

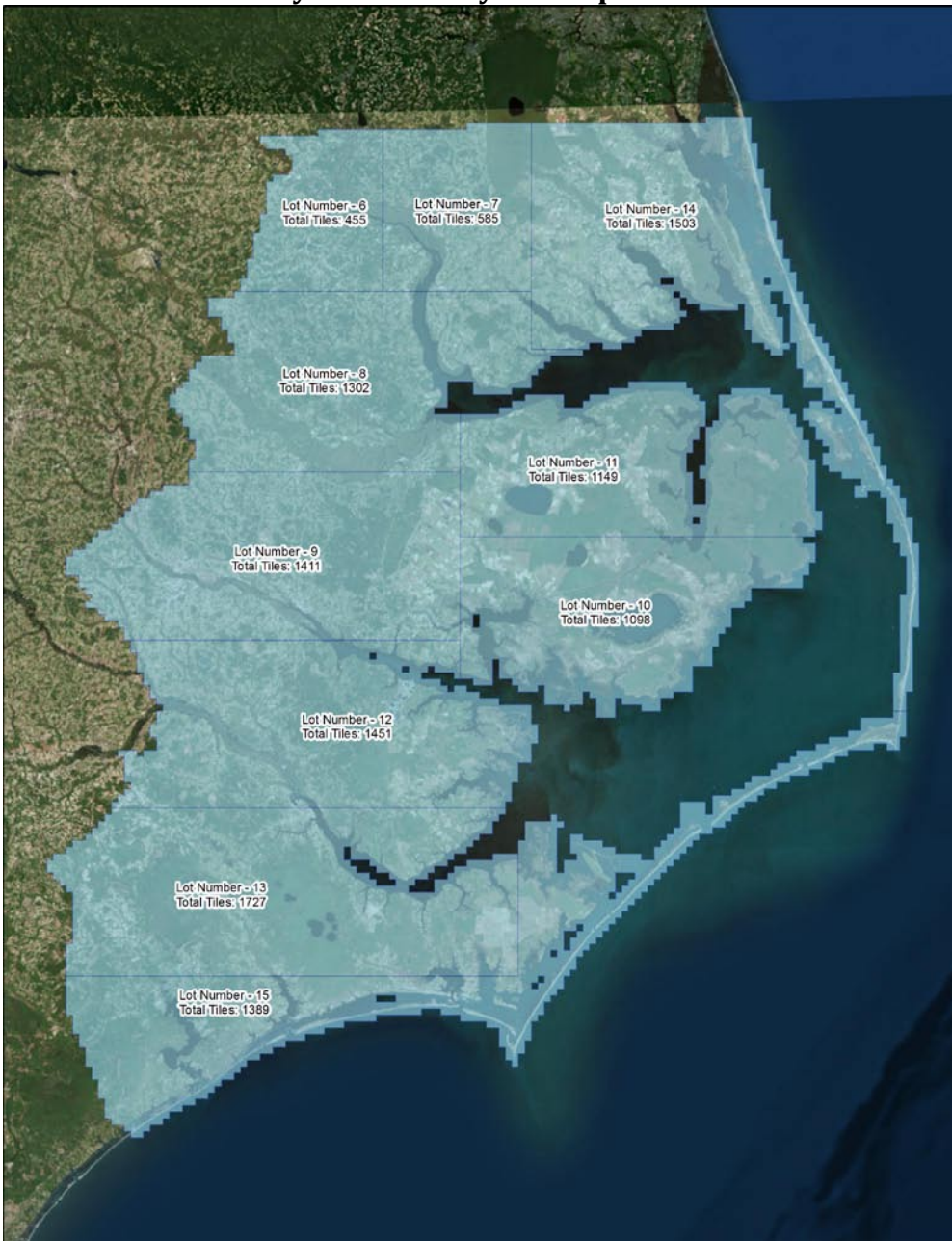


Delivery Lot Summary Report: Delivery Lot 9 August 19, 2014

USGS Contract: G10PC00026
USGS Task Order: G14PD00182
Task Order Name: North Carolina - Sandy LiDAR
Contractor: Photo Science, A Quantum Spatial Company

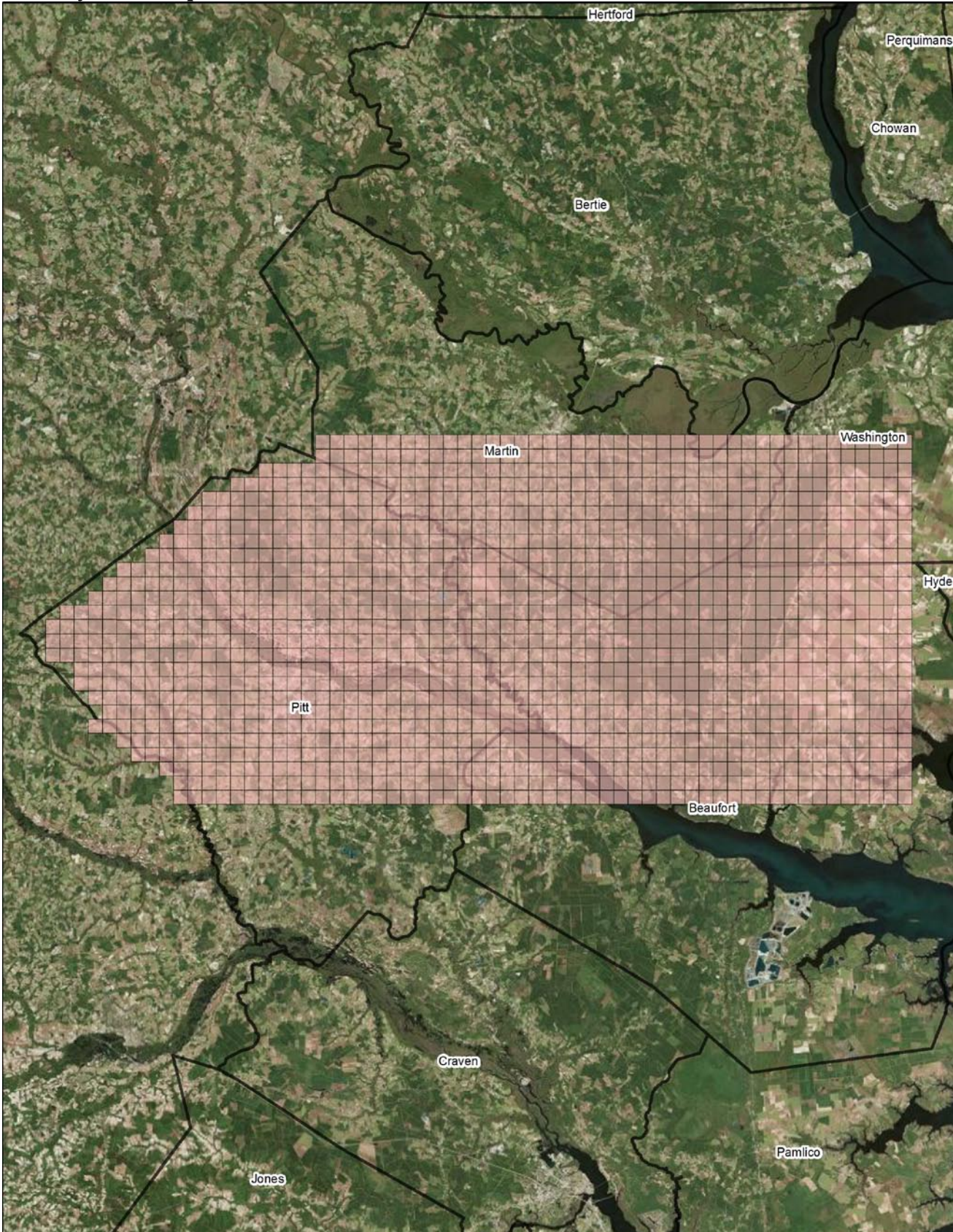
The following is a summary description of the deliverables and other pertinent information that comprise the shipment of Delivery Lot 9 to USGS on August 19, 2014.

Task Order 20 County AOI Delivery Lot Map:



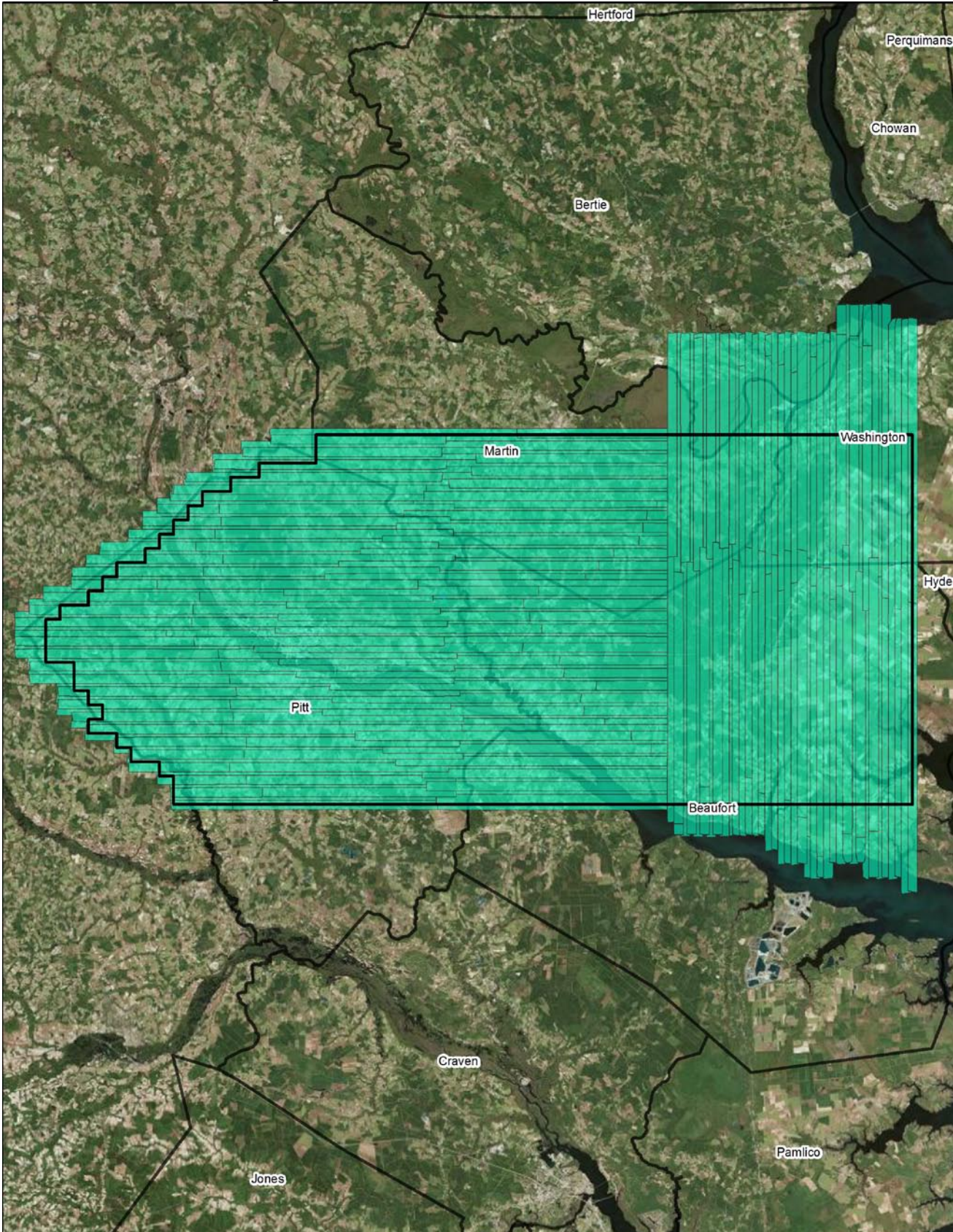


Delivery Lot 9 Map:





Lot 9 Raw Point Cloud Map:





Lot 9 QA Control Points Map:



**Task Order Spatial Reference System:**

- Horizontal: North Carolina SPCS, NAD83 (2011), Zone: 3200, US Feet
- Vertical: NAVD88, GEOID12a, US Feet

Deliverables Summary:

1. C.1.d.(i) Raw Point Cloud Data (calibrated and control adjusted): Included
 - LAS v1.3, Point Record Format 3
 - Total Number of Swath Files: 269
 - Total File Size: 509 GB (547,373,904,384 bytes)
 - Individual Swath Outline Shape File
2. C.1.d.(ii) Classified Point Cloud: Included
 - LAS v1.3, Point Record Format 3 including File Source ID w/assigned value of 65,535
 - Classification Schema:
 - (01) Code 1 – Processed, but unclassified
 - (02) Code 2 – Bare-earth ground
 - (03) Code 7 – Noise
 - (04) Code 9 – Water
 - (05) Code 10 – Ignored Ground (Breakline Proximity)
 - (06) Code 17 – Overlap Default
 - (07) Code 18 – Overlap Ground
 - (08) Code 25 – Overlap Water
 - Total Number of Tiles: 1,411
 - Tile Dimensions: 5,000' x 5,000'
 - Total File Size: 419 GB (450,354,024,448 bytes)
 - Delivery Lot 9 Tile Shape Files (Lot 9 Boundary & Lot 9 Individual Tiles)
3. C.1.d.(iii) Bare Earth Surface (Raster DEM): Included
 - Format: ERDAS .IMG
 - Resolution: 5 feet grid cell size
 - Hydro Conditioning: Hydro Flattened
 - Total Number of Tiles: 1,411
 - Tile Dimensions: 5,000' x 5,000' (same used for Classified Point Cloud)
 - Total File Size: 5.53 GB (5,941,280,768 bytes)
4. C.1.d.(iv) Control:
 - Complete Control Report dated June 13, 2014 containing published values and shape files for supplemental & QA check points previously delivered to M. Duncan, USGS NGTOC
 - Delivery Lot 9 QA Control Check Point Location Shape File Extract: Included
 - Deliver Lot 9 QA Control Check Point Published Values Extract .xls file: Included
5. C.1.d.(v) LiDAR Intensity Image: Included
 - Format: Grayscale, 8-bit, GeoTiff
 - Resolution: 5 feet grid cell size
 - Total Number of Tiles: 1,411
 - Tile Dimensions: 5,000' x 5,000' (same used for Classified Point Cloud)



- Total File Size: 1.88 GB (2,022,809,600 bytes)
6. C.1.d.(vi) Breaklines: Included
 - Format: esri File Geodatabase (.gdb)
 - Coverage: Lot 9 Continuous, Non-Tiled
 - Total File Size: 1.22 MB (1,282,048 bytes)
 7. C.1.d.(vii) Metadata: Included
 - Format: FGDC compliant, XML
 - File Types: Project, Lift, Tiled deliverable product group (classified .las, DEM, & Intensity)
 8. C.1.d.(viii) Project Report:
 - Delivery Lot Summary Report: Lot 9 Included
 - Overall Project Report: To Be Delivered upon final acceptance of all Delivery Lots.
 9. Lot 9 QA & Accuracy Reporting
 - FOCUS Report: Included
 - Lot 9 Provisional FVA/SVA/CVA Testing Results: .xls file Included
 - LAS Analysis (Excel File): Included
 - Raster Analysis (Excel File): Included

Lot 9 Provisional Accuracy Reporting:

- Number of QA Check Points falling within Delivery Lot 9 by Tested Land Cover Type:
 - Bare Earth (BE): 6
 - Forested (FO): 4
 - Swamp/Wetland (SW): 7
 - Tall Weeds (TW): 5
 - Urban (UA): 2
- Testing:

Raw FVA

| | Count | Minimum | Maximum | St. Dev | RMSE | 95% | 95th | Mean | Median | Skew |
|---------|-------|---------|---------|---------|-------|-------|------|-------|--------|------|
| RAW FVA | 6 | -0.250 | 0.100 | 0.140 | 0.179 | 0.351 | - | -0.12 | -0.15 | 0.77 |

FVA, SVA, CVA

| | Count | Minimum | Maximum | St. Dev | RMSE | 95% | 95th | Mean | Median | Skew |
|------------------|-------|---------|---------|---------|-------|-------|-------|-------|--------|---------|
| SVA | 18 | -0.258 | 0.384 | 0.150 | 0.172 | - | 0.296 | 0.09 | 0.07 | -0.16 |
| CVA | 24 | -0.404 | 0.384 | 0.188 | 0.187 | - | 0.279 | 0.03 | 0.04 | -0.45 |
| Bare Earth (FVA) | 6 | -0.404 | 0.107 | 0.185 | 0.225 | 0.442 | - | -0.15 | -0.16 | 0.03 |
| Tall Weeds | 5 | -0.002 | 0.384 | 0.162 | 0.241 | - | 0.361 | 0.19 | 0.26 | -0.23 |
| Forested | 4 | 0.019 | 0.281 | 0.108 | 0.172 | - | 0.262 | 0.14 | 0.14 | 0.27 |
| Urban | 2 | -0.029 | 0.067 | 0.068 | 0.052 | - | 0.062 | 0.02 | 0.02 | #DIV/0! |
| Swamp/Wetland | 7 | -0.258 | 0.177 | 0.142 | 0.132 | - | 0.160 | 0.01 | 0.03 | -1.18 |



Delivery Lot Notes/Comments:

Delivery Lot 9 reflects the telephone and email dialogue between USGS (M. Duncan & QA Team) and Photo Science (M.Shillenn/A. Pike) regarding the modification to Delivery Lot shipment contents and supporting information provided by Photo Science on an incremental delivery lot basis in order to better support incremental QA review by USGS. Delivery Lot 9 also includes recent agreement between USGS and Photo Science on the population of the file source ID for classified tiled .las file using a numeric value of "65,535". All task order classified .las tiles file source ID will be populated with this numeric value.