MANGUM (22 Cb 584)

The following provides a brief explanation for the sources of the various data files.

XYZ point cloud, NED (bare earth):

SOURCE: United States Geological Survey, The National Map (Viewer & Download Platform), Formerly The National Elevation Dataset (NED).

ACCESS DATE: 12/28/2012.

DOWLOAD PROCEDURE: "A Description of Steps Taken to Generate Contour Maps From Bare Earth LiDAR and DEMs" (by R. P. Stephen Davis, Jr.; updated 1 May 2013). Available at http://rla.unc.edu/mmt/general/MMT_LiDAR_3.pdf

DATASET URL:
http://viewer.nationalmap.gov/viewer/
or
http://rla.unc.edu/mmt/Data/Mangum/XYZ_Point_Cloud_NED_2012_(bare_earth).xlsx

METADATA URL:
http://viewer.nationalmap.gov/viewer/

DEFAULT DATA/GRID UNITS: Projected in geographic coordinate system.

HORIZONTAL DATUM: NAD83, longitude and latitude (decimal degrees).

VERTICAL DATUM: NAVD88, measurement precision to 6 decimal places (meters).

GRID COORDINATES CONVERTED TO: Universal Transverse Mercator (UTM), Zone 15 North (meters).

DATA/GRID SIZE: 1000 x 1000 m.

BOUNDARIES OF DATA/GRID: North, 3541960 m; South, 3540960 m; East, 698900 m; West, 697900 m.

Surfer grid (.grd) file (1000 x 1000 m, 2 m grid):

SOURCE: Data file is the output of the Surfer software gridding process applied to the dataset discussed in the previous section (XYZ point cloud, NED [bare earth]).

PROCEDURE:
- Surfer 9 (Golden Software) used to transform point cloud data, in a standard XYZ coordinate format, into a proprietary .grd file.
- The Kriging gridding method was used to render the data with a grid line geometry spacing of 2 m, accounting for 501 grid lines in both the X and Y directions.

DATE CREATED: 4/19/2013

DATASET URL:
http://rla.unc.edu/mmt/Data/Mangum/Surfer_grid_file,_2013_(1000_x_1000_m,_2_m_grid).grd

GRID SIZE: 1000 x 1000 m with a grid line geometry spacing of 2 m.

GRID UNITS: Universal Transverse Mercator, Zone 15 North (meters).

BOUNDARIES OF DATA/GRID: North, 3541960 m; South, 3540960 m; East, 698900 m; West, 697900 m.

ArcGIS/ArcMap document, all layers (1000 x 1000 m):

SOURCE: This file is a culmination of all the available layers that were made for the various maps of the given site. Layers produced in software ArcMap 10 from ArcGIS, Surfer 9, and/or DesignCAD 3D Max 21 are all juxtaposed on a single ArcMap document canvas.

ORIGINS OF LAYERS:
- *Shapefile, 50 cm Contours, 2013 (1000 x 1000 m):* Generated in Surfer 9 from the .grd file, this layer is a contour map (50 cm contour interval) of the topography of the same 1000 x 1000 m tile.
- *Relief Map, Vertical View, 2013 (1000 x 1000 m):* Generated in Surfer 9 from the aforementioned .grd file, this layer is a vertically viewed, shaded, topographic relief map of the 1000 x 1000 m area encompassing the site.
- *Cultural & Natural Features:* Digitized features included major roads, unimproved roads/paths, railroad tracks, bodies of water, watercourses, and relevant buildings.
    - Abovementioned features were first digitized using ArcMap 10 software from the ArcGIS suite. This was done in a cursory and stylized manner using basemap layers contextualized by a contour map overlay of the site.
    - Drawing was completed and all feature details were flushed out using DesignCAD 3D Max 21 software.
    - Line characteristics such as color, width, and style were finalized in Surfer 9.
    - Feature group was then imported back into ArcMap 10 and added as layer to the map.
- *Imagery Basemap:* A default satellite imagery layer accessed and added through ArcMap via the ArcGIS online basemap repository.

DATA FILE URL:
http://rla.unc.edu/mmt/Data/Mangum/ArcGIS_Map,_All_Layers,_2013_(1000_x_1000m).zip

MAP PROJECTION: Universal Transverse Mercator, Zone 15 North (meters).

MAP SIZE: 1000 x 1000 m.

BOUNDARIES OF MAP: North, 3541960 m; South, 3540960 m; East, 698900 m; West, 697900 m.

HORIZONTAL DATUM: NAD83, longitude and latitude (decimal degrees).

VERTICAL DATUM: NAVD88, measurement precision to 6 decimal places (meters).

Surfer map file, all layers, (1000 x 1000 m) & (500 x 500 m):

SOURCE: This file contains all the layers that were made for the site maps. Layers produced in Surfer 9, ArcMap 10, and DesignCAD 3D Max 21 are all compiled in one Surfer map file.

ORIGINS OF LAYERS:
- *Contour Map, 50 cm Contour Interval:* Created in Surfer 9 from the .grd file, this layer is a contour map of the topography of the site landscape.
- *3D Surface Relief Map, Vertical View:* Another mapping extension of the .grd file, this layer is a vertically viewed, shaded, topographic relief map of the site area.
- *Cultural & Natural Features:* Layer created by the same procedure described for the ArcGIS/ArcMap document (see above), except that once completed it was kept in Surfer and not imported back into ArcMap.

DATA FILE URL:
[1000 x 1000 m]
http://rla.unc.edu/mmt/Data/Mangum/Surfer_map_file,_all_layers,_2013_(1000_x_1000_m).srf
[500 x 500 m]
http://rla.unc.edu/mmt/Data/Mangum/Surfer_map_file,_all_layers,_2013_(500_x_500_m).srf

MAP PROJECTION: Universal Transverse Mercator, Zone 15 North (meters).

MAP SIZES: Two sizes are available; the original 1000 x 1000 m tile and a cropped 500 x 500 m variety, generated within Surfer 9 through the limits specification tab in "Map Properties."

BOUNDARIES OF MAP (1000 x 1000 m): North, 3541960 m; South, 3540960 m; East, 698900 m; West, 697900 m.

BOUNDARIES OF MAP (500 x 500 m): North, 3541660 m; South, 3541160 m; East, 698690 m; West, 698190 m.

HORIZONTAL DATUM: NAD83, longitude and latitude (decimal degrees).

VERTICAL DATUM: NAVD88, measurement precision to 6 decimal places (meters).