



FORESTRY TASMANIA

LUINA LIDAR TRIALS (FOR MINERAL RESOURCES TASMANIA)

VOLUME 20294A02NOM

Summary

Project

In May 2013 an area of densely forested land in Tasmania chosen for trialing various LiDAR capture specifications in order to ascertain the best fit for Geological Exploration purposes.

Task A (Area A – entire Luina area) was to cover approx 10,000ha at a specification expected to provide suitable terrain definition.

Trials B, C and D were trial swaths (each approx 1,800ha) each with a common flight path centre line, overlapping a part of Area A, but at various specifications, designed to be a LiDAR capture trial.

Data

- Area A - LAS data in tiles, manual classification applied.
- Trial B - LAS data in tiles, manual classification applied.
- Trial C - LAS data in tiles, manual classification applied.
- Trial D - LAS data in tiles, manual classification applied.
- Tile layout in DGN format
- PTC file – Indicates classification types (text file)

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1. DATA INSTALLATION

Data format : LAS, DGN, Text
Number & type of media : USB3 HDD (1TB capacity)
Number of files on media : 611, viz. 604 LAS files, 4 tile layouts, 1 dir_list.txt, 1 PTC file, & 20294A02NOM_Readme.PDF
Data formatted on : 27/06/2013
Disk volume : 20294A02NOM
AAM Project Manager : Hans Stampa 03 9572 8703
AAM Account Manager : Rohan Potter 03 9572 8704

README FILE

This document (20294A02NOM_Readme.PDF) is provided as an Acrobat file in this volume.

To open the file, double click on the PDF file to activate Acrobat Reader Software.

Adobe Acrobat Reader may be downloaded from:

<http://www.adobe.com/products/acrobat/readstep2.html>

LOADING NOTES

Data may be copied using a file copy utility such as Windows Explorer or similar.

FILE SIZES AND NAMES

See dir_list.txt for file listing

LAS tiles are named by truncated South West corner coordinate.

SAMPLE LISTING

LAS format is binary and cannot be listed like a text file can. This should be opened in a LAS viewer.

LAS file point classifications levels are formatted to comply with ASPRS Standard LiDAR Point Classes.

0	Unclassified
1	Default
2	Ground
3	Low Vegetation
4	Medium Vegetation
5	High Vegetation
6	Building
7	Low / High points
8	Model Keypoints
9	Water
10	Bridge
11	Error Points
12	Cut Overlap Points
13-31	Reserved for ASPRS Definition

Classes in bold are delivered within this volume

2. METADATA

DATA CHARACTERISTICS

Characteristic	Description
Format	LAS
Size	Opt A 2,553,000,000 data points (approximate) Opt B 58,000,000 data points (approximate) Opt C 209,000,000 data points (approximate) Opt D 53,000,000 data points (approximate)
Laser return	1 st , 2 nd 3 rd and last
Laser footprint size	0.2m – 0.7m
Laser mode	Single and Multipulse
Nomenclature	Tiles are named by truncated South West corner coordinate E.g. Opt_A_e3630n54090.las - - Option is area A - - SW Corner at 363000E, 5409000N MGA 55

FLYING PARAMETERS

Area Name	Altitude (m)	Frequency (kHz)	Sub Frequency (Hz)	Full FOV (deg)
A	1800	250	32	25
B	1800	100	36	25
C	1000	200	32	50
D	2700	100	24	25

POINT DENSITY ACHIEVED

Tile	Opt A	Opt B	Opt C	Opt D
e3650n54090				
Ground	0.58m ²	0.26m ²	0.44m ²	0.17m ²
Vegetation	21.16m ²	5.64m ²	18.53m ²	3.71m ²
e3645n54130				
Ground	0.63m ²	0.26m ²	0.46m ²	0.17m ²
Vegetation	22.51m ²	5.23m ²	17.06m ²	3.17m ²
e3650n54175				
Ground	0.57m ²	0.25m ²	0.48m ²	0.14m ²
Vegetation	23.29m ²	5.62m ²	19.32m ²	3.20m ²
e3645n54195				
Ground	0.45m ²	0.21m ²	0.43m ²	0.15m ²
Vegetation	20.22m ²	5.63m ²	22.09m ²	4.09m ²

REFERENCE SYSTEMS

	Horizontal	Vertical
Datum	GDA94	AHD (TAS1983)
Projection	MGA 55	N/A
Geoid Model	N/A	Ausgeoid98
Reference Point	ST393 on Mt Cleveland 364502.502E 5410020.321N	ST393 on Mt Cleveland 857.53RL
Description	Brass SPM mark No. 2845 in concrete at ground level	



This data is GDA compliant

SOURCE DATA

	Source	Description	Ref No	Date
Survey control	Tritech Surveys	Rapid static GPS	16577D	23.5.2013
Laser Scanning	AAM	4 Trials – See above	20294A15	May 2013
Test points	Tritech Surveys	Leica GPS	16577D	23.5.2013

EXPECTED ACCURACY

Project specifications and technical processes were designed to achieve accuracies as follows:

	Measured Point	Derived Point	Basis of Estimation
Ground control	0.05m		Survey methodology used
Test points (XY)	0.10m		Deductive estimate
Test points (Z)	0.05m		Survey methodology used

Notes On Expected Accuracy

- Values shown represent standard error (68% confidence level or 1 sigma), in metres
- “Derived points” are those interpolated from a terrain model.
- “Measured points” are those observed directly.
- Accuracy estimates of measured points refer to discrete point-mode observations. Observations taken in string-mode can be up to two times less accurate.
- Accuracy estimates for terrain modeling by ALS or photogrammetry refer to the terrain definition on clear ground. Ground definition in vegetated terrain may contain localised areas with systematic errors or outliers which fall outside this accuracy estimate
- Laser strikes have been classified into “ground” and “non-ground”, based upon algorithms tailored for major terrain/vegetation combinations existing in the project area. The definition of the ground may be less accurate in isolated pockets of dissimilar terrain/vegetation combinations.

LIMITATIONS OF DATA

- Features obscured by foliage or shadow may not appear.
- The definition of the ground under trees or shadow may be less accurate.
- Underground services have not been mapped.

DATA VALIDATION

ALS Data

- Ground data in this volume has been compared to 21 test points obtained by field survey and assumed to be error-free. The test points were distributed in 1 group to the South of the mapping area and located on clear ground
- Comparison of the test points with elevations interpolated from measured data resulted in:

Mean difference	:	-0.659m
St.Deviation	:	0.03 m
Standard Error (RMS)	:	0.03 m

This mean elevation difference has been removed from the data supplied in this volume
- Data classification has been manually checked and edited against any available imagery.

USE OF DATA

- Intended use : Testing usefulness of LiDAR for geological exploration

3. CONDITIONS OF SUPPLY

The data in this volume has been commissioned by **FORESTRY TASMANIA**.

The data in this volume is provided by AAM Pty Limited (AAM) to **FORESTRY TASMANIA** under the client's Terms of Engagement, which require **FORESTRY TASMANIA** to assume beneficial ownership, subject to the following conditions:

1. This file (Readme_20294A02NOM.PDF) is always stored with the unaltered data contained in this volume.
2. The data is not altered in any way without the approval of AAM. The data may be copied from this file to another.
3. The data is not used for purposes beyond that explicitly agreed in the description of the Services provided by AAM.

Any breach of these conditions will result in the immediate termination of the license issued by AAM, and **FORESTRY TASMANIA** will indemnify AAM from all resulting liabilities.

Any problems associated with the information in the data files contained in this volume should be reported to:

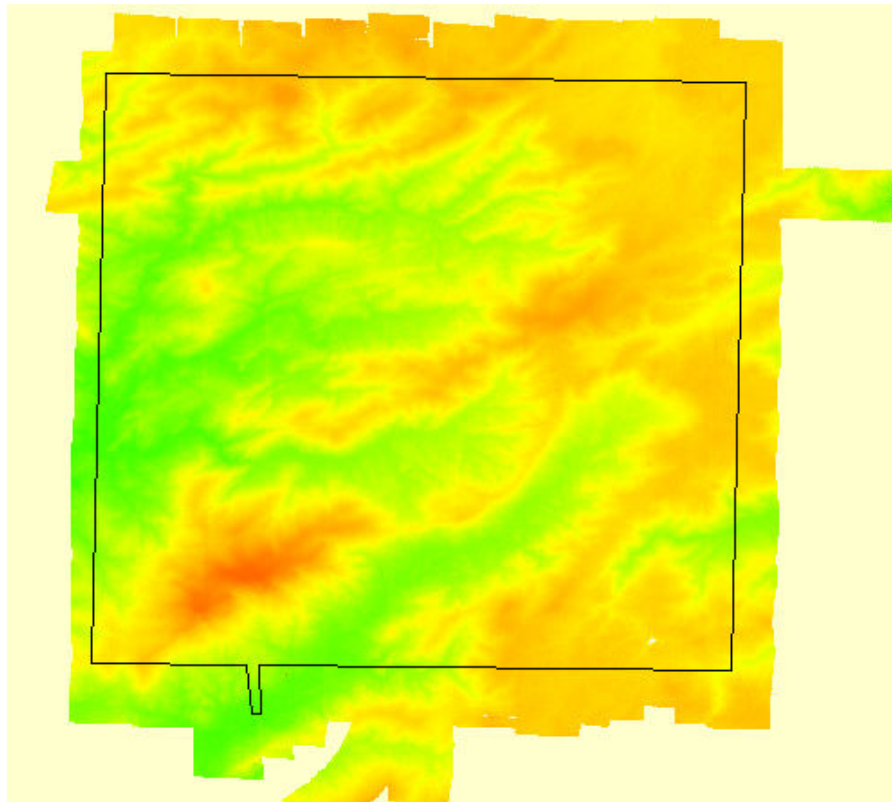
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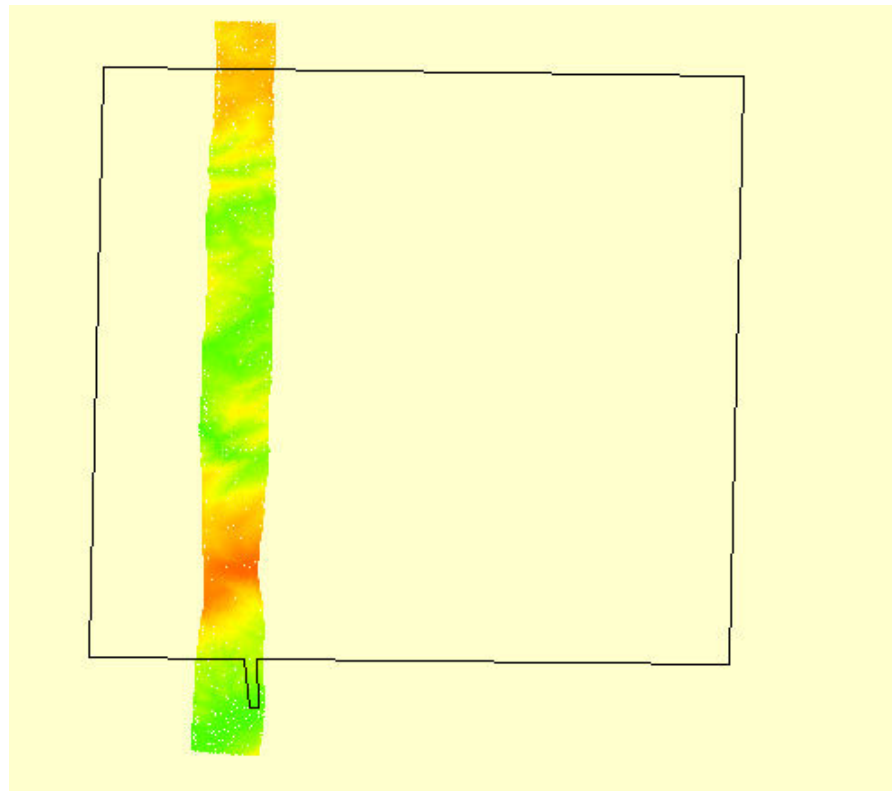
4. VALIDATION PLOT

The purpose is to present an expectation of what is being delivered and that no data is missing.

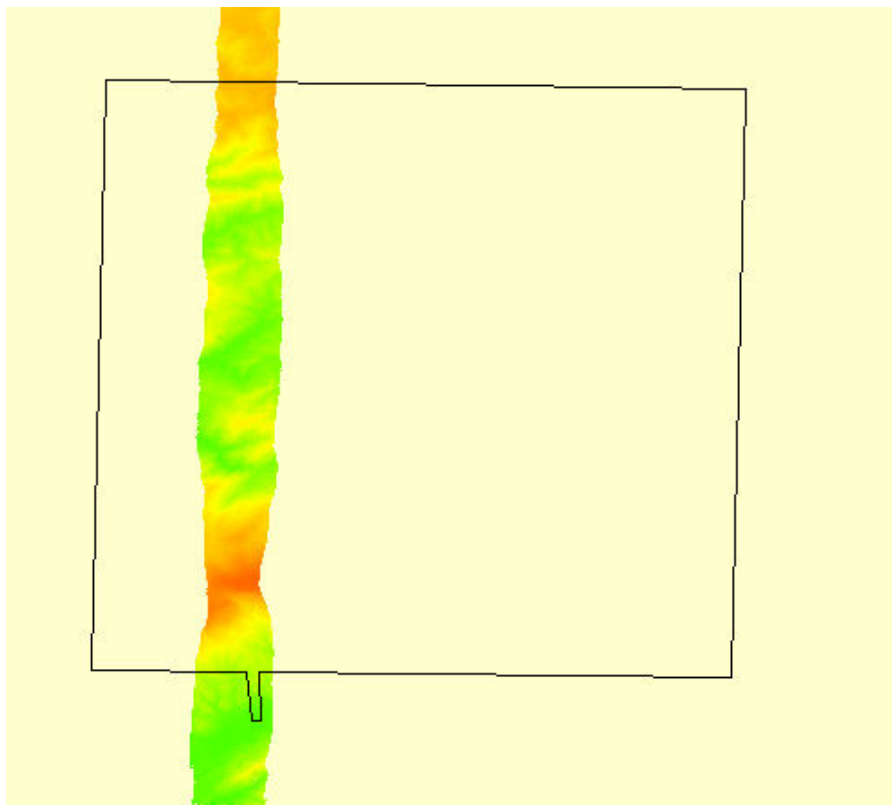
AREA A



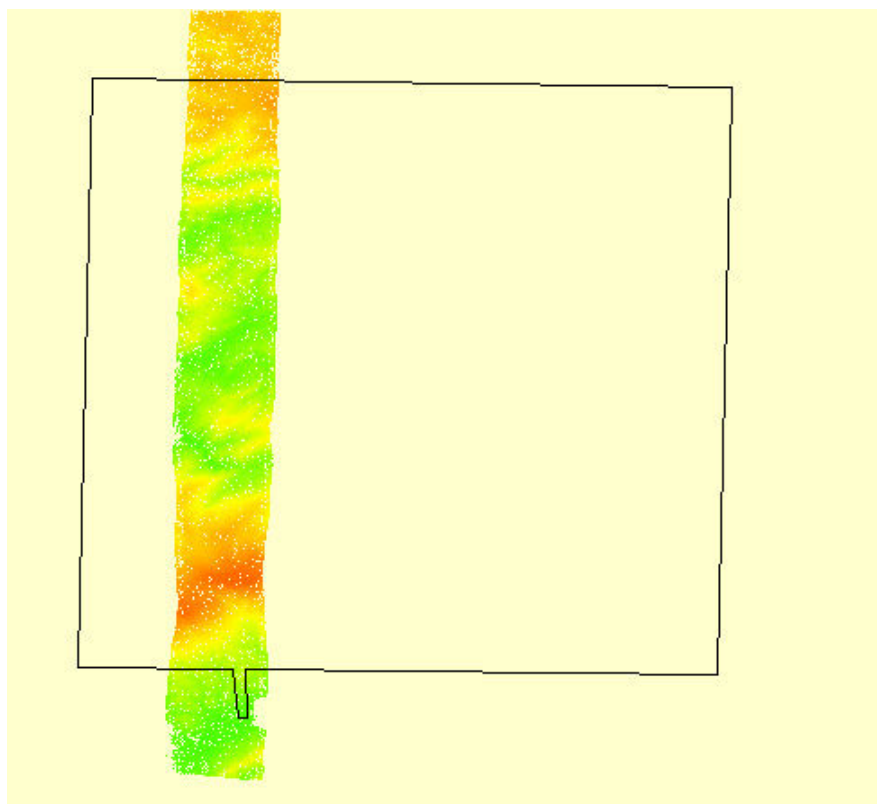
TRIAL B



TRIAL C

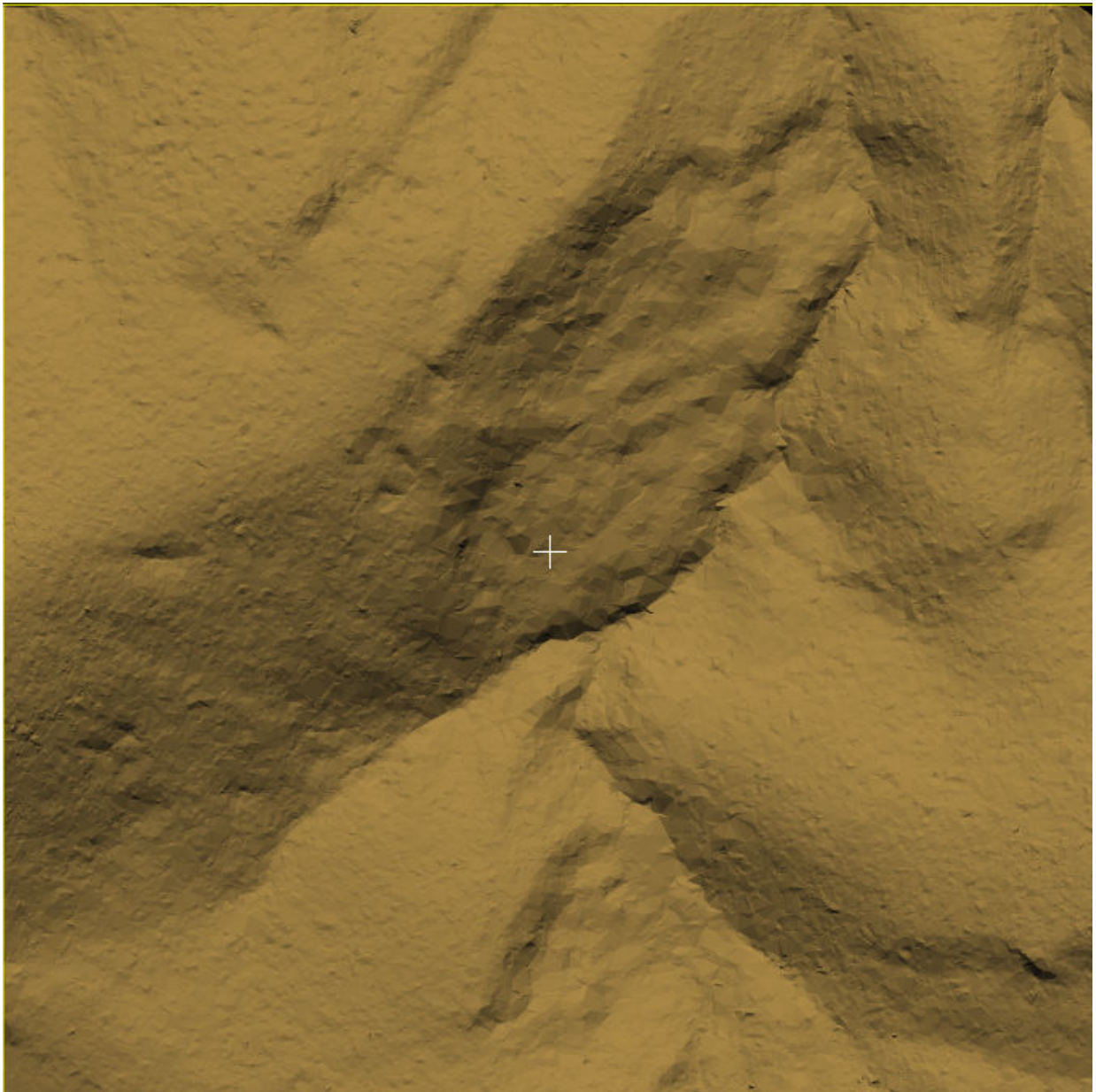


TRIAL D



TYPICAL TILE – LAS FORMAT

Largest tile 7.3 million points 200MB - Trial A Tile e3660n54135.las



TYPICAL CROSS SECTIONS (1m contours and vegetation shown)

