Dewberry Response to USGS Review of the FL Panhandle Block 1 2018 Lidar Project

Produced for U.S. Geological Survey

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Executive Summary

The primary purpose of this project was to develop a consistent and accurate surface elevation dataset derived from high-accuracy Light Detection and Ranging (lidar) technology for the USGS Florida Panhandle Block 1 2018 Lidar Project Area.

The lidar data were processed to bare-earth digital terrain models (DTM). Detailed breaklines and bare-earth digital elevation Models (DEMs) were produced for the project area.

Deliverables for this project included classified point cloud data, bare earth hydro-flattened digital elevation models, breaklines, and metadata.

The USGS' review of these deliverables resulted in metadata calls, 38 DEM hydroflattening calls, and two DEM bridge saddle calls.

PROJECT AREA

Data was formatted according to tiles with each tile covering an area of 1000m by 1000m. A total of 16799 tiles were produced for the project encompassing an area of approximately 5952 sq. miles. The calls addressed and discussed in this response memo encompass the Block 1 AOI of the project, which comprise a total of 2859 tiles.
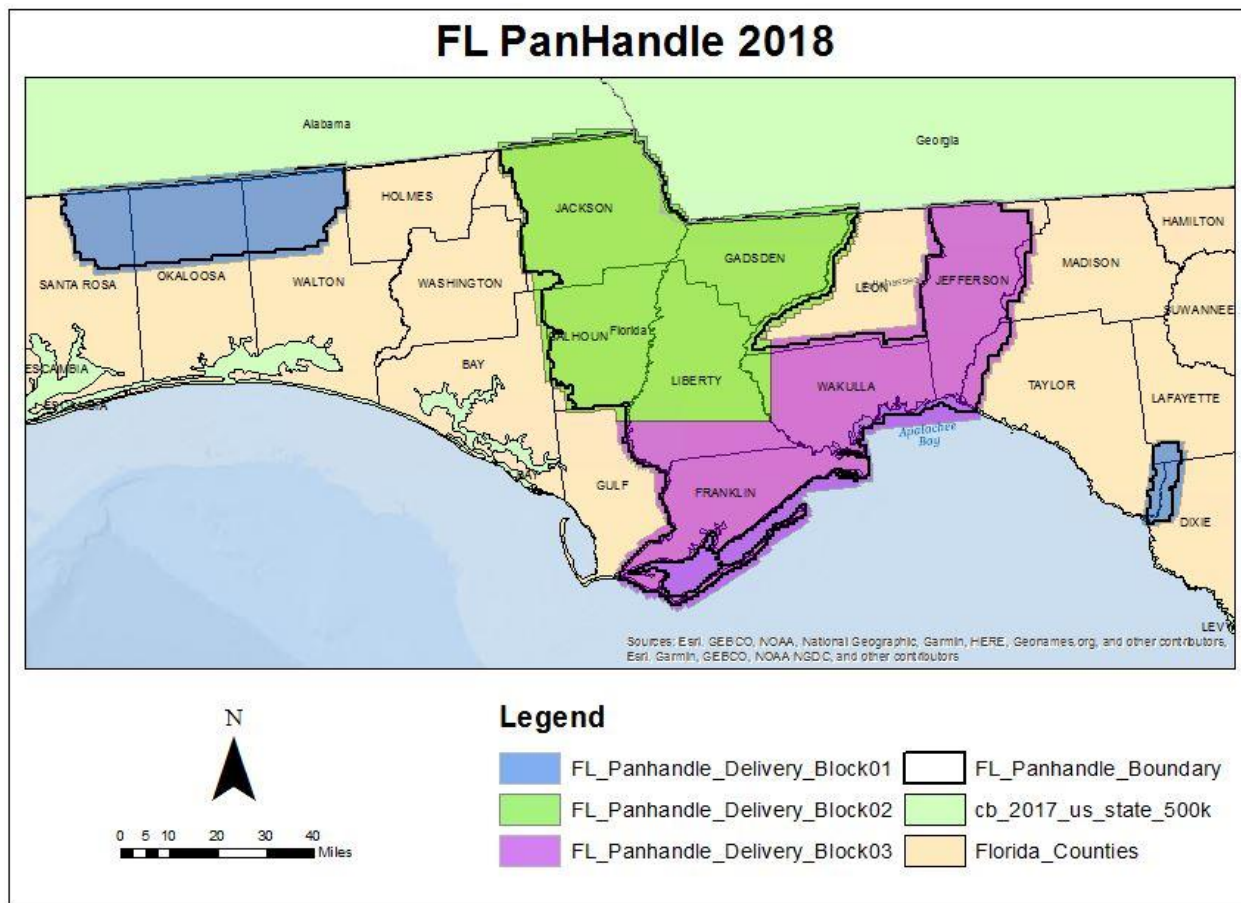

Figure 1- Project Map

Edit Calls

METADATA

USGS' Assessment report had several metadata parser errors listed. Dewberry updated the las

intensity and bounding tags to contain the most recent tag structures, in addition to other formatting errors. The metadata parser no longer generates errors for the updated metadata.

MISSING WATERBODIES

USGS made 38 calls for missing waterbodies requiring hydroflattening. Of the 38 calls, five (5) features were corrected in the LAS and hydroflattened in the final DEMs.
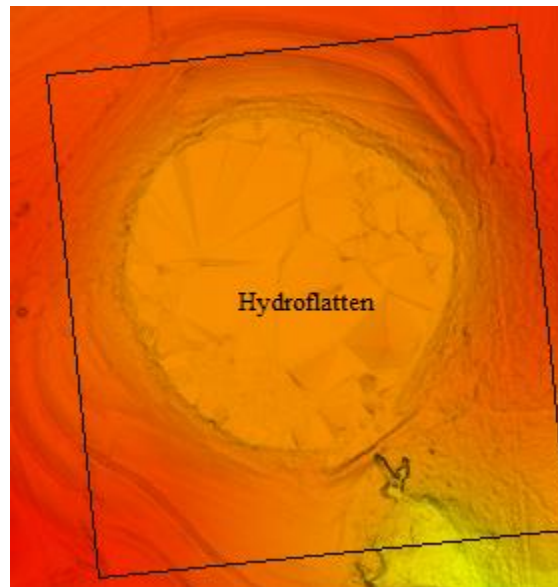

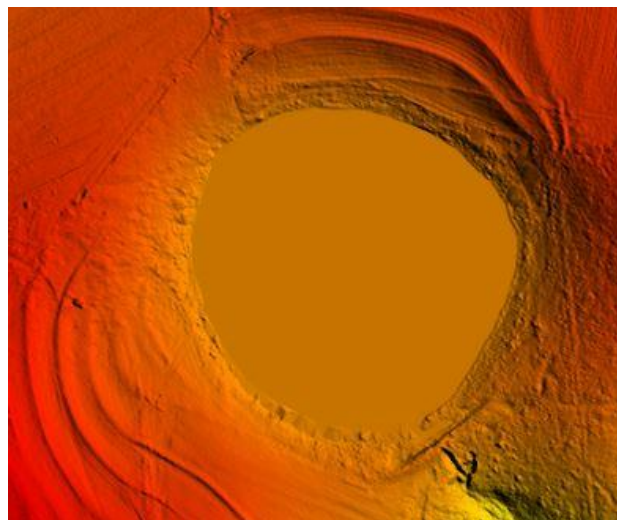**Figure 2 – Location of USGS call for missing waterbody.**

Figure 3 –The waterbody was collected and the impacted DEM has been hydroflattened.

Of the 38 missing waterbody calls, 30 were investigated by Dewberry and determined to be swamps/bog features. These features did not appear wet in the corresponding intensity imagery

and remain modeled as ground. Points were reclassified to ground in the lidar for these features to improve density and better represent them in the final DEMs.
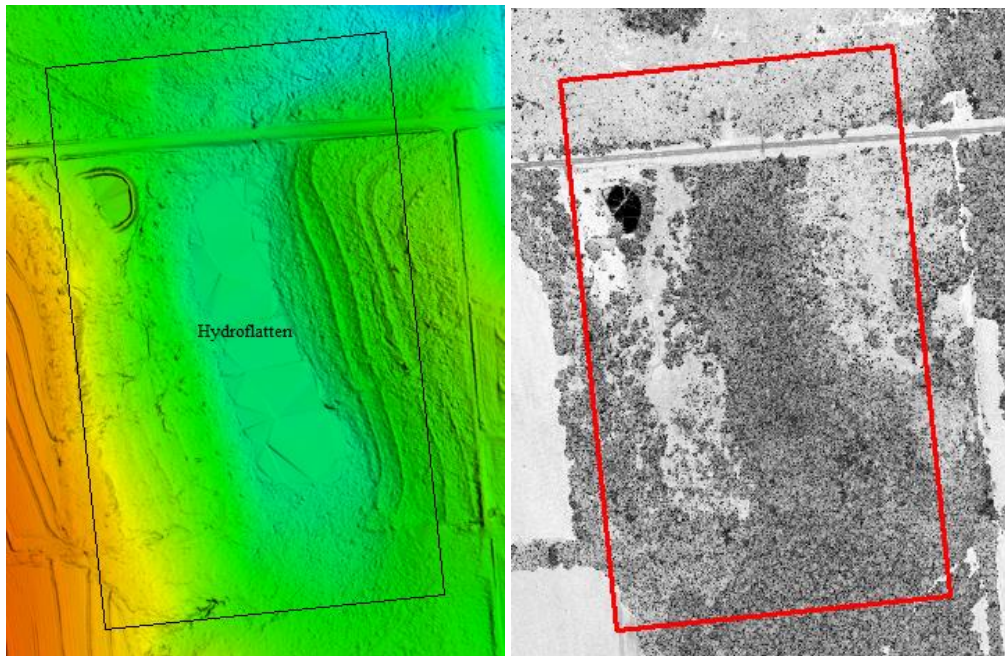

Figure 4 – Location of USGS call for missing waterbody (left) and corresponding intensity imagery (right). These swamps/bog features were investigated by Dewberry and determined to be dry, heavily vegetated locations.
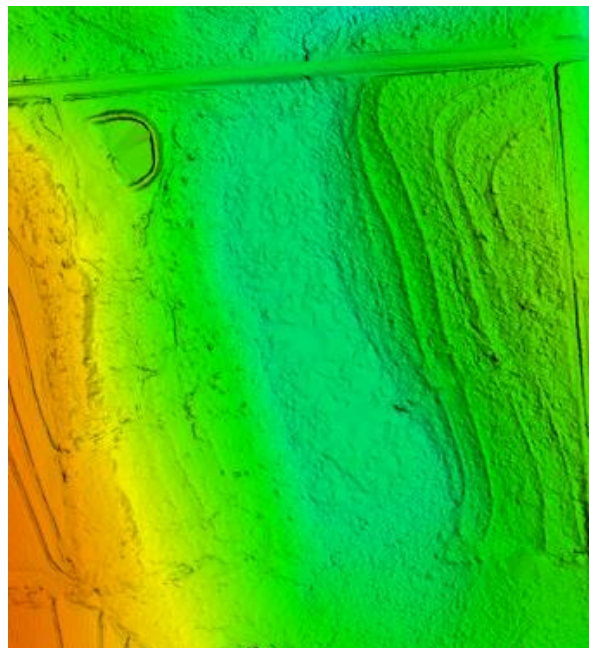

Figure 5 – Ground points were added to the lidar to improve density and representation in the final DEM.

Of the 38 missing waterbody calls, three (3) were investigated by Dewberry and determined to be swamps/bog features. These features did not appear wet in the corresponding intensity imagery and remain modeled as ground. Points were not available to reclassify to ground to improve density in the lidar, so no changes were made to the original lidar and DEMs.
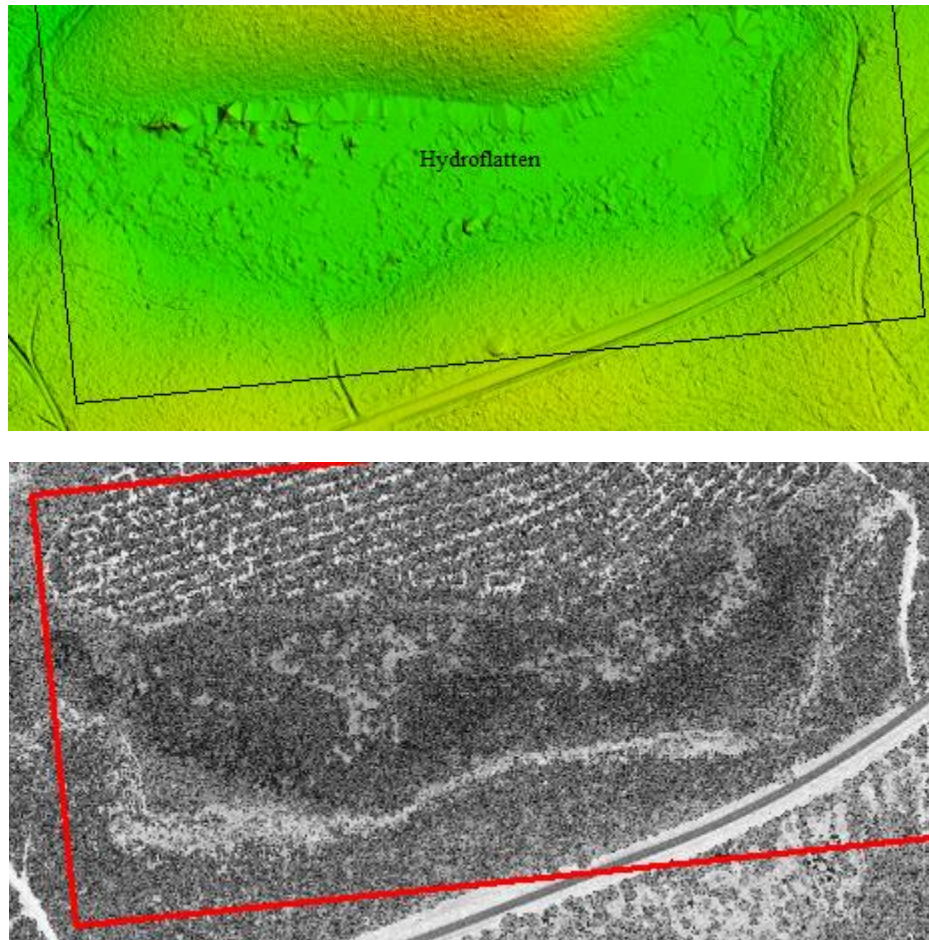

Figure 6 – Location of USGS call for missing waterbody (top) and corresponding intensity imagery (bottom). These swamps/bog features were investigated by Dewberry and determined to be dry, heavily vegetated locations. There were, however, no ground points available to reclassify in the lidar to increase density. No changes were made.

BRIDGE SADDLES

USGS made two (2) bridge saddle calls in the DEMs. Dewberry added bridge saddle breaklines for one of the two bridge saddle calls. The bridge saddles have been corrected.
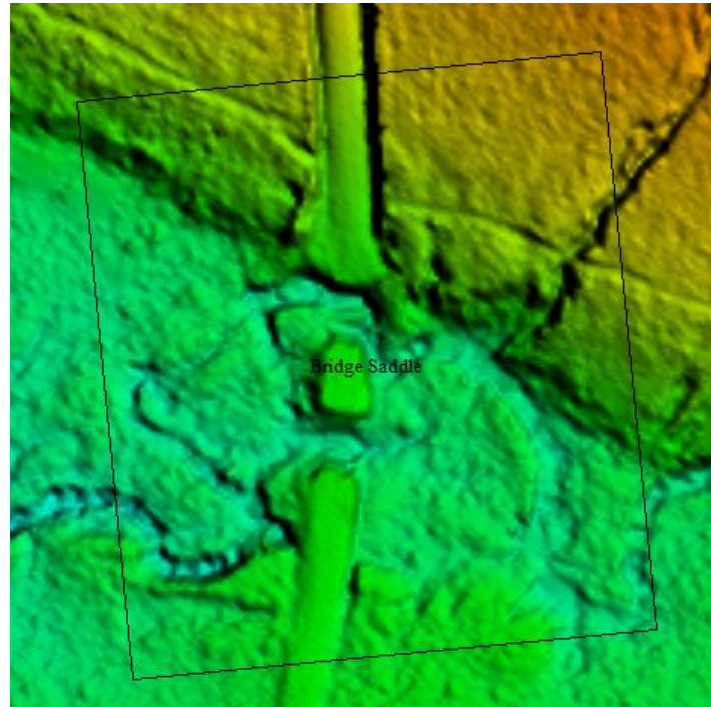
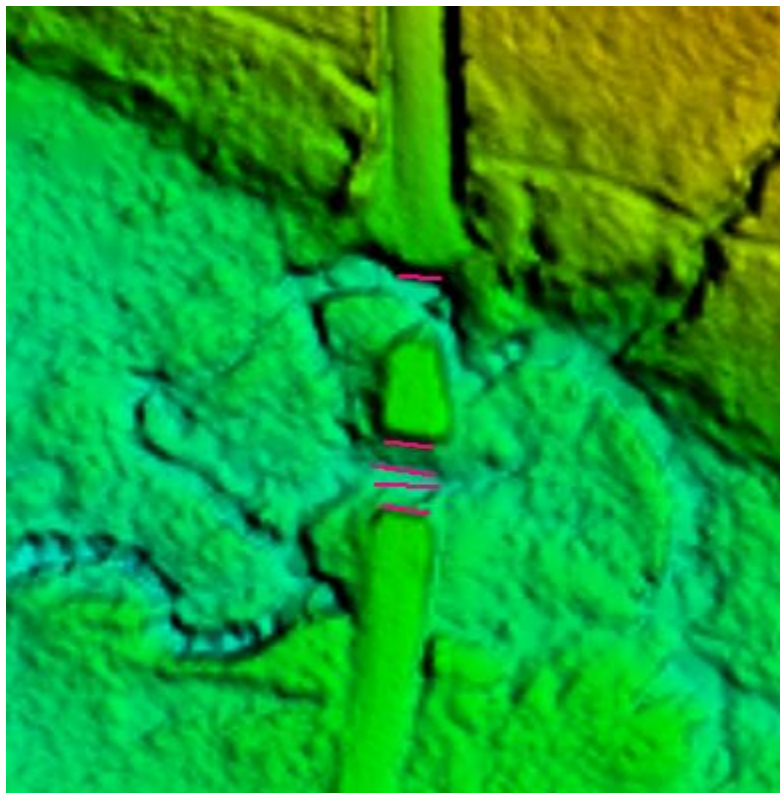**Figure 7 – USGS call location for bridge saddles in the DEM.**

Figure 8 – Bridge saddle breaklines were added and enforced in the final DEM to remove the bridge saddles.

In the second bridge saddle call identified by USGS, the feature was investigated by Dewberry and determined to be a culvert. The feature was reclassified in the lidar to ground.
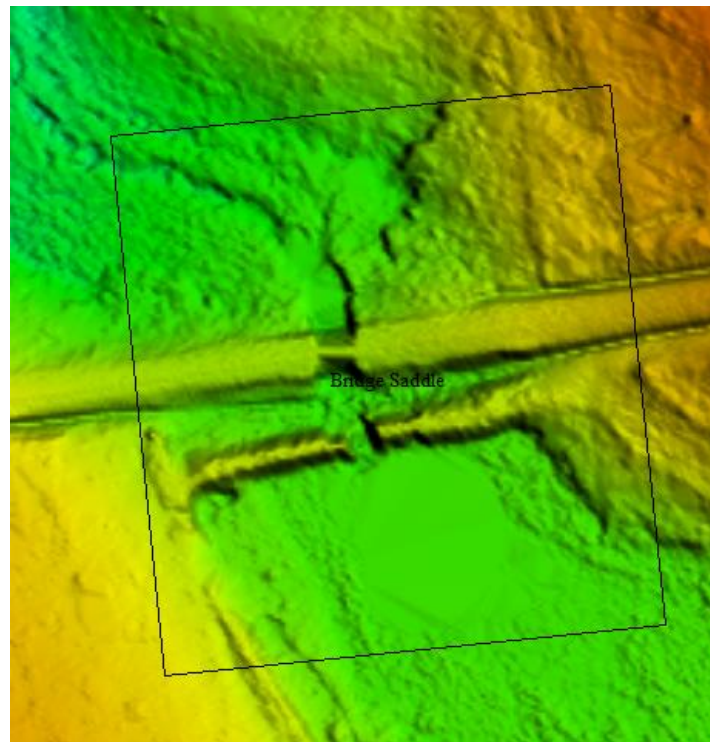

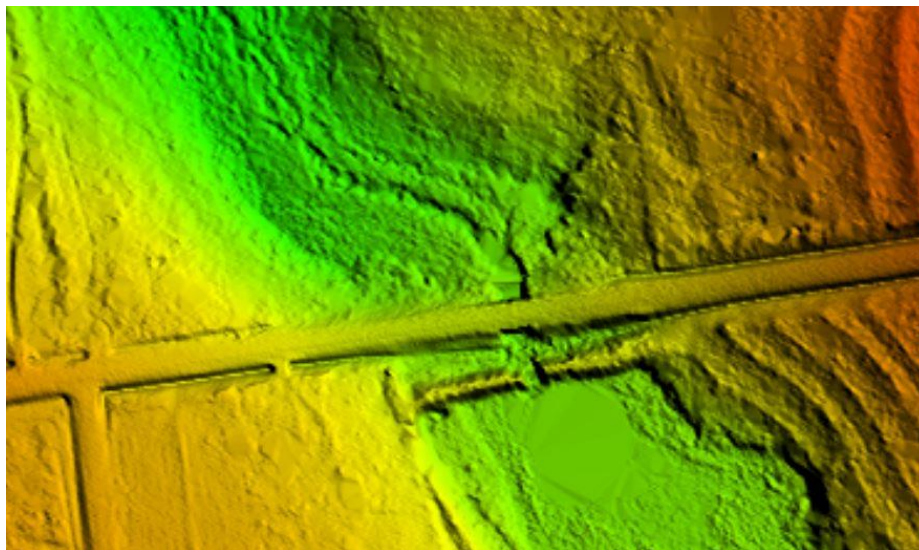**Figure 9 – USGS call location for bridge saddles in the DEM.**

Figure 10 - The area was examined and determined to be a culvert. The bridge points were reclassified to ground to represent a culvert. Bridge saddle breaklines were not required.

Summary of Edit Calls

- There were several metadata parser errors.
    - All metadata files have been update to no longer contain errors.

- There were 38 missing waterbody calls.
    - Five (5) waterbodies were classified in the lidar and hydroflattened in the DEMs.
    - 30 features were investigated and determined to be swamps/bogs. Lidar points were reclassified to ground to increase density to the features. The features remain modeled as ground in the DEMs.
    - Three (3) features were investigated and determined to be swamps/bogs. Lidar points were not available to increase density to the features. No changes were applied in these locations.

- There were two (2) bridge saddle calls.
    - Bridge saddles were corrected to address one call.
    - One feature was investigated and determined to be a culvert. This feature was reclassified from bridge to ground in the lidar and corresponding DEM.