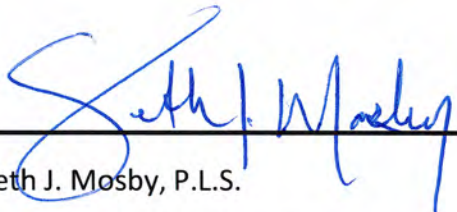




SURVEY METHODOLOGY REPORT
OF
VERIFYING ORIENTATION OF ANTENNA ON
EXISTING RADIO TOWER
FOR
WWRA, RADIO AMOR 91.9 FM


Seth J. Mosby, P.L.S.
Principal Land Surveyor





Project Description

The purpose of this project is to verify the orientation, in north azimuth, of the radio antenna of the existing radio tower operated by WWRA 91.9 FM.

Project Location

The tower site is located +/- 8.5 miles WSW of Greensburg. From the intersection of Hwy. 448 and parish road 1042, travel in a northeasterly direction along parish road 1042 for approximately 0.85 miles to the intersection of parish road 1042 and Womack Loop Road. Then travel along Womack Loop Road in a westerly direction for approximately 0.12 miles to the tower on the right.





Project Control

A total of (5) control points were used in order to complete this project. We were able to recover, and verify, Control Point 1 as set by the previous surveyor. The coordinates of this point were used as the basis of the survey. Using a Leica GS14 GPS/GNSS Receiver we then reestablished Control Point 2 and new Control Points 3, 4 & 5. These points were established by occupying each one for three (3) 180 epoch observations and averaging that data utilizing the Leica SmartNet North America RTN to establish their horizontal and vertical positions. The latitude, longitude and coordinates (in U.S. Survey Feet) shown below are grid. They are reference to the Louisiana State Plane Coordinate System, Lambert Conformal Conic, NAD 83, LA South Zone (1702), (2011, Epoch 2010.00).

Project Primary Control				
Point	LA State Plane (NAD83) South Zone (1702)		Latitude	Longitude
	Northing (U.S. Survey Feet)	Easting (U.S. Survey Feet)		
CP 1	842,827.90	3,444,623.27	N30°48'59.44553"	W90°48'41.79027"
CP 2	843,123.92	3,444,833.50	N30°49'02.36575"	W90°48'39.36408"
CP 4	842,952.42	3,444,646.46	N30°49'00.67689"	W90°48'41.51786"
CP 5	842,670.96	3,444,672.77	N30°48'57.89007"	W90°48'41.23088"
CP 7	842,883.24	3,444,934.69	N30°48'59.97917"	W90°48'38.21637"

Data Collection

Once the project control points were set, we employed two (2) different methods of verifying the orientation of the tower and the angle of the antenna. Both methods of measurement were taken using a Leica MS60 Multistation. First, the Multistation was coupled with a Carlson RT3 Data Collection Tablet, running Carlson SurvCE data collection software to obtain reflectorless measurements of the three (3) faces of the tower, its center and the antenna. Next, utilizing the on board Captivate software, the Multistation was used to scan the tower and produce a point cloud of the tower and its antenna.

In both instances Control Point 5 was occupied first. After setting a backsight on Control Point 4, an angle was turned to Control Point 7 and a distance was shot to check and verify the setup, then measurements were taken. The same methods and measurements were then repeated



by first occupying Control Point 7, backsighting Control Point 4 and turning an angle to Control Point 5 to verify the setup and then making the measurements.

Office Calculations

The field measurements were imported in AutoCAD Civil3d to create a basis of the survey drawing. After processing the point cloud produced by the scan in the field, it was imported into the previous drawing file and all data was combined. Once a centerline of the antenna was established from this data, the angle of the antenna was then measured off the face of tower it is connected to in order to determine the north azimuth.

Results

The orientation of the tower given by the previous surveyor was determined to be correct. The north azimuth of the antenna was determined to be $59^{\circ}40'38''$. Survey drawing follows on the next page.

Diagram illustrating a traverse polygon with geodetic bearings and distances:

- Left Side:** N30°04'14"E 3.00'
- Right Side:** S29°55'46"E 3.00'
- Bottom Side:** N89°55'46"W 3.00' (GEODETIC BEARING)
- Top Side:** ANTENNA NORTH AZIMUTH = 59°40'38"

SITE I.D. NO.: LA10319
FCC NO.: 1216658
CALL LETTERS: WWRA
LOCATION: CLINTON, LA
ANTENNA TYPE: DCRH5ED
FREQUENCY: 91.9 MHz



THIS PLAT IS TO CERTIFY THE NORTH AZIMUTH OF
THE EXISTING TOWER ANTENNA AS DEPICTED HEREON.



QUALITY
Engineering & Surveying, LLC
18320 Hwy 42 Port Vincent, LA 70726
TEL 225-698-1600 FAX 225-698-3367
www.QESLA.com



J.H.	613	24	SJM	SJM	SJM
P.C.	Book	Page	Drawn	Calc.	CKD

Project No.: 19-053s

DWG Path: S:\10-101 East Creek Villas\LOT 1\dwg\11-101_10113 slab.dwg 6/9/2011 4:47:13 PM CDT

SETH J. MOSBY, P.L.S.
DATE: FEBRUARY 28, 2019