

Dewberry Response to USGS Review of the Eastern Shore Virginia QL2 LiDAR BAA 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 Eastern Shore Virginia Project Area.

The LiDAR data were processed to a bare-earth digital terrain model (DTM). Detailed breaklines and bare-earth Digital Elevation Models (DEMs) were produced for the project area.

Deliverables for this project included raw point cloud data, classified point cloud data, bare earth digital elevation models, intensity images, breaklines, survey data, metadata, project report, project extent shapefiles and other ancillary data.

The USGS review of these deliverables resulted in five cornrowing calls, one floating call, one void call, four DEM calls, and one seamline call.

PROJECT AREA

One thousand three hundred seventy-five (1375) LAS tiles and one thousand three hundred ten (1310) DEM tiles were delivered for the project. Sixty five (65) tiles contained all water and were removed from DEM processing as these tiles do not contain any topographic data. Dewberry extended the client provided boundary where tiles had ground to include thirty four (34) extra tiles. Each tile's extent is 5,000 feet by 5,000 feet.

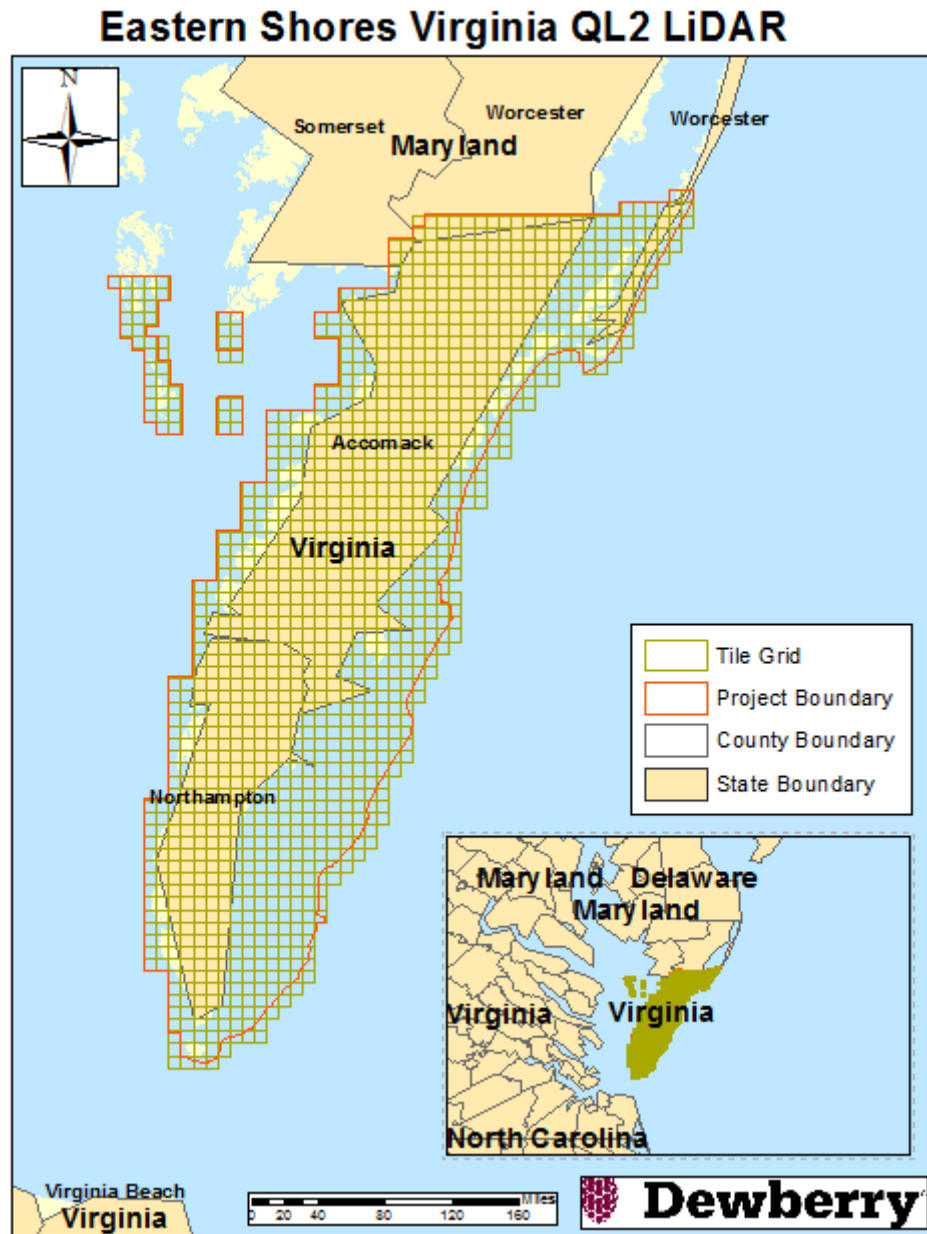
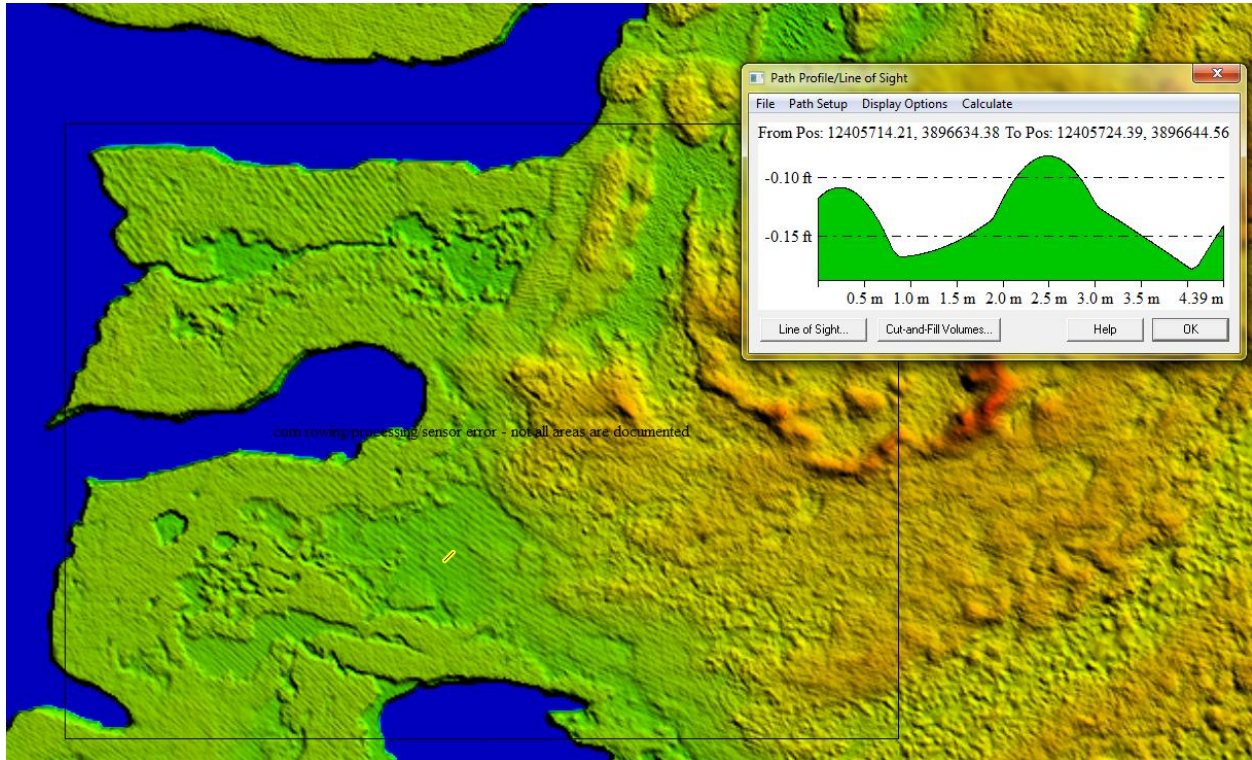


Figure 1: Project Map

Edit Calls

CORNROWING

USGS made five cornrowing calls. The cornrowing was not previously called although it existed in the initial delivery. Dewberry reviewed the LAS and found that the cornrowing was within specifications (8 cm).



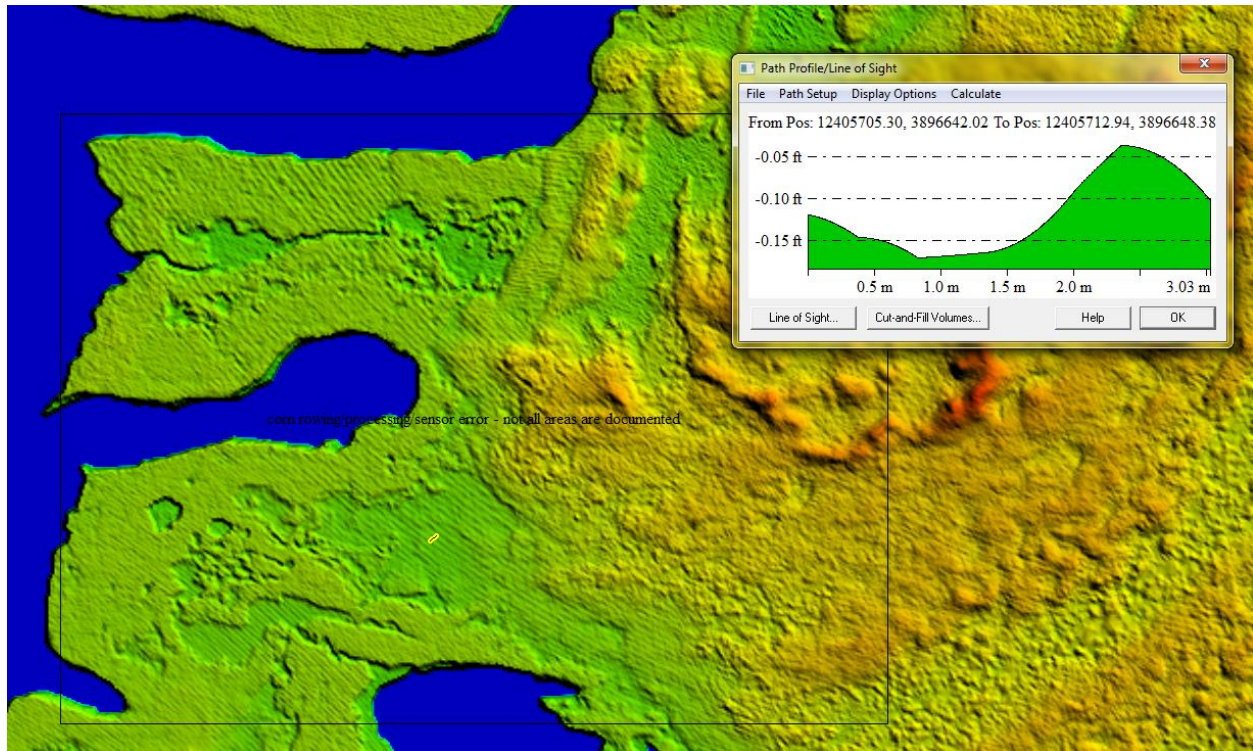


Figure 2- DEM_S23_4809. The above image is an overview of the DEM from the original project delivery on February 11, 2016. The below image is an overview of the DEM from the second project delivery on March 22, 2016. The cornrowing is within the <8 cm specifications.

FLOATING

USGS made a call in a tidal area about the direction of the flow. This area was previously corrected due to a floating call on the DEM tile from the original project delivery. Dewberry corrected the area by lowering the elevation in this portion of the tidal. The tidal had to be adjusted to flow downhill to remove the floating. The USGS Lidar Base Specification v1.2 allows for vertical discontinuities within the tidal waterbodies that can be retained in the DEM. Dewberry did not deem it necessary to adjust the DEM tile.

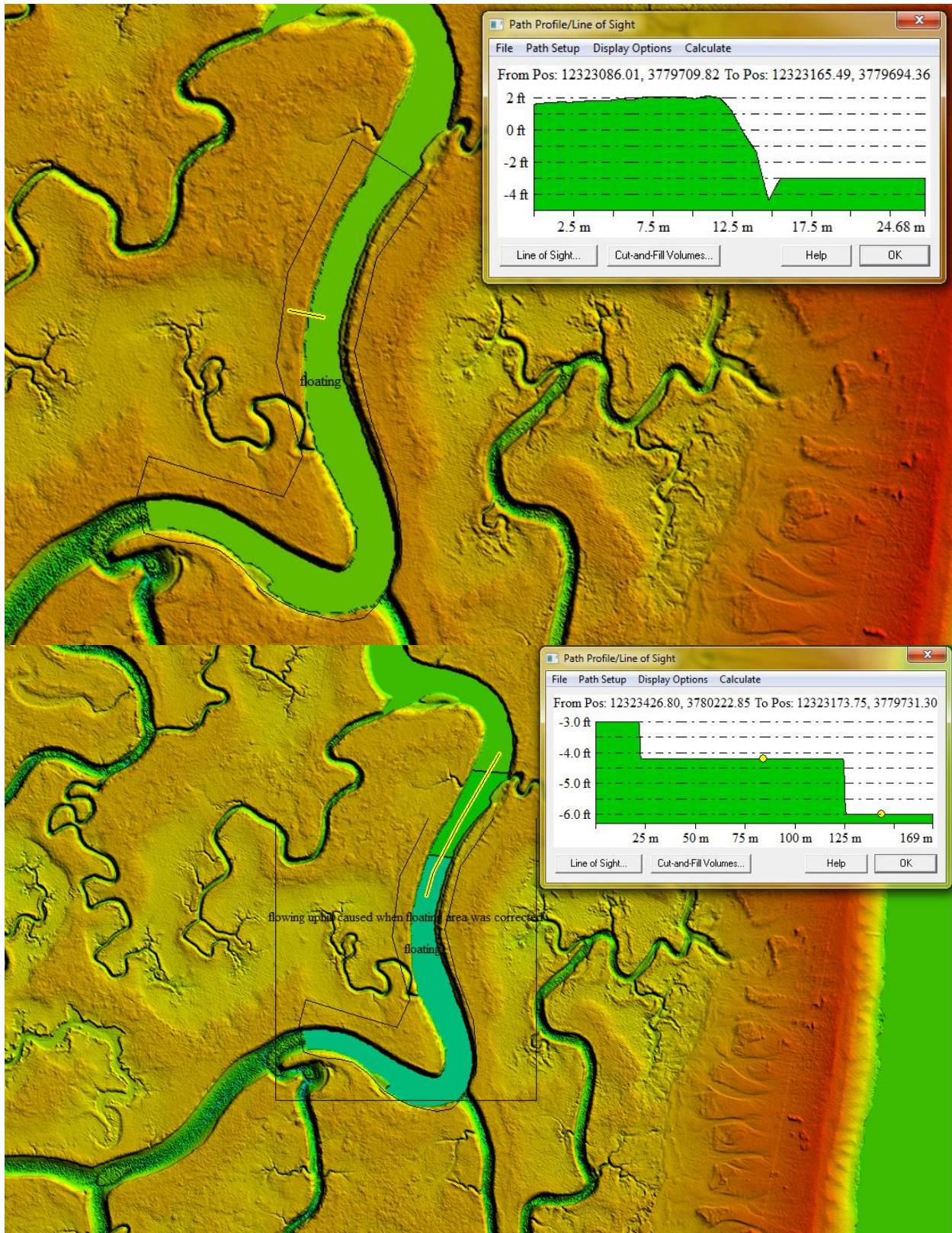


Figure 3- DEM_S23_3728_10 and DEM_S23_3727_20. The above image is an overview of the DEM from the original project delivery on February 11, 2016 with the floating call from USGS's first

review. The below image is an overview of the DEM from the second project delivery on March 22, 2016 with the tidal adjusted to correct the floating call.

VOID

USGS made one void calls. Dewberry confirmed that the void was created during processing and has recreated the DEM tile that contained a void.

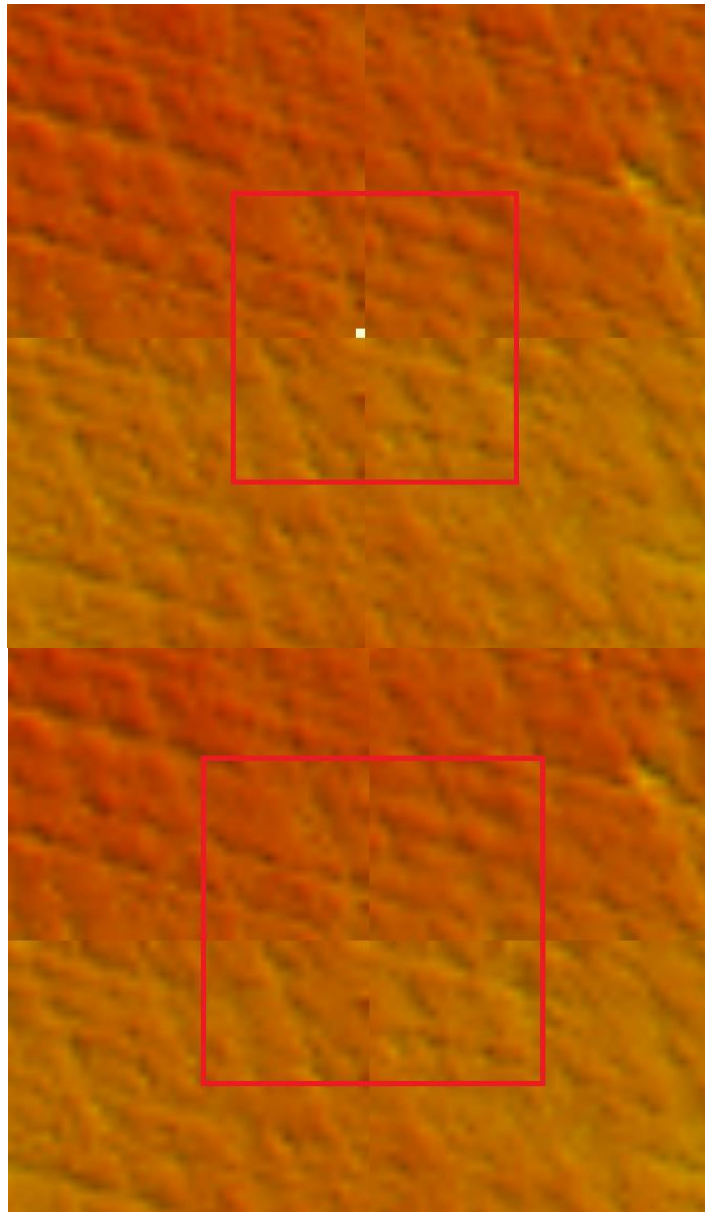


Figure 4- DEM_S23_2754_20. The above image is an overview of the DEM where USGS made a data void call. The below image is an overview of the reprocessed DEM with the data void removed.

DEM REVIEW

USGS made four additional DEM calls. Dewberry has corrected all the locations. An example is provided below.

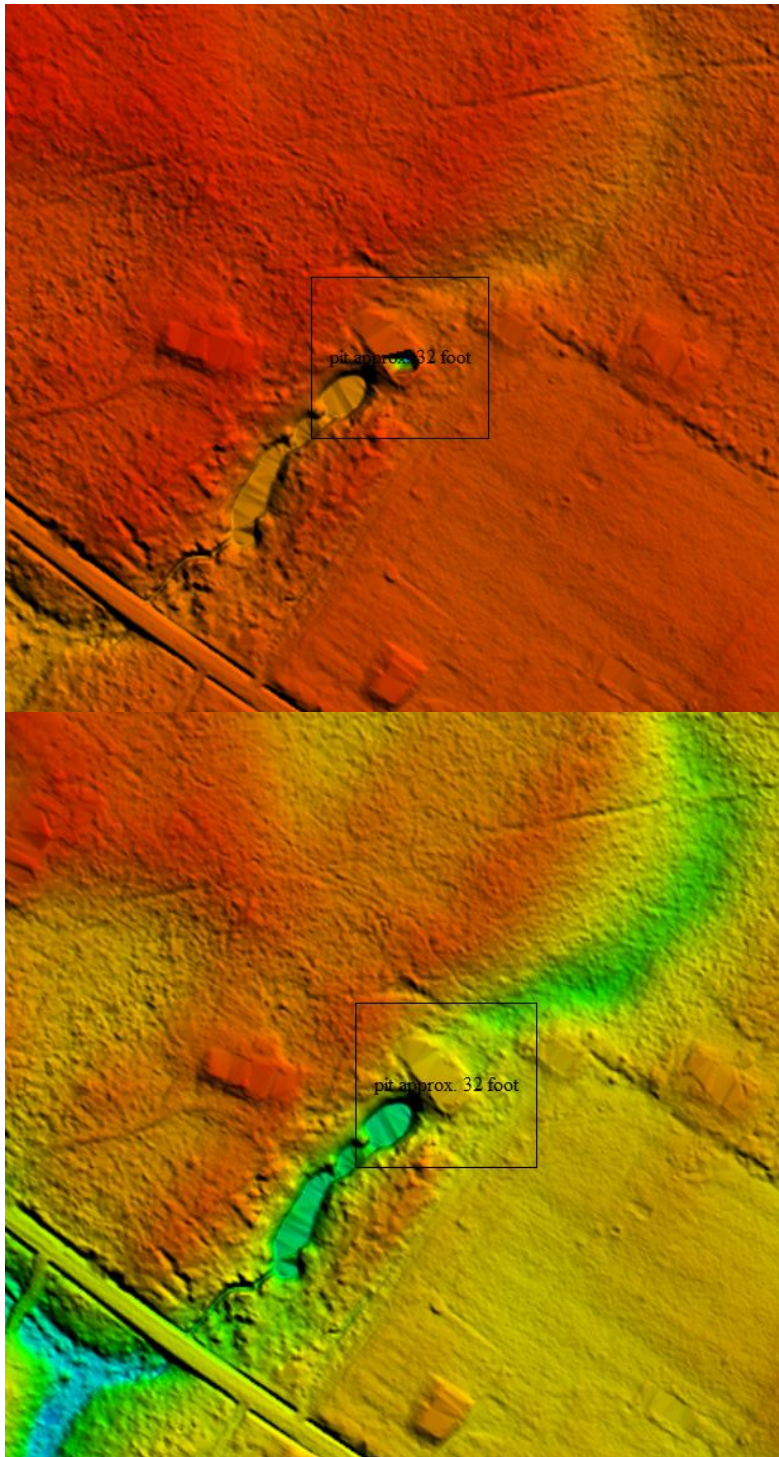


Figure 5- DEM_S23_3822_40. The above image is an overview of the DEM where USGS made a DEM call to remove a 32 foot pit. The below image is an overview of the reprocessed DEM with the pit removed.

SEAMLINER

USGS made one call of an elevation shift along redelivered tiles. The elevation shift occurs on the extra tiles that are outside of the client provided boundary but within the boundary that Dewberry created. Dewberry adjusted the tile to minimize the elevation difference.

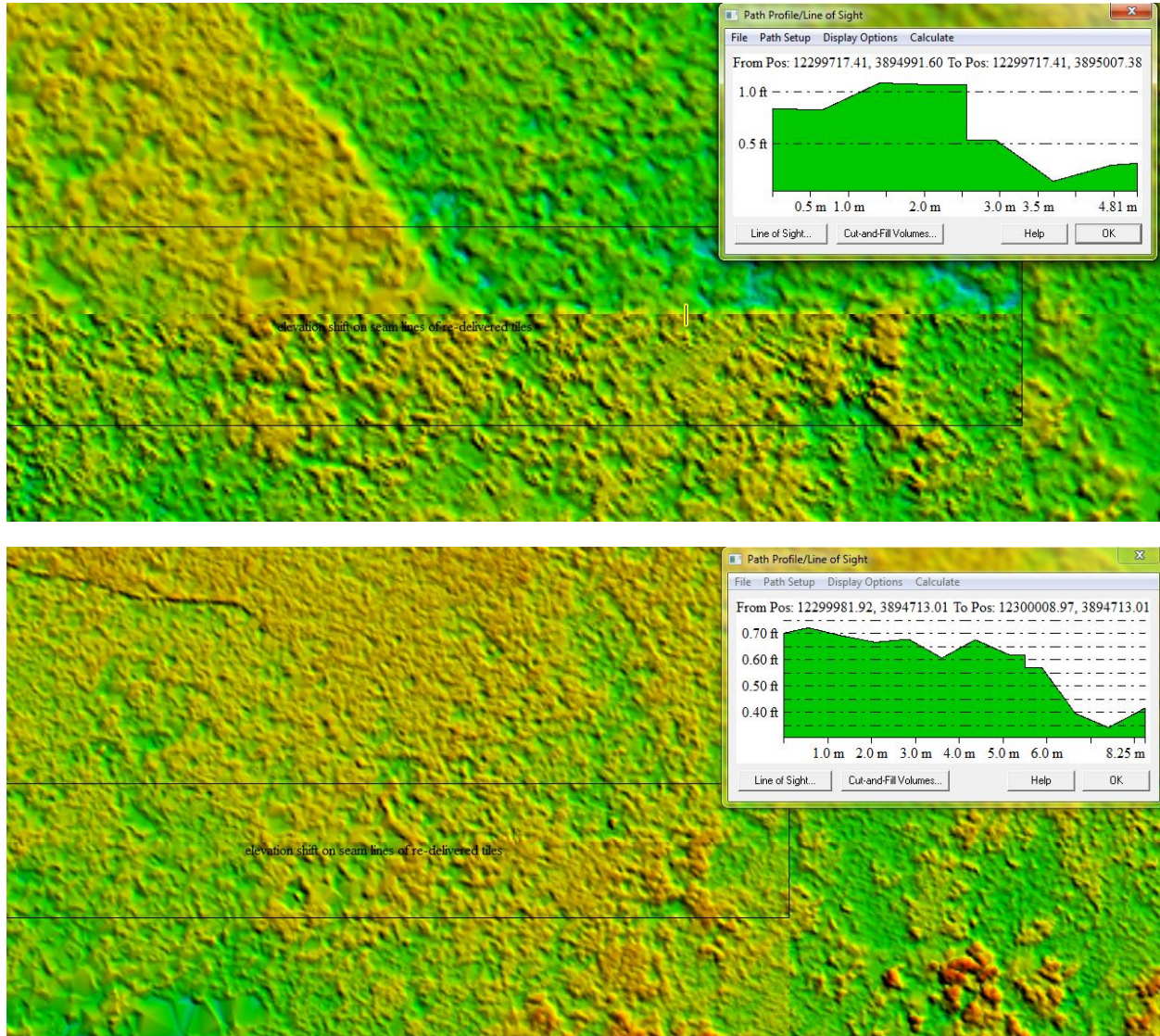


Figure 6- DEM_S23_3799_30x and DEM_S23_3799_40x. The above image is an overview of the DEM where USGS made a DEM call of an elevation shift causing a seamline. The below image is an overview of the reprocessed DEM with the elevation shift minimized.

Summary of Edit Calls

- There were five cornrowing calls
 - Dewberry has confirmed that the cornrowing is within specifications (8 cm).
- There was one floating call
 - Dewberry decided not to adjust the flow to eliminate the possibility of floating
- There was one void call
 - The call has been corrected
- There were four DEM calls
 - All of these issues have been corrected.
- There was one seamline call
 - The issue has been resolved