



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

**EDM CALIBRATION REPORT – SQUAW CREEK EDM BASELINE (HORIZONTAL)**

DATE	COMPANY	REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole	
INSTRUMENT TYPE, MODEL AND SERIAL NUMBER			
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.			
<b>E.D.M. AT 0m</b>			
H01 =	H02 =	H03 =	TEMP
H01 = (299.9855m)	H02 = 450.0084m)	H03 = (899.9782m)	❖ PRESS
<b>E.D.M. AT 300m</b>			
H04 =	H05 =	H06 =	TEMP
H04 = (299.9855m)	H05 = (150.0250m)	H06 = (599.9942m)	❖ PRESS
<b>E.D.M. AT 450m</b>			
H07 =	H08 =	H09 =	TEMP
H07 = (450.0084m)	H08 = (150.0250m)	H09 = (449.9699m)	❖ PRESS
<b>E.D.M. AT 900m</b>			
H10 =	H11 =	H12 =	TEMP
H10 = (899.9782m)	H11 = (599.9942m)	H12 = (449.9699m)	❖ PRESS
❖ Barometric pressure for EDM calibration <b>must be station pressure</b> . Do not use barometric pressure reduced to sea level.			

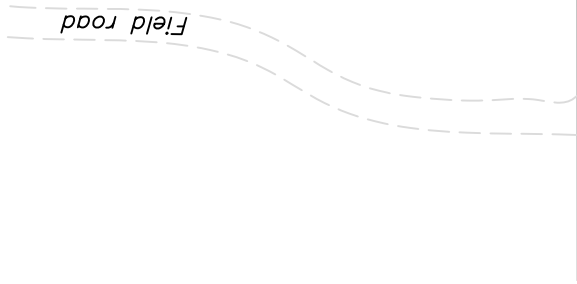


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**EDM CALIBRATION REPORT – SQUAW CREEK EDM BASELINE (SLOPE)**

DATE		COMPANY		REFLECTOR SETUP <input type="checkbox"/> Tripod with tribrach <input type="checkbox"/> Prism pole <input type="checkbox"/> Bipod pole	
INSTRUMENT TYPE, MODEL AND SERIAL NUMBER					
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.					
<b>E.D.M. AT 0m</b>					
				HI AT 0 METER MARK	
0m		300m		450m 900m	
S01 =		S02 =		S03 =	
H0 =		H0 =		H0 =	
				❖ PRESS	
<b>E.D.M. AT 300m</b>					
				HI AT 300 METER MARK	
0m		300m		450m 900m	
S04 =		S05 =		S06 =	
H0 =		H0 =		H0 =	
				❖ PRESS	
<b>E.D.M. AT 450m</b>					
				HI AT 450 METER MARK	
0m		300m		450m 900m	
S07 =		S08 =		S09 =	
H0 =		H0 =		H0 =	
				❖ PRESS	
<b>E.D.M. AT 900m</b>					
				HI AT 900 METER MARK	
0m		300m		450m 900m	
S10 =		S11 =		S12 =	
H0 =		H0 =		H0 =	
				❖ PRESS	
Heights or delta elevations between monuments. Elevations by Missouri Department of Transportation were held. 0m = 261.58m    300m = 261.41m    450m = 261.37m    900m = 261.35m ❖ Barometric pressure for EDM calibration <b>must be station pressure</b> . Do not use barometric pressure reduced to sea level.					

*Squaw Creek Baseline*



US Highway 159

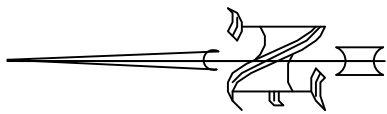
900 Meter

450 Meter

300 Meter

0 Meter

Honeydale Road



NOT TO SCALE

# **SQUAW CREEK BASELINE**

## **Electronic Distance Measurement (EDM) Calibration Baseline Holt, Missouri**

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

**in cooperation with the  
Missouri Department of Transportation**

**1987**

The baseline is located along U.S. Highway 159 near the Loess Bluffs National Wildlife Refuge in Holt County, Missouri. The baseline runs parallel to U.S. Highway 159 approximately 28 feet north of the highway centerline.

To reach the baseline from the intersection of U.S. Highway 159 and Interstate 29, proceed westerly along U.S. Highway 159 approximately 6.3 miles to an intersection with Honeydale road running south. The 0 meter station is 46.5 feet (14.17 meters) west of the intersection just off the north shoulder of the highway.

The baseline consists of five points monumented with copperweld rods set in a mass of concrete flush with the ground. The mark is a center-punched hole in the copperweld rod. For calibration purposes, only Points One, Two, Three, and Five are used. Point Four does not need to be occupied or measured to. The 0 meter station is Point One and is 46.5 feet (14.17 meters) west of the intersection of Honeydale road and U.S. Highway 159. It is 30 feet (9.14 meters) north of the centerline of U.S. highway 159, 5.3 feet (1.62 m) south of a "EDM BASE LINE POINT 1" sign and post. It is also 5 feet (1.52 m) south of a Carsonite Sign post. The 300 meter station is Point Two and is 29.1 feet (8.88 m) north of the highway centerline. The 450 meter station is Point Three and is 29.2 feet (8.91 m) north of the highway centerline. The 900 meter station is Point Five and is 28.4 feet (8.65 m) north of the highway centerline. Care should be taken to occupy the correct point for the 450 meter station as Point Four is not used, is 50 meters west of Point Three, the correct 450 meter station.

The baseline station elevations are as follows  
from control by MoDOT.

PT 1 - 0 meter – 261.58 meters  
PT 2 - 300 meter – 261.41 meters  
PT 3 - 450 meter – 261.37 meters  
PT 5 - 900 meter – 261.35 meters

Baseline station NAD 83(2011) Opus point positions are:

	<u>0 meter</u>	<u>900 meter</u>
Latitude	40° 02' 32.91151"	40° 02' 33.16243"
Longitude	-95° 16' 58.78848"	-95° 17' 36.75001"

## **ELECTRONIC DISTANCE MEASUREMENT (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, 300 meters, 450 meters and 900 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 Natural Resources 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.

**IMPORTANT NOTE:** Before each measurement, enter the temperature and station pressure or absolute pressure 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.