

U-2717 SURVEY CONTROL SHEET

GPS CALIBRATION REPORT PROJECT : U2717SITECAL

TIP NUMBER U-2717
 USER NAME KHUDSON DATE & TIME 4:35:06 PM 7/12/04
 COORDINATE SYSTEM US STATE PLANE 1983(AT GROUND)
 ZONE NORTH CAROLINA 3200
 HORIZONTAL DATUM NAD 1983 (CONUS) GEOID MODEL GEOID96 (CONUS)
 VERTICAL DATUM NGVD29
 COORDINATE UNITS METERS
 DISTANCE UNITS METERS
 HEIGHT UNITS METERS

LOCAL SITE INFORMATION
 LOCALIZED AROUND SUNOCO
 LATITUDE 35°57'33.72996"N
 LONGITUDE 79°56'19.13377"W
 SITE SCALE FACTOR 1.0000868830
 HEIGHT 225.538M

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 246047.371M
 EASTING COORDINATE OF ROTATION CENTER 522941.760M
 ROTATION ABOUT THE CENTER POINT 0°00'02"
 TRANSLATION NORTH 0.006M
 TRANSLATION EAST 0.019M
 SCALE FACTOR 0.99999413

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT 243073.952M
 EASTING COORDINATE OF ORIGIN POINT 516813.326M
 VERTICAL SEPARATION AT ORIGIN -0.182M
 SLOPE NORTH 18.187PPM
 SLOPE EAST 7.170PPM

GEOID MODEL DEFINITION GEOID96 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES SUMMARY

HORIZONTAL	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
VERTICAL	0.034M	0.018	LUCY GPS
THREE-DIMENSIONAL	0.029M	0.019	SCRAP GPS
	0.043M	0.026	LUCY GPS

WGS84 COORDINATES		POINT RESIDUALS		LOCAL COORDINATES	
		CALCULATED POINT FOR DISPLAY ONLY			
POINT	SCRAP GPS	NORTHING	243073.952M	POINT	SCRAP
LATITUDE	35°56'12.64198"N	EASTING	516813.326M	NORTHING	243073.939M
LONGITUDE	80°01'42.07501"W	ELEVATION	277.197M	EASTING	516813.335M
HEIGHT	246.279M	HORZ ERROR	0.016M	ELEVATION	277.226M
		VERT ERROR	0.029M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.033M		
POINT	LUCY GPS	NORTHING	249651.167M	POINT	LUCY
LATITUDE	35°59'49.33598"N	EASTING	527253.984M	NORTHING	249651.138M
LONGITUDE	79°54'47.98324"W	ELEVATION	254.773M	EASTING	527254.003M
HEIGHT	223.816M	HORZ ERROR	0.034M	ELEVATION	254.800M
		VERT ERROR	0.027M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.043M		
POINT	SUNOCO GPS	NORTHING	245492.903M	POINT	SUNOCO
LATITUDE	35°57'33.72992"N	EASTING	524931.444M	NORTHING	245492.913M
LONGITUDE	79°56'19.13374"W	ELEVATION	256.348M	EASTING	524931.442M
HEIGHT	225.546M	HORZ ERROR	0.010M	ELEVATION	256.339M
		VERT ERROR	0.009M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.014M		
POINT	U2717-1 GPS	NORTHING	246294.027M	POINT	U2717-1
LATITUDE	35°57'58.53784"N	EASTING	521165.236M	NORTHING	246294.030M
LONGITUDE	79°58'49.73578"W	ELEVATION	275.693M	EASTING	521165.226M
HEIGHT	244.725M	HORZ ERROR	0.010M	ELEVATION	275.664M
		VERT ERROR	0.029M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.031M		
POINT	U2717-2 GPS	NORTHING	246321.334M	POINT	U2717-2
LATITUDE	35°57'59.49486"N	EASTING	521387.249M	NORTHING	246321.329M
LONGITUDE	79°58'40.88661"W	ELEVATION	267.919M	EASTING	521387.233M
HEIGHT	236.956M	HORZ ERROR	0.016M	ELEVATION	267.904M
		VERT ERROR	0.015M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.022M		
POINT	U2717-3 GPS	NORTHING	246088.823M	POINT	U2717-3
LATITUDE	35°57'52.56782"N	EASTING	523334.452M	NORTHING	246088.831M
LONGITUDE	79°57'23.08926"W	ELEVATION	264.681M	EASTING	523334.446M
HEIGHT	233.796M	HORZ ERROR	0.010M	ELEVATION	264.674M
		VERT ERROR	0.007M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.013M		
POINT	U2717-4 GPS	NORTHING	246051.656M	POINT	U2717-4
LATITUDE	35°57'51.44802"N	EASTING	523609.623M	NORTHING	246051.666M
LONGITUDE	79°57'12.09391"W	ELEVATION	258.527M	EASTING	523609.610M
HEIGHT	227.653M	HORZ ERROR	0.011M	ELEVATION	258.526M
		VERT ERROR	0.001M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.011M		
POINT	U2717-6 GPS	NORTHING	245405.156M	POINT	U2717-6
LATITUDE	35°57'30.91619"N	EASTING	525038.913M	NORTHING	245405.172M
LONGITUDE	79°56'14.81221"W	ELEVATION	256.518M	EASTING	525038.925M
HEIGHT	225.725M	HORZ ERROR	0.021M	ELEVATION	256.523M
		VERT ERROR	0.005M	UTILIZED HORZ AND VERT	QUALITY CONTROL QUALITY
		3D ERROR	0.021M		

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "SUNOCO" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 245492.913(m) EASTING: 524931.442(m) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999913125 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SUNOCO" TO -L- STATION 9+80.00 IS N 75° 03' 28.9" W 2,979.321(m) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

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/FILE](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/file)

U2717_LS_GPSCALIB_040712.TXT
 U2717_LS_WGS84_040712.TXT
 U2717_LS_LOCAL_040712.TXT
 U2717_LS_CONTROL_040712.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.