**3DEP Project G15AC00113 – New York State – Madison-Otsego Quality Level 2 LIDAR**

**Correction Delivery**

**March 28, 2017**

The enclosed data drive contains replacement files to correct issues identified in the December 2016 delivery to USGS. Corrections have been completed per USGS’ quality assessment report dated 12/29/16 and subsequent clarifications documented in February 9, 2017 notes from that day’s WebEx session.

The data is organized in the following folders. The contents are described below.

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| Corrected\_Hydro-Flattened\_DEMs |
| Hydro-Breaklines |
| LAS\_Tiles |
| Metadata |
| Supplemental\_Review |
| Survey\_Points |
| Swath\_Data |

**Vertical Checkpoint Data and Vertical Accuracy Assessment**

A corrected shapefile containing all 757 surveyed checkpoints used in final vertical accuracy assessments is provided in folder “Survey\_Points”. This contains 376 NVA points and 381 VVA points.

Corrected metadata files are supplied in the “Metadata” folder. Relevant edits include:

* Corrected checkpoint counts
* A statement explaining why 4 points were eliminated from the original 761 surveyed points.
* Corrected vertical accuracy values for swath and DEM assessments.
* Point counts and accuracy values match the information summarized in the project’s quality review report.

**LAS Header Information**

The entire LAS swath dataset is being redelivered in folder “Swath\_Data”, with headers corrected to match USGS requirements.

The entire classified LAS tile dataset is being redelivered in folder “LAS\_Tiles”.

**Extreme Elevation Values**

As identified in comments about “negative Z min values” and “Z max values .. greater than expected”, the dataset contains points with elevations in these categories. A note was added to the metadata stating this:

“Points with extreme elevations (negative values, or positive values well above the expected maximum) are present in this dataset. These points are classified as low or high noise in classified point cloud tiles.”

**19 LAS tiles with Multiple Issues Identified**

Neither AXIS GeoSpatial nor New York State can duplicate the findings identified by USGS for the 19 tiles. This review has involved loading the files into several different software packages (LP360, ArcMap, and GlobalMapper) as well as running the files through LASINFO and the point file info tool in ArcMap. The folder “Supplemental\_Review” includes results from these efforts, starting with review by AXIS before and after loading the data drive, and then the GPO review of the data as received on the drive.

**Hydroflattening and Floating Water Fixes**

Water bodies needing to be hydroflattened were completed. Breaklines were added to the breakline shapefile and provided in the folder “Hydro-Breaklines”. The relevant LAS tiles have edits related to the addition of Class 10. Updated DEM tiles are provided in the folder “Corrected\_Hydro-Flattened\_DEMs”. Only 37 DEM tiles are being redelivered.

Partially elevated water bodies were addressed by breakline edits and fine tuning the use of Class 10 where necessary. The updated breakline file, LAS tiles, and DEM tiles are provided in the folders mentioned above.

A note was added to the updated metadata files to indicate the presence of some partially floating water bodies:

“Partially elevated water bodies may be present where use of Class 10 (Ignored Ground) next to the hydro breaklines has eliminated ground points on a small berm or raised bank.”

 Email received from Tim Ruhren 3/29/17 We shipped an external drive via UPS yesterday ([**1Z2EW7910394502767**](http://www.ups.com/WebTracking/processInputRequest?loc=en_US&Requester=NES&tracknum=1Z2EW7910394502767&AgreeToTermsAndConditions=yes&WT.z_eCTAid=ct1_eml_Tracking__ct1_eml_qvn_eml_5shp&WT.z_edatesent=03282017)).  We’ve been focused on getting the 2016 3DEP LIDAR project completed, which delayed our completion of this redelivery.  It contains the corrections needed to address the issues your team identified, so it’s a full redelivery of swath and classified LAS files along with new metadata and checkpoint shapefile (~1.8 TB total).  A subset of the DEM tiles are being redelivered to address the hydroflattening issues.

We have not been able to duplicate the findings of strange classes and other issues in the 19 classified LAS tiles your team identified.  We’re shipping our results (LASINFO output, etc.) for reference.