Minnesota Department of Transportation
Photogrammetric Unit
395 John Ireland Boulevard, MS 640
Saint Paul, MN 55155

22 February 2013

Eric Ratcliffe
STARR MT-1 Project Manager
Atkins Global
3901 Calverton Boulevard, Suite 400
Calverton, MD, 20705

RE: Certification of Minnesota LiDAR Quality
Metro Area Project

Dear Mr. Ratcliffe:

Attached you will find a signed and sealed Certification Statement for LiDAR that was collected by the Minnesota Department of Natural Resources and its numerous partners. Due to the size of the State, a regional acquisition approach was selected. As part of the project planning process, we wanted to engage the county governments to be partners in this project. For this particular project a Block Acquisition Delivery format was used versus a County Boundary format to report accuracy as part of that contract engagement. A general description of the Block Acquisition area is provided in the certification.

If you have any additional questions concerning the testing process, please contact me at 651.366.3457.

Sincerely,

Peter W. Jenkins, PLS, CFedS
Photogrammetric Unit Supervisor

Enclosures:
Certification Statement

cc:
S. Jiwani
T. Loesch

Certification of Minnesota LiDAR Data Quality

Project Area: Metro Region Minnesota

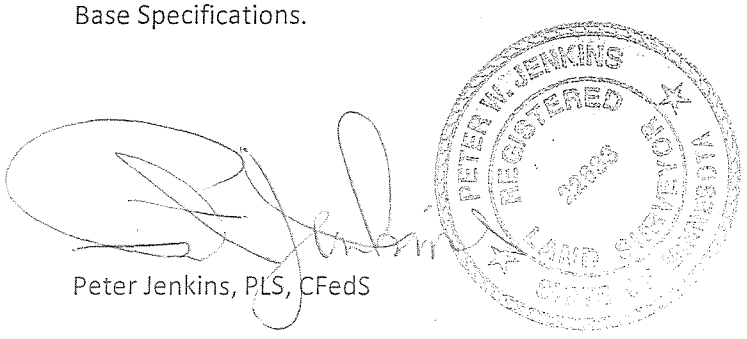
Counties covered: Anoka, Benton, Carver, Dakota, Goodhue, Hennepin, Isanti, Kanabec, Meeker, Mille Lacs, Morrison, Ramsey, Scott, Sherburne and Washington.

Date of acquisition: April 25 to May 15, 2011 & November 11 to 13, 2011 & March 24 to 28, 2012

Horizontal Positional Accuracy: All these base data products were acquired at 2000 meters above mean terrain (AMT) and have a horizontal accuracy of 0.40 meters, with a nominal point spacing of 1.5 meters for Blocks A-H. For the Dakota Block the AMT was 820 meters with approximately 2 points per square meter. For the Metro and Maple Grove Blocks the AMT was 640 meters with 8 points per square meter.

Vertical Positional Accuracy: Accuracy of the dataset was verified by a second set of ground control points provided and tested by the State of Minnesota. The Consolidated Vertical Accuracy (CVA) of each block will be identified in Root Mean Square Error (RMSE) and by the 95% Confidence Level. The 5 land cover classes as defined by ASPRS and NDEP were used in this evaluation. The Block description, RMSE, 95 % Level and sample count per block as tested by the State of Minnesota is as follows: Block A&C is most of Morrison County and northwestern Mille Lacs County, RMSE 0.142m, 95% 0.279m, 134 points; Block B is northern Kanabec and Mille Lacs' Counties, RMSE 0.115m, 95% 0.226m, 204 points; Block D is southern Kanabec and Mille Lacs, all of Benton and Isanti, all but southern Sherburne and northern Anoka County, RMSE 0.090m, 95% 0.176m, 594 points; Block E is Meeker County, RMSE 0.121, 95% 0.237, 102 points; Block F is all of Hennepin, Ramsey and Washington, southern Anoka, northern Carver and Dakota, RMSE 0.111m, 95% 0.218m, 495 points; Block G is all of Scott and southern Carver Counties, RMSE 0.115m, 95% 0.224m, 131 points; Block H is all of Goodhue County, RMSE 0.099m, 95% 0.193m, 169 points; Block Metro is the USGS funded area within the beltway, RMSE 0.051m, 95% 0.100m, 110 points; Block Maple Grove is the City of, RMSE 0.083m, 95% 0.162m, 23 points.

This is to certify that the work summarized above was completed in accordance with sound and accepted surveying practices and meets the accuracy requirements in the USGS's Lidar Guidelines and Base Specifications.



Peter Jenkins, PLS, CFedS

MN PLS # 22683

Photogrammetric Unit Supervisor

Minnesota Department of Transportation