

SURVEY CONTROL SHEET R-2514B

GPS Calibration Report

Project : R2514 calibrated

TIP Number	R-2514	Date & Time	2:01:53 PM 8/21/2008
User name	breigner	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	Geoid03 (Comus) NC Sub Grid
Horizontal Datum	NAD 1983 (Comus)		
Vertical Datum	NAVD 88		
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

LOCAL SITE INFORMATION

Localized around	R2514-9
Latitude	34°58'38.28832"N
Longitude	77°14'28.40172"W
Site Scale Factor	1.0001120526
Height	-82.978sft

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	448950.369sft
Easting coordinate of rotation center	2529467.657sft
Rotation about the center point	0°00'00"
Translation north	0.013sft
Translation east	0.036sft
Scale factor	1.00000000

Vertical Adjustment Parameters

Northing coordinate of origin point	407827.968sft
Easting coordinate of origin point	2519418.699sft
Vertical separation at origin	-0.080sft
Slope north	1.441ppm
Slope east	-1.370ppm

Geoid Model Definition

Geoid03 (Comus) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary			
	Maximum error	Root Mean Square error	Point
Horizontal	0.044sft	0.006	R2514-11_GPS
Vertical	0.067sft	0.006	R2514-8_GPS
Three-dimensional	0.067sft	0.008	R2514-8_GPS

Point Residuals

WGS84 Coordinates	Calculated point FOR DISPLAY ONLY	Local Coordinates
Point R2514-1_GPS Latitude 34°51'29.31483"N Longitude 77°16'06.35983"W Height -78.235sft	Northing 407827.968sft Easting 2519418.699sft Elevation 43.564sft Horz error 0.015sft Vert error 0.035sft 3D error 0.038sft	Point R2514-1 Northing 407827.974sft Easting 2519418.713sft Elevation 43.599sft Utilized Horz and Vert Quality Control quality
Point R2514-2_GPS Latitude 34°51'40.14315"N Longitude 77°15'50.65691"W Height -78.318sft	Northing 408945.433sft Easting 2520708.019sft Elevation 43.503sft Horz error 0.010sft Vert error 0.003sft 3D error 0.011sft	Point R2514-2 Northing 408945.434sft Easting 2520708.029sft Elevation 43.506sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-3_GPS Latitude 34°53'14.34116"N Longitude 77°15'11.77526"W Height -80.263sft	Northing 418524.531sft Easting 2523780.188sft Elevation 41.639sft Horz error 0.008sft Vert error 0.002sft 3D error 0.008sft	Point R2514-3 Northing 418524.533sft Easting 2523780.196sft Elevation 41.637sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-4_GPS Latitude 34°53'08.13703"N Longitude 77°14'53.15509"W Height -82.883sft	Northing 417924.703sft Easting 2525342.246sft Elevation 39.040sft Horz error 0.007sft Vert error 0.000sft 3D error 0.007sft	Point R2514-4 Northing 417924.702sft Easting 2525342.253sft Elevation 39.040sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-5_GPS Latitude 34°55'12.87095"N Longitude 77°14'49.87198"W Height -85.455sft	Northing 430538.609sft Easting 2525393.067sft Elevation 36.480sft Horz error 0.002sft Vert error 0.000sft 3D error 0.002sft	Point R2514-5 Northing 430538.608sft Easting 2525393.069sft Elevation 36.480sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-6_GPS Latitude 34°54'57.80480"N	Northing 429038.515sft Easting 2526715.834sft	Point R2514-6 Northing 429038.512sft

Longitude 77°14'34.30907"W Height -86.455sft	Elevation 35.502sft Horz error 0.004sft Vert error 0.000sft 3D error 0.004sft	Easting 2526715.836sft Elevation 35.502sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-7_GPS Latitude 34°56'26.77905"N Longitude 77°14'18.61136"W Height -80.199sft	Northing 438055.893sft Easting 2527863.322sft Elevation 41.766sft Horz error 0.004sft Vert error 0.001sft 3D error 0.004sft	Point R2514-7 Northing 438055.890sft Easting 2527863.319sft Elevation 41.764sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-8_GPS Latitude 34°56'43.65198"N Longitude 77°14'26.29372"W Height -81.825sft	Northing 439750.202sft Easting 2527193.599sft Elevation 40.123sft Horz error 0.004sft Vert error 0.067sft 3D error 0.067sft	Point R2514-8 Northing 439750.198sft Easting 2527193.598sft Elevation 40.056sft Utilized Horz and Vert Quality Control quality
Point R2514-9_GPS Latitude 34°58'38.28827"N Longitude 77°14'28.40192"W Height -82.951sft	Northing 451335.456sft Easting 2526812.792sft Elevation 38.949sft Horz error 0.023sft Vert error 0.001sft 3D error 0.023sft	Point R2514-9 Northing 451335.448sft Easting 2526812.771sft Elevation 38.950sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-10_GPS Latitude 34°58'30.78091"N Longitude 77°14'15.13979"W Height -84.186sft	Northing 450596.123sft Easting 2527929.733sft Elevation 37.739sft Horz error 0.017sft Vert error 0.001sft 3D error 0.017sft	Point R2514-10 Northing 450596.117sft Easting 2527929.718sft Elevation 37.738sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-12_GPS Latitude 34°59'57.63114"N Longitude 77°14'03.60057"W Height -91.132sft	Northing 459392.719sft Easting 2528733.702sft Elevation 30.746sft Horz error 0.030sft Vert error 0.000sft 3D error 0.030sft	Point R2514-12 Northing 459392.709sft Easting 2528733.674sft Elevation 30.745sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-11_GPS Latitude 34°59'57.21553"N Longitude 77°14'25.05454"W Height -96.095sft	Northing 459319.015sft Easting 2526949.865sft Elevation 25.752sft Horz error 0.044sft Vert error 0.016sft 3D error 0.047sft	Point R2514-11 Northing 459319.001sft Easting 2526949.823sft Elevation 25.768sft Utilized Horz and Vert Quality Control quality
Point R2514-13_GPS Latitude 35°01'34.93473"N Longitude 77°13'13.66659"W Height -84.483sft	Northing 469303.134sft Easting 2532710.956sft Elevation 37.360sft Horz error 0.007sft Vert error 0.001sft 3D error 0.007sft	Point R2514-13 Northing 469303.132sft Easting 2532710.950sft Elevation 37.359sft Utilized Horz and Vert Quality Adjusted quality
Point R2514-14_GPS Latitude 35°01'29.23639"N	Northing 468754.272sft Easting 2534234.861sft	Point R2514-14 Northing 468754.269sft

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2514-9"
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
 NORTHING: 451335.4480 (ft) EASTING: 2526812.771 (ft)
 ELEVATION: 38.950 (ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999887960
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS R2514-9" TO -L- STATION 12+00.00 IS
 S08°03'00.79"W 42.690.224'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE