

Survey Report

For

MSB Lidar & Imagery Project QA/QC Checkpoint Survey

Dates of Survey:

The control survey for this project was performed previously, in the Months of April, May and June of 2011. This previous survey was performed in conjunction with the MSB Lidar Imagery Acquisition Project. The QA/QC Checkpoint survey began on June 21st, 2011 and concluded on July 14, 2011. Field work was performed by James Hall, PLS, Fred Wagner, PLS and Canyon Spurlock, Survey Tech with oversight and support provided by Dean Cimmiyotti, PLS- all with Lounsbury & Associates, Inc. Data for the Northern Susitna River area as well as the Western Susitna River area was concurrently collected by Global Positioning Services, Inc.

Purpose of Survey:

The purpose of this survey is to provide a survey for an independent review of the vertical accuracies associated with the 2011 Mat-Su Lidar Imagery Project.

Project Control:

For the purposes of this survey, Lounsbury utilized and held the positions of twelve previously established Base Stations. The positions of the twelve stations were determined by an extensive GPS survey and using a constrained network adjustment on all twelve points. The adjustment was performed holding positions of CORS Stations ZAN1 in Anchorage, Alaska and GRNX in Healy, Alaska. Control values are NAD 83(CORS), Epoch date 2003.

ZAN1 – Latitude North 61-13-45.129268; Longitude West 149-46-48.805068; Ellipsoid Height 79.794(m)

GRNX – Latitude North 63-50-07.798878; Longitude West 148-58-41.392948; Ellipsoid Height 597.016(m)

Four supplemental control points were established within the project area to facilitate QC point collection. Two were set in the North Susitna Region, One in Hatchers pass and one along up the Knik River Valley. These four supplemental points were tied to the original control network and are within positional specifications.

Equipment & Methodology:

GPS Control & QC Surveys were performed using Leica 1200 GPS Systems and Trimble R6 and R8 Carrier Phase Receivers. GPS control & QC Surveys were established using Static GPS surveying techniques. Control observations consisted of two sessions with a minimum of 4 hours of data each. Static observations for the QA/QC Checkpoints were collected in either multiple 10-15 minute observations or in a single observation with a minimum observation time of 30 minutes.

Data Processing & Analysis:

Data processing for the control survey was accomplished using Leica Geo-Office software version 5.0. The final control was processed holding ZAN1 & GRNX stations, located in Anchorage and Healy respectively. Both stations were held for horizontal and vertical positions. Coordinates were then network adjusted using Leica MOVE3 software version 3.4. The resulting geodetic coordinates were then translated into Alaska State Plane Zone 4 coordinates in U.S. Survey feet; with orthometric heights computed using Geoid 09.

The QC points were then processed in Trimble Geomatics Office, Version 1.63 Software and Topcon Tools Version 8 Software.

Conclusion/Overview:

The GPS survey, processing and adjustments were performed to meet or exceed the required horizontal and vertical positioning accuracy specified in the scope of work.