

September 17, 2021

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

**RE: Docket No. 474 Southwest Connecticut Reliability Project
Post-construction EMF Monitoring Report**

Dear Ms. Bachman:

In accordance with condition 2(s) in the February 1, 2018 Decision and Order of the Connecticut Siting Council (“Council”) in Docket No.474, The Connecticut Light and Power Company doing business as Eversource Energy (“Eversource”) submitted a Post-construction EMF Monitoring Plan (“Plan”) in Volume II - Appendix F of the Development and Management Plan on July 6, 2018, which the Council approved on August 31, 2018.

Per Section V 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 Greater Hartford-Central Connecticut Reliability Project (“GHCCRP”) facilities.

GHCCRP entered service September 19, 2020. Post-construction field measurements were performed on April 16, 2021 and again, on June 8, 2021. 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. Newington Substation (Substation perimeter measurement)
2. Avery Rd, Town of Newington (Line Segment Measurement)
3. Flatbush Ave Amtrak Crossing, City of Hartford (Line Segment Measurement)
4. Southwest Hartford Substation (Substation perimeter measurement)

At the substation perimeter measurement locations, measurements were taken along the fence line of the substation. 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.

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.

Electric and/or magnetic fields were measured at each location on April 16, 2021 and June 8, 2021. The current flows over the transmission line at the time of the magnetic fields were measured, as recorded by the CONVEX SCADA system², are listed in Table 1. 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.


Recorded Line Currents				
		June 18, 2018	October 05, 2018	Average Annual Load
Avery Rd	1887 Line (New)	100	300	387
Flatbush Ave	1887 Line (New)	70	279	387

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

Recordings magnetic fields along substation perimeters can be found in Table A1 (See Attachment A). Graphs of the measured electric and magnetic fields for the line segments can be found in Figures B1 through B5 (See Attachment B). Figures B1 through B5 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 April 16, 2021 and June 8, 2021 were both lower than the currents used for the Annual Average Load case modeling in the Docket 474 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 474 record.

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

Sincerely,



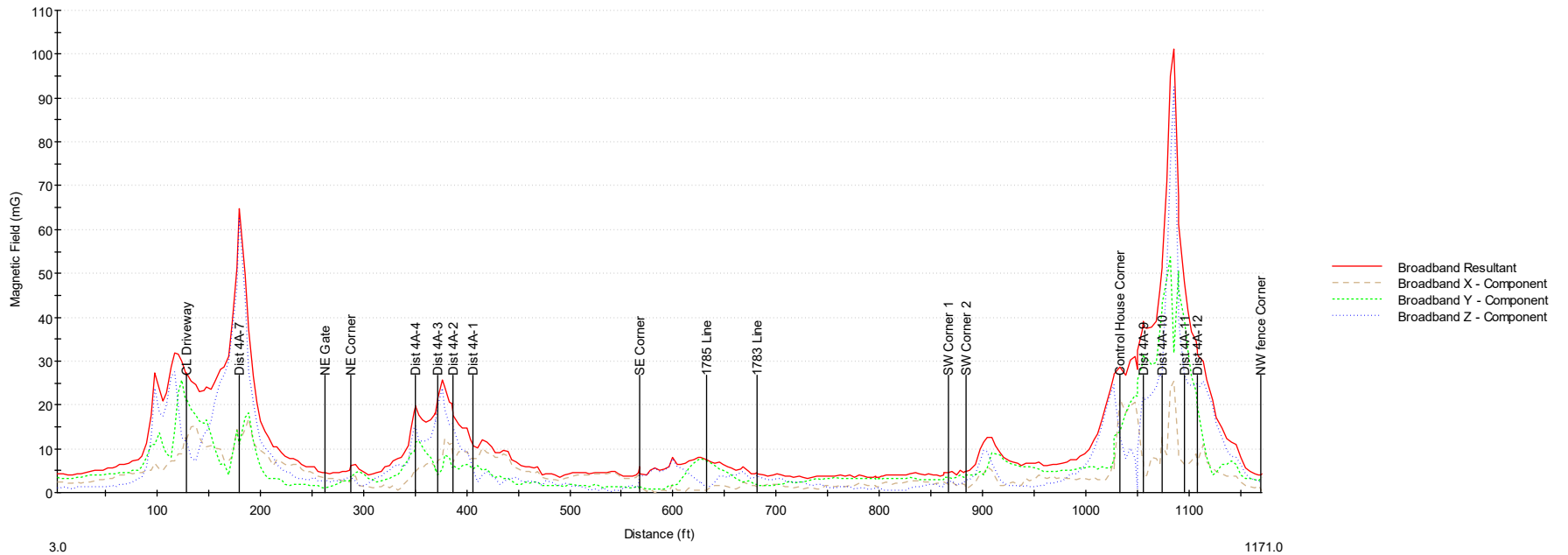
Kathleen M. Shanley

- Attachment A: Substation Perimeter Measurements Graphs
- Attachment B: Graphs of Line Segment Field Measurements
- Attachment C: Aerial Photographs Depicting EMF Measurement Locations

² The Connecticut Valley Electric Exchange Supervisory Control and Data Acquisition system.

Attachment A – Substation Perimeter Measurements

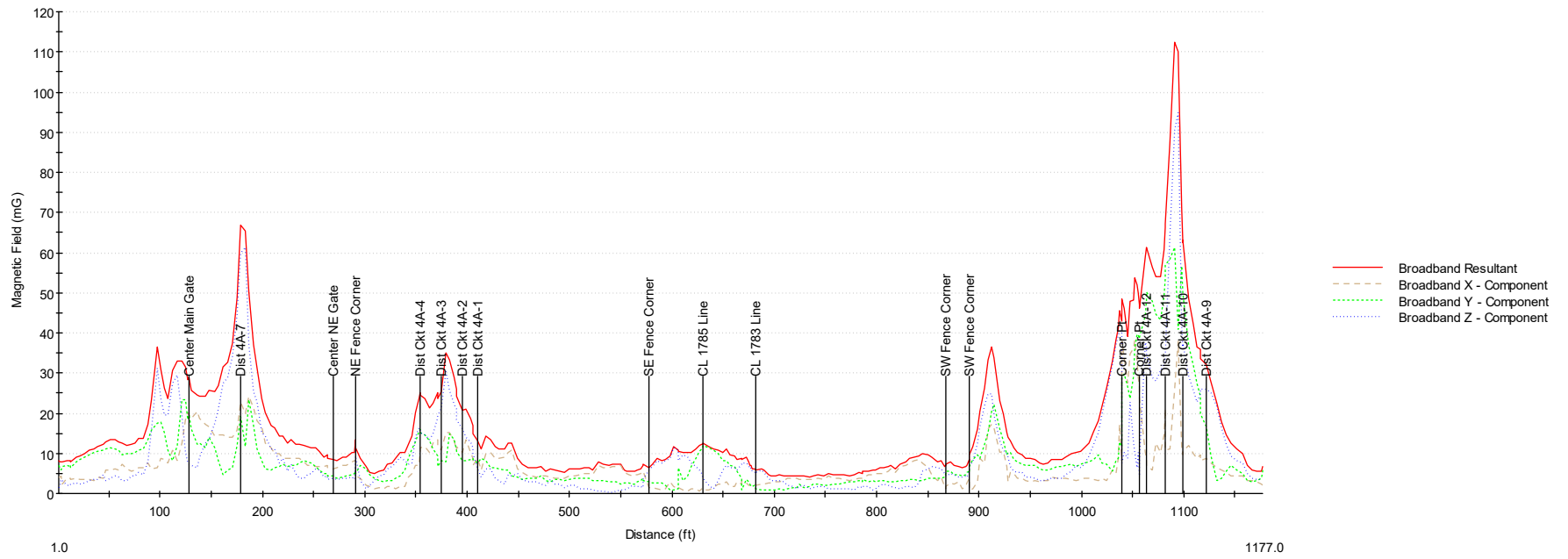
Figure A-1 – Substation Perimeter Measurement Newington Substation April 16, 2021.



3.0
Apr/16/2021
10:48:58 AM

C:\Users\soderpcp\OneDrive - Eversource Energy\EMCALC Files\GHCCRP\Post Construction\Newington 20210416.mbk

Figure A-2 – Substation Perimeter Measurement Newington Substation June 8, 2021.

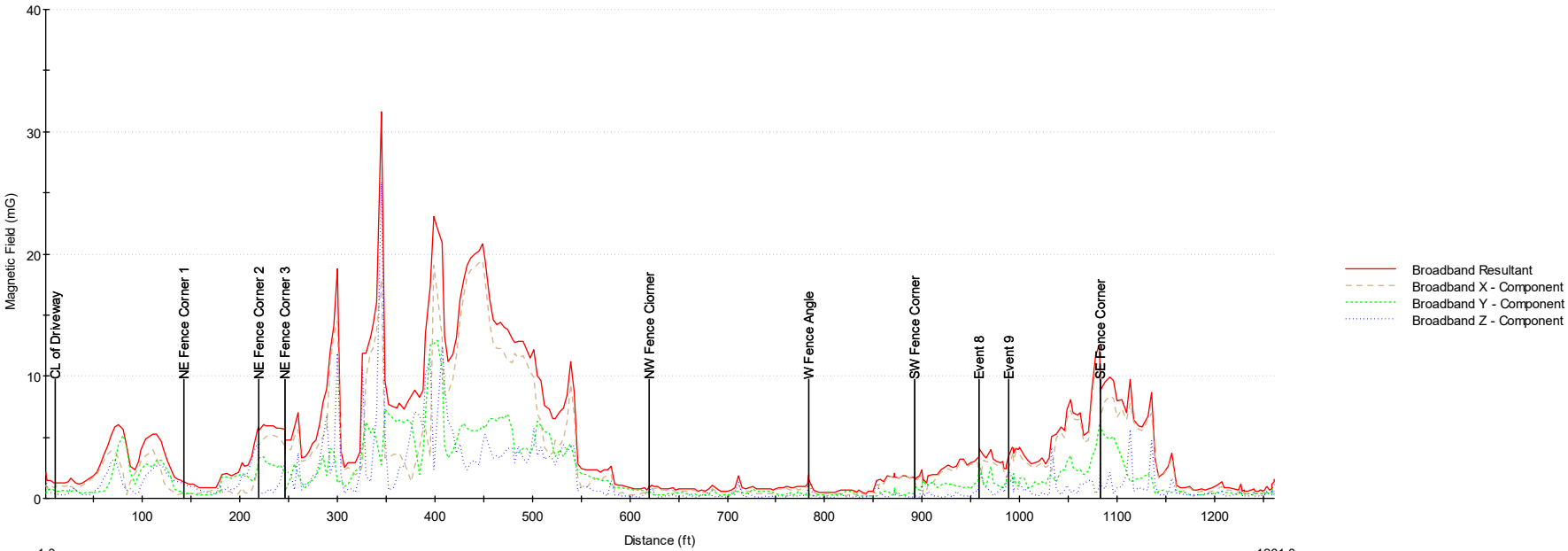


1.0
Jun/08/2021
08:54:31 AM

1177.0

C:\Users\sodercp\OneDrive - Eversource Energy\EMCALC Files\GHCCR\Post Construction\New ingtonSub 20210608.mbk

Figure A-3 – Substation Perimeter Measurement Southwest Hartford Substation April 16, 2021.

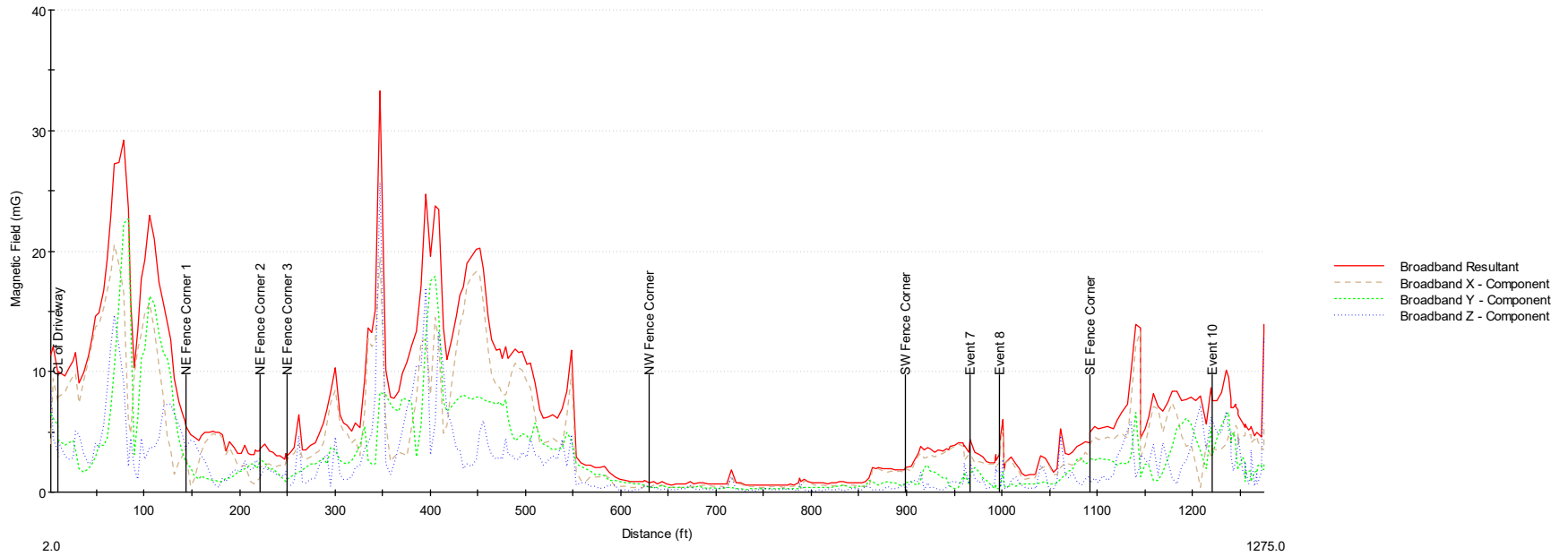


1.0
Apr/16/2021
10:11:33 AM

1261.0

C:\Users\sodercp\OneDrive - Eversource Energy\EMCALC Files\GHCCRP\Post Construction\SW Hartford 20210416.mbk

Figure A-3 – Substation Perimeter Measurement Southwest Hartford Substation April 16, 2021.



2.0
Jun/08/2021
10:58:26 AM

C:\Users\sodercp\OneDrive - Eversource Energy\EMCALC Files\GHCCRP\Post Construction\SW Hartford Sub 20210608.mbk

Attachment B – Graphs of Line Segment Field Measurements

Figure B-1

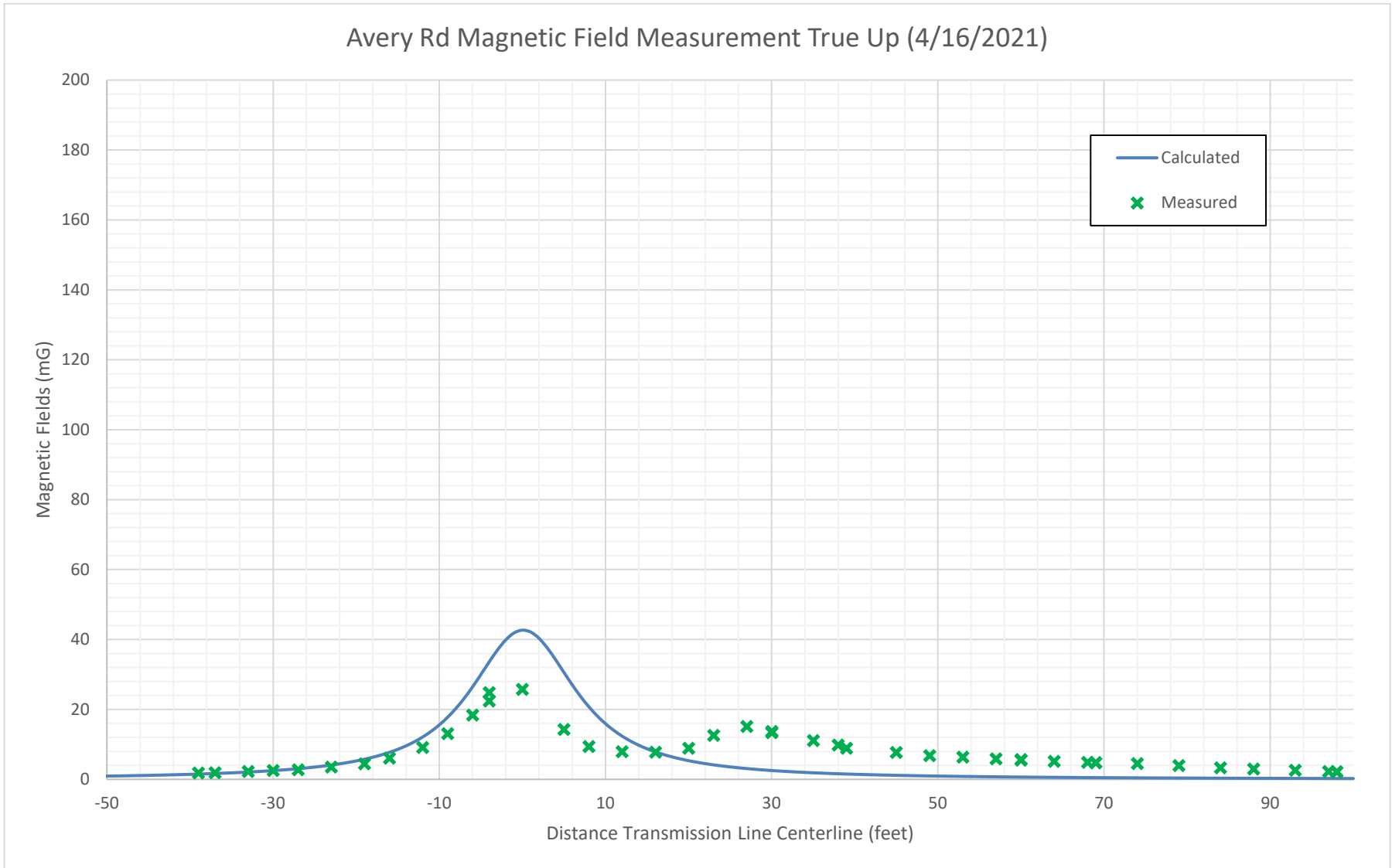


Figure B-2

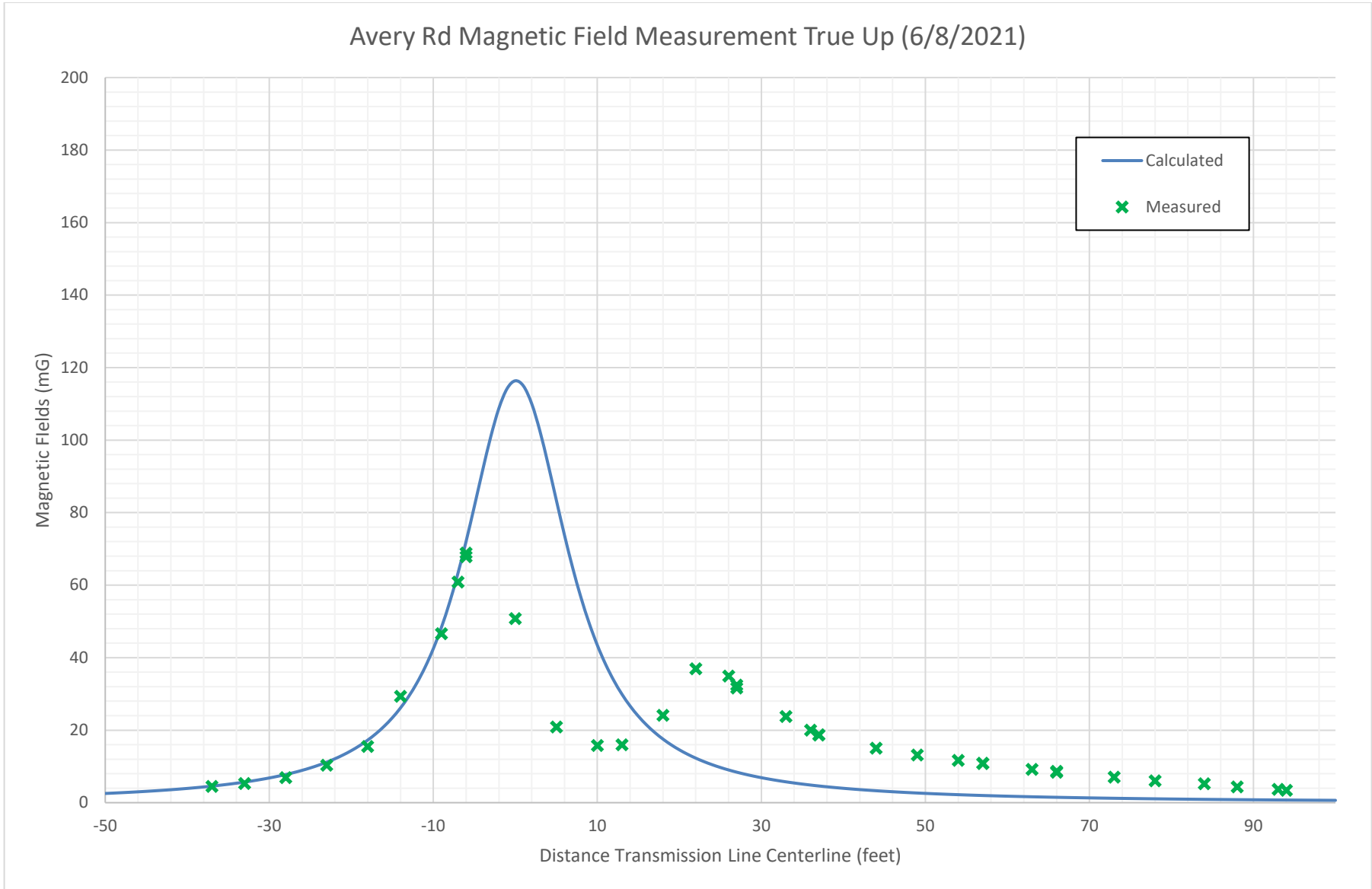


Figure B-3

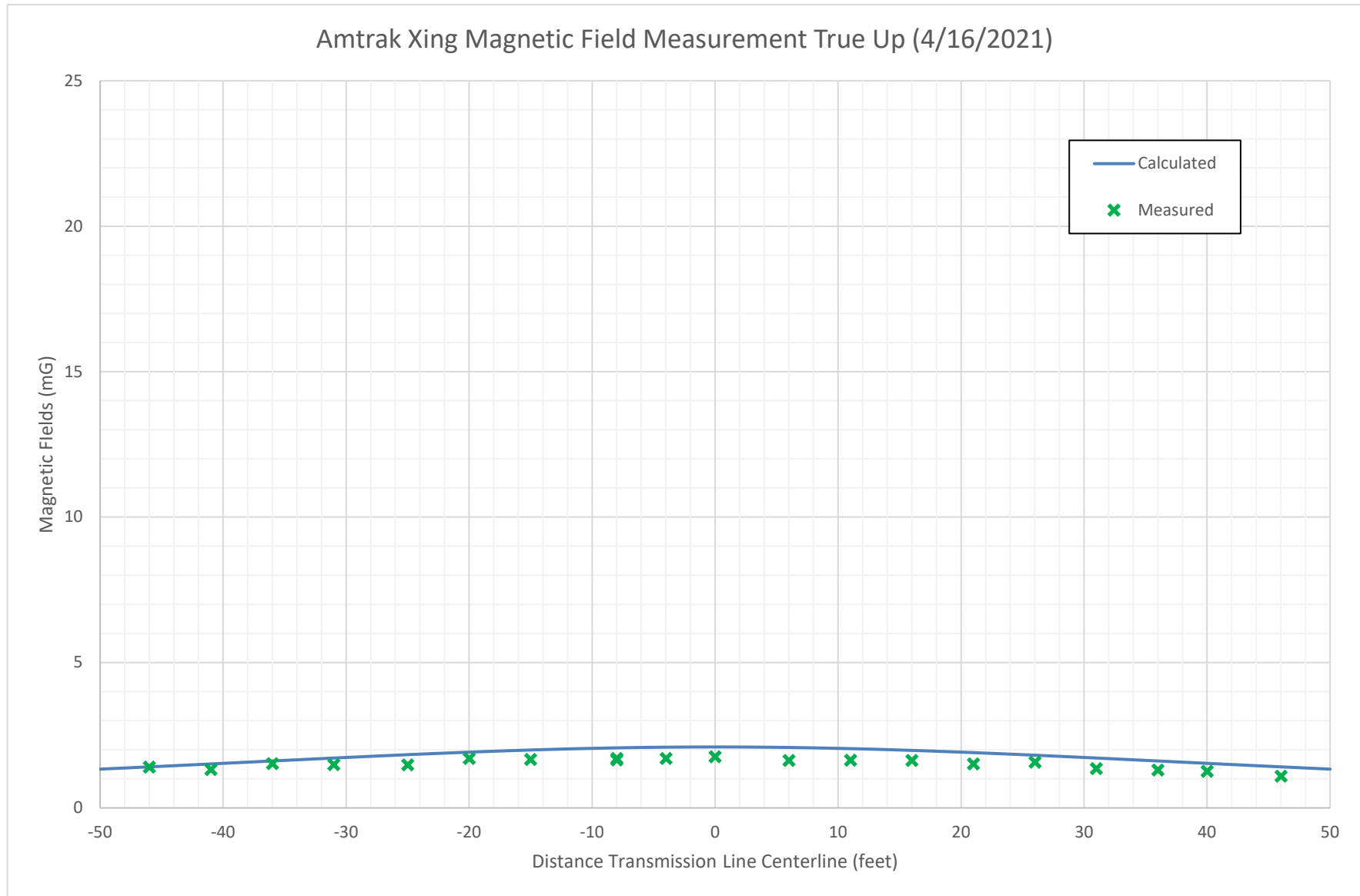


Figure B-4

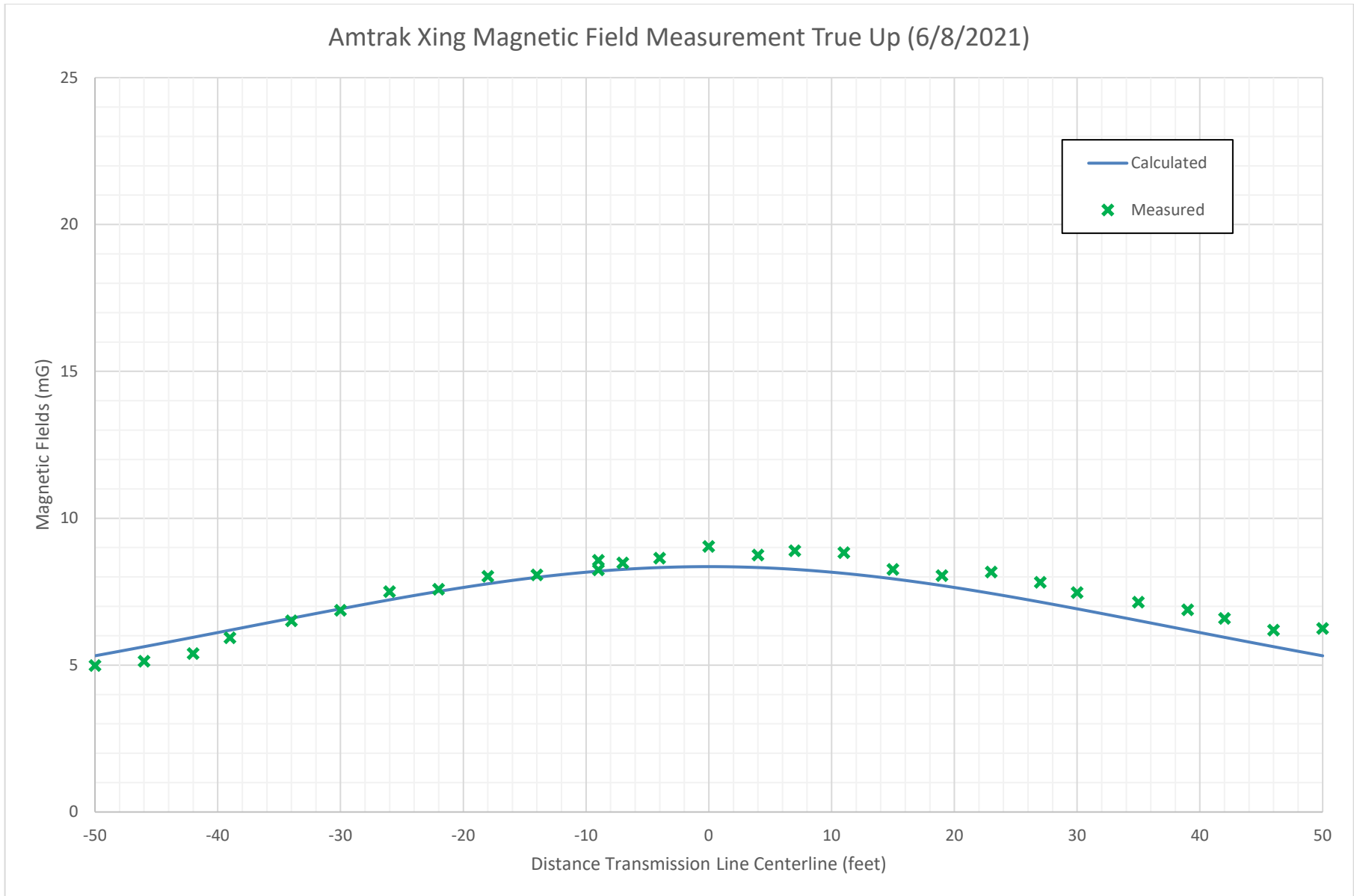
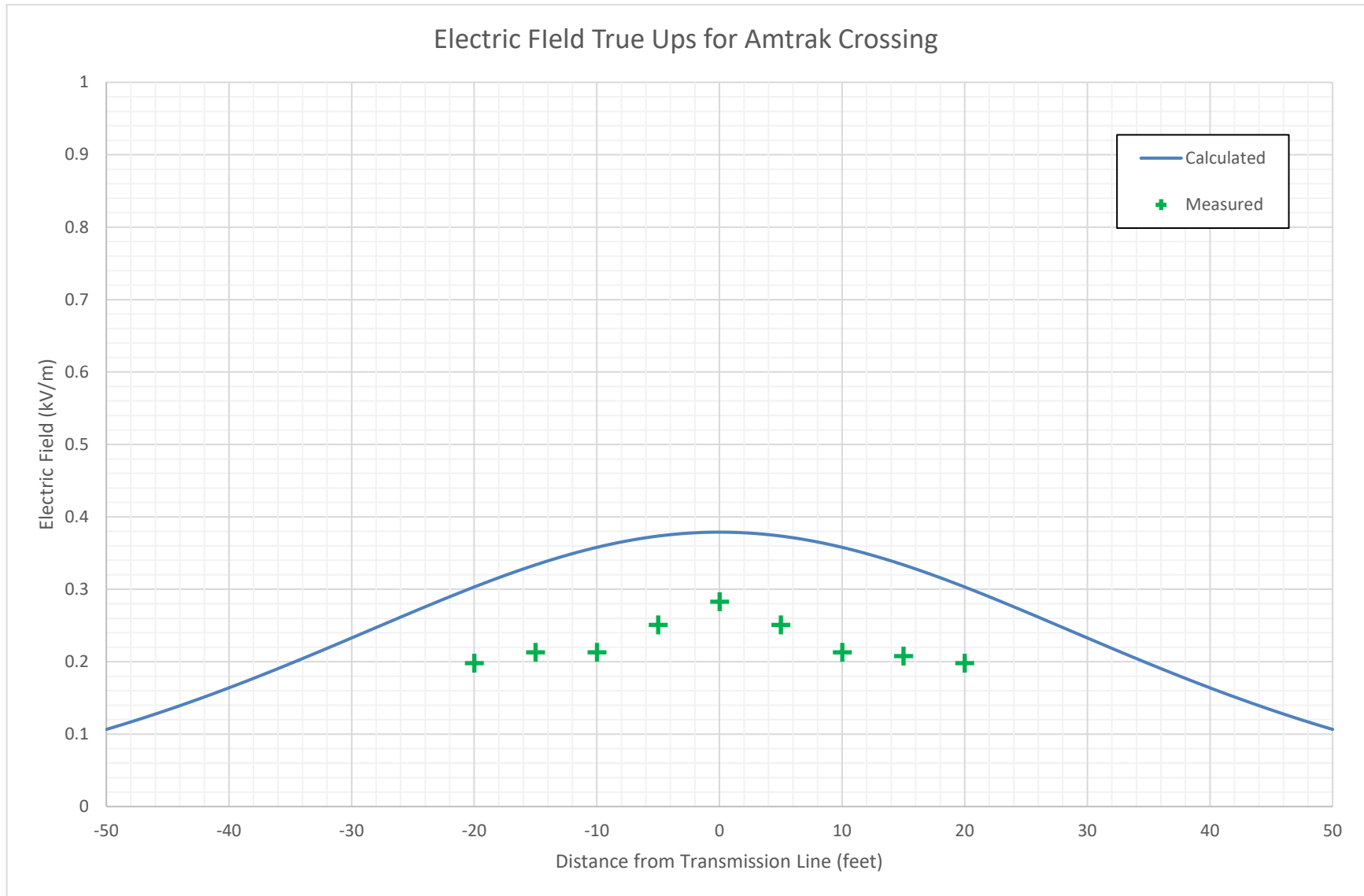


Figure B-5



Attachment C – Aerial Photographs Depicting EMF Measurement Locations



Figure C-1 – Measurement Path around Newington Substation

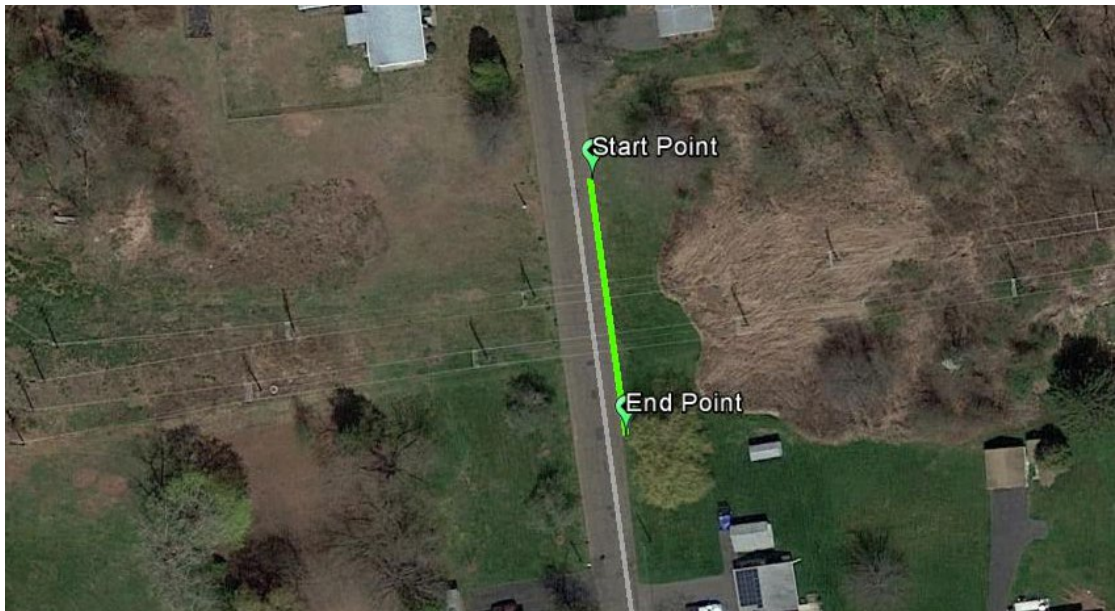


Figure C-2 – Measurement Path for Line Segment on Avery Road (Magnetic field only)



Figure C-3 – Measurement Path for Line Segment on Flatbush Avenue (Amtrak Crossing)



Figure C-4 – Measurement Path around Southwest Hartford Substation