

SURVEY CONTROL SHEET W-5516

GPS Calibration Report

Project : W5516_Calibration

TIP Number: W-5516
 User name jkeaton
 Date & Time 2:59:16 PM 7/25/2014
 Coordinate System US State Plane 1983
 Zone North Carolina 3200
 HorizontalDatum NAD 1983 (Conus)
 VerticalDatum Geoid ModelGeoid2
 (Conus) NC Sub Grid
 Coordinate Units US survey feet
 Distance Units US survey feet
 Height Units US survey feet

Horizontal Calibration Parameters

Translation north: 1.672 ft
 Translation east: -0.348 ft
 Rotation: 0°00'01"
 Origin northing: 653149.503 ft
 Origin easting: 1532859.727 ft
 Scale factor: 1.0001507021

Vertical Calibration Parameters

Vertical shift at origin: -0.210 ft
 Slope north: -35.799 ppm
 Slope east: -9.749 ppm
 Origin northing: 652396.266 ft
 Origin easting: 1539110.910 ft

LOCAL SITE INFORMATION

Localized around I3802-12
 Latitude: N 35°30'11.61315"
 Longitude: W 80°33'44.04363"
 Ground scale factor: 1.0001468314
 Height: 607.596 ft

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.

Geoid Model Definition

Geoid2 (Conus) NC Sub Grid

Residual Differences Between GPS

and Local Coordinates Summary

	Maximum error	Root Mean Square error	Point
Horizontal	0.092 ft	0.056 ft	GPS_15
Vertical	-0.038 ft	0.029 ft	GPS_3
Three-dimensional	0.065 ft	0.054 ft	GPS_2

POINT RESIDUALS

WGS84 Coordinates

Point GPS_3
 Latitude N35°31'57.66035"
 Longitude W80°32'57.13443"
 Height 714.134 ft

Point GPS_1
 Latitude N35°32'11.90743"
 Longitude W80°35'18.13398"
 Height 654.403 ft

Point GPS_4
 Latitude N35°31'52.00384"
 Longitude W80°32'52.77384"
 Height 718.741 ft

Point GPS_2
 Latitude N35°32'02.87074"
 Longitude W80°35'18.44644"
 Height 671.829 ft

Point GPS_116
 Latitude N35°32'16.05559"
 Longitude W80°34'25.25977"
 Height 571.367 ft

Point GPS_115
 Latitude N35°32'04.39951"
 Longitude W80°34'25.67965"
 Height 567.860 ft

Calculated point (for display only)

Point GPS_3
 Northing 652396.266 ft
 Easting 1539110.910 ft
 Elevation 815.282 ft
 Horiz. residual 0.015 ft
 Vert. residual -0.038 ft
 3D residual 0.041 ft

Point GPS_1
 Northing 654020.910 ft
 Easting 1527481.107 ft
 Elevation 755.887 ft
 Horiz. residual 0.037 ft
 Vert. residual 0.027 ft
 3D residual 0.045 ft

Point GPS_4
 Northing 651818.740 ft
 Easting 1539462.371 ft
 Elevation 819.888 ft
 Horiz. residual 0.039 ft
 Vert. residual 0.038 ft
 3D residual 0.054 ft

Point GPS_2
 Northing 653107.673 ft
 Easting 1527440.662 ft
 Elevation 773.326 ft
 Horiz. residual 0.060 ft
 Vert. residual -0.024 ft
 3D residual 0.065 ft

Point GPS_116
 Northing 654370.699 ft
 Easting 1531857.306 ft
 Elevation 672.718 ft
 Horiz. residual 0.059 ft
 Vert. residual -0.002 ft
 3D residual 0.060 ft

Point GPS_115
 Northing 653192.764 ft
 Easting 1531803.919 ft
 Elevation 669.229 ft
 Horiz. residual 0.092 ft
 Vert. residual ?
 3D residual ?

Local Coordinates

Point 3
 Northing 652396.265 ft
 Easting 1539110.925 ft
 Elevation 815.320 ft
 Type Horz and Vert

Point 1
 Northing 654020.902 ft
 Easting 1527481.143 ft
 Elevation 755.860 ft
 Type Horz and Vert

Point 4
 Northing 651818.716 ft
 Easting 1539462.401 ft
 Elevation 819.850 ft
 Type Horz and Vert

Point 2
 Northing 653107.656 ft
 Easting 1527440.720 ft
 Elevation 773.350 ft
 Type Horz and Vert

Point 116
 Northing 654370.734 ft
 Easting 1531857.258 ft
 Elevation 672.720 ft
 Type Horz and Vert

Point 115
 Northing 653192.779 ft
 Easting 1531803.829 ft
 Elevation 669.320 ft
 Type Horizontal

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "I3802-12" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 641735.246(ft) EASTING: 1535065.380(ft) ELEVATION: 708.81'(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985319 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "I3802-12" TO -L- STATION 10+00.00 IS N 36°15'40.36" W 14,215.88' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE NCGS CORS (CONTINUOUSLY OPERATING REFERENCE NETWORK) NAD 83/2007 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 MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NCGS REAL TIME NETWORK SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.