



STORMWATER MANAGEMENT COMMISSION

December 19, 2013

TO: Lake County WDO Enforcement Officers
FROM: Kurt Woolford, Chief Engineer, Lake County Stormwater Management Commission
RE: **Guidance for Local BFE and Benchmark Datum Conversions**

The WDO was amended on June 11, 2013, requiring elevations for development applications to be referenced to North American Vertical Datum of 1988 (NAVD88), which supersedes the National Geodetic Vertical Datum of 1929 (NGVD29) used prior to September 18, 2013.

As of September 18, 2013, all FEMA studied floodplains from the Lake County Flood Insurance Study (FIS) were effectively adjusted from NGVD29 to NAVD88. For most of the County, FEMA used a uniform countywide average conversion factor of -0.253 feet. Local BFE determinations, required as part of the WDO site development process, typically represent small geographic areas and were not incorporated into the new FEMA map products. Datum conversion accuracy is important for floodplain and other development-specific items e.g., detention pond outlets/overflows, roads, utilities, grading, etc. Therefore the following methodologies will be used for conversion from NGVD29 to NAVD88:

1. No conversion will be performed for FEMA studied floodplains. The effective FIS profile elevations have already been adjusted by FEMA using the countywide average described above.
2. Locally approved (non-FEMA) depressional floodplain elevations:
 - a. Draw a line around the boundary of the depressional floodplain area
 - b. Calculate the centroid of the bounded area
 - c. Obtain the latitude and longitude coordinates of the centroid
 - d. Go to the VERTCON website (http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.pr1) and enter in the latitude, longitude and NGVD29 elevation value and obtain the converted elevation in NAVD88. Note that the VERTCON default height is in meters; make sure to enter in "ft" to show the conversion in feet.
3. Locally approved (non-FEMA) riverine floodplain elevations:
 - a. Determine the latitude and longitude coordinates of the center of the waterway surface for the model cross-sections and hydraulic structures that bound the upstream and downstream hydraulic conditions for the area in need of conversion.
 - b. Use VERTCON to convert the NGVD29 elevations to the NAVD88 elevations.
 - c. Establish a consistent profile from the converted elevations, and interpolate to the specific point or reach of interest.
4. Project and Site Benchmarks:
 - a. Determine the latitude and longitude coordinates of the nearest benchmark location.
 - b. Use VERTCON to convert the NGVD29 elevation to the NAVD88 elevation.

SMC will be converting locally approved depressional BFEs utilizing this methodology. SMC will forward the BFE information to each community. Each community may perform or approve a datum conversion utilizing this methodology without SMC approval.