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# Report of Horizontal Accuracy Testing of 4" Digital Orthophotos for Los Angeles Region Imagery Acquisition Consortium 5 (LARIAC5)

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References: a. *ASPRS Positional Accuracy Standards for Digital Geospatial Data*, V1.0, Nov, 2014

b. Quality Plan for Los Angeles Region Imagery Acquisition Consortium 5 (LARIAC5)

Reference a. Consistent with the National Standard for Spatial Data Accuracy (1998), Reference a implements a statistical and testing methodology for estimating the positional accuracy of points on digital orthophotos with respect to georeferenced ground positions of higher accuracy, reported at the 95% confidence level.

Reference b. LARIAC5's 4" digital orthophotos, produced by Pictometry, were tested in accordance with Acceptance Criteria listed in Reference b. The "georeferenced ground positions of higher accuracy," referred to generically as "QA/QC checkpoints," were provided by LARIAC with additional checkpoints surveyed by Dewberry in 2014. A total of 187 checkpoints were used in the accuracy assessment. Of the total number of checkpoints 136 were collected by Dewberry in 2014 and 51 were existing checkpoints from previous LAR-IAC programs. Each QA/QC checkpoint is a ground point feature that is well-defined and photo-identifiable on the digital orthophotos from which California State Plane Zone V coordinates were measured by Dewberry. Dewberry determined the $\Delta x$ and $\Delta y$ differences in Eastings (x-coordinates) and Northings (y-coordinates) between the ground-surveyed QA/QC checkpoints and their coordinates extracted from the digital orthophotos. Dewberry then computed the root-mean-square-error (RMSE) statistics, including $RMSE_x$, $RMSE_y$, and $RMSE_r$. $RMSE_r$ is the radial statistic which equals the square root of $[RMSE_x^2 + RMSE_y^2]$. Finally, The NSSDA absolute accuracy statistic ($Accuracy_r$) is computed as $RMSE_r$ x 1.7308 in order to report the tested horizontal accuracy at the 95% confidence level as required by Reference a.

| Criteria for 4-inch GSD Imagery | Acceptance Criteria | Tested |
|---|---|---|
| $RMSE_x$ (acceptance criteria 30) | 1.00 ft | 0.51 ft |
| $RMSE_y$ (acceptance criteria 30) | 1.00 ft | 0.59 ft |
| $RMSE_r$ (acceptance criteria 30) | 1.41 ft | 0.78 ft |
| $Accuracy_r$ (acceptance criteria 31) | 2.50 ft | 1.35 ft |
| Number of QA/QC checkpoints used | N/A | 187 |

**The data set was tested to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a 1 ft $RMSE_x$/$RMSE_y$ Horizontal Accuracy Class. Actual positional accuracy was found to be $RMSE_x$ = 0.51 ft and $RMSE_y$ = 0.59 ft which equates to Positional Horizontal Accuracy = ± 1.35 ft at 95% confidence level.**