

# Christchurch 0.05m Urban Aerial Photos Index Tiles (2021)

## Metadata

### File Identifier

a146a7f7-2e31-585d-5221-b78e06663f3a

### Language

eng

### Character Set

#### Character Set Code

utf8

### Hierarchy Level

#### Scope Code

dataset

### Hierarchy Level Name

dataset

## Contact

### Responsible Party

#### Organisation Name

Toitū Te Whenua Land Information New Zealand

#### Position Name

National Imagery Manager

### Contact Info

#### Contact

##### Phone

###### Telephone

###### Voice

04 4600110

##### Address

###### Address

###### Delivery Point

155 The Terrace

###### City

Wellington

###### Postal Code

6011

###### Country

New Zealand

###### Electronic Mail Address

info@linz.govt.nz

### Role

#### Role Code

pointOfContact

#### Date Stamp

Date

2021-12-10

#### 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

Christchurch 0.05m Urban Aerial Photos Index Tiles (2021)

Date

#### Abstract

Index Tiles ONLY, for actual orthophotos see layer [Christchurch 0.05m Urban Aerial Photos (2021)] (<http://data.linz.govt.nz/layer/106915>) Orthophotography within the Canterbury Region captured in 11 February 2021. Coverage encompasses Christchurch CBD. Imagery was captured for Environment Canterbury by Landpro Ltd, 13 Pinot Noir Drive, Cromwell 9310, New Zealand. Data comprises:

- 95 ortho-rectified RGB GeoTIFF images in NZTM projection, tiled into the LINZ Standard 1:500 tile layout
- Tile layout in NZTM projection containing relevant information. The supplied imagery is in terms of New Zealand Transverse Mercator (NZTM) map projection. Imagery supplied as 5cm pixel resolution (0.05m GSD), 3-band (RGB) uncompressed GeoTIFF. The final spatial accuracy is  $\pm 0.2\text{m}$  at 90% confidence level in clear flat areas.

#### Status

Progress Code

completed

#### Point Of Contact

Responsible Party

Organisation Name

Toitū Te Whenua Land Information New Zealand

Position Name

National Imagery Manager

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Role

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pointOfContact

Resource Maintenance

Maintenance Information

Maintenance And Update Frequency

Maintenance Frequency Code

notPlanned

Resource Format

Format

Name

\*.xml

Version

Unknown

Resource Constraints

Security Constraints

Classification

Classification Code

unclassified

Resource Constraints

Legal Constraints

Use Limitation

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Use Constraints

Restriction Code

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Resource Constraints

Legal Constraints

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Use Constraints  
Restriction Code  
license

Spatial Representation Type Code  
vector

Representative Fraction  
Denominator  
Integer  
500

Language  
eng

Character Set  
Character Set Code  
utf8

Topic Category Code  
imageryBaseMapsEarthCover

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

Extent

EX \_ Extent

Geographic Element

EX \_ Geographic Bounding Box

172.60189560993376172.66442971530947-43.54612906264211-43.51352098290249

## Distribution Info

Distribution

Transfer Options

Digital Transfer Options

On Line

Online Resource

Linkage

URL

<https://data.linz.govt.nz/layer/106917-christchurch-005m-urban-aerial-photos-index-tiles-2021/>

## Data Quality Info

DQ \_ Data Quality

Scope

DQ \_ Scope

Level

Scope Code

dataset

Level Description

Scope Description

Other

dataset

## Lineage

LI \_ Lineage

Statement

Data Acquisition The Camera Imagery for this schedule was acquired using the Leica ADS100 line scanning camera with SH100 sensor head. The camera was fitted to a Leica PAV100 HP high performance gyro-stabilised mount. Flight Planning Careful consideration was given during flight planning to geographic location, terrain, topographical characteristics of the area, acquisition efficiency, final output resolution and meeting the various requested orthophoto quality specifications. Environmental Specification All imagery was captured without the presence of cloud or cloud shadow within the specified areas of interest. Where affected, all coastal, harbour, and tidal regions were captured during low tide periods, this being defined as the period 2 hours either side of low tide. Imagery covering coastal areas extends from the tide line during low tide periods out to 100 meters. Imagery of harbour areas extends out to 100 meters from the perimeter of the harbour. Rivers were captured during times of appropriate flow/stage height/rainfall restrictions as specified by the client. These criteria were set to avoid periods of high river flow (flooding), rather than to target abnormally low river flows. Elevated Feature Displacement The Christchurch area was flown with a minimum of 40% side overlap as limited by the Nadir sensor. Wherever practical, high side overlap was used to minimize the effects of elevated feature displacement in urban areas. Ground Control A total of 224 new ground control points were observed for use with the aerial triangulation and bundle adjustment of Schedule E areas. Data from Global Survey's and LINZ CORS sites, along with several existing LINZ benchmarks, were used in Leica Infinity software to process and check the ground control. Data Processing Landpro partnered with Hexagon Geosystems for image processing. Software GNSS/IMU processing: Novatel Inertial Explorer AT, SGM/Orthophoto Generation: Leica Xpro, DTM Filtration, QS2 & LAS Tool Environment DTM Preparation: TerraSolid, Global Mapper Seamline Generation: QS2 & Image Manager, Sweep and seamline editing, QM2, Inpho Orthovista DTM Editing: DTM Editor Tool, Tile Extraction, QS2 Delivery Manager Map Projection and Datum All spatial data for this project is supplied in the New Zealand Transverse Mercator (NZTM2000) projection in terms of the New Zealand Geodetic Datum 2000 (NZGD2000). Aerial Triangulation (AT) No abnormalities or complications were encountered during this phase. All aerial triangulations are carried out to ensure accuracies in the region of 1xGSD value. This was achieved with all

adjusted RMS residual values in the desired region of  $\pm 7.5\text{cm}$ , ensuring excellent overall quality and spatial accuracy DEM for Orthophoto Point Cloud Generation XPro uses Semi-Global Matching (SGM) for high-resolution DSM computation. A ratio of 1:1 was used for generation resulting in a 7.5cm GSD resolution point cloud. Point clouds are output as RGBN encoded LAZ files. Point Cloud Filtration SGM filtration was done in Batch Converter and consisted of two processes following one after the other:

- Lasground - Filter of input data and extract ground points from input point cloud
- Lasclip - Removal of ground points inside polygons with buildings

DEM Preparation The resulting point cloud was used to produce a 32bit floating raster DEM for use in orthophoto generation. The following accuracy requirements have been met for this DEM:

- Vertical Accuracy  $\leq 1$  metre (@ 90% confidence)
- Horizontal Accuracy  $\leq 2$  meters (@ 90% confidence)

RGBN Orthophoto Production Individual radiometric profiles were checked for each strip ensuring optimal results across the final ortho-mosaic. No complications were encountered during orthophoto generation, mosaicking and tiling. Various quality checks including accuracy, colour, contrast, sharpness, seamline positioning, refraction and generation artifacts were performed and found satisfactory on the final orthophoto tiles. Peripheral Imagery Peripheral imagery has been orthorectified with the same DEM used to generate the primary AOI orthophotos. As such, these DEMs may not cover the entire area of peripheral imagery and associated artefacts may be present.

#### Metadata Constraints

##### Legal Constraints

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