.6	23.6	62.8	45.8	22.8	0.047668	1.231	0.13541
150.0	49.0	24.0	65.5	48.5	24.4	0.040443	1.976	0.20605
155.0	49.3	24.3	68.1	51.1	26.1	0.034989	2.939	0.28441
160.0	49.7	24.7	70.2	53.2	27.6	0.030986	3.692	0.36475
165.0	49.9	24.9	71.0	54.0	28.2	0.027926	3.876	0.43509
170.0	50.2	25.2	70.2	53.2	27.6	0.427017	3.420	0.48172
175.0	50.4	25.4	69.5	52.5	27.5	0.441168	2.838	0.50066
180.0	50.6	25.6	71.6	54.6	29.0	0.360534	2.881	0.49967
185.0	50.7	25.7	72.4	55.4	29.6	0.299523	3.104	0.49781
190.0	50.8	25.8	71.6	54.6	29.0	0.762336	3.030	0.51099
195.0	50.9	25.9	69.5	52.5	27.5	0.750433	3.172	0.52256
200.0	51.0	26.0	69.5	52.5	26.9	0.626127	3.893	0.51272

205.0	51.0	26.0	70.3	53.3	27.5	0.531468	4.510	0.47221
210.0	51.1	26.1	69.5	52.5	26.9	0.821238	4.560	0.40479
215.0	51.1	26.1	67.4	50.4	25.4	0.783291	4.126	0.32661
220.0	51.2	26.2	65.0	48.0	25.7	0.671746	3.533	0.25364
225.0	51.4	26.4	65.9	48.9	26.4	0.585571	3.039	0.19381
230.0	51.5	26.5	66.9	49.9	27.3	0.520561	2.762	0.14961
235.0	51.8	26.8	67.8	50.8	28.3	0.470017	2.737	0.12255
240.0	52.0	27.0	68.7	51.7	29.3	0.429505	2.973	0.11405
245.0	52.3	27.3	69.6	52.6	30.4	0.396205	3.480	0.12324
250.0	52.6	27.6	71.8	54.8	31.7	0.368270	4.278	0.14618
255.0	53.0	28.0	74.0	57.0	33.0	0.344444	5.355	0.17773
260.0	53.3	28.3	76.1	59.1	34.3	0.323841	6.610	0.21286
265.0	53.5	28.5	77.9	60.9	35.5	0.305821	7.783	0.24566
270.0	53.7	28.7	78.9	61.9	36.2	0.289906	8.477	0.26884
275.0	53.6	28.6	78.8	61.8	36.2	0.690934	8.371	0.27647
280.0	53.4	28.4	77.7	60.7	35.3	2.673036	7.490	0.26802
285.0	53.1	28.1	75.8	58.8	34.1	2.866380	6.170	0.24838
290.0	52.7	27.7	73.6	56.6	32.8	2.764011	4.785	0.22382
295.0	52.3	27.3	71.4	54.4	31.5	2.579317	3.560	0.19879
300.0	51.9	26.9	69.3	52.3	30.2	2.381696	2.572	0.17557
305.0	51.6	26.6	67.5	50.5	29.1	2.196951	1.813	0.15497
310.0	51.2	26.2	66.6	49.6	28.1	2.032208	1.246	0.13706
315.0	50.8	25.8	65.7	48.7	27.2	1.887646	0.828	0.12161
320.0	50.5	25.5	64.8	47.8	26.3	1.761221	0.524	0.10832
325.0	50.2	25.2	63.9	46.9	25.5	1.650418	0.304	0.09688
330.0	49.9	24.9	63.0	46.0	24.8	1.552864	0.150	0.08698
335.0	49.6	24.6	62.2	45.2	24.1	1.466502	0.064	0.07841
340.0	49.4	24.4	61.4	44.4	23.5	1.389611	0.094	0.07095
345.0	49.1	24.1	60.6	43.6	22.9	1.320764	0.142	0.06442
350.0	48.9	23.9	59.9	42.9	22.4	1.258790	0.178	0.05871
355.0	48.6	23.6	59.2	42.2	21.8	1.202720	0.202	0.05367
360.0	48.4	23.4	58.5	41.5	21.4	1.151754	0.218	0.04922
365.0	48.2	23.2	57.9	40.9	21.0	1.105225	0.227	0.04528
370.0	48.0	23.0	57.2	40.2	20.6	1.062575	0.231	0.04176
375.0	47.8	22.8	56.7	39.7	20.3	1.023334	0.232	0.03863
380.0	47.6	22.6	56.1	39.1	19.9	0.987105	0.229	0.03582
385.0	47.4	22.4	55.6	38.6	19.6	0.953550	0.225	0.03330
390.0	47.2	22.2	55.0	38.0	19.3	0.922378	0.220	0.03103
395.0	47.0	22.0	54.5	37.5	18.9	0.893340	0.213	0.02897
400.0	46.8	21.8	54.1	37.1	18.6	0.866221	0.206	0.02711
405.0	46.7	21.7	53.6	36.6	18.3	0.840832	0.199	0.02542

410.0	46.5	21.5	53.2	36.2	18.0	0.817009	0.192	0.02388
415.0	46.4	21.4	52.7	35.7	17.8	0.794609	0.185	0.02247
420.0	46.2	21.2	52.3	35.3	17.5	0.773505	0.177	0.02118
425.0	46.1	21.1	51.9	34.9	17.2	0.753586	0.170	0.02000
430.0	45.9	20.9	51.6	34.6	17.0	0.734752	0.163	0.01891
435.0	45.8	20.8	51.2	34.2	16.7	0.716914	0.157	0.01791
440.0	45.6	20.6	50.9	33.9	16.5	0.699994	0.151	0.01699
445.0	45.5	20.5	50.5	33.5	16.2	0.683921	0.144	0.01614
450.0	45.4	20.4	50.2	33.2	16.0	0.668630	0.139	0.01534
455.0	45.3	20.3	49.9	32.9	15.8	0.654066	0.133	0.01461
460.0	45.1	20.1	49.6	32.6	15.6	0.640176	0.128	0.01393
465.0	45.0	20.0	49.3	32.3	15.3	0.626913	0.123	0.01329
470.0	44.9	19.9	49.0	32.0	15.1	0.614234	0.118	0.01270
475.0	44.8	19.8	48.7	31.7	14.9	0.602101	0.113	0.01214
480.0	44.7	19.7	48.4	31.4	14.7	0.590479	0.109	0.01163
485.0	44.6	19.6	48.2	31.2	14.5	0.579334	0.105	0.01114
490.0	44.5	19.5	47.9	30.9	14.3	0.568637	0.101	0.01068
495.0	44.4	19.4	47.7	30.7	14.2	0.558361	0.097	0.01026

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ROW Segment -9

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ÛßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßßÛ
Û       C O R O N A   A N D   F I E L D      Û
Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
Û   Source: Bonneville Power Administration   Û
ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                         INPUT DATA LIST



                3/ 5/2020          11:19:02
CROSS SECTION 9,,,,,,,,,,
"VERTICAL MONOPOLE DOUBLE CIRCUIT, NYPA LINES TO DYSINGER ",,,,,,,,,,
1,0,12,16,0.0,   0.50,   1.00,   0.00

(ENGLISH UNITS OPTION)

(GRADIENTS ARE COMPUTED BY PROGRAM)

PHYSICAL SYSTEM CONSISTS OF 16 CONDUCTORS, OF WHICH 12 ARE ENERGIZED PHASES

OPTIONS: 'COMB',,,,,,,,,,
  5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
'MN-DY1-A','A',   56.60,  104.30, 2,   1.108,  18.000, 219.100,   0.000,   1.331,   0.000
'MN-DY1-B','A',   56.30,   73.30, 2,   1.108,  18.000, 219.100,-120.000,   1.331,   0.000
'MN-DY1-C','A',   56.10,   42.30, 2,   1.108,  18.000, 219.100, 120.000,   1.331,   0.000
'MN-DY2-A','A',   93.40,  104.30, 2,   1.108,  18.000, 219.100,   0.000,   1.331,   0.000
'MN-DY2-B','A',   93.70,   73.30, 2,   1.108,  18.000, 219.100,-120.000,   1.331,   0.000
'MN-DY2-C','A',   93.90,   42.30, 2,   1.108,  18.000, 219.100, 120.000,   1.331,   0.000
'DY-RCR1-','A',  231.60,  104.30, 2,   1.108,  18.000, 219.100,   0.000,   1.331,   0.000
'DY-RCR1-','A',  231.30,   73.30, 2,   1.108,  18.000, 219.100,-120.000,   1.331,   0.000
'DY-RCR1-','A',  231.10,   42.30, 2,   1.108,  18.000, 219.100, 120.000,   1.331,   0.000
'DY-RCR2-','A',  268.40,  104.30, 2,   1.108,  18.000, 219.100,   0.000,   1.331,   0.000
'DY-RCR2-','A',  268.70,   73.30, 2,   1.108,  18.000, 219.100,-120.000,   1.331,   0.000
'DY-RCR2-','A',  268.90,   42.30, 2,   1.108,  18.000, 219.100, 120.000,   1.331,   0.000
'MN-DY1-1','A',   56.70,  141.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
'MN-DY2-1','A',   93.30,  141.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
'DY-RCR1-','A',  231.70,  141.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
'DY-RCR2-','A',  268.30,  141.30, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
100 -100.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
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CROSS SECTION 9,,,,,,,,,,
"VERTICAL MONOPOLE DOUBLE CIRCUIT, NYPA LINES TO DYSINGER ",,,,,,,,,

	DIST. FROM CENTER OF TOWER (FEET)	HEIGHT (FEET)	MAXIMUM GRADIENT (KV/CM)	SUBCON DIAM. (IN)	NO. OF SUBCON	SUBCON SPACING (IN)	VOLTAGE L-N (KV)	PHASE ANGLE (DEGREES)	CURRENT (kAmps)	CORONA LOSSES (KW/MI)
MN-DY1-A	56.60	104.30	15.25	1.11	2	18.00	219.10	0.00	1.33	7.721
MN-DY1-B	56.30	73.30	17.15	1.11	2	18.00	219.10	-120.00	1.33	16.567
MN-DY1-C	56.10	42.30	16.35	1.11	2	18.00	219.10	120.00	1.33	12.122
MN-DY2-A	93.40	104.30	15.17	1.11	2	18.00	219.10	0.00	1.33	7.466
MN-DY2-B	93.70	73.30	17.14	1.11	2	18.00	219.10	-120.00	1.33	16.481
MN-DY2-C	93.90	42.30	16.36	1.11	2	18.00	219.10	120.00	1.33	12.203
DY-RCR1-	231.60	104.30	15.17	1.11	2	18.00	219.10	0.00	1.33	7.466
DY-RCR1-	231.30	73.30	17.14	1.11	2	18.00	219.10	-120.00	1.33	16.481
DY-RCR1-	231.10	42.30	16.36	1.11	2	18.00	219.10	120.00	1.33	12.203
DY-RCR2-	268.40	104.30	15.25	1.11	2	18.00	219.10	0.00	1.33	7.721
DY-RCR2-	268.70	73.30	17.15	1.11	2	18.00	219.10	-120.00	1.33	16.567
DY-RCR2-	268.90	42.30	16.35	1.11	2	18.00	219.10	120.00	1.33	12.122
MN-DY1-1	56.70	141.30	9.49	0.53	1	0.00	0.00	0.00	0.00	0.000
MN-DY2-1	93.30	141.30	9.86	0.53	1	0.00	0.00	0.00	0.00	0.000
DY-RCR1-	231.70	141.30	9.86	0.53	1	0.00	0.00	0.00	0.00	0.000
DY-RCR2-	268.30	141.30	9.49	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
-100.0	44.7	19.7	50.5	33.5	12.8	0.000000	0.251	0.03343
-95.0	44.8	19.8	50.8	33.8	13.0	0.000000	0.253	0.03495
-90.0	44.9	19.9	51.2	34.2	13.3	0.000000	0.255	0.03656
-85.0	45.0	20.0	51.6	34.6	13.5	0.000000	0.256	0.03830
-80.0	45.2	20.2	51.9	34.9	13.8	0.000000	0.255	0.04015
-75.0	45.3	20.3	52.3	35.3	14.1	0.000000	0.252	0.04214
-70.0	45.4	20.4	52.8	35.8	14.3	0.000000	0.248	0.04427
-65.0	45.5	20.5	53.2	36.2	14.6	0.000000	0.241	0.04657

-60.0	45.7	20.7	53.6	36.6	14.9	0.000000	0.231	0.04904
-55.0	45.8	20.8	54.1	37.1	15.2	0.000000	0.217	0.05170
-50.0	45.9	20.9	54.5	37.5	15.5	0.000000	0.199	0.05457
-45.0	46.1	21.1	55.0	38.0	15.8	0.000000	0.176	0.05766
-40.0	46.2	21.2	55.5	38.5	16.1	0.000000	0.146	0.06101
-35.0	46.4	21.4	56.0	39.0	16.4	0.000000	0.111	0.06464
-30.0	46.5	21.5	56.5	39.5	16.7	0.000000	0.072	0.06856
-25.0	46.7	21.7	57.1	40.1	17.1	0.000000	0.061	0.07281
-20.0	46.8	21.8	57.6	40.6	17.4	0.000000	0.126	0.07742
-15.0	47.0	22.0	58.2	41.2	17.7	0.000000	0.220	0.08240
-10.0	47.2	22.2	58.7	41.7	18.1	0.000000	0.341	0.08780
-5.0	47.3	22.3	59.3	42.3	18.4	0.000000	0.493	0.09364
0.0	47.5	22.5	59.9	42.9	18.8	0.000000	0.681	0.09992
5.0	47.7	22.7	60.4	43.4	19.2	0.000000	0.910	0.10666
10.0	47.9	22.9	61.0	44.0	19.8	0.000000	1.188	0.11383
15.0	48.1	23.1	61.5	44.5	20.4	0.000000	1.521	0.12137
20.0	48.3	23.3	62.0	45.0	21.1	0.000000	1.915	0.12918
25.0	48.5	23.5	62.5	45.5	21.8	0.000000	2.373	0.13707
30.0	48.6	23.6	63.5	46.5	22.4	0.000000	2.890	0.14475
35.0	48.8	23.8	64.6	47.6	23.1	0.000000	3.452	0.15182
40.0	49.0	24.0	65.6	48.6	23.6	0.000000	4.034	0.15779
45.0	49.2	24.2	66.4	49.4	24.1	0.000000	4.600	0.16215
50.0	49.3	24.3	66.9	49.9	24.4	0.000000	5.106	0.16446
55.0	49.4	24.4	67.1	50.1	24.6	0.000000	5.516	0.16462
60.0	49.5	24.5	67.1	50.1	24.5	0.013707	5.809	0.16292
65.0	49.6	24.6	66.6	49.6	24.3	0.347577	5.992	0.16003
70.0	49.6	24.6	66.0	49.0	23.9	0.609843	6.085	0.15680
75.0	49.7	24.7	65.1	48.1	23.4	0.737073	6.112	0.15391
80.0	49.7	24.7	66.0	49.0	23.9	0.775388	6.084	0.15155
85.0	49.7	24.7	66.7	49.7	24.3	0.768138	5.990	0.14938
90.0	49.7	24.7	67.1	50.1	24.6	0.740456	5.808	0.14666
95.0	49.7	24.7	67.2	50.2	24.6	0.704984	5.515	0.14265
100.0	49.6	24.6	67.0	50.0	24.5	0.812922	5.107	0.13686
105.0	49.5	24.5	66.4	49.4	24.2	1.130049	4.604	0.12922
110.0	49.4	24.4	65.6	48.6	23.7	1.293068	4.043	0.12004
115.0	49.4	24.4	64.7	47.7	23.1	1.335474	3.469	0.10983
120.0	49.3	24.3	63.6	46.6	22.5	1.314596	2.920	0.09913
125.0	49.2	24.2	62.5	45.5	21.8	1.266079	2.421	0.08842
130.0	49.1	24.1	62.0	45.0	21.2	1.207749	1.987	0.07806
135.0	49.0	24.0	61.5	44.5	20.5	1.147894	1.625	0.06833
140.0	48.9	23.9	60.9	43.9	19.9	1.090182	1.334	0.05950

145.0	48.9	23.9	60.4	43.4	19.2	1.036089	1.109	0.05184
150.0	48.9	23.9	59.8	42.8	18.7	0.986059	0.947	0.04568
155.0	48.8	23.8	59.2	42.2	18.4	0.940062	0.843	0.04137
160.0	48.8	23.8	58.7	41.7	18.0	0.897860	0.792	0.03917
165.0	48.8	23.8	58.7	41.7	18.0	0.859137	0.792	0.03917
170.0	48.8	23.8	59.2	42.2	18.4	0.823564	0.843	0.04137
175.0	48.9	23.9	59.8	42.8	18.7	0.790821	0.947	0.04568
180.0	48.9	23.9	60.4	43.4	19.2	0.760617	1.109	0.05184
185.0	48.9	23.9	60.9	43.9	19.9	0.732687	1.334	0.05950
190.0	49.0	24.0	61.5	44.5	20.5	0.706799	1.625	0.06833
195.0	49.1	24.1	62.0	45.0	21.2	0.682744	1.987	0.07806
200.0	49.2	24.2	62.5	45.5	21.8	0.660340	2.421	0.08842
205.0	49.3	24.3	63.6	46.6	22.5	0.639427	2.920	0.09913
210.0	49.4	24.4	64.7	47.7	23.1	0.619863	3.469	0.10983
215.0	49.4	24.4	65.6	48.6	23.7	0.601522	4.043	0.12004
220.0	49.5	24.5	66.4	49.4	24.2	0.584294	4.604	0.12922
225.0	49.6	24.6	67.0	50.0	24.5	0.568081	5.107	0.13686
230.0	49.7	24.7	67.2	50.2	24.6	0.552795	5.515	0.14265
235.0	49.7	24.7	67.1	50.1	24.6	0.552186	5.808	0.14666
240.0	49.7	24.7	66.7	49.7	24.3	0.874778	5.990	0.14938
245.0	49.7	24.7	66.0	49.0	23.9	1.123513	6.084	0.15155
250.0	49.7	24.7	65.1	48.1	23.4	1.236464	6.112	0.15391
255.0	49.6	24.6	66.0	49.0	23.9	1.261401	6.085	0.15680
260.0	49.6	24.6	66.6	49.6	24.3	1.241947	5.992	0.16003
265.0	49.5	24.5	67.1	50.1	24.5	1.203063	5.809	0.16292
270.0	49.4	24.4	67.1	50.1	24.6	1.157189	5.516	0.16462
275.0	49.3	24.3	66.9	49.9	24.4	1.254156	5.106	0.16446
280.0	49.2	24.2	66.4	49.4	24.1	1.560857	4.600	0.16215
285.0	49.0	24.0	65.6	48.6	23.6	1.716791	4.034	0.15779
290.0	48.8	23.8	64.6	47.6	23.1	1.752779	3.452	0.15182
295.0	48.6	23.6	63.5	46.5	22.4	1.725276	2.890	0.14475
300.0	48.5	23.5	62.5	45.5	21.8	1.669925	2.373	0.13707
305.0	48.3	23.3	62.0	45.0	21.1	1.604698	1.915	0.12918
310.0	48.1	23.1	61.5	44.5	20.4	1.538005	1.521	0.12137
315.0	47.9	22.9	61.0	44.0	19.8	1.473586	1.188	0.11383
320.0	47.7	22.7	60.4	43.4	19.2	1.412955	0.910	0.10666
325.0	47.5	22.5	59.9	42.9	18.8	1.356578	0.681	0.09992
330.0	47.3	22.3	59.3	42.3	18.4	1.304431	0.493	0.09364
335.0	47.2	22.2	58.7	41.7	18.1	1.256277	0.341	0.08780
340.0	47.0	22.0	58.2	41.2	17.7	1.211796	0.220	0.08240
345.0	46.8	21.8	57.6	40.6	17.4	1.170653	0.126	0.07742

350.0	46.7	21.7	57.1	40.1	17.1	1.132521	0.061	0.07281
355.0	46.5	21.5	56.5	39.5	16.7	1.097103	0.072	0.06856
360.0	46.4	21.4	56.0	39.0	16.4	1.064126	0.111	0.06464
365.0	46.2	21.2	55.5	38.5	16.1	1.033349	0.146	0.06101
370.0	46.1	21.1	55.0	38.0	15.8	1.004558	0.176	0.05766
375.0	45.9	20.9	54.5	37.5	15.5	0.977564	0.199	0.05457
380.0	45.8	20.8	54.1	37.1	15.2	0.952199	0.217	0.05170
385.0	45.7	20.7	53.6	36.6	14.9	0.928316	0.231	0.04904
390.0	45.5	20.5	53.2	36.2	14.6	0.905783	0.241	0.04657
395.0	45.4	20.4	52.8	35.8	14.3	0.884484	0.248	0.04427

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ROW Segment -10

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Û       C O R O N A   A N D   F I E L D       Û
Û E F F E C T S   P R O G R A M   V E R. 3.1  Û
Û   Source: Bonneville Power Administration   Û
ÛÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÜÛ


                              INPUT DATA LIST



                 3/ 5/2020         11:19:41
 CROSS SECTION 10,,,,,,,,,,
 VERTICAL MONOPOLE SINGLE CIRCUIT WITH 2 345KV NYPA LINES,,,,,,,,,,
 1,0, 6, 8,0.0,   0.50,   1.00,   0.00

 (ENGLISH UNITS OPTION)

 (GRADIENTS ARE COMPUTED BY PROGRAM)

 PHYSICAL SYSTEM CONSISTS OF  8 CONDUCTORS, OF WHICH  6 ARE ENERGIZED PHASES

 OPTIONS: 'COMB',,,,,,,,,,
   5.000,  6.600,  9.800,  0.000,  1.000, 75.000,  3.280,  7.300,  3.280
 'STOLLE R','A',  -16.00,   79.90, 2,   1.212,  18.000, 219.100,   0.000,   1.200,   0.000
 'STOLLE R','A',  -16.50,   57.90, 2,   1.212,  18.000, 219.100,-120.000,   1.200,   0.000
 'STOLLE R','A',  -17.00,   35.90, 2,   1.212,  18.000, 219.100, 120.000,   1.200,   0.000
 'HOMER-A ','A',   16.00,   79.90, 2,   1.212,  18.000, 219.100,   0.000,   1.200,   0.000
 'HOMER-B ','A',   16.50,   57.90, 2,   1.212,  18.000, 219.100,-120.000,   1.200,   0.000
 'HOMER-C ','A',   17.00,   35.90, 2,   1.212,  18.000, 219.100, 120.000,   1.200,   0.000
 'STOLLE-S','A',  -10.50,  112.00, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 'HOMER-SW','A',   10.50,  112.00, 1,   0.530,   0.000,   0.000,   0.000,   0.000,   0.000
 100 -250.0    5.0
1COMBINED OUTPUT OF AUDIBLE NOISE, RADIO NOISE, TVI, OZONE CONCENTRATION, GROUND GRADIENT AND MAGNETIC FIELD
 CROSS SECTION 10,,,,,,,,,,
 VERTICAL MONOPOLE SINGLE CIRCUIT WITH 2 345KV NYPA LINES,,,,,,,,,,



             DIST. FROM              MAXIMUM  SUBCON   NO. OF       SUBCON   VOLTAGE   PHASE     CURRENT   CORONA
          CENTER OF TOWER  HEIGHT   GRADIENT  DIAM.   SUBCON       SPACING    L-N     ANGLE               LOSSES
               (FEET)      (FEET)   (KV/CM)   (IN)                 (IN)      (KV)  (DEGREES)  (kAmps)  (KW/MI)
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STOLLE R	-16.00	79.90	15.40	1.21	2	18.00	219.10	0.00	1.20	11.796
STOLLE R	-16.50	57.90	17.45	1.21	2	18.00	219.10	-120.00	1.20	26.524
STOLLE R	-17.00	35.90	16.32	1.21	2	18.00	219.10	120.00	1.20	17.164
HOMER-A	16.00	79.90	15.40	1.21	2	18.00	219.10	0.00	1.20	11.796
HOMER-B	16.50	57.90	17.45	1.21	2	18.00	219.10	-120.00	1.20	26.523
HOMER-C	17.00	35.90	16.32	1.21	2	18.00	219.10	120.00	1.20	17.164
STOLLE-S	-10.50	112.00	8.59	0.53	1	0.00	0.00	0.00	0.00	0.000
HOMER-SW	10.50	112.00	8.59	0.53	1	0.00	0.00	0.00	0.00	0.000

AN MICROPHONE HT.= 5.0 FT, RI ANT. HT.= 6.6 FT, TV ANT. HT.= 9.8 FT, ALTITUDE= 0.0 FT
RI FREQ= 1.000 MHZ, TV FREQ= 75.000 MHZ, WIND VEL.(OZ)= 0.500 MPH, GROUND CONDUCTIVITY = 7.3 MMHOS/M
E-FIELD TRANSDUCER HT.= 3.3FT, B-FIELD TRANSDUCER HT.= 3.3FT

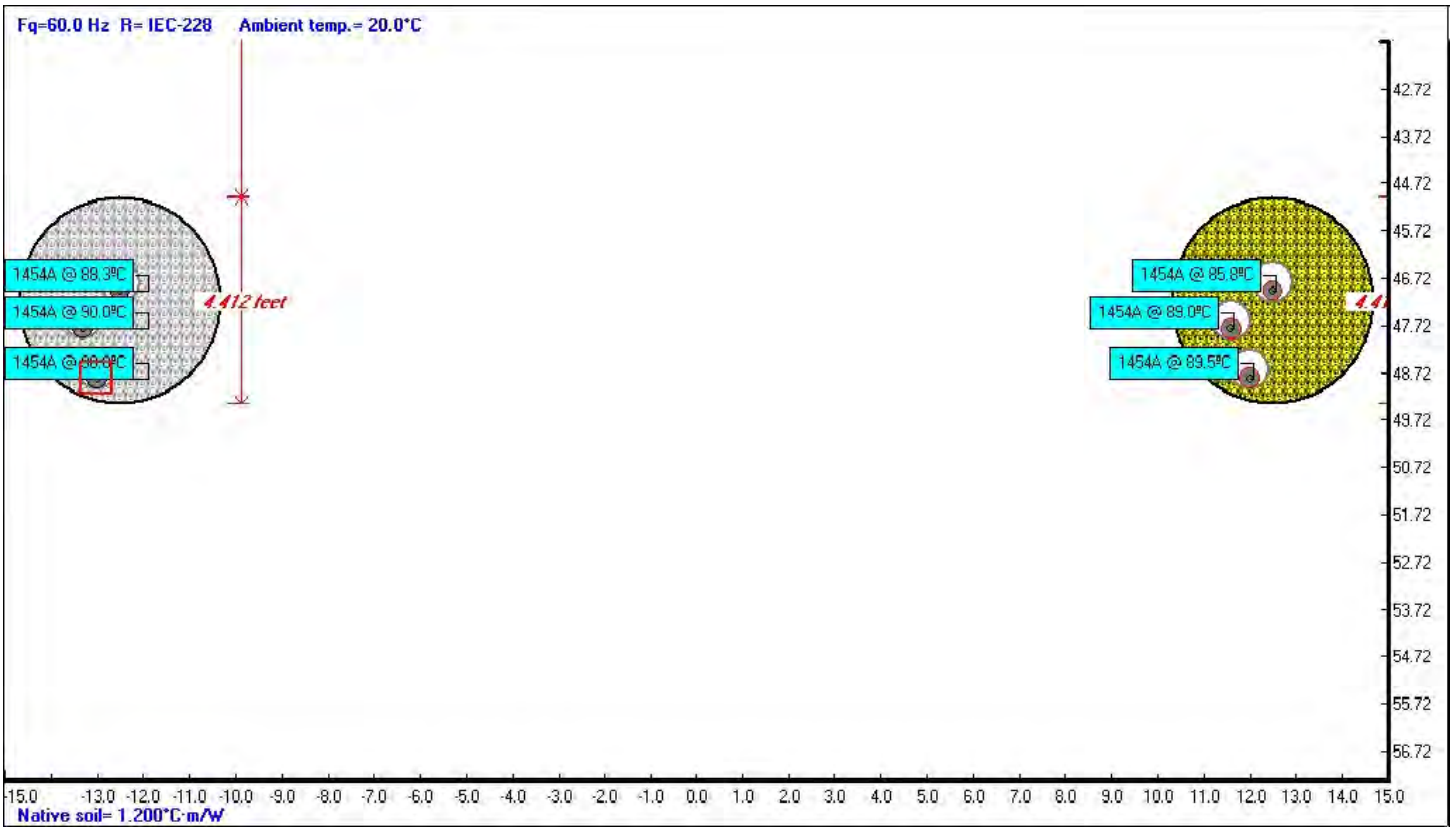
LATERAL DIST FROM REFERENCE (FEET)	AUDIBLE NOISE (RAIN) L50 DBA	AUDIBLE NOISE (FAIR) L50 DBA	RADIO INTERFERENCE (RAIN) L50 DBUV/M	RADIO INTERFERENCE (FAIR) L50 DBUV/M	TVI TOTAL RAIN DBUV/M	OZONE FOR RAIN RATE OF 1.00 IN/HR AT 0. FT LEVEL PPB	ELECTRIC FIELD KV/M	MAGNETIC FIELD GAUSS
-250.0	44.2	19.2	46.8	29.8	12.2	0.000000	0.132	0.00920
-245.0	44.3	19.3	47.0	30.0	12.4	0.000000	0.137	0.00956
-240.0	44.4	19.4	47.3	30.3	12.6	0.000000	0.141	0.00995
-235.0	44.5	19.5	47.5	30.5	12.8	0.000000	0.146	0.01036
-230.0	44.6	19.6	47.8	30.8	13.0	0.000000	0.151	0.01079
-225.0	44.7	19.7	48.0	31.0	13.2	0.000000	0.156	0.01125
-220.0	44.8	19.8	48.3	31.3	13.4	0.000000	0.161	0.01174
-215.0	44.9	19.9	48.6	31.6	13.6	0.000000	0.167	0.01226
-210.0	45.0	20.0	48.9	31.9	13.8	0.000000	0.173	0.01281
-205.0	45.1	20.1	49.2	32.2	14.0	0.000000	0.179	0.01341
-200.0	45.2	20.2	49.5	32.5	14.2	0.000000	0.185	0.01404
-195.0	45.4	20.4	49.8	32.8	14.5	0.000000	0.191	0.01472
-190.0	45.5	20.5	50.1	33.1	14.7	0.000000	0.197	0.01545
-185.0	45.6	20.6	50.4	33.4	14.9	0.000000	0.204	0.01623
-180.0	45.7	20.7	50.8	33.8	15.2	0.000000	0.211	0.01708
-175.0	45.9	20.9	51.1	34.1	15.4	0.000000	0.218	0.01798
-170.0	46.0	21.0	51.5	34.5	15.7	0.000000	0.224	0.01896
-165.0	46.1	21.1	51.9	34.9	15.9	0.000000	0.231	0.02002
-160.0	46.3	21.3	52.3	35.3	16.2	0.000000	0.238	0.02117
-155.0	46.4	21.4	52.7	35.7	16.5	0.000000	0.244	0.02241
-150.0	46.6	21.6	53.1	36.1	16.8	0.000000	0.249	0.02376
-145.0	46.7	21.7	53.6	36.6	17.0	0.000000	0.254	0.02523
-140.0	46.9	21.9	54.0	37.0	17.3	0.000000	0.258	0.02684
-135.0	47.0	22.0	54.5	37.5	17.7	0.000000	0.261	0.02859

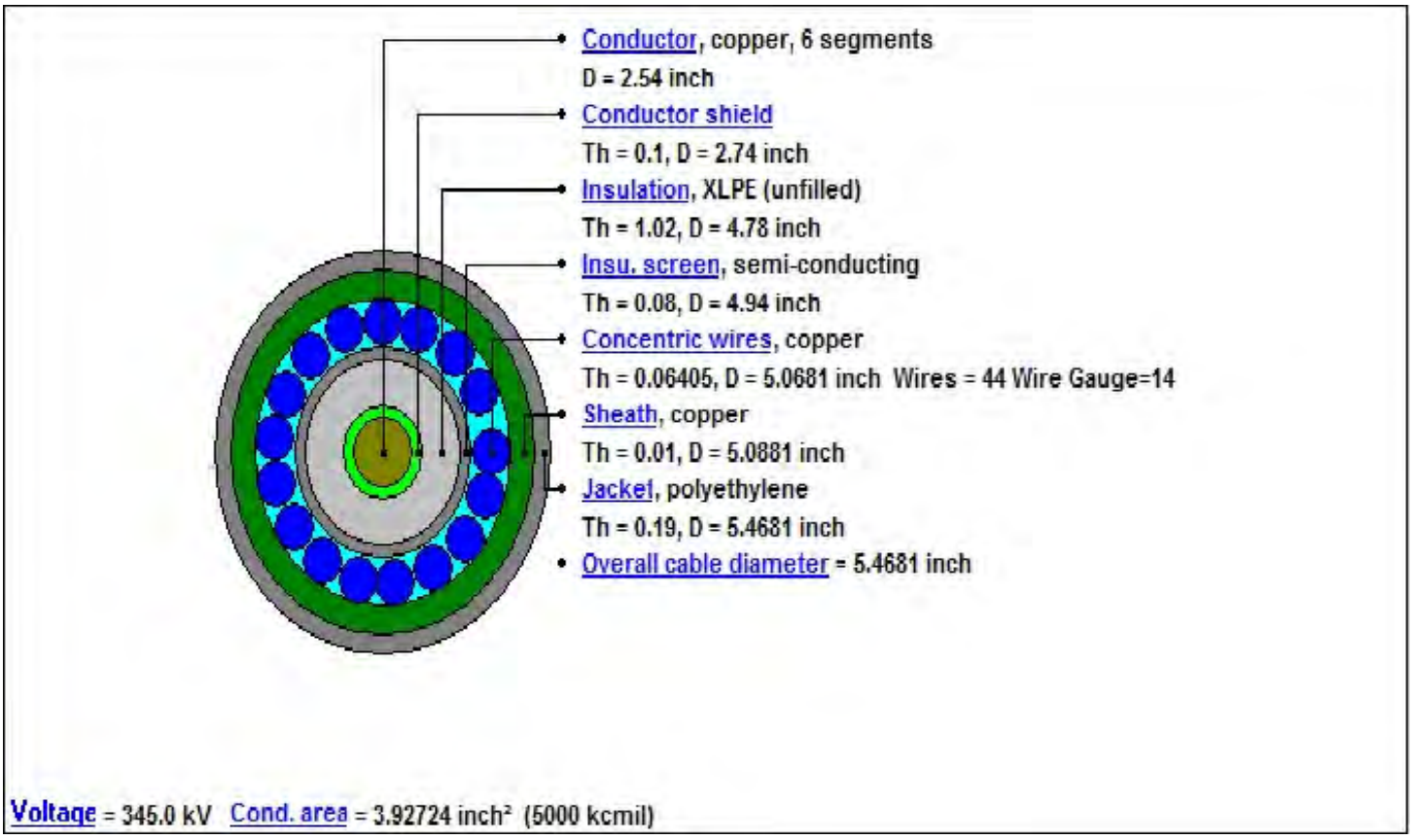
-130.0	47.2	22.2	55.0	38.0	18.0	0.000000	0.262	0.03052
-125.0	47.4	22.4	55.6	38.6	18.3	0.000000	0.260	0.03263
-120.0	47.5	22.5	56.1	39.1	18.6	0.000000	0.255	0.03495
-115.0	47.7	22.7	56.7	39.7	19.0	0.000000	0.245	0.03751
-110.0	47.9	22.9	57.3	40.3	19.4	0.000000	0.230	0.04034
-105.0	48.1	23.1	57.9	40.9	19.7	0.000000	0.208	0.04347
-100.0	48.3	23.3	58.5	41.5	20.1	0.000000	0.177	0.04695
-95.0	48.5	23.5	59.2	42.2	20.5	0.000000	0.135	0.05081
-90.0	48.7	23.7	59.9	42.9	20.9	0.000000	0.085	0.05512
-85.0	49.0	24.0	60.6	43.6	21.3	0.000000	0.062	0.05992
-80.0	49.2	24.2	61.3	44.3	21.8	0.000000	0.143	0.06527
-75.0	49.4	24.4	62.0	45.0	22.2	0.000000	0.278	0.07125
-70.0	49.7	24.7	62.8	45.8	22.7	0.000000	0.461	0.07793
-65.0	49.9	24.9	63.6	46.6	23.1	0.000000	0.699	0.08535
-60.0	50.2	25.2	64.4	47.4	23.6	0.000000	1.004	0.09357
-55.0	50.4	25.4	65.1	48.1	24.0	0.000000	1.391	0.10260
-50.0	50.7	25.7	65.9	48.9	24.4	0.000000	1.873	0.11238
-45.0	50.9	25.9	66.6	49.6	24.8	0.000000	2.459	0.12273
-40.0	51.2	26.2	67.2	50.2	25.5	0.000000	3.148	0.13331
-35.0	51.4	26.4	67.8	50.8	26.3	0.000000	3.919	0.14351
-30.0	51.7	26.7	69.0	52.0	27.0	0.000000	4.723	0.15250
-25.0	51.9	26.9	69.9	52.9	27.6	0.000000	5.483	0.15931
-20.0	52.0	27.0	70.5	53.5	27.9	0.000000	6.115	0.16318
-15.0	52.1	27.1	70.5	53.5	27.9	0.000058	6.558	0.16401
-10.0	52.2	27.2	70.1	53.1	27.7	0.556318	6.809	0.16271
-5.0	52.3	27.3	69.2	52.2	27.1	1.205889	6.916	0.16088
0.0	52.3	27.3	68.1	51.1	26.4	1.463019	6.943	0.16006
5.0	52.3	27.3	69.2	52.2	27.1	1.489253	6.916	0.16088
10.0	52.2	27.2	70.1	53.1	27.7	1.426710	6.809	0.16271
15.0	52.1	27.1	70.5	53.5	27.9	1.337600	6.558	0.16401
20.0	52.0	27.0	70.5	53.5	27.9	1.258629	6.115	0.16318
25.0	51.9	26.9	69.9	52.9	27.6	1.971547	5.483	0.15931
30.0	51.7	26.7	69.0	52.0	27.0	2.452856	4.723	0.15250
35.0	51.4	26.4	67.8	50.8	26.3	2.526948	3.919	0.14351
40.0	51.2	26.2	67.2	50.2	25.5	2.437282	3.148	0.13331
45.0	50.9	25.9	66.6	49.6	24.8	2.298718	2.459	0.12273
50.0	50.7	25.7	65.9	48.9	24.4	2.153709	1.873	0.11238
55.0	50.4	25.4	65.1	48.1	24.0	2.016788	1.391	0.10260
60.0	50.2	25.2	64.4	47.4	23.6	1.892153	1.004	0.09357
65.0	49.9	24.9	63.6	46.6	23.1	1.780198	0.699	0.08535
70.0	49.7	24.7	62.8	45.8	22.7	1.679993	0.461	0.07793

75.0	49.4	24.4	62.0	45.0	22.2	1.590234	0.278	0.07125
80.0	49.2	24.2	61.3	44.3	21.8	1.509607	0.143	0.06527
85.0	49.0	24.0	60.6	43.6	21.3	1.436914	0.062	0.05992
90.0	48.7	23.7	59.9	42.9	20.9	1.371110	0.085	0.05512
95.0	48.5	23.5	59.2	42.2	20.5	1.311300	0.135	0.05081
100.0	48.3	23.3	58.5	41.5	20.1	1.256723	0.177	0.04695
105.0	48.1	23.1	57.9	40.9	19.7	1.206733	0.208	0.04347
110.0	47.9	22.9	57.3	40.3	19.4	1.160779	0.230	0.04034
115.0	47.7	22.7	56.7	39.7	19.0	1.118393	0.245	0.03751
120.0	47.5	22.5	56.1	39.1	18.6	1.079177	0.255	0.03495
125.0	47.4	22.4	55.6	38.6	18.3	1.042784	0.260	0.03263
130.0	47.2	22.2	55.0	38.0	18.0	1.008921	0.262	0.03052
135.0	47.0	22.0	54.5	37.5	17.7	0.977328	0.261	0.02859
140.0	46.9	21.9	54.0	37.0	17.3	0.947783	0.258	0.02684
145.0	46.7	21.7	53.6	36.6	17.0	0.920090	0.254	0.02523
150.0	46.6	21.6	53.1	36.1	16.8	0.894079	0.249	0.02376
155.0	46.4	21.4	52.7	35.7	16.5	0.869598	0.244	0.02241
160.0	46.3	21.3	52.3	35.3	16.2	0.846515	0.238	0.02117
165.0	46.1	21.1	51.9	34.9	15.9	0.824710	0.231	0.02002
170.0	46.0	21.0	51.5	34.5	15.7	0.804080	0.224	0.01896
175.0	45.9	20.9	51.1	34.1	15.4	0.784529	0.218	0.01798
180.0	45.7	20.7	50.8	33.8	15.2	0.765974	0.211	0.01708
185.0	45.6	20.6	50.4	33.4	14.9	0.748340	0.204	0.01623
190.0	45.5	20.5	50.1	33.1	14.7	0.731557	0.197	0.01545
195.0	45.4	20.4	49.8	32.8	14.5	0.715565	0.191	0.01472
200.0	45.2	20.2	49.5	32.5	14.2	0.700308	0.185	0.01404
205.0	45.1	20.1	49.2	32.2	14.0	0.685736	0.179	0.01341
210.0	45.0	20.0	48.9	31.9	13.8	0.671802	0.173	0.01281
215.0	44.9	19.9	48.6	31.6	13.6	0.658464	0.167	0.01226
220.0	44.8	19.8	48.3	31.3	13.4	0.645685	0.161	0.01174
225.0	44.7	19.7	48.0	31.0	13.2	0.633429	0.156	0.01125
230.0	44.6	19.6	47.8	30.8	13.0	0.621664	0.151	0.01079
235.0	44.5	19.5	47.5	30.5	12.8	0.610361	0.146	0.01036
240.0	44.4	19.4	47.3	30.3	12.6	0.599492	0.141	0.00995
245.0	44.3	19.3	47.0	30.0	12.4	0.589033	0.137	0.00956

1

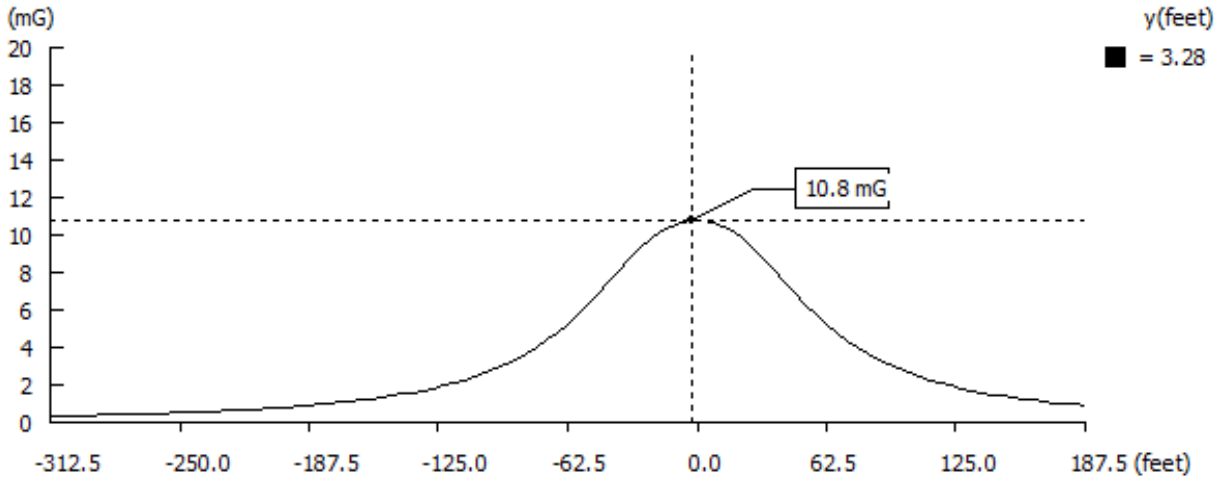
ROW Segment -11


Fq=60.0 Hz R= IEC-228 Ambient temp.= 20.0°C
1454A @ 88.3ºC
1454A @ 90.0ºC
1454A @ 88.8ºC
4.412 feet
1454A @ 85.8ºC
1454A @ 89.0ºC
1454A @ 89.5ºC
42.72
43.72
44.72
45.72
46.72
47.72
48.72
49.72
50.72
51.72
52.72
53.72
54.72
55.72
56.72
-15.0 -13.0 -12.0 -11.0 -10.0 -9.0 -8.0 -7.0 -6.0 -5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0
Native soil= 1.200°C·m/W


Conductor, copper, 6 segments
D = 2.54 inch
Conductor shield
Th = 0.1, D = 2.74 inch
Insulation, XLPE (unfilled)
Th = 1.02, D = 4.78 inch
Insu. screen, semi-conducting
Th = 0.08, D = 4.94 inch
Concentric wires, copper
Th = 0.06405, D = 5.0681 inch Wires = 44 Wire Gauge=14
Sheath, copper
Th = 0.01, D = 5.0881 inch
Jacket, polyethylene
Th = 0.19, D = 5.4681 inch
Overall cable diameter = 5.4681 inch
Voltage = 345.0 kV Cond. area = 3.92724 inch² (5000 kcmil)

Study: 345 kV and 700 MW Cable Sizing Calculations
Execution: 5000 KCMIL OX 345 kV AC EMF

Date: 02/13/20



Input data:

Circuit No.	Phase	X (feet)	Y (feet)	Ampacity	Angle
1	A	12.5	47.0	1453.7	0.0
1	B	11.6	47.8	1453.7	-120.0
1	C	12.0	48.85	1453.7	120.0
2	A	-12.5	47.0	1453.7	0.0
2	B	-13.3	47.8	1453.7	-120.0
2	C	-13.0	48.85	1453.7	120.0

X Min: -312.5
X Max: 187.5
Step X: 5 feet

Add a range of Y values
Add a single Y value

Y Value: 3.28 feet

>
<
<<

0.0
1.0
3.28

Save...

Default
Ok
Cancel

MAGNETIC FLUX DENSITY [mG]
==========

Study : 345 kV and 700 MW Cable Sizing Calculations
Execution: 5000 KCMIL OX 345 kV AC EMF

Report created on: 02/13/20 1:43:27 PM

X (feet) Y=3.28 (feet)

Cable Magnetic Field		**Existing lines magnetic field**		**Commulative Magnetic Field (mG)**
Lateral distance (ft)	B(mG)	Lateral Distance (ft)	MAGNETIC FIELD mGAUSS	
-312.5	0.3386	0	16.647	16.9856
-307.5	0.3495	5	17.698	18.0475
-302.5	0.3609	10	18.859	19.2199
-297.5	0.3728	15	20.147	20.5198
-292.5	0.3854	20	21.58	21.9654
-287.5	0.3985	25	23.184	23.5825
-282.5	0.4124	30	24.986	25.3984
-277.5	0.427	35	27.024	27.451
-272.5	0.4424	40	29.342	29.7844
-267.5	0.4586	45	31.995	32.4536
-262.5	0.4757	50	35.056	35.5317
-257.5	0.4937	55	38.616	39.1097
-252.5	0.5128	60	42.794	43.3068
-247.5	0.533	65	47.749	48.282
-242.5	0.5545	70	53.691	54.2455
-237.5	0.5772	75	60.908	61.4852
-232.5	0.6013	80	69.79	70.3913
-227.5	0.6269	85	80.876	81.5029
-222.5	0.6542	90	94.895	95.5492
-217.5	0.6833	95	112.773	113.4563
-212.5	0.7143	100	135.48	136.1943
-207.5	0.7475	105	163.319	164.0665
-202.5	0.7829	110	193.903	194.6859
-197.5	0.8209	115	219.083	219.9039
-192.5	0.8616	120	226.631	227.4926
-187.5	0.9054	125	212.505	213.4104
-182.5	0.9525	130	185.888	186.8405
-177.5	1.0033	135	150.256	151.2593

-172.5	1.0582	140	104.98	106.0382
-167.5	1.1175	145	84.614	85.7315
-162.5	1.1818	150	130.143	131.3248
-157.5	1.2516	155	206.082	207.3336
-152.5	1.3275	160	289.671	290.9985
-147.5	1.4102	165	373.907	375.3172
-142.5	1.5006	170	446.577	448.0776
-137.5	1.5994	175	493.881	495.4804
-132.5	1.7079	180	512.232	513.9399
-127.5	1.827	185	510.189	512.016
-122.5	1.9583	190	507.376	509.3343
-117.5	2.1031	195	519.138	521.2411
-112.5	2.2634	200	528.722	530.9854
-107.5	2.441	205	516.494	518.935
-102.5	2.6382	210	473.447	476.0852
-97.5	2.8575	215	403.736	406.5935
-92.5	3.1017	220	323.825	326.9267
-87.5	3.374	225	249.717	253.091
-82.5	3.6776	230	189.275	192.9526
-77.5	4.016	235	145.051	149.067
-72.5	4.3924	240	118.829	123.2214
-67.5	4.81	245	112.176	116.986
-62.5	5.2706	250	123.865	129.1356
-57.5	5.7749	255	149.498	155.2729
-52.5	6.3207	260	183.848	190.1687
-47.5	6.9023	265	221.99	228.8923
-42.5	7.5091	270	257.726	265.2351
-37.5	8.1246	275	282.806	290.9306
-32.5	8.7267	280	290.241	298.9677
-27.5	9.2892	285	279.582	288.8712
-22.5	9.7855	290	256.903	266.6885
-17.5	10.1933	295	229.514	239.7073
-12.5	10.4993	300	202.303	212.8023
-7.5	10.6999	305	177.53	188.2299
-2.5	10.7979	310	155.861	166.6589
2.5	10.7965	315	137.231	148.0275
7.5	10.6949	320	121.306	132.0009
12.5	10.4883	325	107.697	118.1853
17.5	10.1737	330	96.038	106.2117
22.5	9.7561	335	86.012	95.7681
27.5	9.2503	340	77.354	86.6043
32.5	8.6802	345	69.844	78.5242
37.5	8.073	350	63.302	71.375
42.5	7.455	355	57.58	65.035
47.5	6.8481	360	52.553	59.4011
52.5	6.2681	365	48.121	54.3891
57.5	5.7251	370	44.197	49.9221

62.5	5.2243	375	40.712	45.9363
67.5	4.7674	380	37.605	42.3724
72.5	4.3537	385	34.826	39.1797
77.5	3.9809	390	32.333	36.3139
82.5	3.646	395	30.089	33.735
87.5	3.3455	400	28.064	31.4095
92.5	3.0761	405	26.23	29.3061
97.5	2.8344	410	24.566	27.4004
102.5	2.6174	415	23.052	25.6694
107.5	2.4223	420	21.671	24.0933
112.5	2.2465	425	20.408	22.6545
117.5	2.0879	430	19.251	21.3389
122.5	1.9445	435	18.187	20.1315
127.5	1.8145	440	17.209	19.0235
132.5	1.6965	445	16.306	18.0025
137.5	1.589	450	15.472	17.061
142.5	1.4911	455	14.7	16.1911
147.5	1.4015	460	13.984	15.3855
152.5	1.3195	465	13.318	14.6375
157.5	1.2443	470	12.699	13.9433
162.5	1.1751	475	12.122	13.2971
167.5	1.1113	480	11.583	12.6943
172.5	1.0525	485	11.08	12.1325
177.5	0.998	490	10.608	11.606
182.5	0.9476	495	10.166	11.1136
187.5	0.9009			

Peak value found at:

X (feet)	Y=3.28 (feet)	B(mG)
-2.5		10.7979