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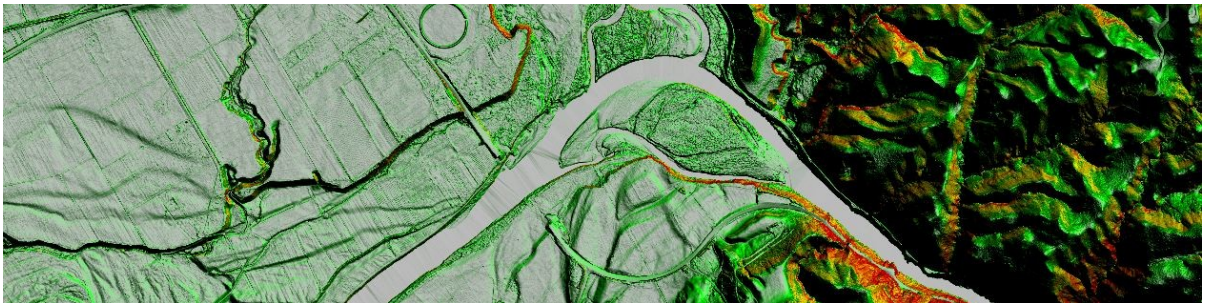

# Metadata

## TASMAN DISTRICT COUNCIL

## TASMAN SOUTHERN RURAL – 2022/23 LiDAR SURVEY

**AERIAL SURVEYS PROJECT №: FPFA1326**

## *Summary*

***Project***

An Airborne Laser Scanner survey was conducted over Waimea, Moutere, Motueka area totalling approximately 448 km$^2$. The area of capture is located in the Tasman and Nelson Regions of the South Island.

***Data***

The data was processed into various digital map data products. The products included for this dispatch contain:

- AOI
- Unclassified Raw Point Cloud
- Classified Point Cloud
- Gridded DEM
- Gridded DSM
- Triangular Irregular Network
- Intensity Image
- Breaklines
- Contours
- Tile Layout
- File Listing
- QA Product Report
- Metadata Report (this report)

## *Project Report*

**Safety:** No safety Incidents were reported during the project.

**Acquisition:** Airborne Laser Scanner (ALS) data was acquired from a fixed wing aircraft.

**Ground Support:** GPS base station data was provided by Global Surveys Ltd and LINZ base stations. Existing ground check points were utilized.

**Data Processing:** Reduction of the ALS data proceeded without any significant problems. Laser strikes were classified into ground and non-ground points using auto algorithms across the project area.

**Data Presentation:** The data provided on this volume has been supplied in accordance with a specification agreed with Tasman District Council.

**Project Contacts:**

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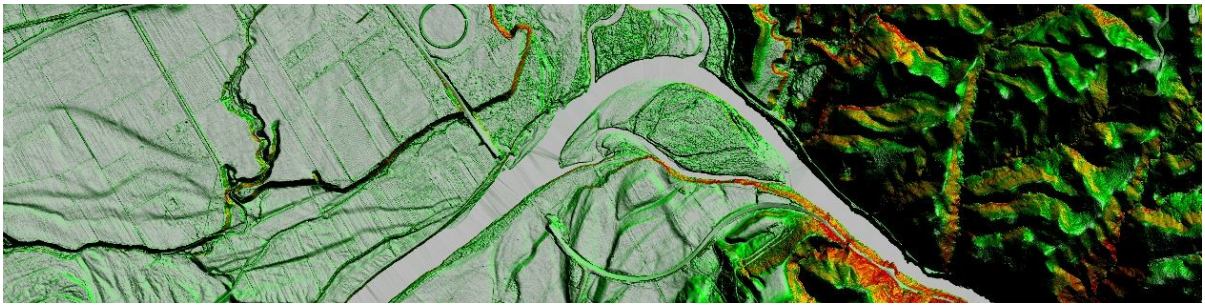

Tasman DC Database Information Administrator: Peter Inwood (Ph. (03) 543 8469)
Aerial Surveys Technical & Sales: Dave Froggatt (Ph. (03) 547 0099)

## Data Acquisition

The project area is that shown in the shapefile ' TasmanRural_DataExtents.shp' at accompanies the dataset. A map showing this area of interest is included in Appendix A.

### *Capture Dates*

The LiDAR survey was captured on the following dates:
14 October 2022, 17-19 October 2022, 27 October 2022, 7 November 2022.

LiDAR survey was collected using Aerial Surveys Optech Galaxy PRIME system.

Survey Specification:

- Scanner: Optech Galaxy PRIME
- Flying Height: 1,900 m AMGL
- Scan Angle FOV: 40 degrees
- Scan Frequency: 60 Hz
- Pulse Rate: 400 kHz
- Swath Overlap: 35%
- Swath Points Per $M^2$: 4

Existing field surveyed check sites were used to verify the accuracy of the processed ground dataset.

## Data Processing

The LiDAR sensor positioning and orientation (POS) was determined using the collected GPS/IMU datasets and Applanix POSPac software.

Base Station : PPRTX
The POS data was combined with the LiDAR range files and used to generate LIDAR point clouds in NZTM and ellipsoidal heights. This process was undertaken using Optech LMS LiDAR processing software. The data was checked for completeness of coverage. The relative fit of data in the overlap between strips was also checked.

The height accuracy of the ground classified LiDAR points was checked using open land-cover survey check site data. This was done by calculating height differences statistics between a TIN of the LiDAR ground points and the checkpoints. LiDAR is relative to the control check points.

| Summary | StdDev_DZ | Mean_DZ | RMSE_DZ | C195_DZ |
|---|---|---|---|---|
| | 0.024 | 0.001 | 0.024 | 0.047 |

The positional accuracy of the LiDAR data has been checked by overlaying surveyed data over the LiDAR data displayed coded by intensity. The data was found to fit well in position.

The point cloud data was then classified with TerraSolid LiDAR processing software into ground and above ground returns using automated routines tailored to the project land cover and terrain.

## *Product Deliverables*

All spatial data for this project provided in terms of New Zealand Transverse Mercator 2000 (NZTM2000) horizontal and New Zealand Vertical Datum (NZVD2016). The data was converted from NZGD2000 ellipsoidal heights into the orthometric height system using the LINZ NZGeoid16 separation model. The products are tiled into NZTopo50 map sheet tiles as noted below.

The following details the folder contents:

AOI: Extent is the limit of the project area

This dataset is supplied in SHP format and DXF

Unclassified Raw Point Cloud: Contains the unclassified LiDAR point cloud points as they were prior to being classified

This dataset is supplied in ASPRS LAS format

Classified Point Cloud: Contains the LiDAR point cloud points that have been classified as ground and above ground returns

This dataset is supplied in ASPRS LAS format

| Surface Type | Classification | Point Class |
|---|---|---|
| Raw | 1 | Unclassified |
| Ground | 2 | Ground |
| Classified Point Cloud | 3 | Low Vegetation |
| Classified Point Cloud | 4 | Medium Vegetation |
| Classified Point Cloud | 5 | High Vegetation |
| Classified Point Cloud | 6 | Buildings |
| Classified Point Cloud | 7 | Low Noise |
| Classified Point Water | 9 | Water |
| Classified Point Cloud | 17 | Bridge |
| Classified Point Cloud | 18 | High Noise |

Gridded DEM: Contains the gridded ground surface (1 m separation grid)

This dataset is supplied in TIF/TFW format

Gridded DSM: Contains the gridded 1st return points (1 m separation grid)

This dataset is supplied in TIF/TFW format

Triangular Irregular Network: This dataset is supplied in ESRI TIN ADF format

Intensity: Contains the raster images created using the intensity values of the LiDAR returns

This dataset is supplied in TIF/TFW format

| | |
|---|---|
| Contours: | Contains 0.5 m contours. The contours were interpolated from a smoothed TIN created using the LiDAR point cloud dataset. The contours are classified into majors and minors. Four minors to every major and shown on different levels.<br>This dataset is supplied in SHP format. |
| Tile Layout: | Tiles is the tile layout for the project area<br>Tile size 1:1,000 sheet layout (480 m x 720 m)<br>Tile dataset is supplied in SHP format |
| File Listing: | Supplied in TXT format |
| Metadata Report: | Supplied in PDF format |

All digital data supplied on e-HDD-81. Data was supplied to Pete Inwood, Tasman District Council, on 19 January 2023.
If you have requirements for the data in other file formats, map projections please contact Aerial Surveys.

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## *Appendix A: Project Area*

The tile layout is shown in red.