LANDPRO

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METADATA REPORT

Prepared for Environment Canterbury Regional Council

Banks Peninsula LiDAR

Project	Banks Peninsula LiDAR
Client	Environment Canterbury Regional Council

Summary of data	Landpro started data capture including LiDAR of the requested area on **18/02/2023** and completed the capture on **15/08/2023** The data has been processed into a variety of digital map and data products. The supplied dataset includes the following items: Acquisition of LiDAR data of the Banks Peninsula area • LiDAR point cloud classified to full LINZ spesifications in LAS and LAZ format • 1 m DEM in RASTER (GeoTiff) and ASCII formats • 1 m DSM in RASTER (GeoTiff) and ASCII formats • Hydro breaklines in SHP format • Detailed metadata report

Data acquisition	Figure 1 below outlines the area surveyed.  *Figure 1. Area of interest surveyed as part of the Banks Peninsula LiDAR project captured for Environment Canterbury Regional Council.* Data was captured using the following systems: • Leica ALS60

Reference systems

Projection: NZTM NZGD2000

Vertical Datum: NZVD16

Reference Station: MQZG

MQZG: Mark details

MARK IDENTIFICATION

Code:	**MQZG**	Country:	**New Zealand**
Name:	**McQueens Valley**	Land District:	**Canterbury**
Alternatives:	**McQueens Valley GPS** **50214M001**	Topo50 sheet: NZTM:	**BX24** **5161084.833** **1572178.270**
		Scale factor	**0.9996095**
		Convergence	**-0° 14' 19"**

NZGD 2000 COORDINATES

Latitude:	**43° 42' 09.84956" S**	Order:	**0**	Previous coordinates
Longitude:	**172° 39' 16.93091" E**	Authorised:	**25-Oct-2018**	
Ellipsoidal height (m):	**154.638**	Reference:	**PositioNZ Update (DefMod v20171201 ITRF2008@2018-01-01)**	

Circuit	Northing (m)	Easting (m)	Scale Factor	Convergence	
Mount Pleasant Circuit 2000	**787533.618**	**394176.940**	**1.0000004**	**-0° 03' 00"**	Previous coordinates

ORTHOMETRIC HEIGHTS

Height datum	Height (m)	Order	Calculation Date	Reference	Previous heights
New Zealand Vertical Datum 2016	**142.6950**	**1V**	**25-Feb-2020**	**2020CORS NZVD2016 Point Load**	
Mean Sea Level	**154.67**	**4V**	**14-Jan-2018**	**Reverse patch update for NZGD2000 version 20171201**	

MARK DETAILS

Last maintained:	**08-Jul-2020**
Maintenance level:	
Mark condition:	**Reliably Placed**
Description:	**Continuously operating GNSS station or CORS site. Mark is unable to be physically occupied. Horizontal reference point is the centre of 5/8ö thread. The vertical reference is the plate at top of pillar. 0.055m spacer is between GNSS antenna reference point (ARP) and vertical reference plate (antenna height). For more information see http://www.linz.govt.nz/positionz**
Mark type:	**Other**
Beacon type:	**Pillar**
Protection type:	**No protection**

Data processing	<u>LiDAR point processing</u> Data processing has been in accordance with our standard policies and procedures surrounding acceptable tolerances, therefore ensuring optimal accuracy of deliverables. GNSS/IMU data was processed using the MQZG Base Station and precise ephemeris data. The GNSS and IMU were processed in a tightly coupled loop to give an optimum trajectory. This data was then applied to the LiDAR prior to LAS and ortho creation. LiDAR data was generated via Leica Cloud Pro. <u>LiDAR calibration</u> Overlapping LiDAR points from adjacent aircraft trajectories were used to check the LiDAR calibration for heading, roll, pitch and scale. These values were then used to make small flight-specific adjustments to the LiDAR data. <u>LiDAR point editing</u> A "1st run" automatic classification was carried out on the raw LiDAR points using *TerraSolid's TerraScan* software to separate the LiDAR points into ground hits and non-ground hits. This results in a greater than 90 % correct classification. A manual classification was then used to edit points where gross classification errors occurred in the automatic classification process. Overage is defined as 1 degree scan angle on each edge of each strip, to be excluded from use. The DEM for the area of interest is presented in Figure 2.

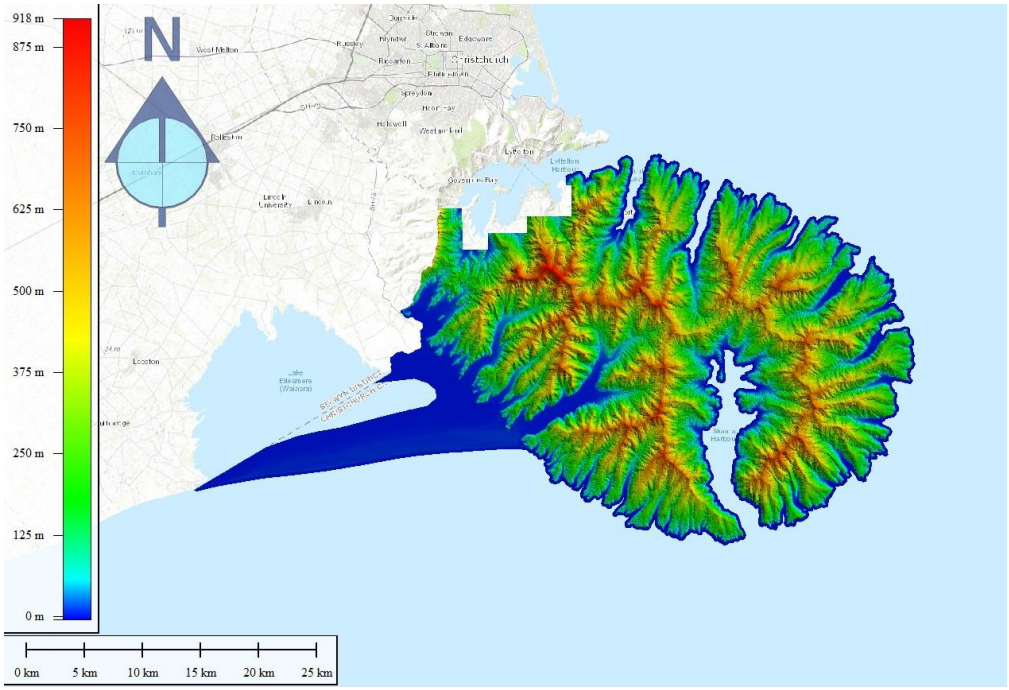


Figure 2. DEM for the Banks Peninsula area of interest.

Vertical accuracy

Average dz	-0.005
Minimum dz	-0.097
Maximum dz	+0.053
Average magnitude	0.026
Root mean square	0.034
Std deviation	0.034

Horizontal accuracy

The positional accuracy of the LiDAR data was checked by plotting Landpro Ltd. check points and displaying the LiDAR by intensity. The LiDAR was in position.

Supplier	Landpro Ltd.
Date of metadata creation	16 October 2023