

December 20, 2018

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

RE: Docket 466
Post-construction EMF Monitoring Report
Frost Bridge to Campville Project

Dear Ms. Bachman:

In accordance with condition 2(q) in the April 14, 2016 Decision and Order issued by the Connecticut Siting Council (“Council”) in Docket 466, The Connecticut Light and Power Company doing business as Eversource Energy (“Eversource”) submitted a Post-construction EMF Monitoring Plan (“Plan”) in Volume I - Appendix B of the Development and Management Plan on July 27, 2016, which the Council approved on September 15, 2016.

Per Section VI of the Plan, Eversource is providing to the Council this report on the post-construction electric and magnetic field (“EMF”) measurements within 12 months of the in-service date of the Frost Bridge to Campville Project facilities.

The Frost Bridge to Campville Project 115-kV line (the 1854 Line) entered service on December 16, 2017. Post-construction field measurements were performed in June 2018 by Mr. Christopher Soderman and Mr. Nicholas Forzono, Engineering Manager and Engineer at Eversource, respectively. Post-construction field measurements were also performed in October 2018 by Mr. Nicholas Forzono and Ms. Taylor Gray, Associate Engineer at Eversource. Consistent with the approved Plan, all measurements of electric and magnetic fields were taken in accordance with IEEE¹ 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. Veteran’s Memorial Park, Town of Watertown (Spot Measurement)
2. Walnut Hill Road, Town of Thomaston (Line Segment Measurement)
3. Campville Road, Town of Litchfield (Line Segment Measurement)

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 develops many standards for a wide variety of industries.

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

Electric and/or magnetic fields were measured at each location on June 18, 2018 and October 5, 2018. The current flows over the transmission line when magnetic fields were measured at each line segment measurement location, as recorded by the CONVEX SCADA system², are listed in Table 1 for June 18, 2017 and October 5, 2018. The table identifies only the current on the overhead transmission lines, which are the dominant source of electric and magnetic fields. However, other nearby distribution facilities, terrain, and vegetation affected the measurements.

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

		Recorded Line Currents		
		June 18, 2018	October 05, 2018	Avg Annual Load
Walnut Hill Road	1191 Line	195	380	144
	1854 Line	192	369	134
Campville Road	1191 Line	219	385	144
	1854 Line	216	375	134
	1921 Line	30	119	26

The spot measurement electric and magnetic fields are in Table A1 (See Attachment A). Graphs of the measured electric and magnetic fields can be found in Figures B1 through B6 (See Attachment B). Figures B1 through B6 also include graphs of calculated field values for locations 2 and 3. 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 June 18, 2018 and October 5, 2018 were both higher than the currents used for the Annual Average Load case modeling in the Docket 466 record, and the conductor heights at each location were higher as compared to those assumed for the modeling in the Docket 466 record.

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

Sincerely,

Kathleen M. Shanley
 Manager – Transmission Siting

- 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 466 Service List

² The Connecticut Valley Electric Exchange Supervisory Control and Data Acquisition System

Attachment A – Table of Spot Field Measurements

Table A1

Calculated and Measured Electric and Magnetic Fields at Veteran's Memorial Park		
	Electric Field (kV/m)	Magnetic Field (mG)
June 18, 2018	0.000	0.7
October 05, 2018	0.000	1.0

Attachment B – Graphs of Line Segment Field Measurements

Figure B1

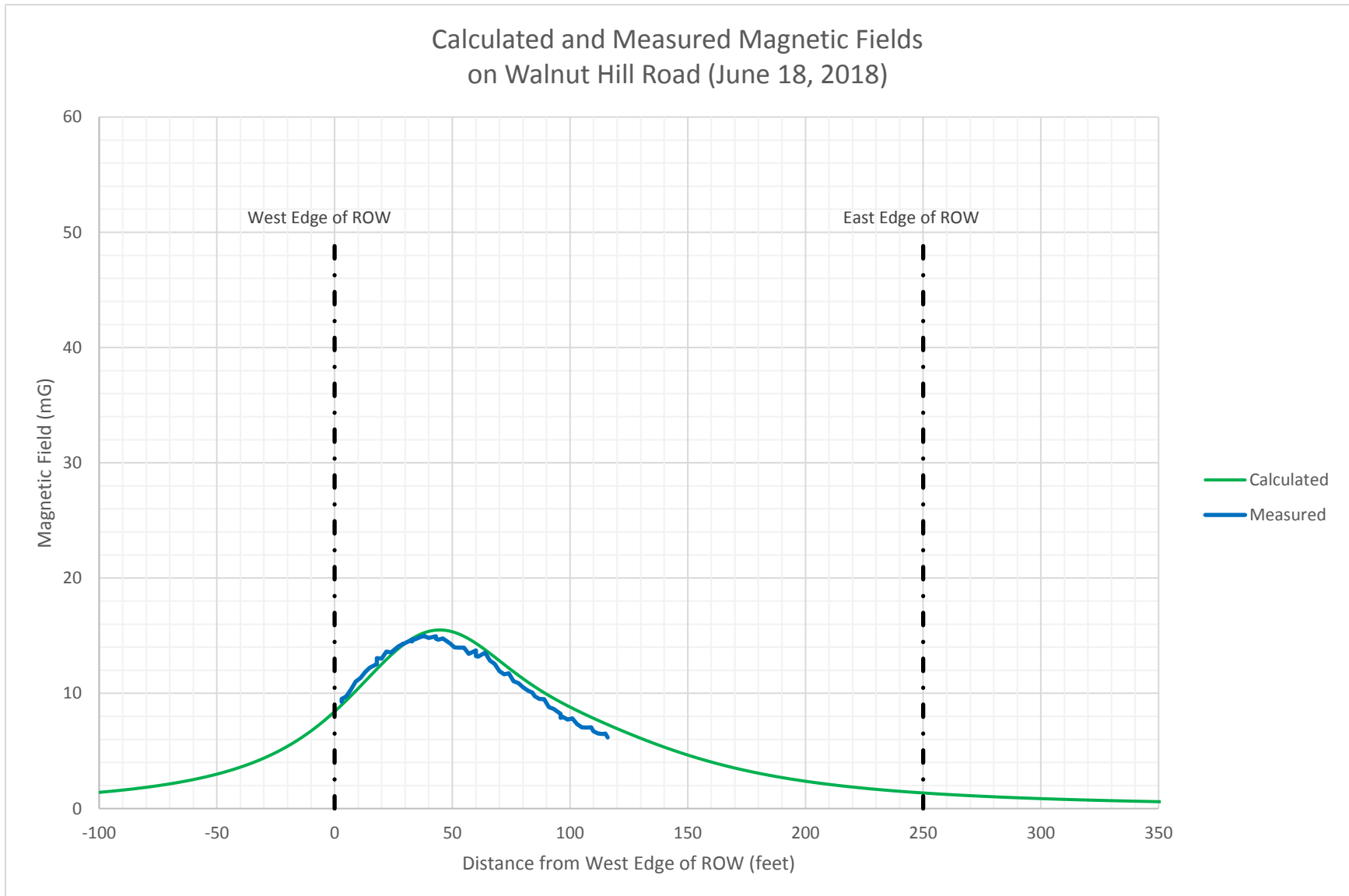


Figure B2

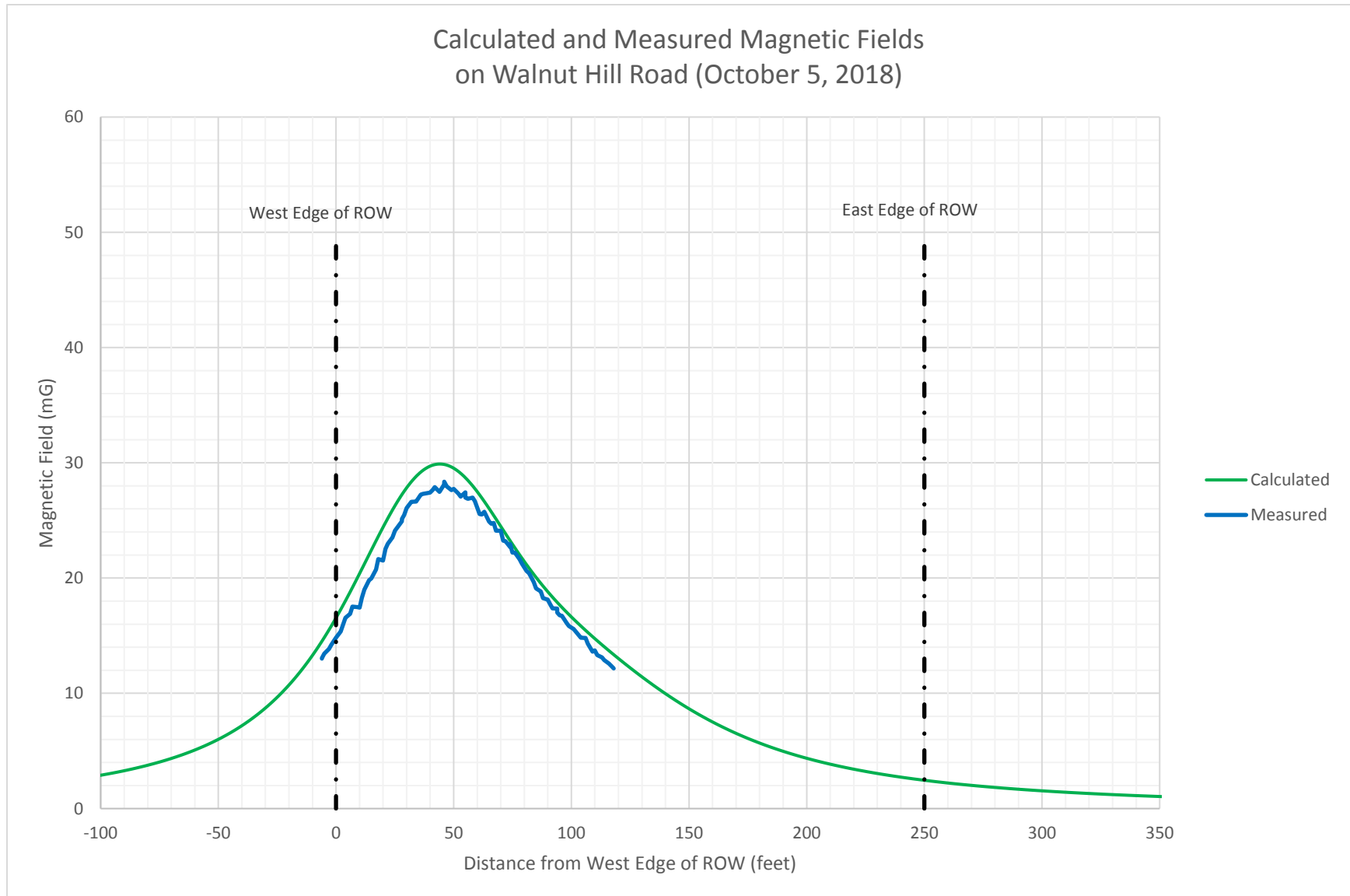


Figure B3

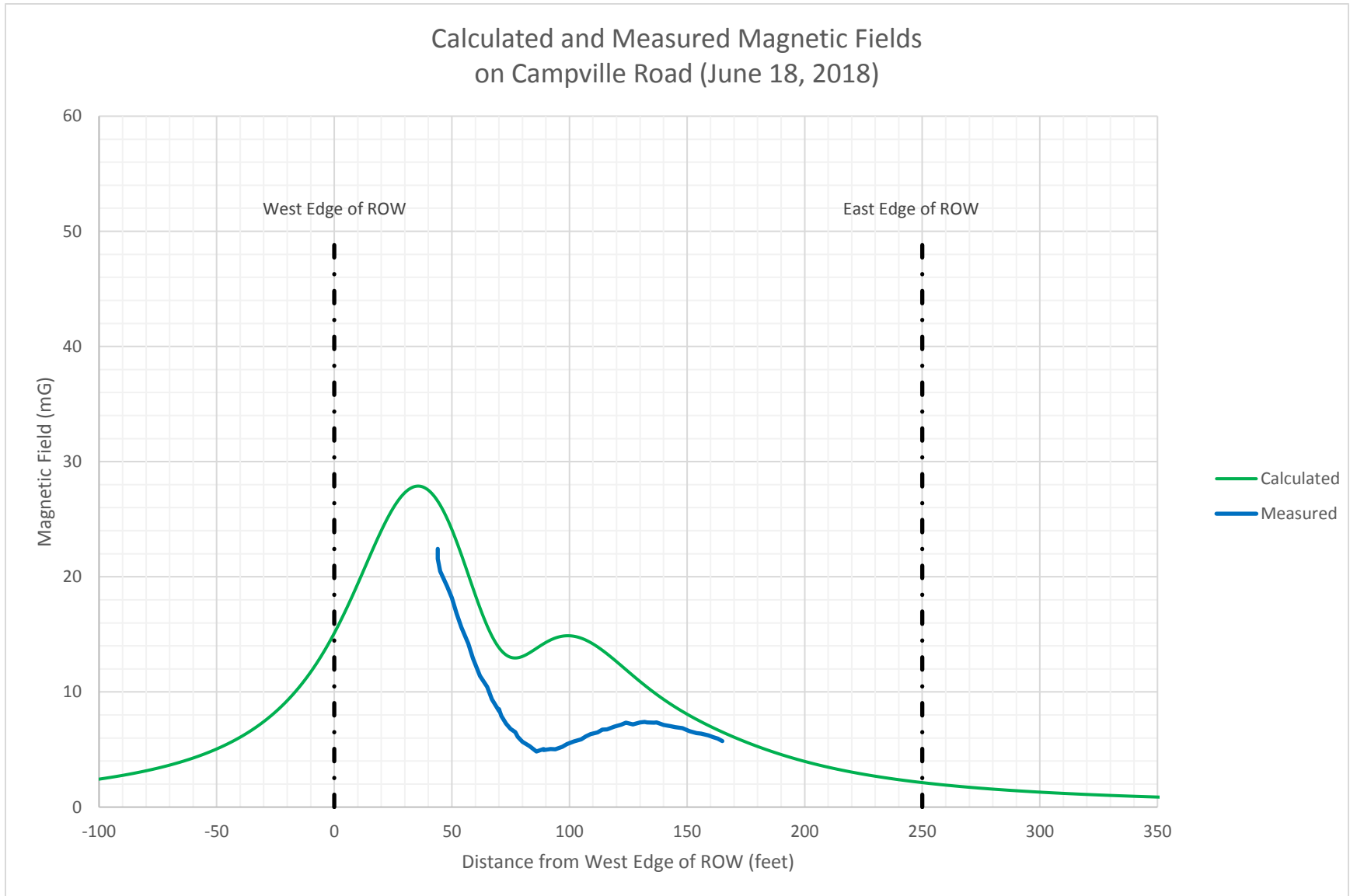


Figure B4

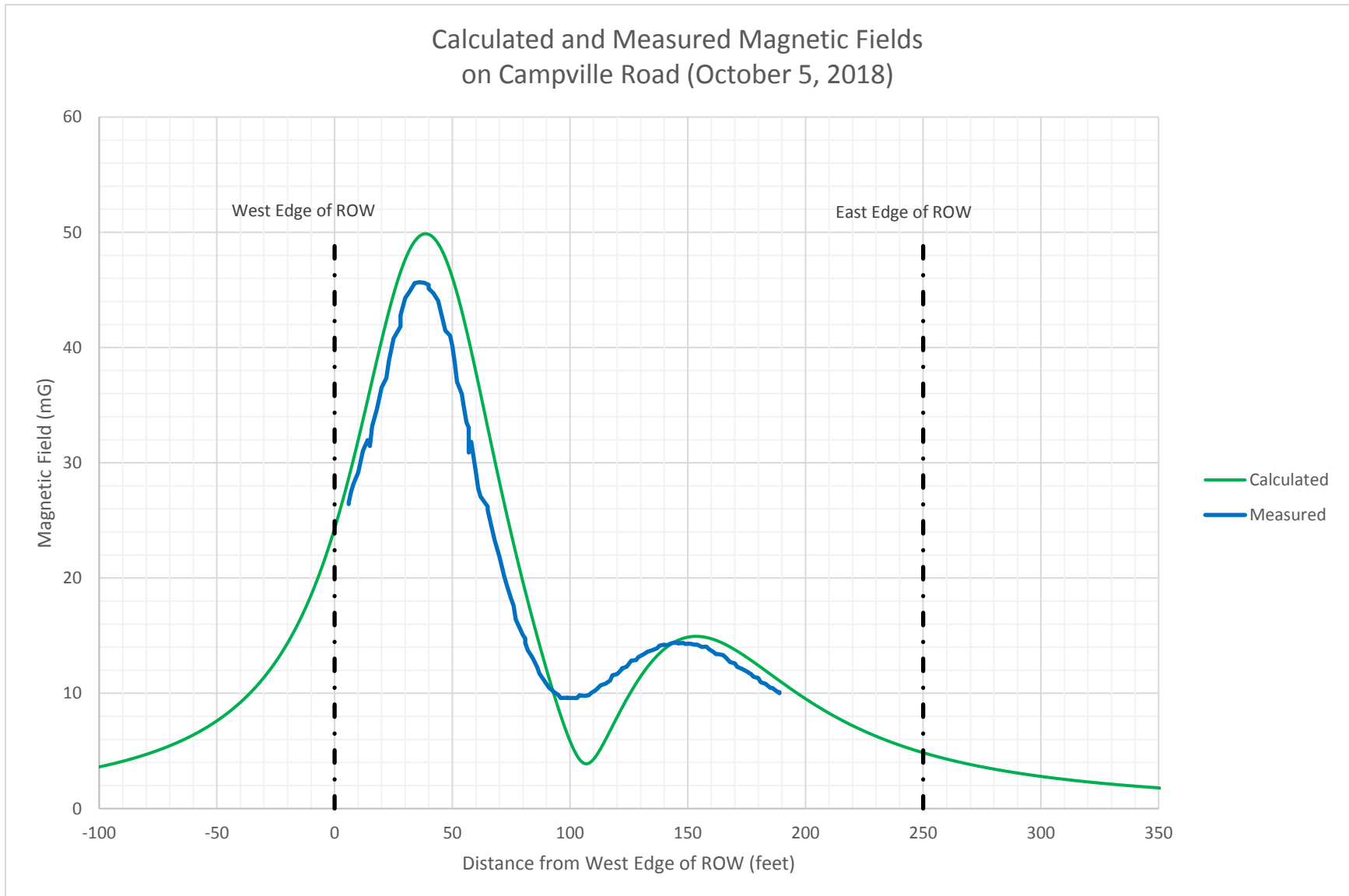


Figure B5

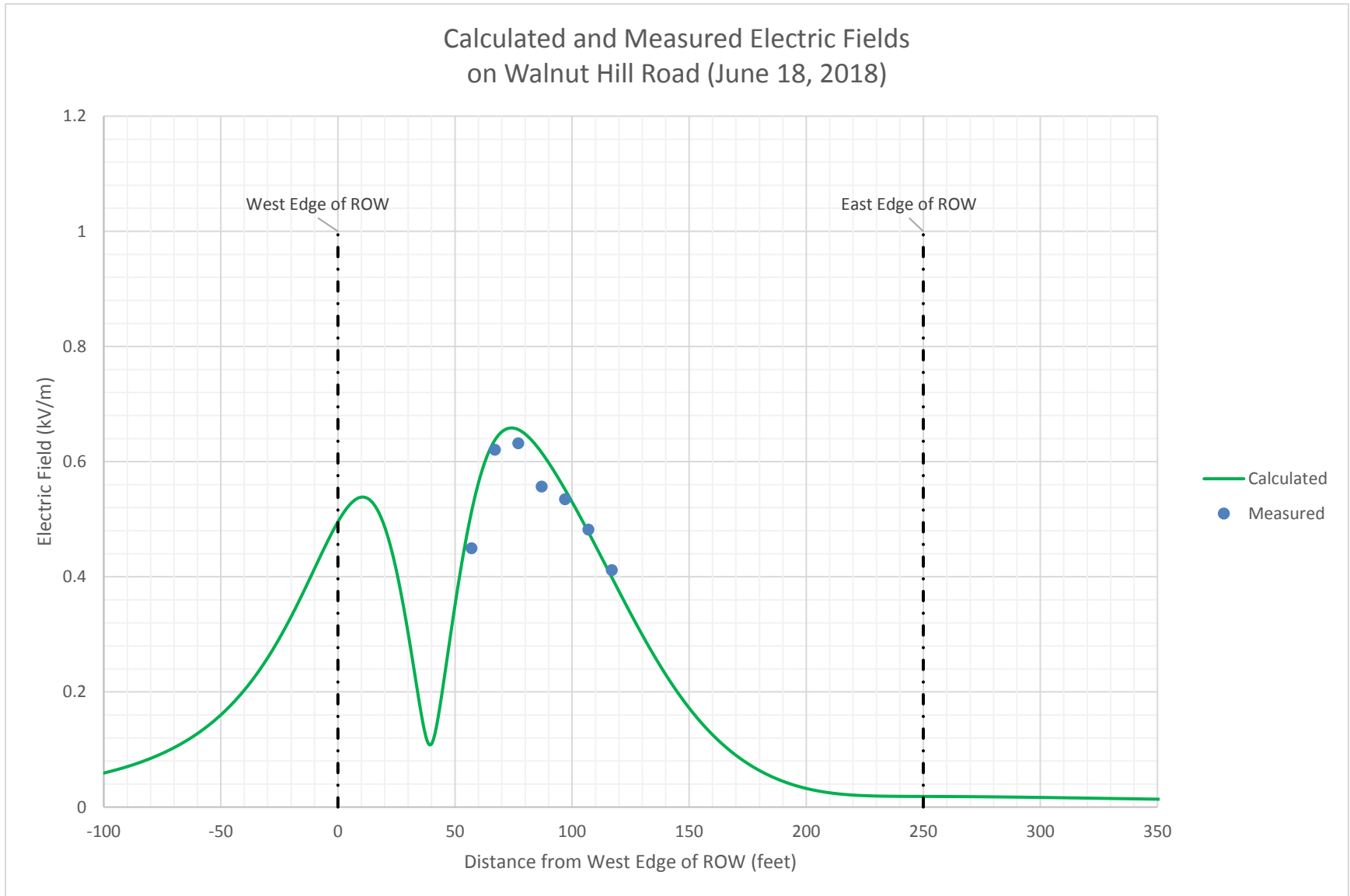
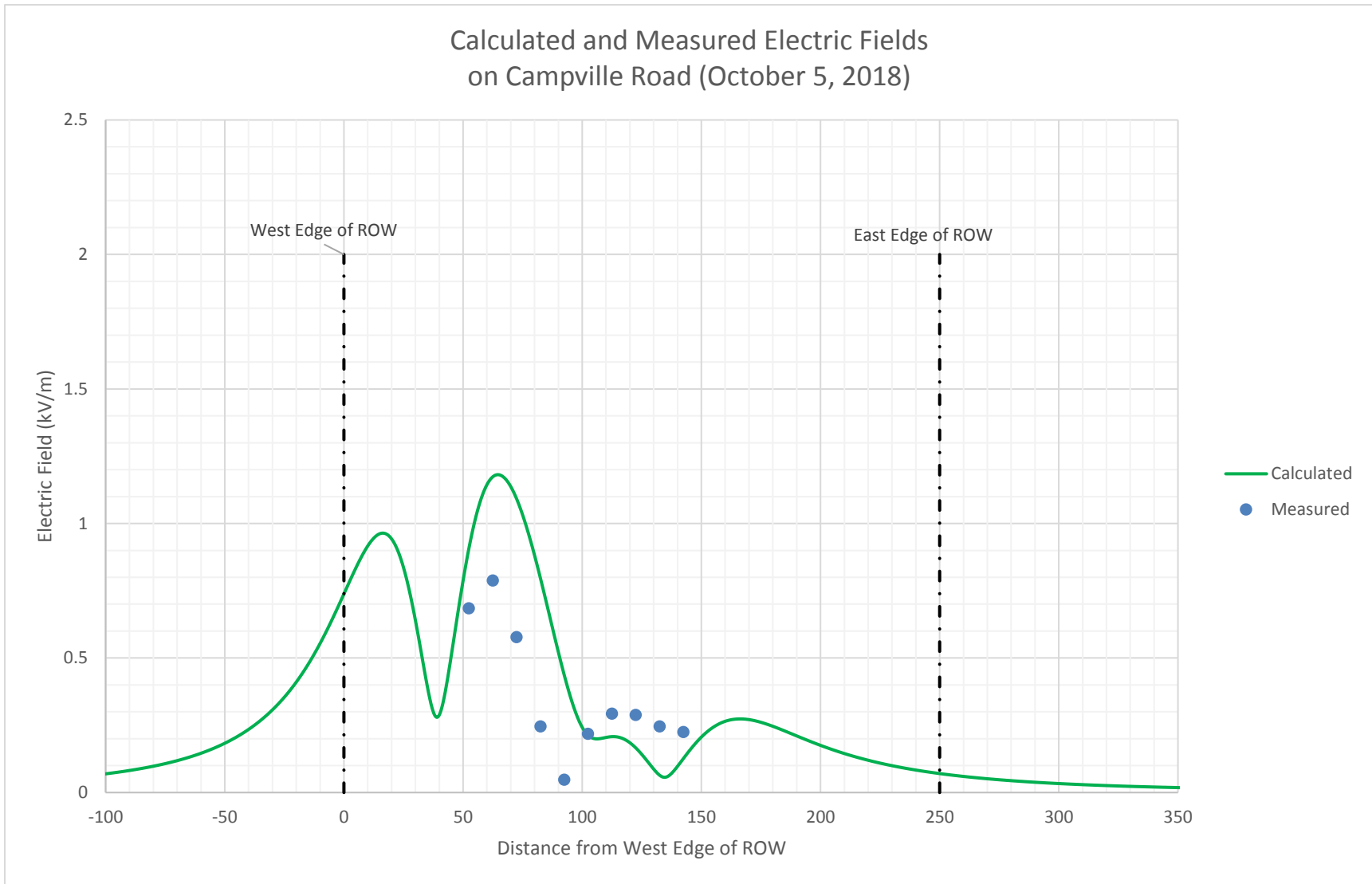


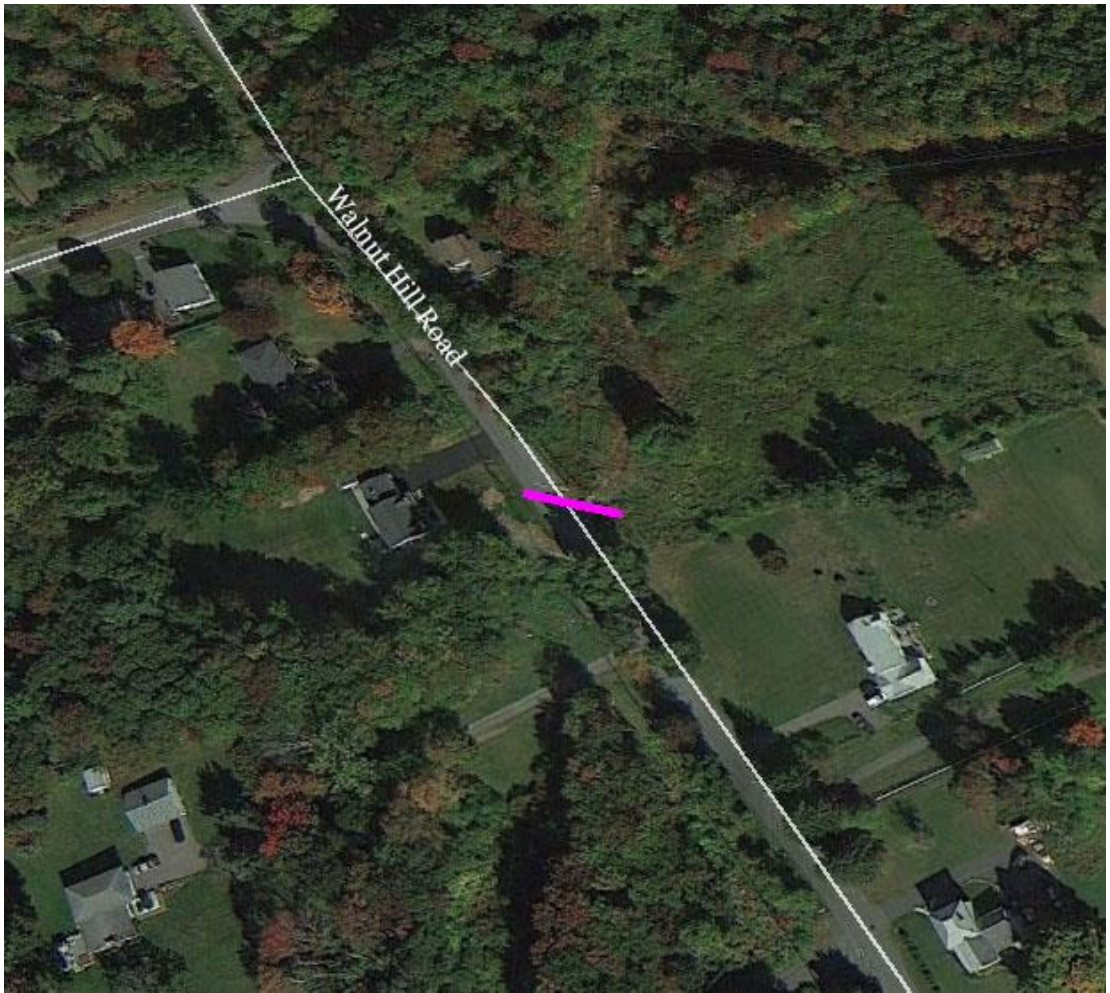
Figure B6



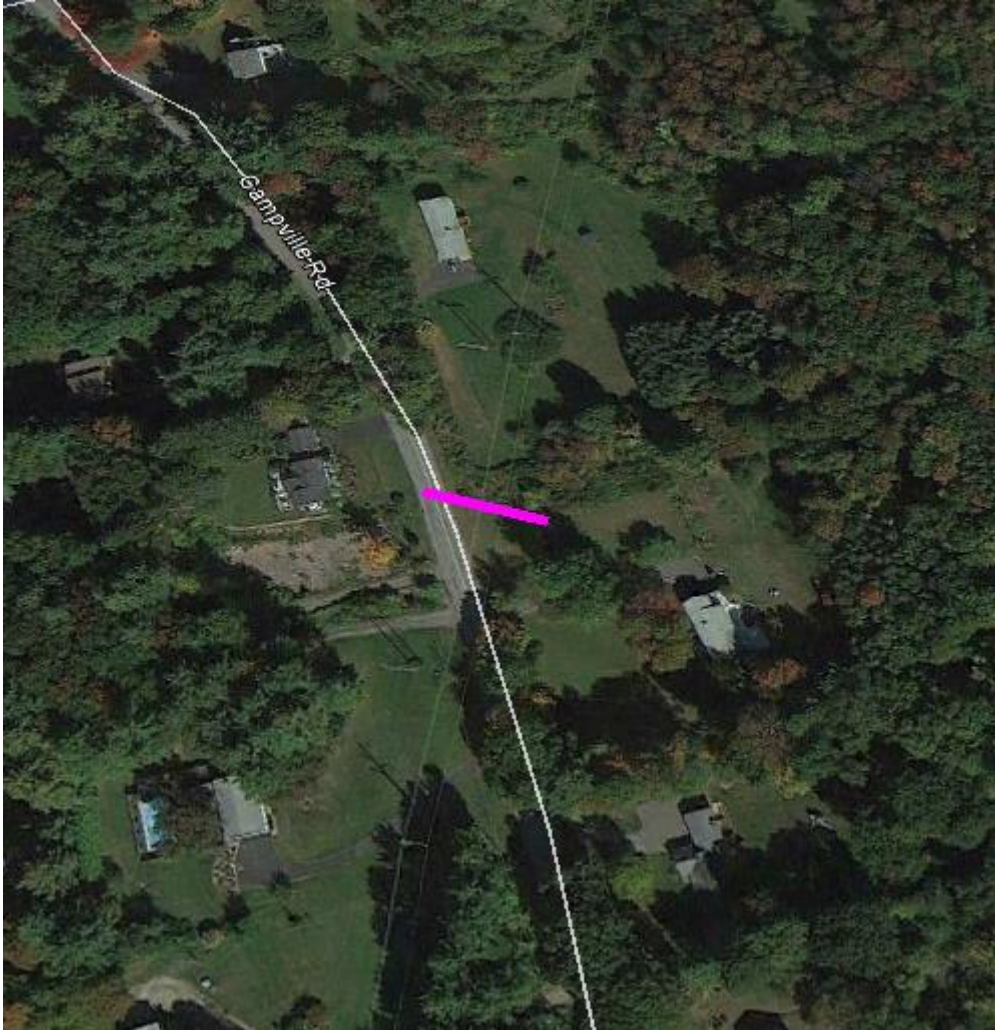
Attachment C – Aerial Photographs Depicting EMF Measurement Locations



E&MF Spot Measurement Location at Veteran's Memorial Park, Town of Watertown



E&MF Line Segment Measurement Location at Walnut Hill Road, Town of Thomaston



E&MF Line Segment Measurement Location at Campville Road, Town of Litchfield