Data Supply Metadata s1

Project	Christchurch June 2011 Earthquake Response	11.053
Client	Tonkin and Taylor	
Client Contact	Sjoerd van Ballegooy	

Summary of Data	This dataset was produced for Tonkin and Taylor from airborne imaging data collected by NZ Aerial Mapping (NZAM) over parts Christchurch and its surrounds. It covers approximately 110 sq km of area. This data supply includes the following products: • Project extent data • Orthophotos Please refer to the report section *Product Generation and Data Supply* for details on these products.

Data Acquisition	The project area between Southern Christchurch City and Karaki is included in the ESRI shape file *"extent"* that accompanies the dataset. A map showing this area of interest is included in Appendix A. LiDAR and digital imagery was collected between 14-15 June 2011, using NZ Aerial Mapping's Optech ALTM 3100EA LiDAR system and Trimble AIC medium format digital camera. The data was collected flying 900 metres above the ground, and using a LiDAR field of view of 38 degrees. The system PRF was set at 100kHZ. During the aerial data acquisition GPS receiver station data was collected at a geodetic mark that NZAM have located at Christchurch Airport.

Data Processing	The LiDAR sensor positioning and orientation (POS) was determined using the collected GPS/IMU datasets and Applanix POSPac software. This work was all undertaken in NZGD2000 coordinate system, and made use of the data collected at the geodetic reference mark for the DGPS processing. The POS data was combined with the LiDAR range files and used to generate LiDAR point clouds in New Zealand Transverse Mercator (NZTM) map projection but NZGD2000 ellipsoidal heights. This process was completed using Optech LMS LiDAR processing software. The subsequent steps were undertaken using TerraSolid LiDAR processing software modules TerraScan, TerraPhoto and TerraModeler. The point cloud data was classified into ground, first and, intermediate returns using automated routines tailored to the project landcover and terrain. The Trimble camera images were developed into 8 bit per channel uncompressed TIFF format images. The LiDAR POS data was transformed for use with the camera, and this data was used with the automated classified ground LiDAR point cloud data to produce orthophotos with a ground sample distance of 0.15m. The orthophotos were produced fully automatically using auto mosaic line placement and colour balancing. Users should note that the orthophotos might contain image mismatches at mosaic seamlines. These should not be mistaken for earth displacements.

Product Generation & Data Supply	The supplied products are all in terms of New Zealand Transverse Mercator (NZTM) map projection. The products are in NZTopo50 1:2,000 tiles. The ESRI shape file *"tiles"* that accompanies the dataset contains this tile layout. The data is loading into the following folders: The folder *Layout* contains the data extent and tile layout files that have been described earlier. The folder *Orthophotos* contains the 0.15m GSD orthophotos produced using the Trimble AIC camera imagery. The orthophotos have been supplied in both TIFF/ESRI TFW and ECW file formats. The TIFF images are in the folder *TIFF* and the ECW images are in the folder *ECW*. The target compression when creating the ECW files was 10. If you have requirements for the data in other file formats, map projections please contact NZAM.

Quality Exceptions	These orthophotos were produced from photography collected under low light conditions and cloud. The quality of the orthophotos are therefore not to the standard that you typically expect orthophotos to be. They do, however, provide a record of the area shortly after the 13 June 2011 Christchurch earthquake.

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Appendix A: Project Area and data tile layouts

Areas of interest shown as purple outline.

Orthophoto Coverage