MISSOURI DEPARTMENT OF AGRICULTURE
DIVISION OF WEIGHTS, MEASURES AND CONSUMER PROTECTION
LAND SURVEY PROGRAM

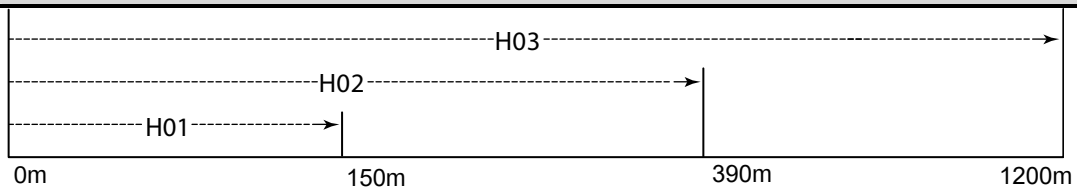
EDM CALIBRATION REPORT – SPRINGFIELD EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE, MODEL AND SERIAL NUMBER

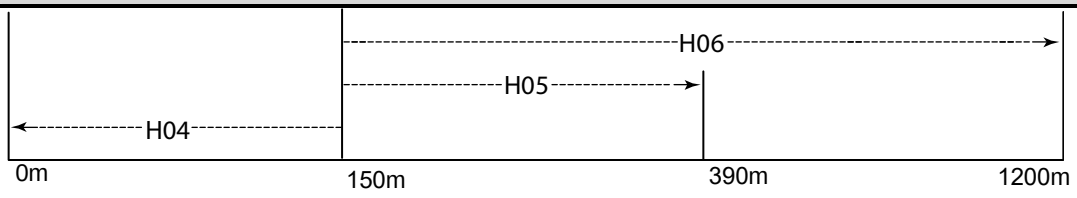
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m



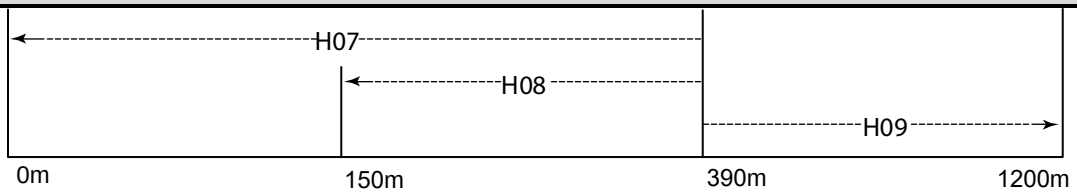
H01 =	H02 =	H03 =	TEMP
H01 = (150.0012m)	H02 = (390.0019m)	H03 = (1200.0048m)	❖ PRESS

E.D.M. AT 150m



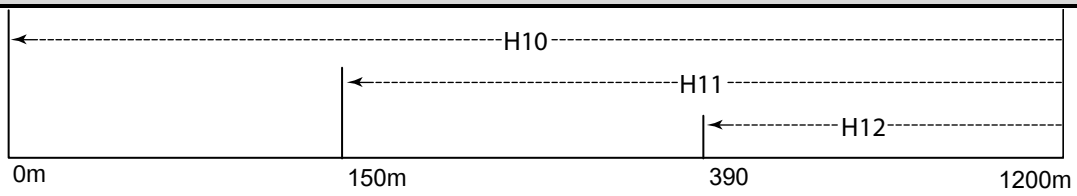
H04 =	H05 =	H06 =	TEMP
H04 = (150.0012m)	H05 = (240.0032m)	H06 = (1050.0058m)	❖ PRESS

E.D.M. AT 390m



H07 =	H08 =	H09 =	TEMP
H07 = (390.0019m)	H08 = (240.0032m)	H09 = (810.0042m)	❖ PRESS

E.D.M. AT 1200m



H10 =	H11 =	H12 =	TEMP
H10 = (1200.0048m)	H11 = (1050.0058m)	H12 = (810.0042m)	❖ PRESS

❖ Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

MISSOURI DEPARTMENT OF AGRICULTURE
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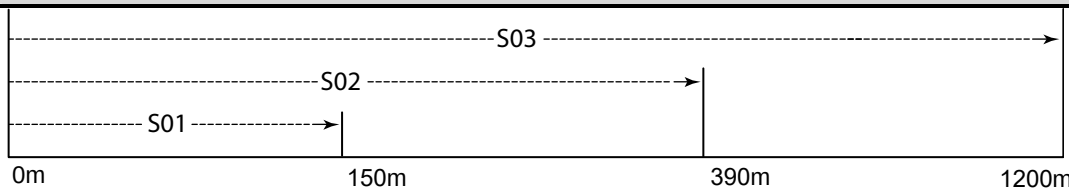
EDM CALIBRATION REPORT – SPRINGFIELD EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP ☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE, MODEL AND SERIAL NUMBER

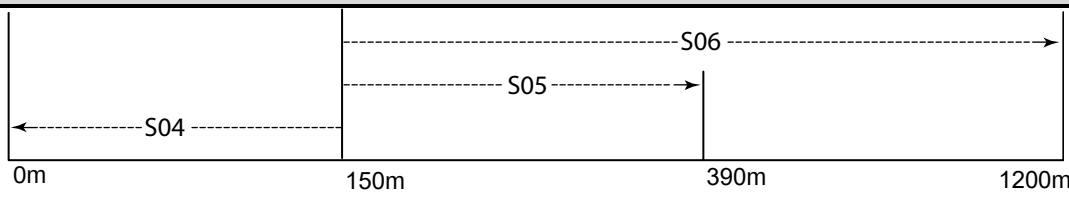
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m



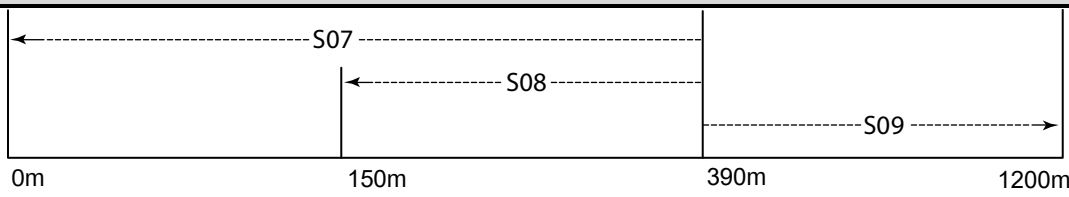
			HI AT 0 METER MARK
S01 =	S02 =	S03 =	TEMP
H0 =	H0 =	H0 =	❖ PRESS

E.D.M. AT 150m



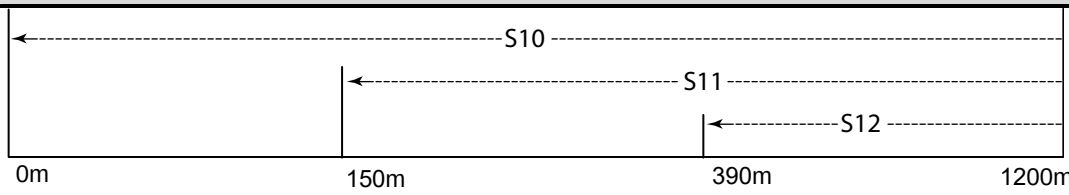
			HI AT 150 METER MARK
S04 =	S05 =	S06 =	TEMP
H0 =	H0 =	H0 =	❖ PRESS

E.D.M. AT 390m



			HI AT 390 METER MARK
S07 =	S08 =	S09 =	TEMP
H0 =	H0 =	H0 =	❖ PRESS

E.D.M. AT 1200m



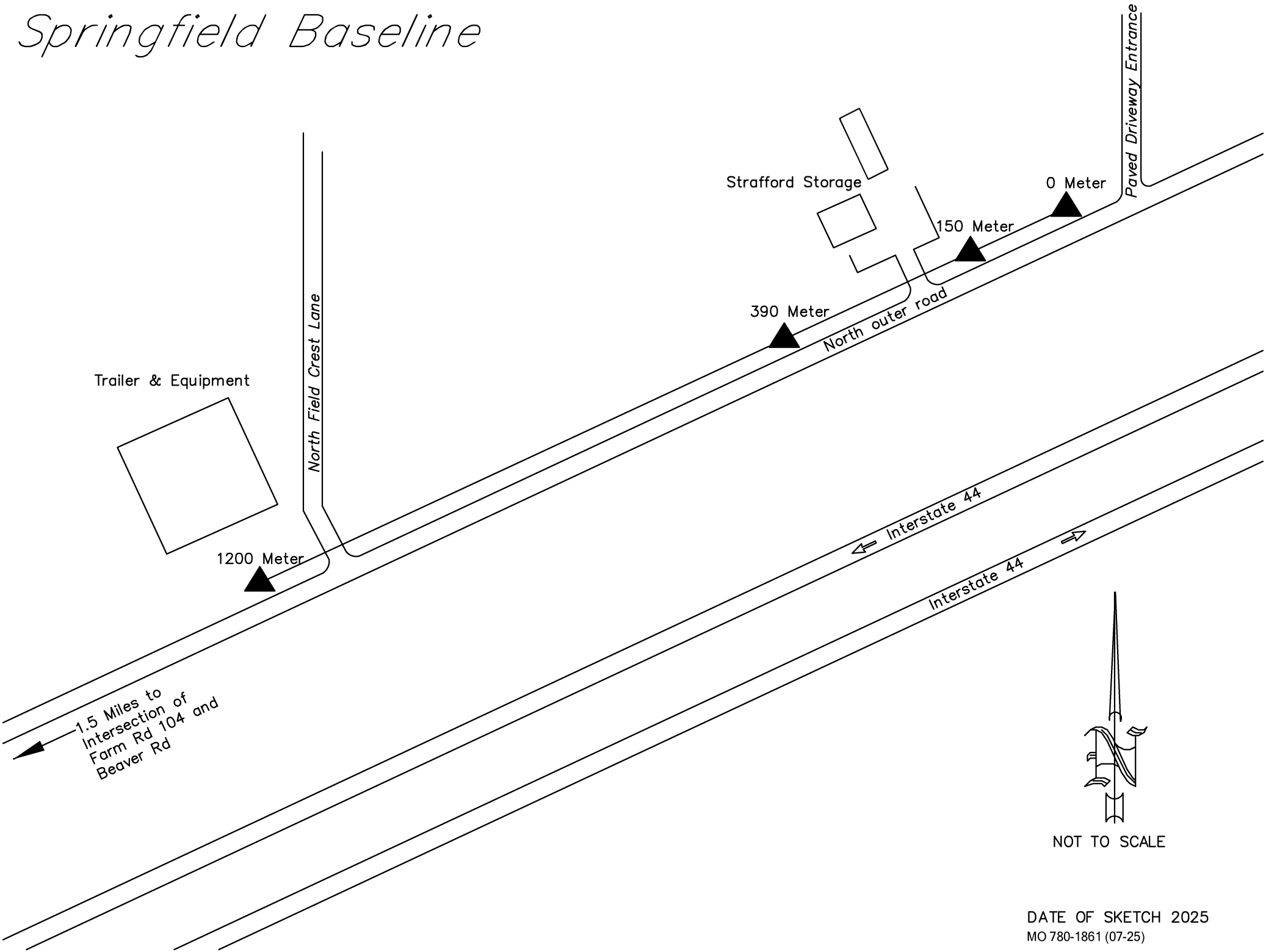
			HI AT 1200 METER MARK
S10 =	S11 =	S12 =	TEMP
H0 =	H0 =	H0 =	❖ PRESS

Heights or delta elevations between monuments. Elevations from OPUS observations were held.

0m = 440.88m 150m = 438.99m 390m =437.44m 1200m = 433.93m

❖ Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

Springfield Baseline

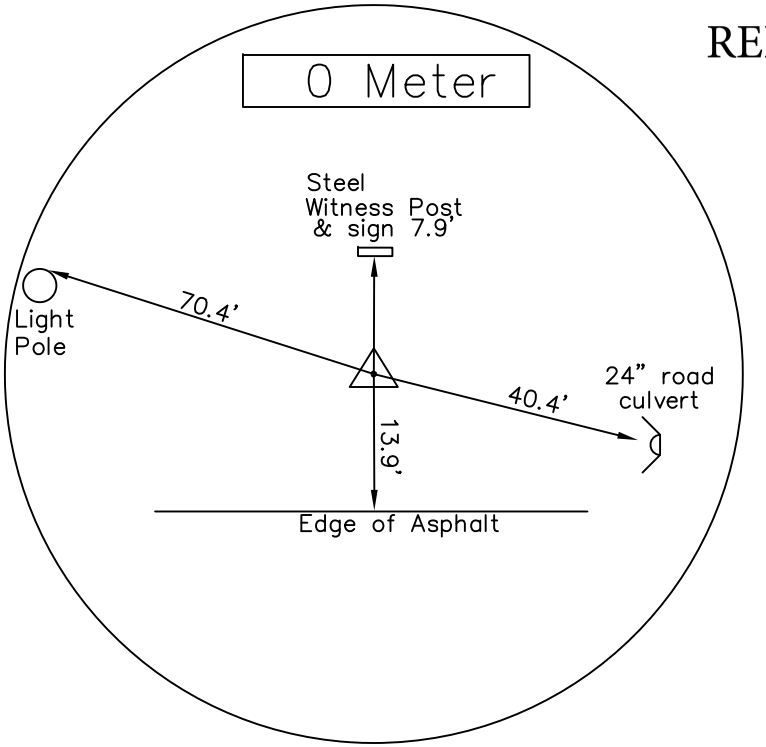


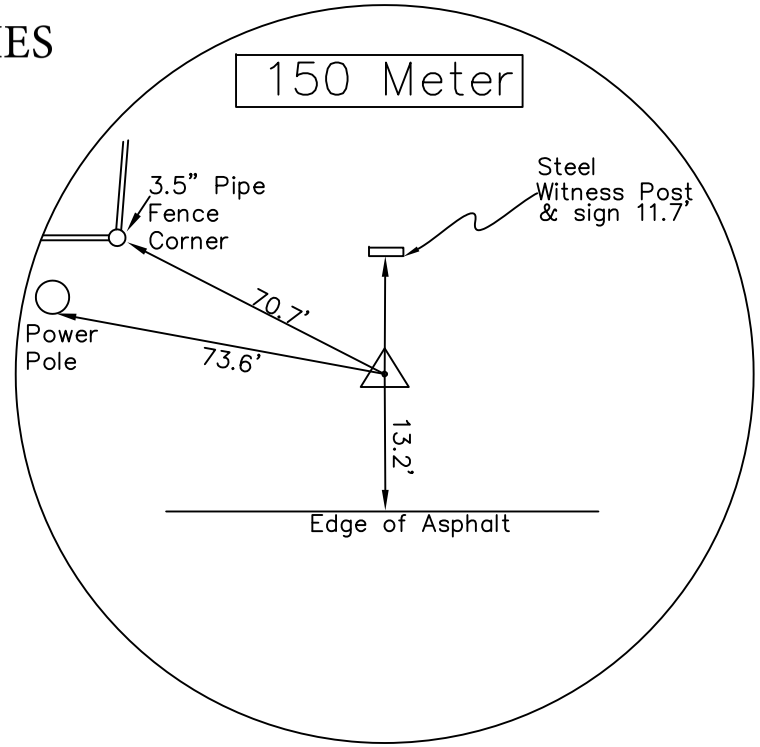
NOT TO SCALE

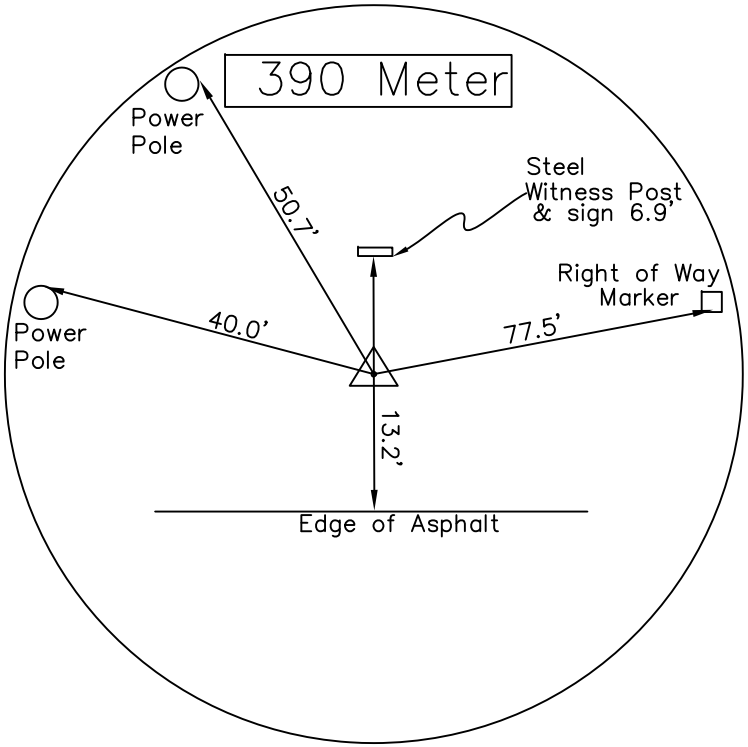
DATE OF SKETCH 2025

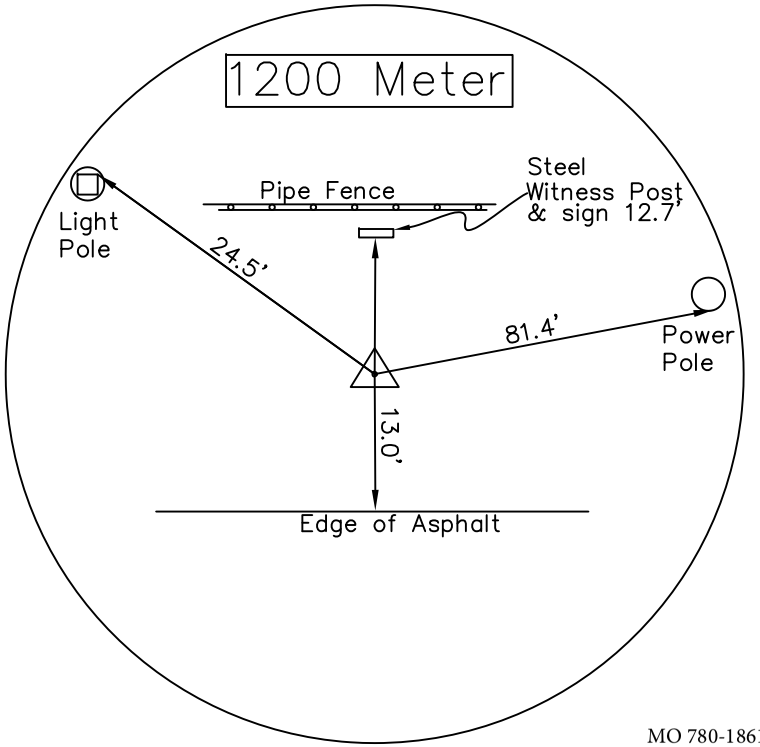
MO 780-1861 (07-25)

REFERENCE TIES









0 METER

150 METER

390 METER

1200 METER

2025

SPRINGFIELD BASELINE

Electronic Distance Measurement (EDM) Calibration Baseline
Greene County, Missouri

Established by the
Missouri Department of Agriculture
Division of Weights, Measures & Consumer Protection
Land Survey Program

The baseline is located in Greene County about four miles east of Springfield, Mo., and about four miles west of Strafford. It is on the north side of the north outer road of Interstate Highway 44 also known as East Farm Road 104.

To reach the baseline from Springfield, go east on I-44 to Exit 84, go north on Beaver Road for 0.4 miles to the intersection of Beaver Road and Farm Road 104. Go east along Farm Road 104 for 1.5 miles to the 1200 meter station on left (north of the road) in front of a large Trailer & Equipment Business. Continue east 0.7 miles to the 0 meter station for the Springfield Baseline on the left (north of the road) near a paved driveway.

This baseline was relocated in 2025 due to issues with monument stability and station to station visibility due to foliage. The old 0 Meter (EDM BL 0M, PID AC7212) still remains since it is registered through NGS, however it will not be used in the new baseline. The new baseline is rotated 180 degrees to the Northeast of previous baseline, on the same outer road (Farm Road 104).

The baseline station elevations are established by OPUS observations on the North American Vertical Datum 1988 (NAVD88) and are as follows:

0 meter – 440.88 meters
150 meter – 438.99 meters
390 meter – 437.44 meters
1200 meter – 433.93 meters

Baseline station autonomous point positions are:

	0 meter	1200 meter
Latitude	37° 15' 50.00"	37° 15' 34.56"
Longitude	093° 08' 40.85"	093° 09' 25.54"

ELECTRONIC DISTANCE MEASURMENT (EDM)
CALIBRATION BASELINES IN MISSOURI

The Missouri Department of Agriculture has established 11 Electronic Distance Measurement (EDM) calibration baselines in Missouri. Modern equipment provides the user a multitude of options in the art of measurement. Inability, inexperience and incompetence using these systems can cause serious blunders. The EDM baseline will allow the operator to verify the instrument is in calibration, affirm the instrument is being operated properly and substantiate all the equipment utilized in measurement is properly adjusted and used correctly.

Each EDM baseline consists of four monumented stations. The monuments are nominally spaced at 0 meters, 150 meters, 390 meters and 1200 meters. Each station will be occupied by the EDM instrument and a measurement made to the other three stations for a total of 12 measurements. The results will determine the scale factor, the system constant and the standard deviation of the measurement in parts per million.

The EDM should be tested using the same procedures as in every day fieldwork. This will not only confirm the EDM is in good working order, but will ensure the entire system is properly adjusted. The measuring system includes, but is not limited to, the instrument, the tripods, bipods, tribrachs, prisms, prism poles, thermometers and barometers/altimeters.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- After taking delivery of a new or used instrument
- Immediately after service
- Anytime the operator feels the instrument is not working properly
- Before and after the Missouri Department of Agriculture or other government agency contracts

BEFORE RUNNING THE BASELINE, PERFORM THE FOLLOWING:

- Check and adjust optical plummets, bull's-eye bubbles and plumbing poles
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running

When filling out the EDM Calibration Report form, fill in all lines that apply and add additional information if needed.

<u>IMPORTANT NOTE:</u> Before each measurement, enter the temperature and station pressure or absolute <u>pressure</u> into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1,000 feet, dividing 1,000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.