SURVEY CONTROL SHEET U-2579B FINAL

GPS Calibration Report

Project : U2579B FieldCalibration

TIP Number
User name tbovender Date & Time 12:41:06 PM 12/11/2007
Coordinate System US State Plane 1983 Zone North Carolina 3200
Horizontal Datum NAD 1983 (Conus)
Vertical Datum Geoid Model Geoid03 (Conus) NC Sub Grid
Coordinate Units US survey feet
Distance Units US survey feet
Height Units US survey feet

LOCAL SITE INFORMATION
Localized around U2579C-1
Latitude 36^09'08.35562" N
Longitude 80^10'48.38377" W
Site Scale Factor 1.000045472
Height 870.594

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 864170.124sft
Easting coordinate of rotation center 1664837.355sft
Rotation about the center point 0°00'00"
Translation north -0.529sft
Translation east 0.589sft
Scale factor 1.00004635

Vertical Adjustment Parameters

Northing coordinate of origin point 875565.201sft
Easting coordinate of origin point 1659876.674sft
Vertical separation at origin 0.158sft
Slope north 1.193ppm
Slope east -0.561ppm

Geoid Model Definition

Geoid03 (Conus) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

	Maximum error	Root Mean	Square error Point
Horizontal	0.137sft	0.025	U2579B-4 GPS
Vertical	0.119sft	0.020	U2579B-10 GPS
Three-dimensional	0.155sft	0.032	U2579B-4 GPS

Point Residuals
WGS84 Coordinates Calculated point
FOR DISPLAY ONLY Local Coordinates

Point U2579B-1 GPS Latitude 36°09'00.87235"N Longitude 80°09'07.26064"W Height 812.331sft	Northing 875565.201sft Easting 1659876.674sft Elevation 919.540sft Horz error 0.068sft Vert error 0.010sft 3D error 0.069sft	Point U2579B-1 LOCAL Northing 875565.142sft Easting 1659876.641sft Elevation 919.530sft Utilized Horz and Vert Quality Survey quality
Point U2579B-2 GPS Latitude 36°08'46.36004"N Longitude 80°09'22.53339"W Height 803.624sft	Northing 874112.260sft Easting 1658607.033sft Elevation 910.820sft Horz error 0.075sft Vert error 0.060sft 3D error 0.096sft	Point U2579B-2 LOCAL Northing 874112.277sft Easting 1658607.106sft Elevation 910.760sft Utilized Horz and Vert Quality Survey quality
Point U2579B-3 GPS Latitude 36°07'48.69349"N Longitude 80°07'40.32920"W Height 840.897sft	Northing 868184.488sft Easting 1666923.146sft Elevation 947.570sft Horz error 0.108sft Vert error 0.050sft 3D error 0.120sft	Point U2579B-3 LOCAL Northing 868184.593sft Easting 1666923.175sft Elevation 947.620sft Utilized Horz and Vert Quality Survey quality
Point U2579B-4 GPS Latitude 36°07'42.35263"N Longitude 80°07'51.71822"W Height 839.746sft	Northing 867553.926sft Easting 1665981.571sft Elevation 946.428sft Horz error 0.137sft Vert error 0.072sft 3D error 0.155sft	Point U2579B-4 LOCAL Northing 867554.058sft Easting 1665981.533sft Elevation 946.500sft Utilized Horz and Vert Quality Survey quality
Point U2579B-5 GPS Latitude 36°06'41.70853"N Longitude 80°06'24.95413"W Height 812.800sft	Northing 861341.303sft Easting 1673030.811sft Elevation 918.962sft Horz error 0.045sft Vert error 0.062sft 3D error 0.077sft	Point U2579B-5 LOCAL Northing 861341.266sft Easting 1673030.785sft Elevation 918.900sft Utilized Horz and Vert Quality Survey quality
Point U2579B-6 GPS Latitude 36°06'42.50385"N Longitude 80°06'39.75439"W Height 785.713sft	Northing 861435.294sft Easting 1671817.327sft Elevation 891.926sft Horz error 0.089sft Vert error 0.076sft 3D error 0.117sft	Point U2579B-6 LOCAL Northing 861435.209sft Easting 1671817.303sft Elevation 891.850sft Utilized Horz and Vert Quality Survey quality
Point U2579B-7 GPS Latitude 36°06'45.74473"N Longitude 80°07'40.02458"W Height 786.818sft	Northing 861818.786sft Easting 1666875.807sft Elevation 893.236sft Horz error 0.063sft Vert error 0.064sft 3D error 0.090sft	Point U2579B-7 LOCAL Northing 861818.742sft Easting 1666875.763sft Elevation 893.300sft Utilized Horz and Vert Quality Survey quality
Point U2579B-8 GPS Latitude 36°06'46.90138"N Longitude 80°08'00.71711"W Height 778.296sft	Northing 861955.088sft Easting 1665179.317sft Elevation 884.783sft Horz error 0.101sft Vert error 0.067sft 3D error 0.122sft	Point U2579B-8 LOCAL Northing 861955.185sft Easting 1665179.344sft Elevation 884.850sft Utilized Horz and Vert Quality Survey quality
Point U2579B-9 GPS Latitude 36°06'49.78833"N Longitude 80°08'55.41020"W Height 714.479sft	Northing 862298.609sft Easting 1660695.139sft Elevation 821.142sft Horz error 0.071sft Vert error 0.088sft 3D error 0.113sft	Point U2579B-9 LOCAL Northing 862298.542sft Easting 1660695.161sft Elevation 821.230sft Utilized Horz and Vert Quality Survey quality
Point U2579B-10 GPS Latitude 36°06'50.58887"N Longitude 80°09'10.54199"W Height 729.478sft	Northing 862393.955sft Easting 1659454.533sft Elevation 836.189sft Horz error 0.074sft Vert error 0.119sft 3D error 0.140sft	Point U2579B-10 LOCAL Northing 862393.881sft Easting 1659454.537sft Elevation 836.070sft Utilized Horz and Vert Quality Survey quality
Point BL-21 GPS Latitude 36°06'13.76877"N Longitude 80°08'00.73239"W Height 800.390sft	Northing 858604.732sft Easting 1665139.800sft Elevation 906.741sft Horz error 0.049sft Vert error 0.001sft 3D error 0.049sft	Point BL-21 Northing 858604.777sft Easting 1665139.780sft Elevation 906.740sft Utilized Horz and Vert Quality Survey quality
Point U2579AB-1 GPS Latitude 36°05'35.79056"N Longitude 80°08'08.30858"W Height 832.735sft	Northing 854771.500sft Easting 1664474.164sft Elevation 938.953sft Horz error 0.041sft Vert error 0.013sft 3D error 0.044sft	Point U2579AB-1 Local Northing 854771.471sft Easting 1664474.194sft Elevation 938.940sft Utilized Horz and Vert Quality Survey quality

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN 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.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
U2579B_LS_GPSCALIB_071217.HTML
U2579B_LS_WGS84_071217.TXT
U2579B_LS_LOCAL_071217.TXT
U2579B_LS_CONTROL_071217.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.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U2579C-1"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 876419.285(ft) EASTING: 1651591.602(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995453
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U2579C-1" TO -L- STATION 478+00.00 IS
S 71°38'00" E 6933.9132
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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