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April 30, 2019

Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Docket No. 468 Southwest Connecticut Reliability Project
Post-construction EMF Monitoring Report

Dear Ms. Bachman:

In accordance with condition 2(n) in the November 10, 2016 Decision and Order of the Connecticut Siting Council ("Council") in Docket No.468, The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource") submitted a Post-construction EMF Monitoring Plan ("Plan") in Volume I - Appendix A of the Development and Management Plan on June 15, 2017, which the Council approved on July 20, 2017.

Per Section VI of the Plan, Eversource is providing to the Council an original and 15 copies of this report on the post-construction electric and magnetic field ("EMF") measurements within 12 months of the in-service date of the Southwest Connecticut Reliability Project ("SWRP") facilities.

SWRP entered service on June 24, 2018. Post-construction field measurements were performed on January 4, 2019. and again, on March 8, 2019. Consistent with the approved Plan, all measurements of electric and magnetic fields were taken in accordance with IEEE [1] Standard 644-1994 (R2008), Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines. The measurements were taken with an EMDEX II meter manufactured by Enertech Consultants, Campbell, CA. This meter and its accessories meet the associated instrumentation standards.

The EMF monitoring locations as specified in the Plan are listed below. Aerial photographs depicting these locations are attached (See Attachment C).

1. Lexington Meadows, City of Danbury (Spot Measurement)
2. Hearthstone Drive, Town of Bethel (Line Segment Measurement)

At the spot measurement location, measurements were taken at one reference point adjacent to the transmission lines. At the line segment measurement location, measurements were taken below and on either side of the transmission lines, where access permitted. Magnetic fields measurements were taken twice at the line segment measurement location to account for seasonal variation of transmission line current flow.

Electric and/or magnetic fields were measured at each location on January 4, 2019 and March 8, 2019. The current flows over the transmission line at the time of the magnetic fields were measured, as recorded by the CONVEX SCADA system[2], are listed in Table 1. The table identifies only the current on the overhead transmission lines, which are the

[1] Institute for Electrical and Electronics Engineers (IEEE) is a professional organization supporting many branches of engineering, computer science, and information technology. In addition to publishing journals, magazines, and conference proceedings, IEEE also makes many standards for a wide variety of industries.
[2] The Connecticut Valley Electric Exchange Supervisory Control And Data Acquisition.system.

dominant source of electric and magnetic fields. However, other nearby distribution facilities, terrain, and vegetation affected electric field measurements.

Recorded Line Currents				
		June 18, 2018	October 05, 2018	Average Annual Load
Lexington Meadows	1268 Line	117	228	188
	321 Line	208	68	778
	1887 Line (New)	19	320	82
Hearthstone Drive	1268 Line	186	231	188
	321 Line	235	86	778
	1887 Line (New)	125	328	82

Table 1- Recorded Transmission Line Currents (Amperes per phase)

Recordings of spot measurement electric and magnetic fields can be found in Table A1 (See Attachment A). Graphs of the measured electric and magnetic fields can be found in Figures B1 through B4 (See Attachment B). Figures B1 through B4 also include a graph of calculated field values for Hearthstone Drive. These locations were selected as the "true-up" locations, so the calculated values reflect not only the recorded line currents at the time of the measurements but also actual conductor heights at the measurement location. The recorded line currents on January 4, 2019 and March 8, 2019 were both higher than the currents used for the Annual Average Load case modeling in the Docket 468 record for the new line, and the conductor heights at each location were lower for the new line, and higher than the existing line, as compared to those assumed for the modeling in the Docket 468 record.

If any Council or staff member has any questions about this report, please contact me at (860) 728-4527.

Sincerely,

Kathleen M. Shanley

Attachment A: Table of Spot Field Measurements
Attachment B: Graphs of Line Segment Field Measurements
Attachment C: Aerial Photographs Depicting EMF Measurement Locations

cc. Docket No. 468 Service List

Attachment A – Table of Spot Field Measurements

Calculated and Measured Electric and Magnetic Fields at Lexington Meadows		
	Electric Field (kV/m)	Magnetic Field (mG)
January 4, 2019	0.010	2.9
March 8, 2019	0.016	4.0

Table A1

Attachment B – Graphs of Line Segment Field Measurements

Figure B1

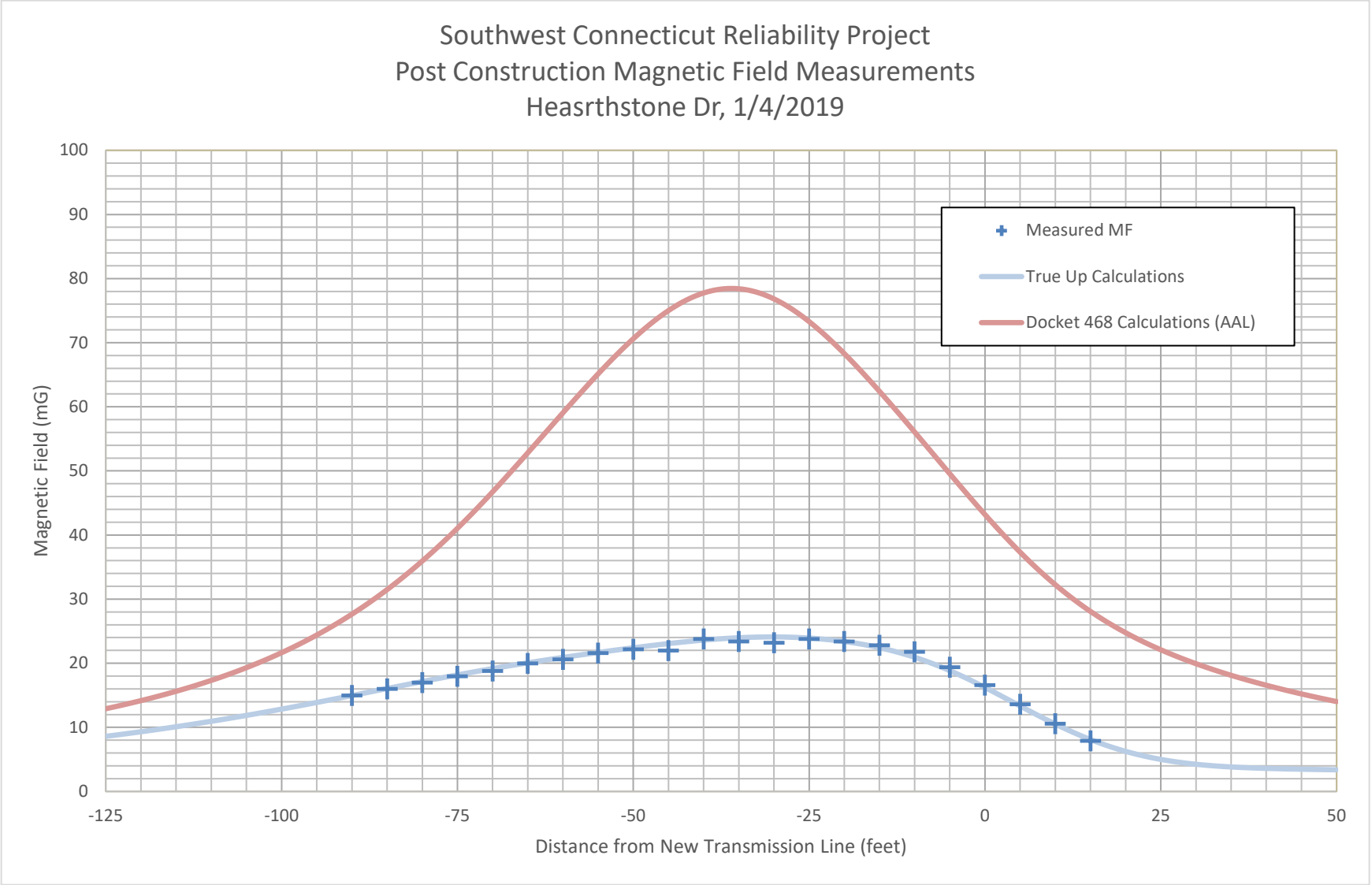

Southwest Connecticut Reliability Project
Post Construction Magnetic Field Measurements
Heasrthstone Dr, 1/4/2019
Magnetic Field (mG)
100
90
80
70
60
50
40
30
20
10
0
-125
-100
-75
-50
-25
0
25
50
Distance from New Transmission Line (feet)
Measured MF
True Up Calculations
Docket 468 Calculations (AAL)

Figure B2

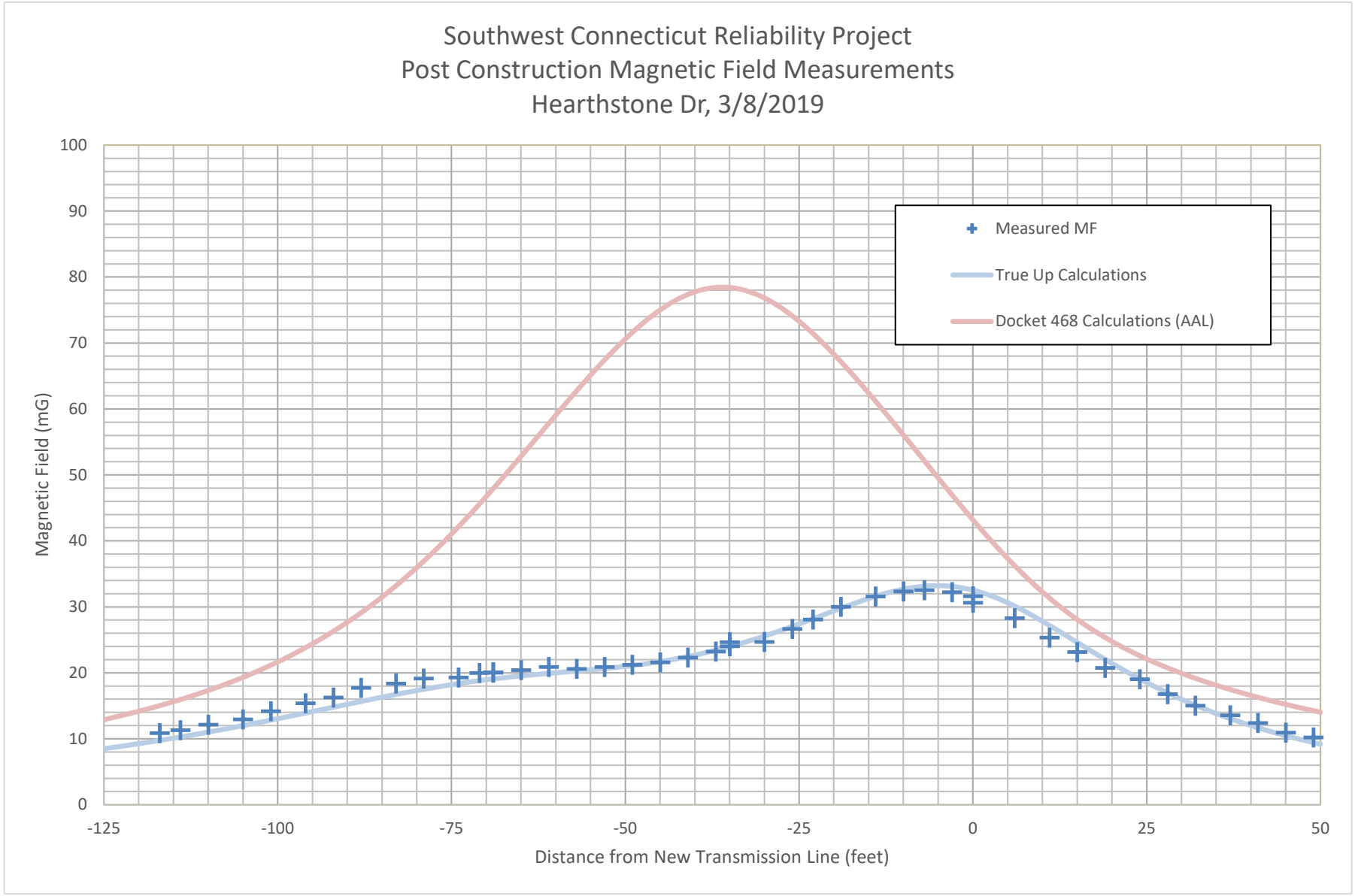

Southwest Connecticut Reliability Project
Post Construction Magnetic Field Measurements
Hearthstone Dr, 3/8/2019
Magnetic Field (mG)
100
90
80
70
60
50
40
30
20
10
0
-125
-100
-75
-50
-25
0
25
50
Distance from New Transmission Line (feet)
Measured MF
True Up Calculations
Docket 468 Calculations (AAL)

Figure B3

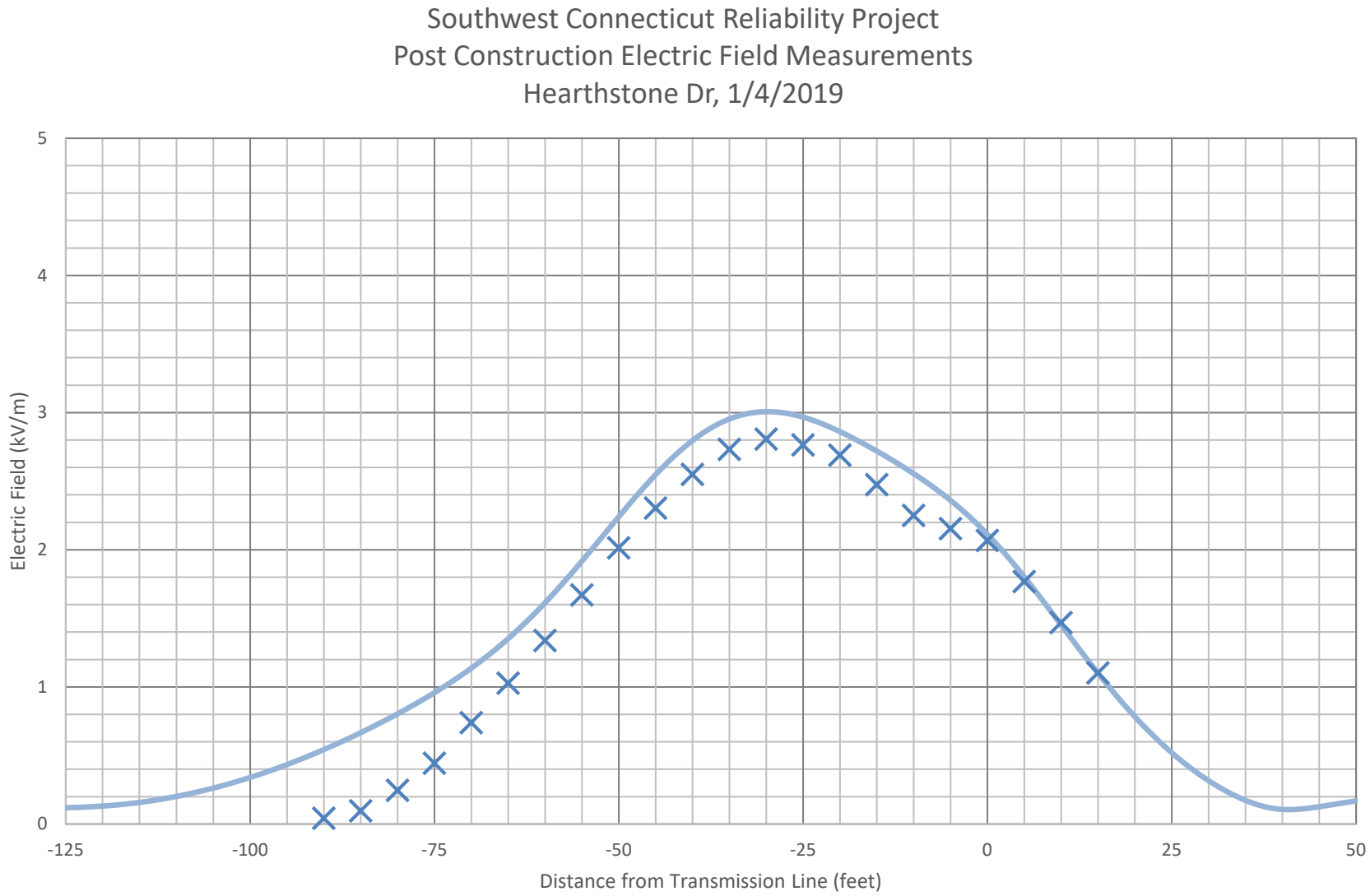
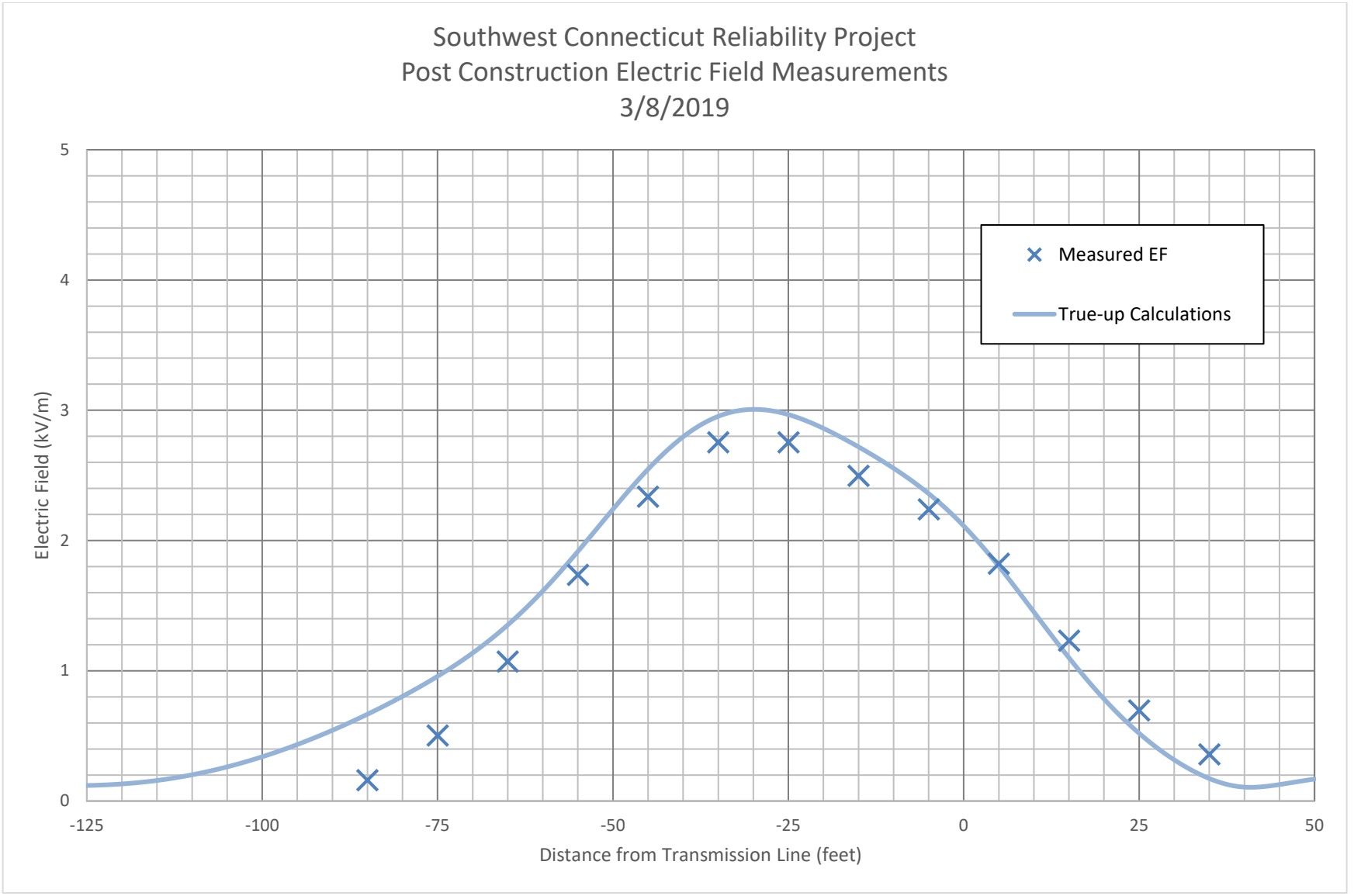
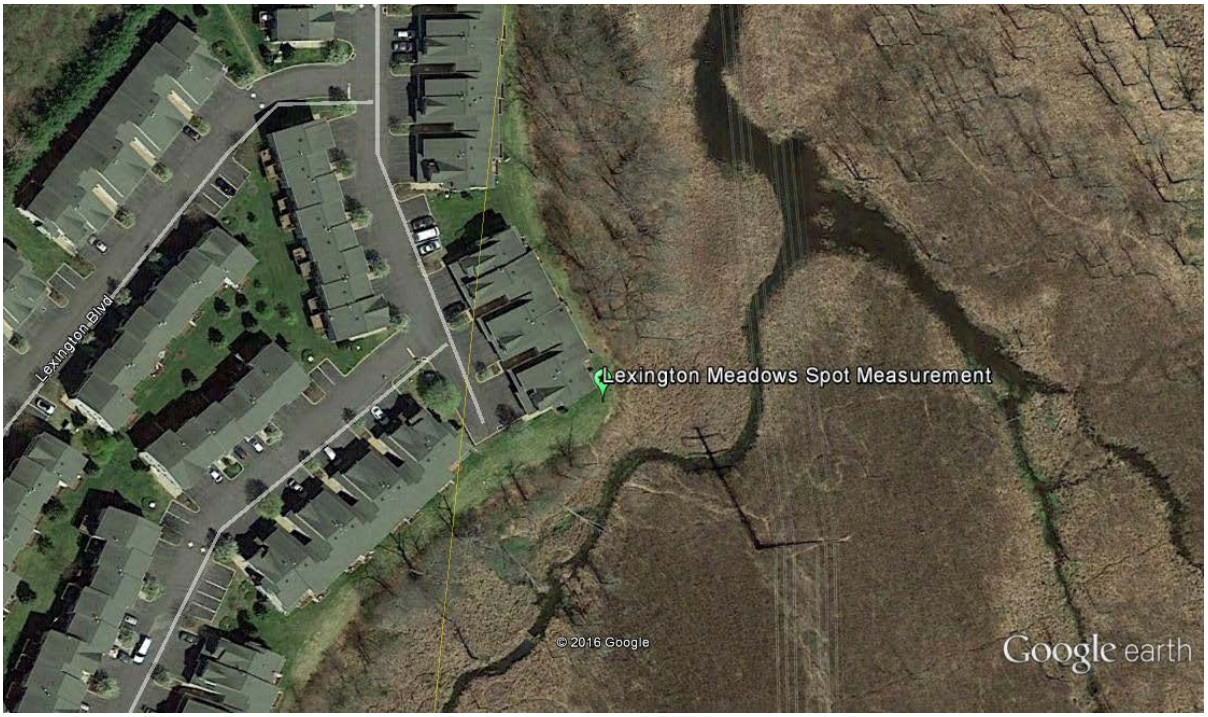

Southwest Connecticut Reliability Project
Post Construction Electric Field Measurements
Hearthstone Dr, 1/4/2019
Electric Field (kV/m)
0
1
2
3
4
5
-125
-100
-75
-50
-25
0
25
50
Distance from Transmission Line (feet)

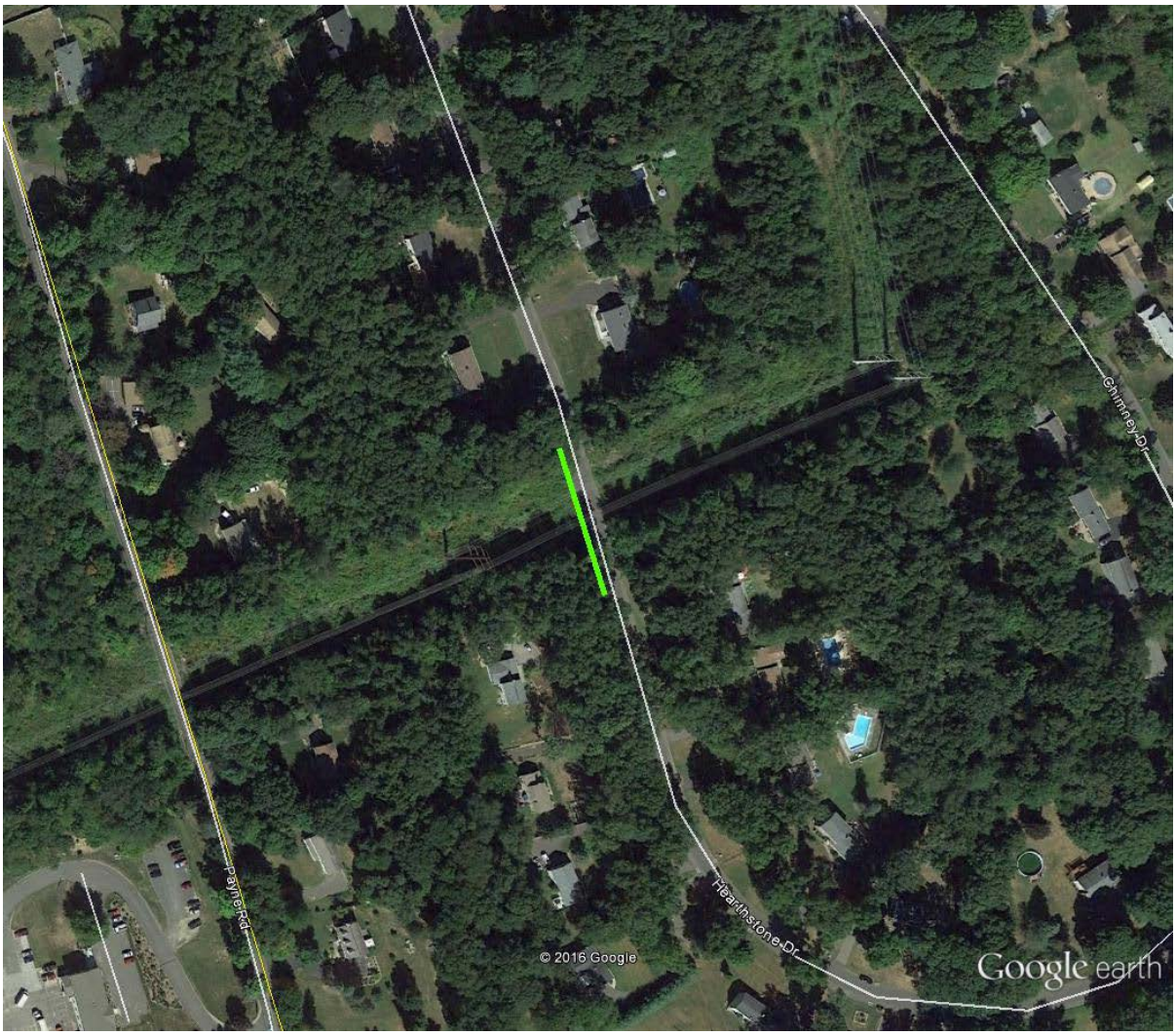
Figure B4


Southwest Connecticut Reliability Project
Post Construction Electric Field Measurements
3/8/2019
Electric Field (kV/m)
0
1
2
3
4
5
-125
-100
-75
-50
-25
0
25
50
Distance from Transmission Line (feet)
Measured EF
True-up Calculations

Attachment C – Aerial Photographs Depicting EMF Measurement Locations



E&MF Spot Measurement Location at Lexington Meadows, City of Danbury



E&MF Line Segment Measurement Location at Hearthstone Sr, Town of Bethel