



**L3HARRIS**

FAST. FORWARD.

**CONTRACT: 140G0120C0007  
USGS NY HUDSON RIVER REGION LIDAR  
CORRECTION CYCLE 2 FEEDBACK**

**L3HARRIS DISPOSITION OF USGS FEEDBACK**

May 10, 2022

# USGS Feedback Summary – Items Received



## USGS provided feedback to L3Harris for Correction Cycle 2 on April 6, 2022

- Overall comments (Item Specific) in an e-mail body
- A zip file including Geopackage and shapefile identifying more specific areas of USGS concern

## L3Harris received the following zip file contents from USGS

### USGS\_NY\_HudsonRiverRegion\_ReviewSummary2.zip

- USGS\_NY\_HudsonRiverRegion\_ReviewSummary2
  - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.shp
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.shp
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.prj
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.cpg
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.dbf
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.sbn
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex..sbx
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.shp.xml
    - USGS\_NY\_HudsonRiverRegion\_1\_2020\_TileIndex.shx
  - LAS\_lasinfo.txt
  - NY\_HudsonRiverRegion\_1\_2020\_2022-03-31\_Errors\_Corrections.gpkg
  - USGS\_NY\_HRR\_Incomplete\_Corrections\_LASReport.html
  - USGS\_NY\_HudsonRiverRegion\_2020\_Corrections\_rDEMReport.html
  - USGS\_NY\_HudsonRiverRegion\_2020\_Corrections\_rDEMReport.txt

## L3Harris addressed Item Specific comments and the specific areas identified in the Geopackage

# USGS Feedback Summary – Items Received



The email also included a few items of USGS concern

Our inspection of the **NY\_HudsonRiverRegion\_1\_2020** Work Unit data (corresponding to **NY\_HudsonRiverRegion\_2020\_A20**) has been completed and the reviewer has requested corrections. Would you please ask the contractor to address the following areas of concern?:

## Error Summary:

### FGDC XML Metadata

- 1 - Content Inaccurate
- 2 - Content Inaccurate
- 1 - Failed Parser
- 3 - Content Inaccurate
- 3 - Content Inaccurate
- 1 - Failed Parser

### Pointcloud

- 2 - Header Properties
- 4 - Point Mis-classification

### Breaklines

- 8 - Geometry Error
- 1 - Breakline Enforcement
- 2 - Missing Feature
- 26 - Geometry Error

### DEM

- 1 - Properties
- 2 - Export

### Spatial Metadata

- 1 - Incorrect Geometry

# USGS Feedback Summary – Items Received



I would add specifically, we would like to publish them as they are without any work from Operations. Therefore, it would be useful to focus on the following:

<b>Pointcloud</b>				
Based on this Review, the USGS-NGTOC <b>DOES NOT ACCEPT</b> the Pointcloud				
Deliverable	Error Type	Subtype	Quantity	Examples
Pointcloud	Header Properties	Spatial Reference	1	
Error Comment(s): Testing could not be completed due to LAS files not containing spatial reference VLR's or WKT string. There is an unknown amount of LAS files with this issue. In addition, at least 18,024 files show that the WKT contains carriage returns, which is not allowable per OGC WKT standards.				
Pointcloud	Header Properties	None	1	
Error Comment(s): USGS was unable to unzip all compressed corrected laz files. Files that were able to be processed threw errors such as WKT contains carriage returns, Not a 1.4 las file, and XYZ value in points does not match that in the header, although USGS believes the last issue may be due to rounding and not actual error. A redelivery of all corrected las files is required.				
DEM	Properties	NoData Value	1	
Error Comment(s): 2 files were found to have suspect values of -9999. The NoData value in the header is correct, however in the data it appears to be incorrect. 4335048720.tif 4200048730.tif				

# USGS Feedback Summary – Items Received



The Geopackage, “NY\_HudsonRiverRegion\_1\_2020\_2022-03-31\_Errors\_Corrections.gpkg” contains a shapefile that identifies the following specific areas of concern. The view below hides some columns based on the information was contained in another column.

fid	error_id	location_i	deliv_type	deliv_id	type	subtype	desc	resolved
0	3190160	- Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
0	3190161	- Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
0	3190162	- Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
0	3190163	- Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
0	31823	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31824	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31825	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31826	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31822	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31827	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
0	31817	- Breakline Enforcement	Hydroflattened Polygon Breaklines	7377	Breakline Enforcement	None		Unresolved
0	31832	- Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Unresolved
0	31833	- Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Unresolved
0	318870	- Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Unresolved
0	318876	- Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Unresolved
0	47151	- Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Unresolved
0	47152	- Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Unresolved
0	47161	- Geometry Error, Z-Values	Breaklines	9864	Geometry Error	Z-Values		Unresolved
0	47123	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47124	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47125	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47126	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47127	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47128	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47121	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47122	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47129	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
0	47141	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47142	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47143	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47144	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47145	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47146	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47147	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47148	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47149	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	471410	- Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
0	47111	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
0	47112	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
0	47113	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
0	47114	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
0	47115	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
0	47116	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved

# Review of USGS Feedback – Item Specific



- **Error Summary:**
  - FGDC XML Metadata**
    - 1 - Content Inaccurate
    - 2 - Content Inaccurate
    - 1 - Failed Parser
    - 3 - Content Inaccurate
    - 3 - Content Inaccurate
    - 1 - Failed Parser
  - Pointcloud**
    - 2 - Header Properties
    - 4 - Point Mis-classification
  - Breaklines**
    - 8 - Geometry Error
    - 1 - Breakline Enforcement
    - 2 - Missing Feature
    - 26 - Geometry Error
  - DEM**
    - 1 - Properties
    - 2 - Export
  - Spatial Metadata**
    - 1 - Incorrect Geometry

L3Harris populated the XML metadata fields with content based on collection and processing for a Geiger-mode LIDAR sensor.

The L3Harris team processed the XML files using the USGS Metadata Validation Service (<https://www1.usgs.gov/mp/>). The service reported `No Errors' for the East and West AOI XML files.

L3Harris requested that USGS provide additional details for these specific concerns; response is currently pending.

No changes have been made to the XML files for this delivery.



# Review of USGS Feedback – Item Specific



Three specific items identified include unallowable carriage returns in Well Known Text (WKT), missing VLR, and unable to unzip LAZ files

<b>Pointcloud</b>				
Based on this Review, the USGS-NGTOC <b>DOES NOT ACCEPT</b> the Pointcloud				
Deliverable	Error Type	Subtype	Quantity	Examples
Pointcloud	Header Properties	Spatial Reference	1	
Error Comment(s): Testing could not be completed due to LAS files not containing spatial reference VLR's or WKT string. There is an unknown amount of LAS files with this issue. In addition, at least 18,024 files show that the WKT contains carriage returns, which is not allowable per OGC WKT standards.				
Pointcloud	Header Properties	None	1	
Error Comment(s): USGS was unable to unzip all compressed corrected laz files. Files that were able to be processed threw errors such as WKT contains carriage returns, Not a 1.4 las file, and XYZ value in points does not match that in the header, although USGS believes the last issue may be due to rounding and not actual error. A redelivery of all corrected las files is required.				

L3Harris removed all carriage returns from the Well Known Text (WKT) fields, corrected the missing VLR, verified file format is LAS 1.4 and checked to ensure that all LAZ files are readable

A complete set of the LAZ files will be redelivered to USGS

Redelivery includes a spreadsheet for the East and West AOIs with a header summary for each LAZ file

# Review of USGS Feedback – Item Specific



DEM	Properties	NoData Value	1
Error Comment(s): 2 files were found to have suspect values of -9999. The NoData value in the header is correct, however in the data it appears to be incorrect. 4335048720.tif 4200048730.tif			

Analyzed files using multiple COTS and internal tools to locate the reported incorrect values

The tools did not report any suspect or incorrect values in the two elevation files

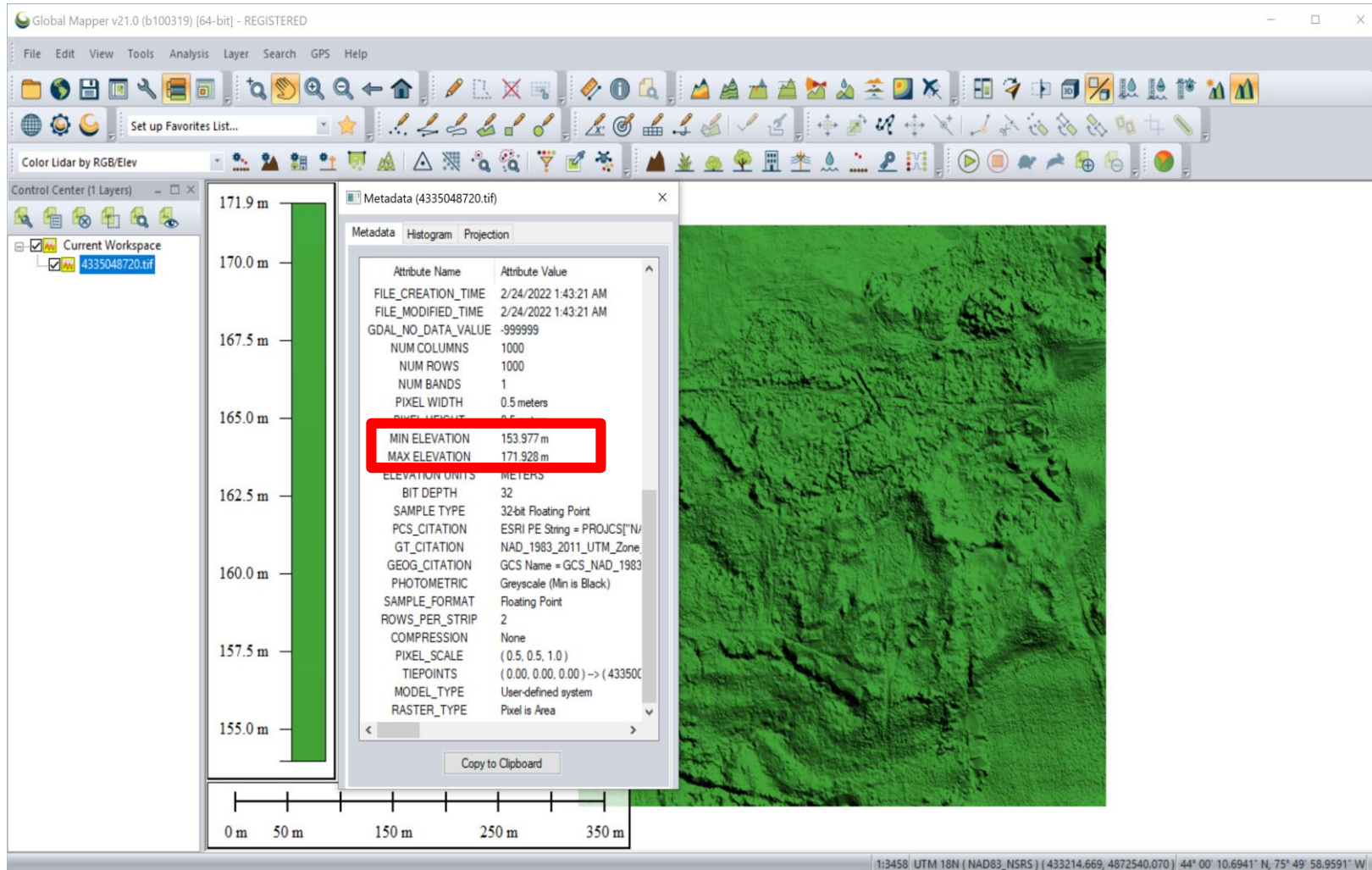
The screenshot displays the Global Mapper v21.0 interface. On the left, a vertical scale bar shows elevation from 155.0 m to 171.9 m. The main window shows a 3D terrain model in green. A metadata window for '4335048720.tif' is open, showing the following details:

Attribute Name	Attribute Value
FILE_CREATION_TIME	2/24/2022 1:43:21 AM
FILE_MODIFIED_TIME	2/24/2022 1:43:21 AM
GDAL_NO_DATA_VALUE	999999
NUM_COLUMNS	1000
NUM_ROWS	1000
NUM_BANDS	1
PIXEL_WIDTH	0.5 meters
PIXEL_HEIGHT	0.5 meters
MIN_ELEVATION	153.977 m
MAX_ELEVATION	171.928 m
ELEVATION_UNITS	METERS
BIT_DEPTH	32
SAMPLE_TYPE	32bit Floating Point
PCS_CITATION	ESRI PE String = PROJCS["NAD_1983_2011_UTM_Zone
GT_CITATION	NAD_1983_2011_UTM_Zone
GCS_CITATION	GCS Name = GCS_NAD_1983
PHOTOMETRIC	Grayscale (Min is Black)
SAMPLE_FORMAT	Floating Point
ROWS_PER_STRIP	2
COMPRESSION	None
PIXEL_SCALE	(0.5, 0.5, 1.0)
TIEPOINTS	(0.00, 0.00, 0.00) -> (433500
MODEL_TYPE	User-defined system
RASTER_TYPE	Pixel is Area

On the right, the 'Model Information' window is open for model 4335048720. It shows specifications such as Type (QTT Surface), Color (NONE), and Comp (Uncompressed). The Extents section lists X Min (433,500.250 m), X Max (433,999.750 m), Y Min (4,872,000.250 m), Y Max (4,872,499.750 m), Z Min (153.977 m), and Z Max (171.928 m). Below this, a histogram titled 'Model: Height' shows the distribution of elevation values. The histogram has a minimum of 153.977 m, a maximum of 171.928 m, a mean of 163.732 m, and a standard deviation of 3.355 m. The histogram bars are colored in a gradient from blue to yellow.



# Review of USGS Feedback – Suspect values of -9999

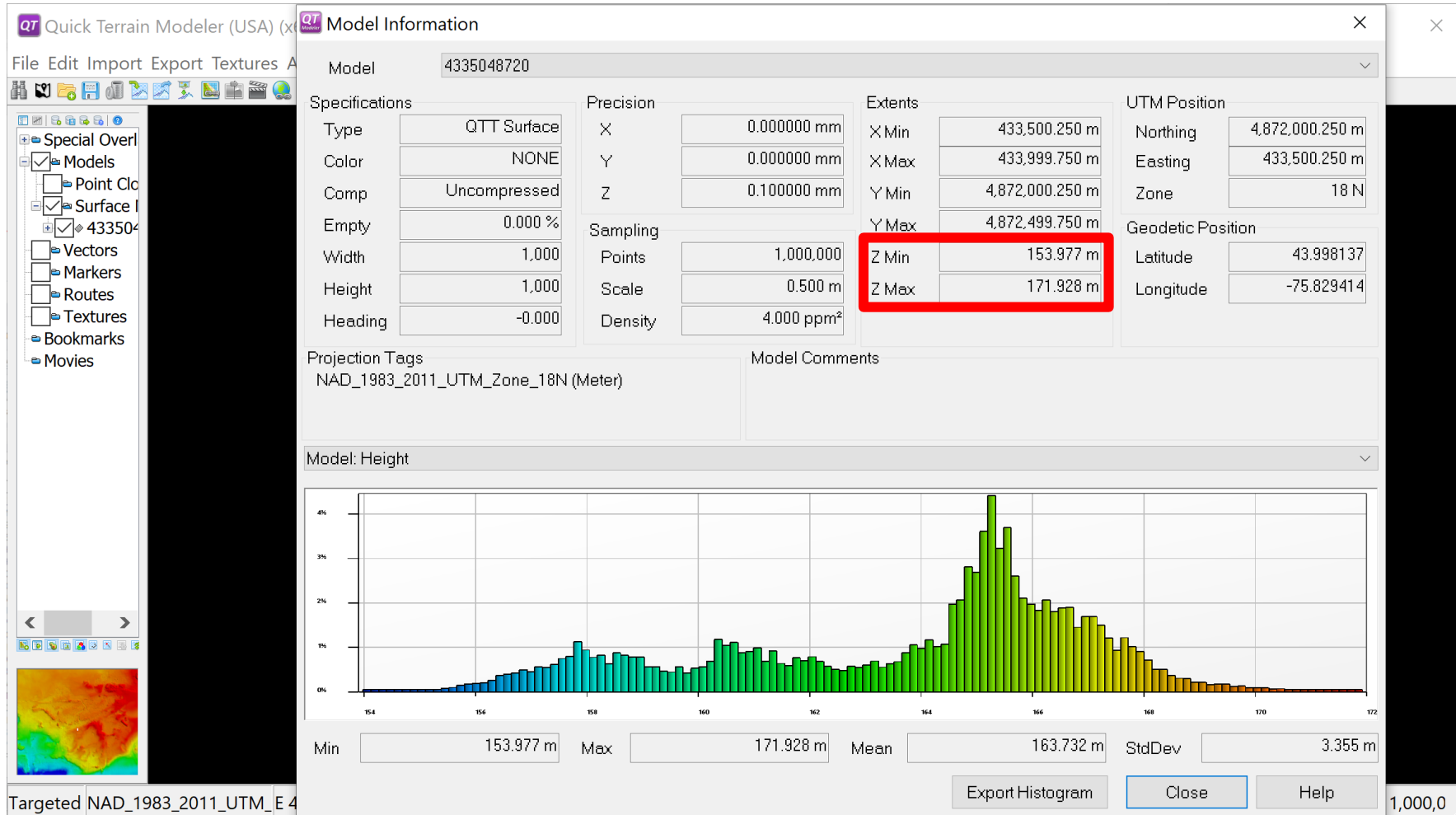


Elevation tile 4335048720.tif was flagged as having suspect values of -9999

Loaded into Global Mapper v21.0 valid heights being reported in the metadata as well as the elevation scale bar are:

- **Min Elevation: 153.977**
- **Max Elevation: 171.928**

# Review of USGS Feedback – Suspect values of -9999

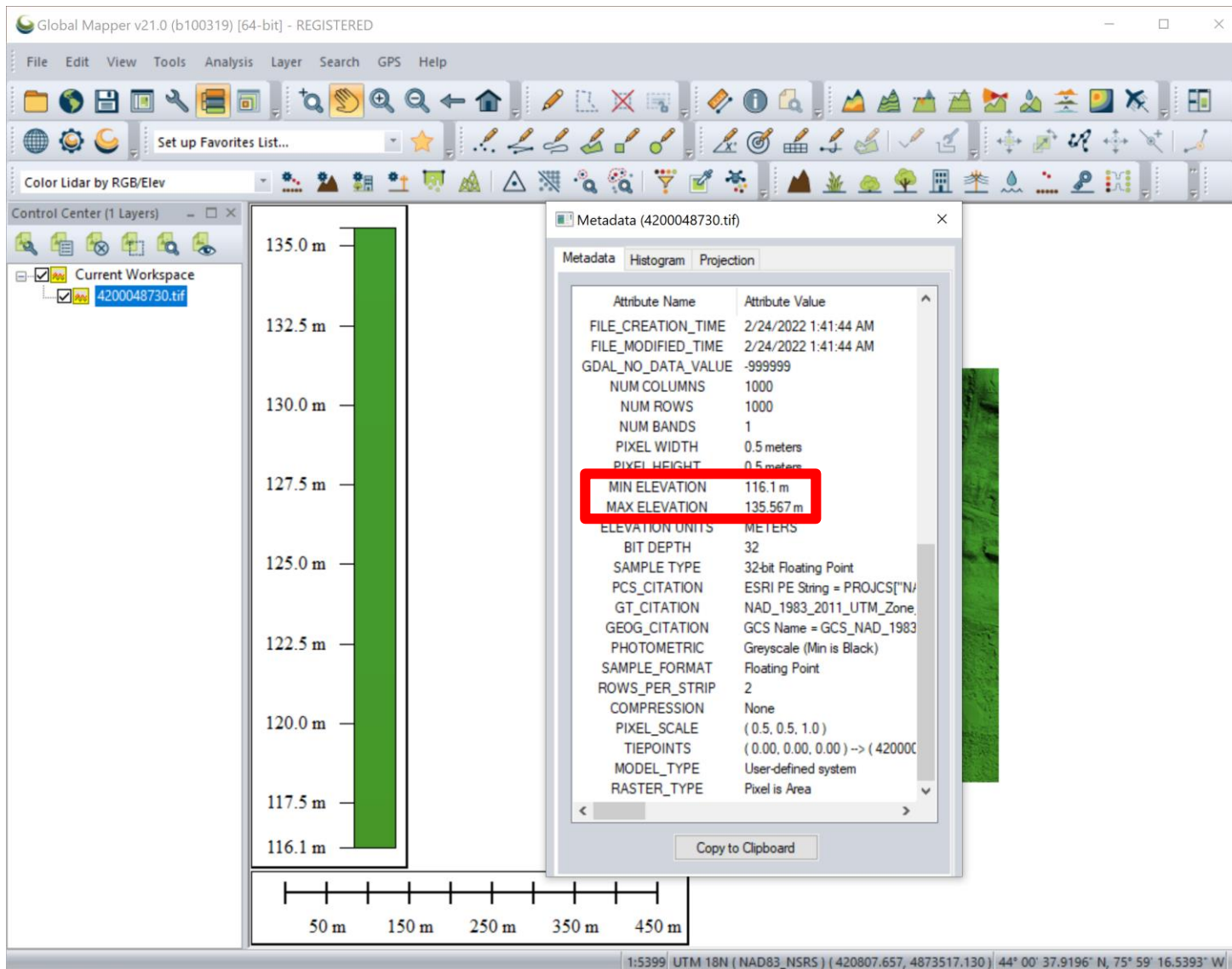


**Elevation tile 4335048720.tif was flagged as having suspect values of -9999**

Loaded into QT Modeler v8.0.7.2 valid heights being reported in the Model Information as well as the elevation scale bar are:

- **Min Elevation: 153.977**
- **Max Elevation: 171.928**

# Review of USGS Feedback – Suspect values of -9999

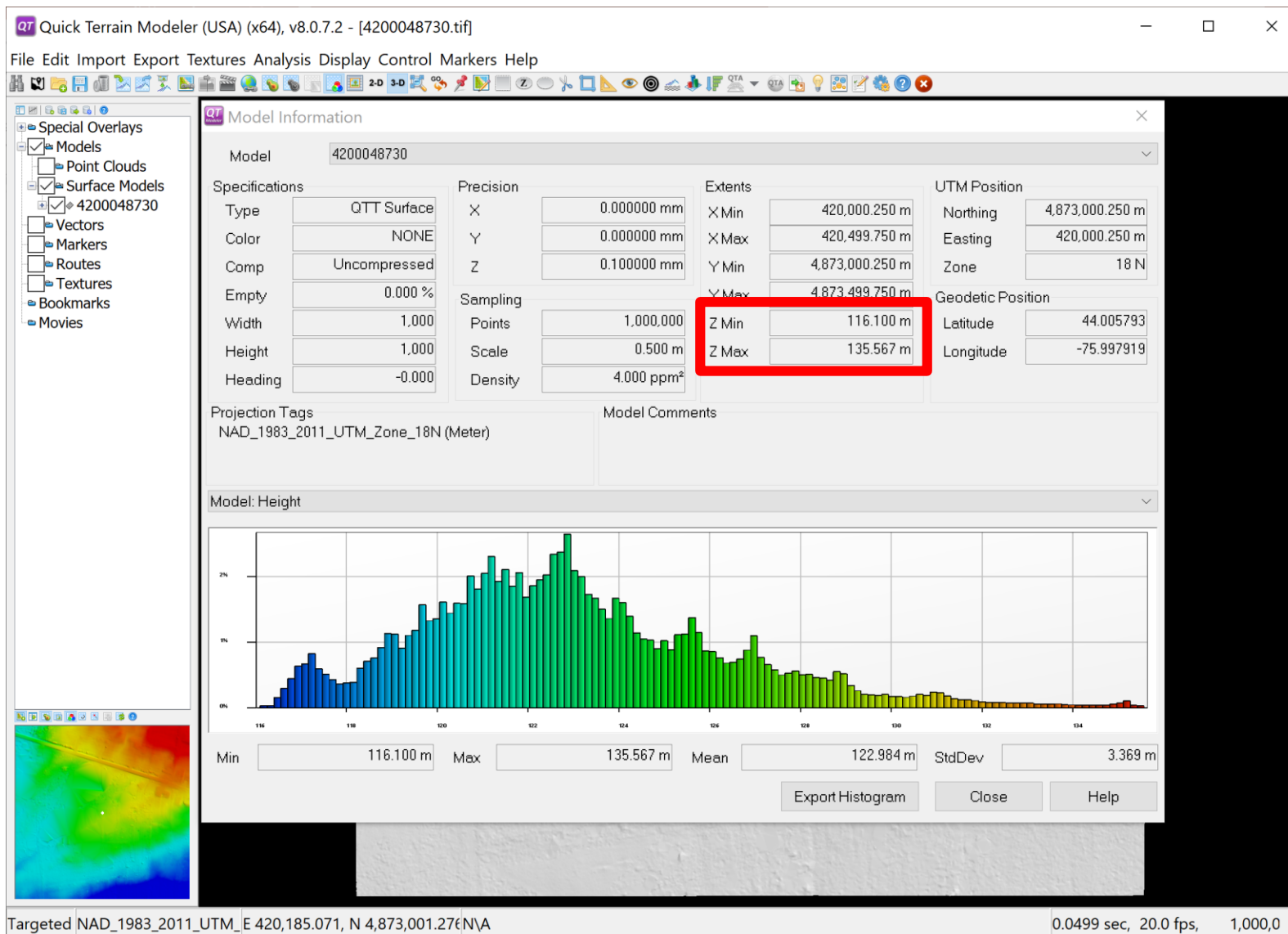


**Elevation tile 4200048730.tif was flagged as having suspect values of -9999**

Loaded into Global Mapper v21.0 valid heights being reported in the metadata as well as the elevation scale bar are:

- **Min Elevation: 116.1**
- **Max Elevation: 135.567**

# Review of USGS Feedback – Suspect values of -9999



Elevation tile 4200048730.tif was flagged as having suspect values of -9999

Loaded into QT Modeler v8.0.7.2 valid heights being reported in the Model Information as well as the elevation scale bar are:

- **Min Elevation: 116.100**
- **Max Elevation: 135.567**



# Review of USGS Feedback – Geopackage calls



## L3Harris reviewed each of the individual 43 calls

fid	error_id	location_i	deliv_type	deliv_id	type	subtype	desc	resolved
0	3190	160 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
1	3190	161 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
2	3190	162 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
3	3190	163 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Unresolved
4	3182	3 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
5	3182	4 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
6	3182	5 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
7	3182	6 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
8	3182	2 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
9	3182	7 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Unresolved
10	3181	7 - Breakline Enforcement	Hydroflattened Polygon Breaklines	7377	Breakline Enforcement	None		Unresolved
11	3183	2 - Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Unresolved
12	3183	3 - Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Unresolved
13	3188	70 - Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Unresolved
14	3188	76 - Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Unresolved
15	4715	1 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Unresolved
16	4715	2 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Unresolved
17	4716	1 - Geometry Error, Z-Values	Breaklines	9864	Geometry Error	Z-Values		Unresolved
18	4712	3 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
19	4712	4 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
20	4712	5 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
21	4712	6 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
22	4712	7 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
23	4712	8 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
24	4712	1 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
25	4712	2 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
26	4712	9 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Unresolved
27	4714	1 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
28	4714	2 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
29	4714	3 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
30	4714	4 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
31	4714	5 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
32	4714	6 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
33	4714	7 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
34	4714	8 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
35	4714	9 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
36	4714	10 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Unresolved
37	4711	1 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
38	4711	2 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
39	4711	3 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
40	4711	4 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
41	4711	5 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved
42	4711	6 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Unresolved



# Review of USGS Feedback – Geopackage calls

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**The following charts include the specifics of the USGS calls and the L3Harris resolution**

**Two columns have been added to the spreadsheet to incorporate L3Harris resolution status**

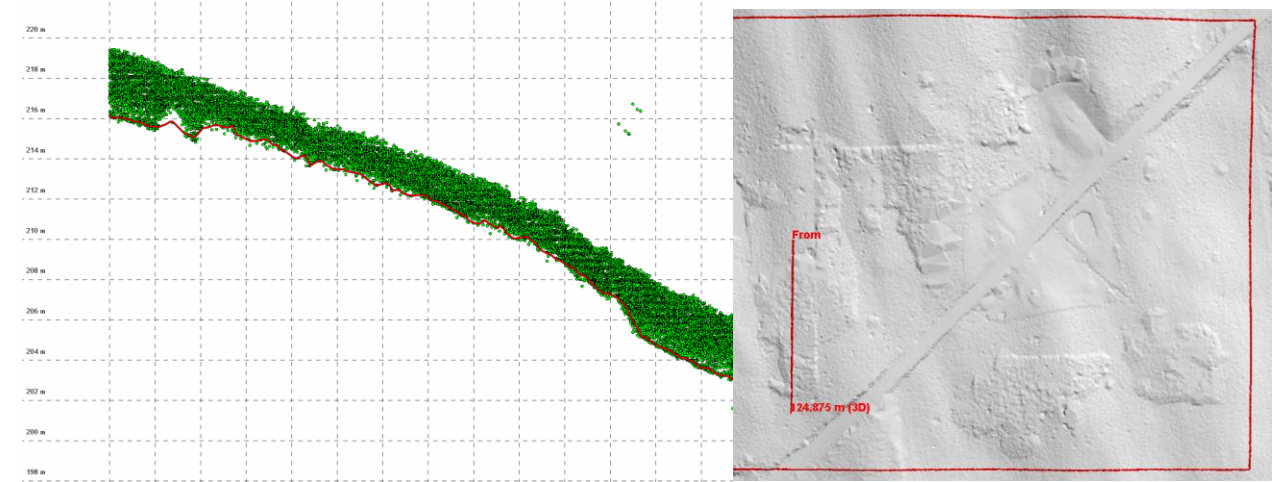
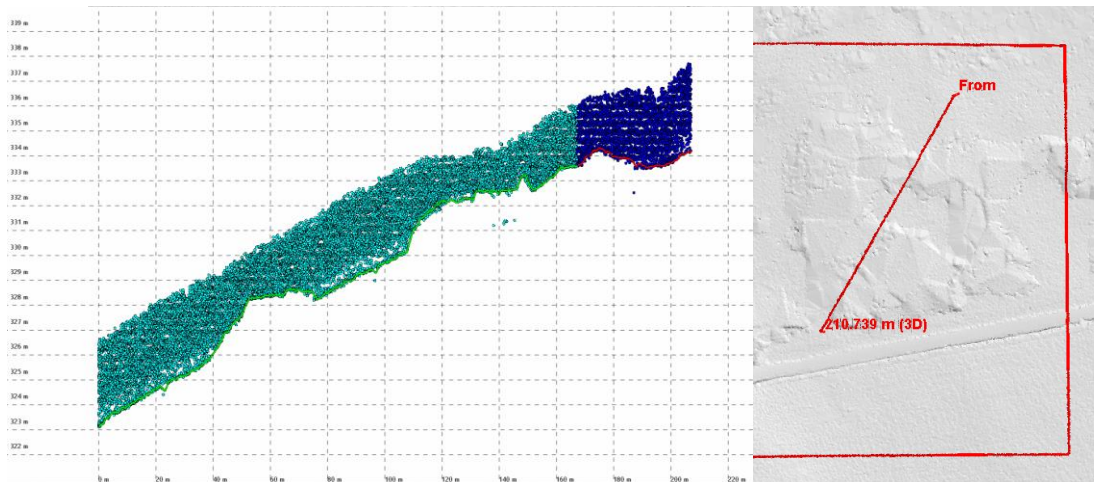
- Column Heading L3Harris Resolution: provides text with the L3Harris disposition (i.e., Resolved, Unresolved)
- Column Heading L3Harris Comments: provides text with a comment on the resolution

# Review of USGS Feedback – Geopackage calls



fid	error_id	location_i	deliv_type	deliv_id	type	subtype	desc	L3Harris Resolution	L3Harris Comments
0	3190	160 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Resolved	Fixed LAS & DEM
1	3190	161 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Resolved	Fixed LAS & DEM
2	3190	162 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Resolved	Fixed LAS & DEM
3	3190	163 - Point Mis-classification	Pointcloud	7373	Point Mis-classification	None	Issues with classification for vegetation/ground is endemic throughout the project. There are areas of tinning where ground points exist but were left unclassified, and there are areas where there aren't many ground points collected, but the vegetation was classified as ground.	Resolved	Fixed LAS & DEM

These are examples of calls with FID 1 and FID 2. These 4 areas were revisited and manually corrected



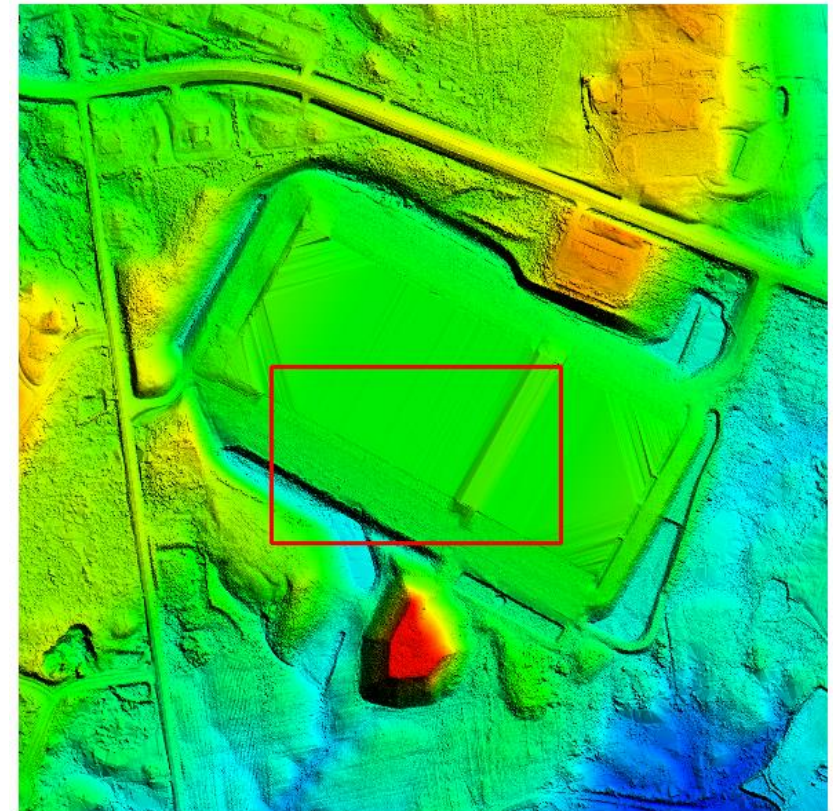
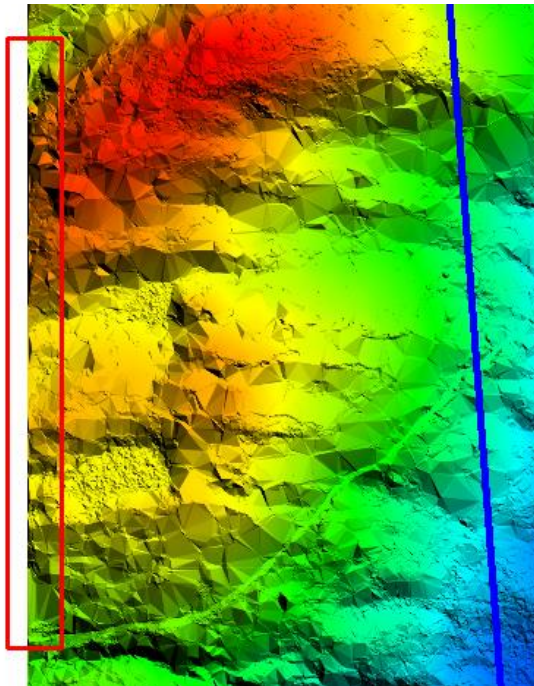
# Review of USGS Feedback – Geopackage calls



These 2 items have been corrected and affected products will be redelivered

fid_	error_id	location_i	deliv_type	deliv_id	type	subtype	desc_	L3Harris Resolution	L3Harris Comments
13	3188	70 - Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Resolved	Fixed LAS & DEM
14	3188	76 - Export, Mismatch	DEM	7374	Export	Mismatch	Artifact in DEM where two or more tile edges meet	Resolved	Fixed LAS & DEM

FID #13 was outside the 3,174 square mile AOI, but was updated and delivered



# Review of USGS Feedback – Geopackage calls



These 16 items have been corrected and affected products will be redelivered

fid	error_id	location_i	deliv_type	deliv_id	type	subtype	desc_	L3Harris Resolution	L3Harris Comments
4	31823	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Resolved	Fixed DEM only no edits LAS file
5	31824	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Resolved	Fixed DEM only no edits LAS file
6	31825	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Resolved	Fixed DEM only no edits LAS file
7	31826	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Resolved	Fixed DEM only no edits LAS file
8	31822	- Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		Resolved	Fixed DEM only no edits LAS file
10	31817	- Breakline Enforcement	Hydroflattened Polygon Breaklines	7377	Breakline Enforcement	None		Resolved	Fixed LAS & DEM
11	31832	- Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Resolved	Fixed DEM only no edits LAS file
12	31833	- Geometry Error, Overextended Breakline	Hydroflattened Polygon Breaklines	7377	Geometry Error	Overextended Breakline		Resolved	Fixed DEM only no edits LAS file
17	47161	- Geometry Error, Z-Values	Breaklines	9864	Geometry Error	Z-Values		Resolved	Fixed DEM only no edits LAS file
23	47128	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Fixed LAS & DEM
24	47121	- Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Fixed DEM only no edits LAS file
38	47112	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Resolved	Fixed LAS & DEM
39	47113	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Resolved	Fixed LAS & DEM
40	47114	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Resolved	Fixed LAS & DEM
41	47115	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Resolved	Fixed LAS & DEM
42	47116	- Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	Resolved	Fixed LAS & DEM



# Review of USGS Feedback – Outside of AOI\*



L3Harris reviewed the 21 calls that describe incomplete feature collection

Our assessment is that the data is outside the contract-specific agreement

USGS indicated that they did not require additional data beyond the contracted 3,174 square mile AOI

See examples on the following charts

fid	error_id	location_i	deliv_type	deliv_id	type	subtype	desc_	L3Harris Resolution	L3Harris Comments
15	4715	1 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Resolved	Outside of agreed upon AOI
16	4715	2 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		Resolved	Outside of agreed upon AOI
18	4712	3 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
19	4712	4 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
20	4712	5 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
21	4712	6 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
22	4712	7 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
25	4712	2 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
26	4712	9 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	Resolved	Outside of agreed upon AOI
27	4714	1 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
28	4714	2 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
29	4714	3 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
30	4714	4 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
31	4714	5 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
32	4714	6 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI



# Review of USGS Feedback – Incomplete Feature Collection



fid_	error_id	location_i	deliv_type	deliv_id	type	subtype	desc_	L3Harris resolution	L3Harris Comments
33	4714	7 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
34	4714	8 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	Resolved	Outside of agreed upon AOI
35	4714	9 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	resolved	Outside of agreed upon AOI
36	4714	10 - Geometry Error, Under Extended Breakline	Breaklines	9864	Geometry Error	Under Extended Breakline	Multiple issues found along the Hudson River where collection of water feature is incomplete.	resolved	Outside of agreed upon AOI
37	4711	1 - Geometry Error, River/Stream Segment(s)	Breaklines	9864	Geometry Error	River/Stream Segment(s)	Multiple issues where river breaks at natural waterfalls. USGS understands river level may need to drop in elevation value at such areas, however wherever possible please maintain stream continuity.	resolved	Outside of agreed upon AOI

**This call is a duplicate of call FID 8 which was corrected**

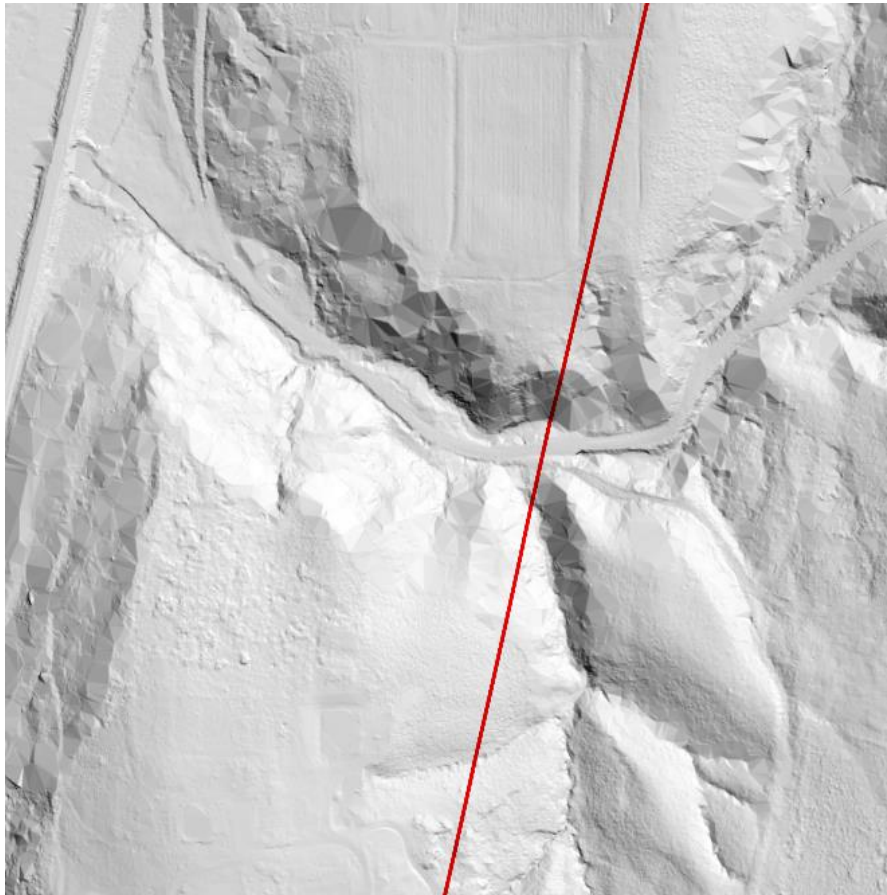
fid_	error_id	location_i	deliv_type	deliv_id	type	subtype	desc_	L3Harris resolution	L3Harris Comments
9	3182	7 - Geometry Error, Downstream Constraint	Hydroflattened Polygon Breaklines	7377	Geometry Error	Downstream Constraint		resolved	Duplicate to ID #8

# FID 15 – Incomplete Feature Collection



The examples on this and the following chart provide details where calls were outside the contract-specific project boundary

15	4715	1 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream	resolved	Outside of agreed upon AOI
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# FID 16, 18 – Incomplete Feature Collection



16	4715	2 - Missing Feature, River/Stream	Breaklines	9864	Missing Feature	River/Stream		resolved	Outside of agreed upon AOI
18	4712	3 - Geometry Error, Downstream Constraint	Breaklines	9864	Geometry Error	Downstream Constraint	Multiple downstream constraint issues were found at tile edges that have breakline polygons associated with them.	resolved	Outside of agreed upon AOI

**Blue lines outline project boundary. Red lines depict is USGS call.**

