DPH-10 Report on Check Points

The USGS Lidar Base Specification Version 1.3 states: "In the "Positional Accuracy Standards for Digital Geospatial Data" (ASPRS, 2014) the required number of check points for vertical accuracy assessment is tied to the areal extent of the project. This requirement has also been adopted in the LBS. Data producers are encouraged to carefully review the new and revised requirements in the ASPRS standards. Check points for NVA assessments shall be surveyed in clear, open areas (which typically produce only single lidar returns) devoid of vegetation and other vertical artifacts (such as boulders, large riser pipes, and vehicles). Ground that has been plowed or otherwise disturbed is not acceptable. The same check points may be used for NVA assessment of the point data and DEM. Check points for VVA assessments shall be surveyed in vegetated areas (typically characterized by multiple return lidar). Although the nature of vegetated areas makes absolute definition of a suitable test area difficult, these areas will meet the requirements below. As stated in the "National Standards for Spatial Data Accuracy (Federal Geographic Data Committee, 1998) and reiterated in the ASPRS (2014), it is unrealistic to prescribe detailed requirements for check point locations because many unpredictable factors will affect field operations and decisions, and the data producer often requires the freedom to use their best professional judgment. The quantity and location of check points shall meet the following requirements, unless alternative criteria are approved by the USGS–NPG in advance:
- The ASPRS-recommended total number of check points for a given project size shall be met.
- The ASPRS-recommended distribution of the total number of check points between NVA and VVA assessments shall be met.
- Check points within each assessment type (NVA and VVA) will be well-distributed across the entire project area; see "Glossary" section at the end of this specification for a definition of "well-distributed."
- Within each assessment type, check points will be distributed among all constituent land cover types in approximate proportion to the areas of those land cover types (ASPRS, 2014)."

The purpose of this section is to show check points (NVA and VVA).

DPH-10 Report on Check Points - continued

Data Source - Y:\Mapping\Projects\65220171_USGS-TX_West_Texas\Production\Final_Client_Deliverables\Lot9_utm13\metadata\shapefiles\TX_WestTexas_Lot9_106NVA_100VVA_pts_u13.shp

Result Path - Y:\Mapping\Projects\65220171_USGS-TX_West_Texas\Admin\QA_QC\Lot9\DPH_10\CheckPoints.jpg
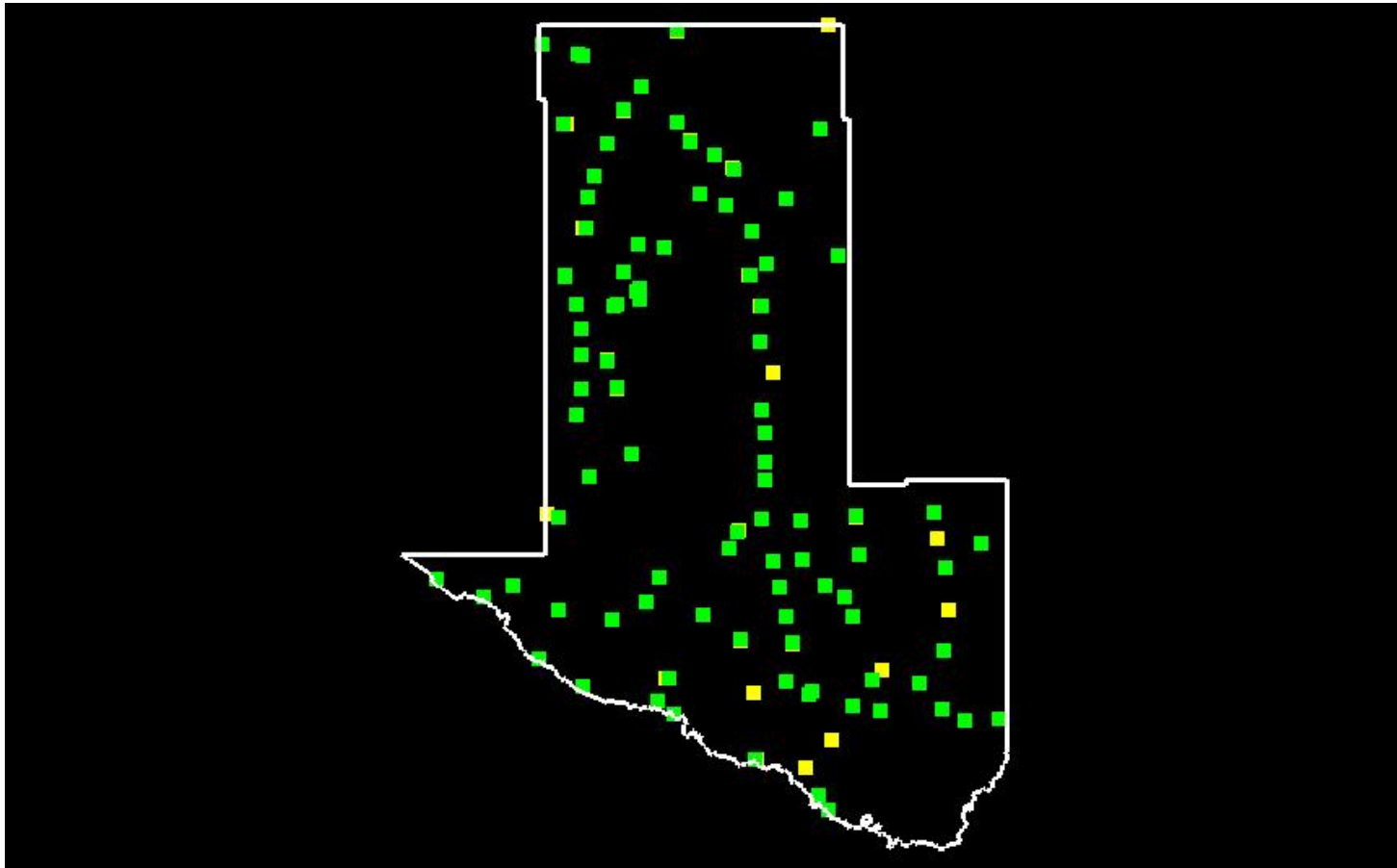
Yellow points are NVA, green points are VVA.
White polygon is defined project area (DPA) boundary

DPH-10 Report on Check Points - continued

Total check points: 206

Check points in defined project area (DPA): 206

Total NVA check points in defined project area (DPA): 106

Total VVA check points in defined project area (DPA): 100

Total defined project area (DPA): 15691.430 square KM

Density of check points in defined project area (DPA): 0.013 points per square KM

TABLE C.1 RECOMMENDED NUMBER OF CHECKPOINTS BASED ON AREA

Project Area (Square Kilometers)	Horizontal Accuracy Testing of Orthoimagery and Planimetrics	Vertical and Horizontal Accuracy Testing of Elevation Data sets		
	Total Number of Static 2D/3D Checkpoints (clearly-defined points)	Number of Static 3D Checkpoints in NVA[a]	Number of Static 3D Checkpoints in VVA	Total Number of Static 3D Checkpoints
≤500	20	20	5	25
501-750	25	20	10	30
751-1000	30	25	15	40
1001-1250	35	30	20	50
1251-1500	40	35	25	60
1501-1750	45	40	30	70
1751-2000	50	45	35	80
2001-2250	55	50	40	90
2251-2500	60	55	45	100

[a]Although vertical check points are normally not well defined, where feasible, the horizontal accuracy of lidar data sets should be tested by surveying approximately half of all NVA check points at the ends of paint stripes or other point features that are visible and can be measured on lidar intensity returns.

Source: ASPRS Positional Accuracy Standards for Digital Geospatial Data (Edition 1, Version 1.0. - November 2014)