Marlborough - Blenheim LiDAR Index Tiles (2014)

- Metadata
  - File Identifier
    - 0D1ACA68-8C4F-4A4E-969D-1086A8B12135
  - Language
    - eng
  - Character Set
    - Character Set Code
      - utf8
  - Hierarchy Level
    - Scope Code
      - dataset
  - Hierarchy Level Name
    - dataset
  - Contact
    - Responsible Party
      - Organisation Name
        - LINZ - Land Information New Zealand
      - Position Name
        - Lidar Coordination Manager
      - Contact Info
        - Contact
          - Phone
            - Telephone
              - Voice
                - 04 4600110
          - Address
            - Address
              - Delivery Point
                - 155 The Terrace
              - City
                - Wellington
              - Postal Code
                - 6145
              - Country
                - New Zealand

Electronic Mail Address
info@linz.govt.nz

Role
Role Code
pointOfContact

Date Stamp
Date
2018-12-06

Metadata Standard Name
ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata

Metadata Standard Version
1.1

Reference System Info
Reference System
Reference System Identifier
Identifier
Code
2193

Identification Info
Data Identification
Citation
Citation
Title
Marlborough - Blenheim LiDAR Index Tiles (2014)

Date

Abstract
This layer contains the Index Tiles for LiDAR data from Blenheim, the Wairau valley region and lower Awatere river corridor captured in 2014. - The DEM is available as layer [Marlborough - Blenheim LiDAR 1m DEM (2014)] (http://data.linz.govt.nz/layer/95483-marlborough-blenheim-lidar-1m-dem-2014/). - The DSM is available as layer [Marlborough - Blenheim LiDAR 1m DSM (2014)] (http://data.linz.govt.nz/layer/95484-marlborough-blenheim-lidar-1m-dsm-2014/). - The LAS point cloud and vendor project reports are available from [OpenTopography](http://opentopo.sdsc.edu/datasets). Lidar was captured for Marlborough District Council by New Zealand Aerial Mapping in February and May 2014. The datasets were generated by New Zealand Aerial Mapping and their subcontractors. Data management and distribution is by Land Information New Zealand. Data comprises: - DEM: tif or asc tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout - DSM: tif or asc tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout - Point cloud: las tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout Pulse density specification is 1.4 pulses/square metre in open ground. Vertical

- datum is NZVD2016.

Status
- Progress Code
  - completed

Point Of Contact
- Responsible Party
  - Organisation Name
    - LINZ - Land Information New Zealand
  - Position Name
    - Lidar Coordination Manager
  - Contact Info
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            - New Zealand
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            - info@linz.govt.nz
  - Role
    - Role Code
      - pointOfContact

Resource Maintenance
- Maintenance Information
  - Maintenance And Update Frequency
    - Maintenance Frequency Code
      - notPlanned

Resource Format
- Format
  - Name

- *.xml
- Version
  - Unknown

Descriptive Keywords
- Keywords
  - Keyword
    - New Zealand
  - Type
    - Keyword Type Code
      - theme
  - Thesaurus Name
    - Citation
      - Title
        - ANZLIC Jurisdictions
      - Date
      - Edition
        - Version 2.1
      - Edition Date
        - Date
          - 2008-10-29
      - Identifier
        - Identifier
          - Code
            - http://asdd.ga.gov.au/asdd/profileinfo/anzlic-jurisdic.xml#anzlic-jurisdic
      - Cited Responsible Party
        - Responsible Party
          - Organisation Name
            - ANZLIC the Spatial Information Council
          - Role
            - Role Code
              - custodian

Resource Constraints
- Security Constraints
  - Classification
    - Classification Code
      - unclassified

Resource Constraints
- Legal Constraints

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Use Constraints
Restriction Code
license

Spatial Representation Type Code
vector
Language
eng

Character Set
Character Set Code
utf8

Topic Category Code
elevation
Extent
EX _ Extent
Geographic Element
EX _ Geographic Description
Identifier
Authority
Citation
Title
ANZMet Lite Country codelist

Date

Edition
Version 1.0

Edition Date
Date
2009-03-31

Identifier
Identifier
Code
http://asdd.ga.gov.au/asdd/profileinfo/anzlic-country.xml#Country

Cited Responsible Party
Responsible Party
Organisation Name
ANZLIC the Spatial Information Council

Role
Role Code
custodian

Code
nzl

Data Quality Info
DQ _ Data Quality
Scope
DQ _ Scope
Level
Scope Code
dataset

Level Description
Scope Description
Other
dataset

Lineage
LI _ Lineage
Statement
Survey Specification: -Scanner: Optech Sensor -Flying Height: 900m above lowest ground -Scan Angle: ±20 degrees -Scan Frequency: 40Hz -Pulse Rate: 70 or 75kHz -Points Per M2: 1.4 Data Acquisition: The LiDAR was acquired between 23 to 28 February 2014 and on 3 May 2014 using NZAM's Optech LiDAR sensor systems. The data in the tidal influence area was collected within 2 hours either side of low tide. The data was collected flying 900 metres above lowest ground, and using a scan angle of 20 degrees either side of nadir. The outgoing laser pulse rate (PRF) was set at either 70kHz or 75kHz and mirror scan frequency 40 Hz. The settings were selected to create a dataset with a minimum 1.4 point per square meter pulse density in open ground. New Zealand Aerial Mapping used a reference mark we established at Woodbourne (NZAM0161) for the collection of GNSS base station data during the aerial data acquisition. Independent of the aerial survey work Sounds Surveying Ltd field surveyed a series of topographic features in open ground, to be later used to verify the accuracy of the processed ground dataset. This field survey work was conducted between 10 and 13 March 2013. The field

survey work is in terms of LINZ geodetic marks AB83, AD84, BE0G, AD5R, A3TV, B3ED, A7GH, BAK6, A867, ACYW, APW4 and BH3D. Data processing: The LiDAR sensor positioning and orientation (POS) was determined using the acquired GPS/IMU datasets and Applanix POSPac software. This work was all undertaken in NZGD2000 geodetic reference system using the data collected at the LINZ geodetic reference marks for the differential processing. The POS data was combined with the LiDAR range files and used to generate LiDAR point clouds in NZTM map projection. This process was undertaken using Optech LiDAR Mapping Suite software. As well as creating the point clouds this software also checks the relative fit between points in the individual swath overlap areas. All subsequent data processing steps were undertaken using TerraSolid's LiDAR processing software modules TerraScan and TerraModeler. The point cloud was checked for completeness of project coverage and pulse density. Automated routines tailored to the projects land cover and terrain were then setup and run on the data to create a ground classified point cloud. This data was converted from ellipsoidal heights to Nelson 1955 vertical datum using the LINZ NZGeiod09 grid and offset model. Comprehensive manual editing of the LiDAR point cloud data was undertaken to improve the quality of the automatically classified ground point dataset. This editing involved visually checking over the data and changing the classification of points into and out of the ground point dataset. As part of this process LiDAR returns from water bodies were removed from the ground point dataset and supplementary points were added to help support hydro flow characteristics around and along water bodies. The positional accuracy of the processed data has been checked by overlaying the Sounds Surveying field surveyed features on the LiDAR dataset displayed with its intensity values. The data was found to fit well in position. The height accuracy of the classified ground points were checked by calculating height difference statistics between a TIN of the LiDAR ground points and the field surveyed points. The standard deviation statistic for the data is +/-0.06m. The data from New Zealand Aerial Mapping was supplied in NZTM map projection and the Nelson 1955 vertical datum, the point cloud datasets had been tiled into NZTopo50 1:2000 tiles. Classification of the point cloud followed the classification scheme below: 1 - Unassigned 2 - Ground 14 - Above_Ground Data Reprocessing: In 2017 the data was reprocessed by AAM New Zealand for LINZ relative to the NZVD2016 vertical datum, NZGD2000 horizontal datum, NZTM map projection, with the NZGeoid2016. This data was supplied as 1:1000 nominal scale (720m high x 480m wide tiles per full NZ Topo50 sheet). Sounds Surveying Ltd undertook ground surveying to support the original work. For this project, the Sounds Survey converted this dataset to NZVD2016. When doing so, they took accord of any local adjustments to geodetic marks that had been applied to the original field surveying coordinates. Classification of the point cloud followed the classification scheme below: 2 - Ground 14 - Non Ground The starting point for processing was the Classified point clouds produced for Marlborough DC based on NZGeoid09. This data has been reverted to ellipsoidal heights, then NZGeoid2016 has been applied to convert the data to orthometric heights. The data was then compared to the ground surveying NZVD2016 test points, and an appropriate final Z shift applied to

each block. Ground point data had been checked to check site data obtained by the field survey, this was assumed to be error free. The test points were distributed across the mapping area and located on clear open ground. Difference statistics yielded for Reference Project Site Awatere: RMS 0.035m and for Wairau: RMS 0.045m All point attribute data (intensity, return number, GPS time) in the original data points have been imported into the new las file dataset. Lakes and large rivers were hydroflattened in the bare earth digital elevation model. The deliverables to LINZ were: 1m gridded bare earth digital elevation model (DEM) 1m gridded digital surface model (DSM) Classified point cloud Classified point cloud Data hosted by OpenTopography was re-classified: the Above_Ground (14) points were reclassified as Unassigned classification (1)

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