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Lockport-Batavia Line 112

Rebuild Project

Appendix D

Electric and Magnetic Field (EMF) Report

BURNS McDONNELL

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Electric and Magnetic Field (EMF) Analysis for Lockport-Batavia Line 112 Rebuild Project

nationalgrid

National Grid

Lockport to Batavia 112
Project No. 117703

Revision 0
6/14/2021

Electric and Magnetic Field (EMF) Analysis for Lockport-Batavia Line 112 Rebuild Project

prepared for

National Grid
Lockport to Batavia 112
NY, NY

Project No. 117703

Revision 0
6/14/2021

prepared by

Burns & McDonnell Consultants, Inc.
Kansas City, Missouri

INDEX AND CERTIFICATION

National Grid
Electric and Magnetic Field (EMF) Analysis for Lockport-Batavia Line 112 Rebuild Project
Project No. 117703

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Certification

I hereby certify, as a Professional Engineer in the state of New York, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by National Grid or others without specific verification or adaptation by the Engineer.

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Date: 6/14/2021

6/14/2021

RECORD OF REVISIONS

Rev. No.	Date	By	Pages	Description
A	3/22/2021	JK	123	Issued for Revision
B	4/29/2021	JK	120	National Grid Comments Included
0	6/14/2021	JK	120	Final Issue

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
Burns & McDonnell	Burns & McDonnell Consultants, Inc.
BMcD	Burns & McDonnell
“	Inch
µ	Micro
º	Degree
A	Ampere
AC	Alternating Current
ACSS/TW	Aluminum Conductor Steel Supported Trapezoidal Wire
AN	Audible Noise
cm	Centimeter
C	Centigrade
dB(A)	A-Weighted Decibel
EHV	Extra High Voltage
EMF	Electromagnetic Fields
EPRI	Electric Power Research Institute
F	Fahrenheit
ft.	Foot
$ft.^2$	Square foot
kcmil	Kilocircularmils
kV	Kilovolt

Abbreviation	Term/Phrase/Name
kVrms	Kilovolts root mean squared value
kV/m	Kilovolt per meter; Electric Field Measurement Unit
L_{50}	50% Probability of Being Exceeded
m	Meter
m^2	Square meter
mA	Milliampere
mG	Milligauss; Magnetic Flux Density Measurement Unit
MOT	Maximum Operating Temperature
NESC	National Electrical Safety Code
Pa	Pascal
ROW	Right of Way
V	Volt

1.0 INTRODUCTION

This report analyzes the changes to the electric and magnetic fields (EMF) associated with the rebuild and reconductoring of the 115kV Lockport - Batavia Line 112. This analysis incorporated the EMF associated with existing transmission lines within the right-of-way and was done in accordance with the New York State Interim Policy on Electric and Magnetic Fields.

1.1 Project Description

The Lockport-Batavia Line 112 Rebuild Project consists of the replacement of structures and conductor between Structure 1-2 outside the Lockport Substation fence and Structure 211 over a distance of approximately 21.7 miles.

Twenty-two representative cross-sections were developed to capture existing conditions and twenty-five cross-sections were developed to capture the proposed conditions These cross-sections are provided in Appendix A.

There are a number of conductor types in service on Existing Line 112 including 636 kcmil AAC "Orchid" (37 Strand), 795 kcmil ACSR "Coot" (36/1), and 428 kcmil AAC conductor (19 strand). These existing conductors will be replaced with a 795 kcmil ACSR "Drake" (26/7) conductor [redacted]. Rebuild Line 112 will be designed for and operate at the same 115kV voltage as Existing Line 112.

All new structures will be tubular steel in varying configurations including single circuit delta configured davit arm monopoles, single circuit delta configured braced post monopoles, horizontally configured H-Frame structures, vertically configured steel monopole structures, and vertically configured double circuit davit arm monopole structures.

1.2 Circuit Ratings and Details

[redacted] the Existing Line 112 and the other lines that share ROW. These ratings were used for the Existing Conditions analysis.

For the Rebuilt Line 112 the Winter Normal Rating corresponds to the ACSR Drake 795kcmil conductor, [redacted]. This current was used for the Proposed Conditions analysis. The ratings of the other circuits in the right-of-way remain unchanged for the Proposed Condition.

Table 1-2 shows the most important details for Line 112 and the adjacent lines sharing the ROW.

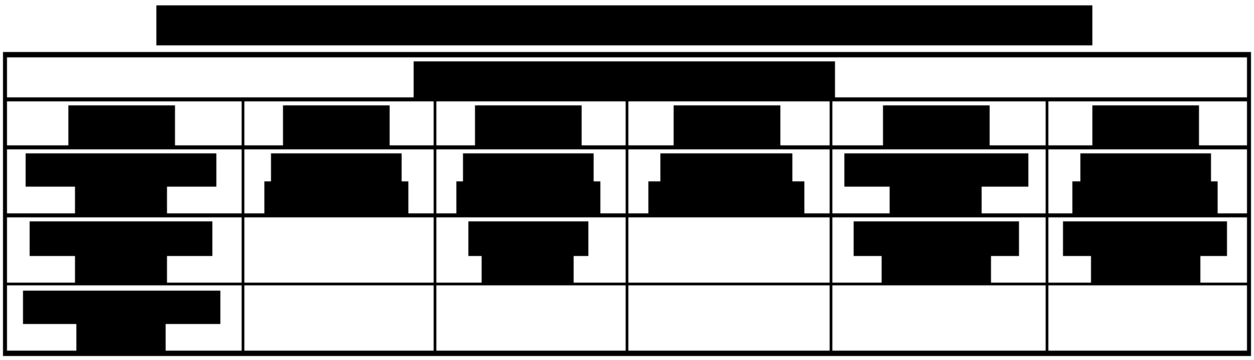


Table 1-2: Existing Line 112 and Adjacent Lines Details

Line	Name	Conductor	Start Str. #	End Str. #	Governing NESC Code	Minimum Clearance (ft.)
Line 112	Lockport-Batavia 112	636 AAC Orchid	Lockport	3	1973	17.7
		795 ACSR Coot	3	4		
		428 AAC Non-Std.	4	212		
Line 107	Lockport-Batavia 107	795 ACSR Coot	Lockport	118	2012	20.1
Line 108	Lockport-Batavia 108	795 ACSR Coot	Lockport	1-1	1973	17.7
		250kcmil Cu.	1-1	78		
		795 ACSR Coot	78	78-8		
		250kcmil Cu.	78-8	112		
		795 ACSR Coot	112	113		
		250kcmil Cu.	113	119		
Line 111	Lockport-Mortimer 111	795 ACSR Drake	Lockport	120	2002	20.1
Line 113	Lockport-Mortimer 113	795 ACSR Coot	Lockport	5	1973	17.7
		397.5 ACSR Lark	5	121		
Line 114	Lockport-Mortimer 114	795 ACSR Coot	Lockport	5	1973	17.7
		397.5 ACSR Lark	5	121		

2.0 EMF VALUES AND METHODOLOGY

The values of reference and the methodology used to calculate the EMF at ground level are provided in this chapter.

2.1 New York State Public Service Commission Standards

The applicable electric field strength standards established by the NYSPSC are set forth in Opinion No. 78-13 (issued June 19, 1978). The magnetic field standards established by the NYSPSC are set forth in the NYSPSC's Interim Policy Statement on Magnetic Fields, issued September 11, 1990, (Interim Policy).

Opinion No. 78-13 established an electric field strength interim standard of 1.6 kV/m for Article VII electric transmission lines, at the edge of the right-of-way, one meter above ground level, with the line at the rated voltage. The Interim Policy establishes a magnetic field strength interim standard of 200 mG, measured at one meter above grade, at the edge of the right-of-way, at the point of lowest conductor sag. The measurement is based on the expected circuit phase currents being equal to the Winter Normal conductor rating.

Engineering Document GL.06.01.101 Electric and Magnetic Fields (EMF) Calculation & Mitigation, Version 3.0-10/07/2020, point 4.3.3 establishes the following limits within the right-of-way for electric field levels (no limit within ROW for Magnetic Field).

- Typical ROW – 11.8 kV/m
- Maximum for Private Road Crossings – 11.0 kV/m
- Maximum for Highway Crossings – 7.0 kV/m

2.2 Calculation Procedure

Electric field and magnetic field calculations were performed using BPA CORONA Program. This program permits faster and simpler data input and very detailed output.

All calculations and profiles were made along a line perpendicular to the transmission line and at 1 meter (3.28 feet) above ground level. For the simulation of line cross sections corresponding to segments between two structures, the minimum conductor clearance indicated in Table 1-2 was assumed for Line 112 and adjacent circuits.

Balanced three phase loads were assumed. For parallel lines, the current flow was assumed in the same direction. The phasing used for the circuits in this report was based on in field phase checks of the existing circuits in the ROW conducted by National Grid Transmission Line Services on January 21st. 2021.

All lines on the ROW were assumed to be operating under Winter Normal conditions.

Tables from 3-1 to 3-4 show the electric and magnetic fields shown calculated at the edges of the right of way and the maximum inside the right of way, for Existing Conditions Stage and Proposed Conditions Stage.

Appendix A summarizes all the Electric Field and Magnetic Field profiles.

3.0 CALCULATED ELECTRIC FIELD AND MAGNETIC FIELD

The calculated electric and magnetic fields under Winter Normal conditions are presented in this chapter as required by the NYSPSC set forth in Opinion No. 78-13 (issued June 19, 1978) and in the NYSPSC's Interim Policy Statement on Magnetic Fields, issued September 11, 1990, (Interim Policy).

3.1 Existing Conditions Stage

Tables 3-1 to 3-2 show the calculated Electric Fields for Existing Conditions stage. Three values are presented:

- The Electric Field/Magnetic Field at the ROW edge corresponding to the 0 feet
- The maximum value inside the ROW
- The Electric Field/Magnetic Field at the edge corresponding to the ROW width

3.1.1 Calculated Electric Field

Table 3-1: Electric Field Levels Inside the ROW; Existing Conditions

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Electric Field @ ROW Edge (0') (kV/m)	Max Electric Field Inside ROW (kV/m)	Electric- Field @ ROW Edge (width) (kV/m)
C-X-01/2-4	114; 113; 112; 111; 107; 108	200	0.76 South	3.21	1.30 North
C-C-02/5-6	114; 113; 112; 111; 107; 108	200	0.72 South	3.12	1.29 North
C-X-03/7-13	114; 113; 112; 111; 107; 108	200	0.89 South	3.11	1.36 North
C-X-04/14	114; 113; 112; 111; 107; 108	200	0.68 South	3.38	1.39 North
C-X-05/15	114; 113; 112; 111; 107; 108	200	0.20 South	3.82	1.55 North
C-X-06/16	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-07/17-35	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-08/36	114; 113; 112; 111; 107; 108	200	0.60 South	3.28	1.39 North
C-X-09/37-55	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-10/56	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-11/57-66	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-12/67	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Electric Field @ ROW Edge (0') (kV/m)	Max Electric Field Inside ROW (kV/m)	Electric- Field @ ROW Edge (width) (kV/m)
C-X-13/68-80	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-C-14/81-81-1	114; 113; 112; 111; 107; 108	200	Two NYSEG 345kV Lines Cross Over Perpendicular to the 112 Line, The Electric Field is Dictated by the 345kV		
C-X-15/82-91	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-16/92	114; 113; 112; 111; 107; 108	300	0.14 South	3.95	0.14 North
C-X-17/93-116-1	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-18/117	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-19/118-119	114; 113; 112; 111; 107; 108	200	0.59 South	3.29	1.39 North
C-X-20/120-124	108; 112	80	2.09 SW	2.73	1.54 NE
C-X-21/125-140	112	40	1.03 SW	1.99	1.60 NE
C-X-22/141	112	40	1.03 South	1.99	1.60 North
C-X-31, C-X-33, C-X-34, C-X-35, C-X-36/160-170 and 173-211	112	40	0.91 SW	1.98	1.56 NE
C-X-32/171-172	112	40	The Span from Structure 171-172 Crosses Perpendicularly Under Two NYPA 345kV Lines, The Electric Field is Dictated by the 345kV		

3.1.2 Calculated Magnetic Field

Table 3-2: Magnetic Field Levels Inside the ROW; Existing Conditions

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Magnetic Field @ ROW Edge (0') (mG)	Max Magnetic Field Inside ROW (mG)	Magnetic Field @ ROW Edge (width) (mG)
C-X-01/2-4	114; 113; 112; 111; 107; 108	200	175.02 South	483.79	132.03 North
C-C-02/5-6	114; 113; 112; 111; 107; 108	200	144.25 South	500.70	127.28 North
C-X-03/7-13	114; 113; 112; 111; 107; 108	200	165.19 South	499.81	132.71 North
C-X-04/14	114; 113; 112; 111; 107; 108	200	160.39 South	499.49	137.10 North
C-X-05/15	114; 113; 112; 111; 107; 108	200	94.87 South	560.16	159.44 North
C-X-06/16	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-07/17-35	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-08/36	114; 113; 112; 111; 107; 108	200	133.94 South	531.26	134.82 North
C-X-09/37-55	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Magnetic Field @ ROW Edge (0') (mG)	Max Magnetic Field Inside ROW (mG)	Magnetic Field @ ROW Edge (width) (mG)
C-X-10/56	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-11/57-66	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-12/67	114; 113; 112; 111; 107; 108	200	137.86 South	532.57	134.89 North
C-X-13/68-80	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-C-14/81-81-1	114; 113; 112; 111; 107; 108	200	Two NYSEG 345kV Lines Cross Over Perpendicular to the 112 Line, The Magnetic Field is Dictated by the 345kV		
C-X-15/82-91	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-16/92	114; 113; 112; 111; 107; 108	300	40.70 South	434.86	27.34 North
C-X-17/93-116-1	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-18/117	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-19/118-119	114; 113; 112; 111; 107; 108	200	135.15 South	531.65	134.87 North
C-X-20/120-124	108; 112	80	189.54 SW	332.57	189.59 NE
C-X-21/125-140	112	40	84.07 SW	229.84	177.07 NE
C-X-22/141	112	40	84.07 SW	229.84	177.07 NE
C-X-31, C-X-33, C-X-34, C-X-35, C-X-36/160-170 and 173-211	112	40	76.02 SW	231.47	191.31 NE
C-X-32/171-172	112	40	The Span from Structure 171-172 Crosses Perpendicularly Under Two NYPA 345kV Lines, The Magnetic Field is Dictated by the 345kV		

3.2 Proposed Conditions Stage

Tables 3-3 to 3-4 show the calculated EMF for Proposed Conditions stage. Three values are presented:

- The Electric Field/Magnetic Field at the ROW edge corresponding to the 0 feet
- The maximum value inside the ROW
- The Electric Field/Magnetic Field at the edge corresponding to the ROW width

3.2.1 Calculated Electric Fields

Table 3-3: Electric Field Levels Inside the ROW; Proposed Conditions

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Electric Field @ ROW Edge (0') (kV/m)	Max Electric Field Inside ROW (kV/m)	Electric- Field @ ROW Edge (width) (kV/m)
C-X-01/2-4	114; 113; 112; 111; 107; 108	200	0.75 South	3.63	1.30 North
C-C-02/5-6	114; 113; 112; 111; 107; 108	200	0.73 South	3.09	1.29 North
C-X-03/7-13	114; 113; 112; 111; 107; 108	200	0.89 South	3.08	1.36 North
C-X-04/14	114; 113; 112; 111; 107; 108	200	0.71 South	3.69	1.40 North
C-X-05/15	114; 113; 112; 111; 107; 108	200	0.20 South	3.95	1.55 North
C-X-06/16	114; 113; 112; 111; 107; 108	200	0.62 South	3.23	1.39 North
C-X-07/17-35	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-08/36	114; 113; 112; 111; 107; 108	200	0.63 South	3.22	1.39 North
C-X-09/37-55	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-10/56	114; 113; 112; 111; 107; 108	200	0.62 South	3.23	1.39 North
C-X-11/57-66	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-12/67	114; 113; 112; 111; 107; 108	200	0.62 South	3.32	1.39 North
C-X-13/68-80	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-C-14/81-81-1	114; 113; 112; 111; 107; 108	200	Two NYSEG 345kV Lines Cross Over Perpendicular to the 112 Line, The Electric Field is Dictated by the 345kV		
C-X-15/82-91	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-16/92	114; 113; 112; 111; 107; 108	300	0.13 South	3.89	0.14 North
C-X-17/93-116-1	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-18/117	114; 113; 112; 111; 107; 108	200	0.62 South	3.43	1.39 North
C-X-19/118-119	114; 113; 112; 111; 107; 108	200	0.60 South	3.27	1.39 North
C-X-20/120-124	108; 112	125	1.58 SW	2.68	0.26 NE
C-X-21/125-140	112	100	0.37 SW	2.02	0.26 NE
C-X-22/141	112	100	0.07 South	2.23	0.08 North
C-X-23/142	112	100	0.34 South	2.05	0.28 North
C-X-24, C-X-26, C-X-28, C-X-30, C-X-35/143; 153; 156; 159-1 and 200	112	100	0.07 SW	2.27	0.07 NE

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Electric Field @ ROW Edge (0') (kV/m)	Max Electric Field Inside ROW (kV/m)	Electric- Field @ ROW Edge (width) (kV/m)
C-X-25, C-X-27, C-X-29, C-X-31, C-X-33, C-X-36/144-152; 154-155; 157-159; 160-170; 173-199 and 201-211	112	100	0.34 SW	2.05	0.28 NE
C-X-32/171-172	112	40	The Span from Structure 171-172 Crosses Perpendicularly Under Two NYPA 345kV Lines, The Electric Field is Dictated by the 345kV		

3.2.2 Calculated Magnetic Field

Table 3-4: Magnetic Field Levels Inside the ROW; Proposed Conditions

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Magnetic Field @ ROW Edge (0') (mG)	Max Magnetic Field Inside ROW (mG)	Magnetic Field @ ROW Edge (width) (mG)
C-X-01/2-4	114; 113; 112; 111; 107; 108	200	188.35 South	507.65	134.59 North
C-C-02/5-6	114; 113; 112; 111; 107; 108	200	158.52 South	502.41	129.44 North
C-X-03/7-13	114; 113; 112; 111; 107; 108	200	178.33 South	500.51	134.90 North
C-X-04/14	114; 113; 112; 111; 107; 108	200	197.46 South	500.65	143.33 North
C-X-05/15	114; 113; 112; 111; 107; 108	200	102.04 South	578.78	161.26 North
C-X-06/16	114; 113; 112; 111; 107; 108	200	169.66 South	532.86	141.13 North
C-X-07/17-35	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-08/36	114; 113; 112; 111; 107; 108	200	168.50 South	532.50	141.08 North
C-X-09/37-55	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-10/56	114; 113; 112; 111; 107; 108	200	169.66 South	532.86	141.13 North
C-X-11/57-66	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-12/67	114; 113; 112; 111; 107; 108	200	172.36 South	533.82	141.15 North
C-X-13/68-80	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-C-14/81-81-1	114; 113; 112; 111; 107; 108	200	Two NYSEG 345kV Lines Cross Over Perpendicular to the 112 Line, The Magnetic Field is Dictated by the 345kV		
C-X-15/82-91	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-16/92	114; 113; 112; 111; 107; 108	300	47.58 South	458.95	28.54 North
C-X-17/93-116-1	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-18/117	114; 113; 112; 111; 107; 108	200	119.05 South	571.02	133.86 North

Figure/Structures	Circuits on ROW	ROW Width (ft.)	Magnetic Field @ ROW Edge (0') (mG)	Max Magnetic Field Inside ROW (mG)	Magnetic Field @ ROW Edge (width) (mG)
C-X-19/118-119	114; 113; 112; 111; 107; 108	200	150.74 South	533.67	137.05 North
C-X-20/120-124	108; 112	125	123.43 SW	340.50	43.49 NE
C-X-21/125-140	112	100	49.24 SW	283.09	45.60 NE
C-X-22/141	112	100	57.94 South	275.22	51.37 North
C-X-23/142	112	100	46.03 South	283.80	48.99 North
C-X-24, C-X-26, C-X-28, C-X-30, C-X-35/143; 153; 156; 159-1 and 200	112	100	54.52 SW	277.57	54.52 NE
C-X-25, C-X-27, C-X-29, C-X-31, C-X-33, C-X-36/144-152; 154-155; 157-159; 160-170; 173-199 and 201-211	112	100	46.03 SW	283.80	48.99 NE
C-X-32/171-172	112	40	The Span from Structure 171-172 Crosses Perpendicularly Under Two NYPA 345kV Lines, The Electric Field is Dictated by the 345kV		

3.3 Value Comparisons

Tables 3-5 and 3-6 show a comparison between the Existing and Proposed conditions for the calculated Electric Field and Magnetic Field, respectively.

Table 3-5: Electric Field Comparison

Figure/Structures	Electric Field @ ROW Edge (0') (kV/m) Existing/Proposed	Max Electric Field Inside ROW (kV/m) Existing/Proposed	Electric- Field @ ROW Edge (width) (kV/m) Existing/Proposed
C-X-01/2-4	0.76/0.75	3.21/3.63	1.30/1.30
C-C-02/5-6	0.72/0.73	3.12/3.09	1.29/1.29
C-X-03/7-13	0.89/0.89	3.11/3.08	1.36/1.36
C-X-04/14	0.68/0.71	3.38/3.69	1.39/1.40
C-X-05/15	0.20/0.20	3.82/3.95	1.55/1.55
C-X-06/16	0.59/0.62	3.29/3.23	1.39/1.39
C-X-07/17-35	0.59/0.60	3.29/3.27	1.39/1.39
C-X-08/36	0.60/0.63	3.28/3.22	1.39/1.39
C-X-09/37-55	0.59/0.60	3.29/3.27	1.39/1.39
C-X-10/56	0.59/0.62	3.29/3.23	1.39/1.39
C-X-11/57-66	0.59/0.60	3.29/3.27	1.39/1.39
C-X-12/67	0.59/0.62	3.29/3.32	1.39/1.39
C-X-13/68-80	0.59/0.60	3.29/3.27	1.39/1.39
C-X-15/82-91	0.59/0.60	3.29/3.27	1.39/1.39
C-X-16/92	0.14/0.13	3.95/3.89	0.14/0.14
C-X-17/93-116-1	0.59/0.60	3.29/3.27	1.39/1.39
C-X-18/117	0.59/0.62	3.29/3.43	1.39/1.39

Figure/Structures	Electric Field @ ROW Edge (0') (kV/m) Existing/Proposed	Max Electric Field Inside ROW (kV/m) Existing/Proposed	Electric- Field @ ROW Edge (width) (kV/m) Existing/Proposed
C-X-19/118-119	0.59/0.60	3.29/3.27	1.39/1.39
C-X-20/120-124	2.09/0.58	2.73/2.68	1.54/0.26
C-X-21/125-140	1.03/0.37	1.99/2.02	1.60/0.26
C-X-22/141	1.03/0.07	1.99/2.23	1.60/0.08
C-X-23/142	0.91/0.34	1.98/2.05	1.56/0.28
C-X-24, C-X-26, C-X-28, C-X-30, C-X-35/143; 153; 156; 159-1 and 200	0.59/0.07	3.29/2.27	1.39/0.07
C-X-25, C-X-27, C-X-29, C-X-31, C-X-33, C-X-36/144-152; 154-155; 157-159; 160-170; 173-199 and 201-211	0.14/0.34	3.95/2.05	0.14/0.28

Table 3-6: Magnetic Field Comparison

Figure/Structures	Magnetic Field @ ROW Edge (0') (mG) Existing/Proposed	Max Magnetic Field Inside ROW (mG) Existing/Proposed	Magnetic Field @ ROW Edge (width) (mG) Existing/Proposed
C-X-01/2-4	175.02/188.35	483.79/507.65	132.03/134.59
C-C-02/5-6	144.25/158.52	500.70/502.41	127.28/129.44
C-X-03/7-13	165.19/178.33	499.81/500.51	132.71/134.90
C-X-04/14	160.39/197.46	499.49/500.65	137.10/143.33
C-X-05/15	94.87/102.04	560.16/578.78	159.44/161.26
C-X-06/16	135.15/169.66	531.65/532.86	134.87/141.13
C-X-07/17-35	135.15/150.74	531.65/533.67	134.87/137.05
C-X-08/36	133.94/168.50	531.26/532.50	134.82/141.08
C-X-09/37-55	135.15/150.74	531.65/533.67	134.87/137.05
C-X-10/56	135.15/169.66	531.65/532.86	134.87/141.13
C-X-11/57-66	135.15/150.74	531.65/533.67	134.87/137.05
C-X-12/67	137.86/172.36	532.57/533.82	134.89/141.15
C-X-13/68-80	135.15/150.74	531.65/533.67	134.87/137.05
C-X-15/82-91	135.15/150.74	531.65/533.67	134.87/137.05
C-X-16/92	40.70/47.58	434.86/458.95	27.34/28.54
C-X-17/93-116-1	135.15/150.74	531.65/533.67	134.87/137.05
C-X-18/117	135.15/119.05	531.65/571.02	134.87/133.86
C-X-19/118-119	135.15/150.74	531.65/533.67	134.87/137.05
C-X-20/120-124	189.54/49.69	332.57/340.50	189.59/97.03
C-X-21/125-140	84.07/49.24	229.84/283.09	177.07/45.60
C-X-22/141	84.07/57.94	229.84/275.22	177.07/51.37
C-X-23/142	76.02/46.03	231.47/283.80	191.31/48.99
C-X-24, C-X-26, C-X-28, C-X-30, C-X-35/143; 153; 156; 159-1 and 200	135.15/54.52	531.65/277.57	134.87/54.52
C-X-25, C-X-27, C-X-29, C-X-31, C-X-33, C-X-36/144-152; 154-155; 157-159; 160-170; 173-199 and 201-211	40.70/46.03	434.86/283.80	27.34/48.99

4.0 CONCLUSIONS

4.1 Electric Field

The Electric Field at the ROW edges will remain below the limit of 1.6kV/m.

The maximum Electric Field within the ROW will remain below the limits of 11.8kV/m for Typical ROW; 11.0kV/m for Private Road Crossings and 7.0kV/m for Highway Crossings

4.2 Magnetic Field

The Magnetic Field at the ROW edges will remain below the limit of 200mG.

4.3 General

For most of the cases the Electric Field at the ROW edges will not significantly change from the Existing Conditions to the Proposed Conditions, except for those segments where the Line 112 runs alone, and the ROW width is increased, for those cases the Electric Field at ROW edges is expected to decrease.

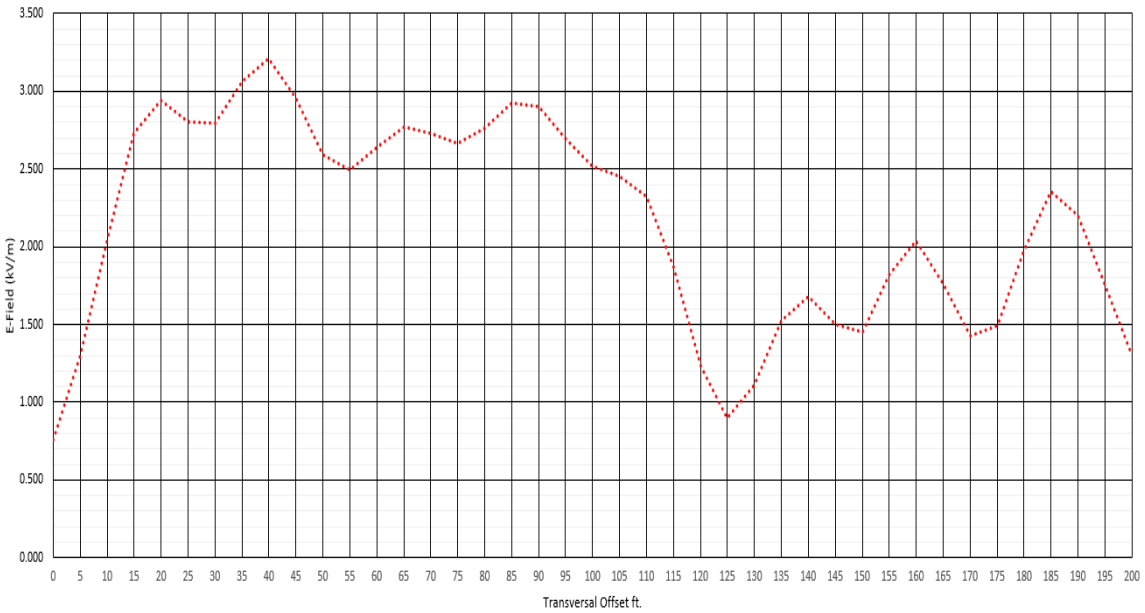
The maximum value of the Electric Field within the ROW remains relative constant from the Existing Conditions to the Proposed Conditions, except for those segments where the Line 112 runs alone, and new delta and vertical configurations are used. For those cases, the maximum Electric Field decreases.

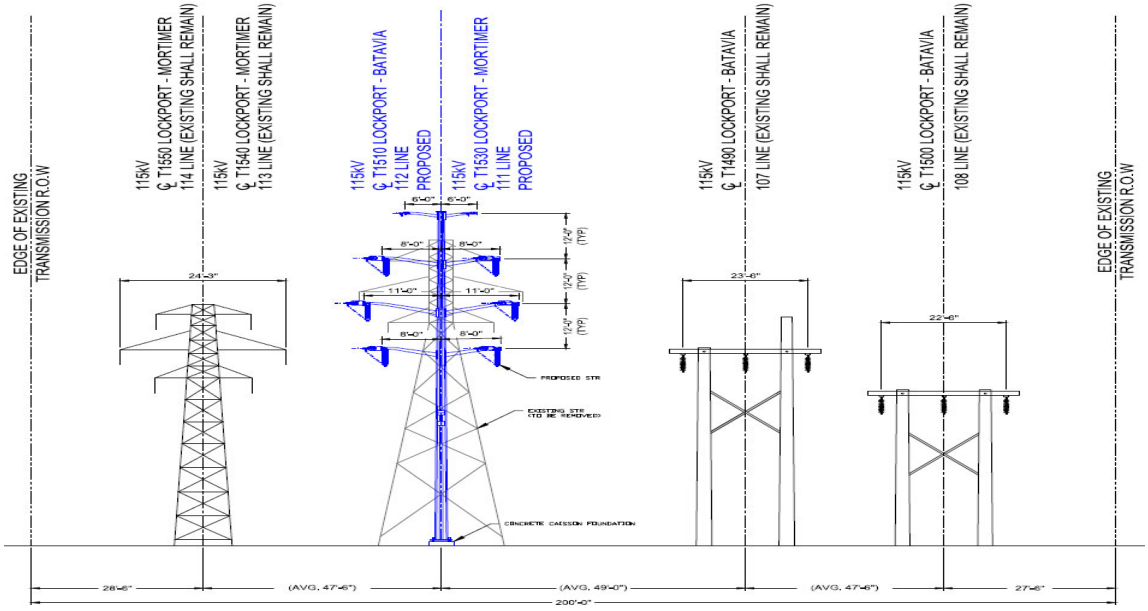
Similar decrements will occur for the Magnetic Field.

APPENDIX A - EMF PROFILES

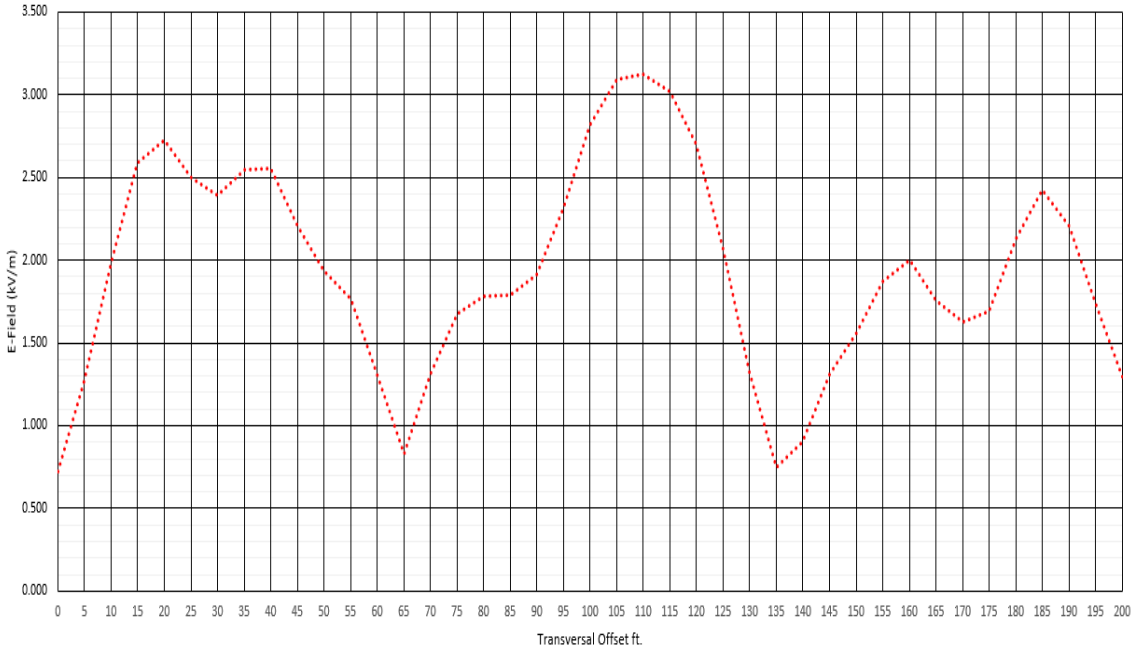
Electric Field Profiles; Existing Conditions

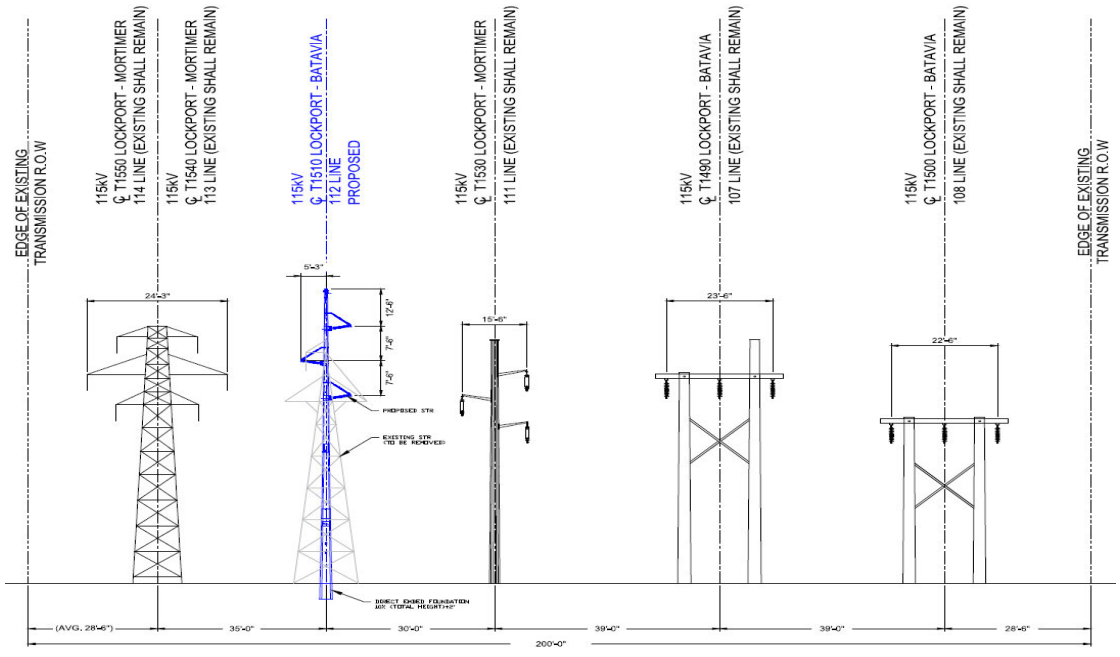
Existing Conditions; E-Field Profile; Section 2-4



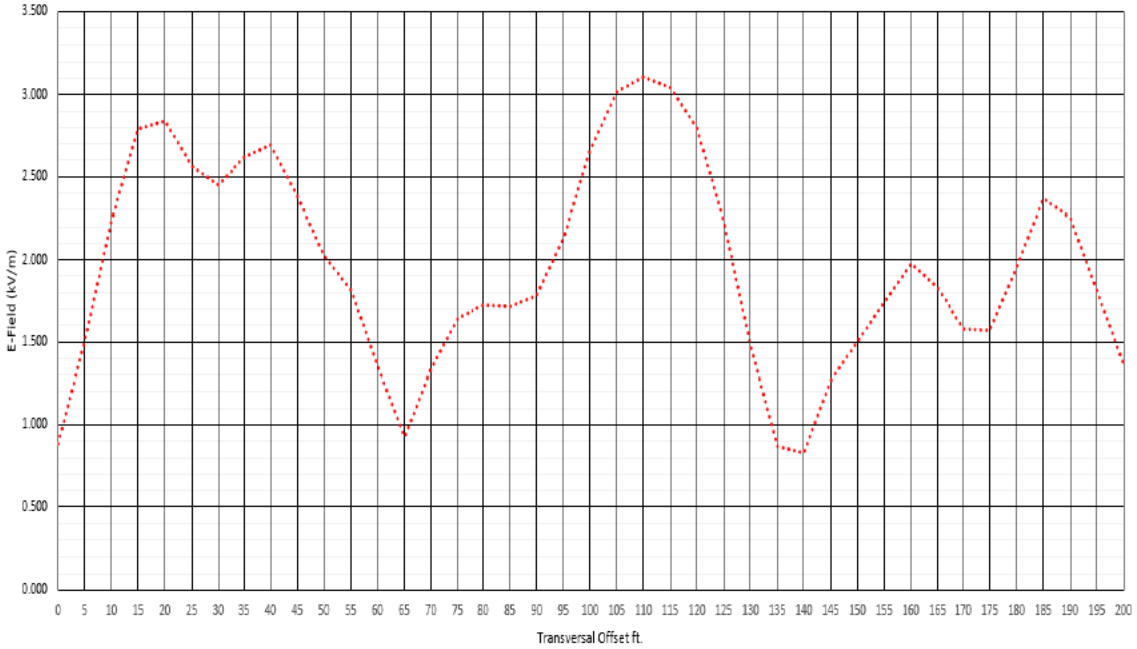


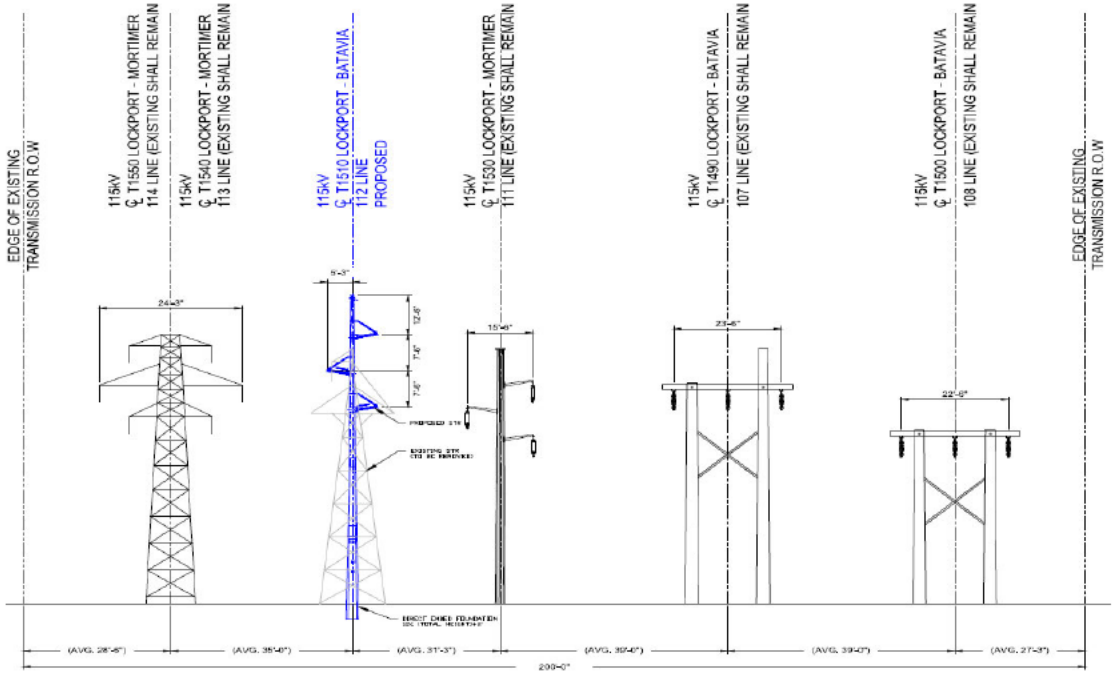
Existing Conditions; Section 5-6; E-Field Profile



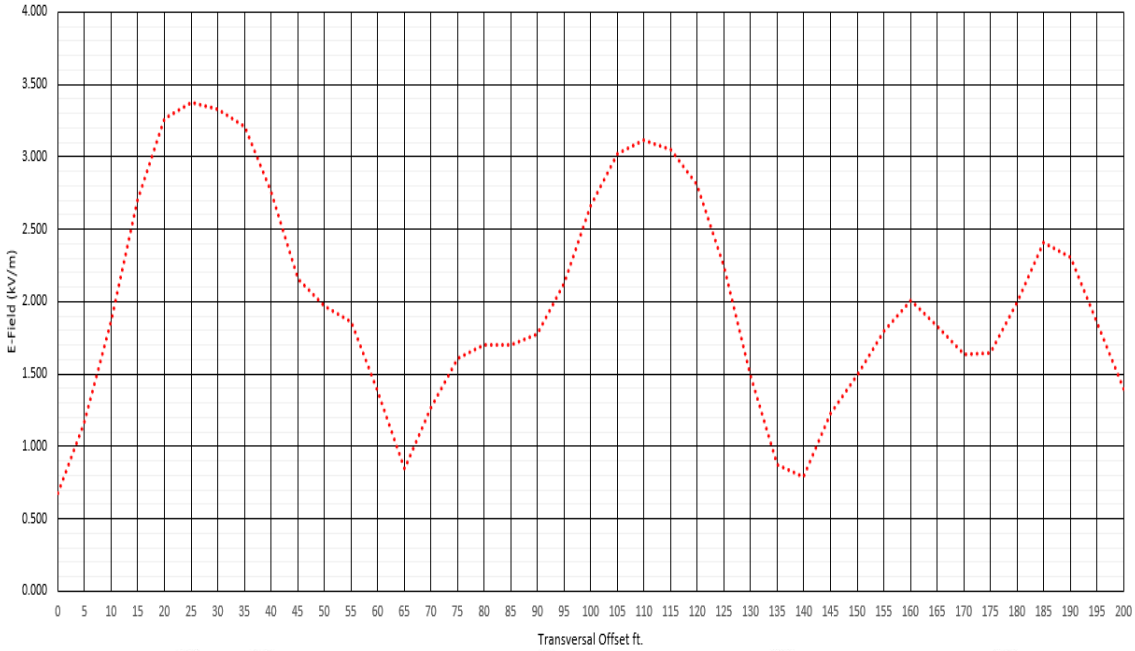


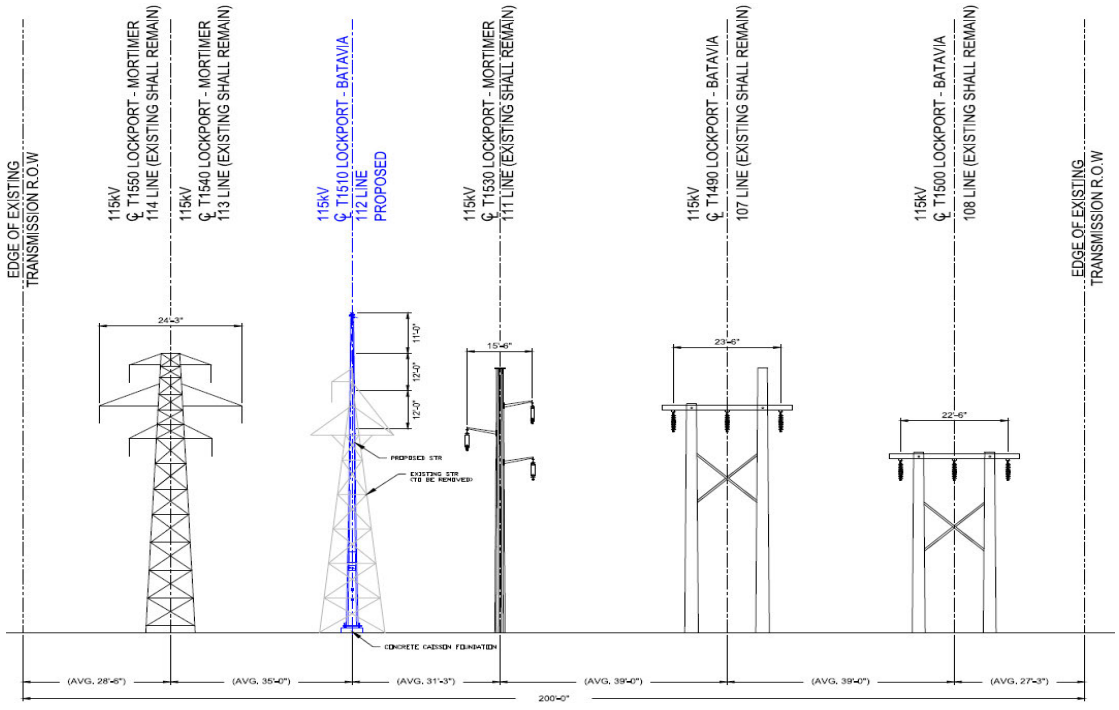
Existing Conditions; Section 7-13; E-Field Profile



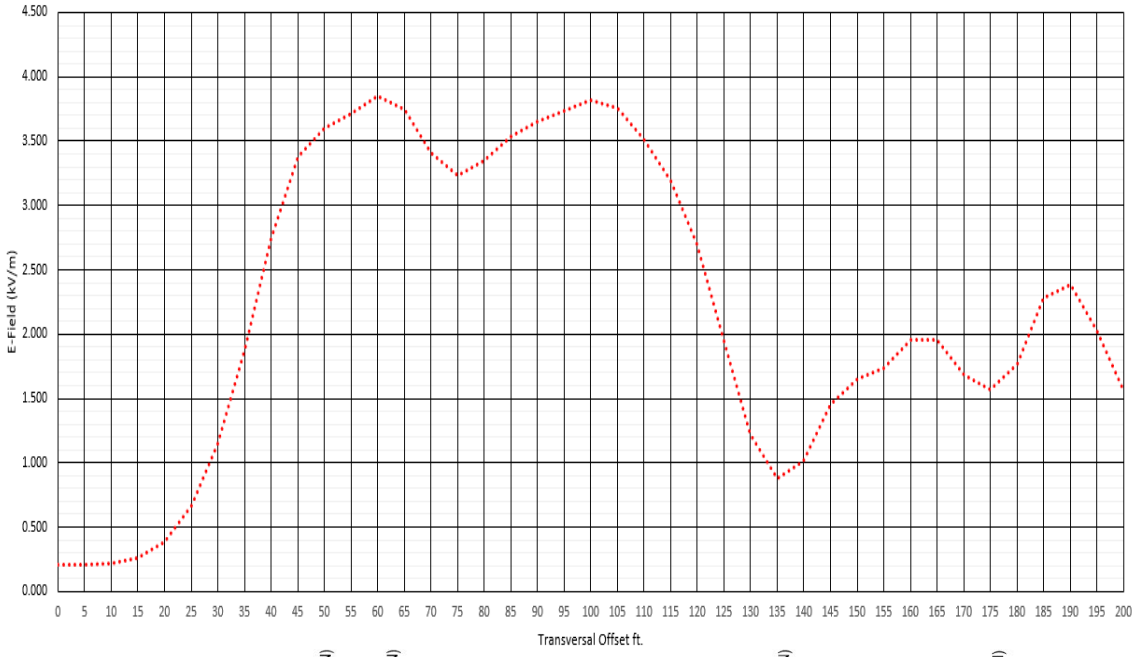


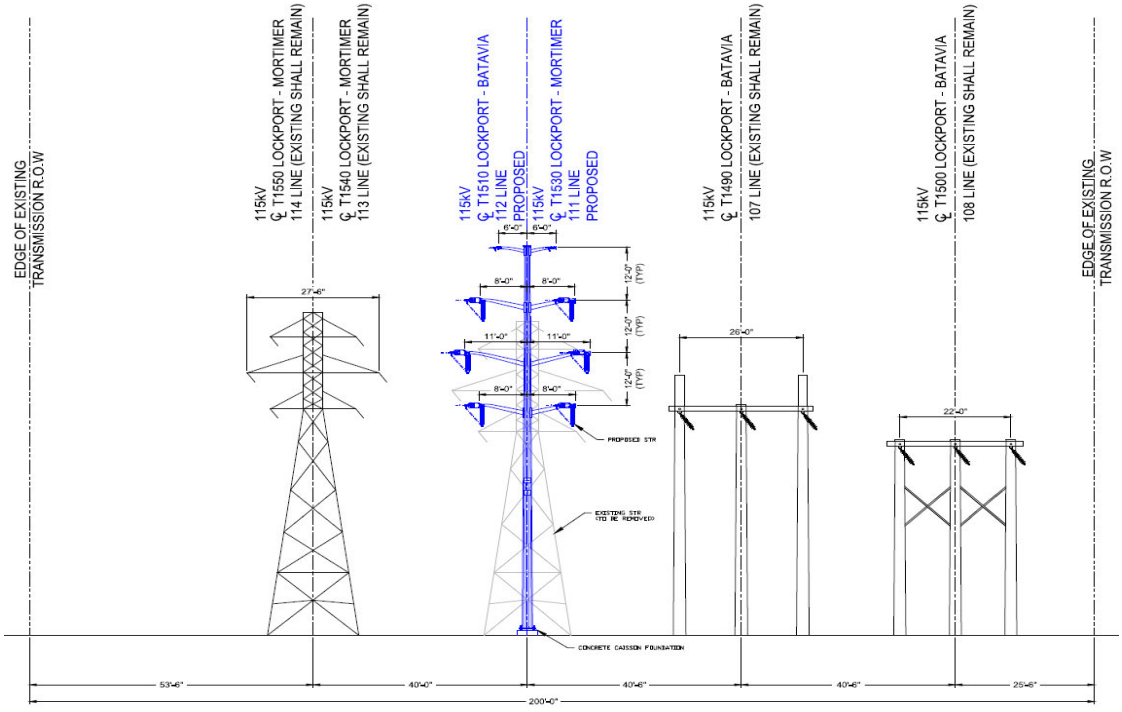
Existing Conditions; Str. 14; E-Field Profile



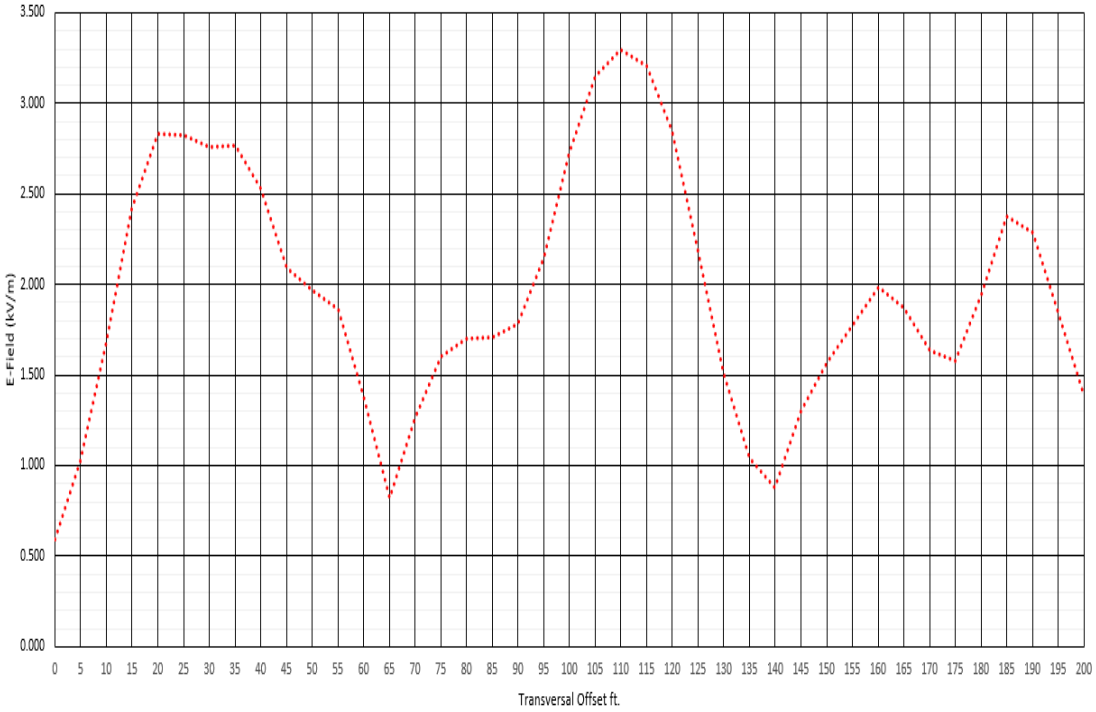


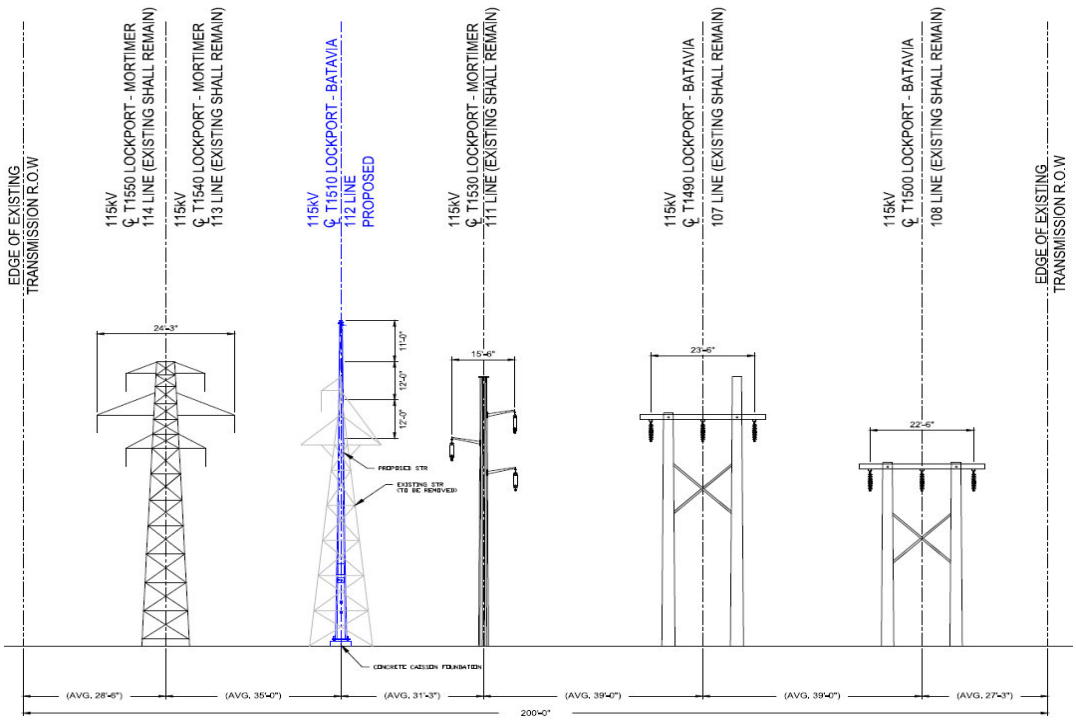
Existing Conditions; Str. 15; E-Field Profile



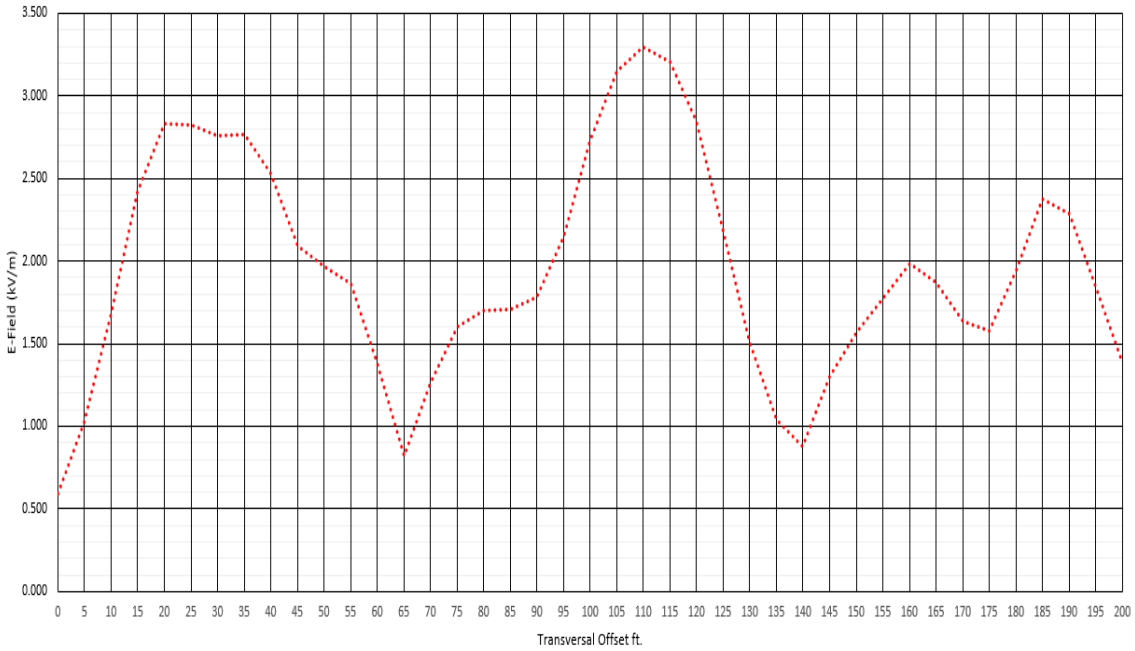


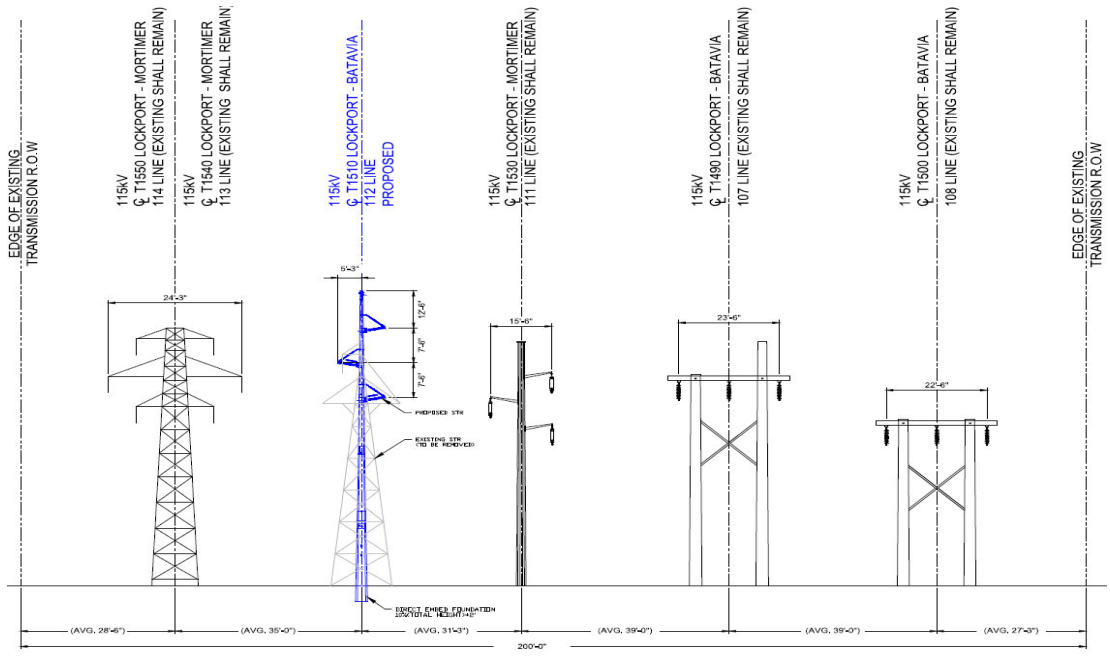
Existing Conditions; Str. 16; E-Field Profile



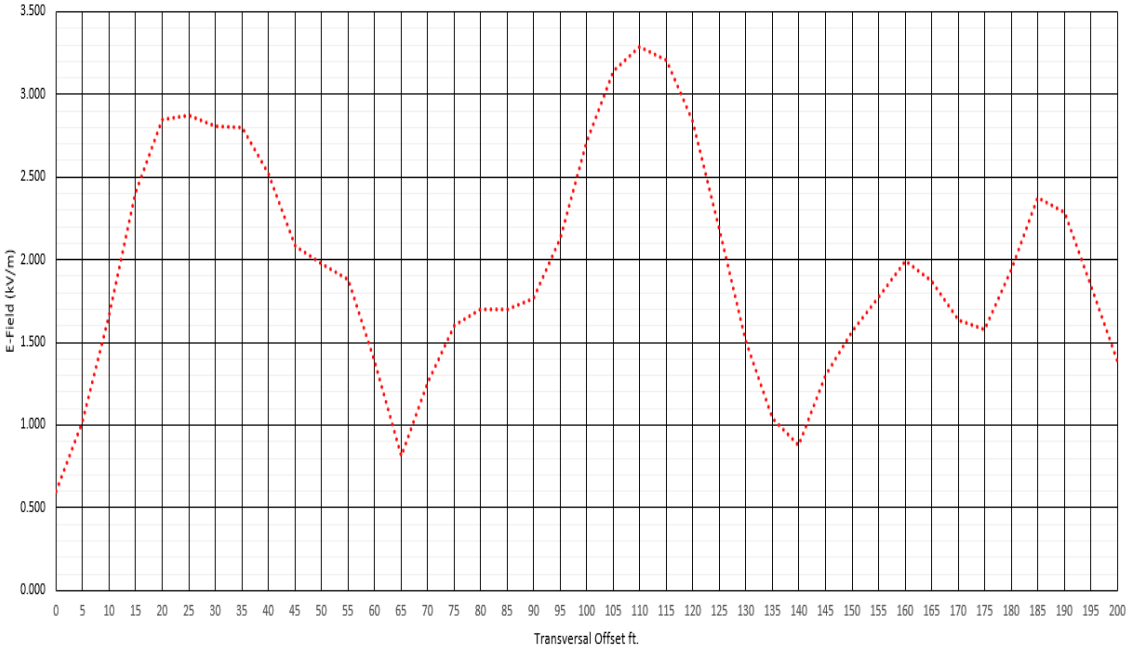


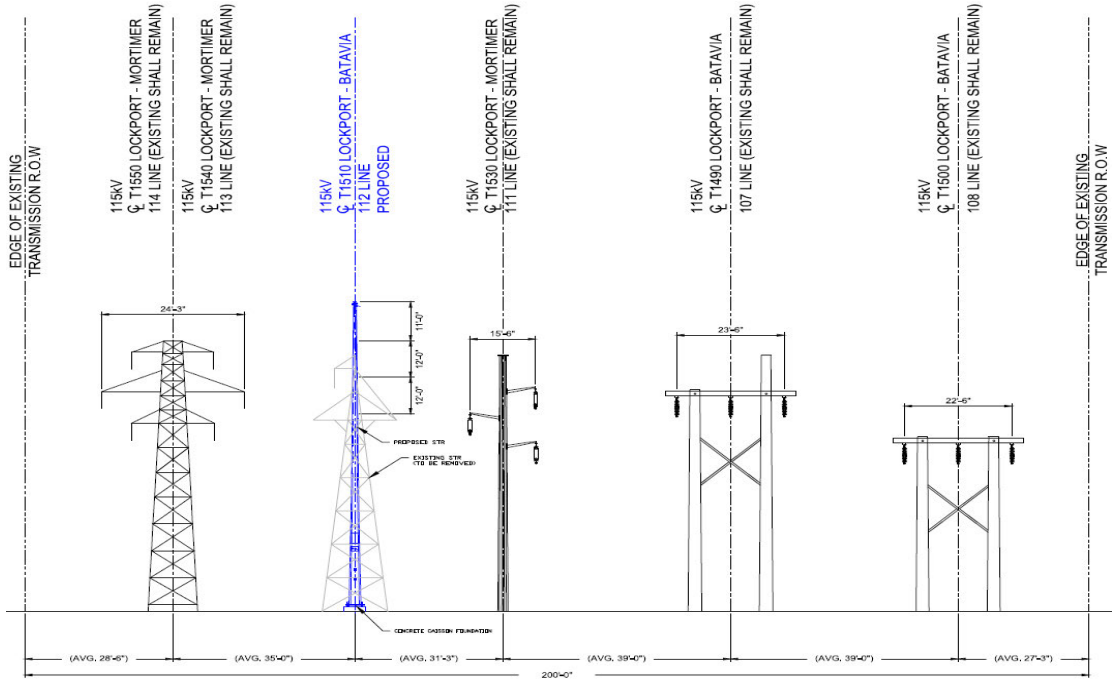
Existing Conditions; Section 17-35; E-Field Profile



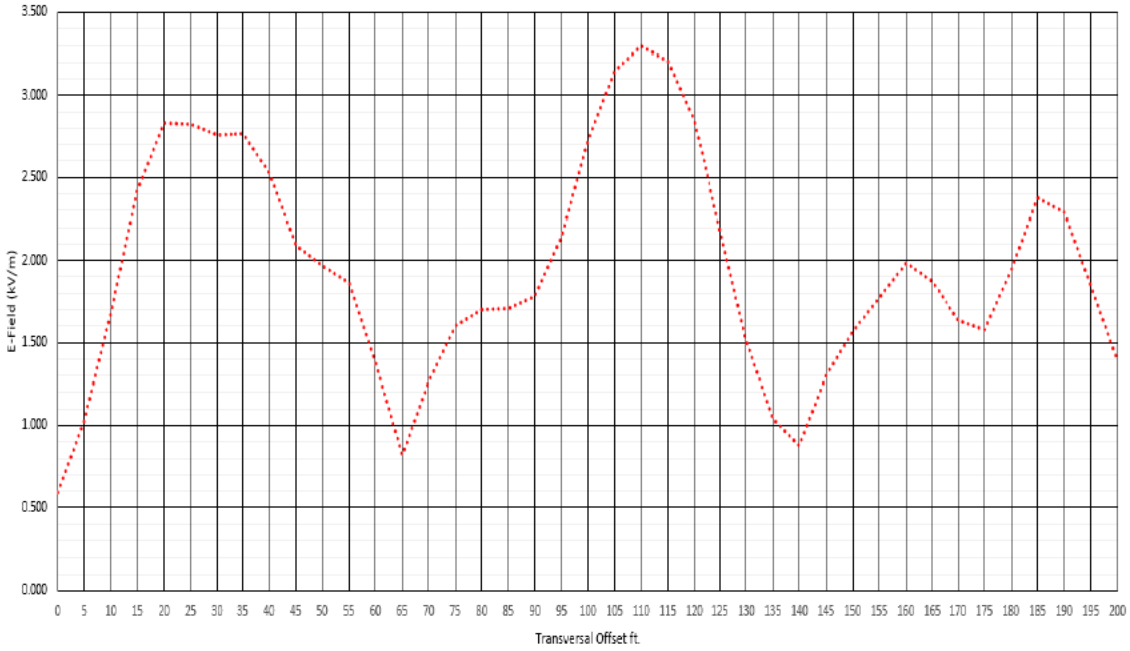


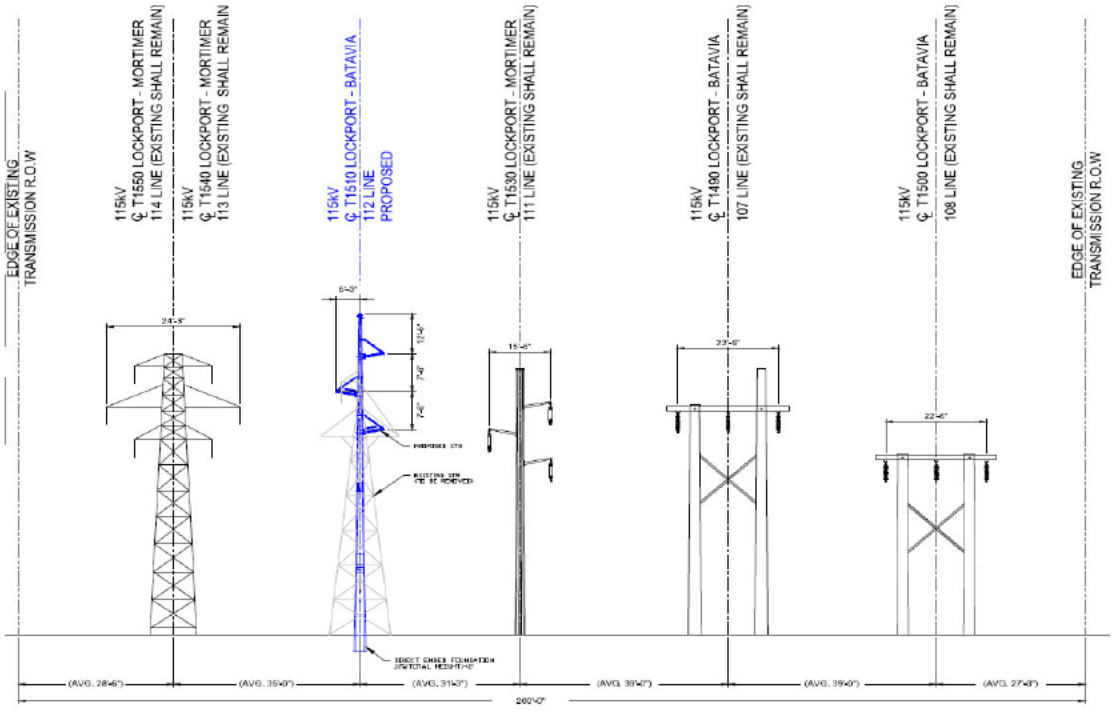
Existing Conditions; Str. 36; E-Field Profile



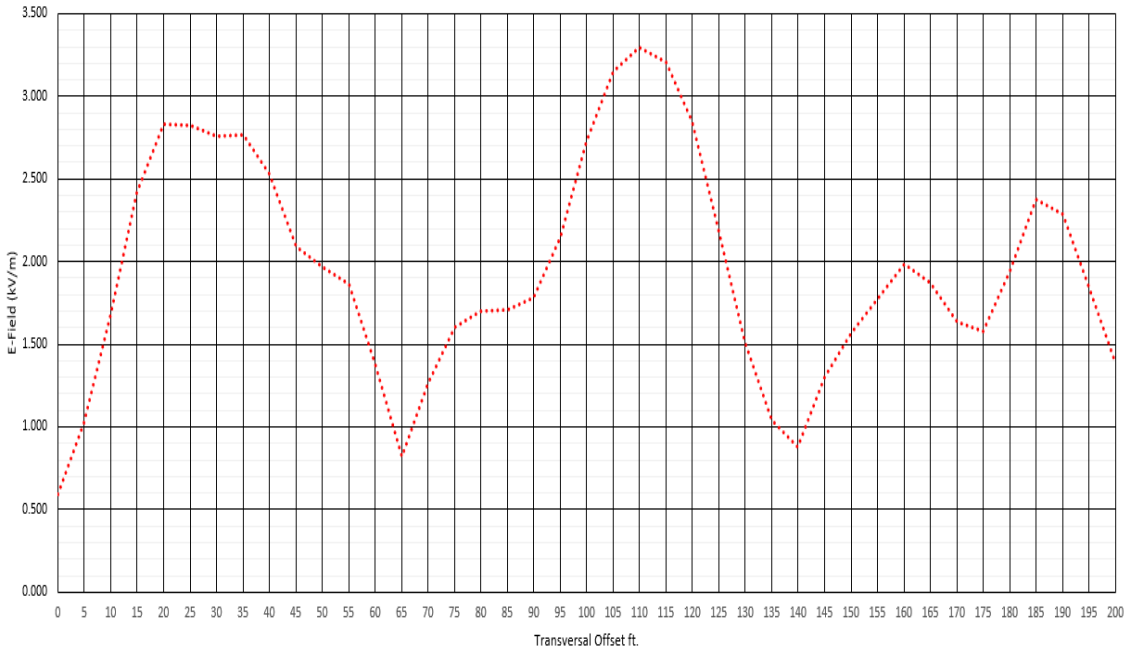


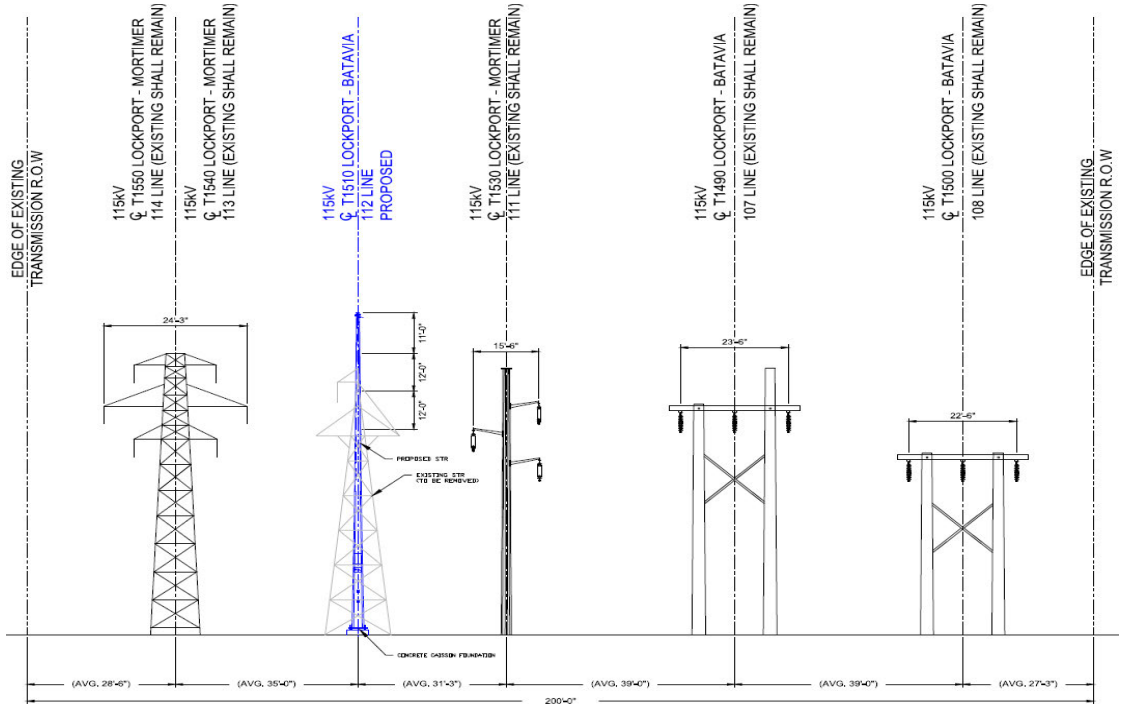
Existing Conditions; Section 37-55; E-Field Profile



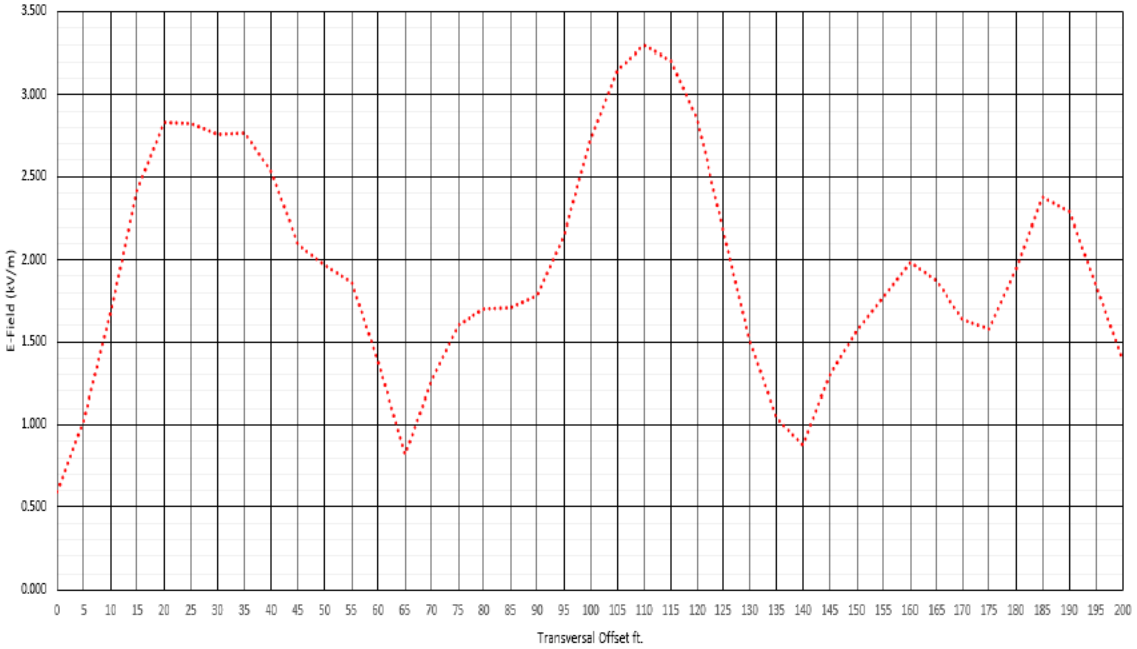


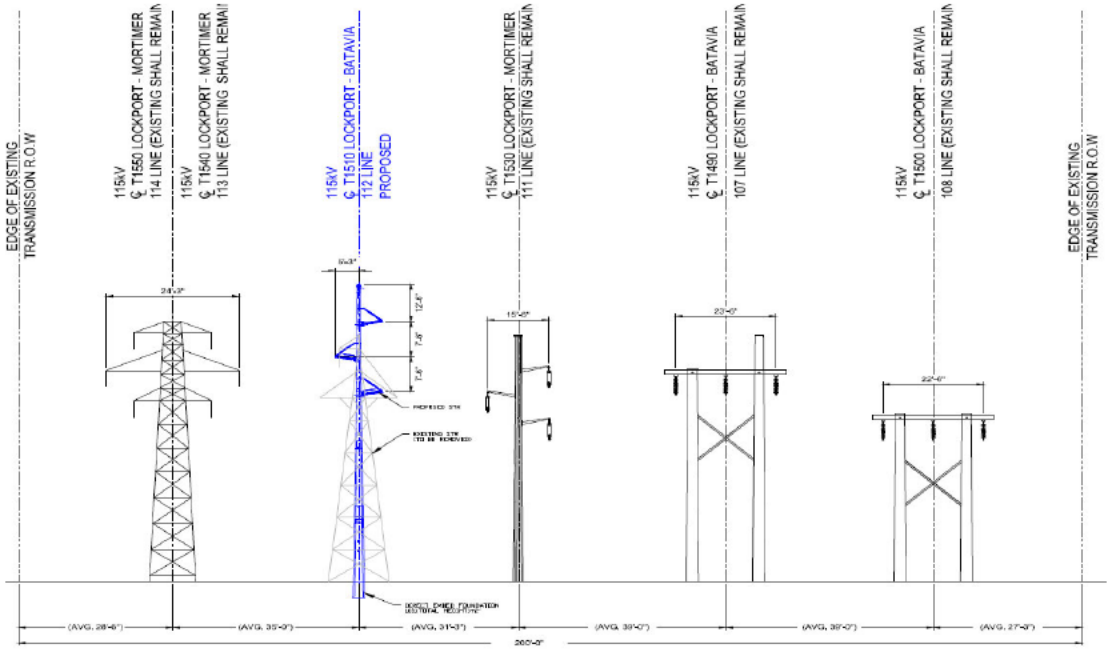
Existing Conditions; Str. 56; E-Field Profile



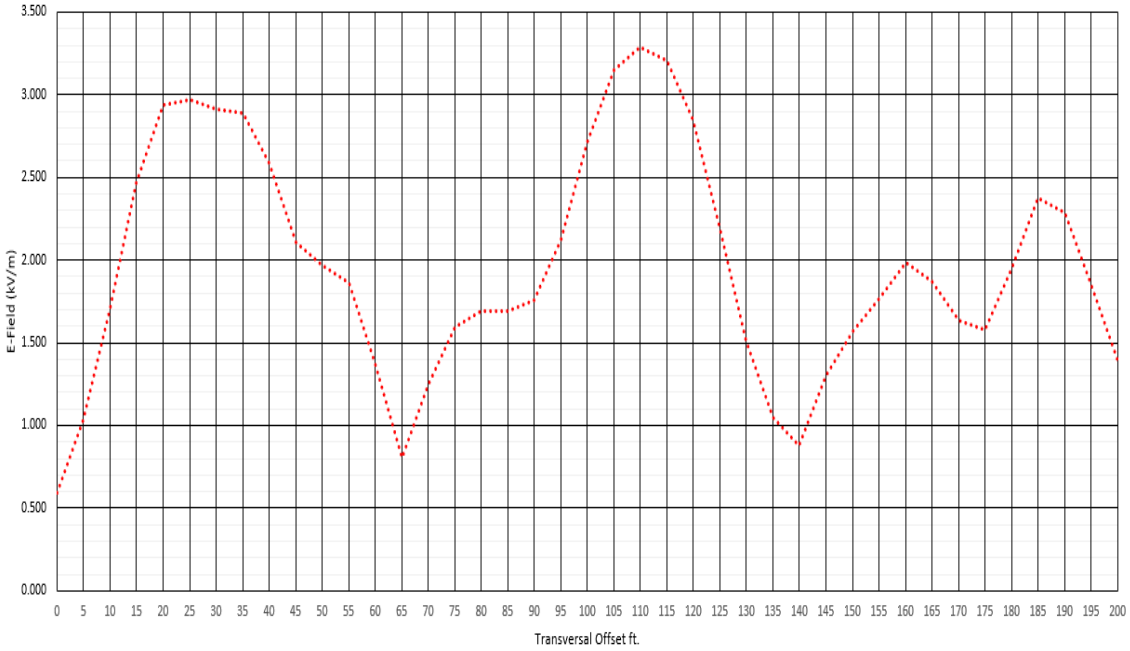


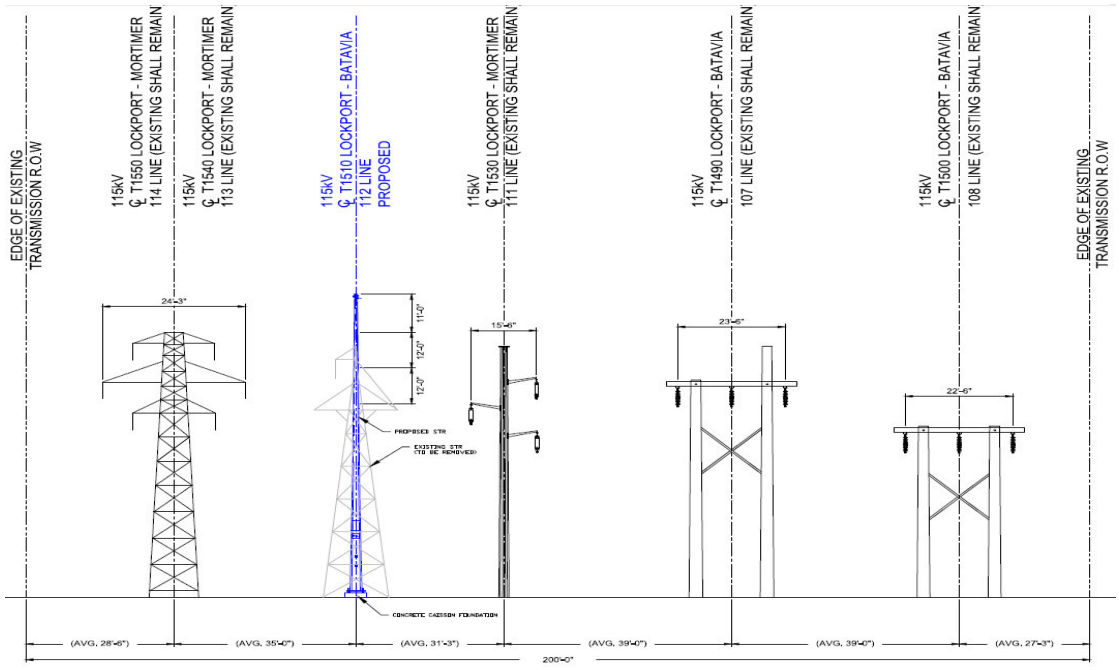
Existing Conditions; Section 57-66; E-Field Profile



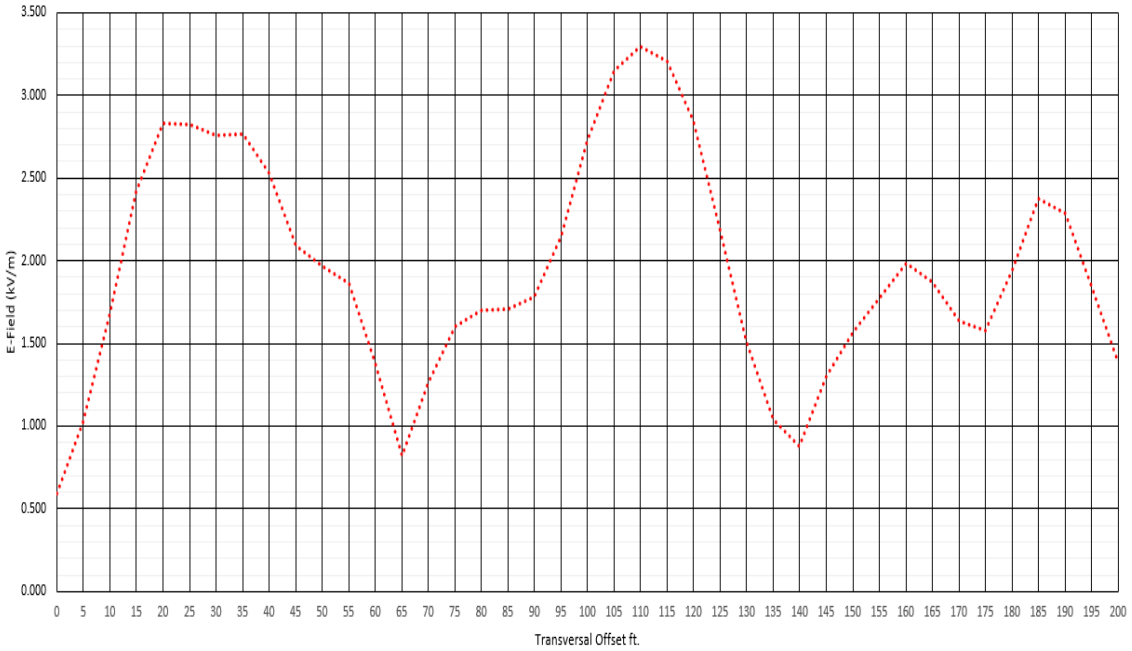


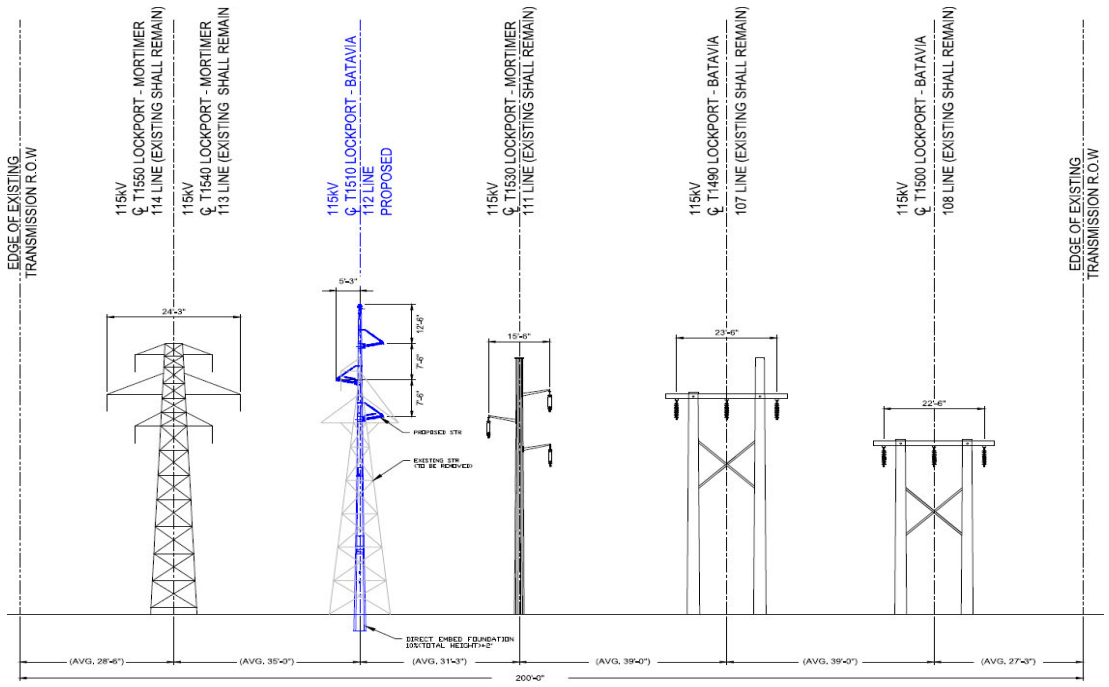
Existing Conditions; Str. 67; E-Field Profile



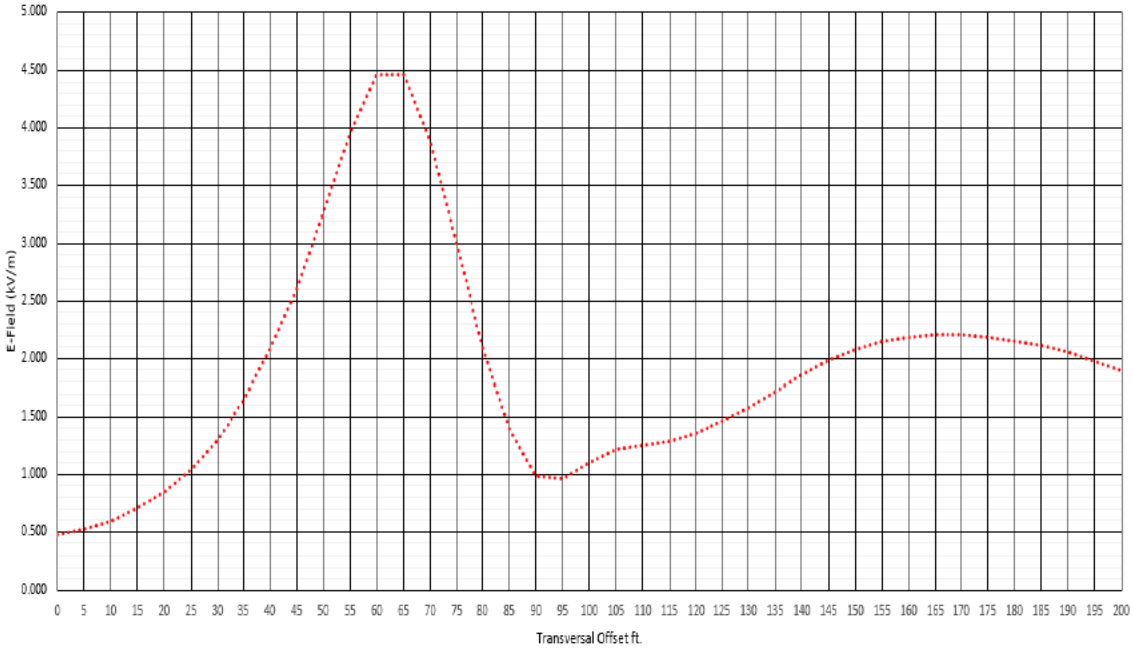


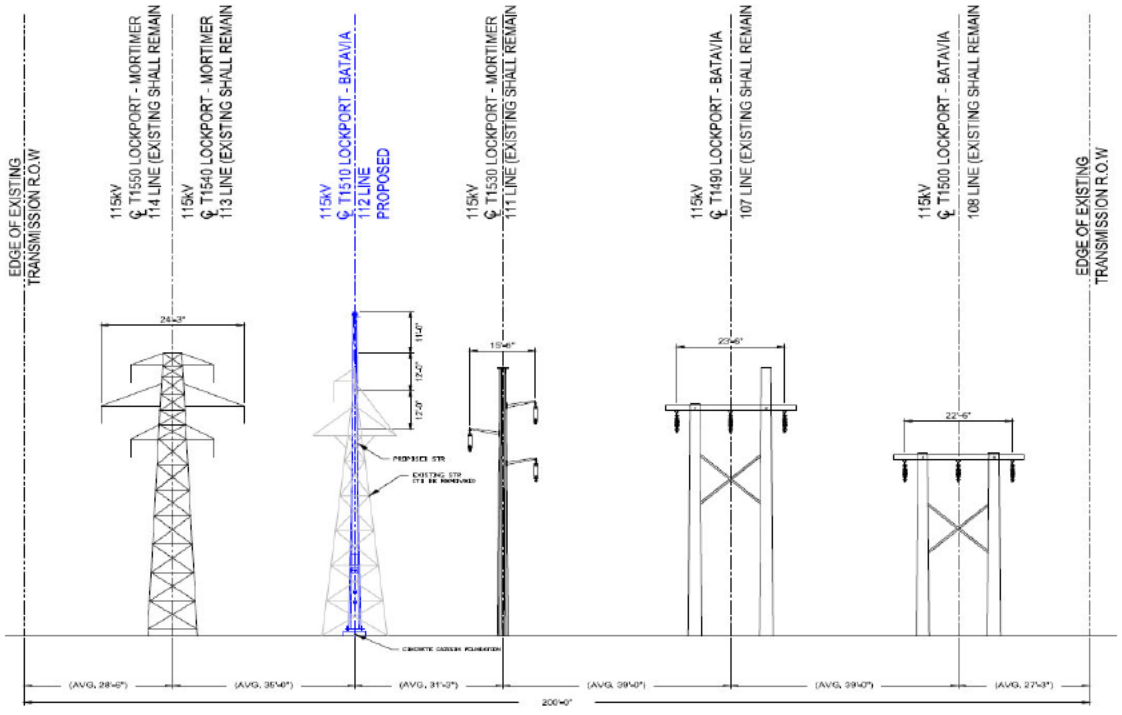
Existing Conditions; Section 68-80; E-Field Profile



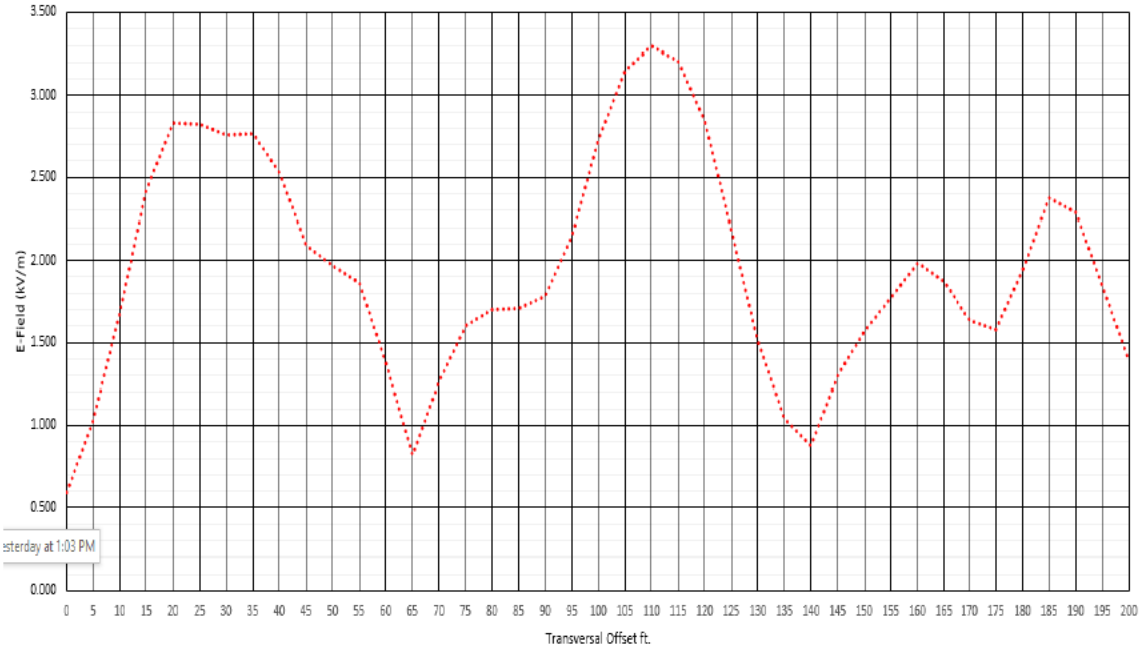


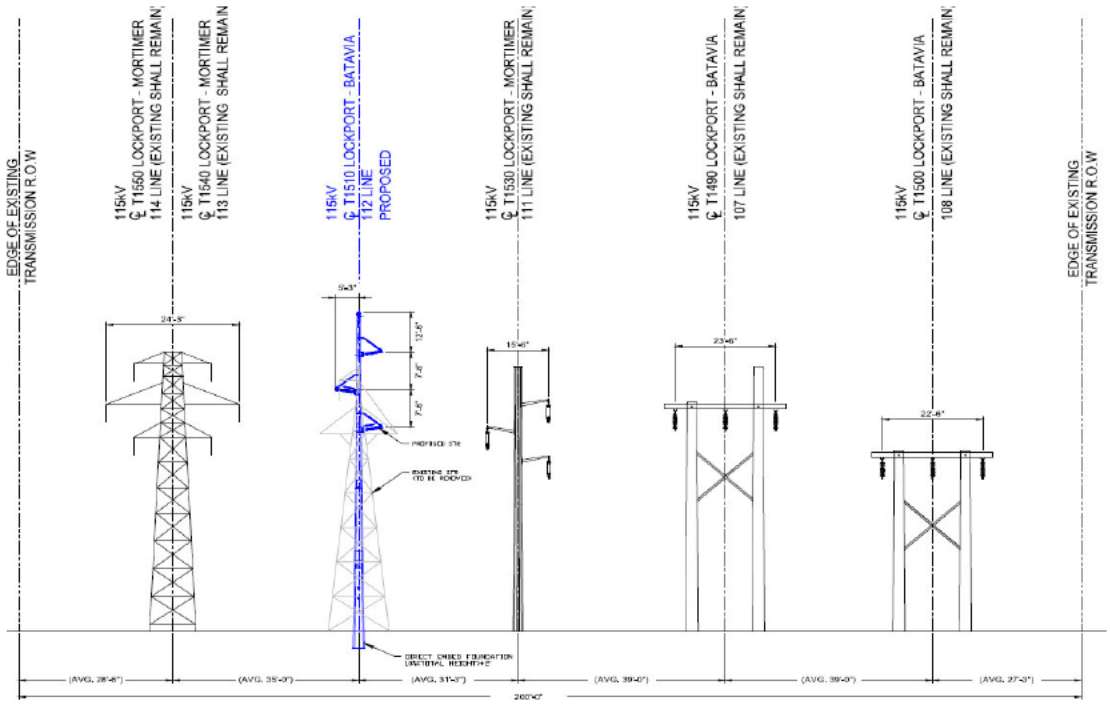
Existing Conditions; Section 81-81-1; E-Field Profile

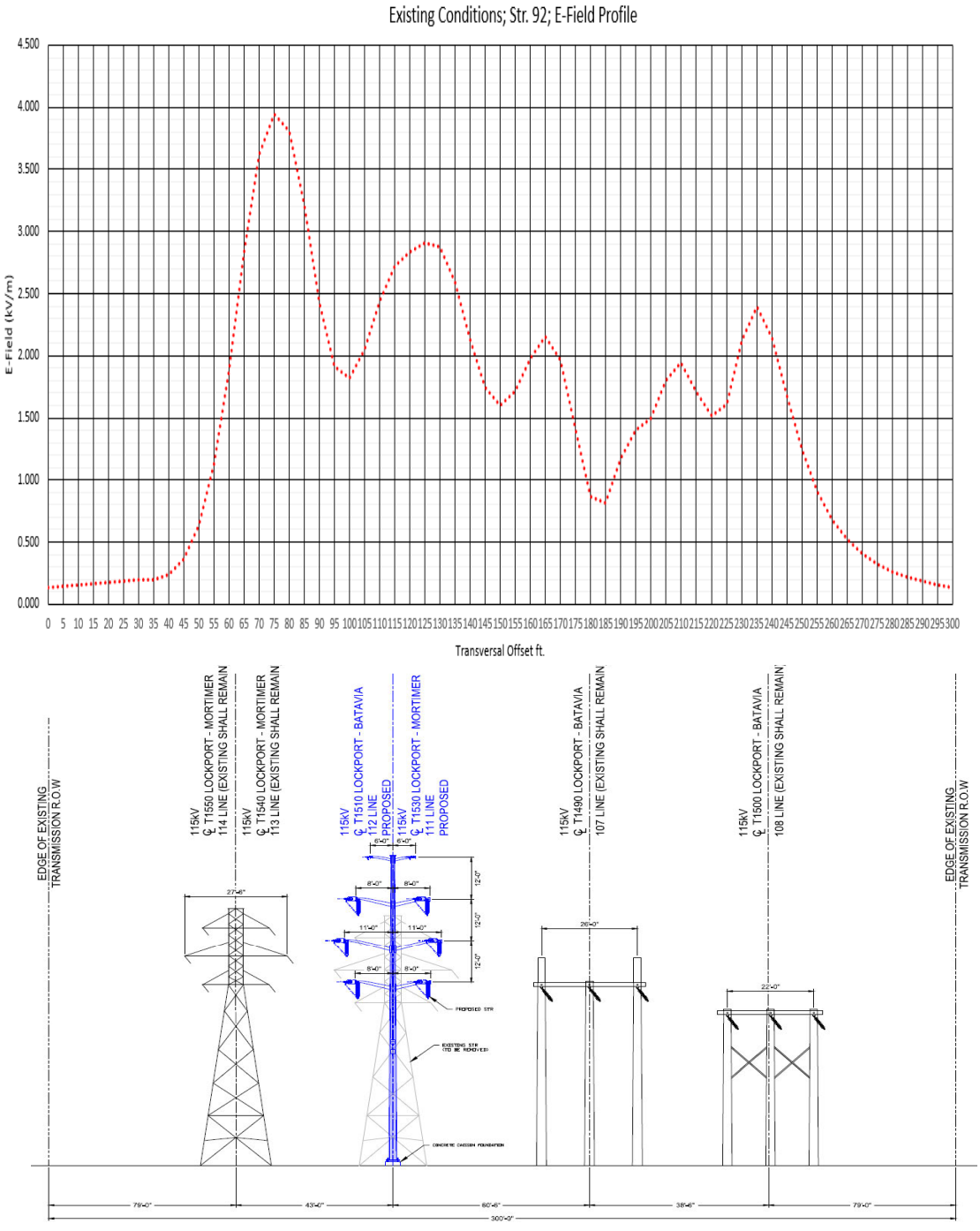




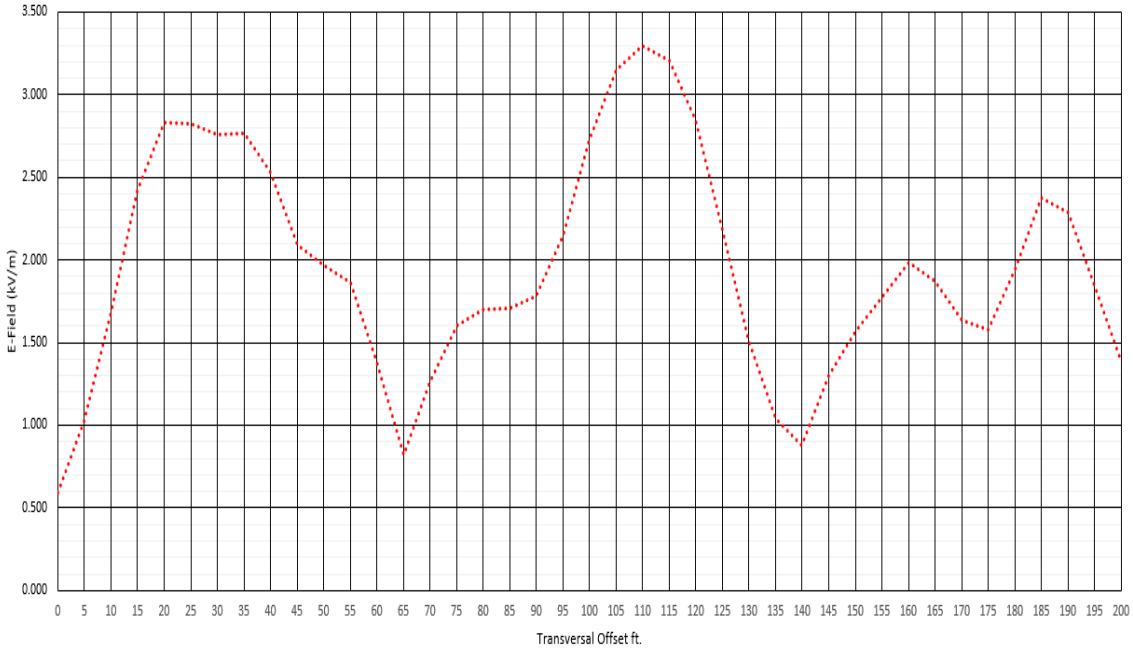
Existing Conditions; Section 82-91; E-Field Profile

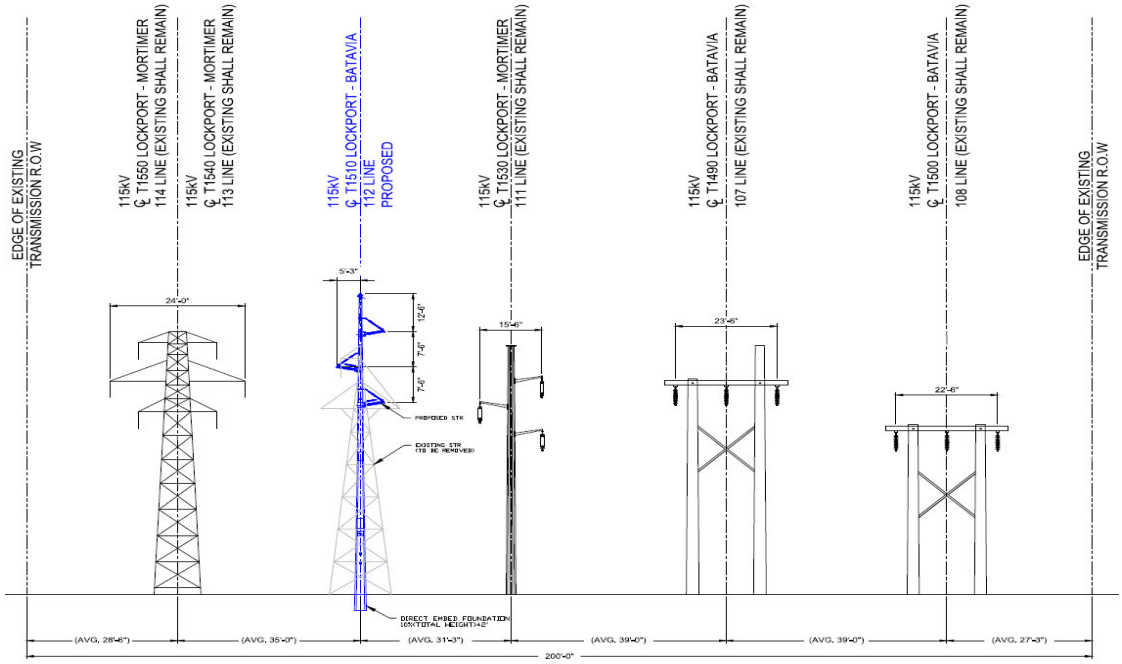


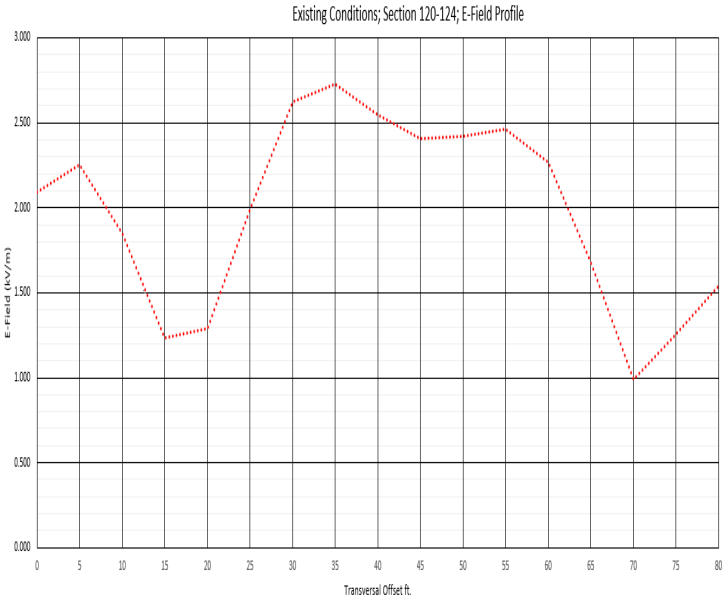


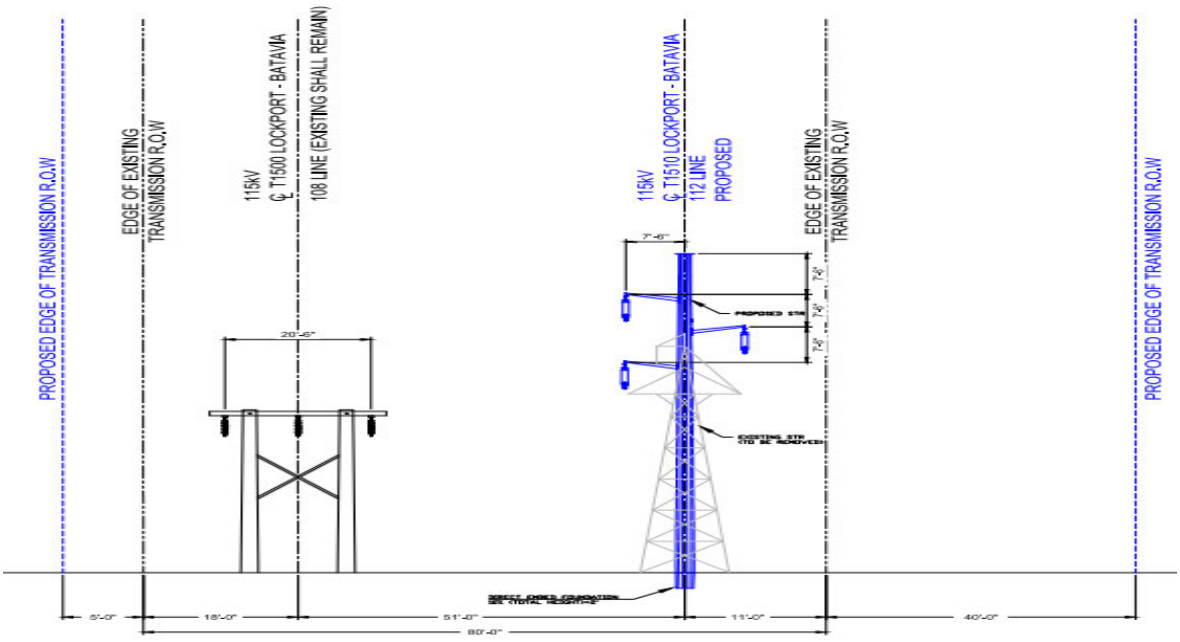

Existing Conditions; Str. 92; E-Field Profile
E-Field (kV/m)
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300
Transversal Offset ft.
EDGE OF EXISTING TRANSMISSION R.O.W
115kV ℄ T1550 LOCKPORT - MORTIMER 114 LINE (EXISTING SHALL REMAIN
115kV ℄ T1540 LOCKPORT - MORTIMER 113 LINE (EXISTING SHALL REMAIN
115kV ℄ T1510 LOCKPORT - BATAVIA 112 LINE PROPOSED
115kV ℄ T1530 LOCKPORT - MORTIMER 111 LINE PROPOSED
115kV ℄ T1490 LOCKPORT - BATAVIA 107 LINE (EXISTING SHALL REMAIN
115kV ℄ T1500 LOCKPORT - BATAVIA 108 LINE (EXISTING SHALL REMAIN
EDGE OF EXISTING TRANSMISSION R.O.W
79'-0"
43'-0"
60'-6"
38'-6"
79'-0"
300'-0"

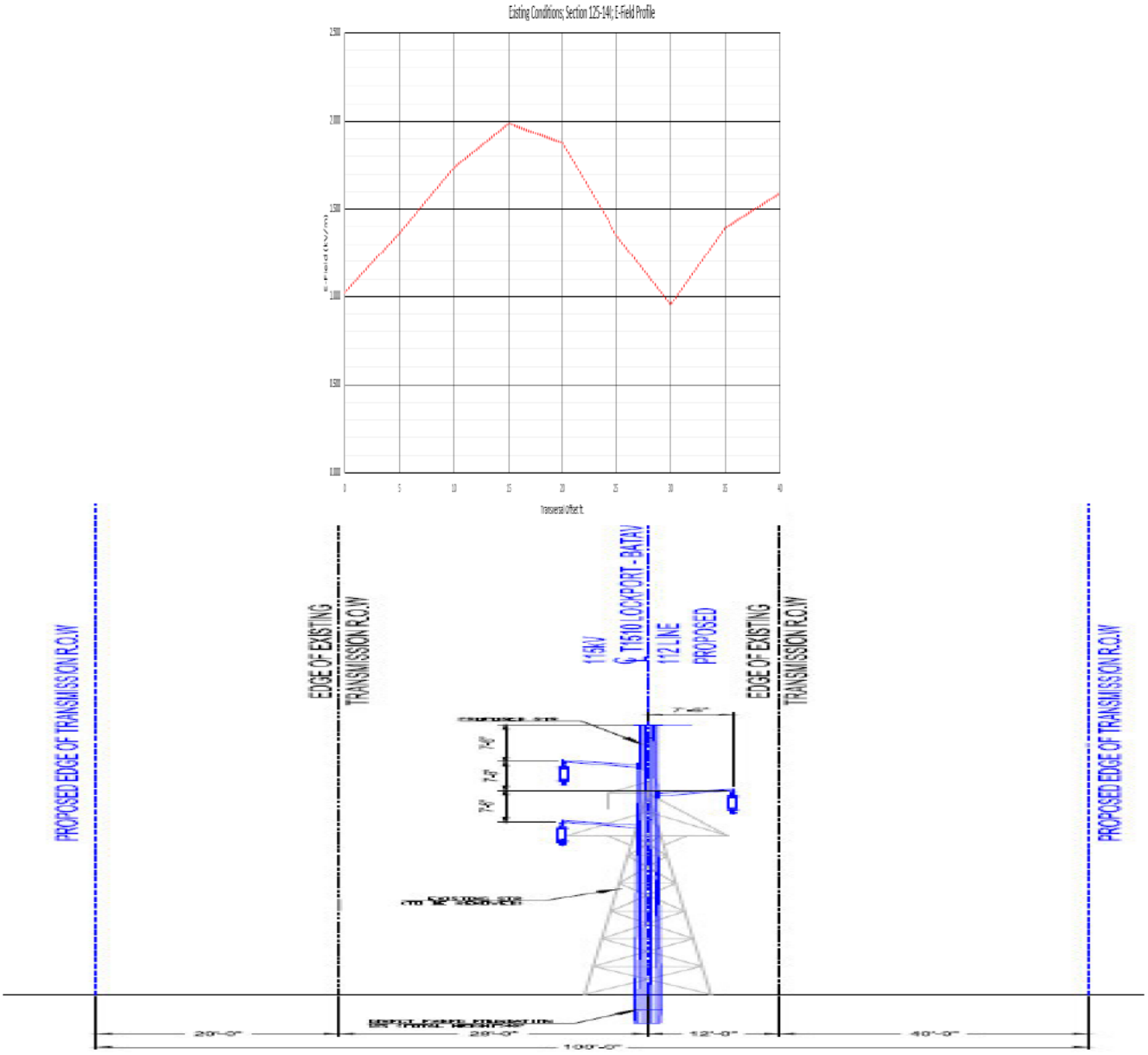
Existing Conditions; Section 93-119; E-Field Profile

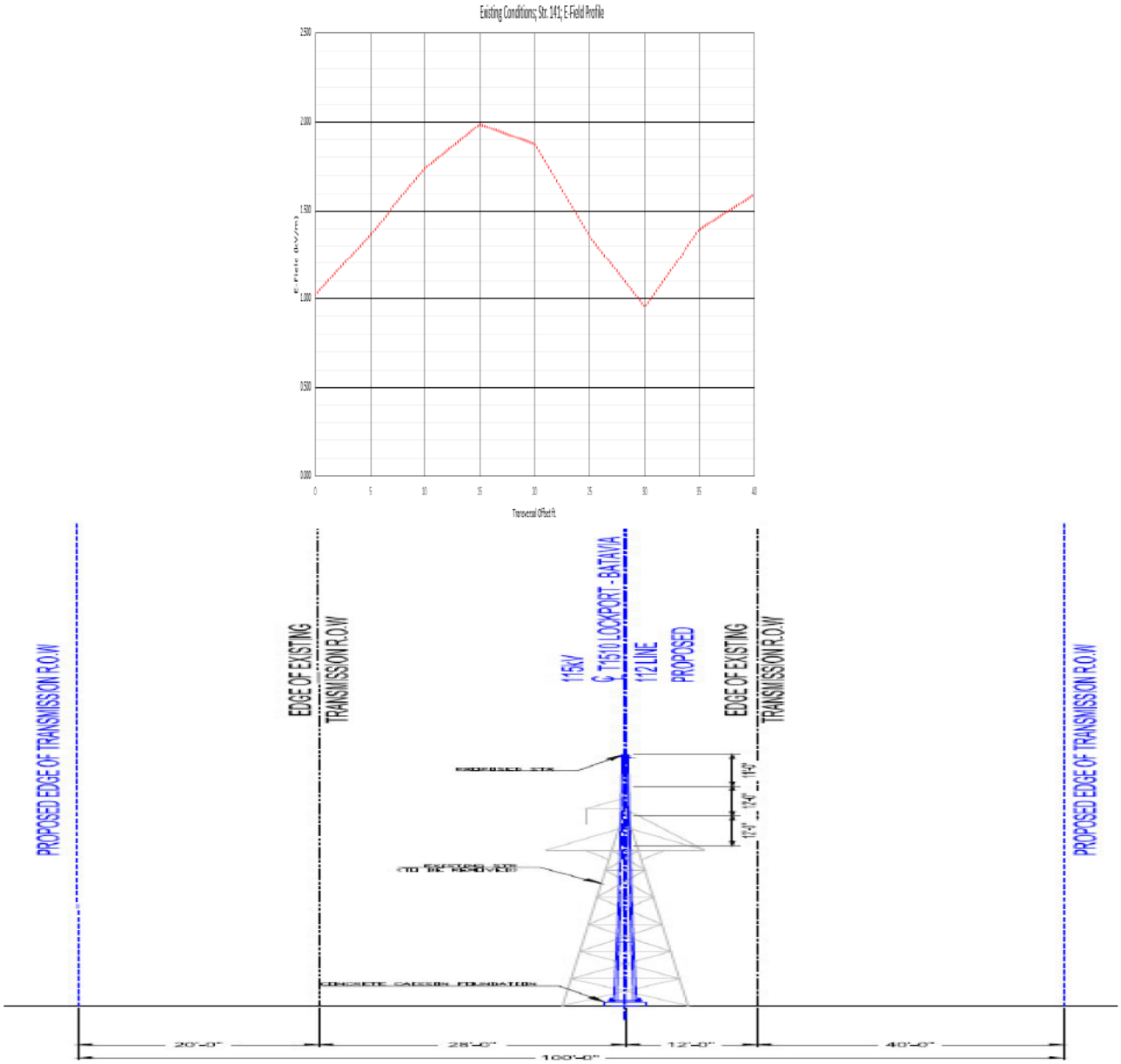


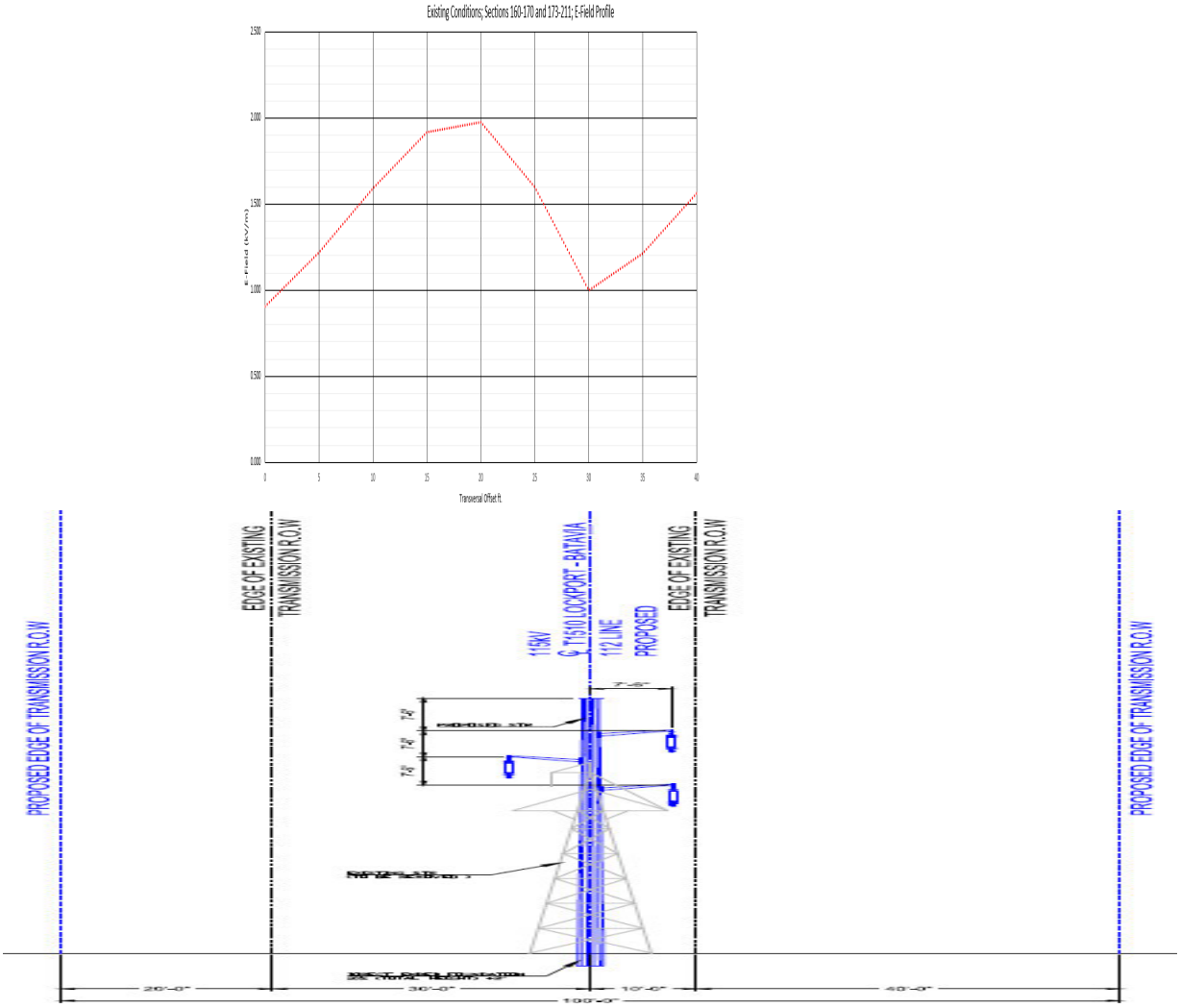


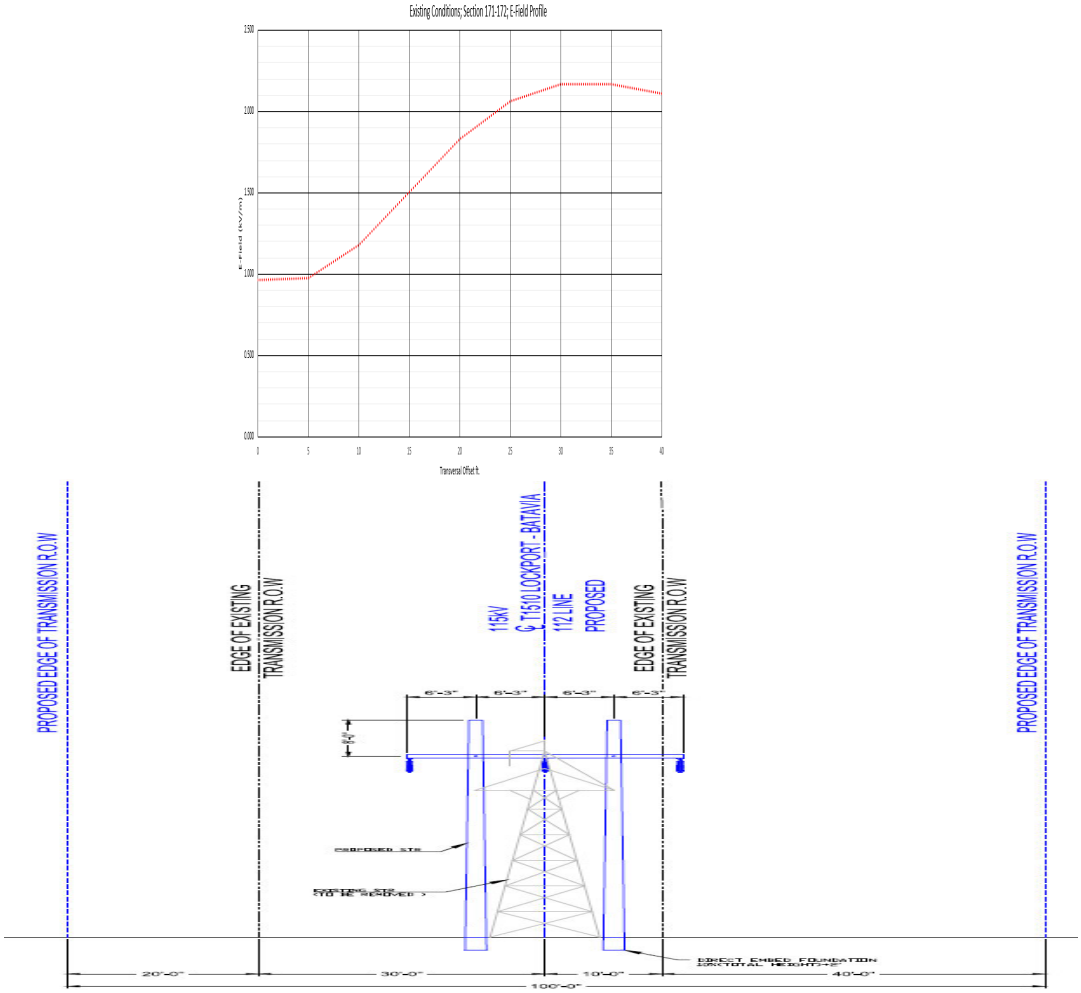

Existing Conditions; Section 120-124; E-Field Profile
E-Field (kV/m)
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
Transversal Offset ft.


PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
℄ T1500 LOCKPORT - BATAVIA
108 LINE (EXISTING SHALL REMAIN)
115kV
℄ T1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
20'-6"
3'-6"
PROPOSED STR
EXISTING STR TO BE REMOVED
5'-0"
18'-0"
51'-0"
11'-0"
40'-0"
80'-0"


Existing Conditions; Section 125-14I; E-Field Profile
2,500
2,000
1,500
1,000
500
0
0
5
10
15
20
25
30
35
40
Transversal Offset ft.
PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
TIWI-LOKPORT-BATAN
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
29'-0"
29'-0"
12'-0"
40'-0"
100'-0"

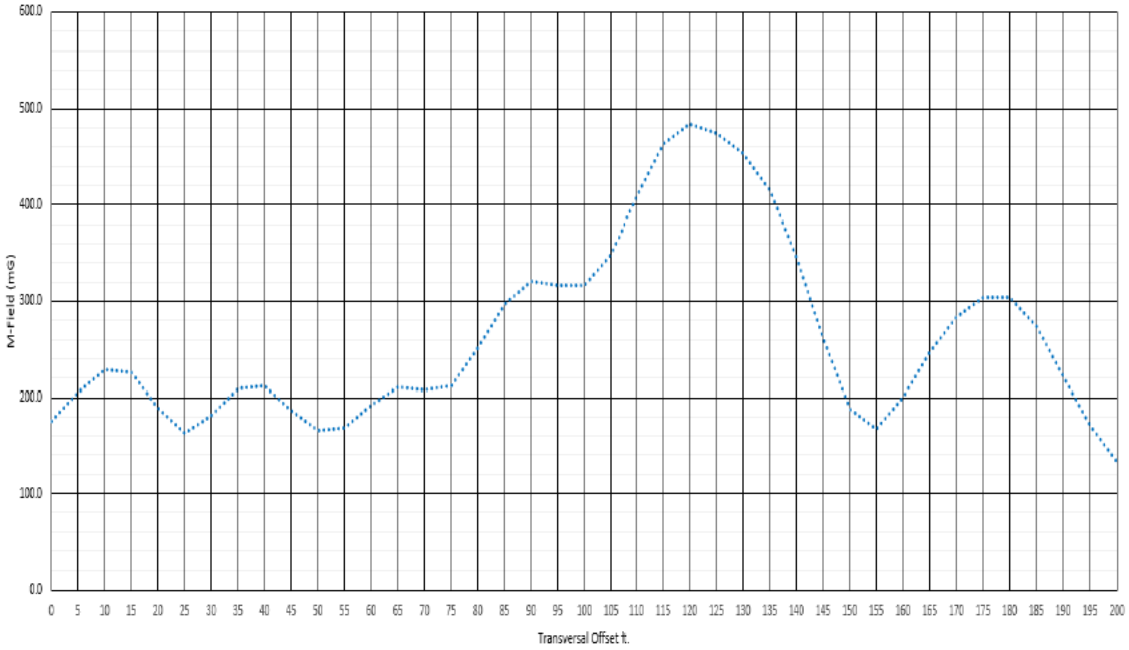

Existing Conditions; Str. 141; E-Field Profile
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
Transversal Offset ft
PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
T1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
14'-9"
17'-9"
20'-0"
28'-0"
12'-0"
40'-0"
100'-0"

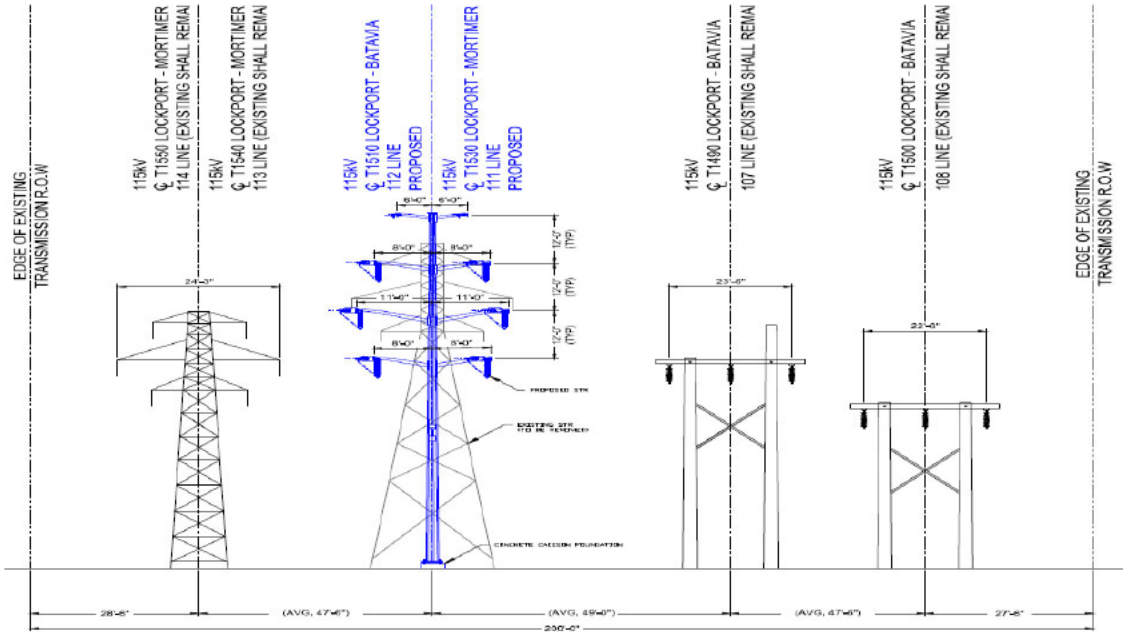

Existing Conditions; Sections 160-170 and 173-211; E-Field Profile
E - Field (kV/m)
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
Transversal Offset ft.
PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
@ T1610 LOOP/PORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
7'-0"
7'-0"
7'-0"
25'-0"
30'-0"
10'-0"
45'-0"
100'-0"


Existing Conditions; Section 173-172; E-Field Profile
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
Transversal Offset ft.
PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
@ T-1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
6'-3"
6'-3"
6'-3"
6'-3"
PROPOSED STR
EXISTING STR TO BE REMOVED
DIRECT EMBED FOUNDATION
20'-0"
30'-0"
10'-0"
40'-0"
100'-0"

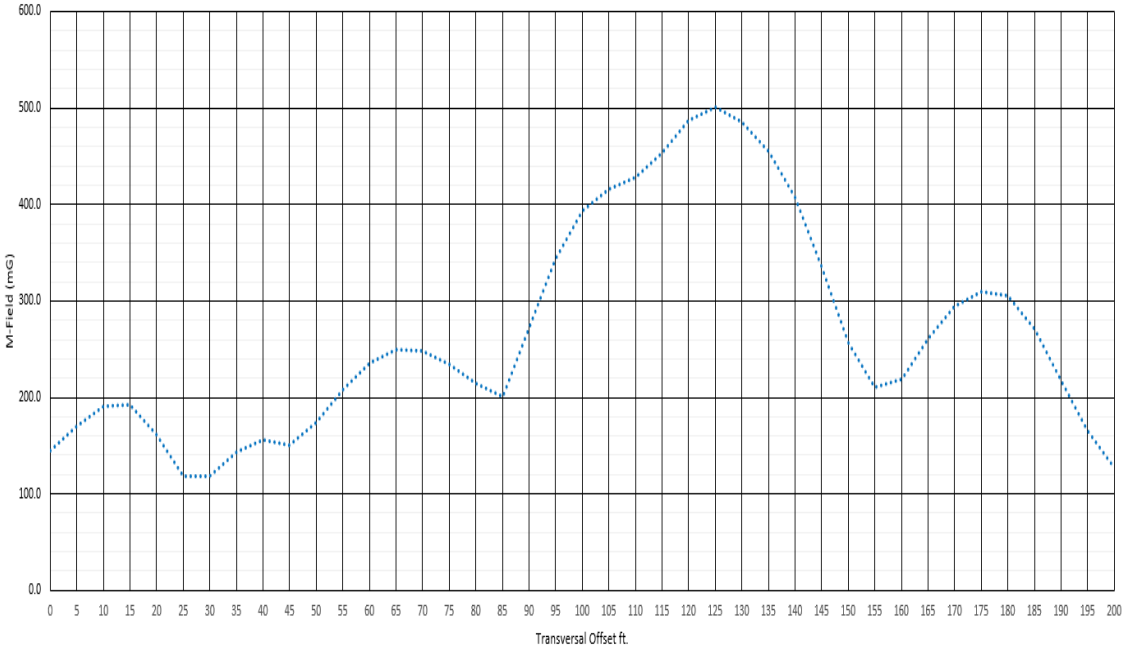
Magnetic Field Profiles; Existing Conditions

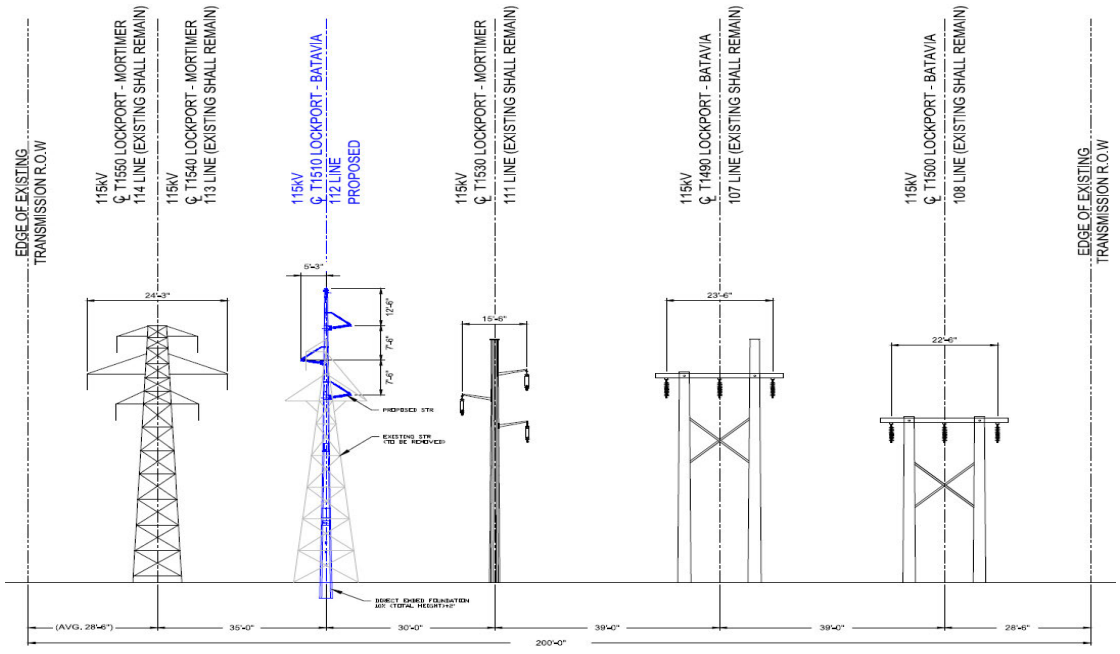
Existing Conditions; Section 2-4; Magnetic Field Profile



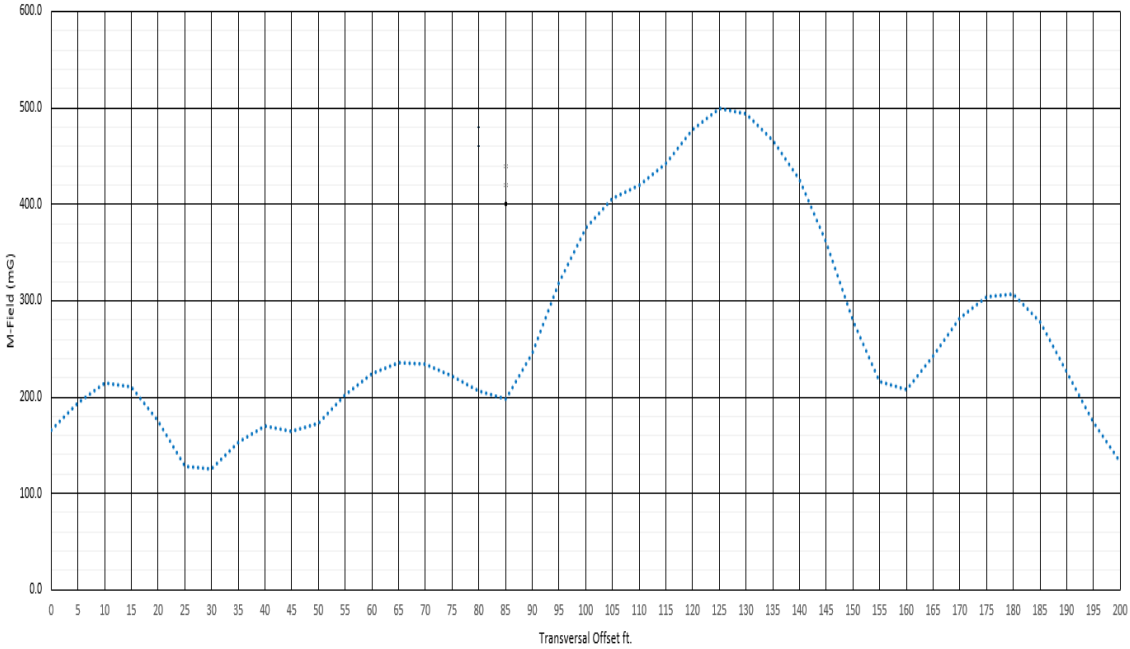


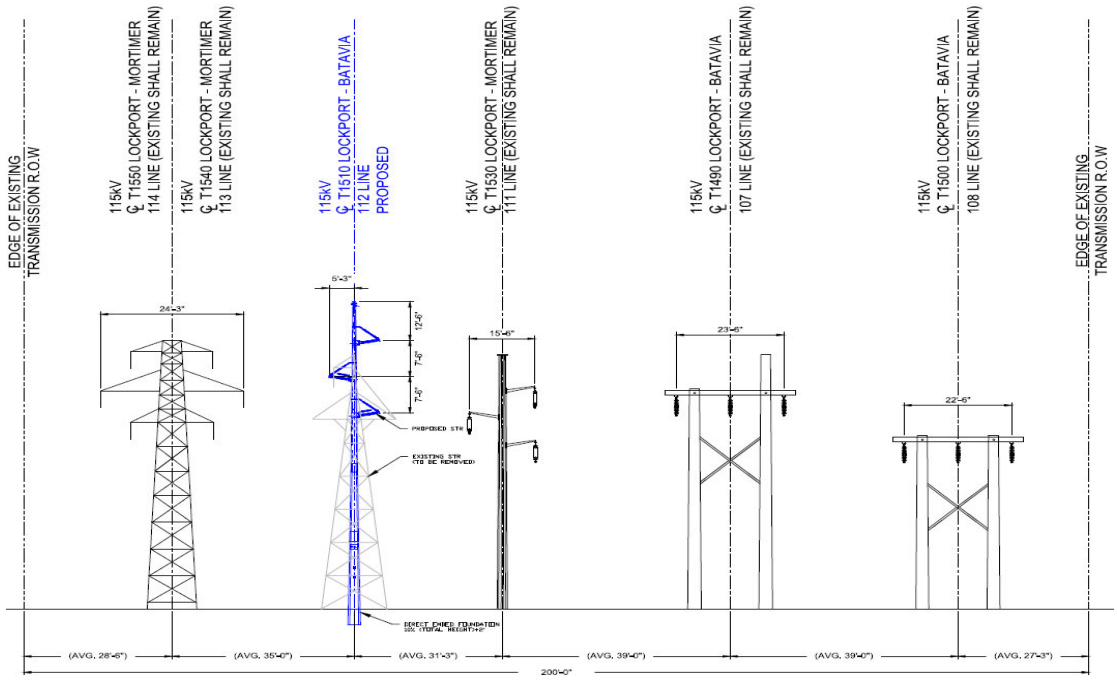
Existing Conditions; Section 5-6; Magnetic Field Profile



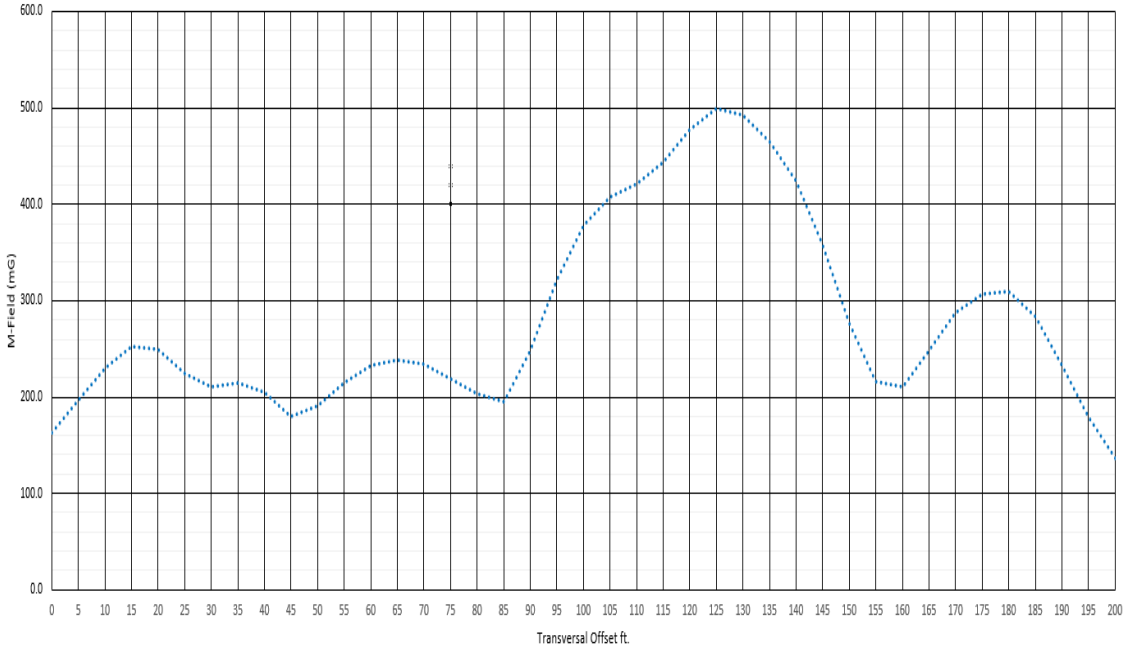


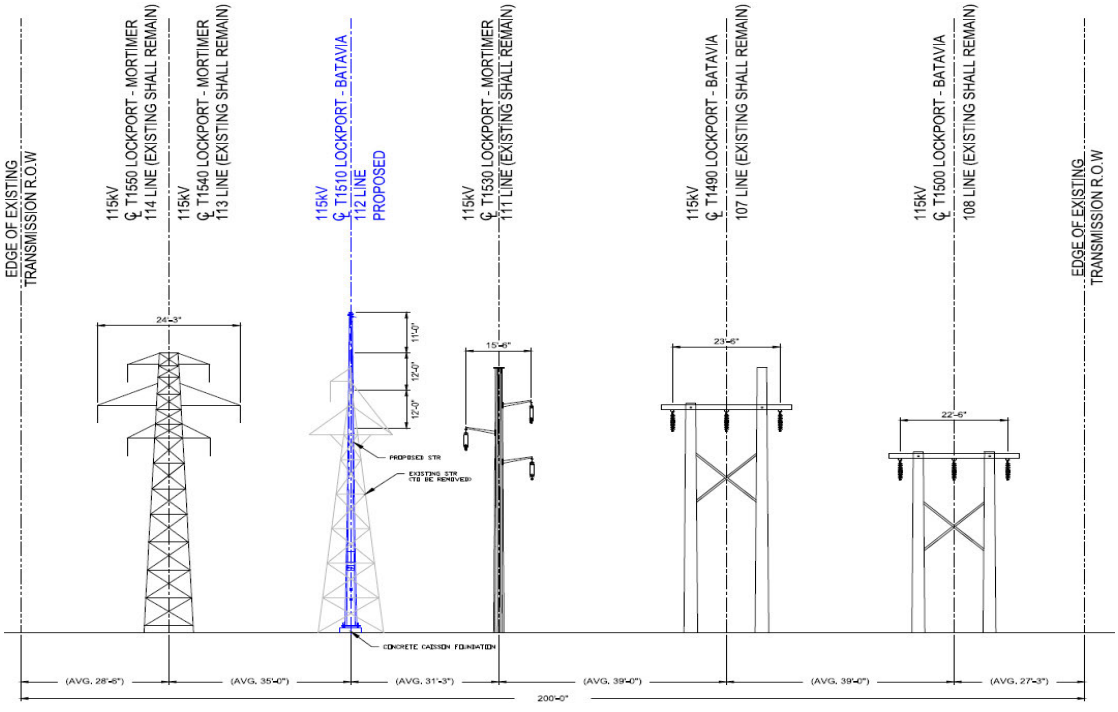
Existing Conditions; Section 7-13; Magnetic Field Profile



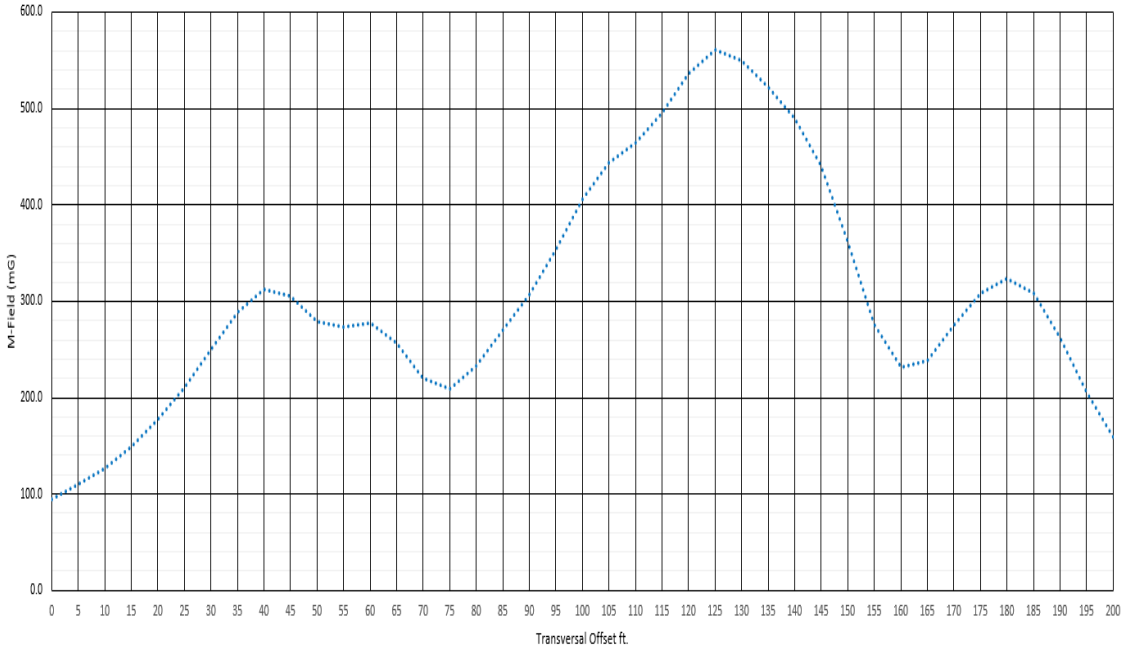


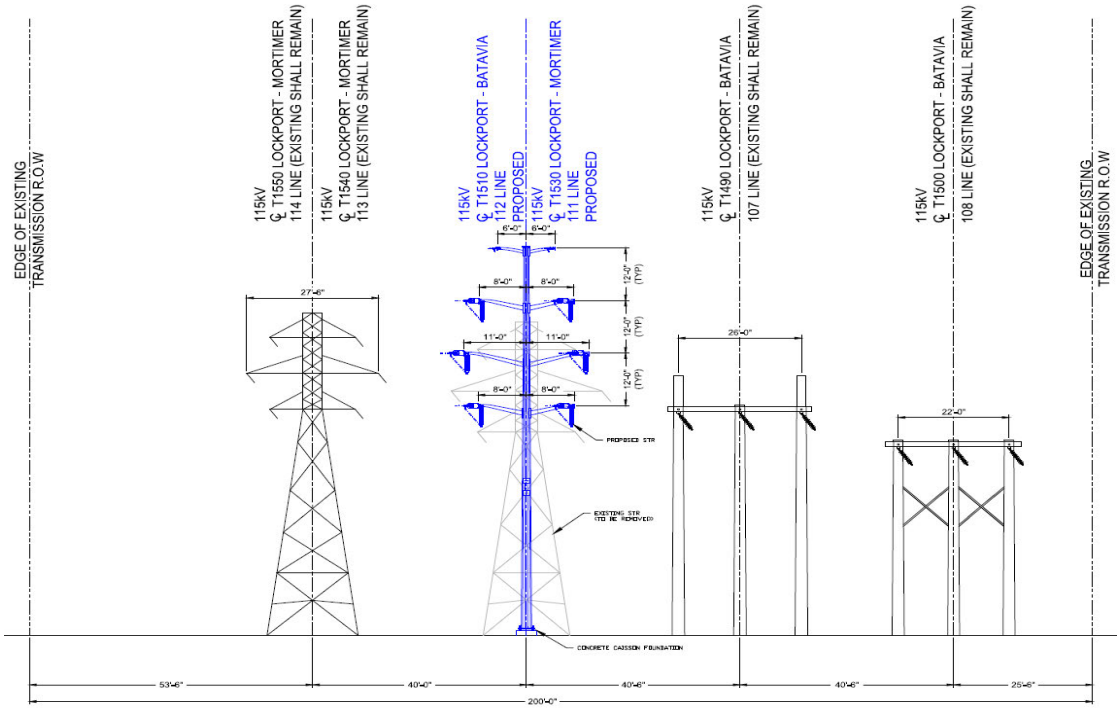
Existing Conditions; Str. 14; Magnetic Field Profile



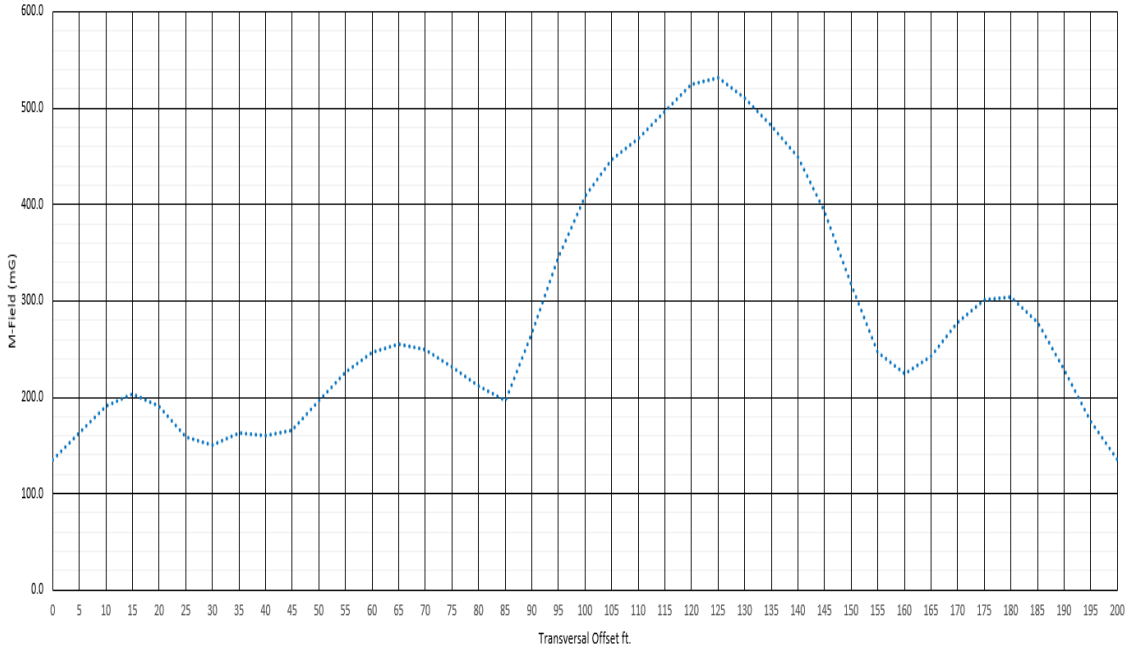


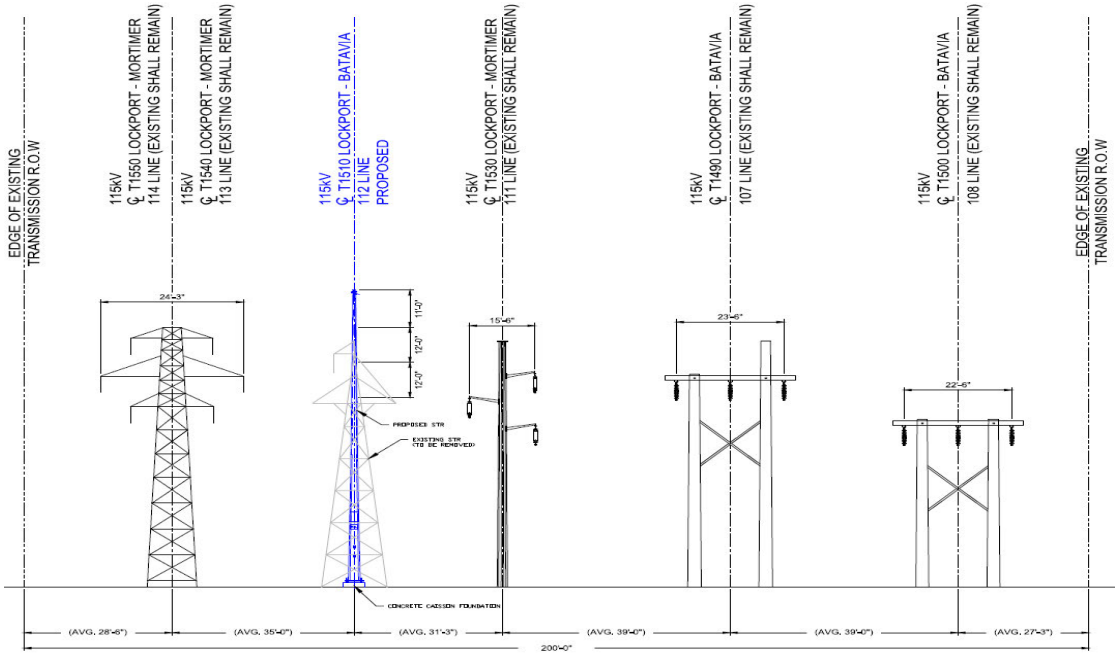
Existing Conditions; Str. 15; Magnetic Field Profile



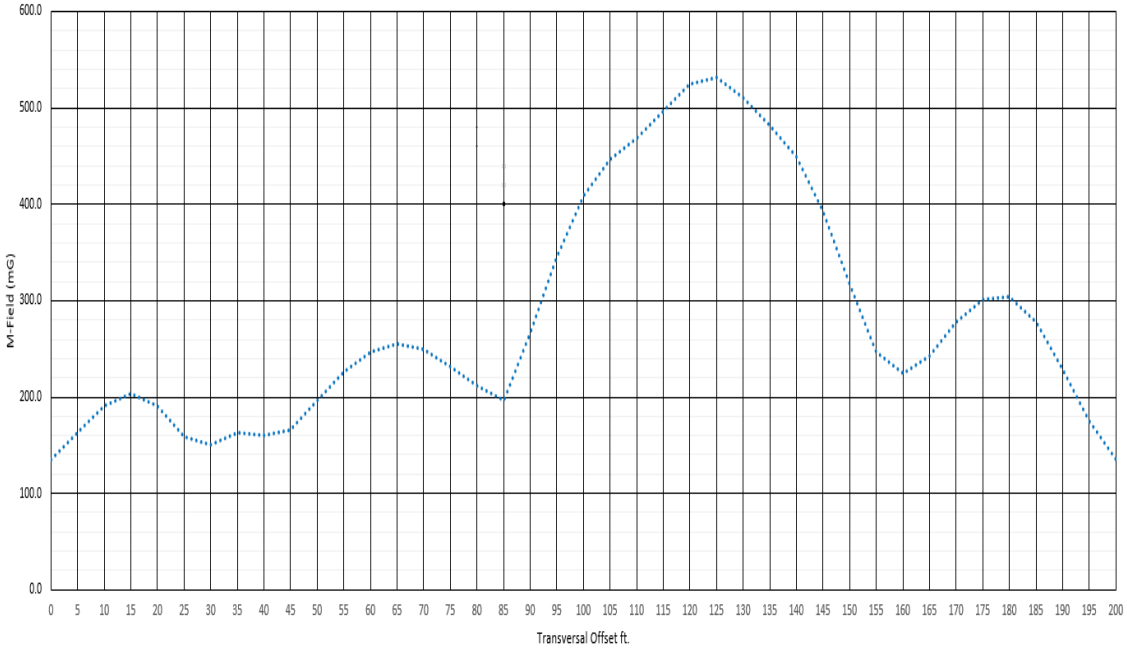


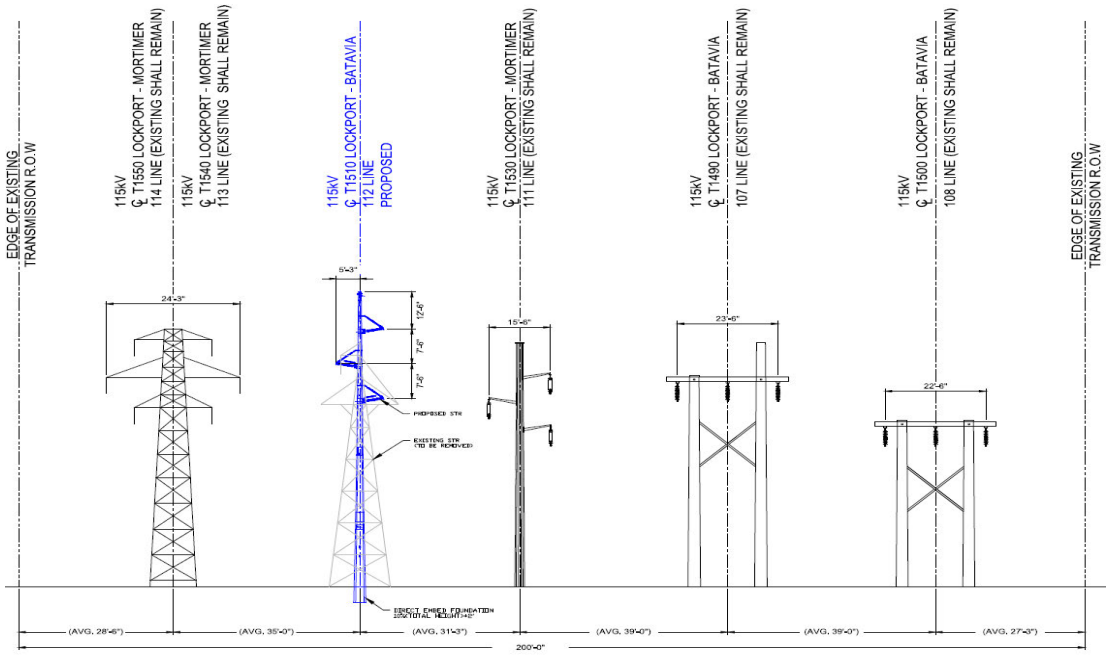
Existing Conditions; Str. 16; Magnetic Field Profile



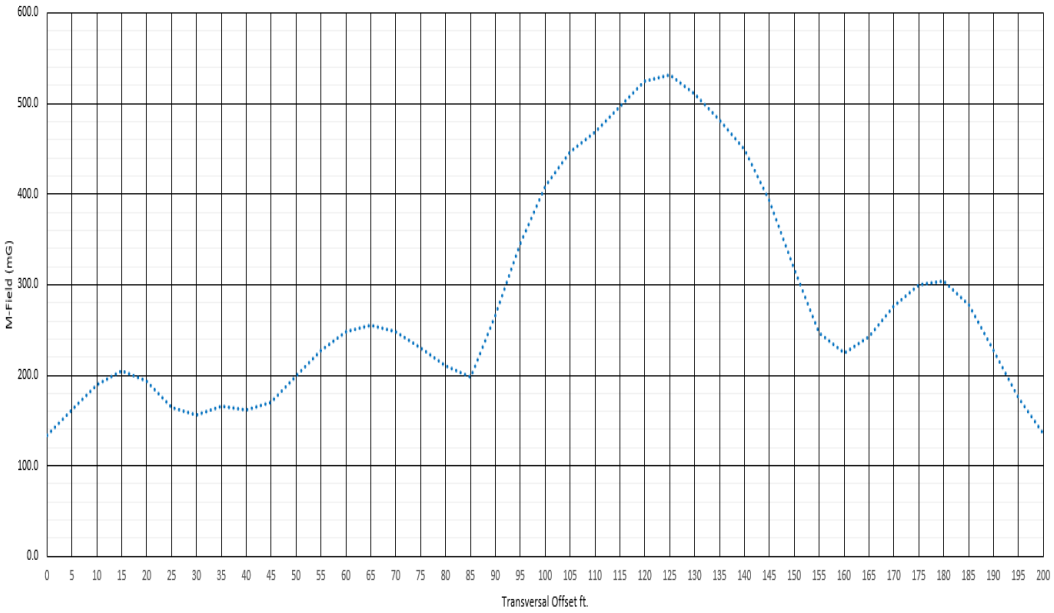


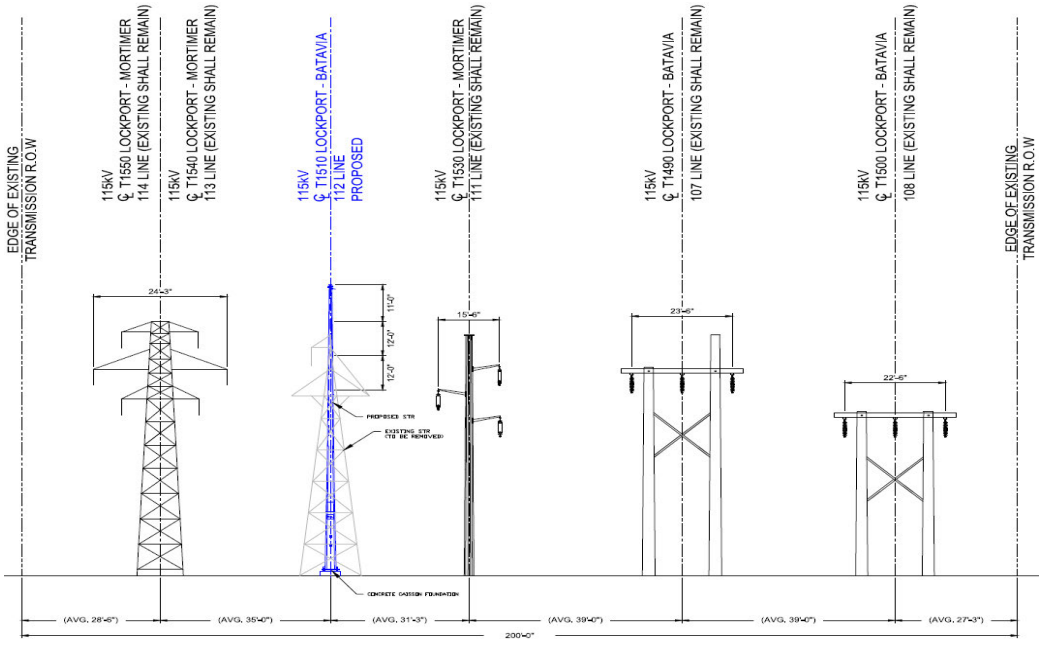
Existing Conditions; Section 17-35; Magnetic Field Profile



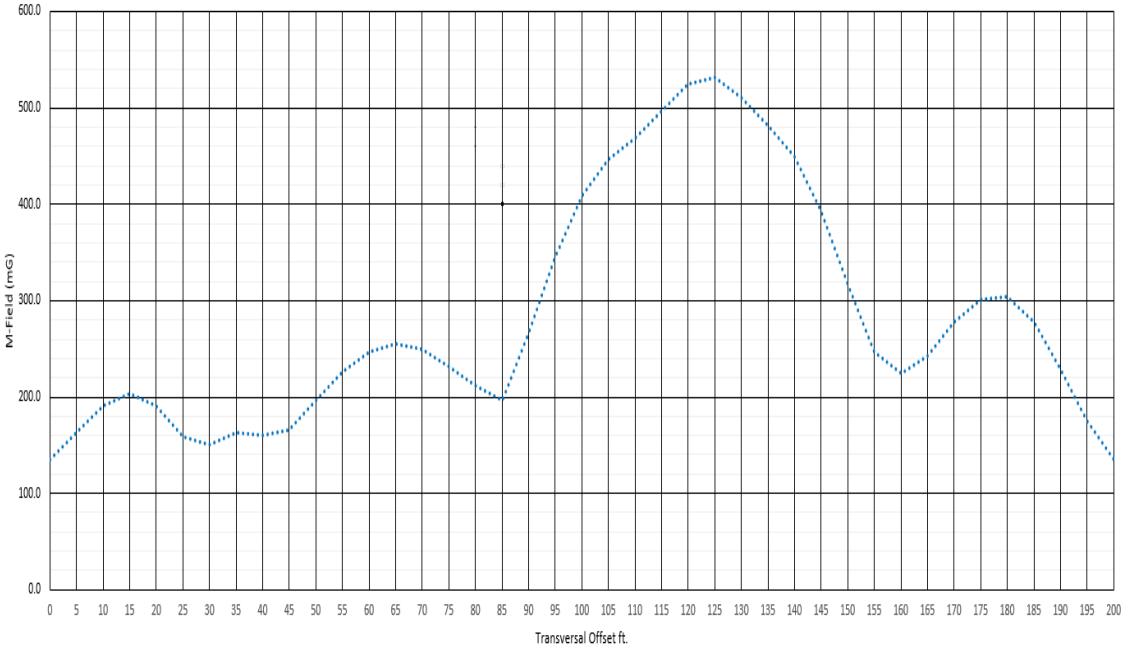


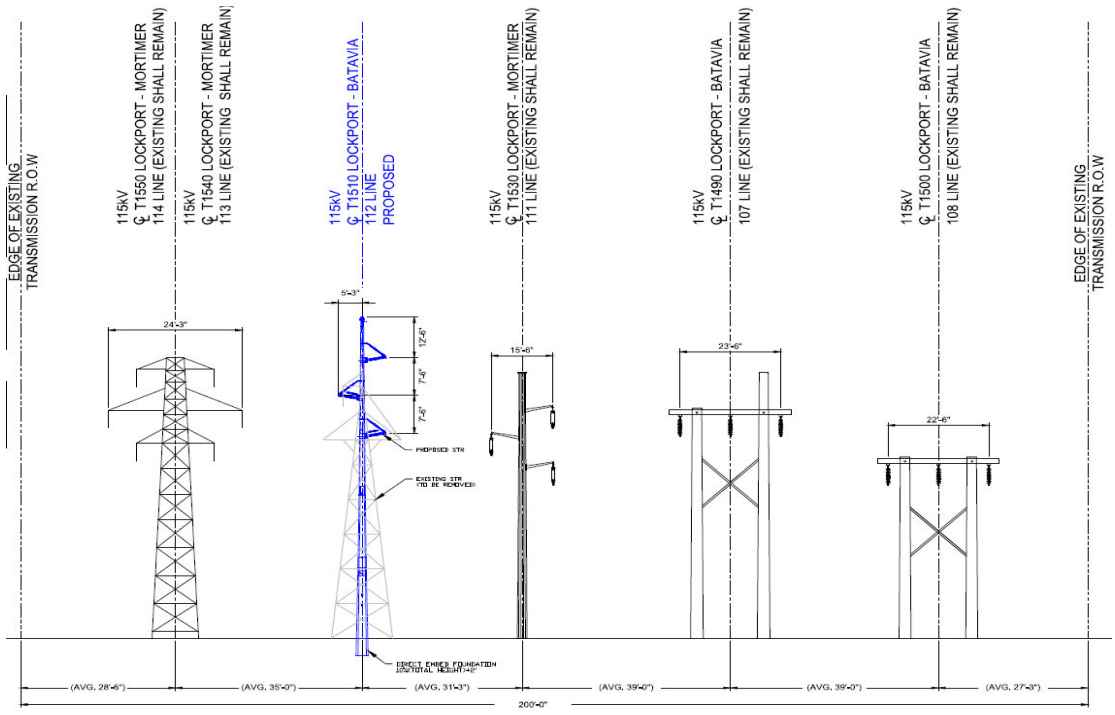
Existing Conditions; Str. 36; Magnetic Field Profile



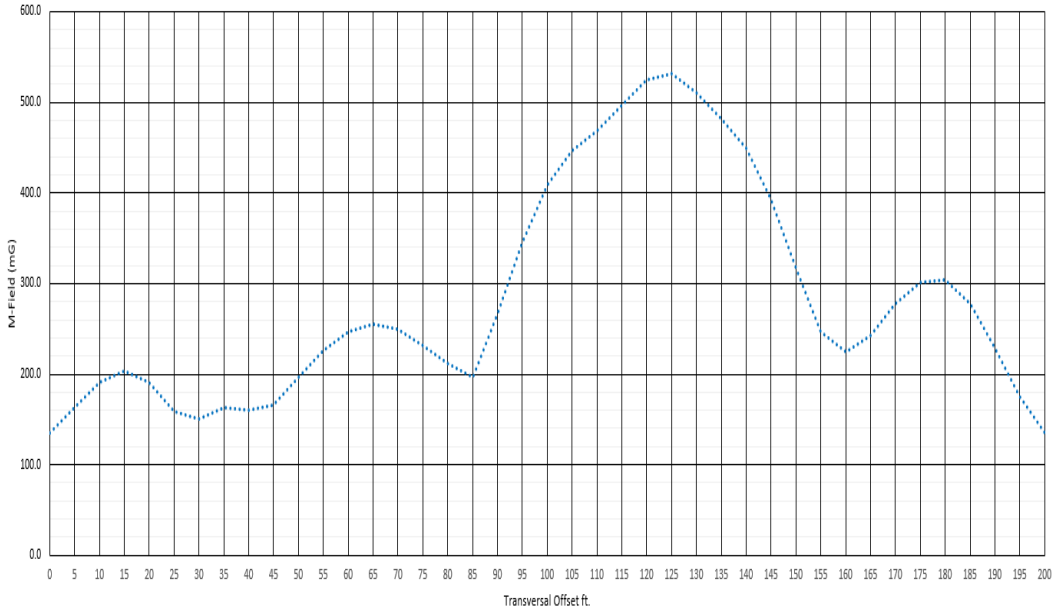


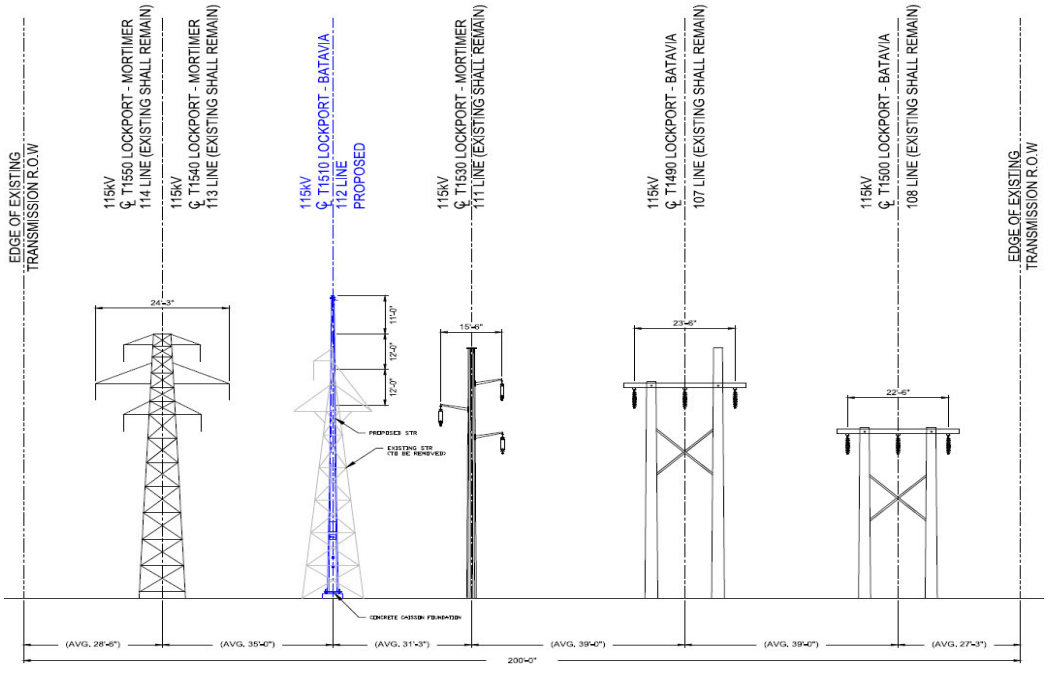
Existing Conditions; Section 37-55; Magnetic Field Profile



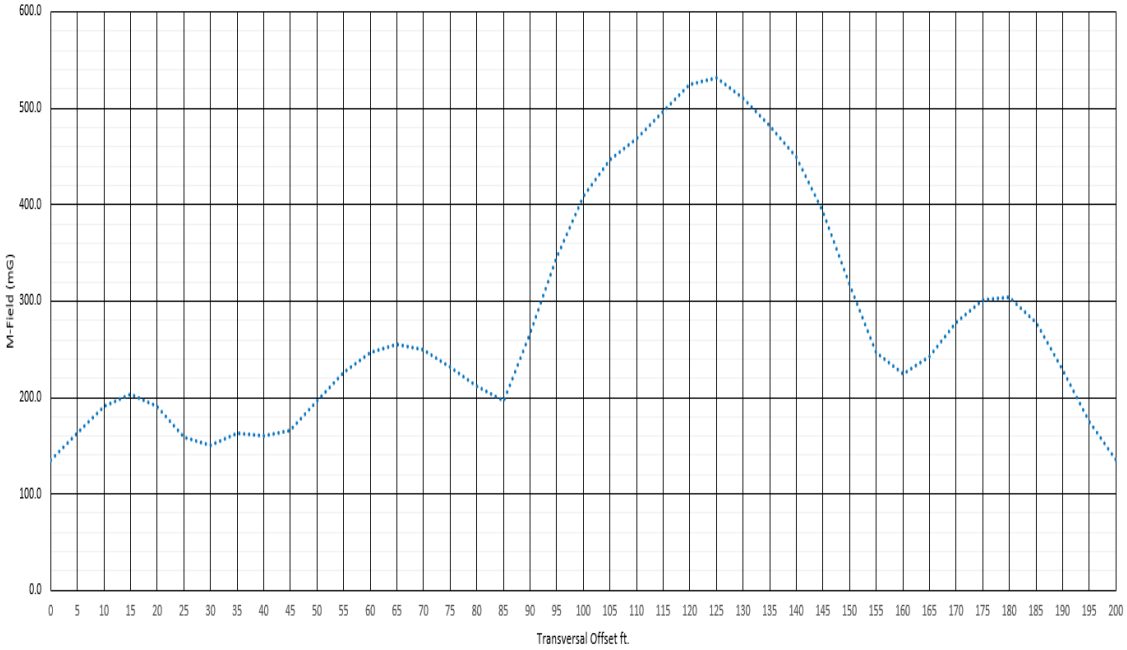


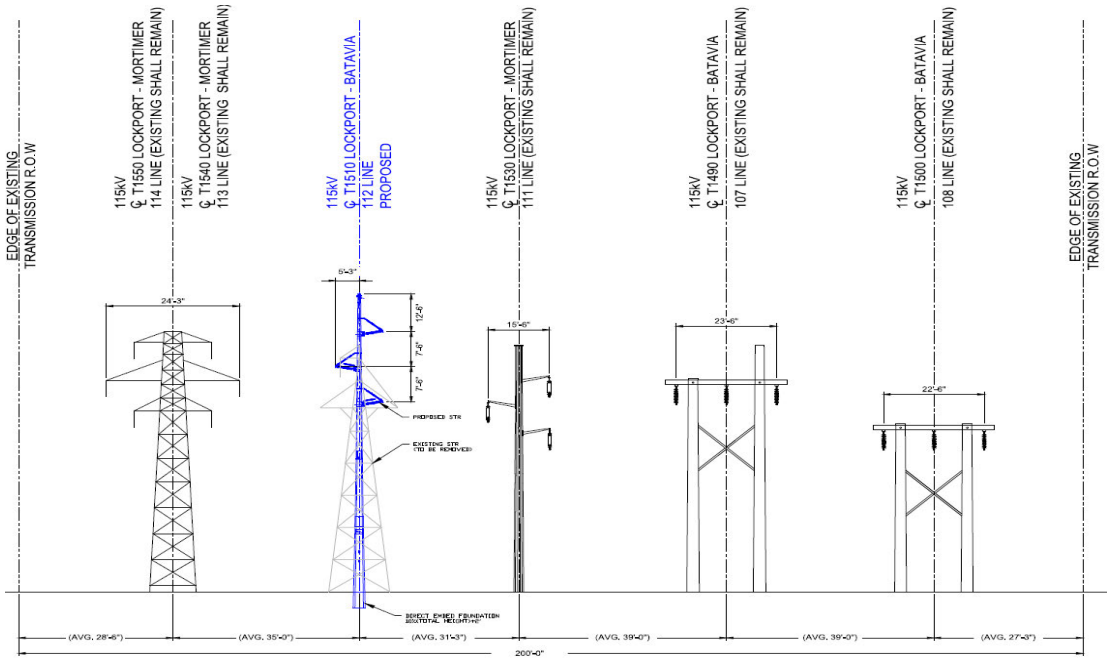
Existing Conditions; Str. 56; Magnetic Field Profile



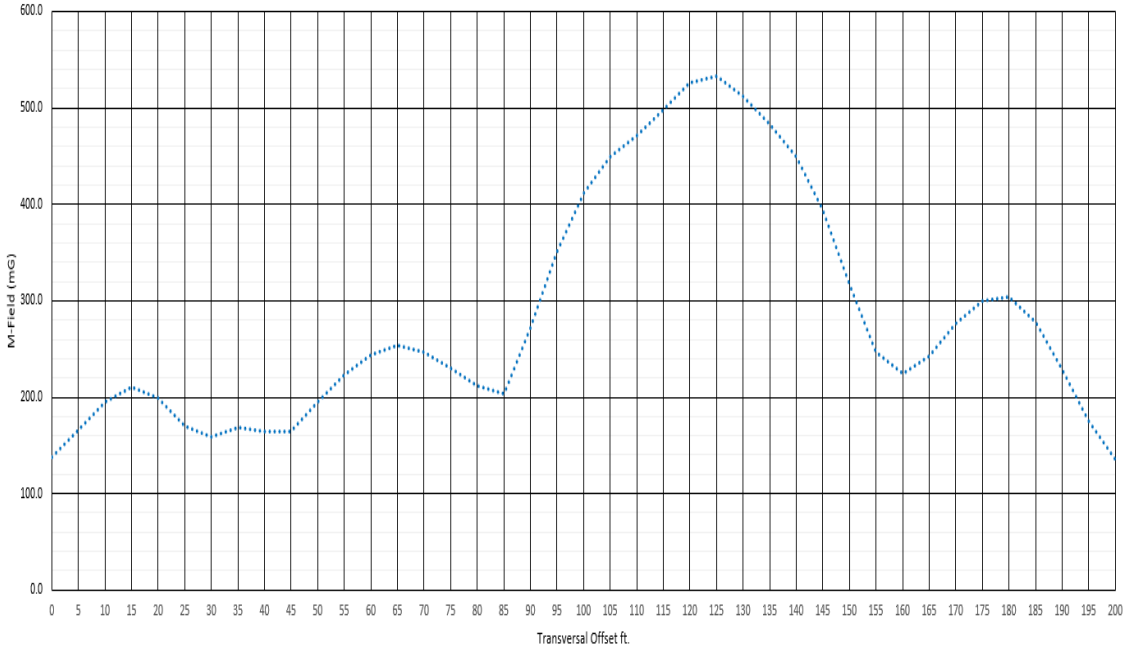


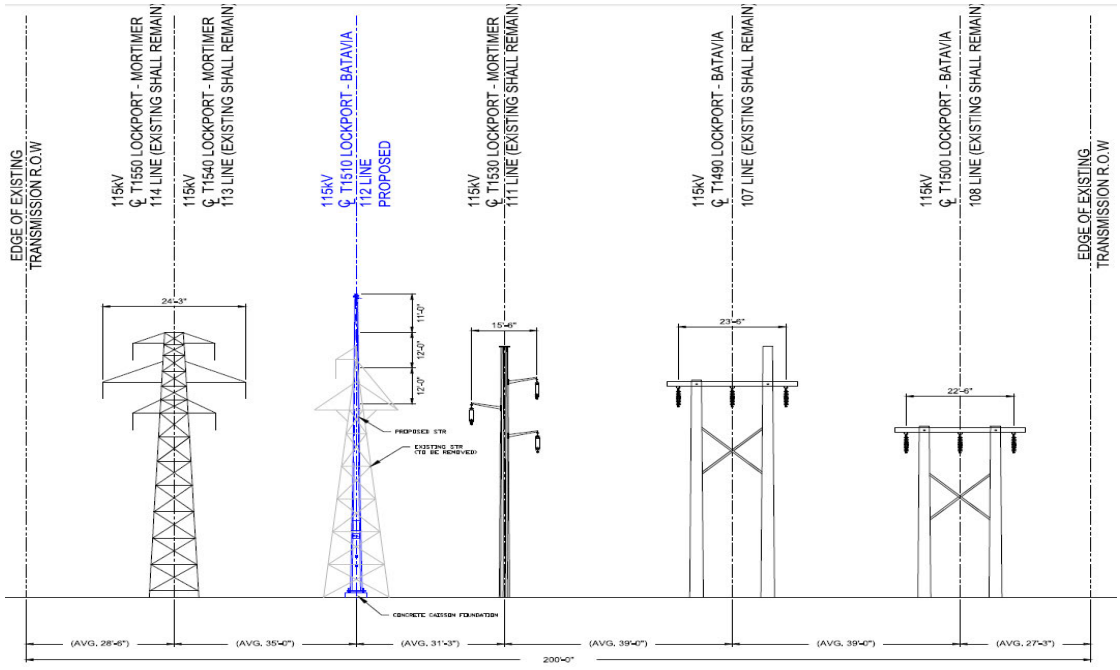
Existing Conditions; Section 57-66; Magnetic Field Profile



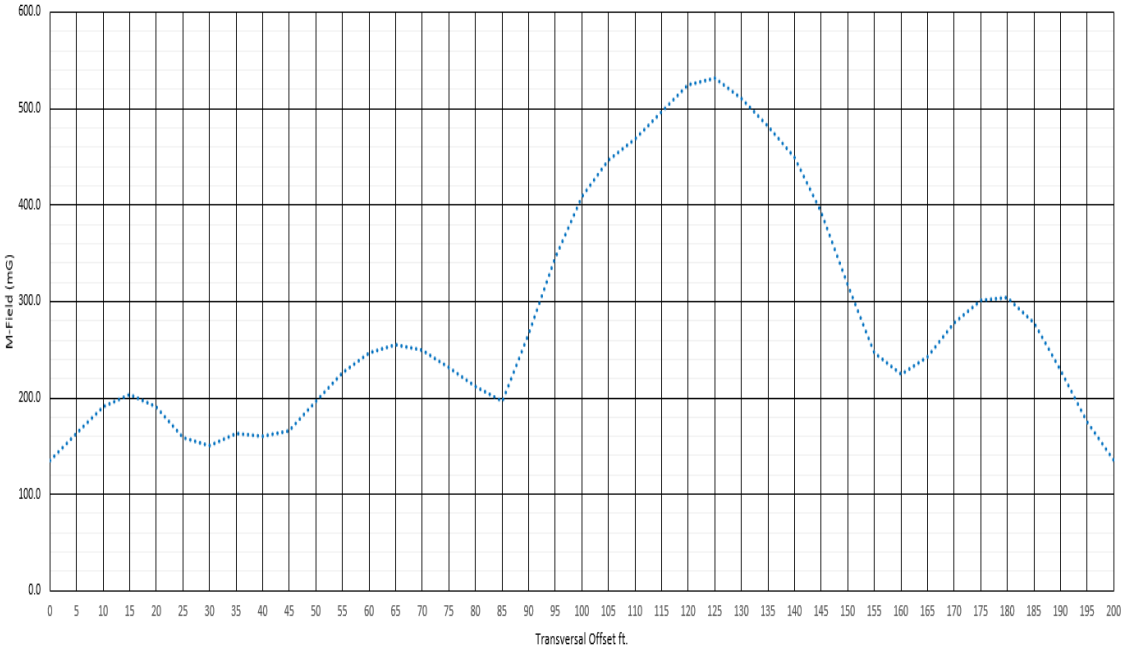


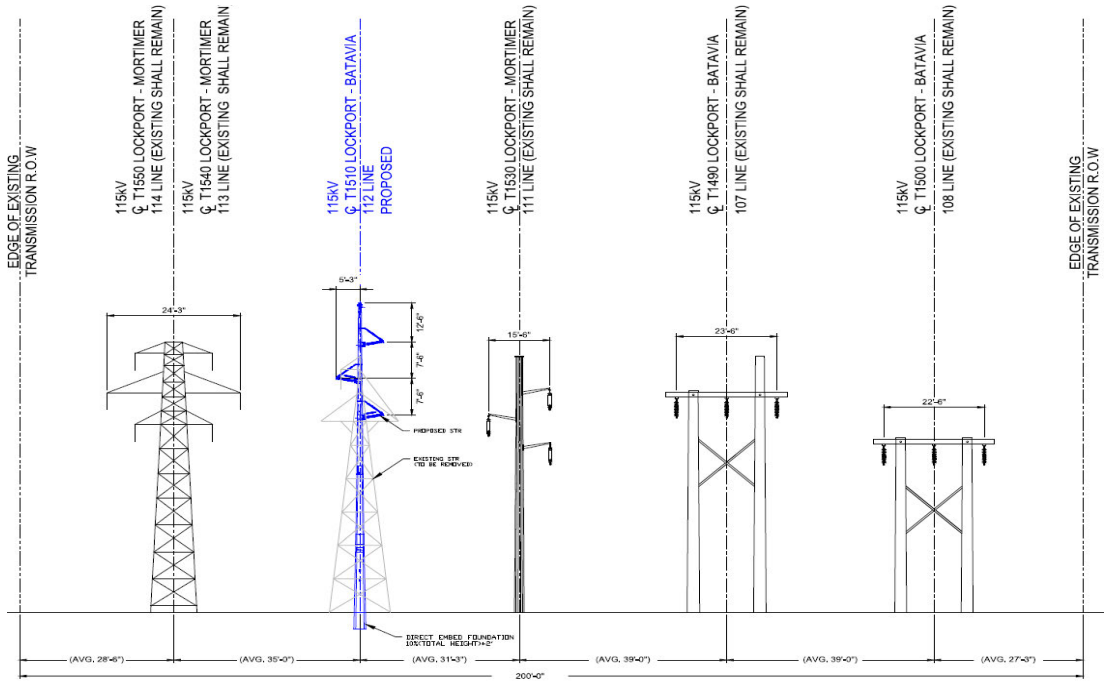
Existing Conditions; Str. 67; Magnetic Field Profile



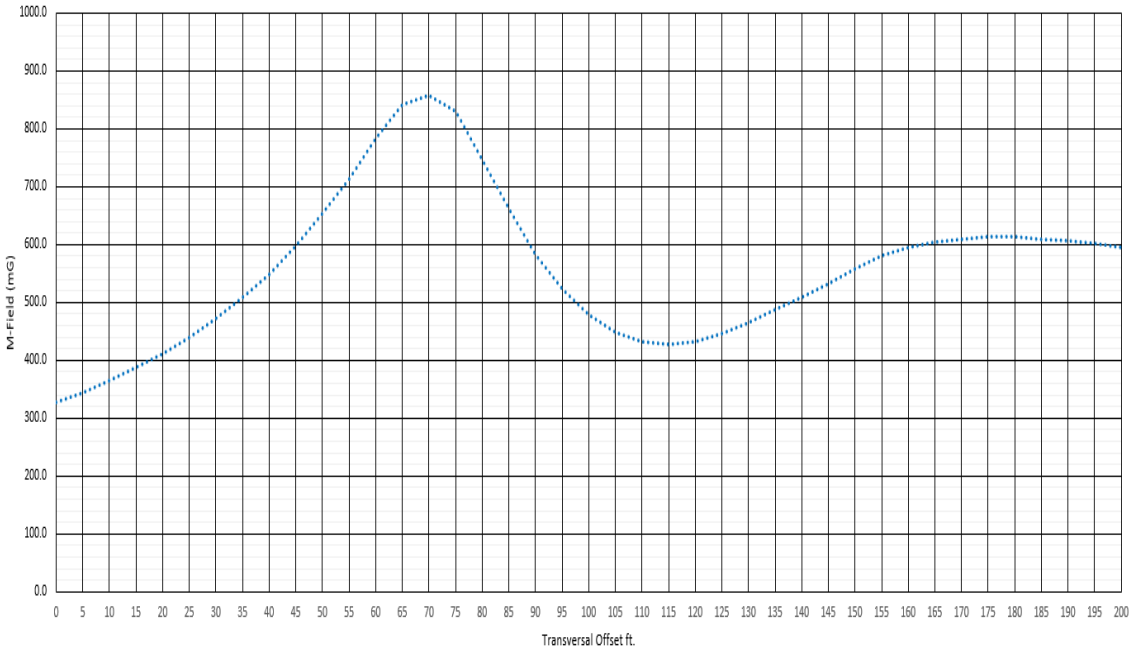


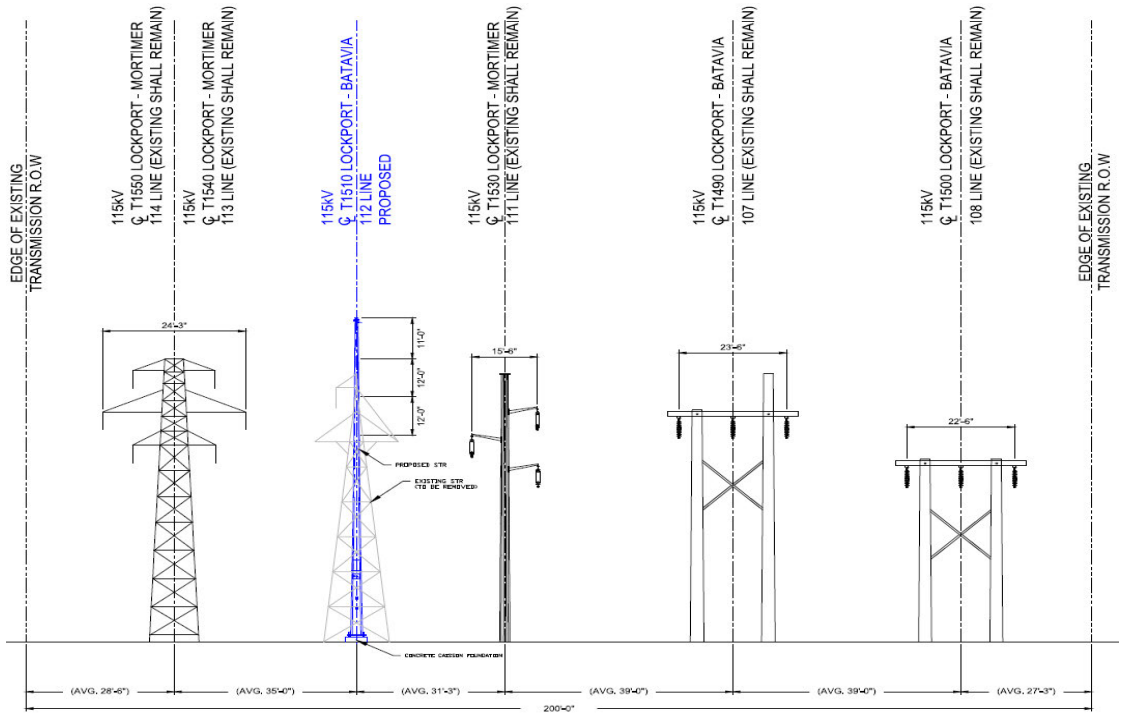
Existing Conditions; Section 68-80; Magnetic Field Profile



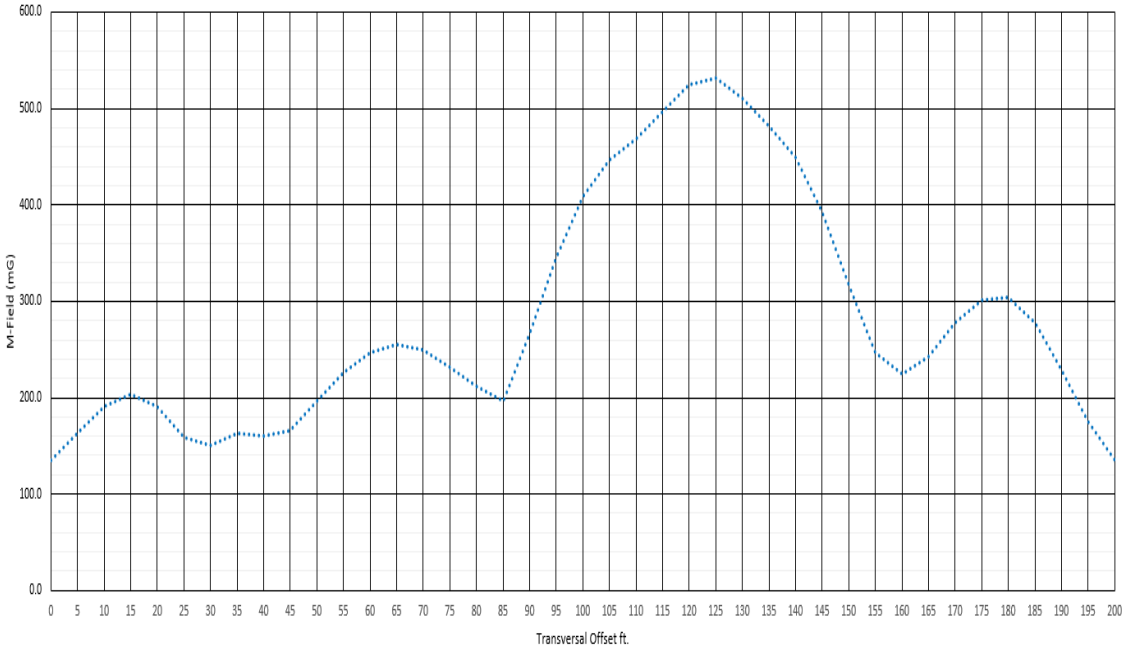


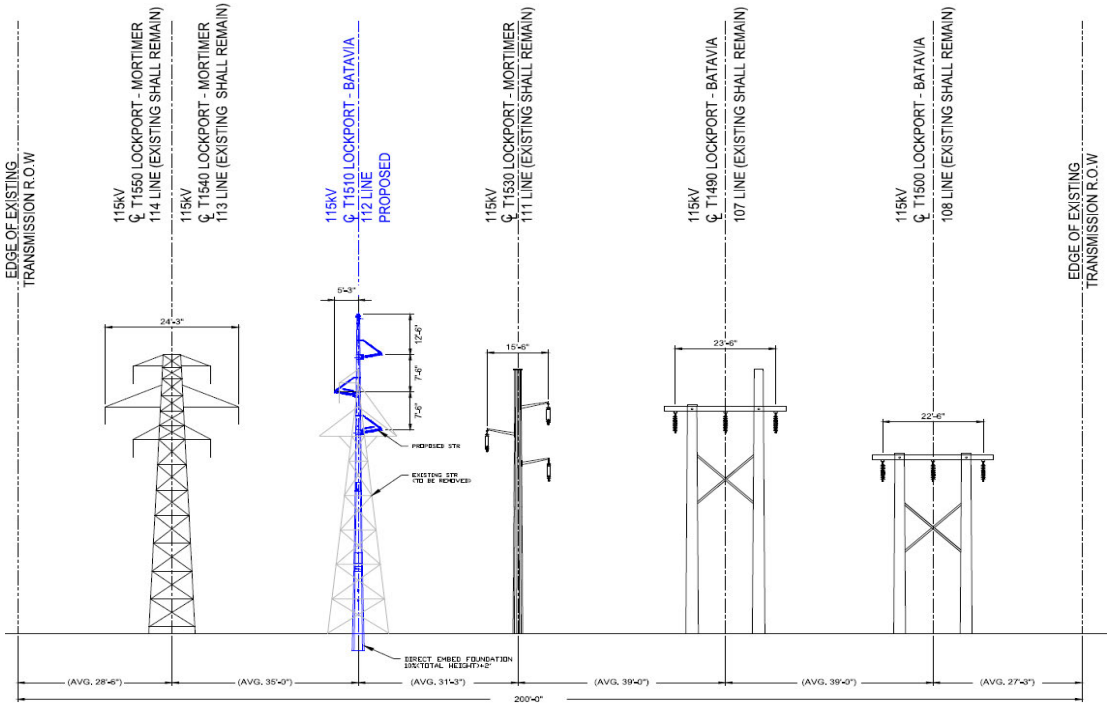
Existing Conditions; Section 81-81.1; Magnetic Field Profile



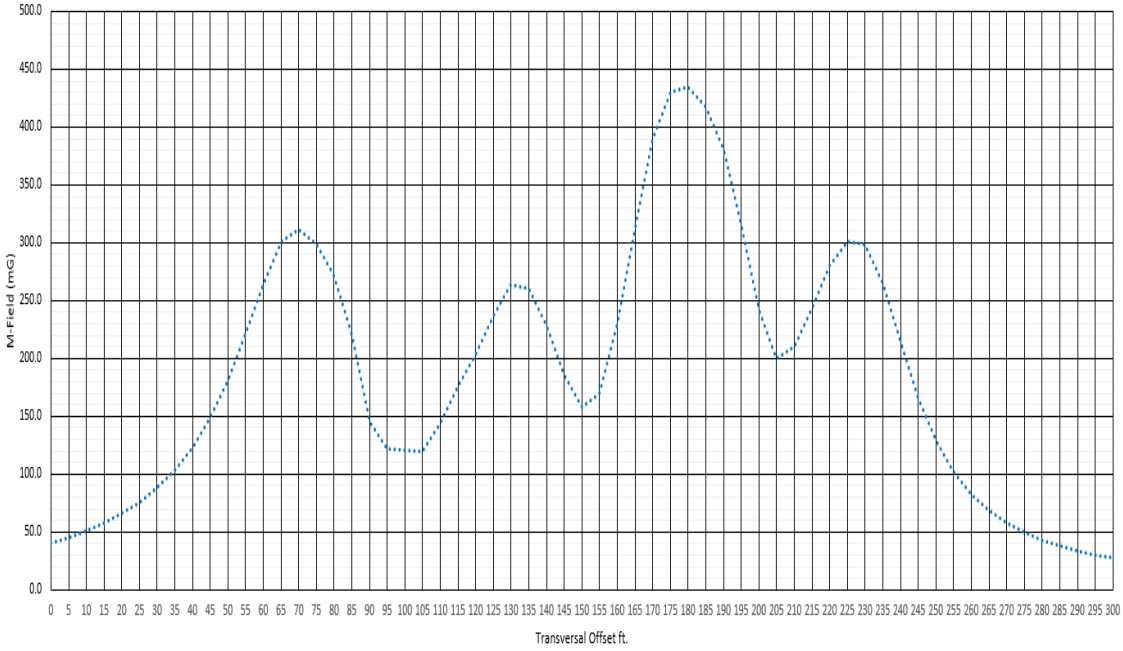


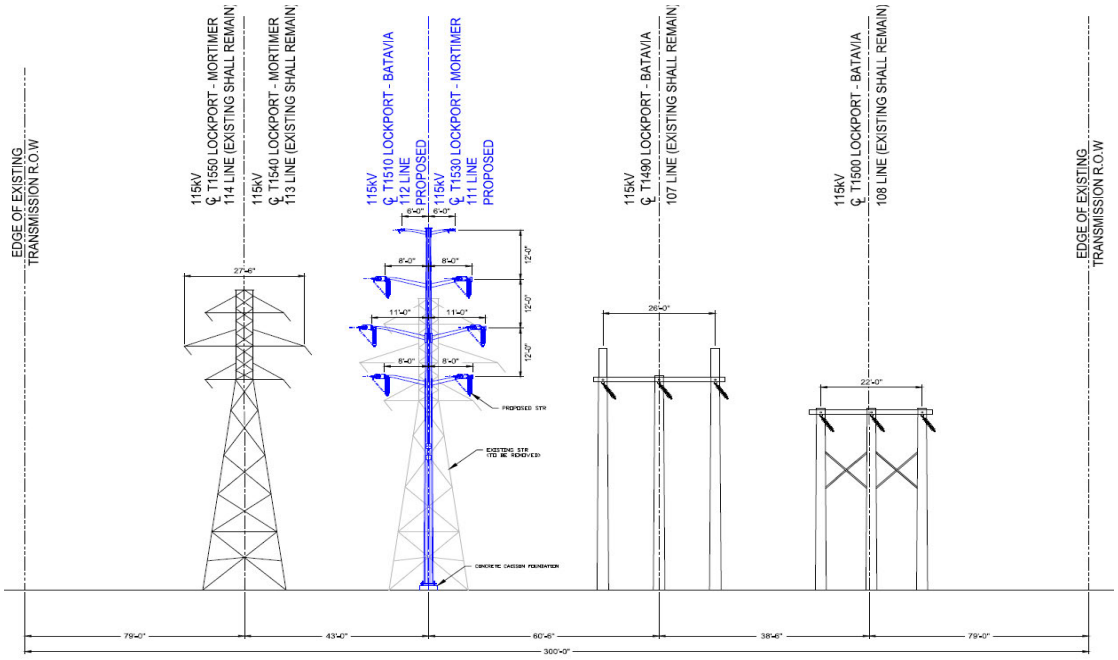
Existing Conditions; Section 82-91; Magnetic Field Profile



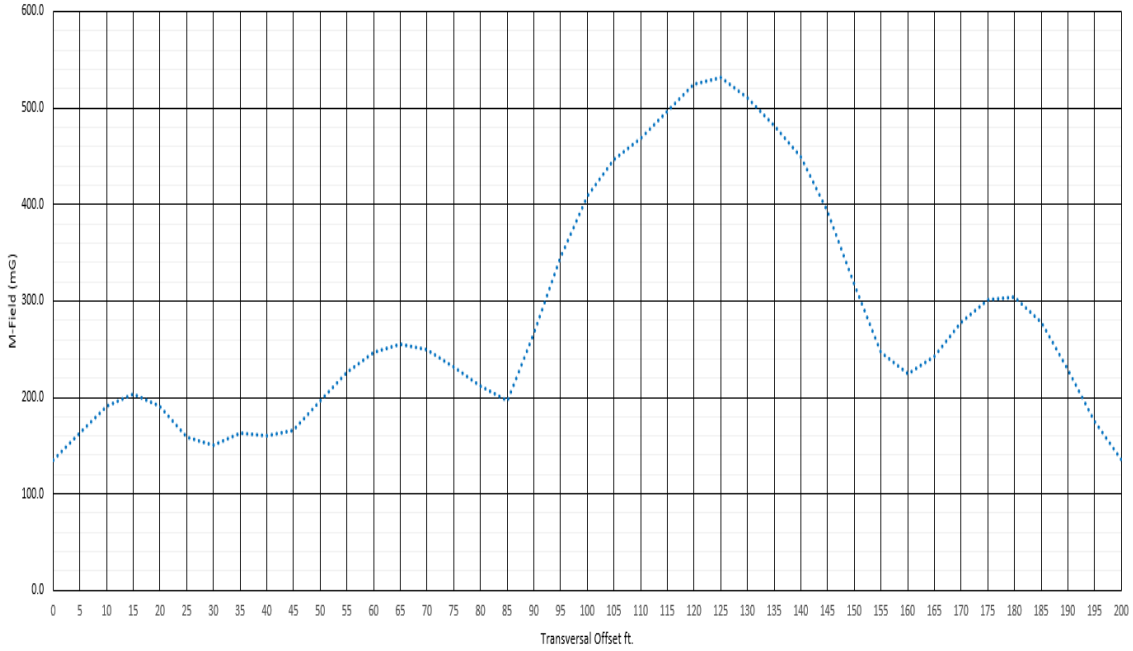


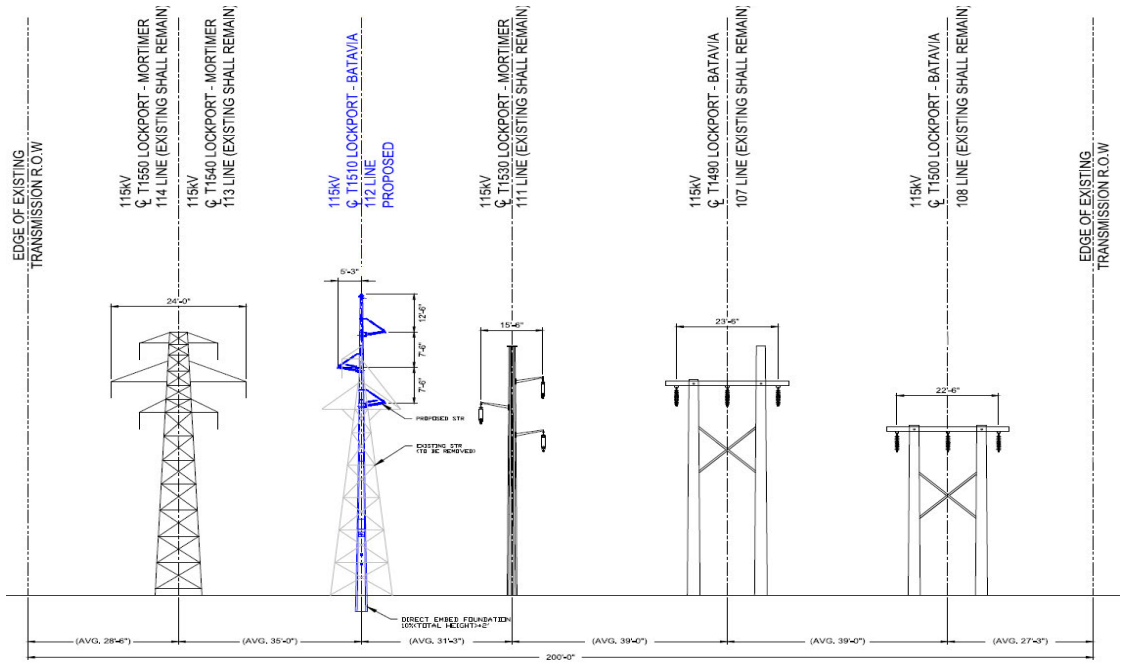
Existing Conditions; Str. 92; Magnetic Field Profile



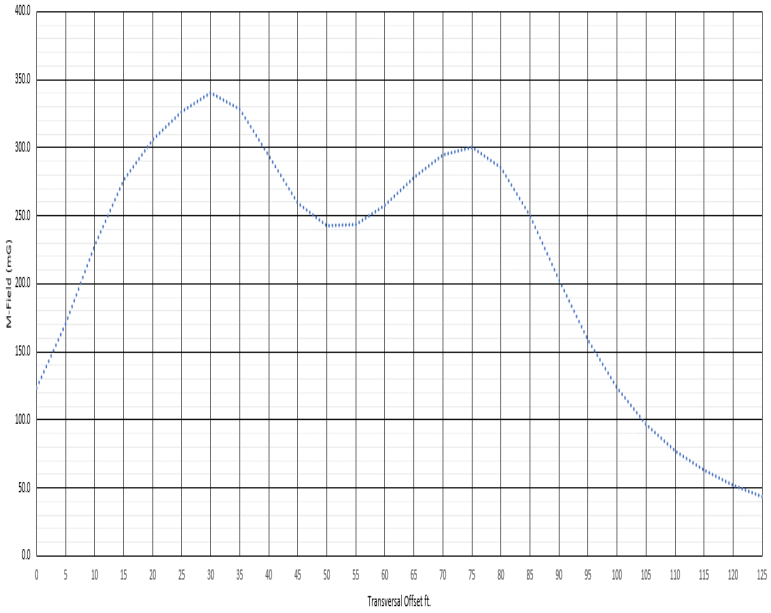


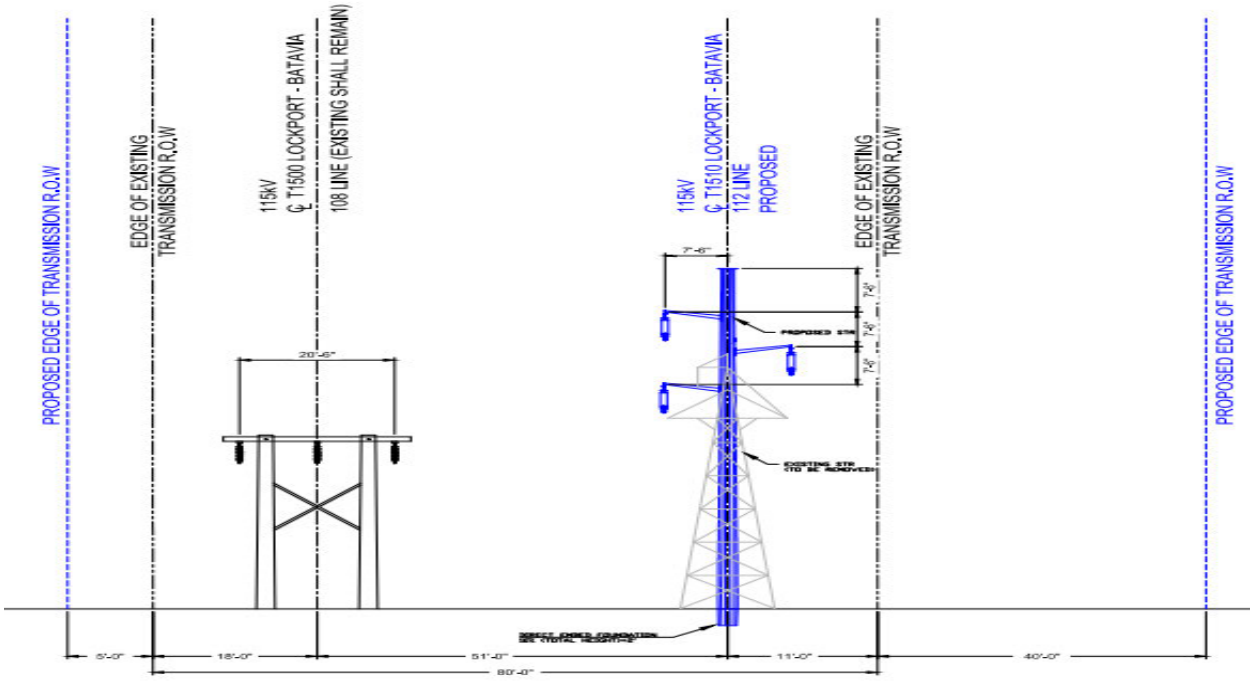
Existing Conditions; Section 93-119; Magnetic Field Profile

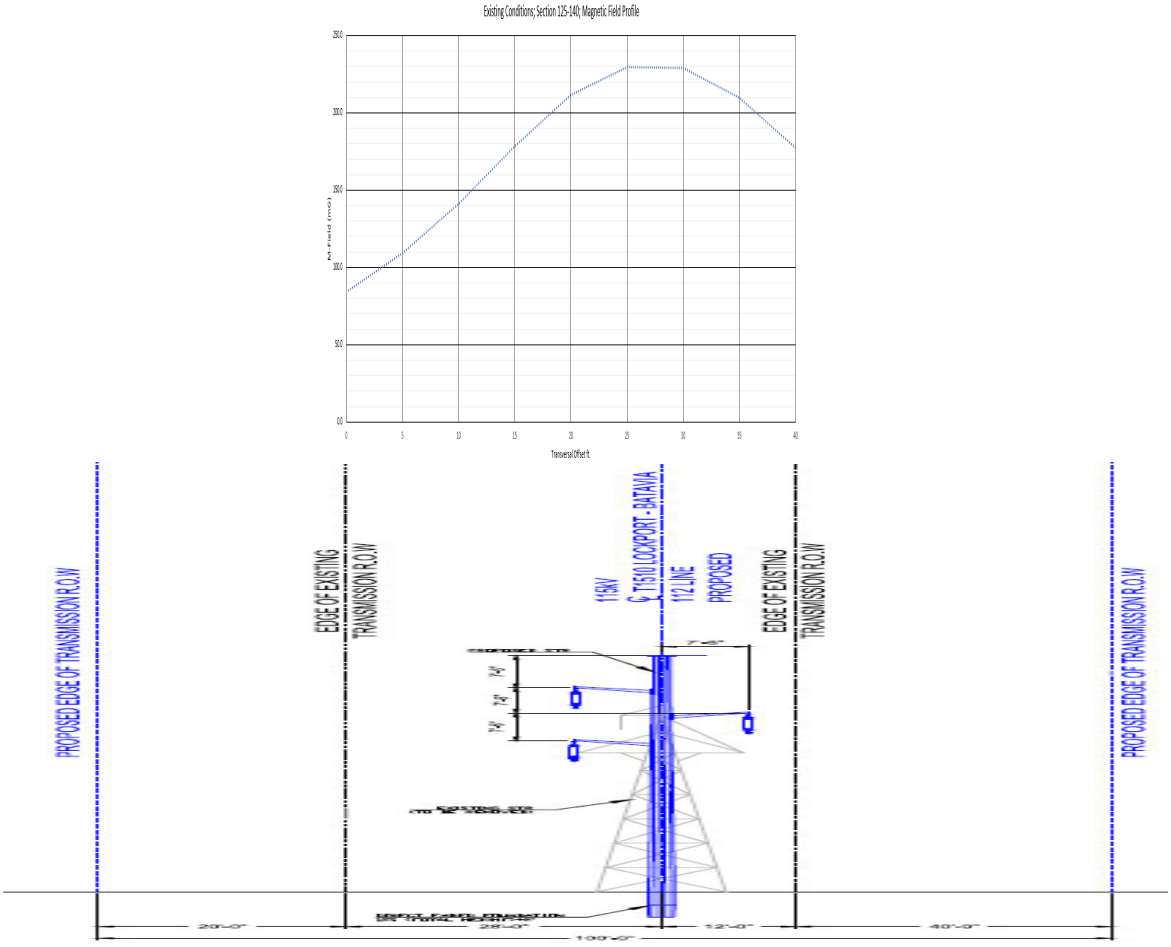


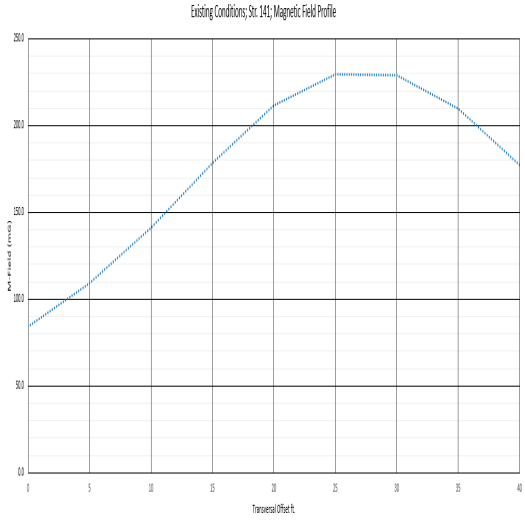


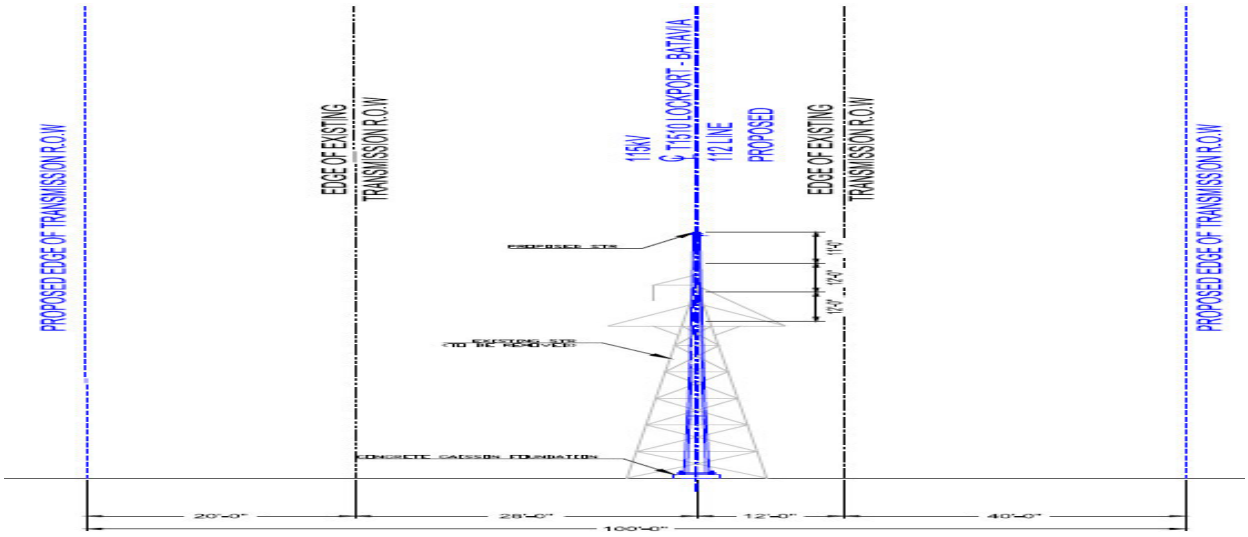
Proposed Conditions; Section 120-124; Magnetic Field Profile

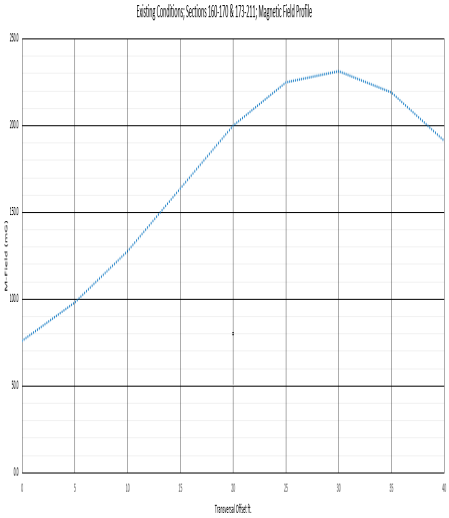


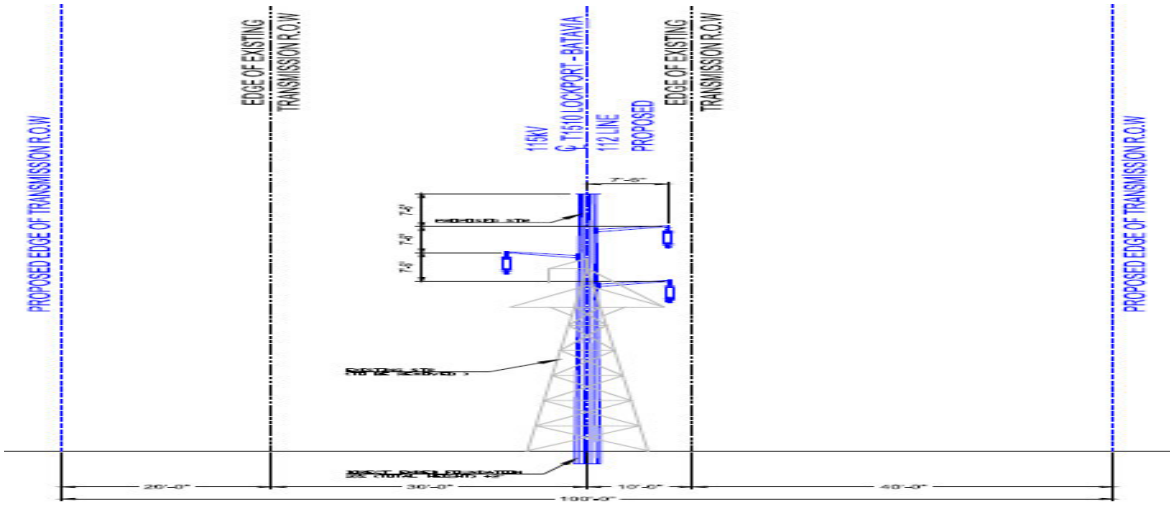



Existing Conditions; Section 125-140; Magnetic Field Profile
Transversal Offset ft
PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
T.911/LOCKPORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
20'-0"
28'-0"
12'-0"
40'-0"
100'-0"

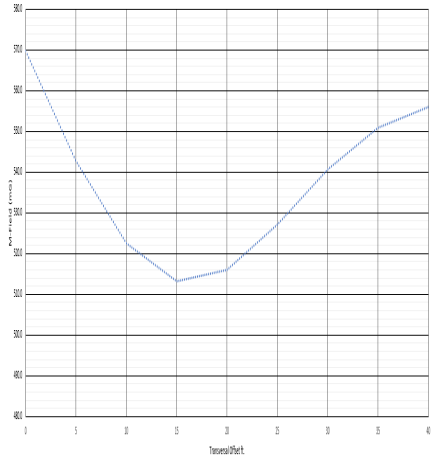

Existing Conditions; Str. 141; Magnetic Field Profile
250.0
200.0
150.0
100.0
50.0
0.0
Transversal Offset ft.

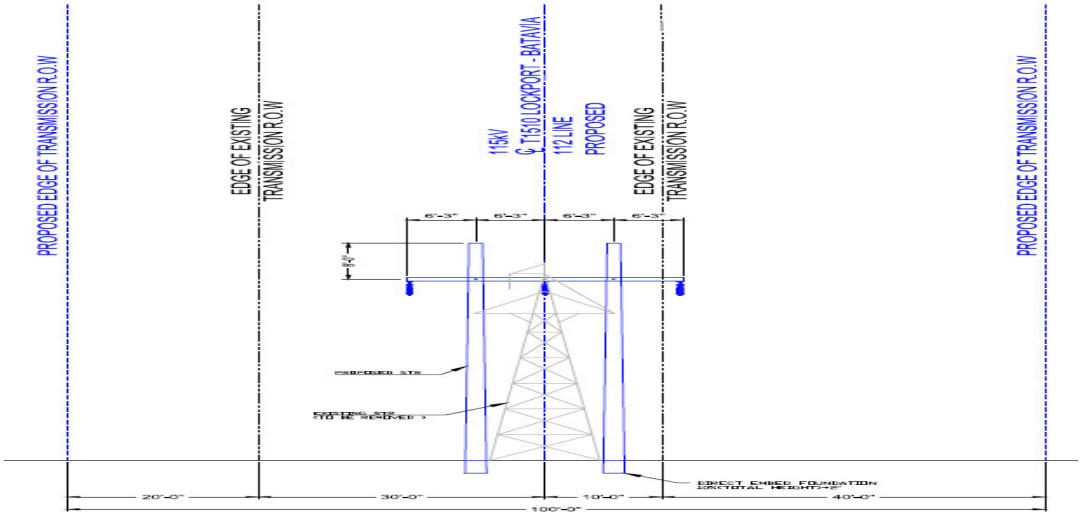

PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV
T1510 LOOKPORT - BATAVIA
112 LINE
PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
CONCRETE CAISSON FOUNDATION
20'-0"
28'-0"
12'-0"
40'-0"
100'-0"


Existing Conditions, Sections 160-170 & 173-211; Magnetic Field Profile
Transversal Offset ft


PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV @ T1610 LOCKPORT - BATAVIA 112 LINE PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
7'-6"
7'-6"
7'-6"
7'-6"
35'-0"
30'-0"
10'-0"
45'-0"
100'-0"

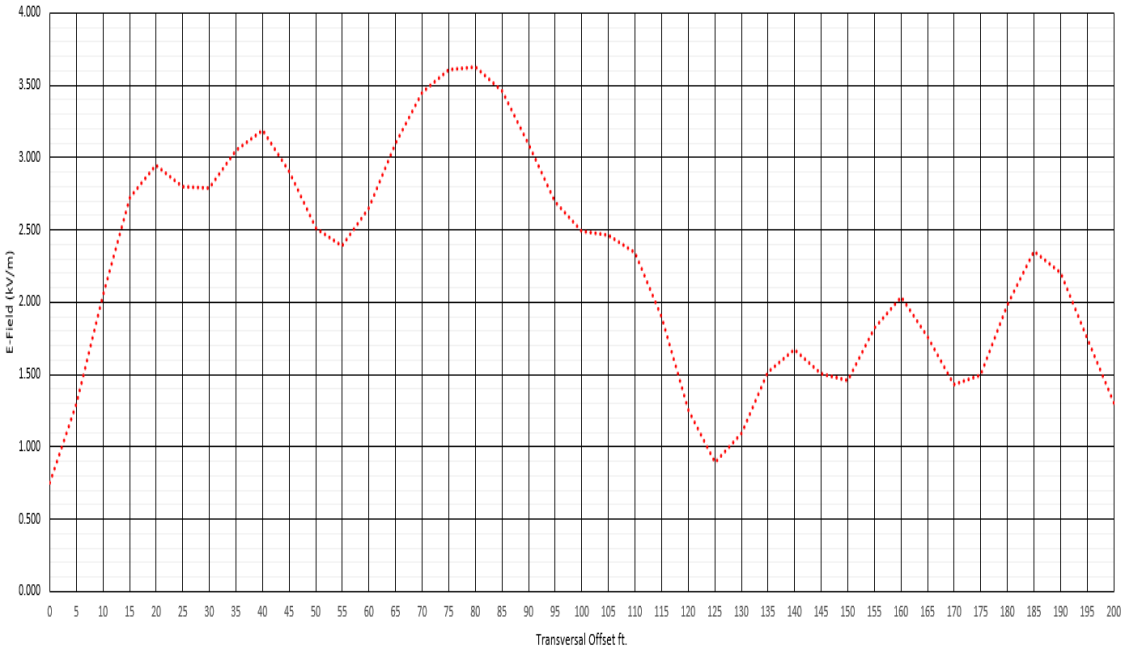
Existing Conditions; Section 171-172; Magnetic Field Profile

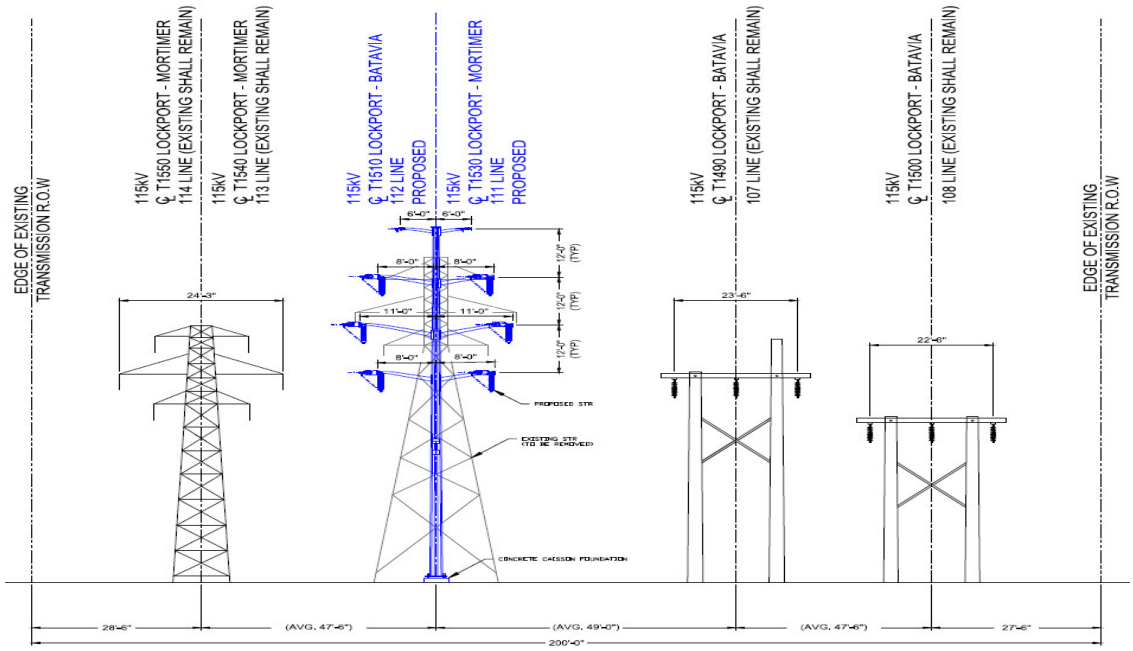




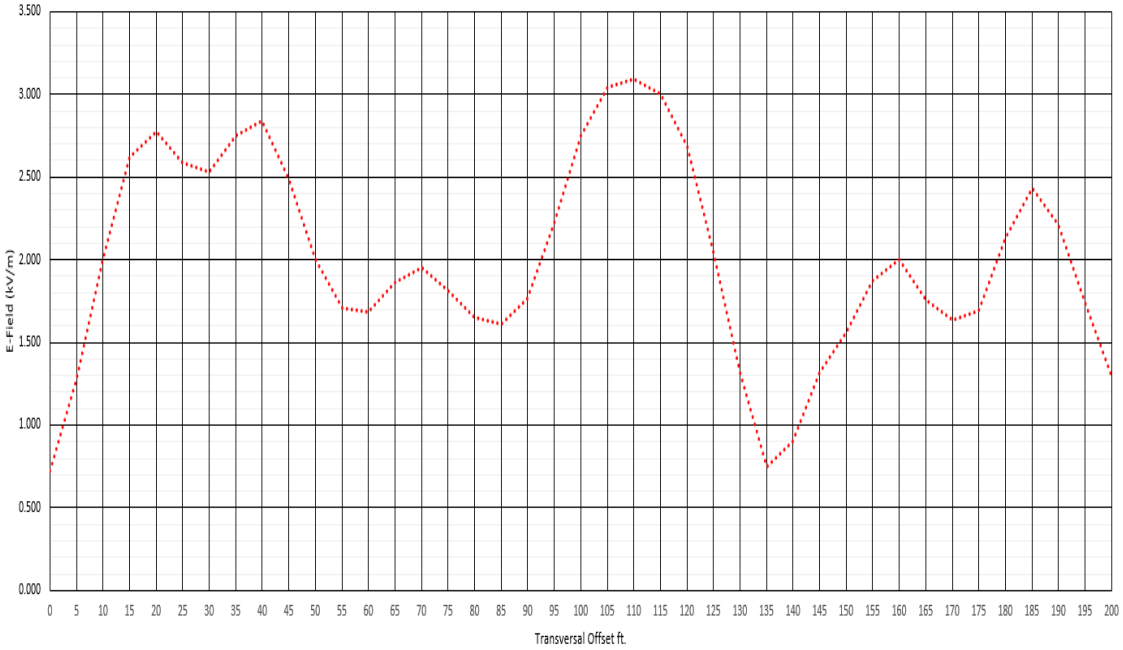
Electric Field Profiles; Proposed Conditions

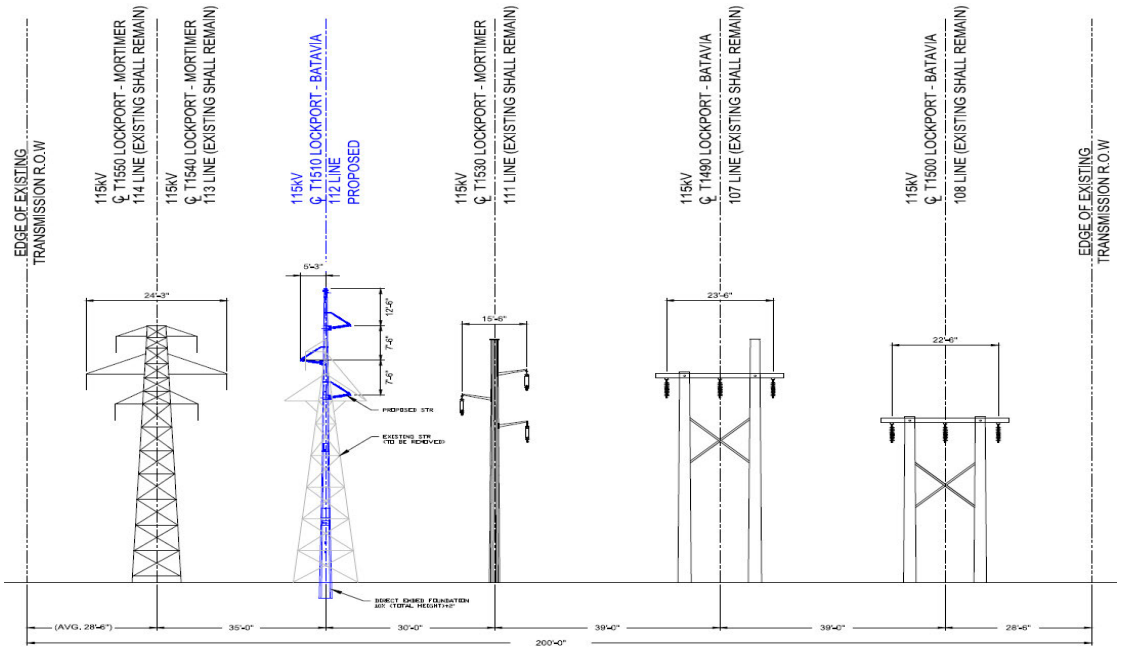
Proposed Conditions; Section 2-4; E-Field Profile

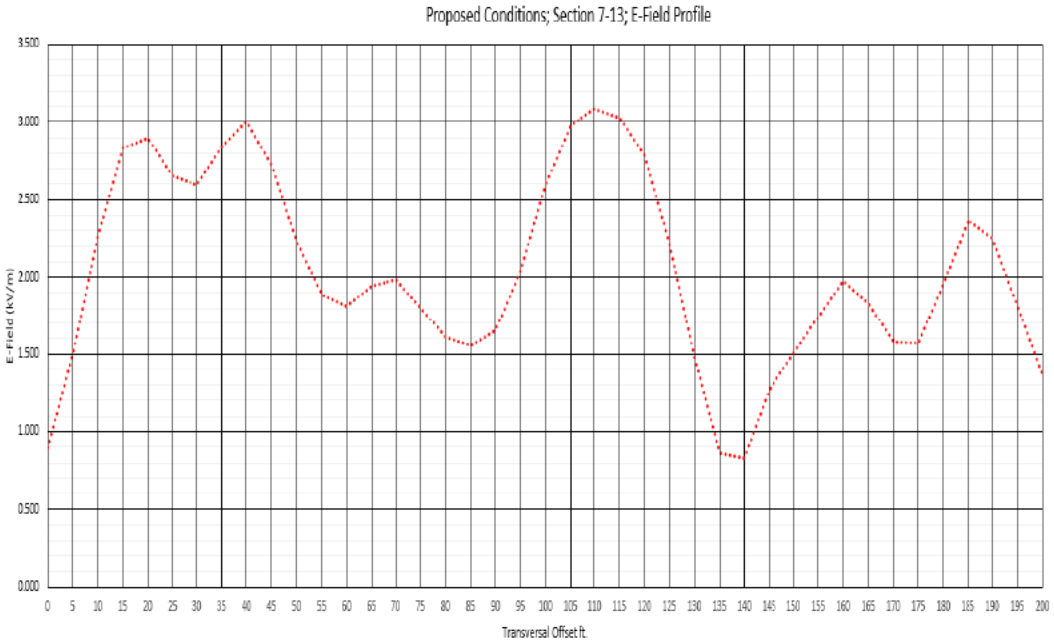


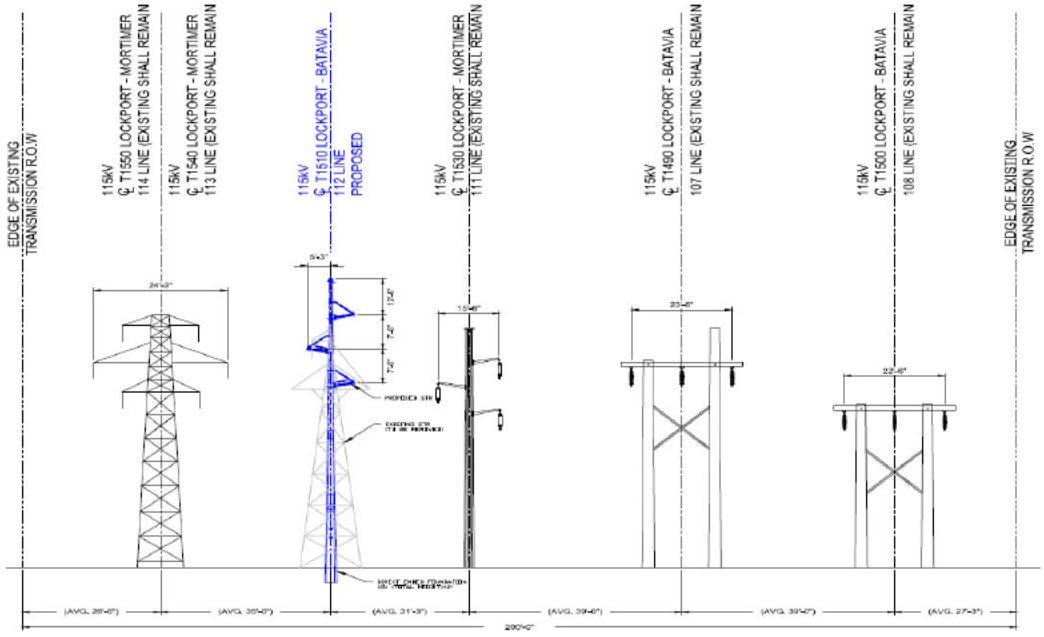


Proposed Conditions; Section 5-6; E-Field Profile

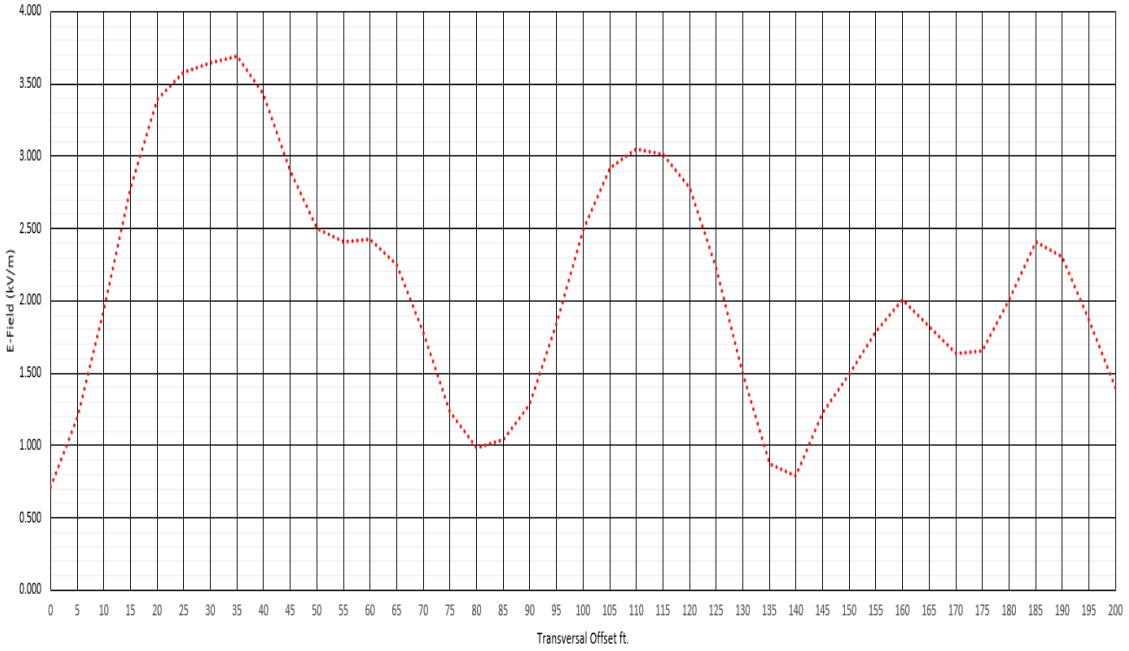


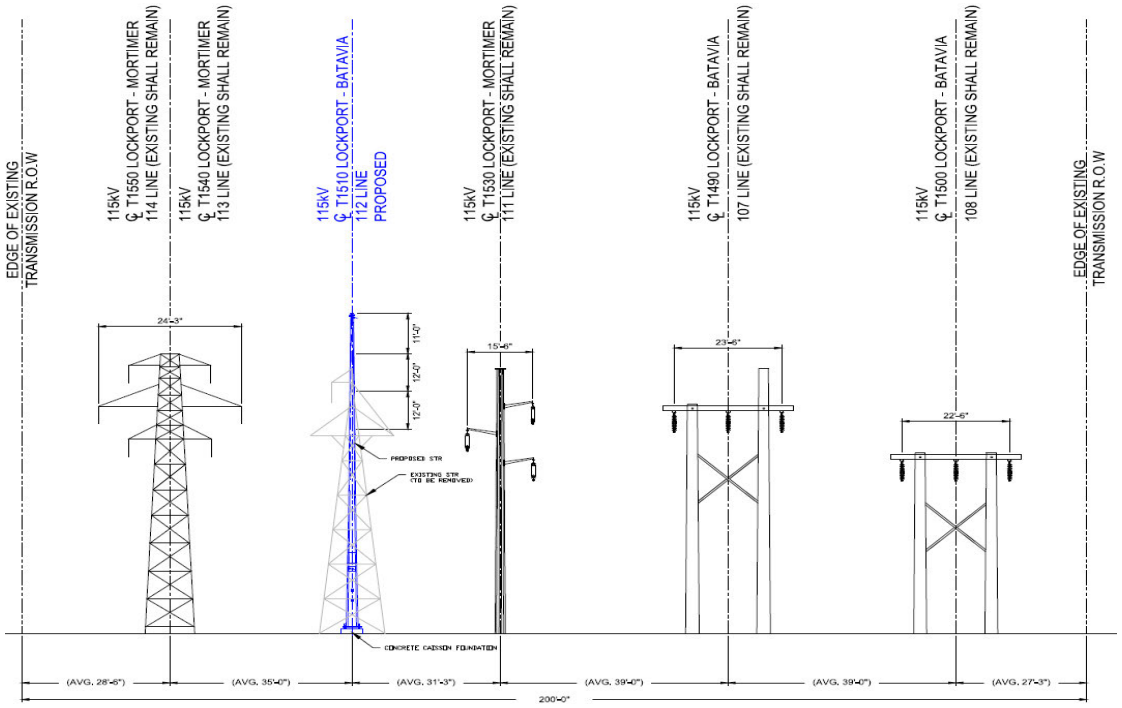



Proposed Conditions; Section 7-13; E-Field Profile
E-Field (kV/m)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200
Transversal Offset ft.

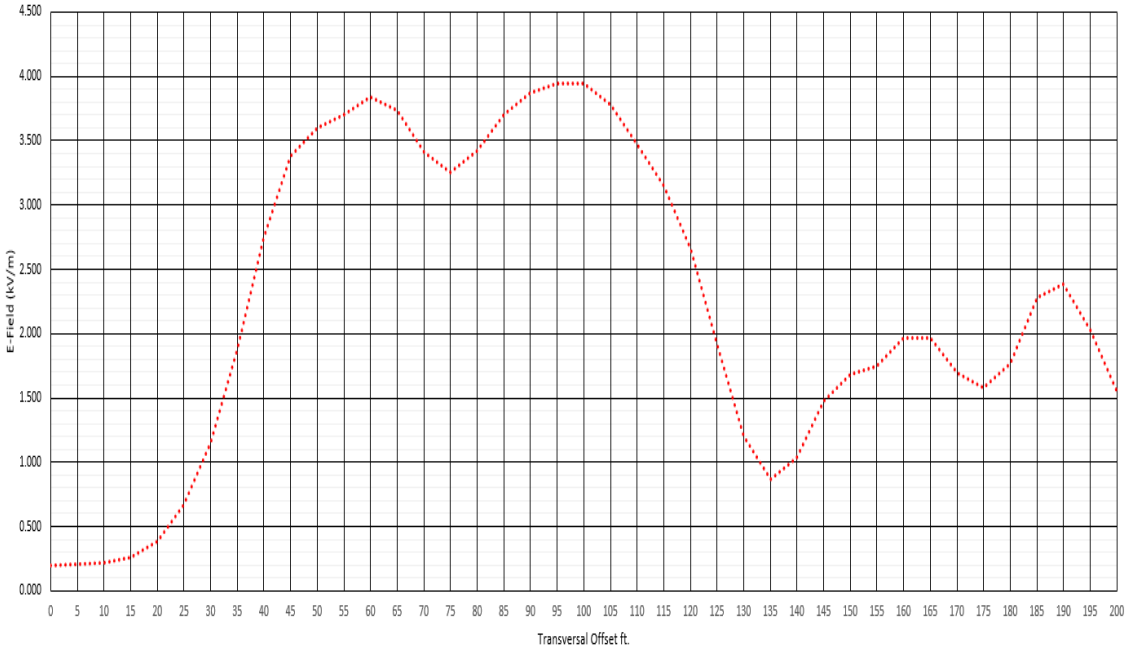

EDGE OF EXISTING TRANSMISSION R.O.W
115kV ℄ T1550 LOCKPORT - MORTIMER 114 LINE (EXISTING SHALL REMAIN
115kV ℄ T1540 LOCKPORT - MORTIMER 113 LINE (EXISTING SHALL REMAIN
115kV ℄ T1510 LOCKPORT - BATAVIA 112 LINE PROPOSED
115kV ℄ T1530 LOCKPORT - MORTIMER 111 LINE (EXISTING SHALL REMAIN
115kV ℄ T1490 LOCKPORT - BATAVIA 107 LINE (EXISTING SHALL REMAIN
115kV ℄ T1500 LOCKPORT - BATAVIA 108 LINE (EXISTING SHALL REMAIN
EDGE OF EXISTING TRANSMISSION R.O.W
(AVG. 26'-6")
(AVG. 35'-0")
(AVG. 31'-3")
(AVG. 39'-6")
(AVG. 39'-0")
(AVG. 27'-3")
200'-0"

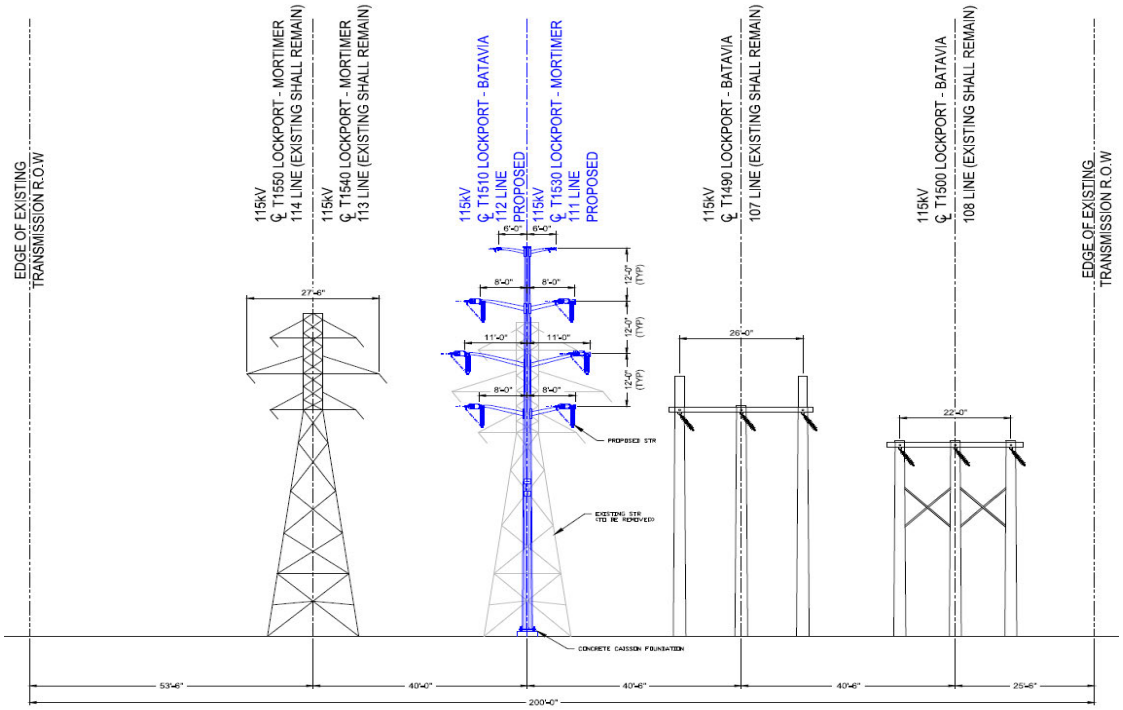
Proposed Conditions; Str. 14; E-Field Profile



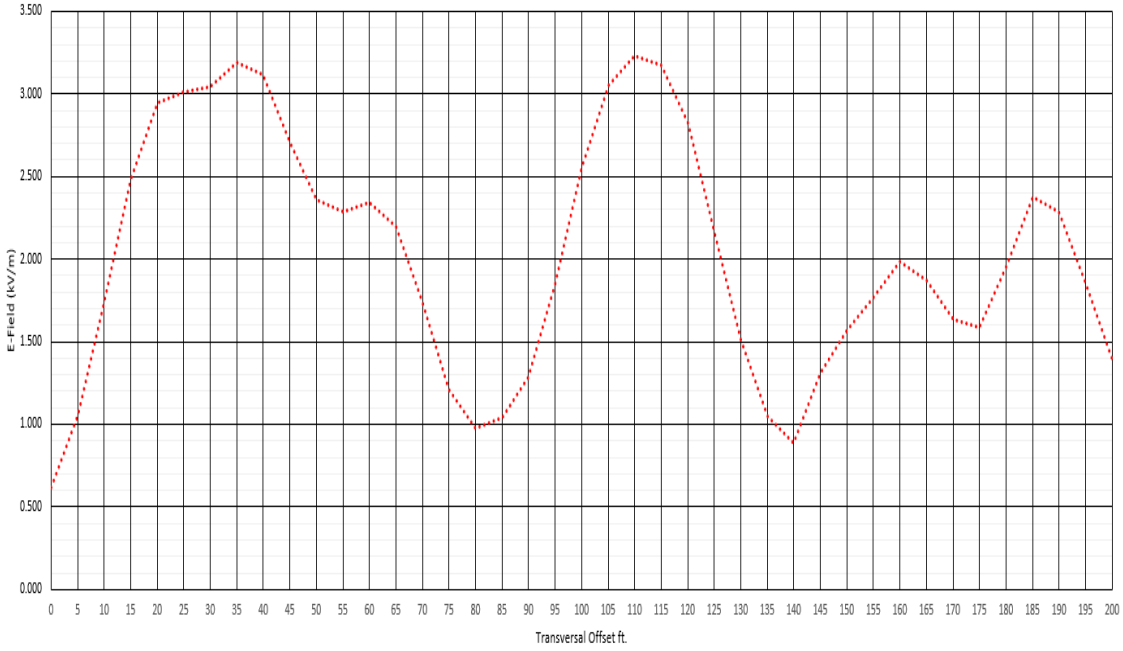


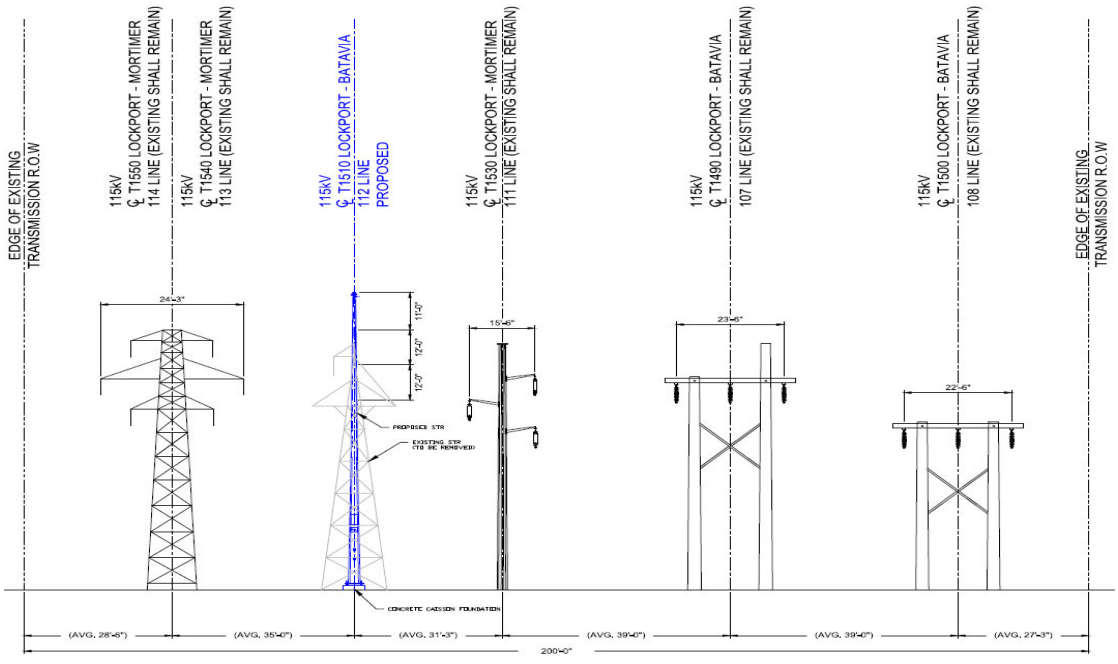
Proposed Conditions; Str. 15; E-Field Profile



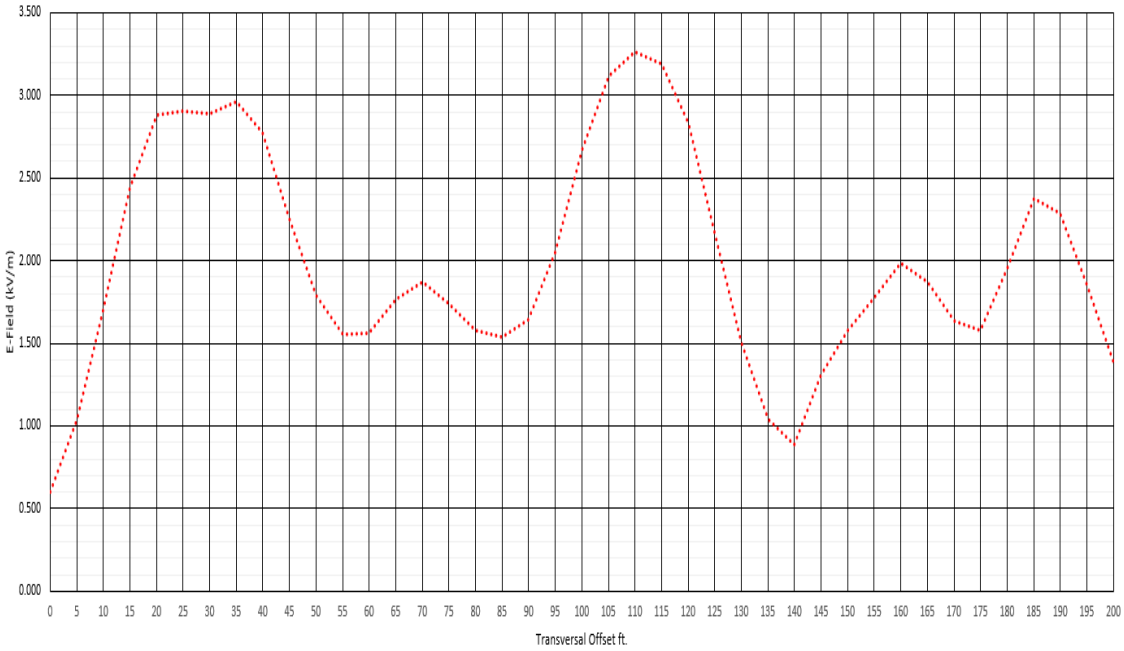


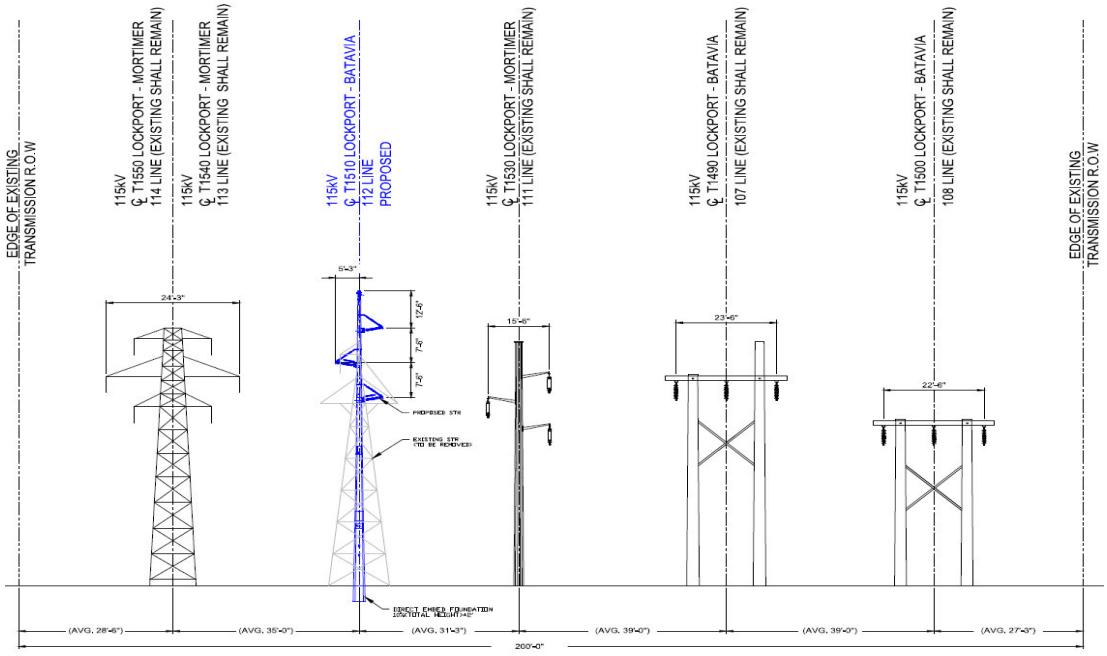
Proposed Conditions; Str. 16; E-Field Profile



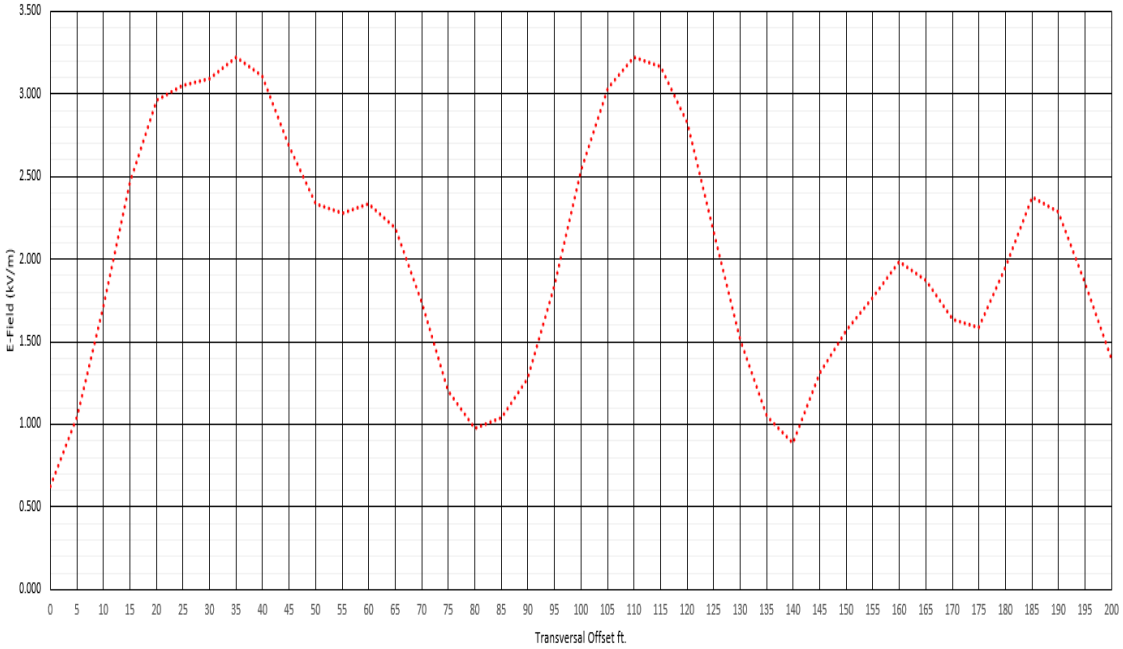


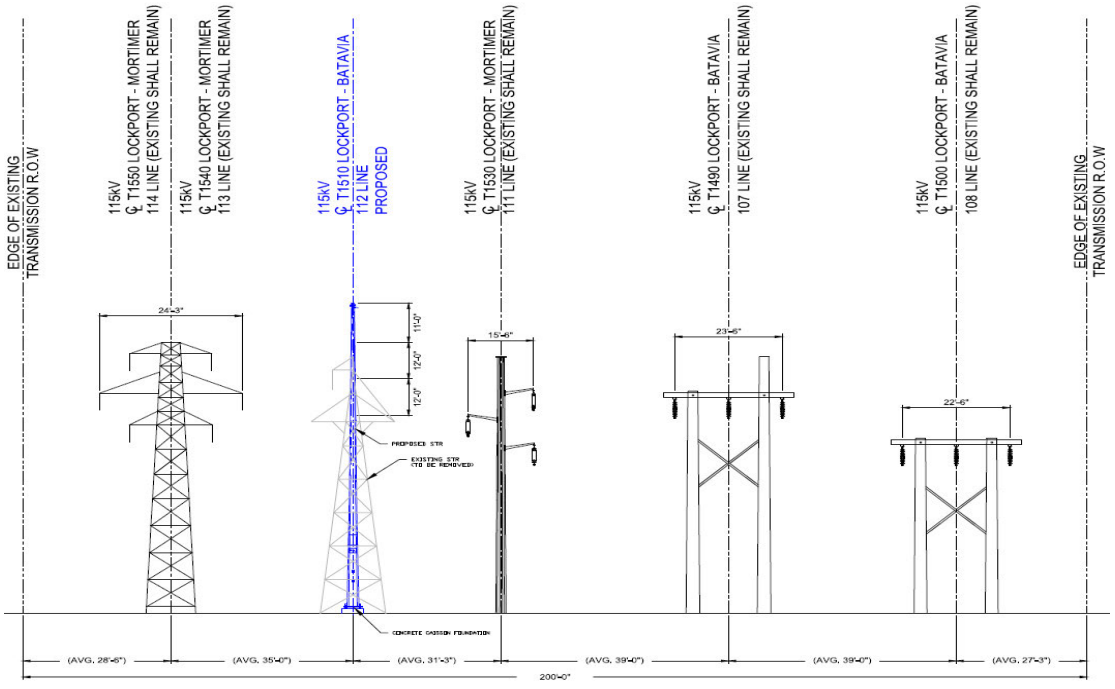
Proposed Conditions; Section 17-35; E-Field Profile



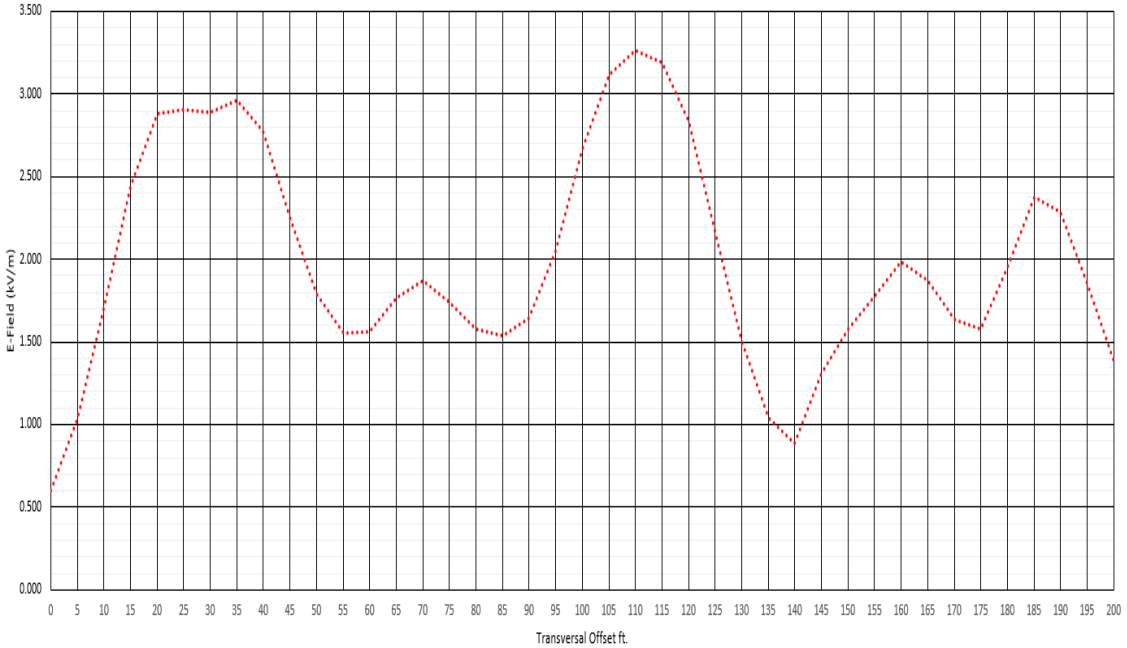


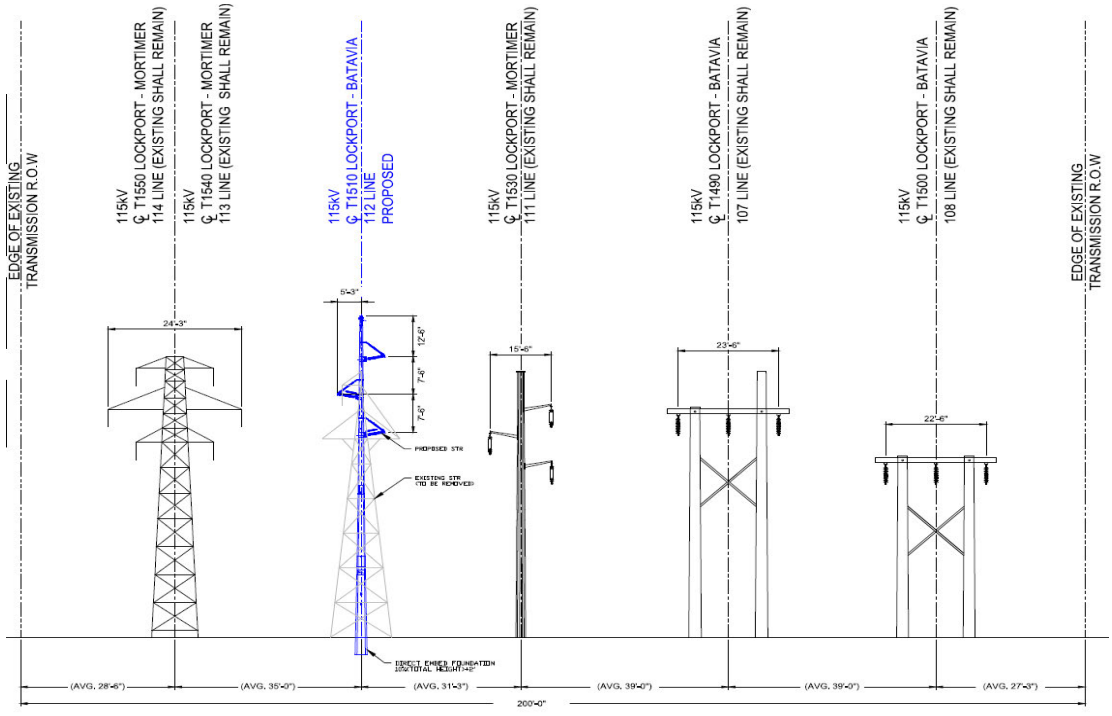
Proposed Conditions; Str. 36; E-Field Profile



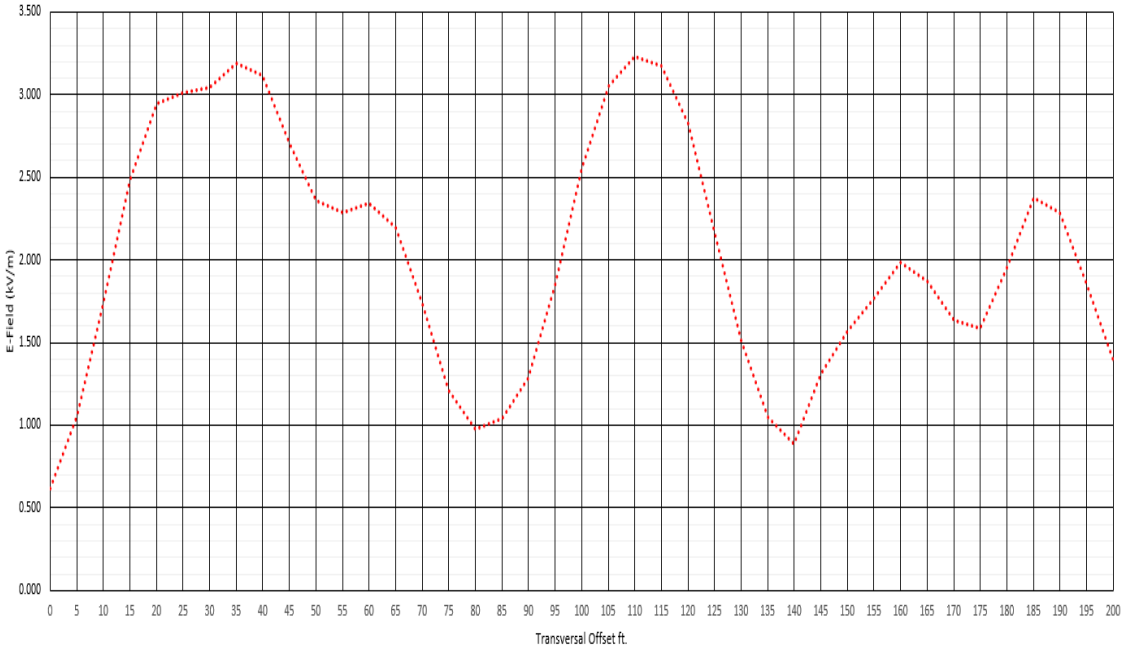


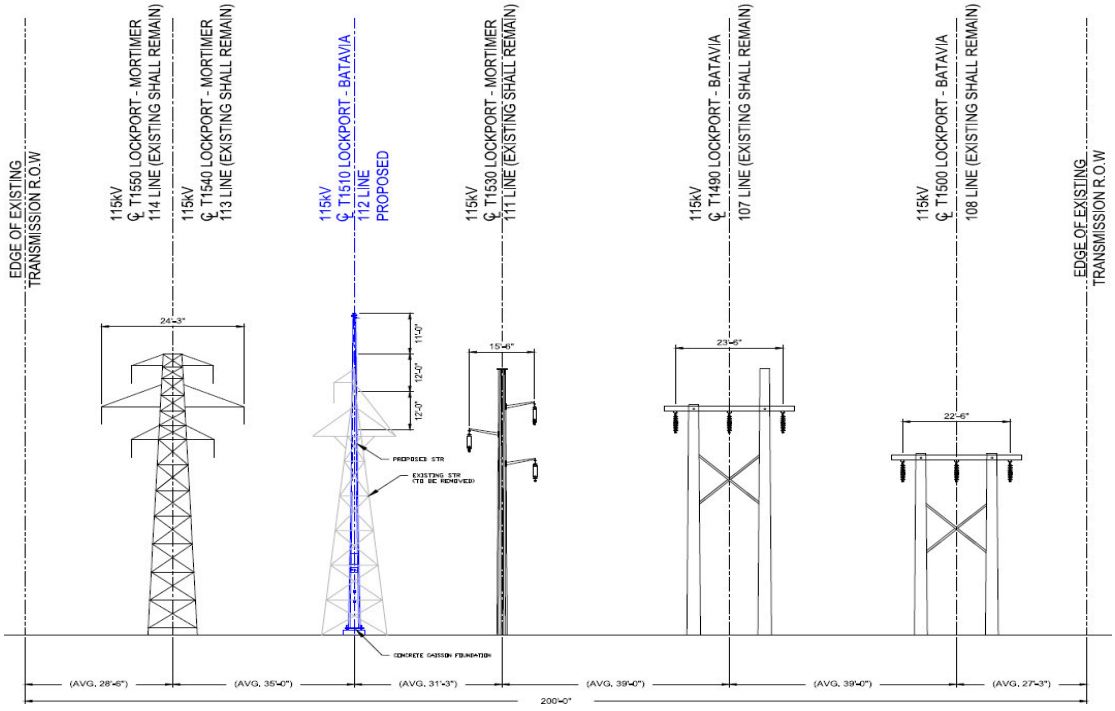
Proposed Conditions; Section 37-55; E-Field Profile



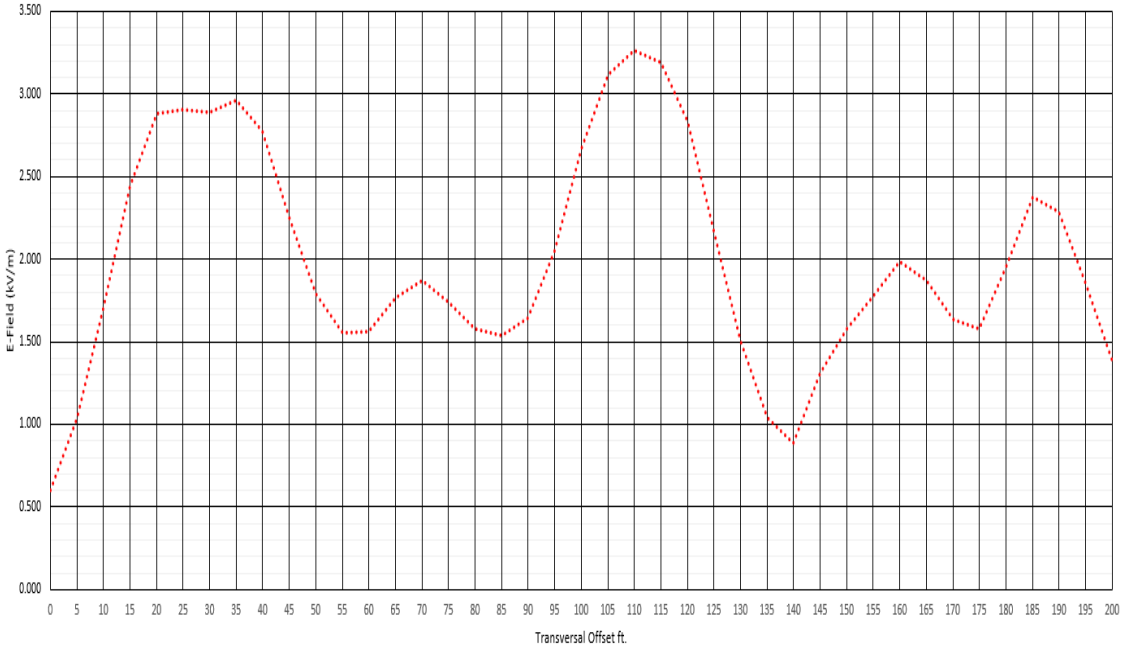


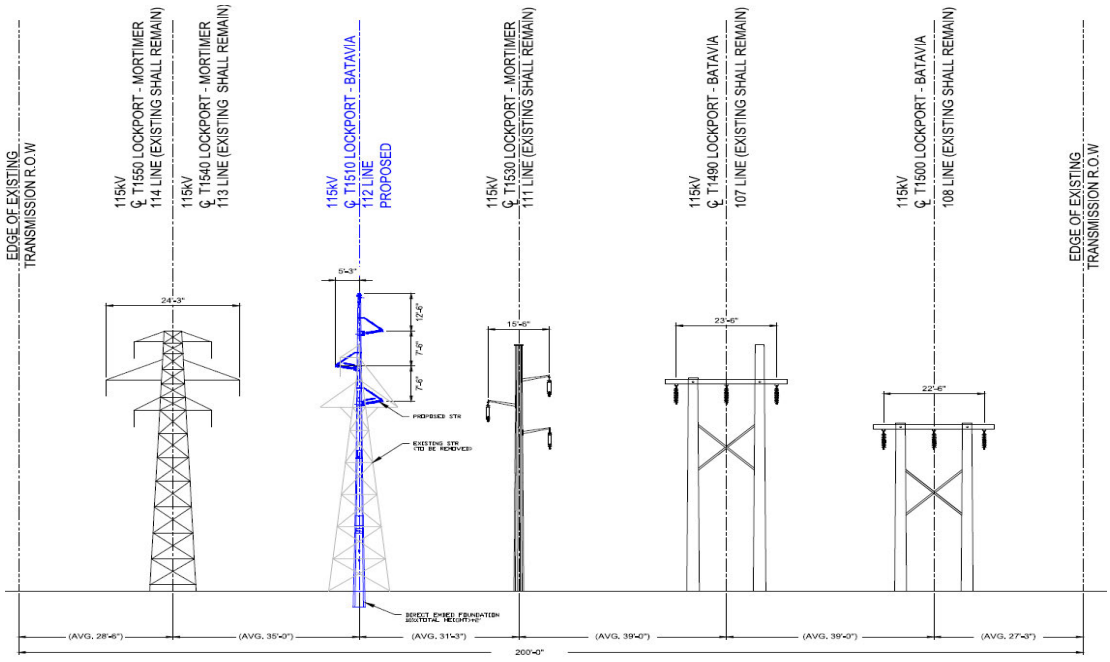
Proposed Conditions; Str. 56; E-Field Profile



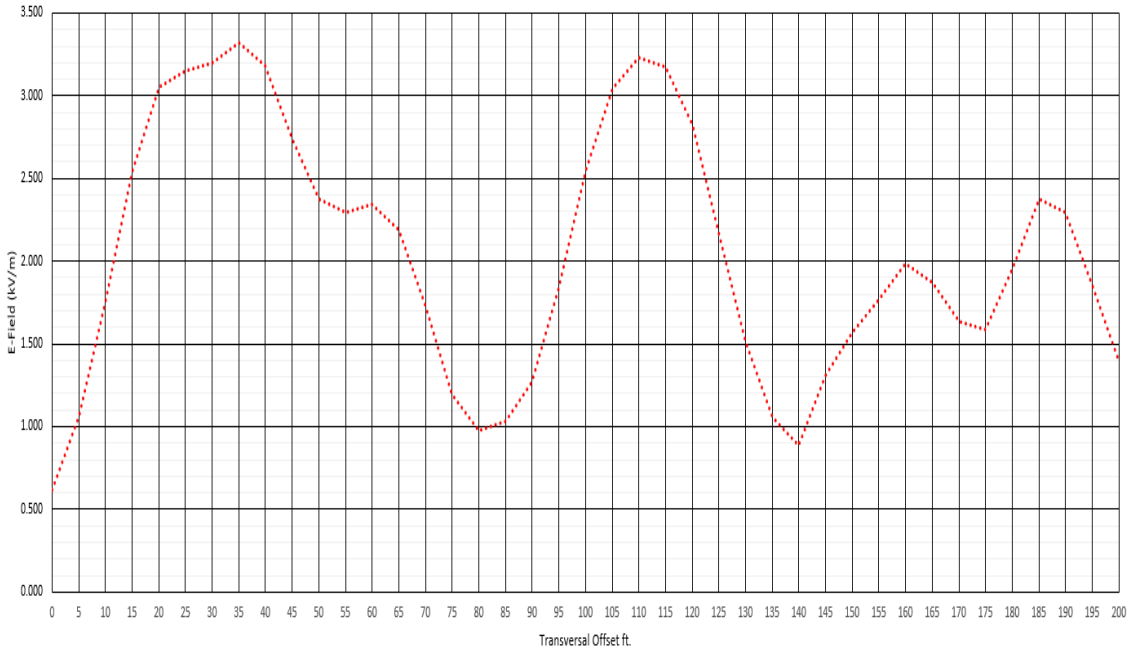


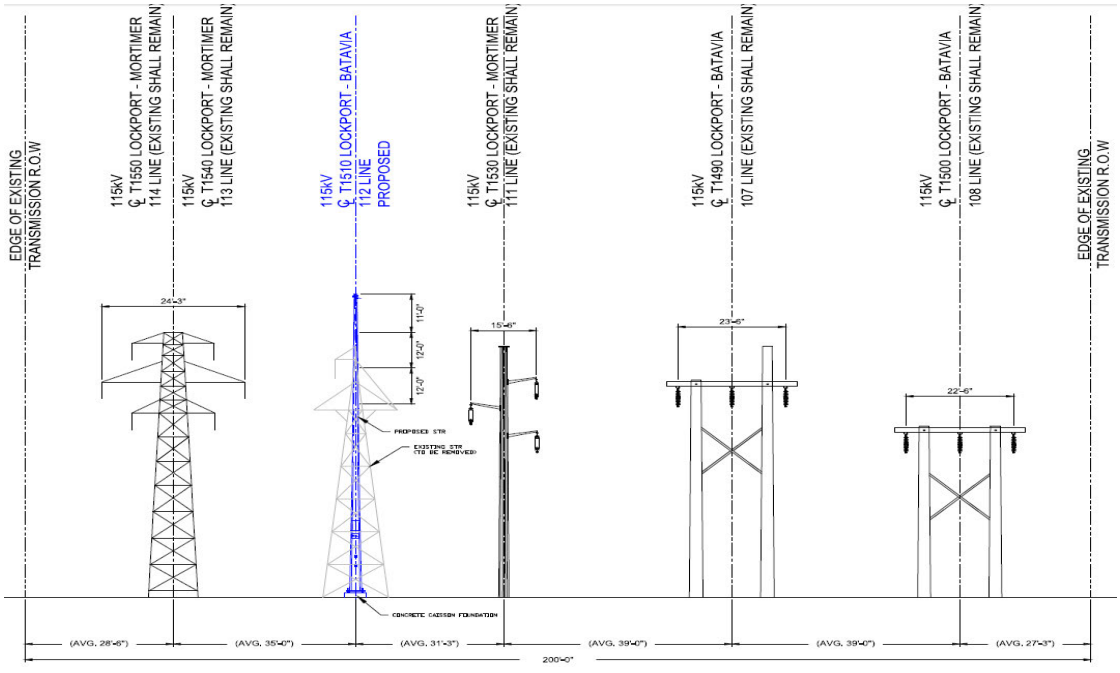
Proposed Conditions; Section 57-66; E-Field Profile



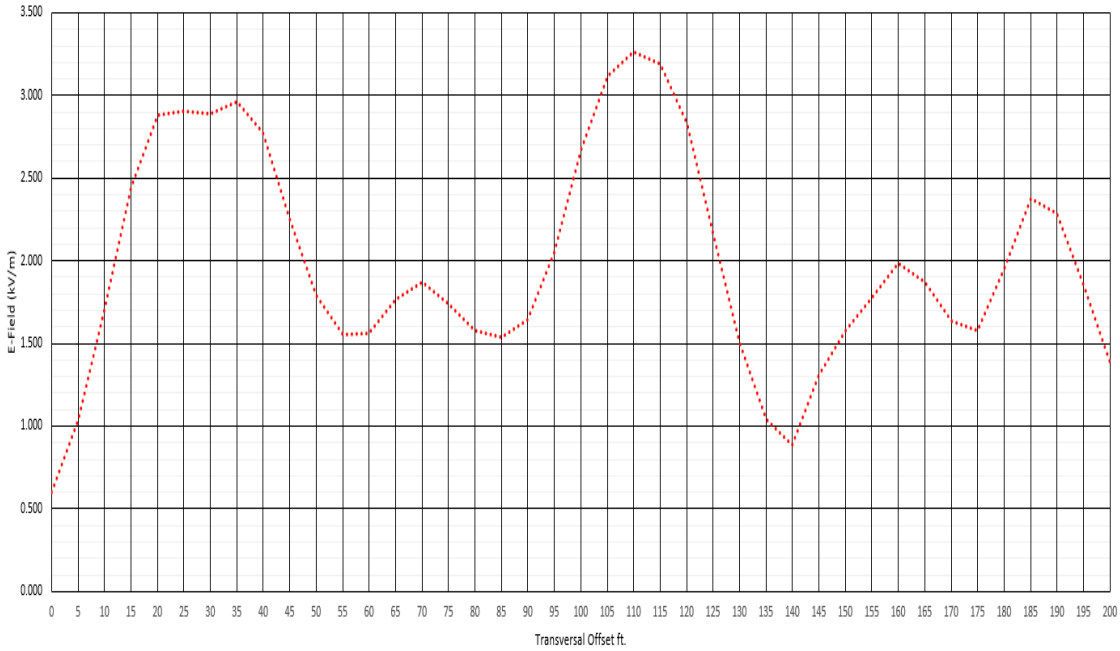


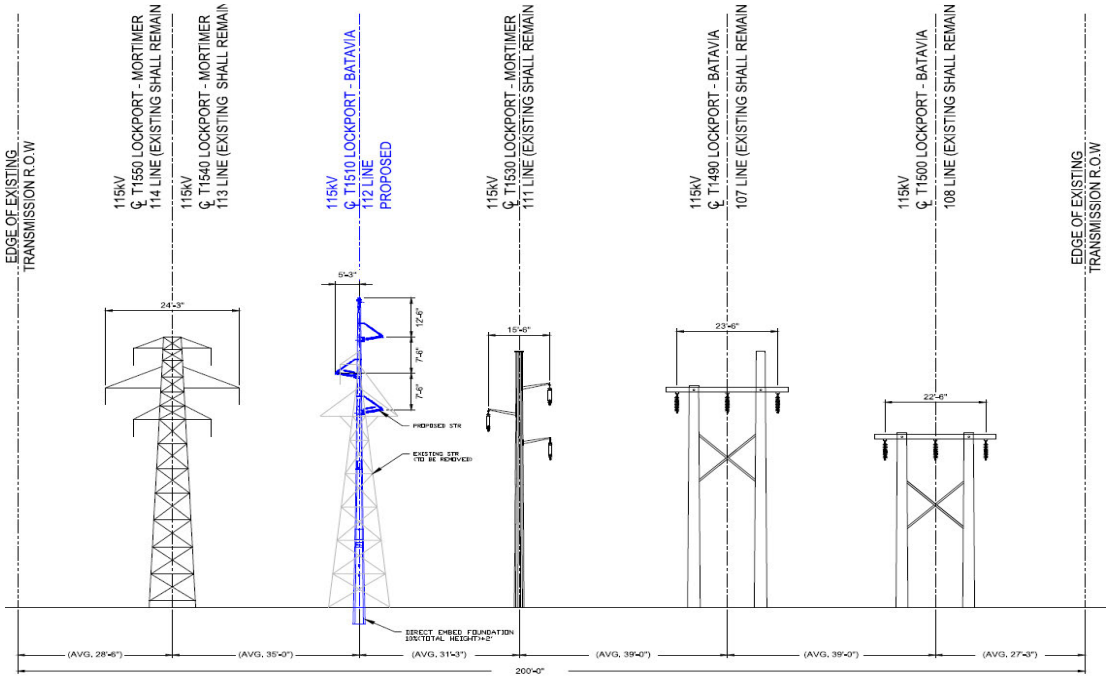
Proposed Conditions; Str. 67; E-Field Profile



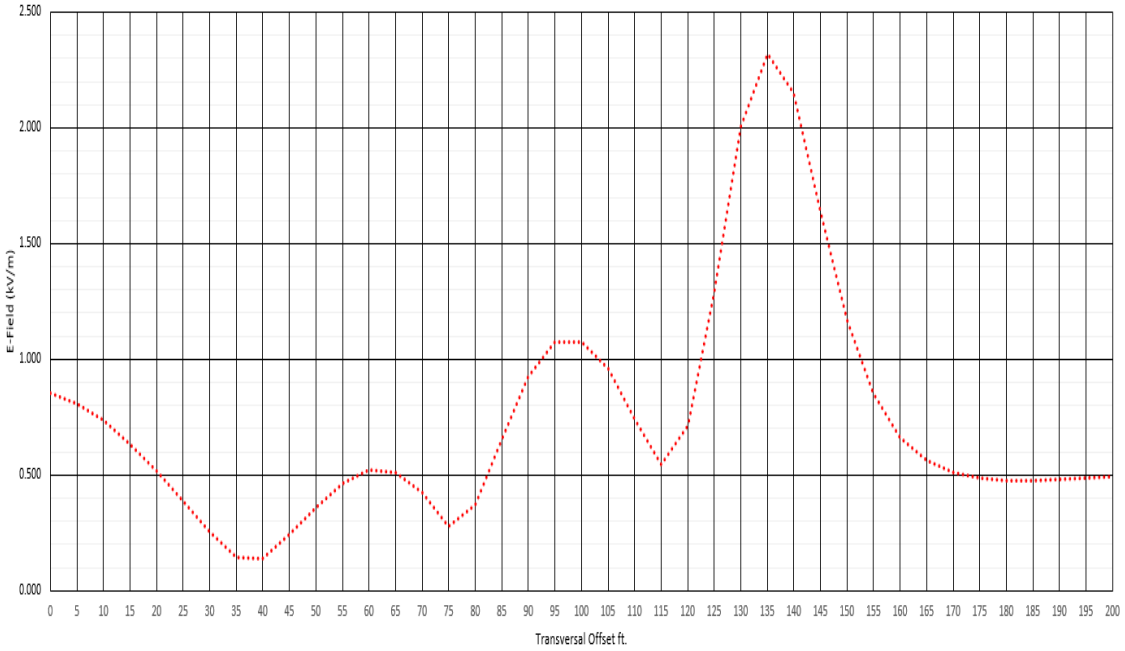


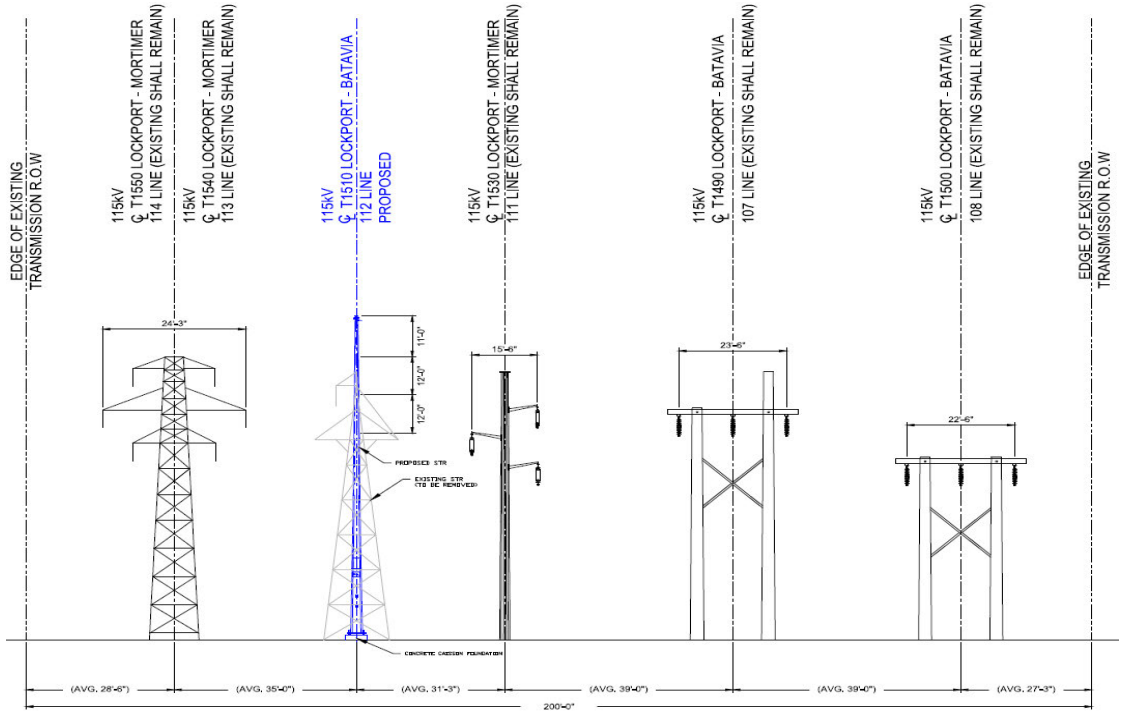
Proposed Conditions; Section 68-80; E-Field Profile



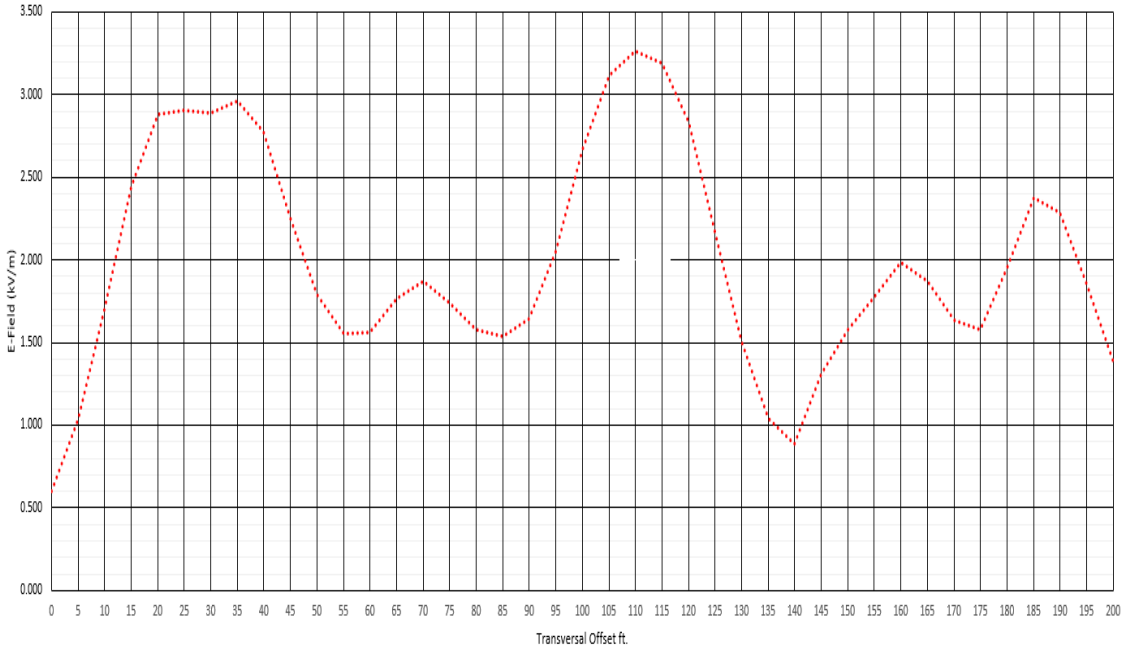


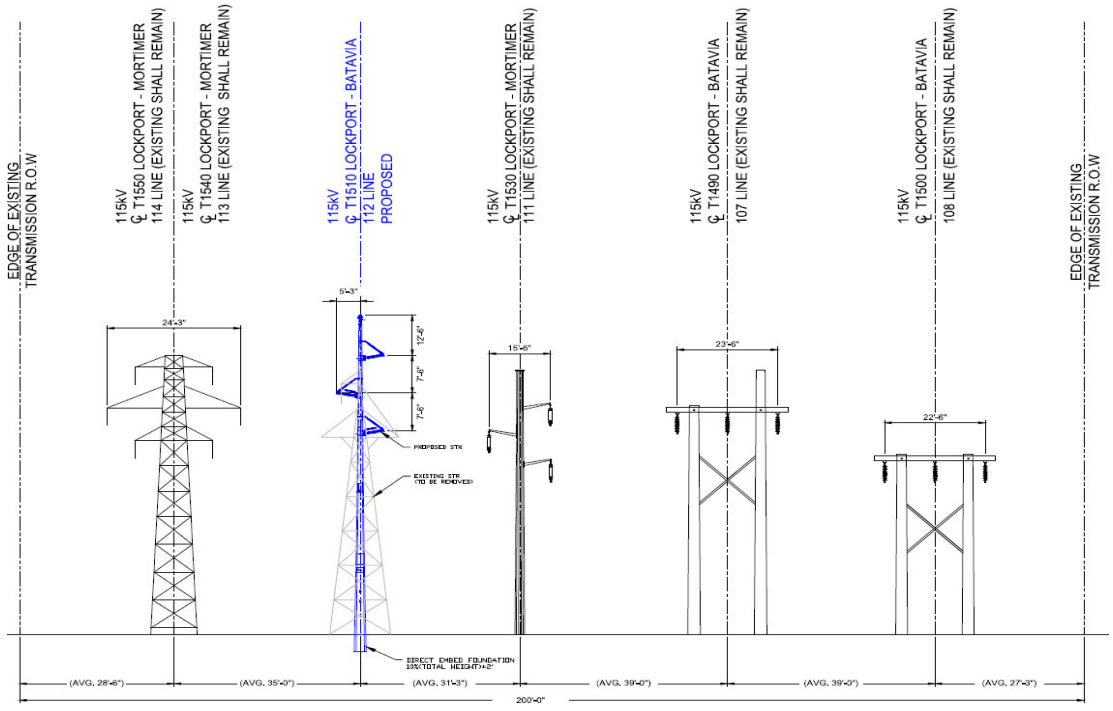
Proposed Conditions; Section 81-81-1; E-Field Profile



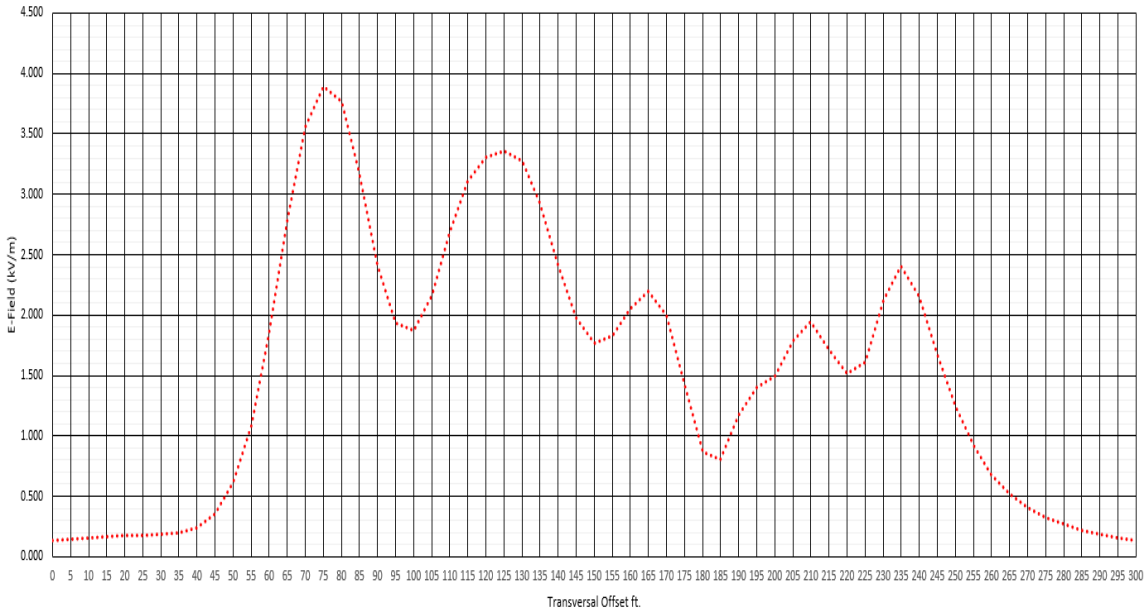


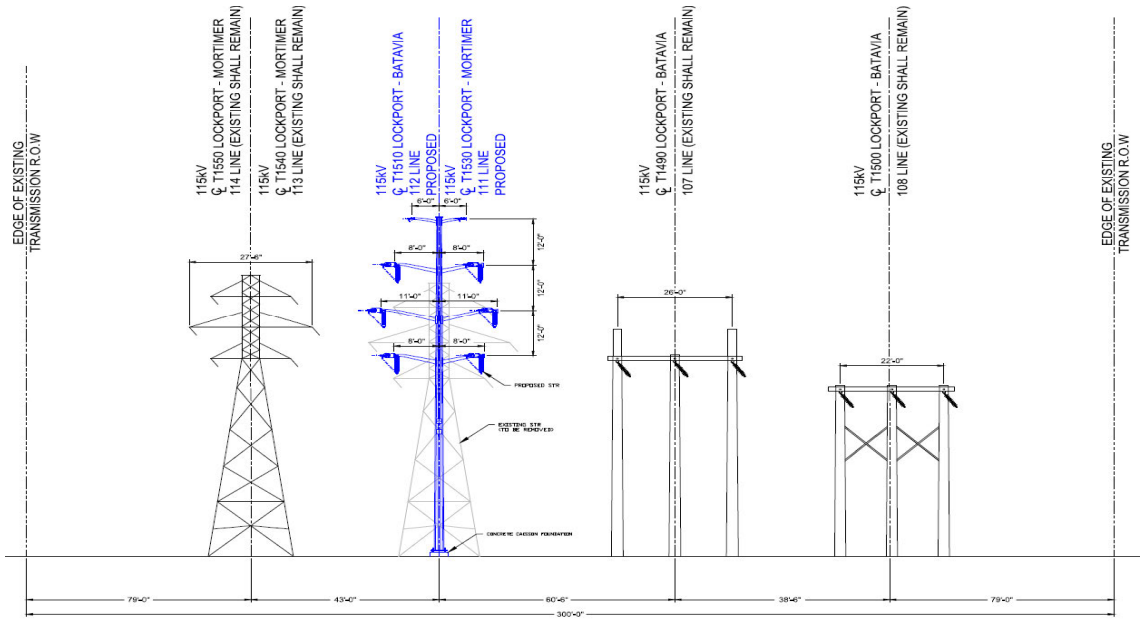
Proposed Conditions; Section 82-91; E-Field Profile



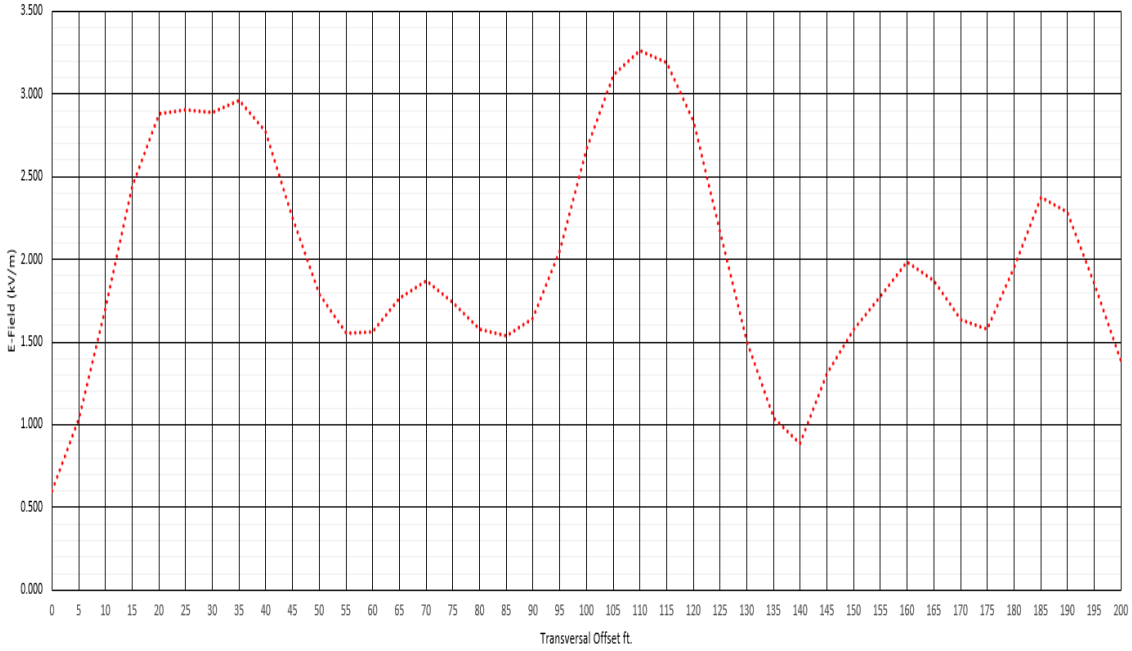


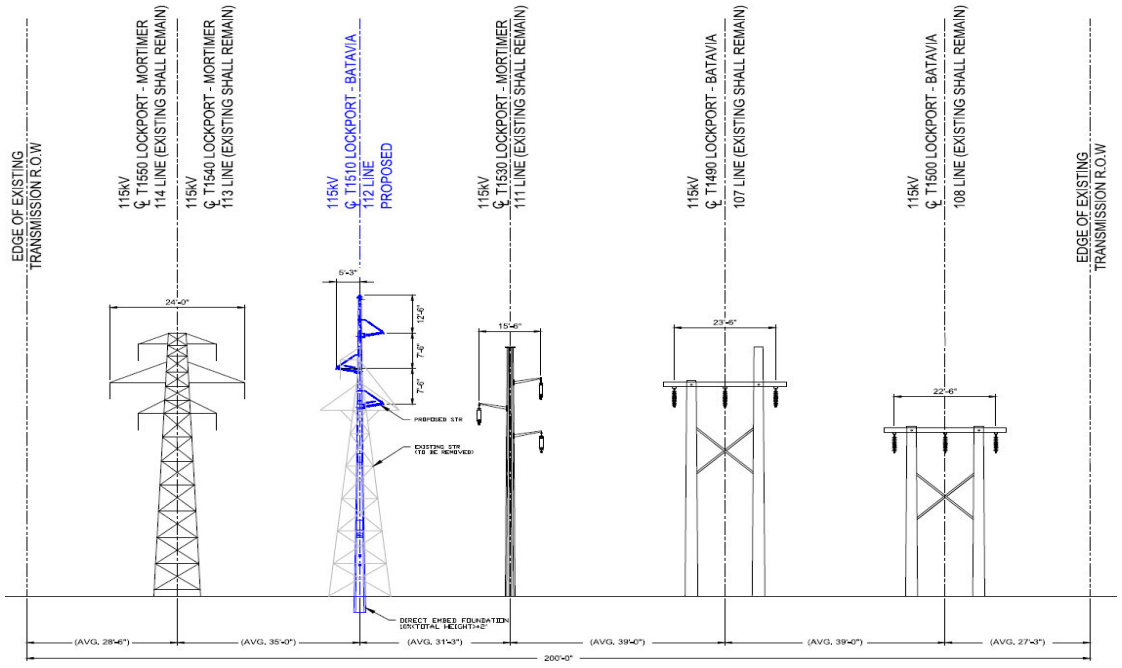
Proposed Conditions; Str. 92; E-Field Profile



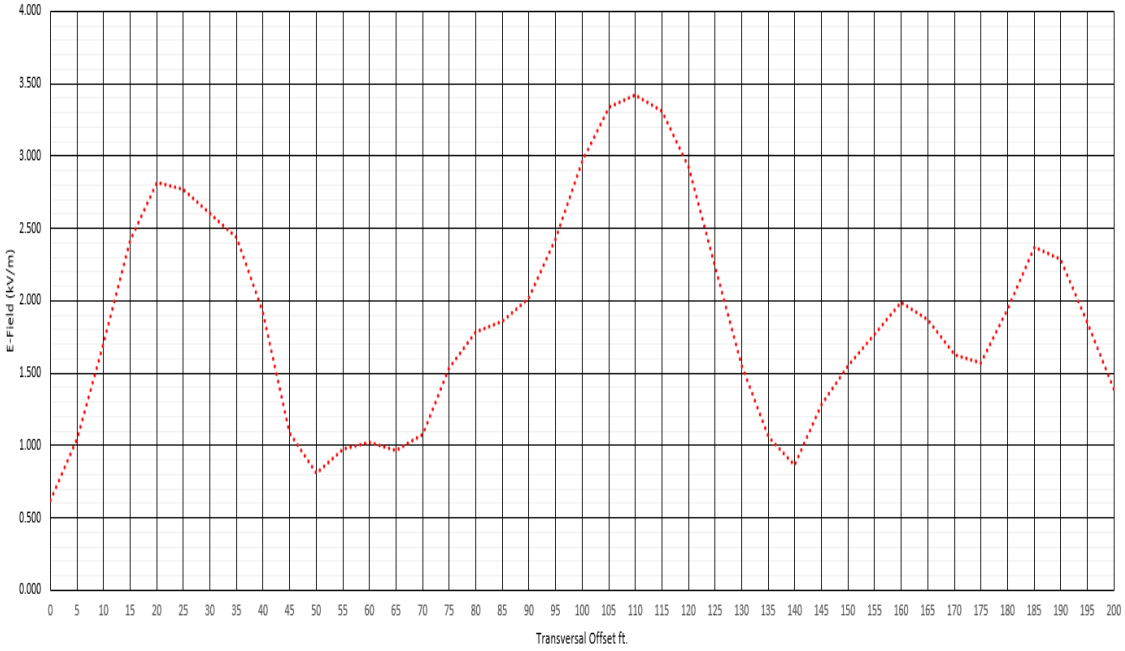


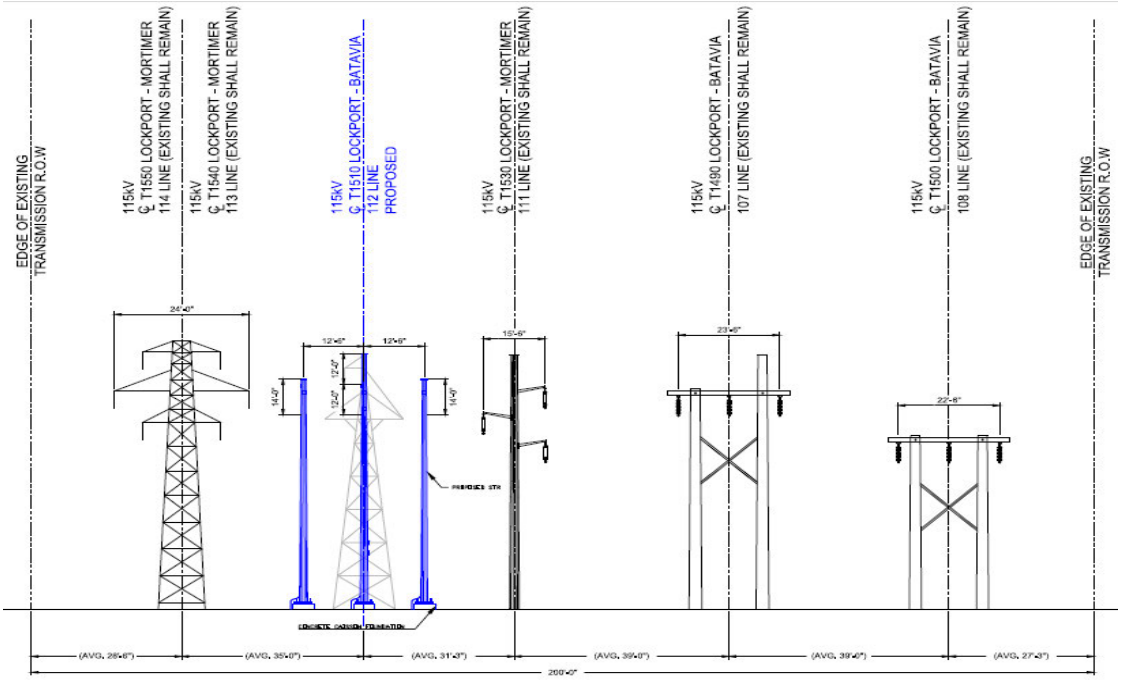
Proposed Conditions; Sections 93-116-1 & 118-119; E-Field Profile



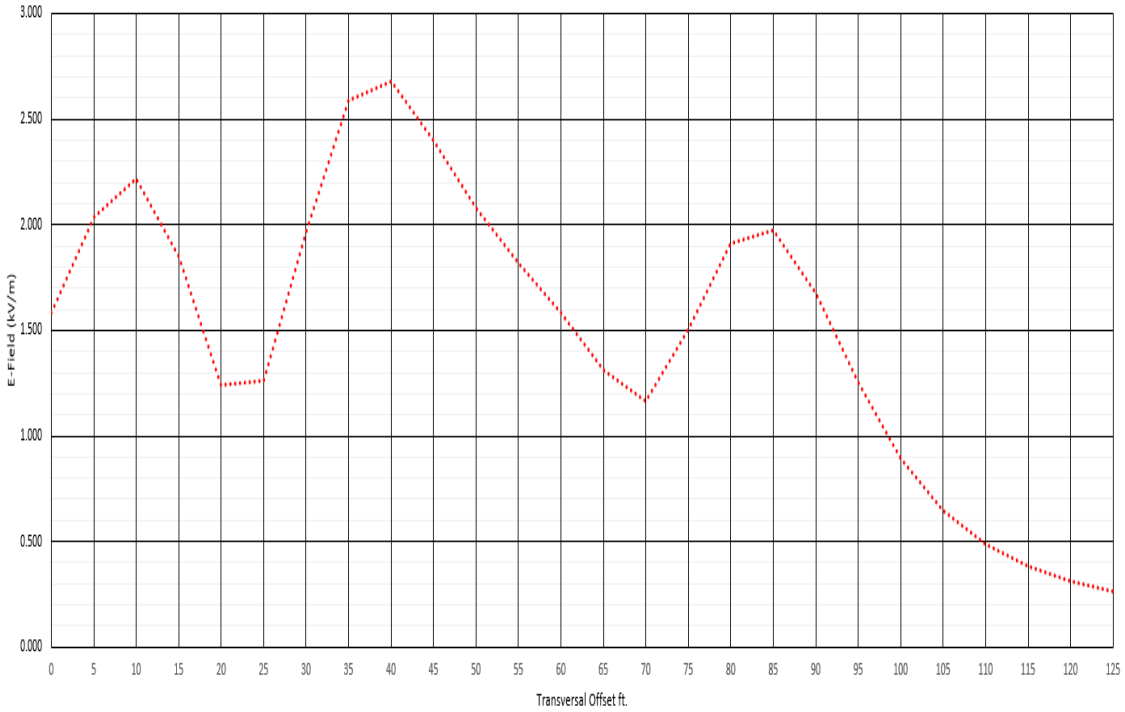


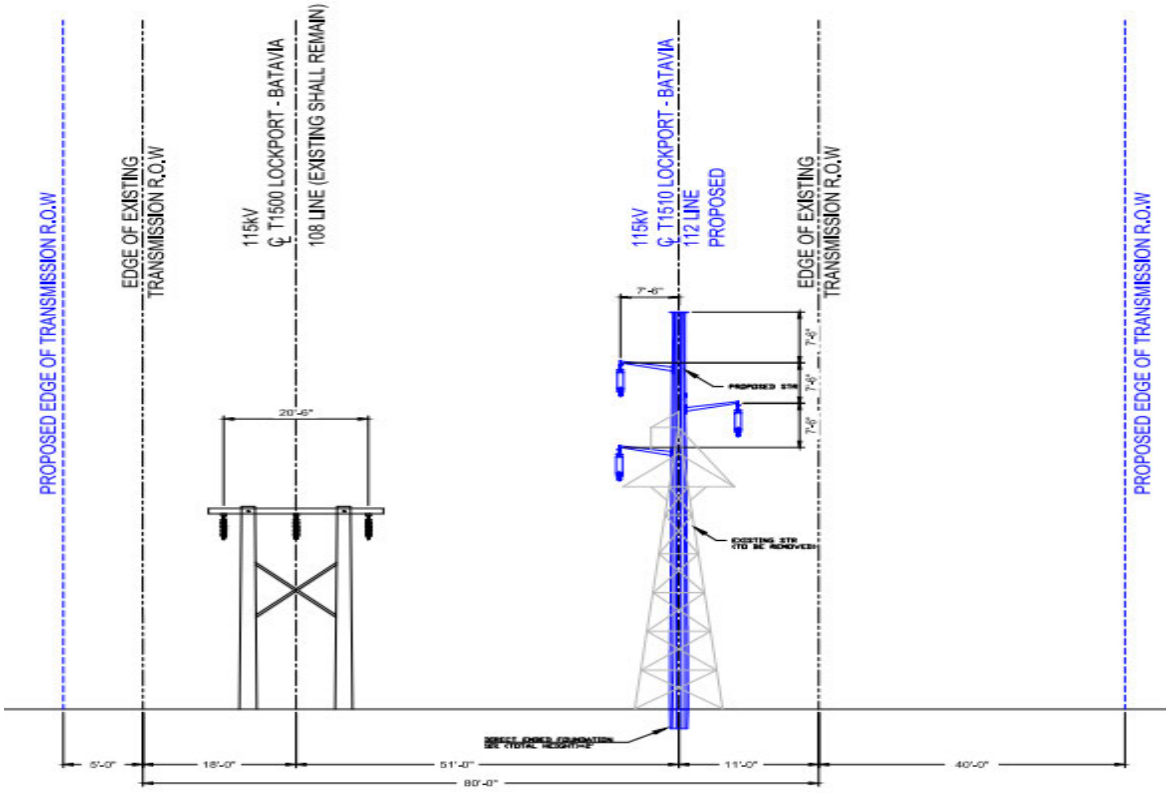
Proposed Conditions; Str. 117; E-Field Profile



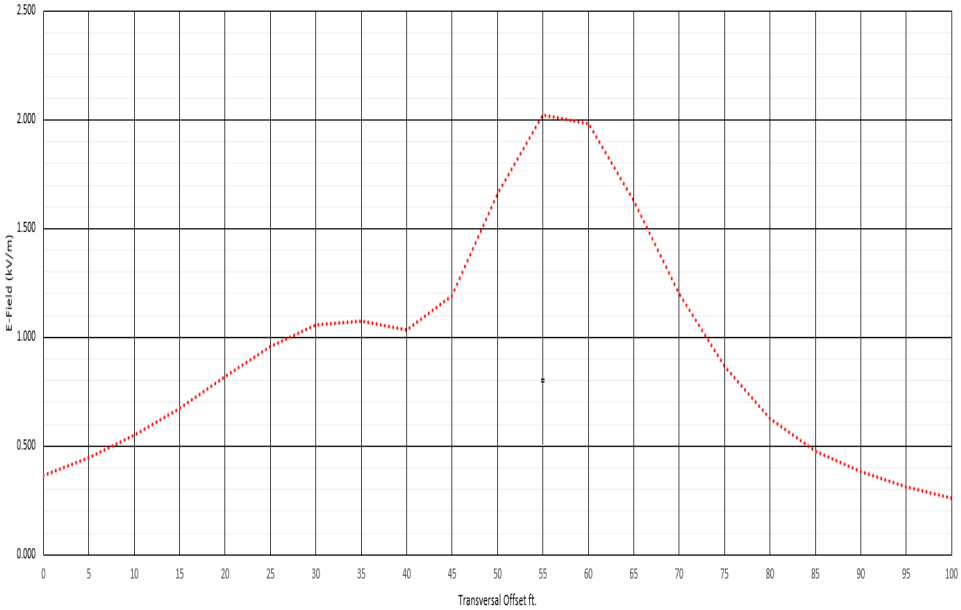


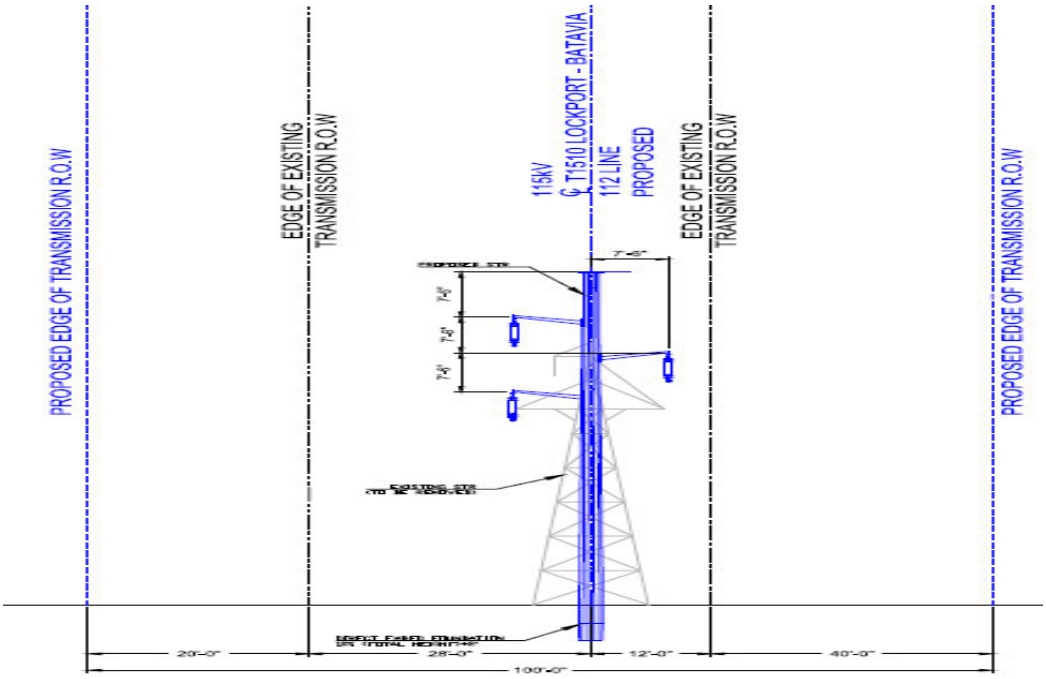
Proposed Conditions; Section 120-124; E-Field Profile

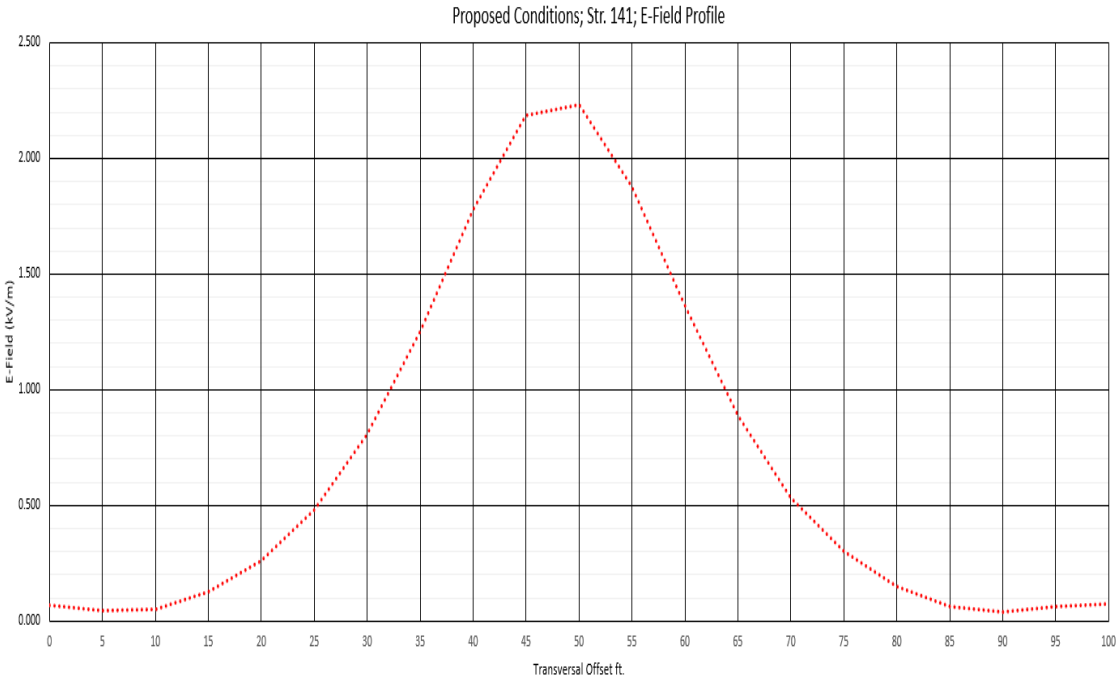


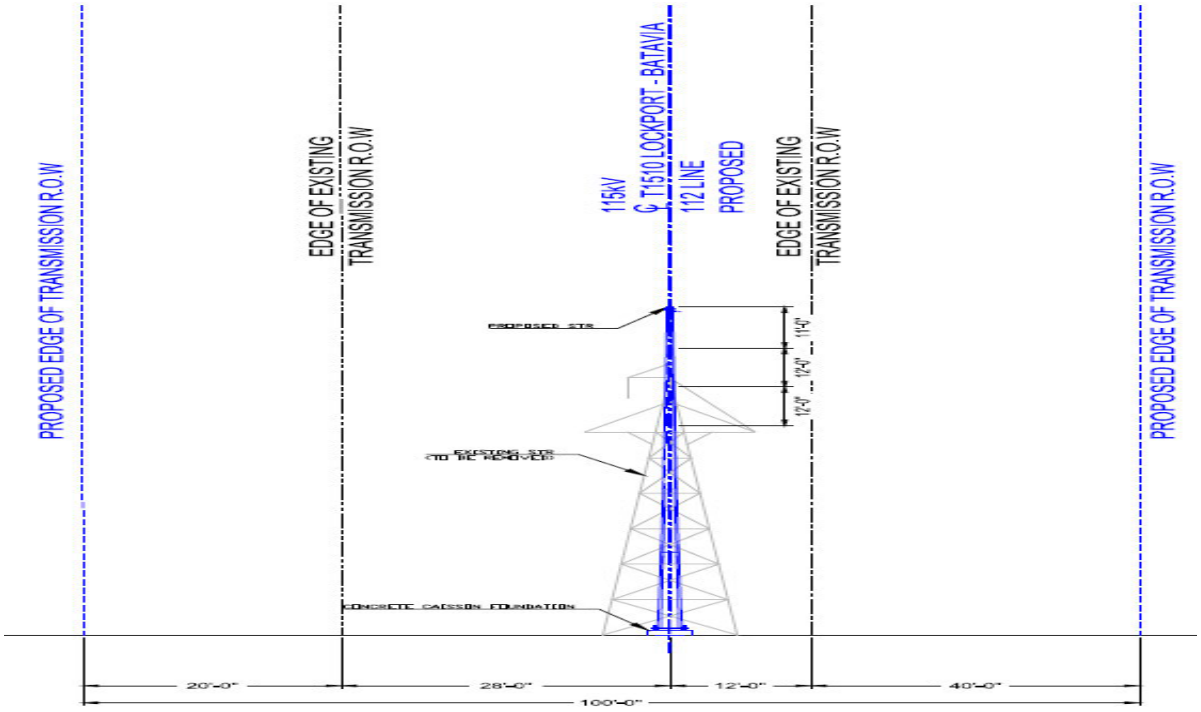


Proposed Conditions; Section 125-140; E-Field Profile

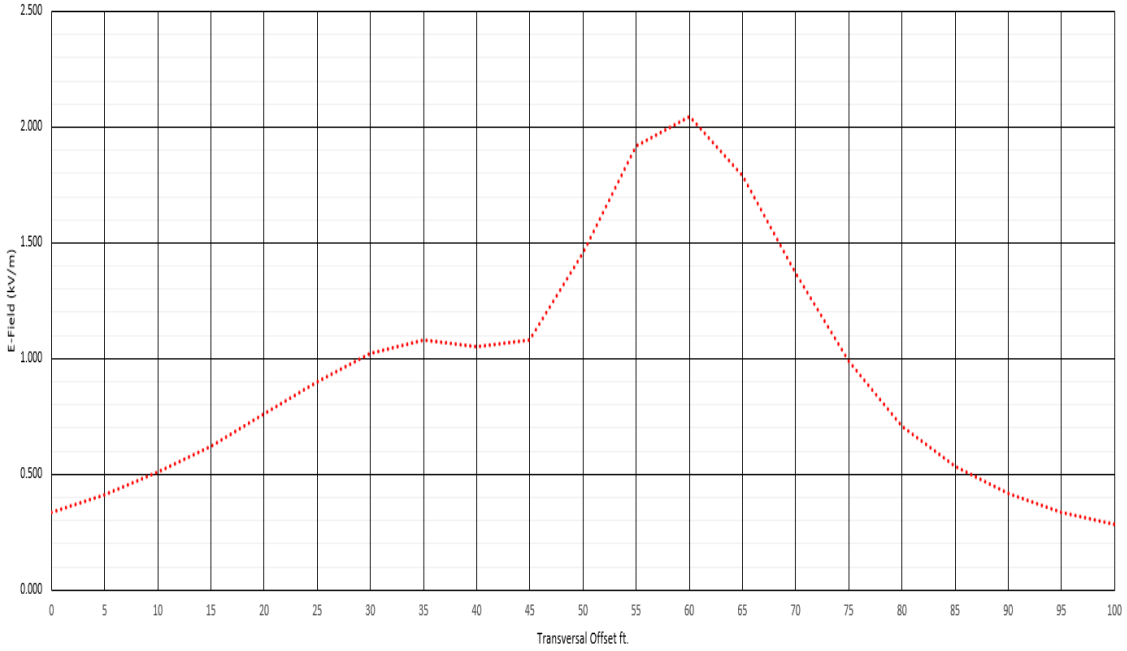


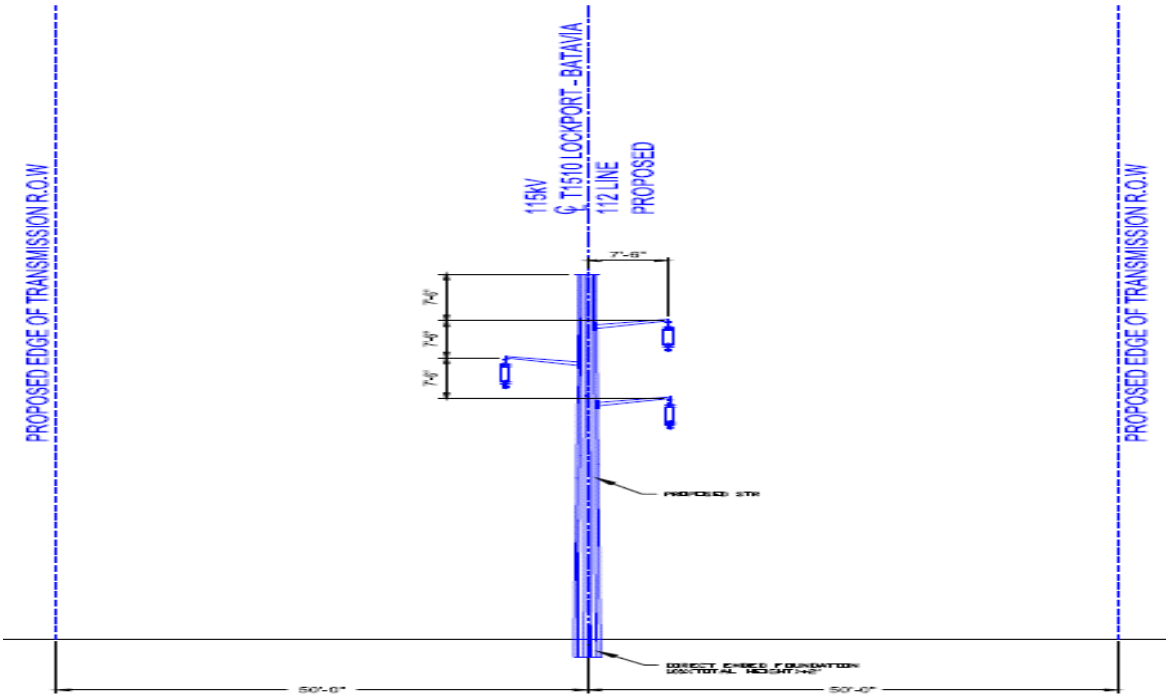


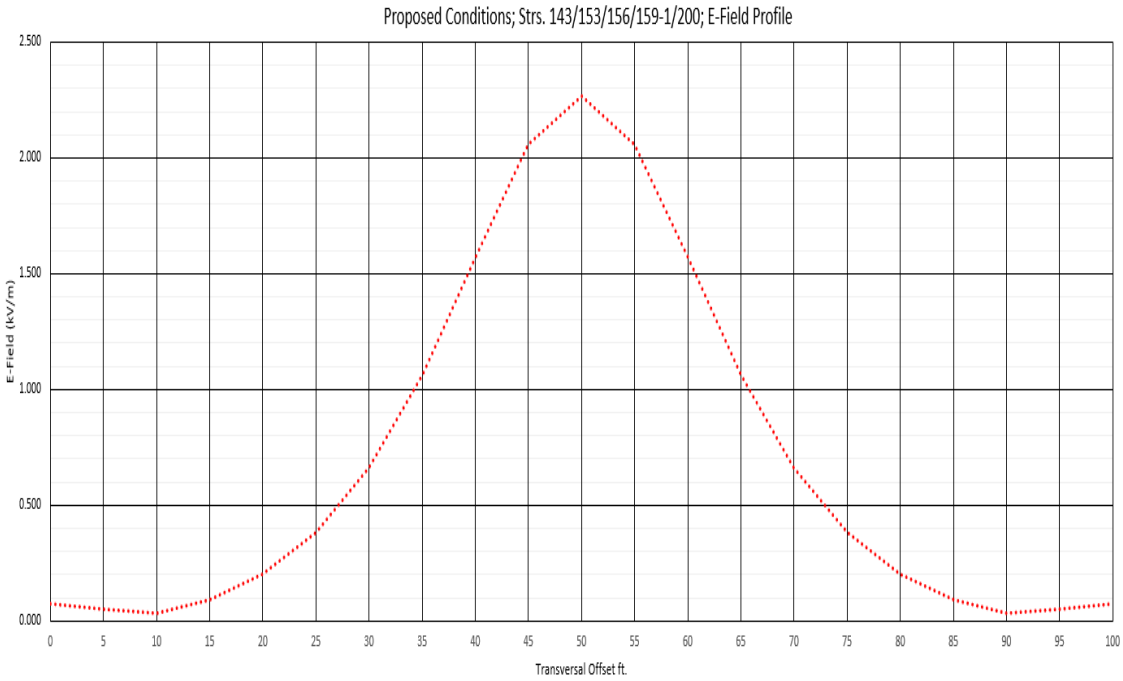

Proposed Conditions; Str. 141; E-Field Profile
E-Field (kV/m)
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Transversal Offset ft.

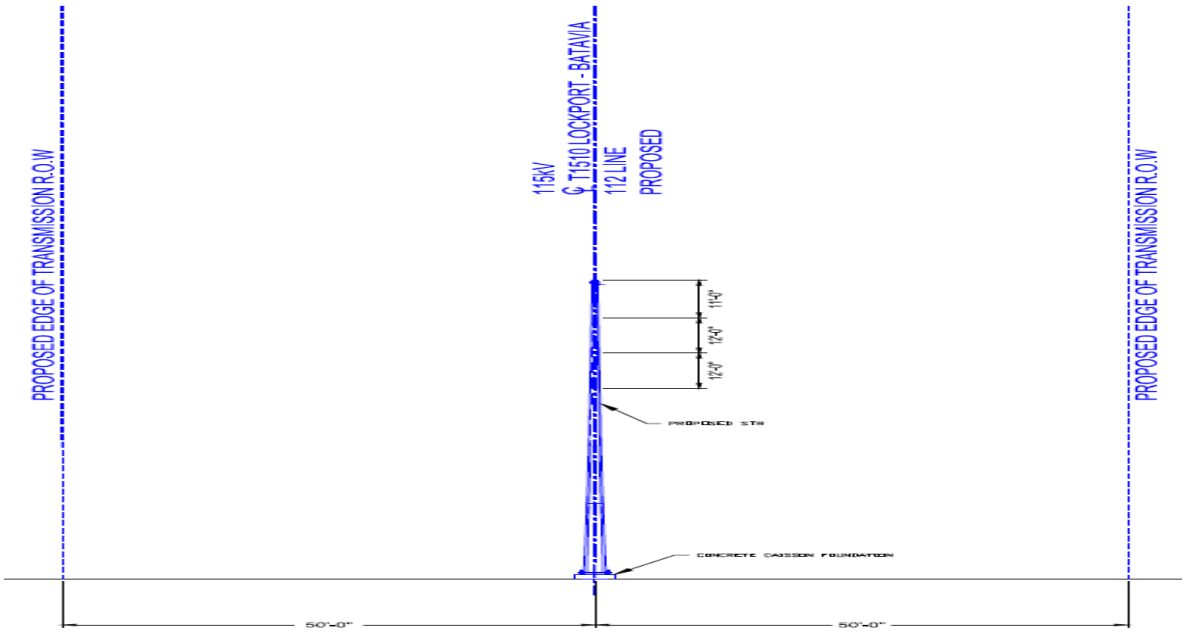

PROPOSED EDGE OF TRANSMISSION R.O.W
EDGE OF EXISTING TRANSMISSION R.O.W
115kV T1510 LOCKPORT - BATAVIA 112 LINE PROPOSED
EDGE OF EXISTING TRANSMISSION R.O.W
PROPOSED EDGE OF TRANSMISSION R.O.W
PROPOSED STR
EXISTING STR TO BE REMOVED
CONCRETE CAISSON FOUNDATION
114'
12'-0"
12'-0"
20'-0"
28'-0"
12'-0"
40'-0"
100'-0"

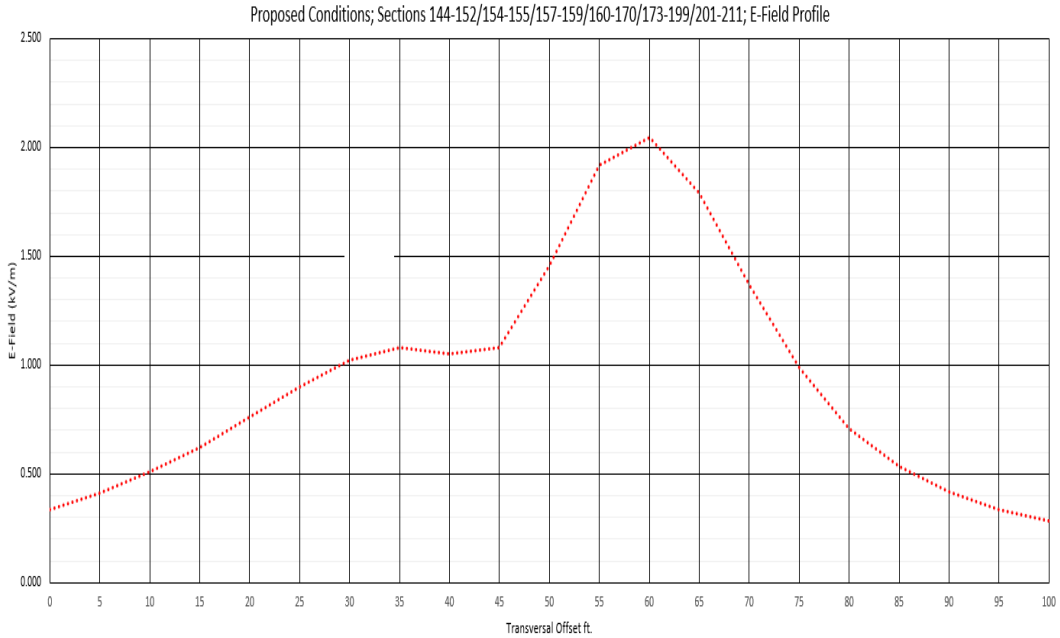
Proposed Conditions; Str. 142; E-Field Profile

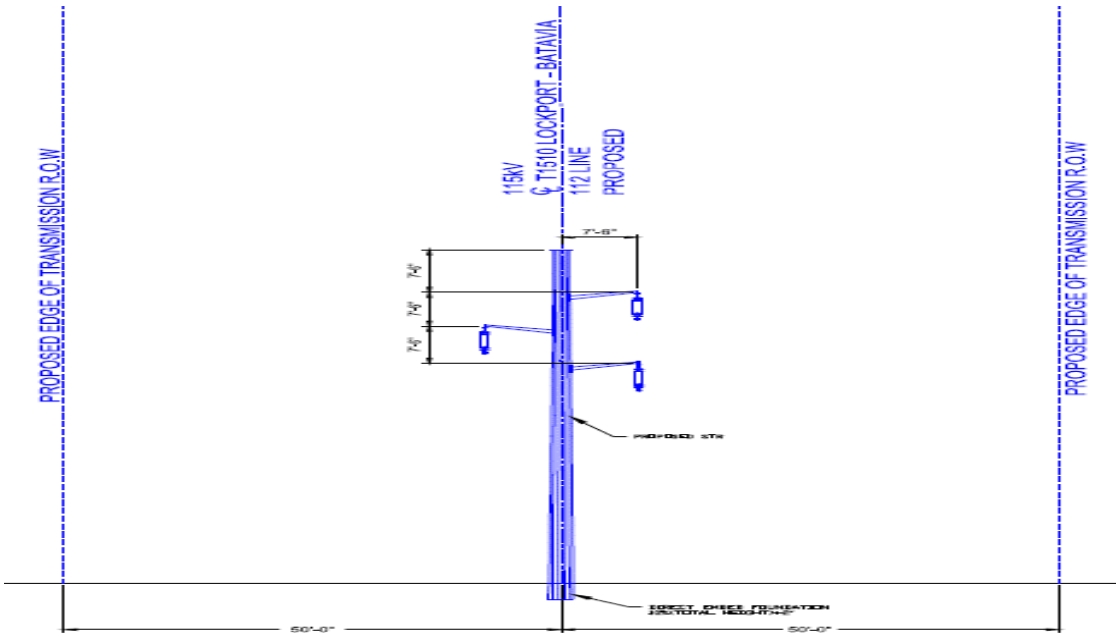




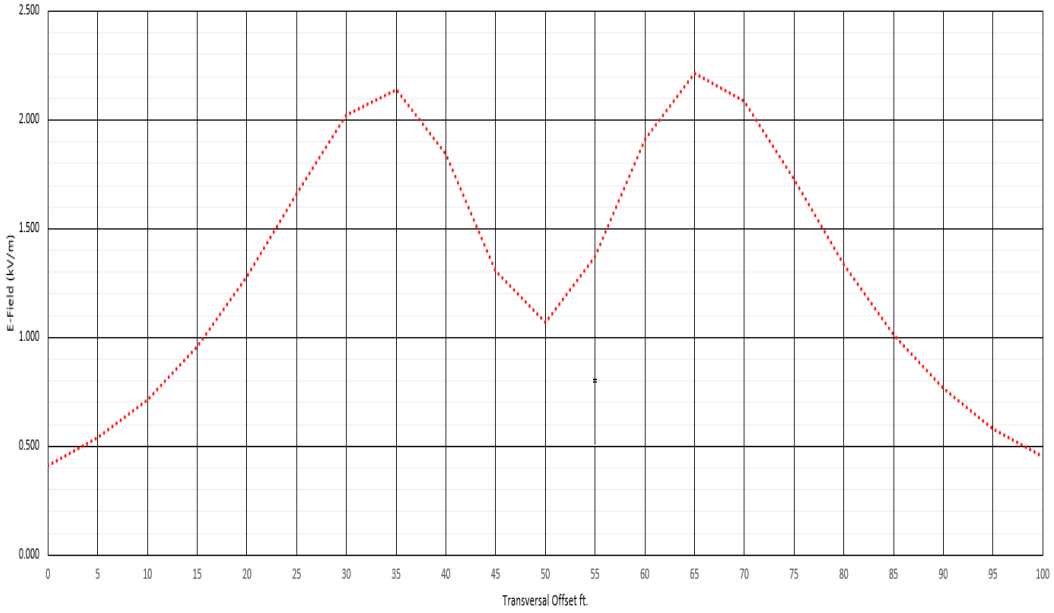

Proposed Conditions; Strs. 143/153/156/159-1/200; E-Field Profile
E-Field (kV/m)
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Transversal Offset ft.

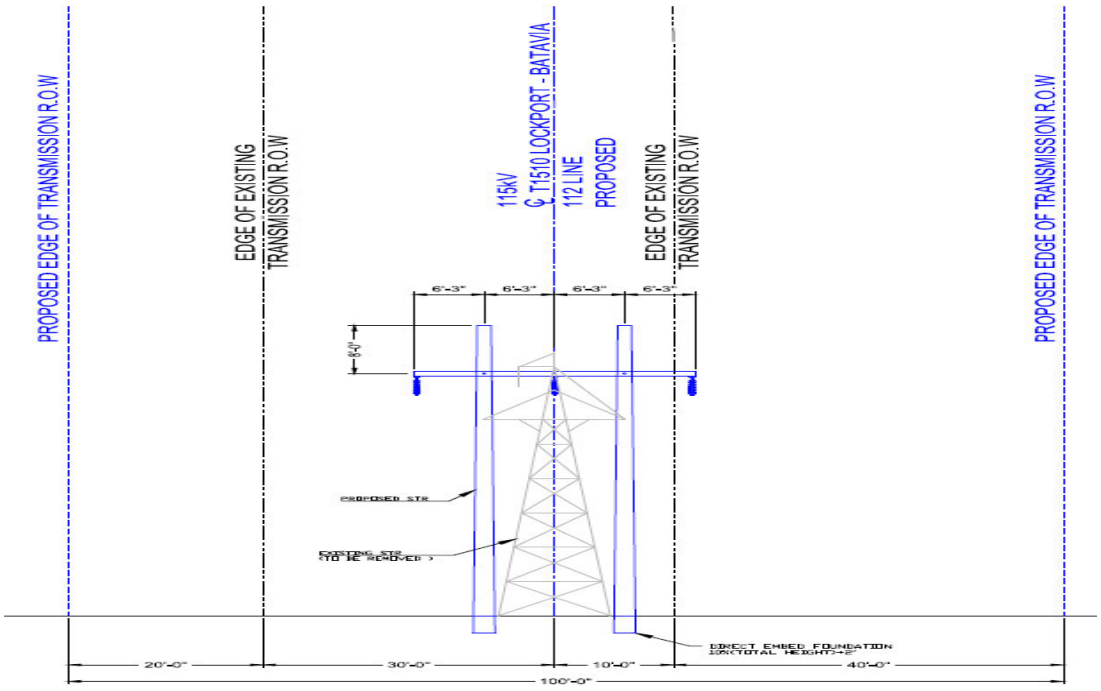

PROPOSED EDGE OF TRANSMISSION R.O.W
115kV
T1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
11'4"
12'4"
12'4"
PROPOSED STR
CONCRETE CAISSON FOUNDATION
50'-0"
50'-0"
PROPOSED EDGE OF TRANSMISSION R.O.W


Proposed Conditions; Sections 144-152/154-155/157-159/160-170/173-199/201-211; E-Field Profile
E-Field (kV/m)
2.500
2.000
1.500
1.000
0.500
0.000
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Transversal Offset ft.


PROPOSED EDGE OF TRANSMISSION R.O.W
115kV
℄ T1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
7'-6"
7'-6"
7'-6"
7'-6"
PROPOSED STR
50'-0"
50'-0"
PROPOSED EDGE OF TRANSMISSION R.O.W

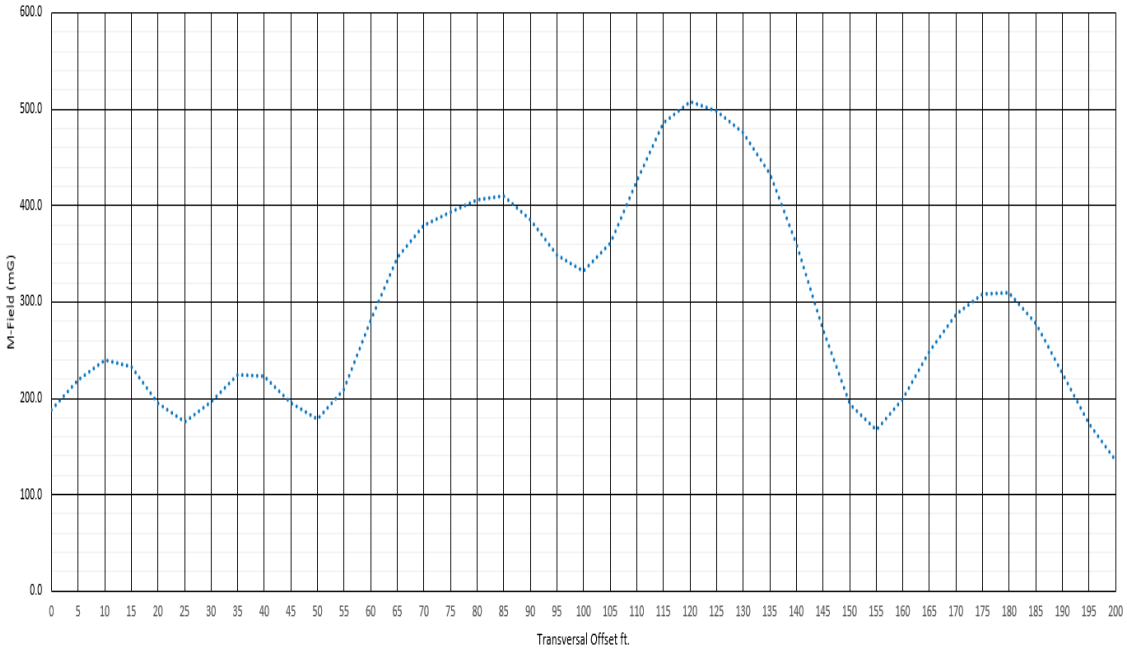
Proposed Conditions; Section 171-172; E-Field Profile

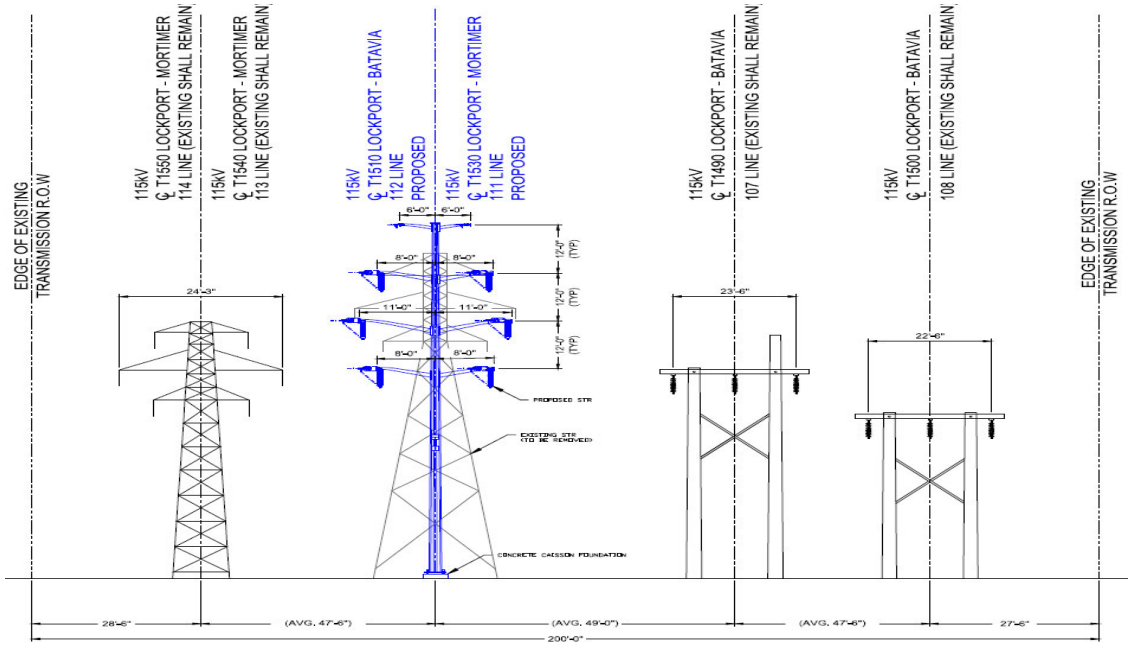


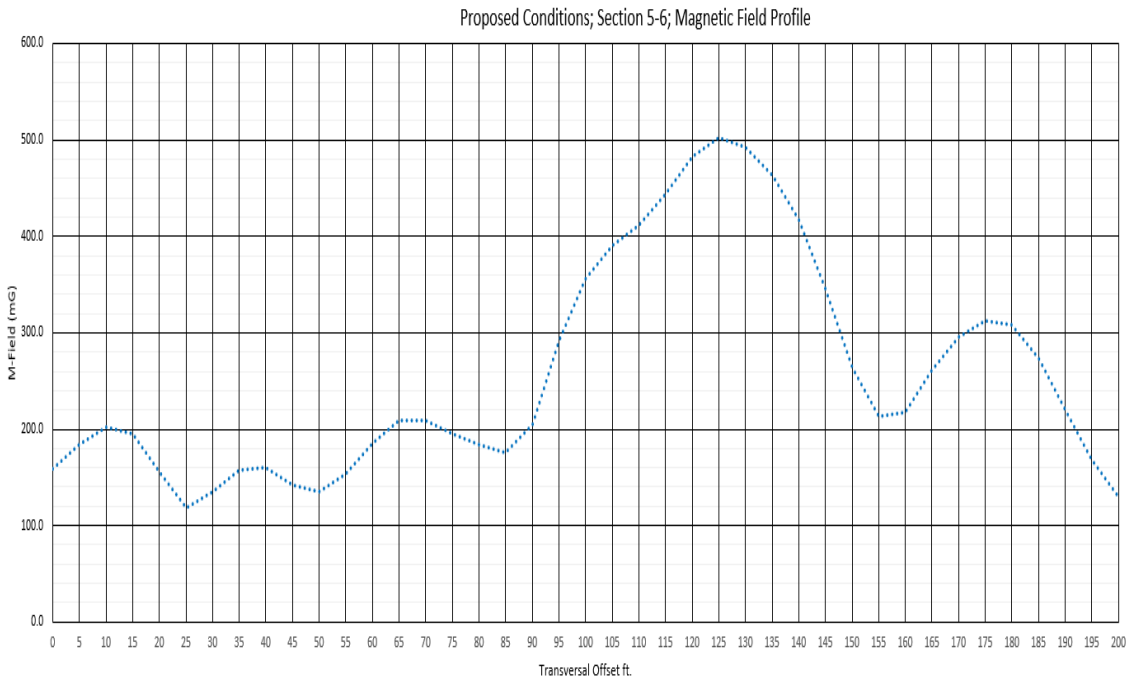


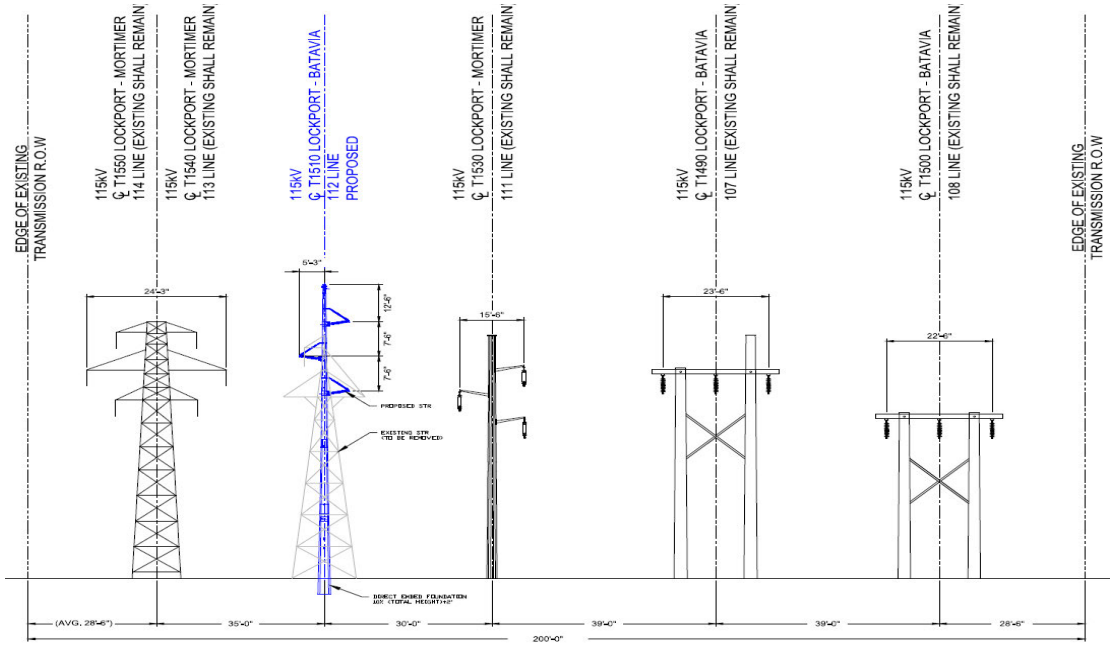
Magnetic Field Profiles; Proposed Conditions

Proposed Conditions; Section 2-4; Magnetic Field Profile

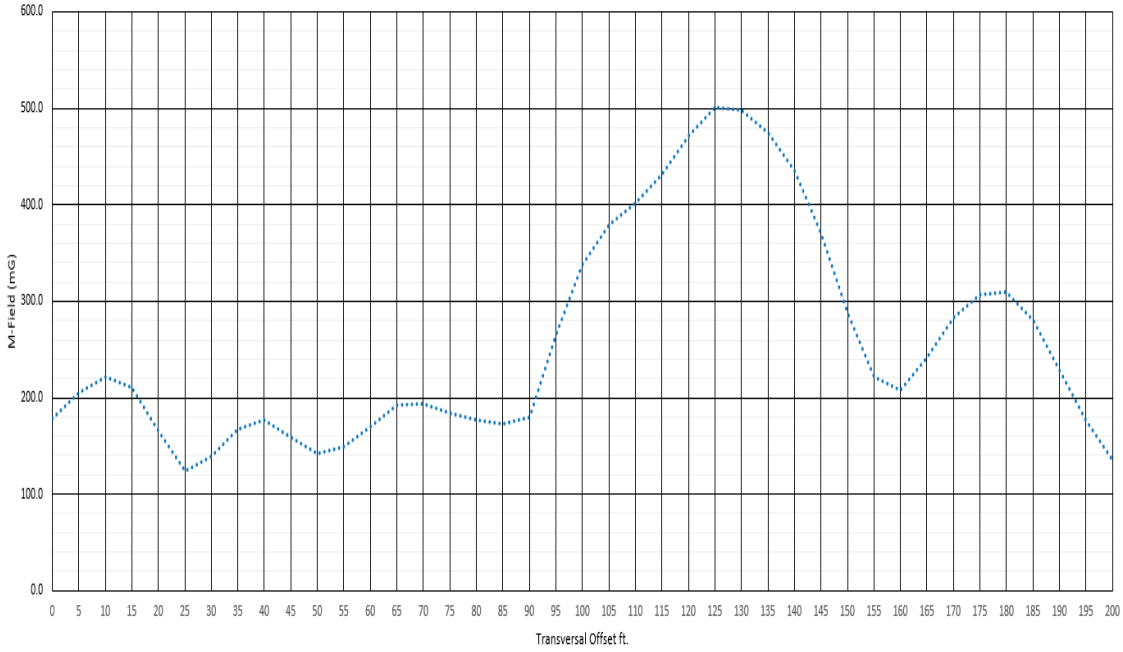


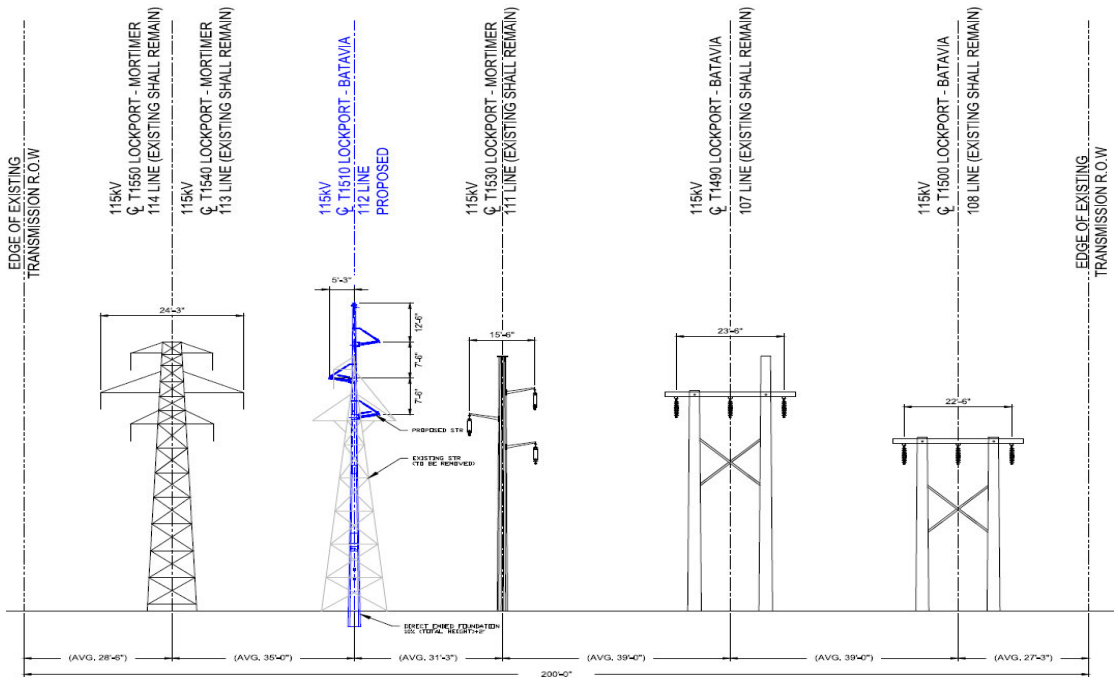



Proposed Conditions; Section 5-6; Magnetic Field Profile
M-Field (mG)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200
Transversal Offset ft.

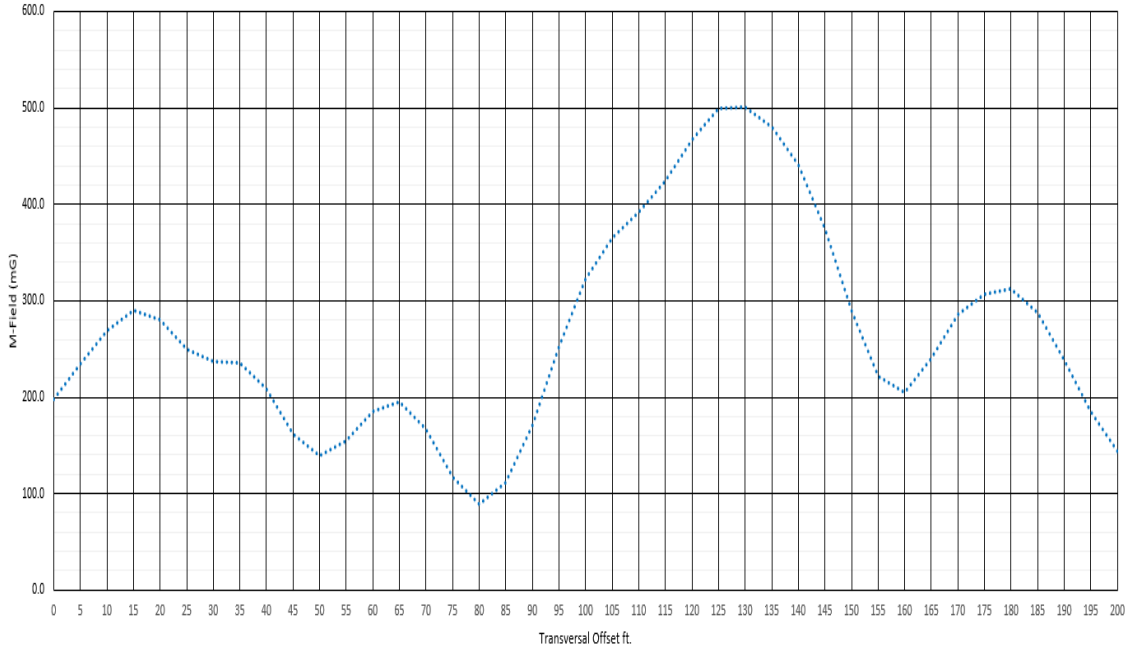

EDGE OF EXISTING TRANSMISSION R.O.W
115kV ℄ T1550 LOCKPORT - MORTIMER 114 LINE (EXISTING SHALL REMAIN
115kV ℄ T1540 LOCKPORT - MORTIMER 113 LINE (EXISTING SHALL REMAIN
115kV ℄ T1510 LOCKPORT - BATAVIA 112 LINE PROPOSED
115kV ℄ T1530 LOCKPORT - MORTIMER 111 LINE (EXISTING SHALL REMAIN
115kV ℄ T1490 LOCKPORT - BATAVIA 107 LINE (EXISTING SHALL REMAIN
115kV ℄ T1500 LOCKPORT - BATAVIA 108 LINE (EXISTING SHALL REMAIN
EDGE OF EXISTING TRANSMISSION R.O.W
24'-3"
6'-3"
15'-6"
23'-6"
22'-6"
PROPOSED STR
EXISTING STR TO BE REMOVED
DIRECT EMBED FOUNDATION
(AVG. 28'-6")
35'-0"
30'-0"
39'-0"
39'-0"
28'-6"
200'-0"

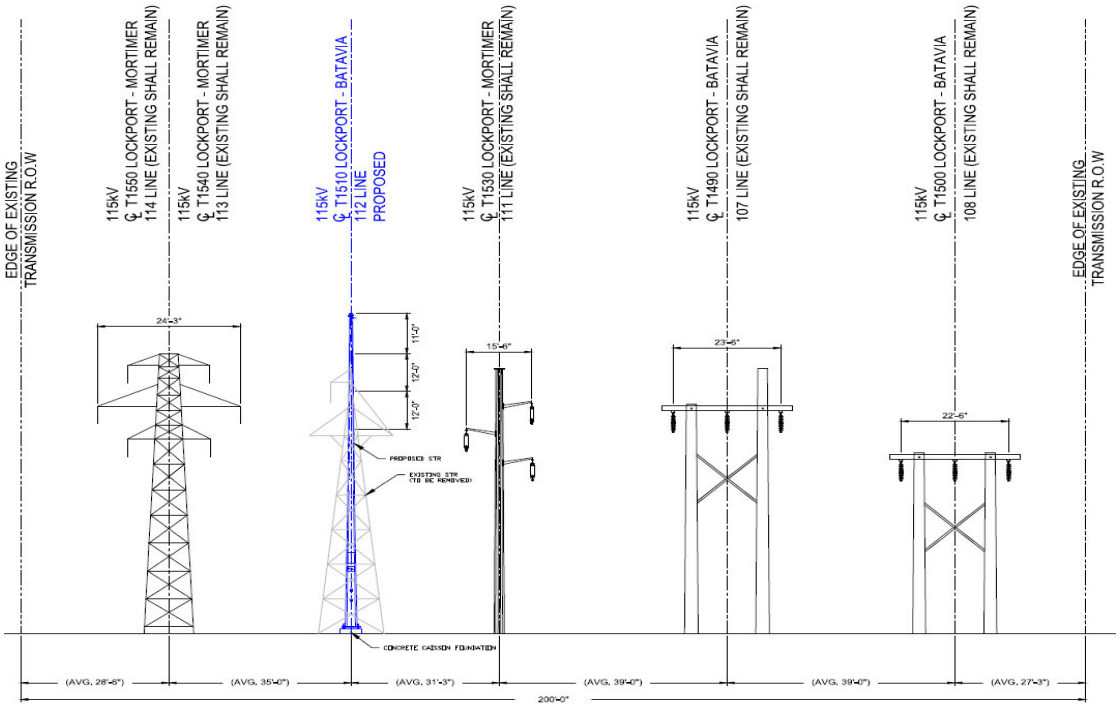
Proposed Conditions; Section 7-13; Magnetic Field Profile



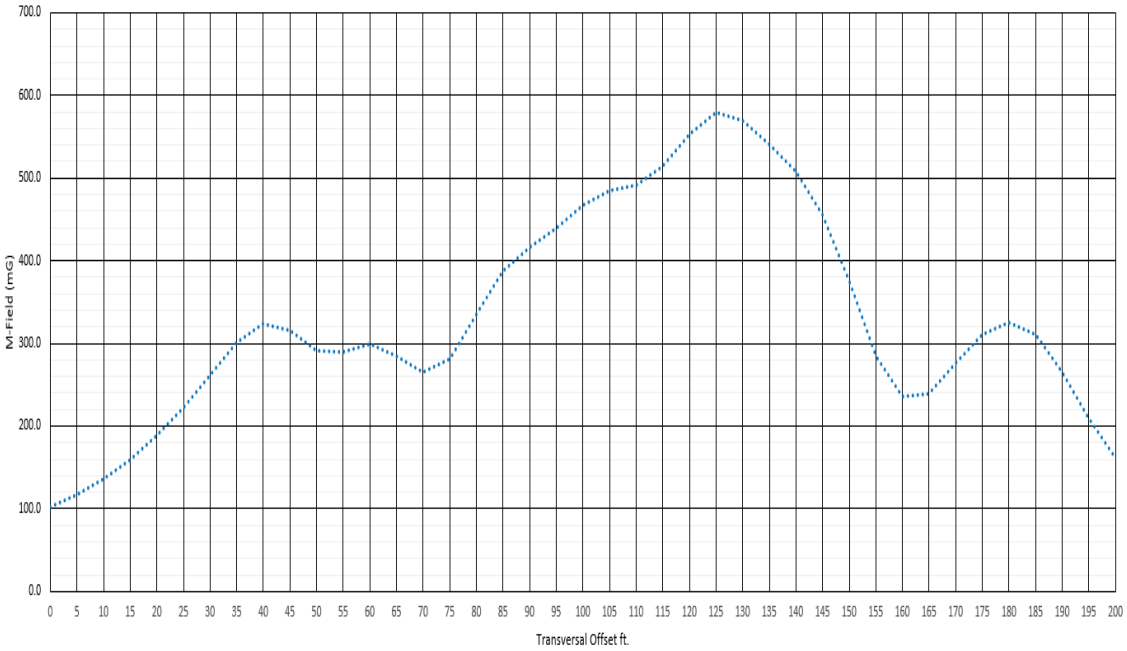


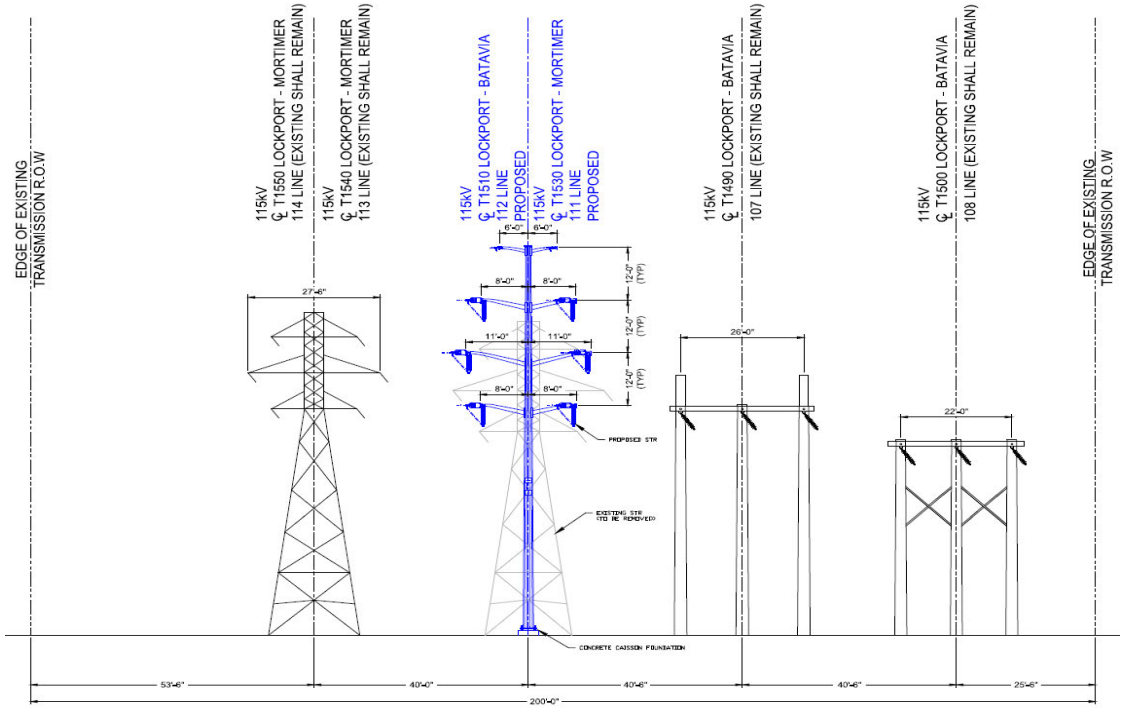
Proposed Conditions; Str. 14; Magnetic Field Profile



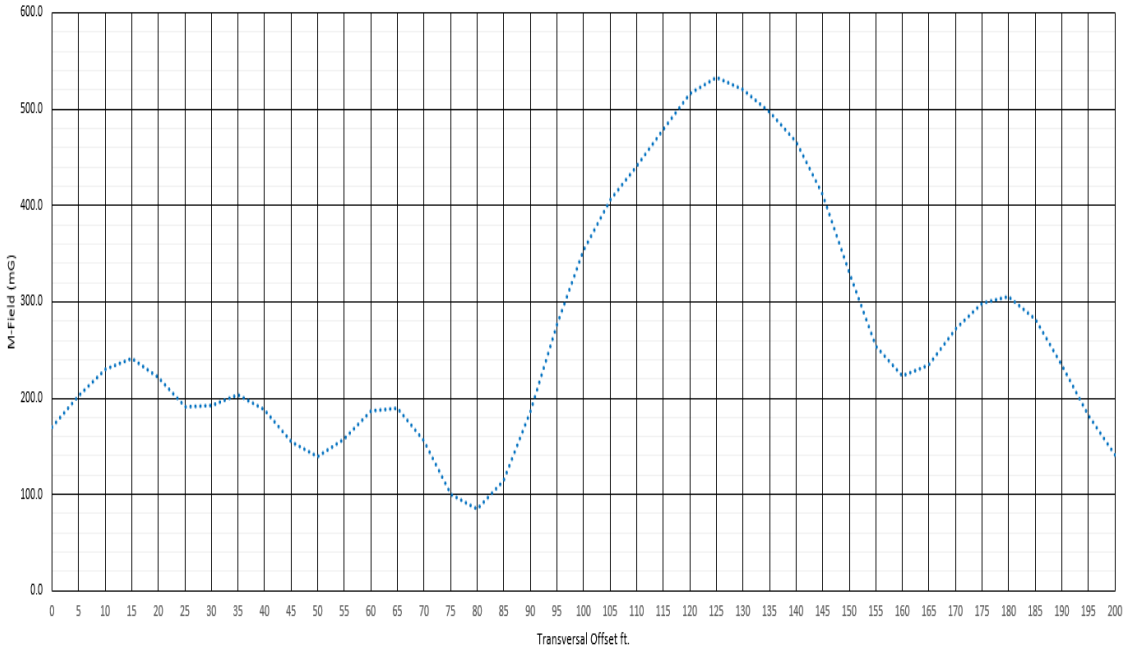


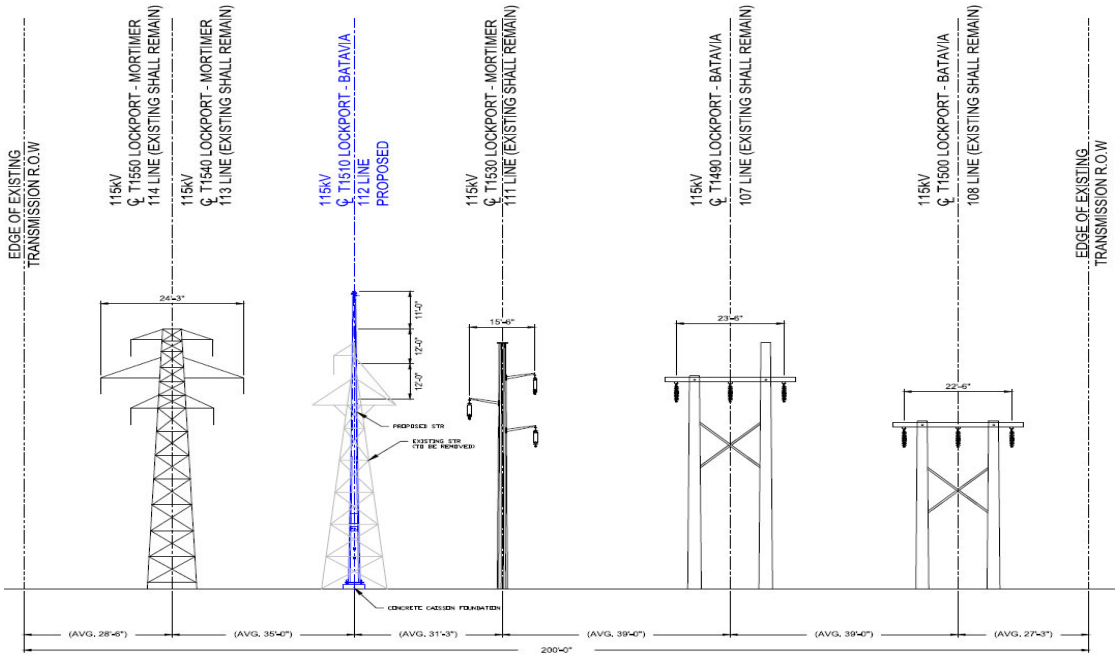
Proposed Conditions; Str. 15; Magnetic Field Profile



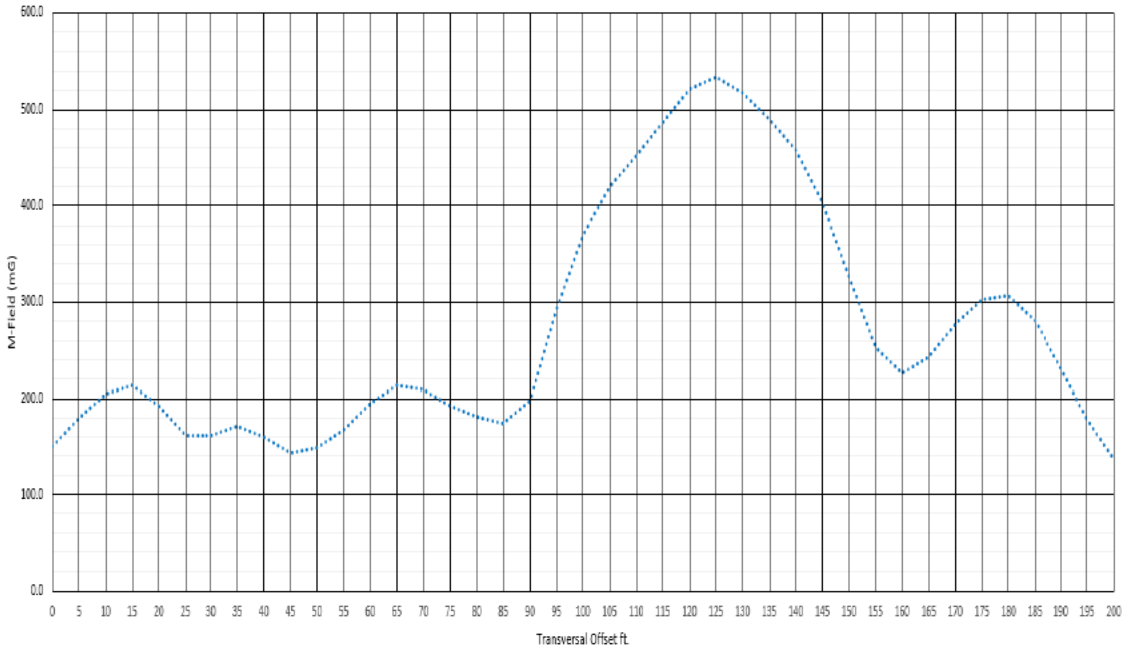


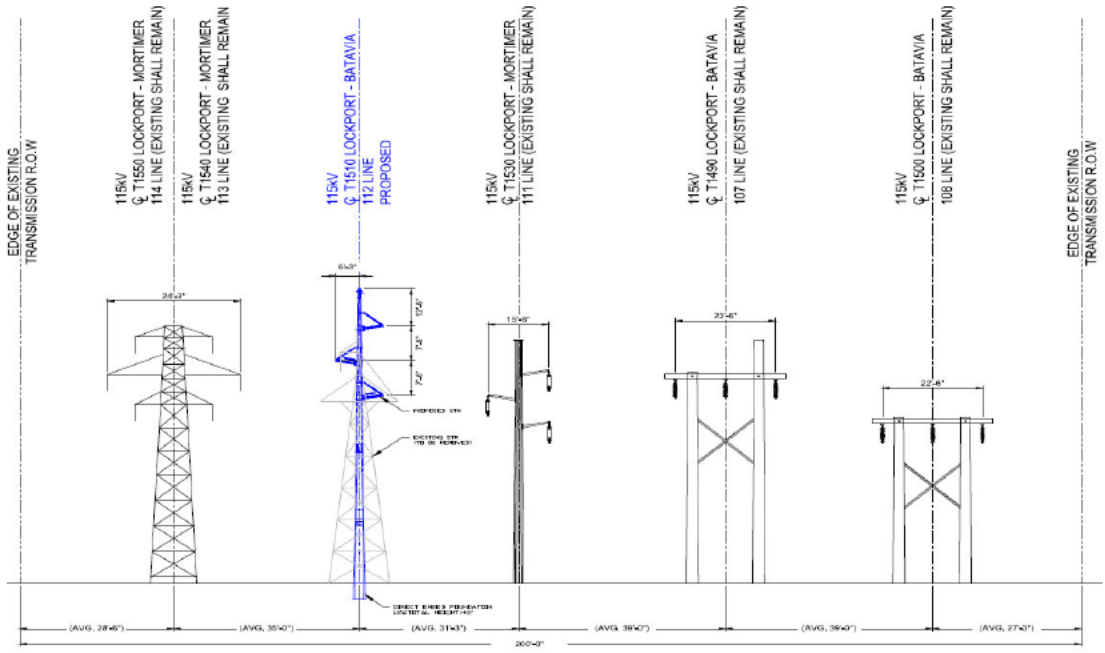
Proposed Conditions; Str. 16; Magnetic Field Profile



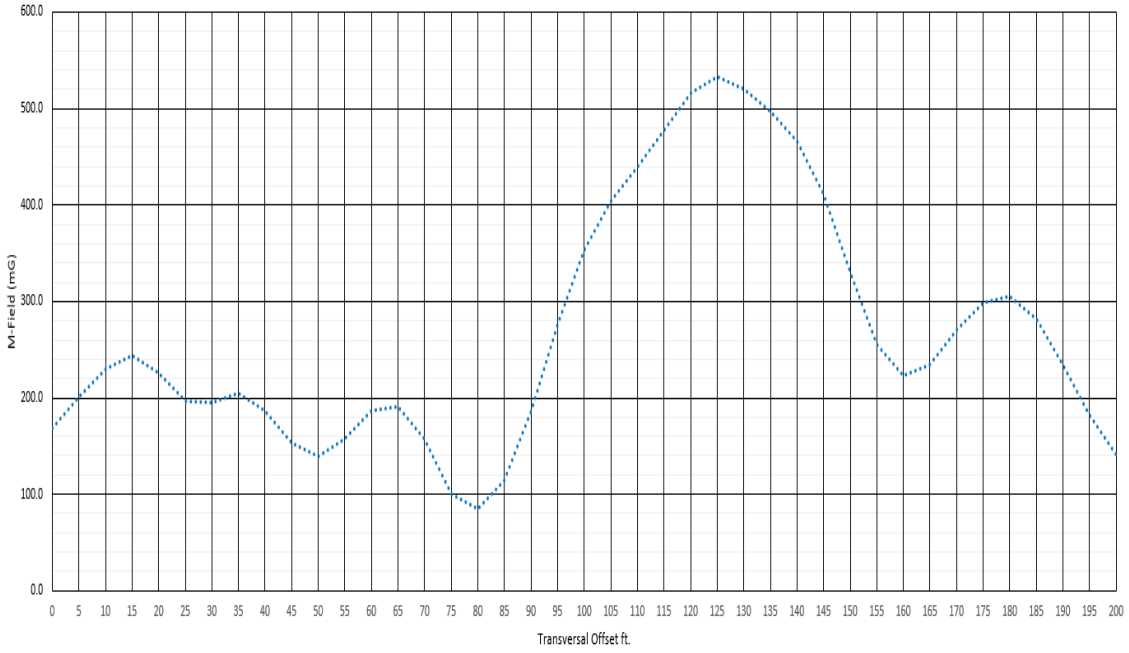


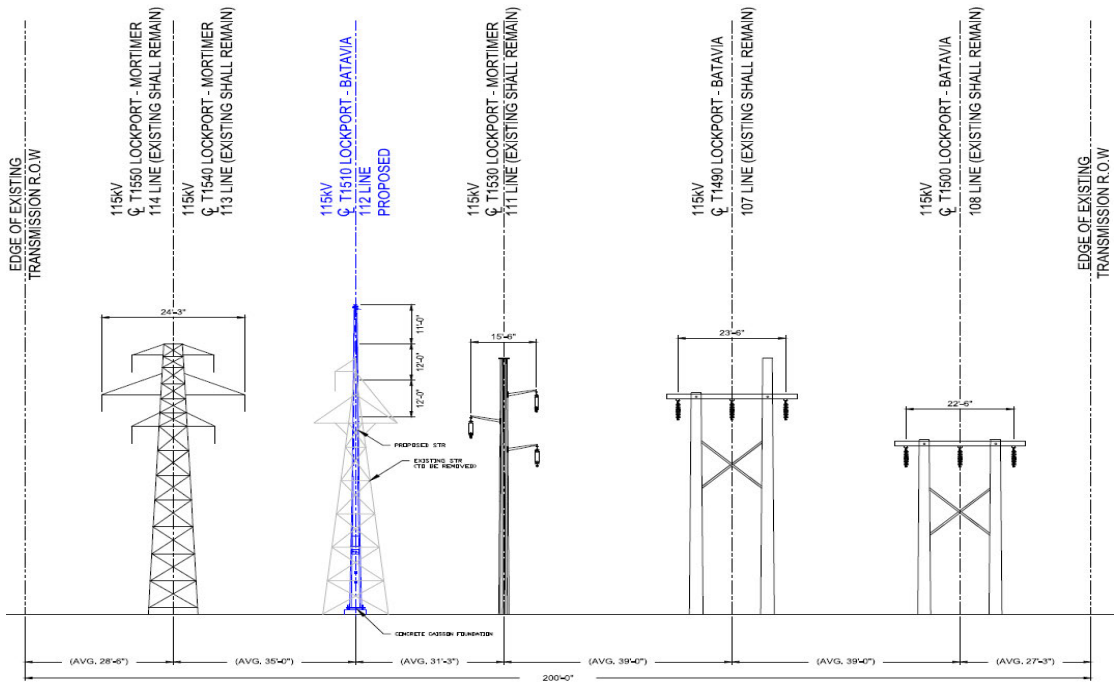
Proposed Conditions; Section 17-35; Magnetic Field Profile



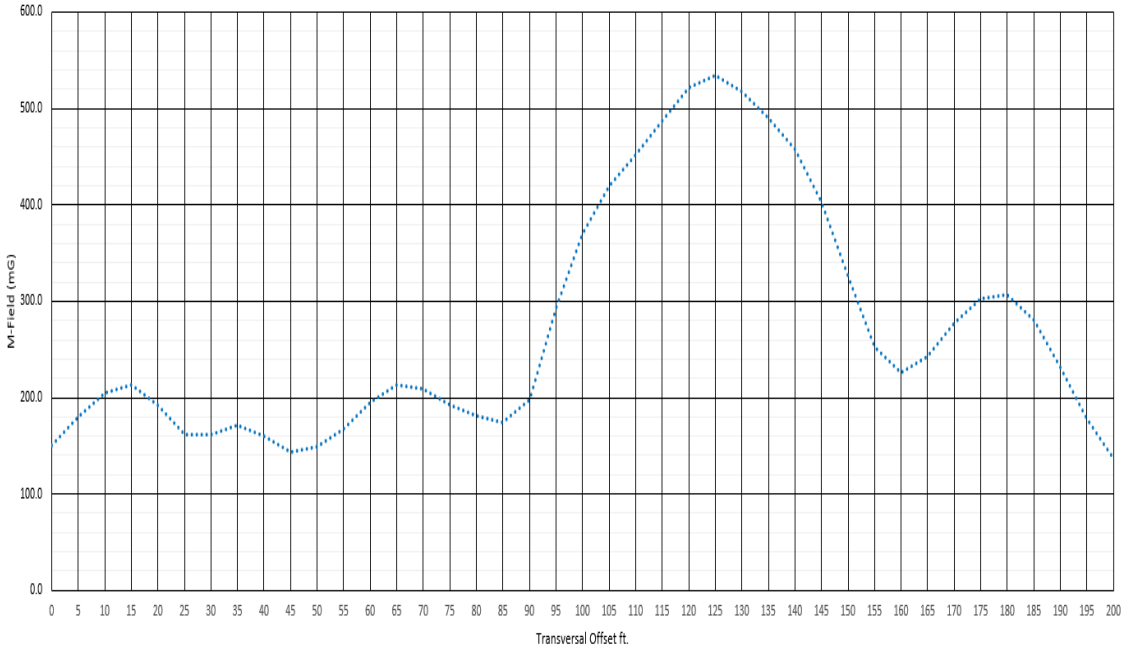


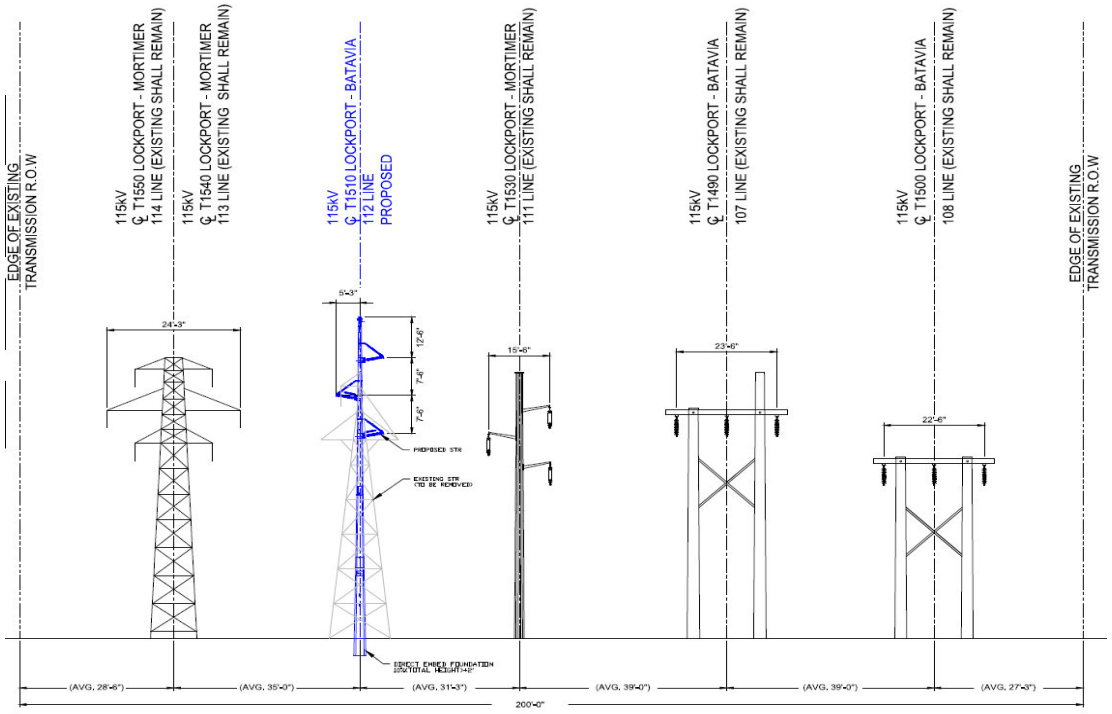
Proposed Conditions; Str. 36; Magnetic Field Profile



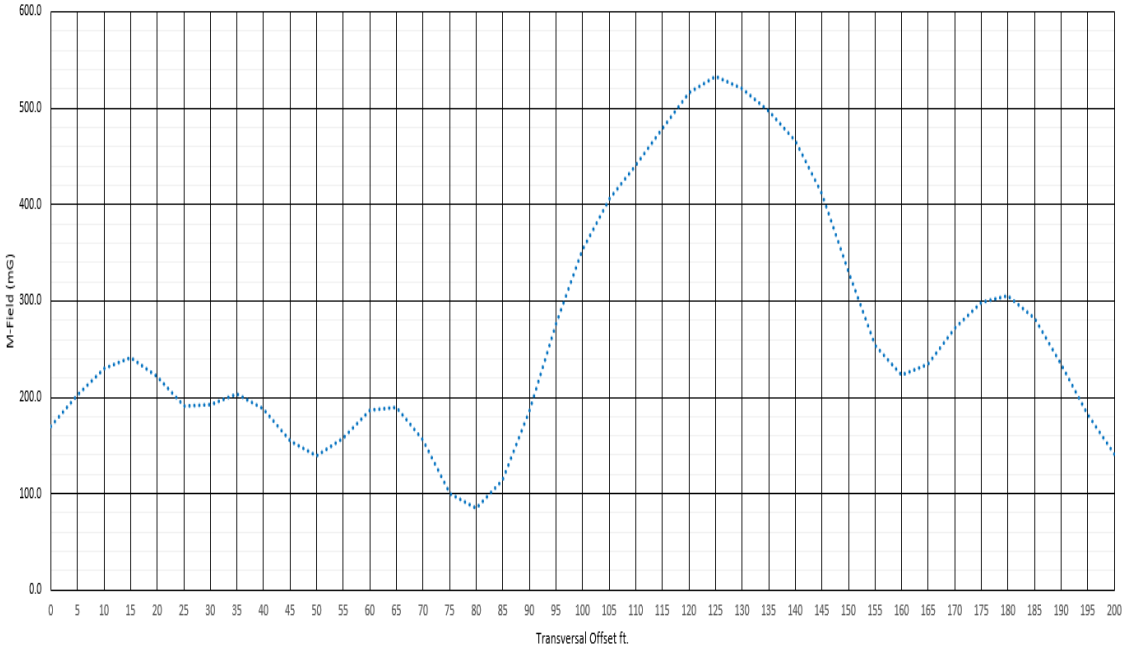


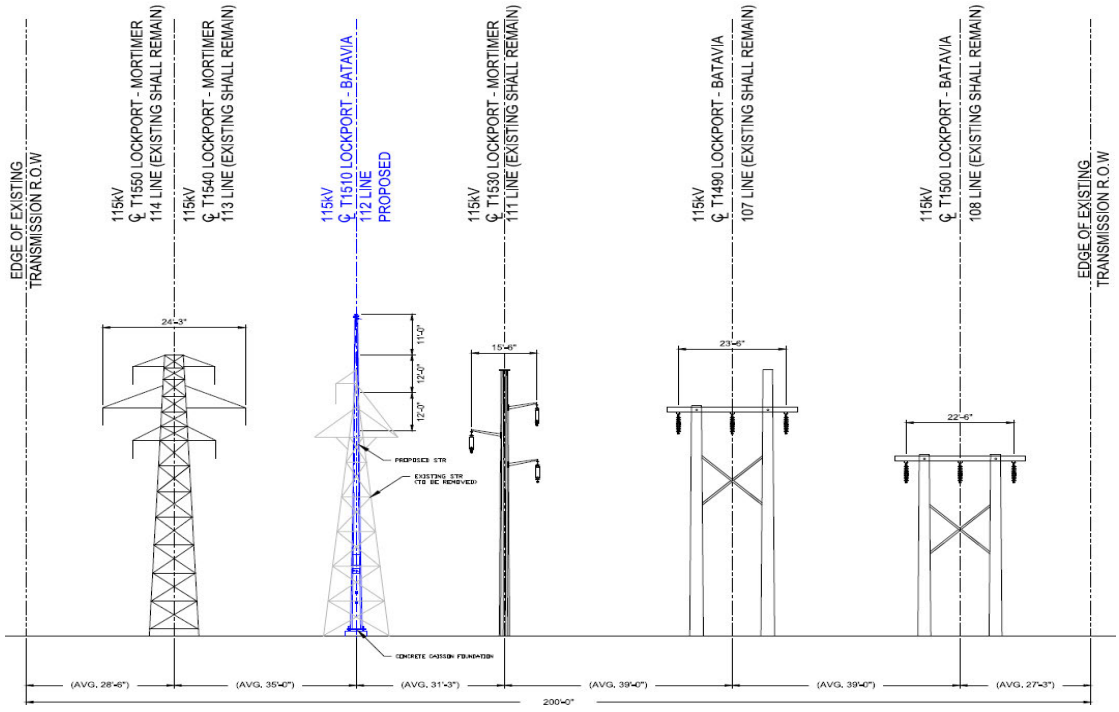
Proposed Conditions; Section 37-55; Magnetic Field Profile



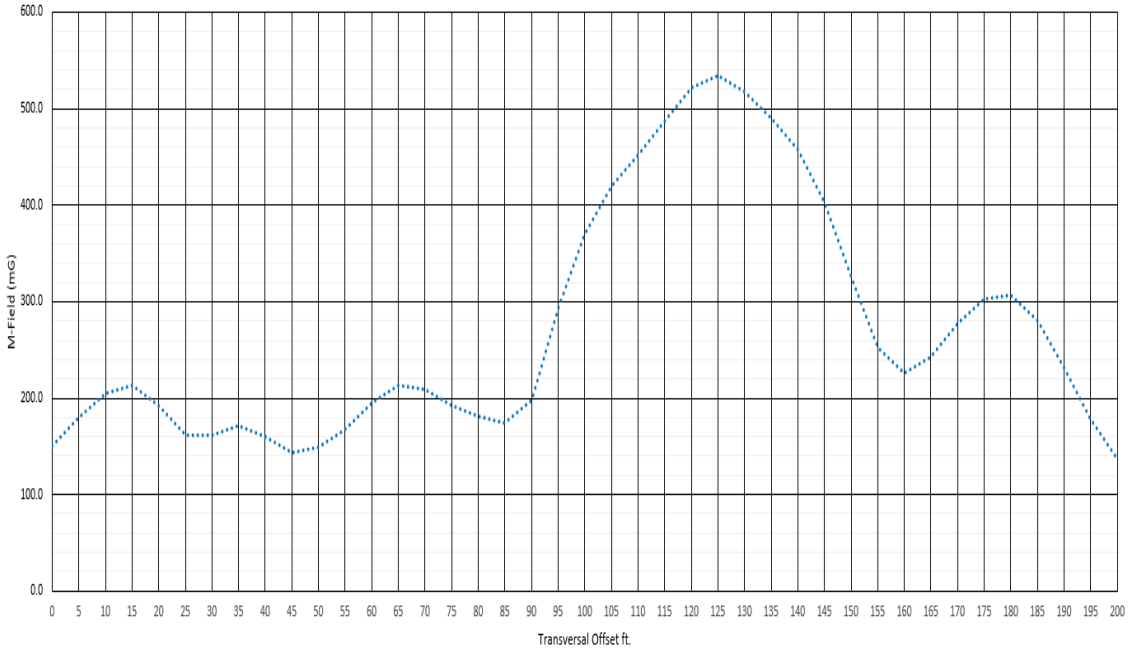


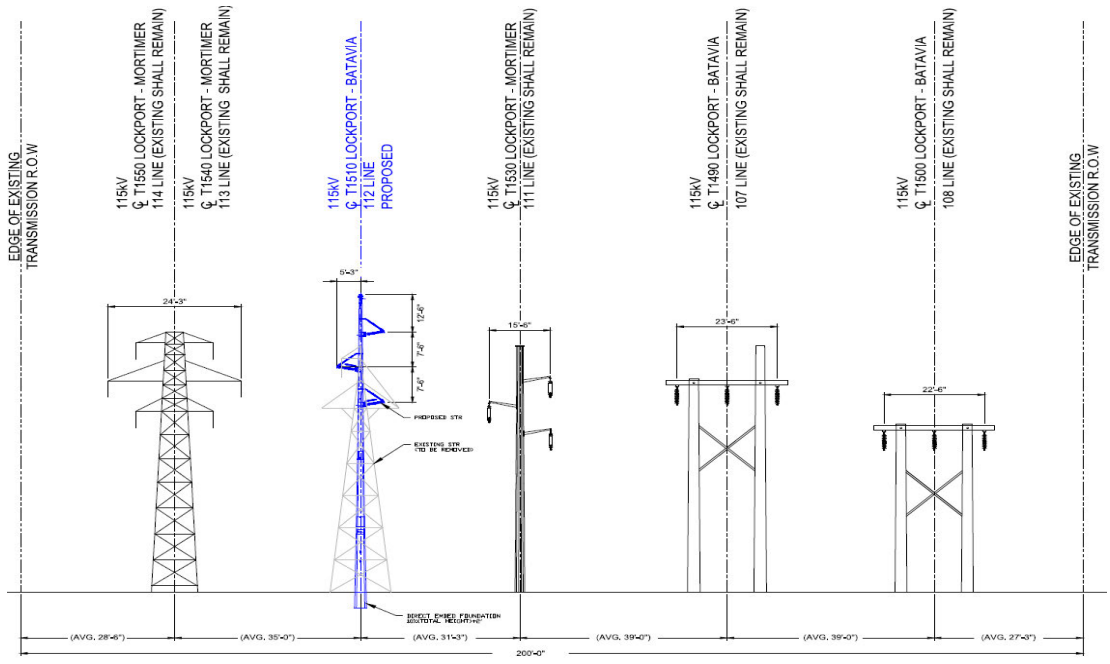
Proposed Conditions; Str. 56; Magnetic Field Profile



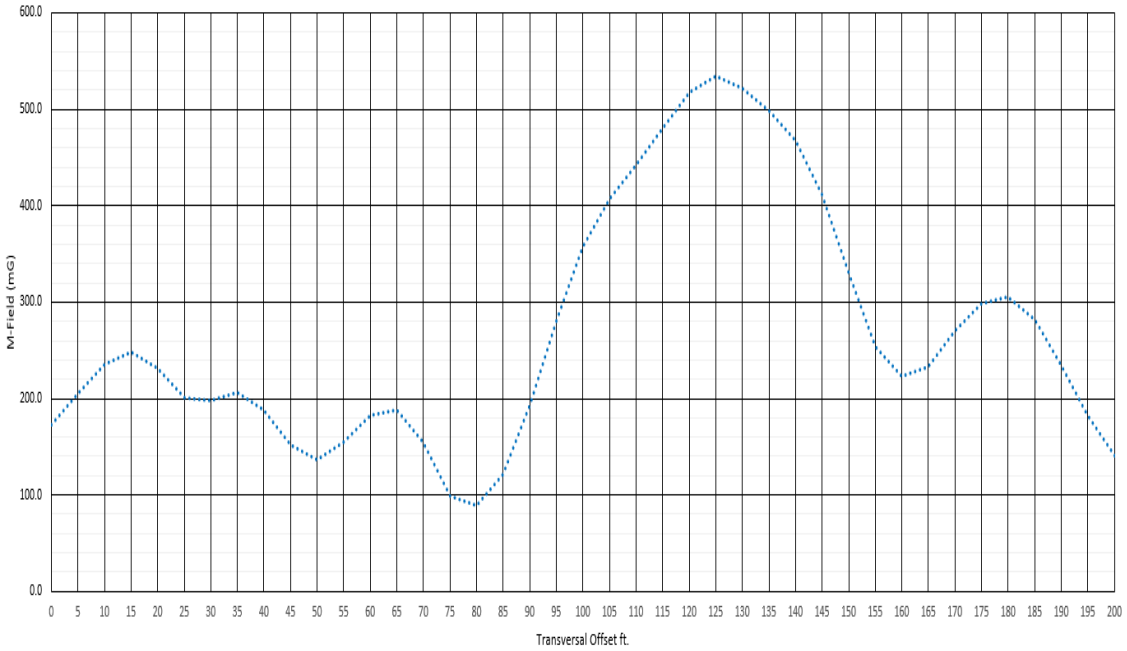


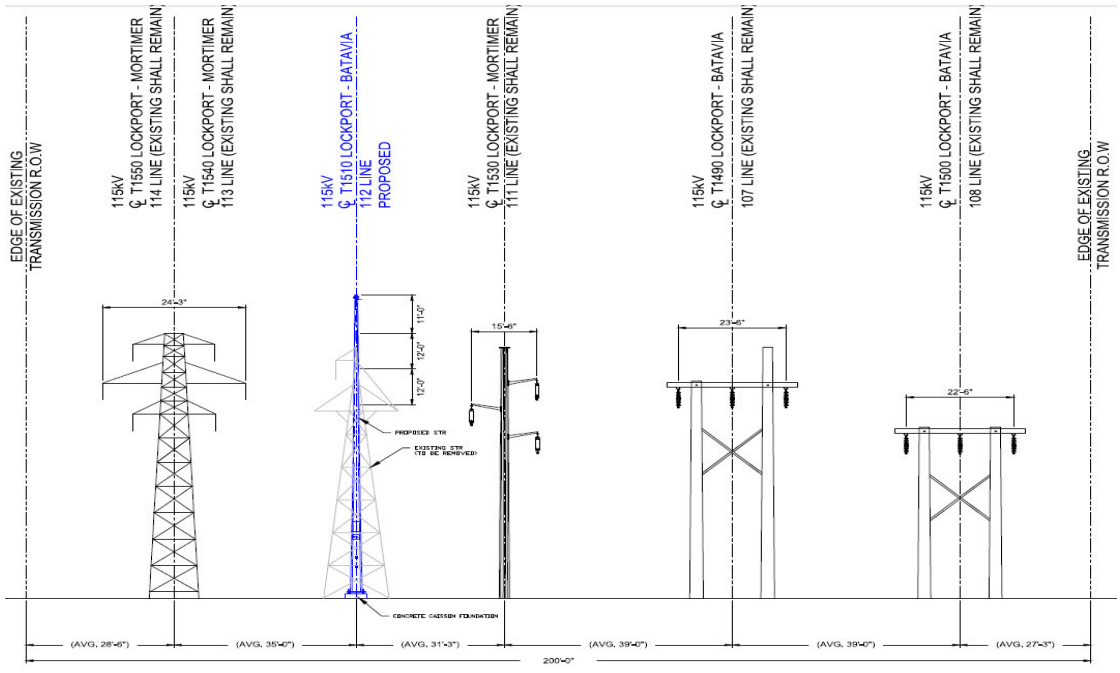
Proposed Conditions; Section 57-66; Magnetic Field Profile



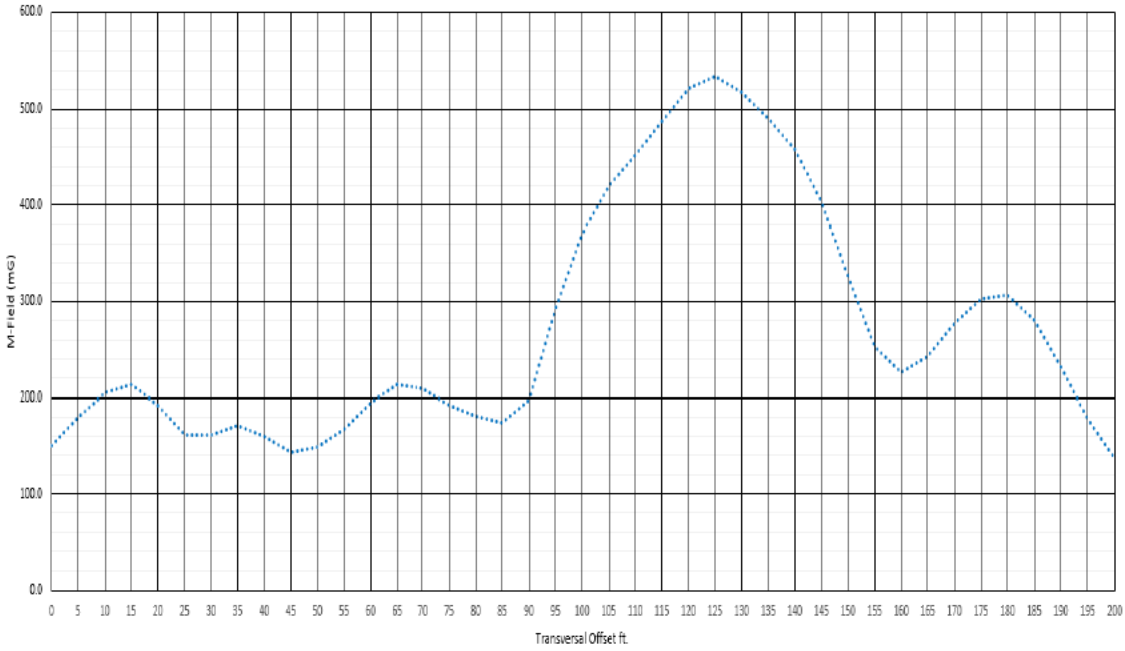


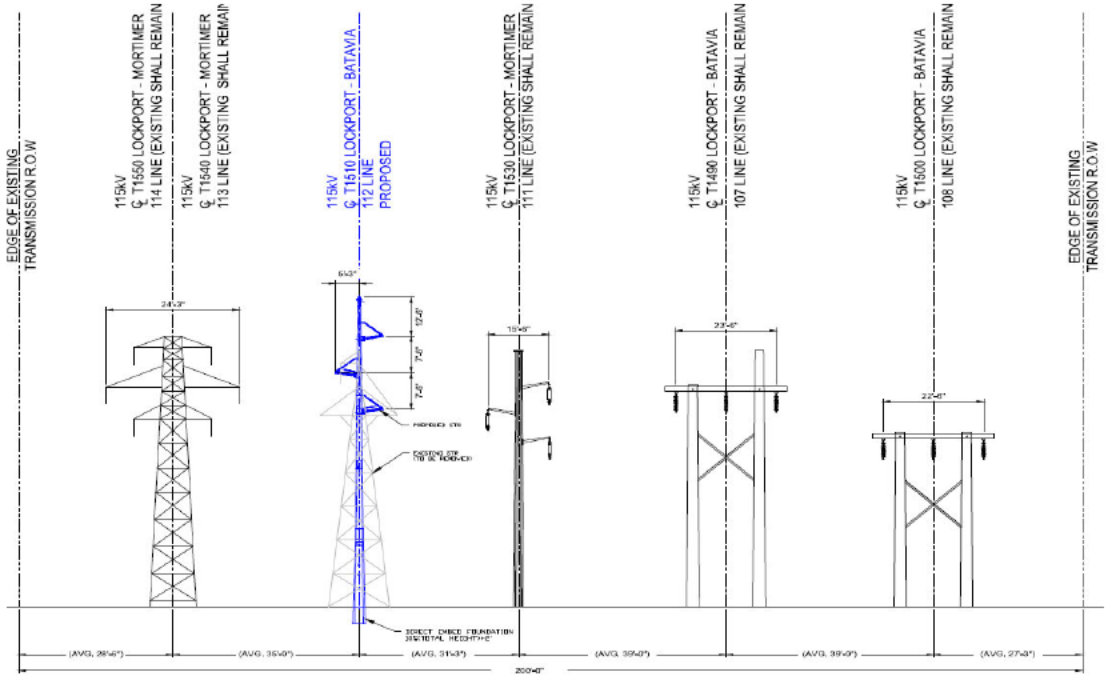
Proposed Conditions; Str. 67; Magnetic Field Profile



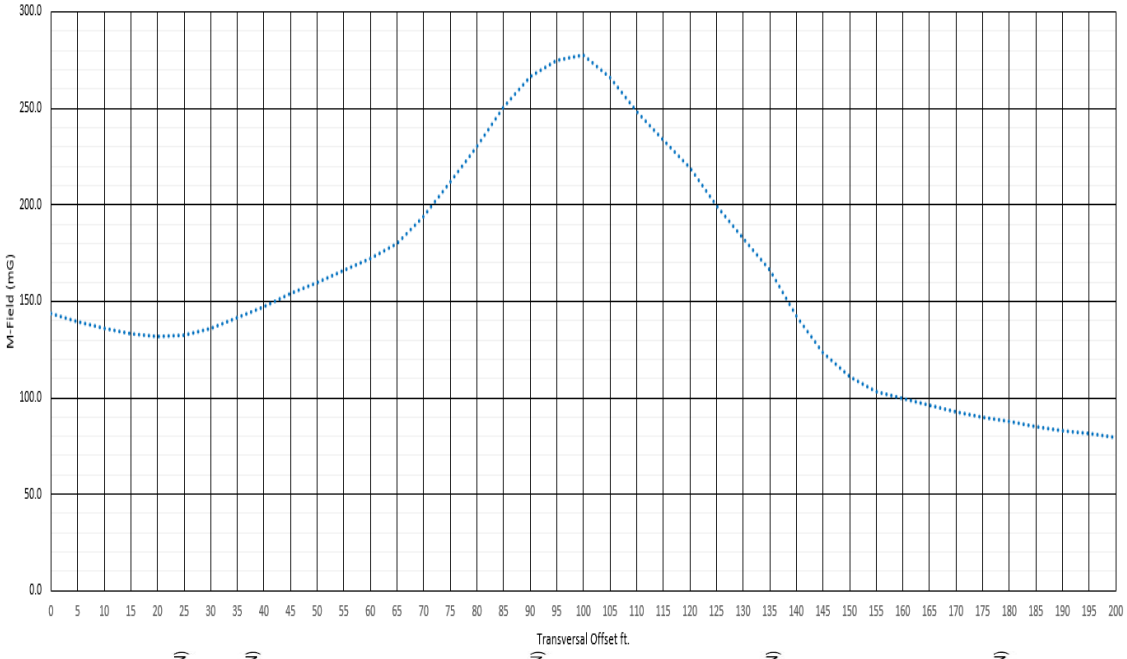


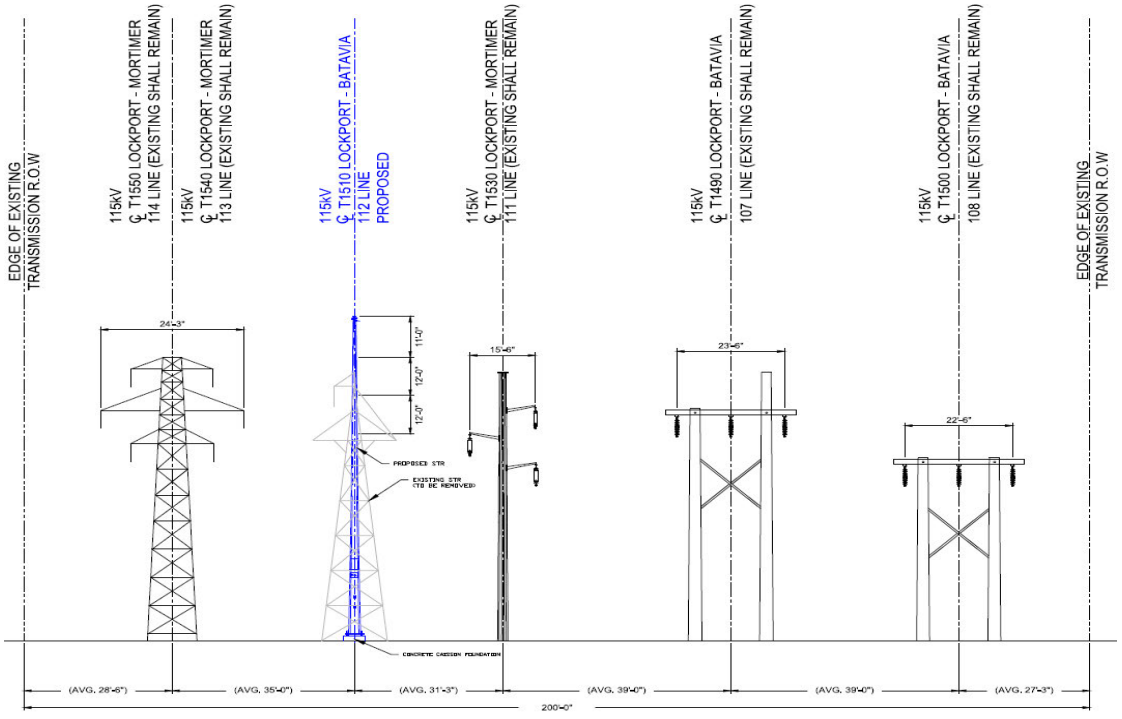
Proposed Conditions; Section 68-80; Magnetic Field Profile



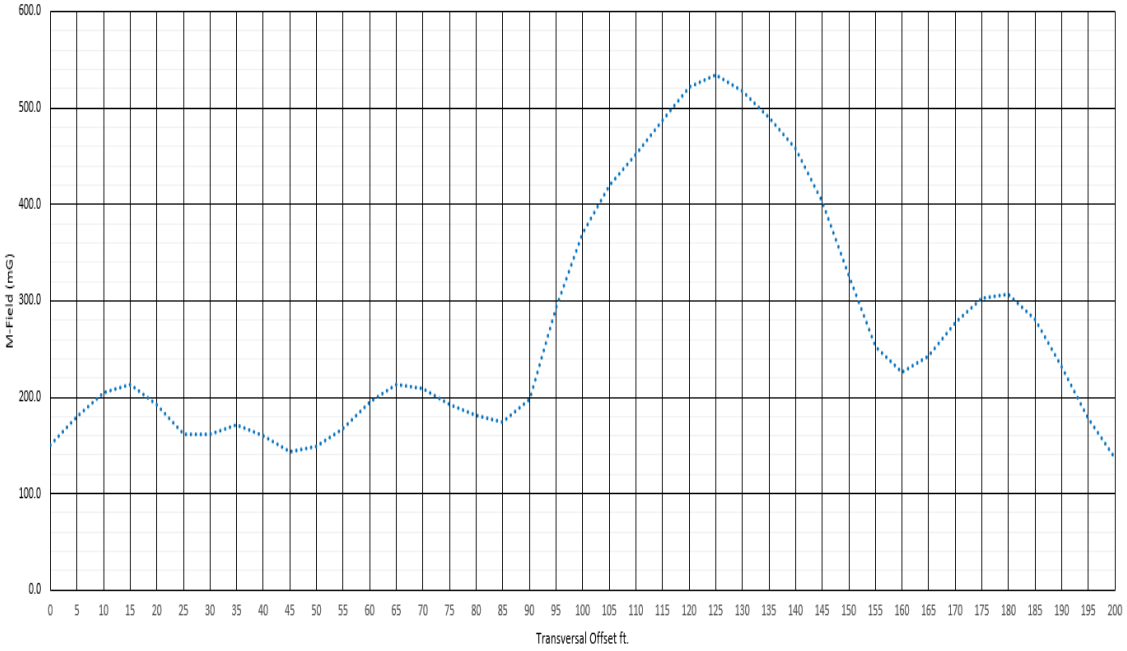


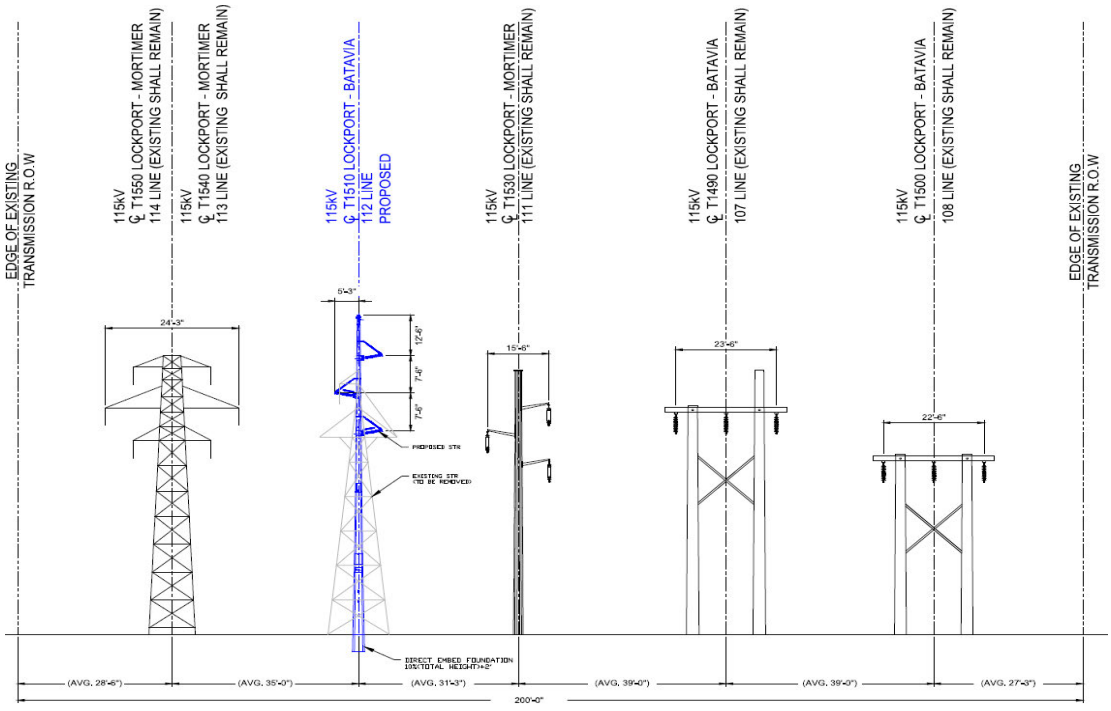
Proposed Conditions; Section 81-81.1; Magnetic Field Profile



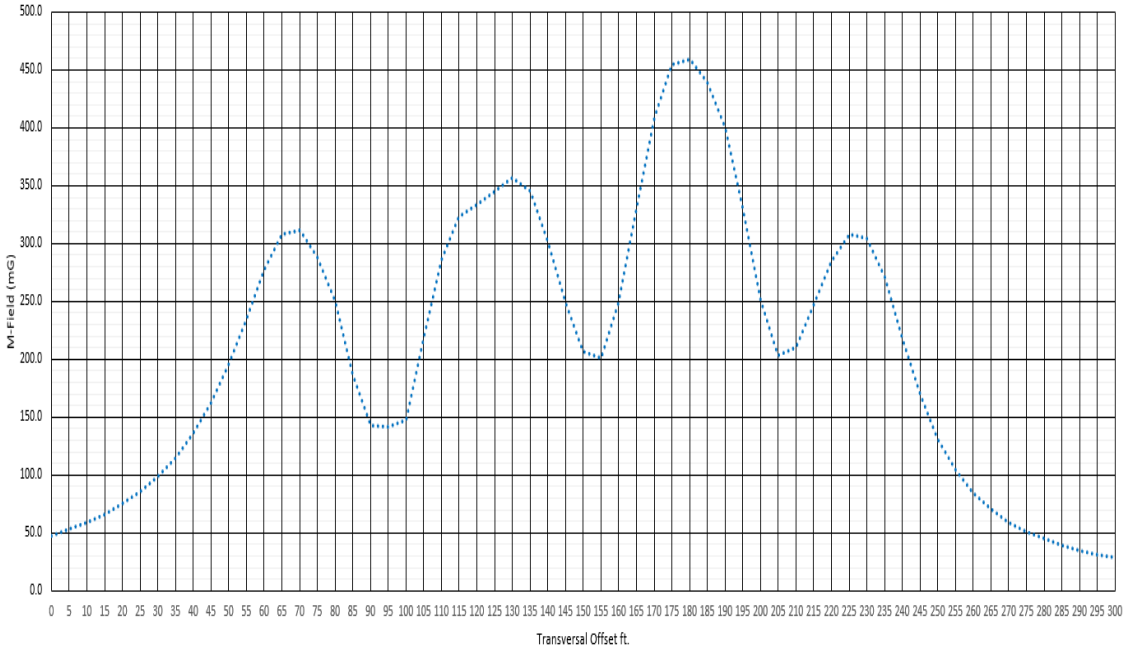


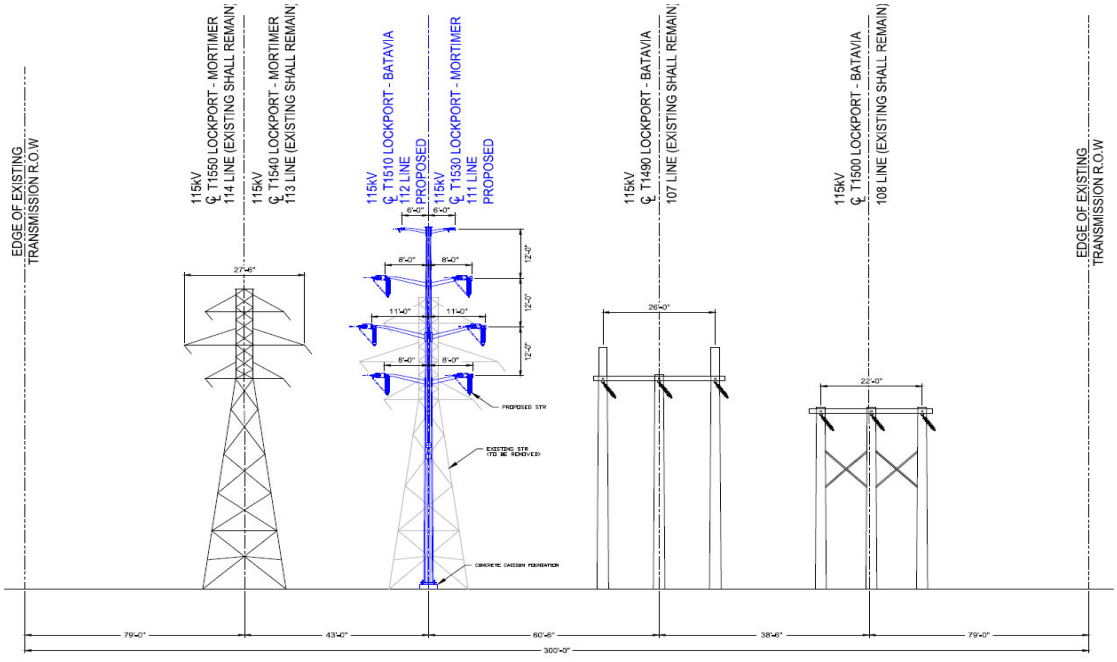
Proposed Conditions; Section 82-91; Magnetic Field Profile



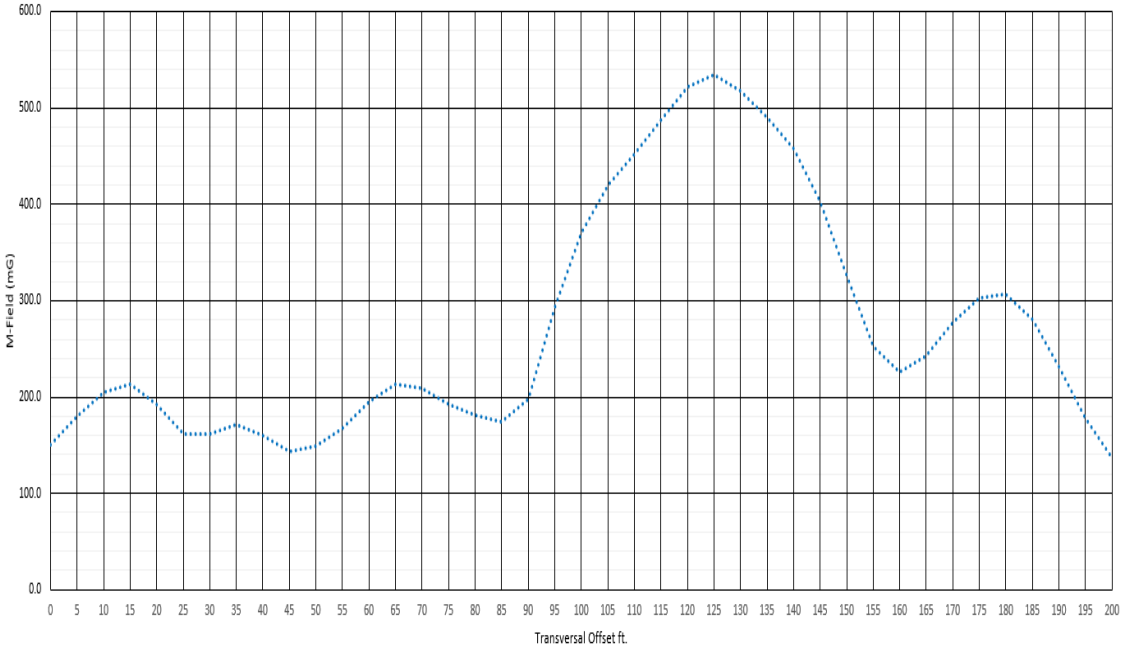


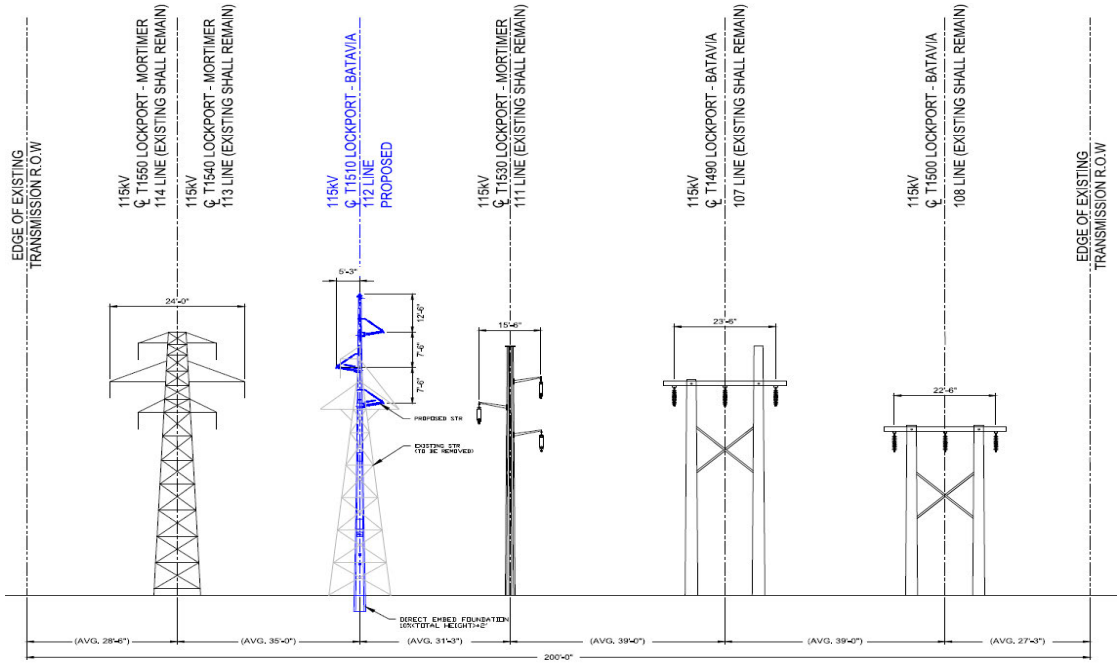
Proposed Conditions; Str. 92; Magnetic Field Profile



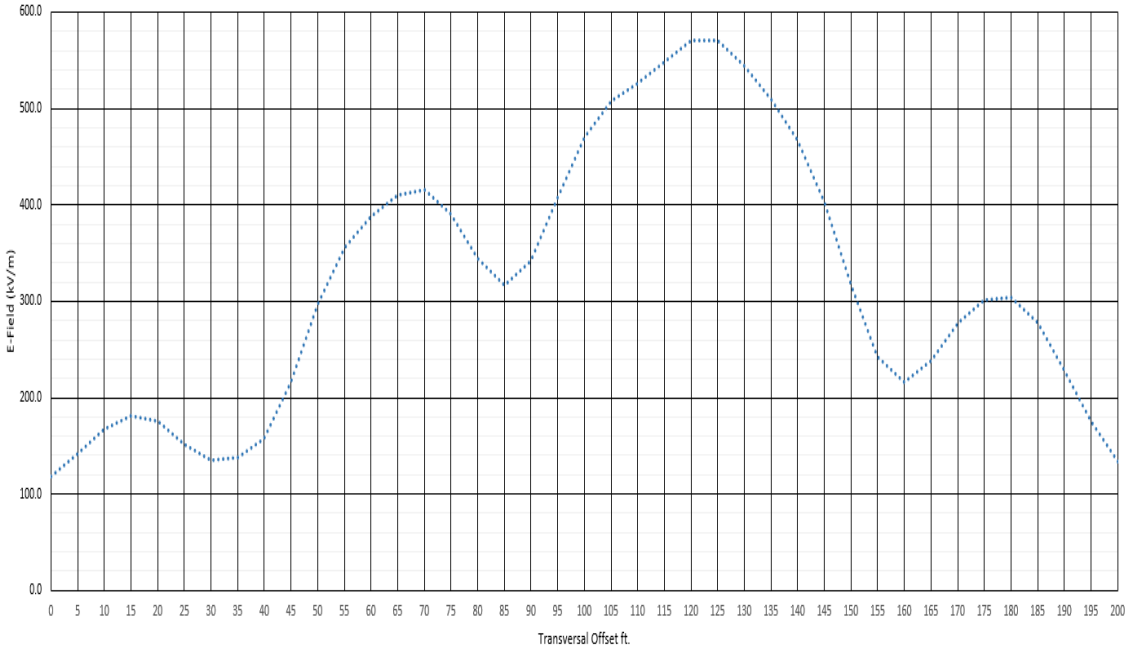


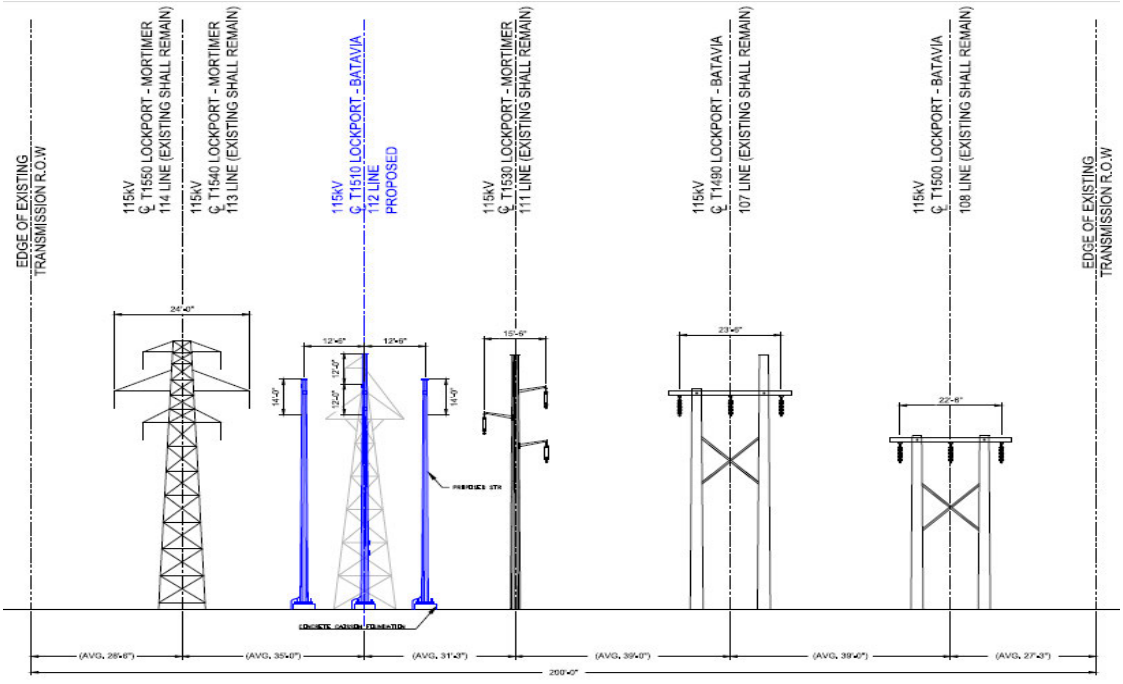
Proposed Conditions; Section 93-116-1 & 118-119; Magnetic Field Profile



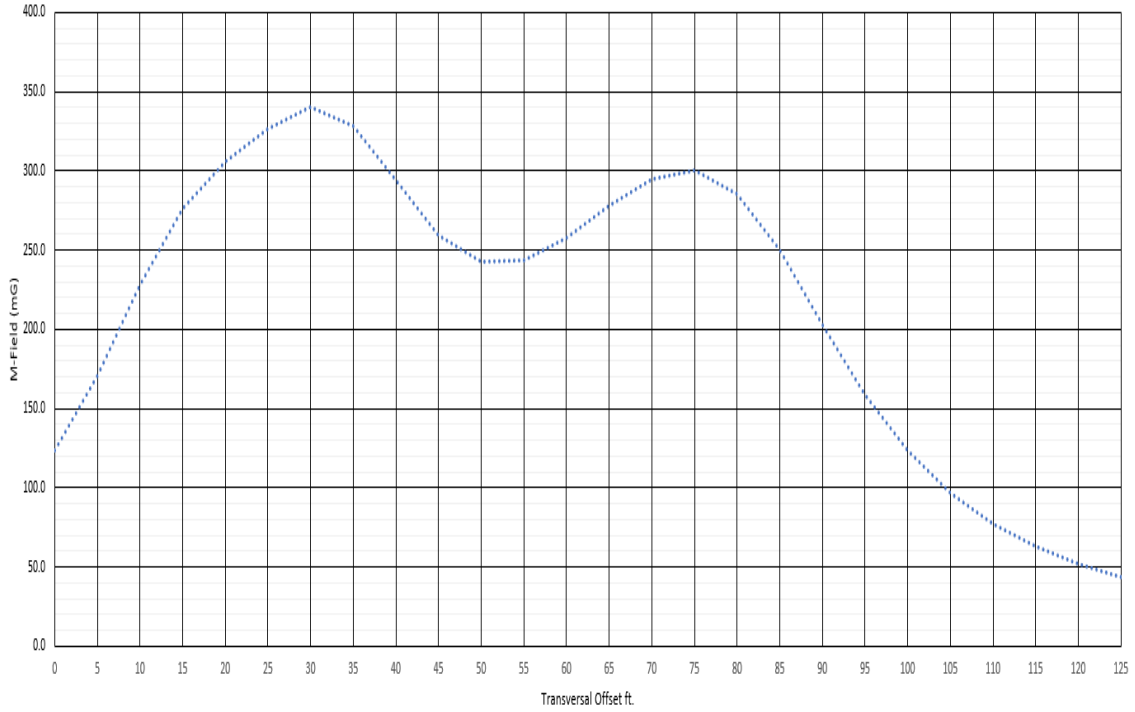


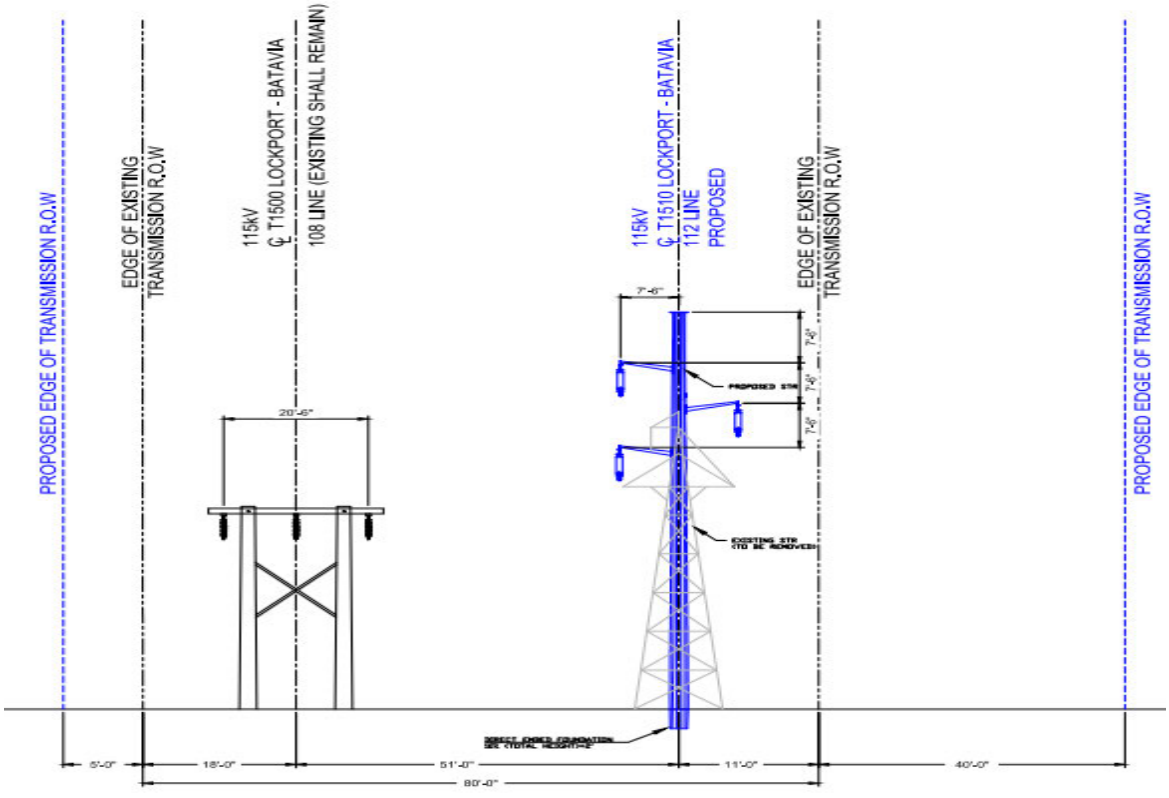
Proposed Conditions; Str. 117; Magnetic Field Profile



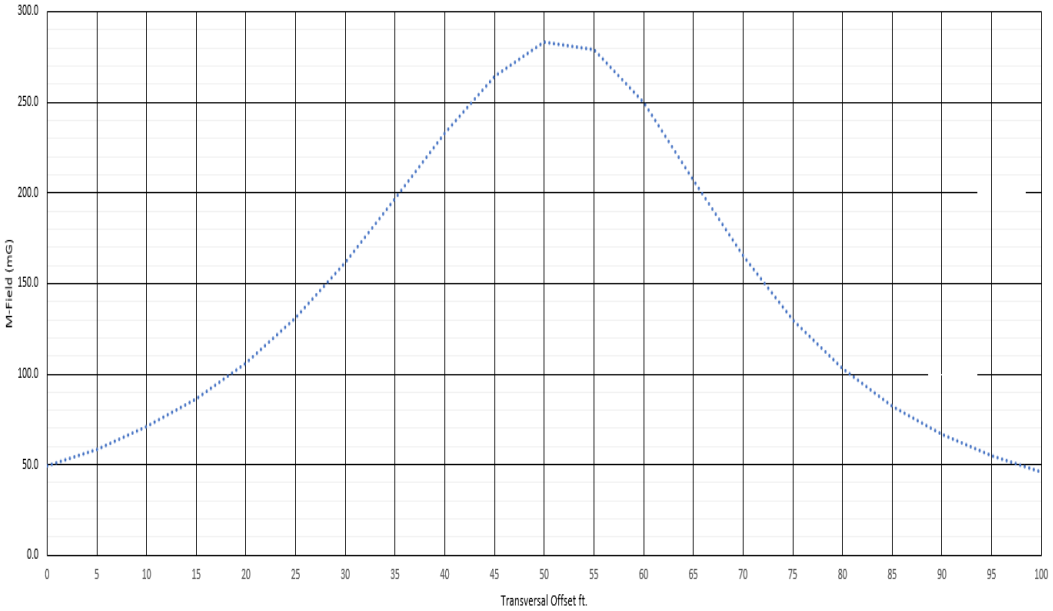


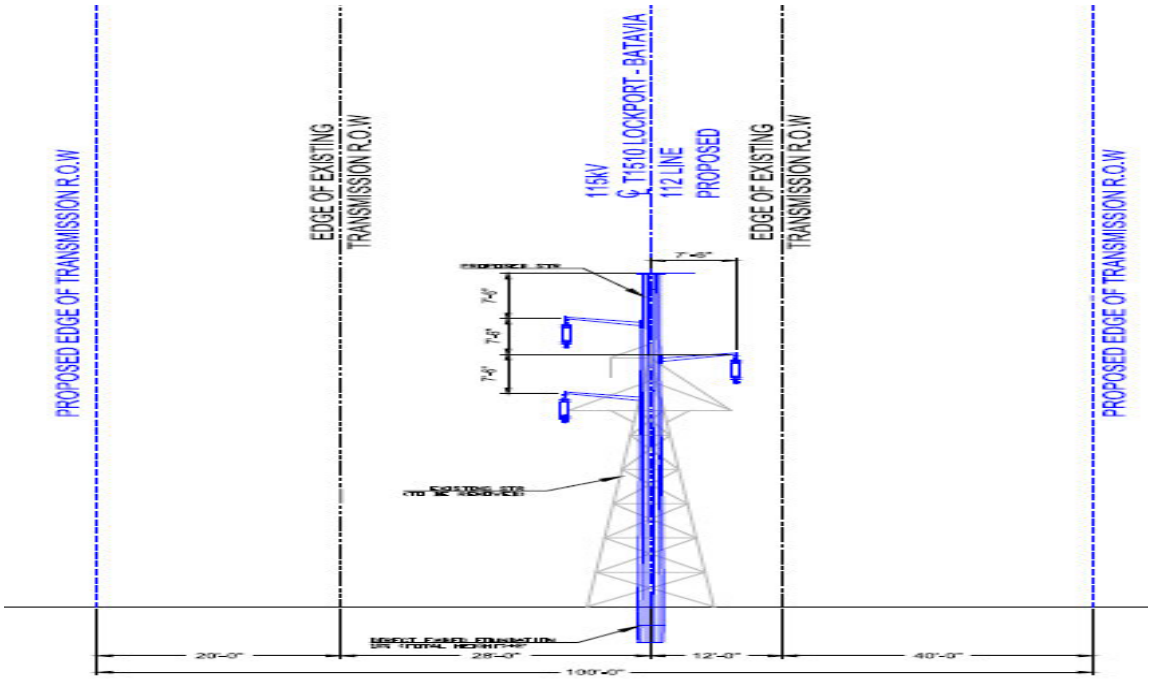
Proposed Conditions; Section 120-124; Magnetic Field Profile



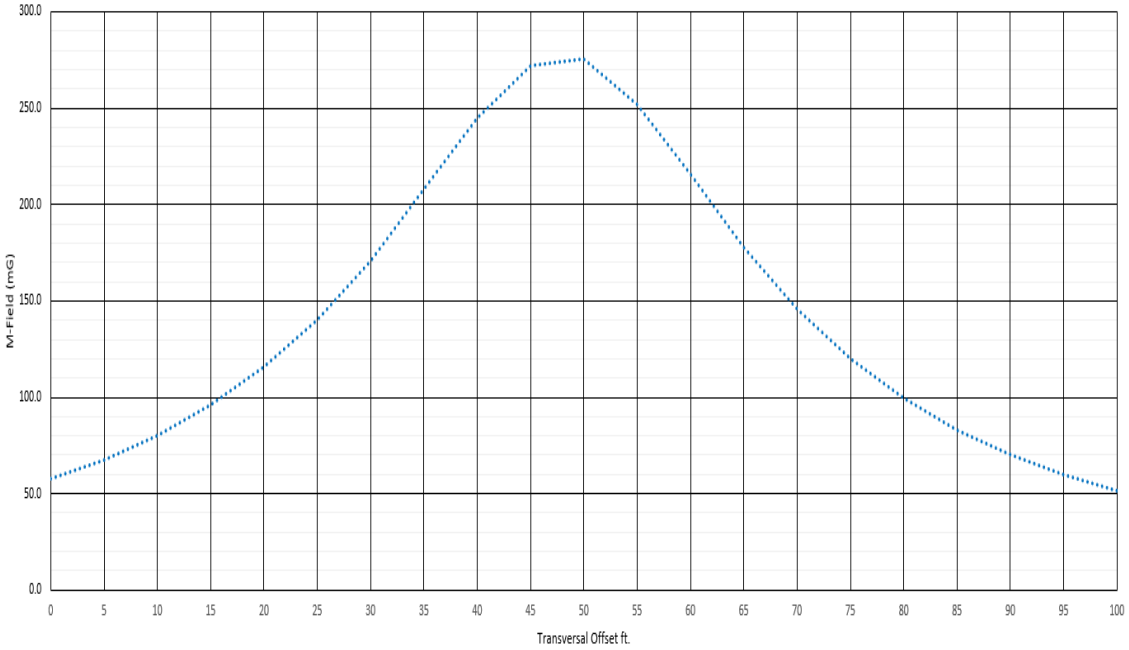


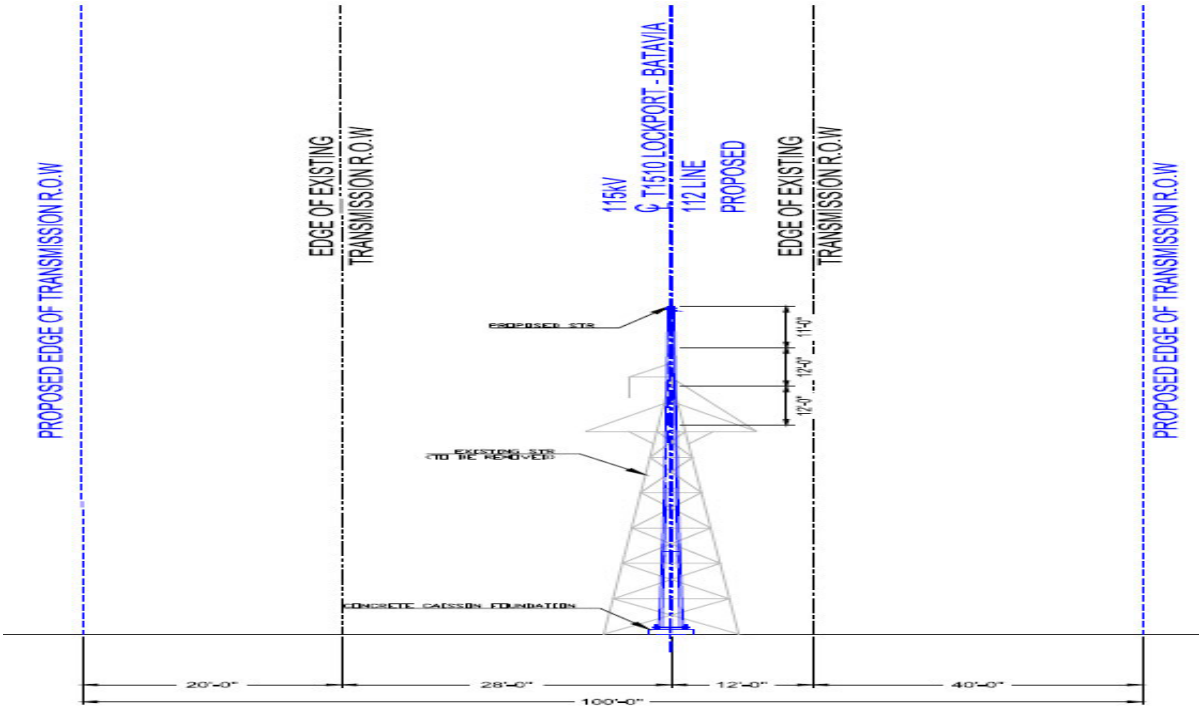
Proposed Conditions; Section 125-140; Magnetic Field Profile



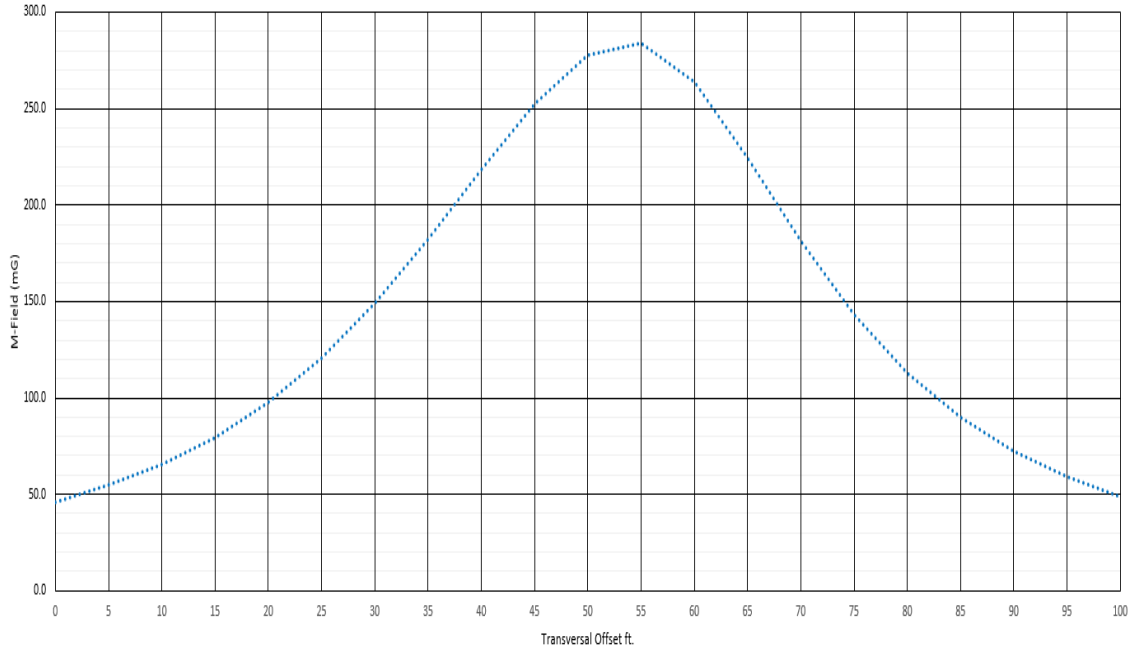


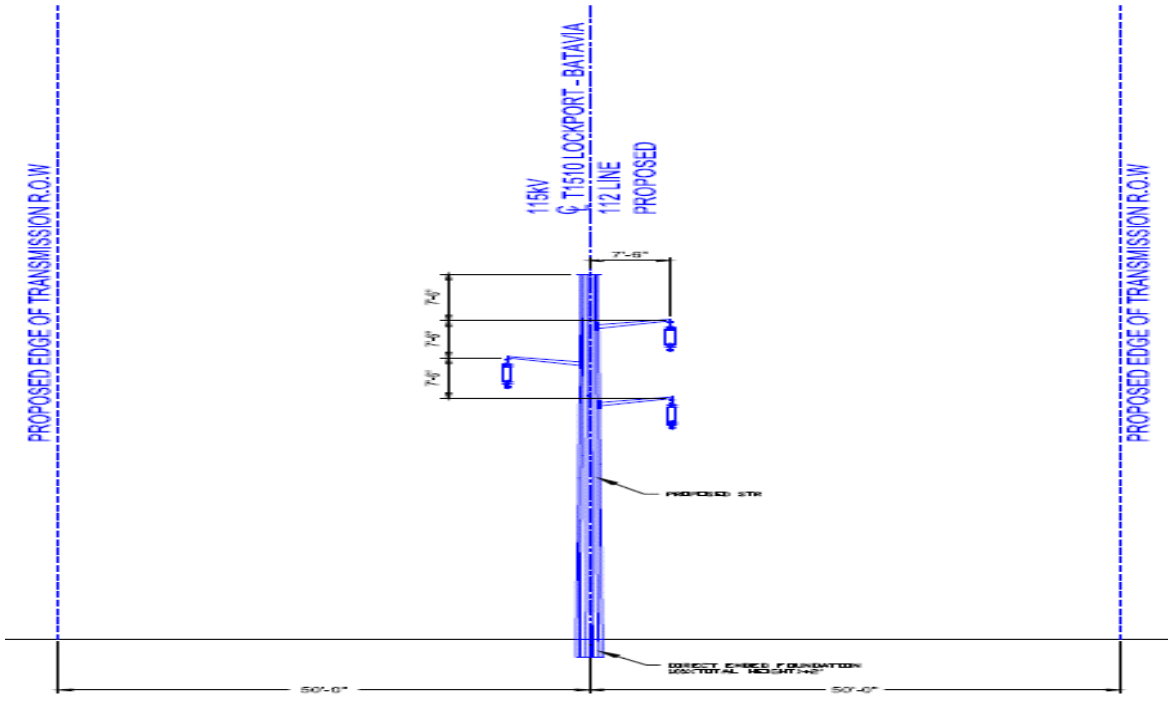
Proposed Conditions; Str. 141; Magnetic Field Profile

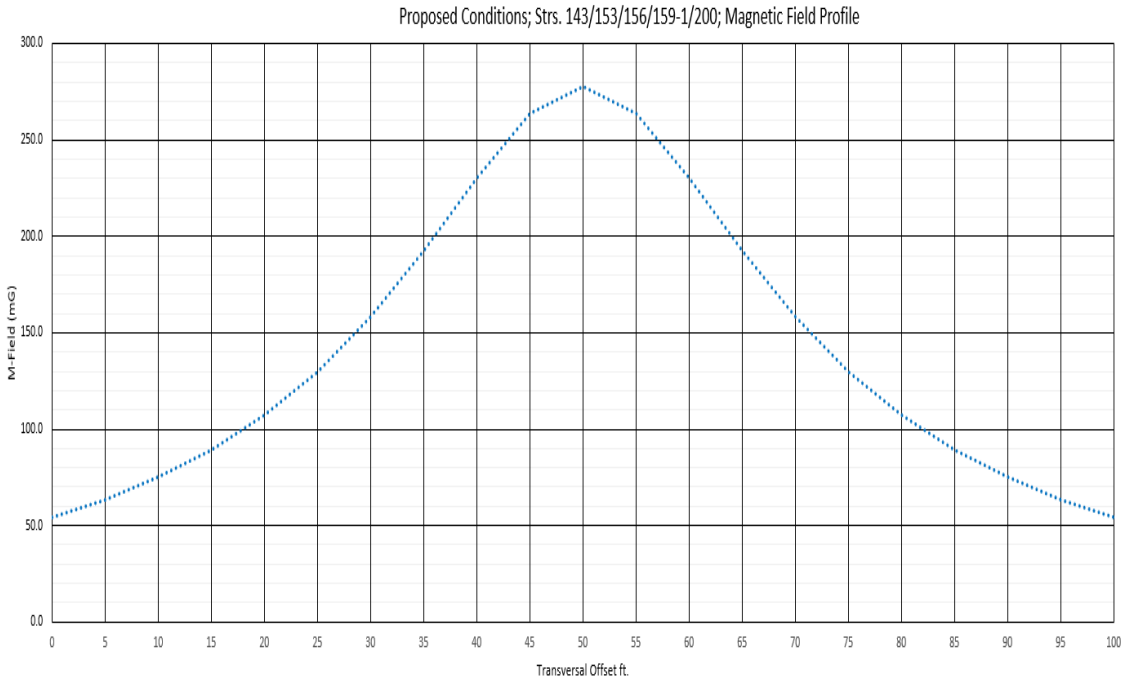


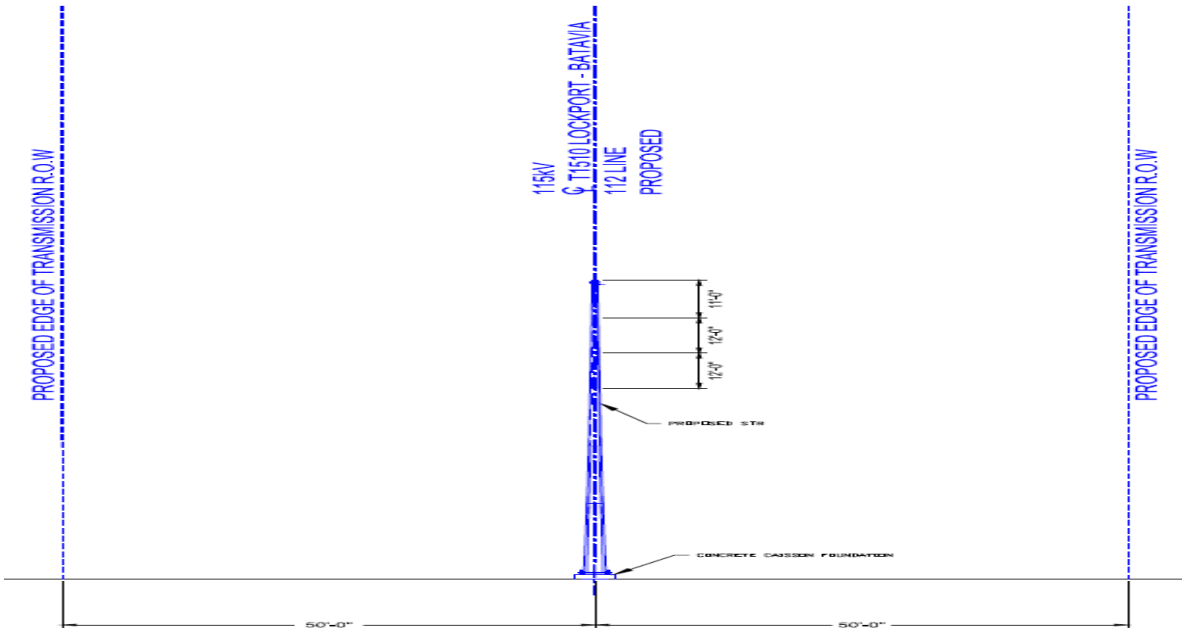


Proposed Conditions; Str. 142; Magnetic Field Profile

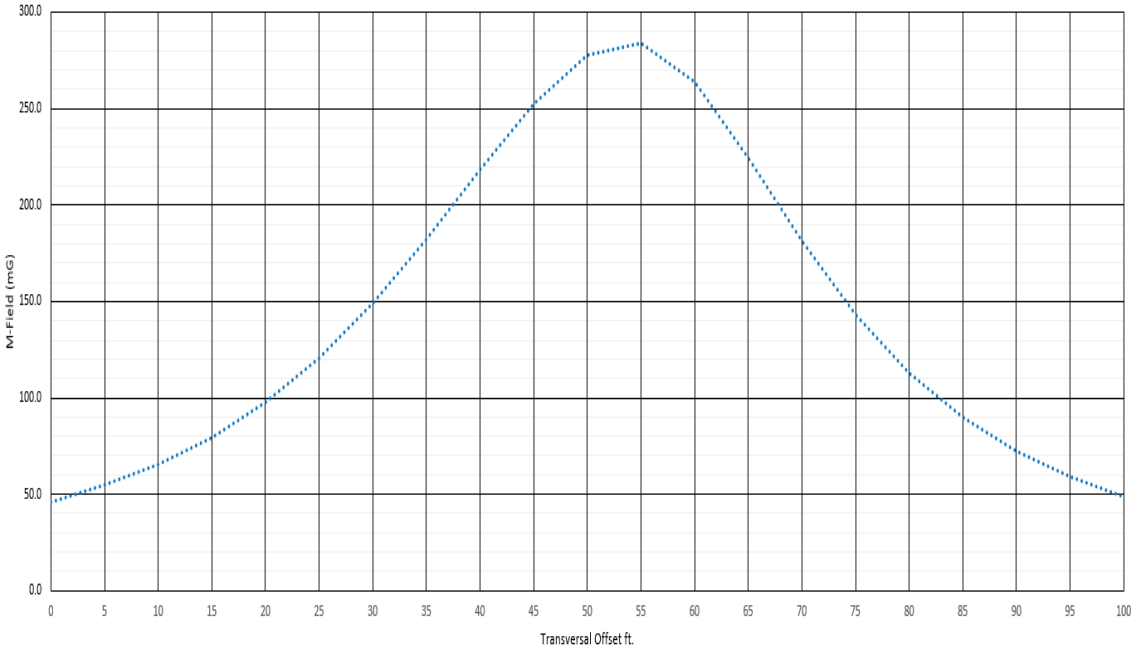


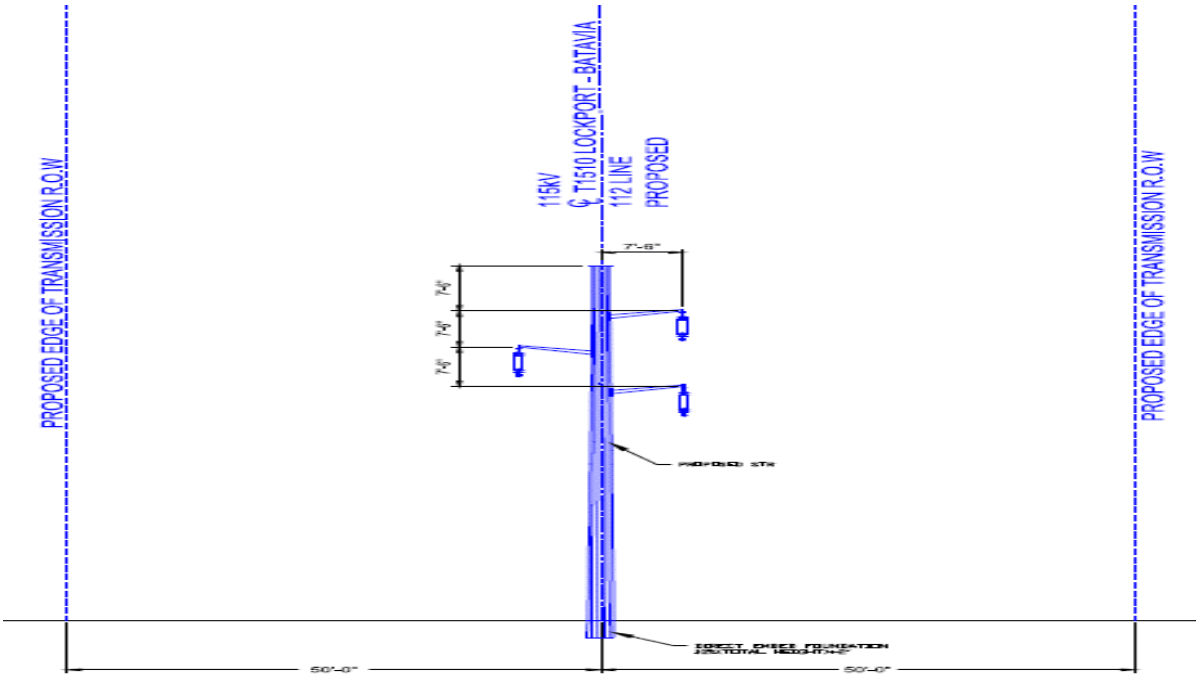



Proposed Conditions; Strs. 143/153/156/159-1/200; Magnetic Field Profile
M-Field (mG)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Transversal Offset ft.

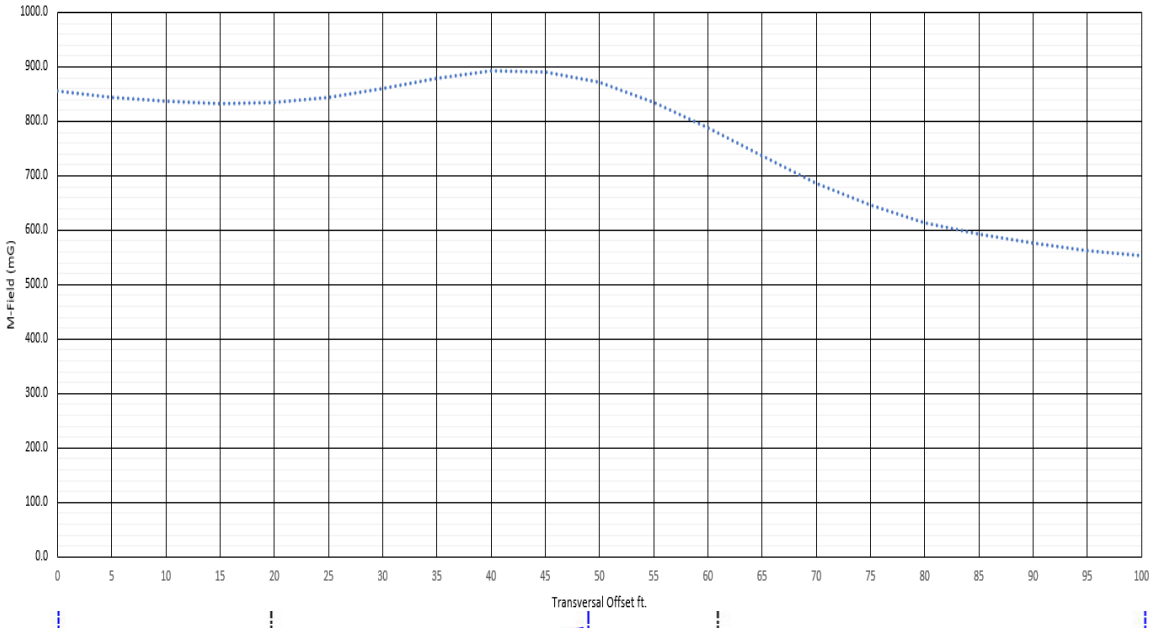

PROPOSED EDGE OF TRANSMISSION R.O.W
115kV
T1510 LOCKPORT - BATAVIA
112 LINE
PROPOSED
11'4"
12'4"
12'4"
PROPOSED STR
CONCRETE CAISSON FOUNDATION
50'-0"
50'-0"
PROPOSED EDGE OF TRANSMISSION R.O.W

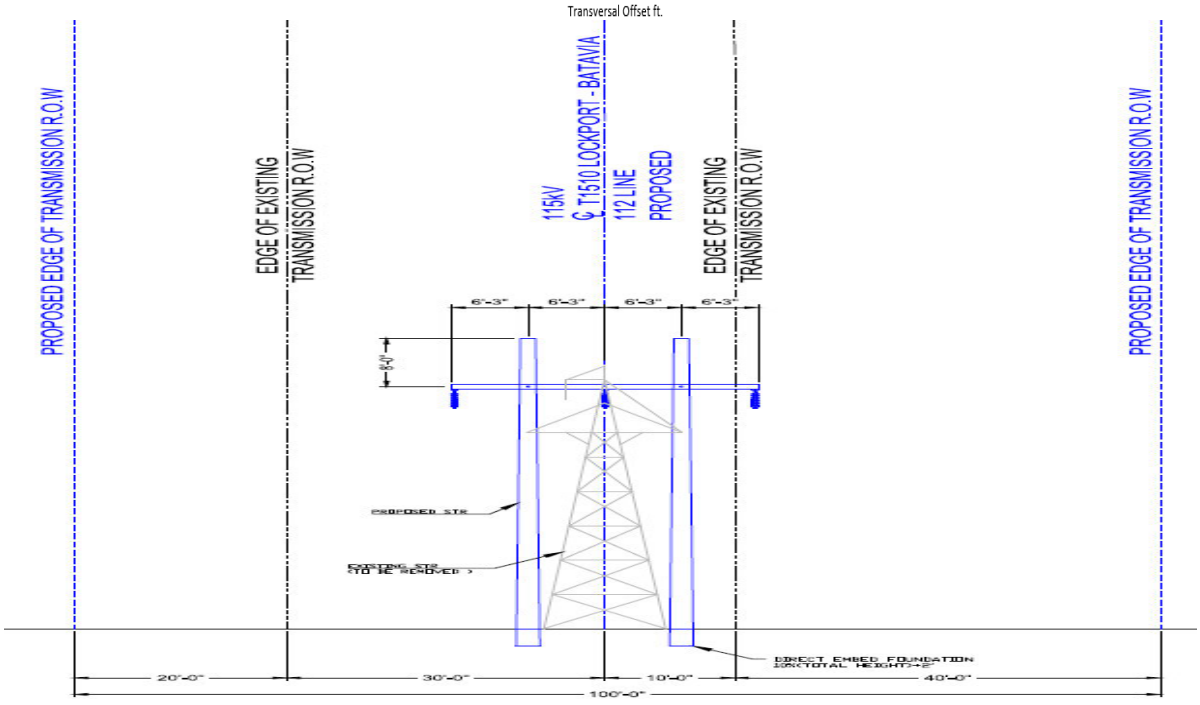
Proposed Conditions; Sections 144-152/154-155/157-159/160-170/173-199/201-211; Magnetic Field Profile





Proposed Conditions; Section 171-172; Magnetic Field Profile





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