

SURVEY CONTROL SHEET

(GPS CALIBRATION SHEET FROM R-2707B)

FINAL

GPS CALIBRATION REPORT
GPS CALIBRATION REPORT PROJECT : R2707B

TIP NUMBER R2707B
USER NAME RDWOODS DATE & TIME 9:23:27 AM 6/29/2010
COORDINATE SYSTEM SITE (AT GROUND) ZONE NORTH CAROLINA 3200
HORIZONTAL DATUM NAD 83 (CONUS)
VERTICAL DATUM NAVD 88 GEOID MODEL G99NC
COORDINATE UNITS US SURVEY FEET
DISTANCE UNITS US SURVEY FEET
HEIGHT UNITS US SURVEY FEET

LOCAL SITE INFORMATION
LOCALIZED AROUND M-77

LATITUDE 35°17'53.47519"N
LONGITUDE 81°32'14.87764"W
SITE SCALE FACTOR 1.0001559240
HEIGHT 747.565SFT

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS
DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION
UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS
NORTHING COORDINATE OF ROTATION CENTER 564891.5305FT
EASTING COORDINATE OF ROTATION CENTER 1248940.7225FT
ROTATION ABOUT THE CENTER POINT 0°00'00"
TRANSLATION NORTH -1.241SFT
TRANSLATION EAST 0.938SFT
SCALE FACTOR 1.00015517

VERTICAL ADJUSTMENT PARAMETERS
NORTHING COORDINATE OF ORIGIN POINT 568742.403SFT
EASTING COORDINATE OF ORIGIN POINT 1203773.275SFT
VERTICAL SEPARATION AT ORIGIN 0.211SFT
SLOPE NORTH 5.123PPM
SLOPE EAST -1.547PPM

GEOID MODEL DEFINITION
G99NC

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES SUMMARY

	ERROR	ROOT MEAN SQUARE	POINT
MAXIMUM HORIZONTAL	0.050SFT	0.009	GPS15
VERTICAL	0.045SFT	0.008	MCBRAYER
THREE-DIMENL	0.057SFT	0.012	MCBRAYER

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "M 77"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 573127.522(ft) EASTING: 124297.658(ft)
ELEVATION: 852.279'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984410
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "M 77" TO -L- L STATION 215+00.00 IS
N 80 07 30 W 23,380.7581'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

WGS84 Coordinates

Latitude 35 16'59.95696"N
Longitude 81 40'06.15783"W
Height 751.773sft

Point LATT-2
Latitude 35 19'02.46223"N
Longitude 81 39'42.94665"W
Height 820.821sft

Point GPS4
Latitude 35 18'17.64678"N
Longitude 81 37'04.79740"W
Height 770.106sft

Point M77
Latitude 35 17'53.47450"N
Longitude 81 32'14.87790"W
Height 747.535sft

Point WALLACE
Latitude 35 21'21.03039"N
Longitude 81 30'27.11508"W
Height 863.861sft

Point GPS15
Latitude 35 18'48.68592"N
Longitude 81 29'24.43979"W
Height 832.090sft

Point 2JS13
Latitude 35 14'52.39137"N
Longitude 81 25'26.08075"W
Height 770.050sft

Point GPS23
Latitude 35 14'49.16395"N
Longitude 81 25'35.37802"W
Height 763.346sft

Point R26254
Latitude 35 13'23.79431"N
Longitude 81 23'00.98772"W
Height 846.141sft

Point W200
Latitude 35 10'05.36224"N
Longitude 81 27'02.08704"W
Height 776.498sft

Point Residuals

Calculated point

Northing 568742.403sft
Easting 1203773.275sft
Elevation 856.819sft
Horz error 0.035sft
Vert error 0.045sft
3D error 0.057sft

Northing 581073.131sft
Easting 1206029.125sft
Elevation 925.966sft
Horz error 0.009sft
Vert error 0.004sft
3D error 0.010sft

Northing 576194.767sft
Easting 1219011.564sft
Elevation 875.093sft
Horz error 0.024sft
Vert error 0.017sft
3D error 0.029sft

Northing 573127.494sft
Easting 1242971.651sft
Elevation 852.249sft
Horz error 0.029sft
Vert error 0.030sft
3D error 0.042sft

Northing 593880.476sft
Easting 1252431.750sft
Elevation 968.736sft
Horz error 0.018sft
Vert error 0.001sft
3D error 0.018sft

Northing 578350.583sft
Easting 1257235.473sft
Elevation 936.723sft
Horz error 0.050sft
Vert error 0.024sft
3D error 0.056sft

Northing 553976.489sft
Easting 1276400.935sft
Elevation 874.121sft
Horz error 0.021sft
Vert error 0.044sft
3D error 0.049sft

Northing 553669.095sft
Easting 1275622.024sft
Elevation 867.424sft
Horz error 0.017sft
Vert error 0.007sft
3D error 0.018sft

Northing 544729.474sft
Easting 1288217.128sft
Elevation 949.783sft
Horz error 0.031sft
Vert error 0.017sft
3D error 0.036sft

Northing 525158.972sft
Easting 1267723.676sft
Elevation 880.183sft
Horz error 0.036sft
Vert error 0.039sft
3D error 0.053sft

Local

Point McBrayer_Local
Northing 568742.428sft
Easting 1203773.299sft
Elevation 856.774sft
Utilized Horz and Vert
Quality Survey quality

Point LATT-2_Local
Northing 581073.122sft
Easting 1206029.126sft
Elevation 925.970sft
Utilized Horz and Vert
Quality Survey quality

Point R2707-4_Local
Northing 576194.769sft
Easting 1219011.540sft
Elevation 875.110sft
Utilized Horz and Vert
Quality Survey quality

Point M77_Local
Northing 573127.522sft
Easting 1242971.658sft
Elevation 852.279sft
Utilized Horz and Vert
Quality Survey quality

Point WALLACE_Local
Northing 593880.490sft
Easting 1252431.739sft
Elevation 968.735sft
Utilized Horz and Vert
Quality Survey quality

Point R2707-15_Local
Northing 578350.547sft
Easting 1257235.438sft
Elevation 936.747sft
Utilized Horz and Vert
Quality Survey quality

Point 2-JS-13_Local
Northing 553976.474sft
Easting 1276400.950sft
Elevation 874.077sft
Utilized Horz and Vert
Quality Survey quality

Point R2707-23_Local
Northing 553669.094sft
Easting 1275622.041sft
Elevation 867.417sft
Utilized Horz and Vert
Quality Survey quality

Point R2625-4_Local
Northing 544729.474sft
Easting 1288217.099sft
Elevation 949.766sft
Utilized Horz and Vert
Quality Survey quality

Point W200_Local
Northing 525158.975sft
Easting 1267723.712sft
Elevation 880.222sft
Utilized Horz and Vert
Quality Survey quality

NOTES

- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAYBE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT [HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
THE FILES TO BE FOUND ARE AS FOLLOWS:

R2707B_LS_GPSCALIB_100909.HTM
R2707B_LS_WGS84_100909.TXT
R2707B_LS_CONTROL_100909.TXT
R2707B_LS_LOCAL_100909.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.