

LIDAR Quality Report

from the National Geospatial Technical Operations Center
in Support of the 3D Elevation Program

MI_FEMA_Gogebic_2019

2021-01-05



The USGS - National Geospatial Technical Operations Center (NGTOC), Data Operations Branch is responsible for conducting reviews of all enhanced, high-quality resolution elevation data and derived products delivered by a data supplier before it is approved for inclusion in the 3D Elevation Program (3DEP) data holdings. The USGS - NGTOC recognizes the complexity of high quality resolution elevation data collection and processing performed by the data suppliers and has developed this Quality Control (QC) procedure. The goal of this process is to assure elevation data are of sufficient quality for database population and scientific analysis. Concerns regarding the assessment of these data should be directed to the Chief of Data Operations Branch, 1400 Independence Road, Rolla, Missouri 65401.

Based on this review, the delivered data is **EXPECTED TO MEET** 3D Elevation Program requirements.

Project Information

WP Name: MI_FEMA_2019_C19	Work Package ID: 174050
WU Name: MI_FEMA_Gogebic_2019	Work Unit ID: 181568
Mechanism: Contributed	Lidar Base Spec: 1.3
Quality Level: 2	P-Method: 7 - Lidar
Horizontal EPSG Code: 6496	Vertical EPSG Code: 8228 Geoid Model GEOID 12B
The National Map Help Desk Email: tnm_help@usgs.gov	

The U.S. Geological Survey evaluates absolute vertical accuracy of the lidar and lidar-derived bare earth digital elevation model (DEM) data at the work package level. Data are produced to meet 9.8 cm absolute vertical accuracy at the 95-percent confidence level in non-vegetated, open terrain. To review vertical accuracy results, please see the work package report

Classified Point Cloud

Based on this review, the USGS-NGTOC **ACCEPTS** the Classified Point Cloud.

Visual and statistical review is performed on classified .las files to validate adherence to contracted specifications. A comprehensive review is completed to ensure consistency and accuracy across all files, including the spatial reference system. Classification verification is limited to the minimum required by applicable Lidar Base Specification. Classifications beyond the minimum are not verified by USGS. LAS files are evaluated to ensure the public header block, point data records, and variable/extended variable length records are correctly populated. For additional information, please see the work units metadata folder.

Digital Elevation Model (DEM)

Based on this review, the USGS-NGTOC **ACCEPTS** the Digital Elevation Model (DEM).

Visual review is performed on .tif bare earth rasters at a 1:5,000 or larger viewing scale to validate point cloud geometry, raster processing methodology, point classification, and breaklines. Comprehensive review is completed to ensure consistency and accuracy across all files. For additional information, please see this work units metadata folder.

Breaklines

Based on this review, the USGS-NGTOC **ACCEPTS** the Breaklines.

Breaklines are visually reviewed in conjunction with the bare earth DEM for spatial and geometric accuracy. Breaklines are confirmed to be three dimensional (3D) features and that elevations are at or just below the immediately surrounding terrain. Single- and double-line drainages are reviewed to ensure downstream flow. The USGS recognizes that differences in collection methodology, resampling techniques, and other factors that are unique to proprietary production do occur, and these will result in minor horizontal and vertical differences between breaklines derived on the fly.

Content Standard for Digital Spatial Metadata

Based on this review, the USGS-NGTOC **ACCEPTS** the Content Standard for Digital Spatial Metadata.

CSGDM .xml metadata are parsed using the USGS Geospatial Metadata Validation Service and reviewed for accurate information. CSDGM is maintained by the Federal Geographic Data Committee (FGDC).

Contractor-Provided Reports

Based on this review, the USGS-NGTOC **ACCEPTS** the Contractor-Provided Reports.

Reports from the contractor, including calibration, collection, and processing methods, are reviewed for accurate information. For more information, please see the work units metadata.

Contractor-Provided Spatial Metadata

Based on this review, the USGS-NGTOC **ACCEPTS** the Contractor-Provided Spatial Metadata.

Spatial metadata from the contractor, including raster and vector datasets, are evaluated together with pertinent deliverables for geometric fidelity and attribution accuracy. For more information, please see the work units metadata.