

GPS Calibration Report

Project : R2241a

TIP Number		Date & Time	3:00:41 PM 12/9/04
User name	aspielvogel	Zone	North Carolina 3200
Coordinate System	US State Plane 1983(at ground)	Geoid Model	Geoid99 NC Sub Grid
Horizontal Datum	NAD 1983 (Conus)		
Vertical Datum			
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

LOCAL SITE INFORMATION

Localized around	
Latitude	36°27'21.65218"N
Longitude	78°55'30.64699"W
Site Scale Factor	0.9999229490
Height	?

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	298012.185m
Easting coordinate of rotation center	614319.267m
Rotation about the center point	0°00'01"
Translation north	0.011m
Translation east	-0.014m

Scale factor 1.00000246

Vertical Adjustment Parameters

Northing coordinate of origin point 304242.368m
 Easting coordinate of origin point 616411.587m
 Vertical separation at origin -0.027m
 Slope north 0.974ppm
 Slope east 0.981ppm

Geoid Model Definition

Geoid99 NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

	Maximum error	Root Mean Square error	Point
Horizontal	0.047m	0.032	R2241A-1 - WGS84
Vertical	0.057m	0.028	RTK1 - WGS84
Three-dimensional	0.067m	0.042	PANEL17 - WGS84

Point Residuals

WGS84 Coordinates		Calculated point FOR DISPLAY ONLY		Local Coordinates	
Point	PANEL17 - WGS84	Northing	304242.368m	Point	PANEL17 - Local
Latitude	36°29'32.62191"N	Easting	616411.587m	Northing	304242.382m
Longitude	78°55'26.39854"W	Elevation	175.832m	Easting	616411.545m
Height	144.794m	Horz error	0.044m	Elevation	175.882m
		Vert error	0.050m	Utilized	Horz and Vert
		3D error	0.067m	Quality	Survey quality
Point	BURKE - WGS84	Northing	303132.458m	Point	BURKE - Local
Latitude	36°28'56.67474"N	Easting	613300.488m	Northing	303132.431m
Longitude	78°57'31.41250"W	Elevation	168.669m	Easting	613300.481m

Height	137.656m
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Horz error	0.028m
Vert error	0.012m
3D error	0.030m

Elevation	168.681m
Utilized	Horz and Vert
Quality	Survey quality

Point	PANEL14 - WGS84
Latitude	36°27'20.81927"N
Longitude	78°54'51.40479"W
Height	142.845m

Northing	300180.234m
Easting	617286.059m
Elevation	173.849m
Horz error	0.041m
Vert error	?
3D error	0.041m

Point	PANEL14 - Local
Northing	300180.258m
Easting	617286.026m
Elevation	173.953m
Utilized	Horizontal
Quality	Survey quality

Point	R2241D-14 - WGS8
Latitude	36°27'00.50625"N
Longitude	78°55'49.79893"W
Height	144.014m

Northing	299552.958m
Easting	615832.420m
Elevation	174.998m
Horz error	0.039m
Vert error	0.040m
3D error	0.056m

Point	R2241D-14 - Loca
Northing	299552.953m
Easting	615832.459m
Elevation	174.958m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241D-15 - WGS8
Latitude	36°26'54.56036"N
Longitude	78°56'03.58333"W
Height	136.926m

Northing	299369.445m
Easting	615489.271m
Elevation	167.906m
Horz error	0.042m
Vert error	0.032m
3D error	0.053m

Point	R2241D-15 - Loca
Northing	299369.440m
Easting	615489.313m
Elevation	167.874m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-6 - WGS84
Latitude	36°26'20.21850"N
Longitude	78°56'06.64752"W
Height	159.109m

Northing	298310.819m
Easting	615413.649m
Elevation	190.080m
Horz error	0.021m
Vert error	0.015m
3D error	0.026m

Point	R2241A-6 - Local
Northing	298310.817m
Easting	615413.670m
Elevation	190.065m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-5 - WGS84
Latitude	36°26'16.85095"N
Longitude	78°56'01.29273"W
Height	161.347m

Northing	298207.103m
Easting	615547.085m
Elevation	192.318m
Horz error	0.013m
Vert error	0.008m
3D error	0.015m

Point	R2241A-5 - Local
Northing	298207.115m
Easting	615547.090m
Elevation	192.326m
Utilized	Horz and Vert
Quality	Survey quality

Point	B3013-1 - WGS84
Latitude	36°26'41.91138"N
Longitude	78°56'50.42933"W

Northing	298978.854m
Easting	614322.856m
Elevation	163.662m

Point	B3013-1 - Local
Northing	298978.838m
Easting	614322.891m

Height	132.694m
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Horz error	0.038m
Vert error	0.031m
3D error	0.049m

Elevation	163.631m
Utilized	Horz and Vert
Quality	Survey quality

Point	NORFOLK - WGS84
Latitude	36°26'37.66990"N
Longitude	78°57'11.68214"W
Height	139.708m

Northing	298847.849m
Easting	613793.629m
Elevation	170.672m
Horz error	0.047m
Vert error	0.038m
3D error	0.060m

Point	NORFOLK - Local
Northing	298847.826m
Easting	613793.670m
Elevation	170.634m
Utilized	Horz and Vert
Quality	Survey quality

Point	RTK1 - WGS84
Latitude	36°25'14.60765"N
Longitude	78°56'06.52324"W
Height	187.819m

Northing	296288.403m
Easting	615418.056m
Elevation	218.771m
Horz error	0.023m
Vert error	0.057m
3D error	0.061m

Point	RTK1 - Local
Northing	296288.412m
Easting	615418.035m
Elevation	218.828m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-3 - WGS84
Latitude	36°24'55.91670"N
Longitude	78°57'18.60876"W
Height	177.441m

Northing	295711.284m
Easting	613622.525m
Elevation	208.369m
Horz error	0.014m
Vert error	0.013m
3D error	0.019m

Point	R2241A-3 - Local
Northing	295711.282m
Easting	613622.539m
Elevation	208.356m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-4 - WGS84
Latitude	36°24'56.02115"N
Longitude	78°57'07.83307"W
Height	182.094m

Northing	295714.628m
Easting	613890.984m
Elevation	213.025m
Horz error	0.009m
Vert error	0.003m
3D error	0.010m

Point	R2241A-4 - Local
Northing	295714.635m
Easting	613890.990m
Elevation	213.028m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-1A - WGS8
Latitude	36°24'48.95501"N
Longitude	78°58'14.13387"W
Height	144.020m

Northing	295496.184m
Easting	612239.262m
Elevation	174.933m
Horz error	0.027m
Vert error	0.003m
3D error	0.027m

Point	R2241A-1A - Loca
Northing	295496.185m
Easting	612239.235m
Elevation	174.936m
Utilized	Horz and Vert
Quality	Survey quality

Point	EXXON - WGS84
Latitude	36°24'32.54982"N
Longitude	78°58'31.77764"W

Northing	294990.391m
Easting	611799.805m
Elevation	187.613m

Point	EXXON - Local
Northing	294990.388m
Easting	611799.796m

Height	156.711m
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Horz error	0.010m
Vert error	0.001m
3D error	0.010m

Elevation	187.614m
Utilized	Horz and Vert
Quality	Survey quality

Point	R2241A-1 - WGS84
Latitude	36°24'31.96042"N
Longitude	78°58'21.60106"W
Height	156.807m

Northing	294972.288m
Easting	612053.365m
Elevation	187.712m
Horz error	0.047m
Vert error	0.018m
3D error	0.051m

Point	R2241A-1 - Local
Northing	294972.303m
Easting	612053.320m
Elevation	187.730m
Utilized	Horz and Vert
Quality	Survey quality

Point	RTK2 - WGS84
Latitude	36°24'06.89535"N
Longitude	78°57'56.18059"W
Height	172.226m

Northing	294199.875m
Easting	612686.995m
Elevation	203.128m
Horz error	0.018m
Vert error	0.017m
3D error	0.025m

Point	RTK2 - Local
Northing	294199.876m
Easting	612686.977m
Elevation	203.145m
Utilized	Horz and Vert
Quality	Survey quality