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| TN Blount County QL2 LiDARDelivery Report Produced for U.S. Geological SurveyUSGS Contract: G10PC00013Task Order: G15PD00210 |
| Report Date: September 1, 2015 |
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**USGS TN Blount TN Ql2 LiDAR Delivery Report LiDAR Deliverables Overview Checklist**

[x]  **Raw Point Cloud Data**

 [x]  LAS version 1.4

 [x]  Georeferenced

[x]  GPS Times are included

[x]  Intensity values are included

[x]  Full swaths

[x]  1 file per swath, 1 swath per file

[x]  **Classified Point Cloud Data**

 [x]  LAS Version 1.4

 [x]  Correct Georeference Information

 [x]  Contains GPS Times

 [x]  Contains Intensity Values

 [x]  Tile to 7000ft x 4000ft Tile Grid

 [x]  Classified with class 1 – unclassified, class 2 – Bare-earth Ground, 7 – Noise, 9 – Water, 10 –

 Ignored ground, 17- Bridge Deck, 18- Noise

[x]  **Bare Earth Surface (Raster DEM)**

[x] Cell size of 2.5 ft

[x]  ERDAS .img File format

 [x]  Georeference info included (xml files)

 [x]  Tiled with no overlap

 [x]  Reviewed for edgematching and artifacts

 [x]  Free of void areas

 [x]  Hydrographic features have been flattened according to SOW

[x]  **Digital Surface Model (Raster DSM)**

[x]  Cell size of 2.5 ft

[x]  ERDAS .img File format

 [x]  Georeference info included (xml files)

 [x]  Tiled with no overlap

 [x]  Reviewed for edgematching

 [x]  Free of void areas

 [x]  Created with all first return LiDAR data (no noise points used)

[x]  **Survey Data**

 [x] Surveyed Quality Check point report, photos, and coordinate listing

 [x]  Check points as a shapefile

[ ]  **Calibration Points**

[ ]  All points used by the LiDAR acquisition provider to calibrate and control the LiDAR data in shapefile format

 [ ]  Attribute table includes x, y, and z coordinates

[ ]  **Contours**

 [ ]  1ft contours in shapefile format

 [ ]  Index and Intermediate Coding

 [ ]  Contours are 3D

[ ]  **Metadata**

 [ ]  FGDC Compliant metadata for:

[ ]  Deliverables (Boundary, Tile Grid, LAS Extent, LAS, DEM, Breaklines, Intensity Imagery, Lifts, Survey Checkpoints, Calibration Points, and Project)

[ ]  **Project Reports**

 [ ]  Collection Report detailing mission planning, flight logs, acquisition, and calibration

 [ ]  Control Points used by Acquisition Partner are listed

 [ ]  Processing report

 [ ]  QA/QC Reports

[x]  **Extents**

 [x]  Tile grid in Shapefile format derived from the LiDAR Deliverable

[x]  Tile grid according to Tennessee, and in Shapefile format

 [x]  Project Boundary buffered 100 meters and delivered as shapefile

[x]  **Breakline Data**

 [x]  Breakline Data in GDB

 [x]  Breakline Data as Shapefiles

[x]  **Intensity Imagery**

[x]  Intensity imagery in GeoTIFF format and 1 ft pixel size

# Raw Point Cloud Data

Raw Point Cloud Data has been included as part of this delivery. The Raw Point Cloud Data is delivered in LAS v1.4 with all required header information including: Georeference information, GPS times, and Intensity Values.

# Classified Point Cloud

Classified point cloud data has been delivered tiled to 7000 ft x 4000 ft tiles that are named according to the existing Tennessee State naming convention. The final delivery consists of 526 LiDAR tiles that meet the project specified requirement.

# Bare Earth Surface (Raster DEM)

A total of 526 7000x4000 feet tiled bare earth raster DEMs in ERDAS IMG format have been delivered for this project. All tiles have a cell size of 2.5 ft and have been reviewed to ensure that they meet the project required specifications.

# Digital Surface Models (Raster DSM)

A total of 526 7000 x 4000 feet tiled digital surface raster DSMs in ERDAS IMG format have been delivered for this project. All first return LiDAR points were used to create the surface. All tiles have a cell size of 2.5 feet and have been reviewed to ensure that they meet the project required specifications.

# Survey Data

All survey control data, reports and photos are included in this delivery. Accuracy assessment points are delivered in ESRI shapefile format.

# Calibration Points

All points used by the LiDAR acquisition provider to control and calibrate the LiDAR data will be delivered in ESRI shapefile format with the next delivery. X, Y, and Z coordinates are provided in the attribute table.

# Metadata

Project level metadata for each of the deliverables (Swaths or Lifts, fully classified LiDAR, breaklines, bare-earth DEMs, intensity imagery, project, etc.) will be delivered in the next delivery in XML format. Metadata has been reviewed through the USGS metaparser tool to ensure that it is FGDC compliant.

# Project Report

A comprehensive project report will be delivered with the next delivery in PDF format. This report includes the LiDAR acquisition and processing information along with detailed information on the production and quality control process used for the development of all deliverables.

# Extents

Three ESRI shapefiles are included with this delivery. One shapefile is the boundary of the project area buffered by 100 m and is the processing boundary for all project data. The second shapefile is the tile grid, created and named according to Tennessee State naming format. The third shapefile is derived from the extents of the actual LAS deliverable to ensure that all delivered LiDAR have been accounted for. The extents have been verified against the project boundary to ensure that there is full coverage for the project.

# Breakline Data

Breaklines have been delivered in an ESRI file geodatabase and as shapefiles. Breaklines were derived to meet the project specifications as outlined in the SOW.

# Intensity Imagery

Intensity imagery is delivered tiled to 1500 x 1500 m tiles that are named to according to the project tile grid. The imagery is in GeoTIFF format with 0.3 m pixel size. The intensity imagery is created from the full point cloud LiDAR data. The final delivery consists of 3465 GeoTIFF tiles.