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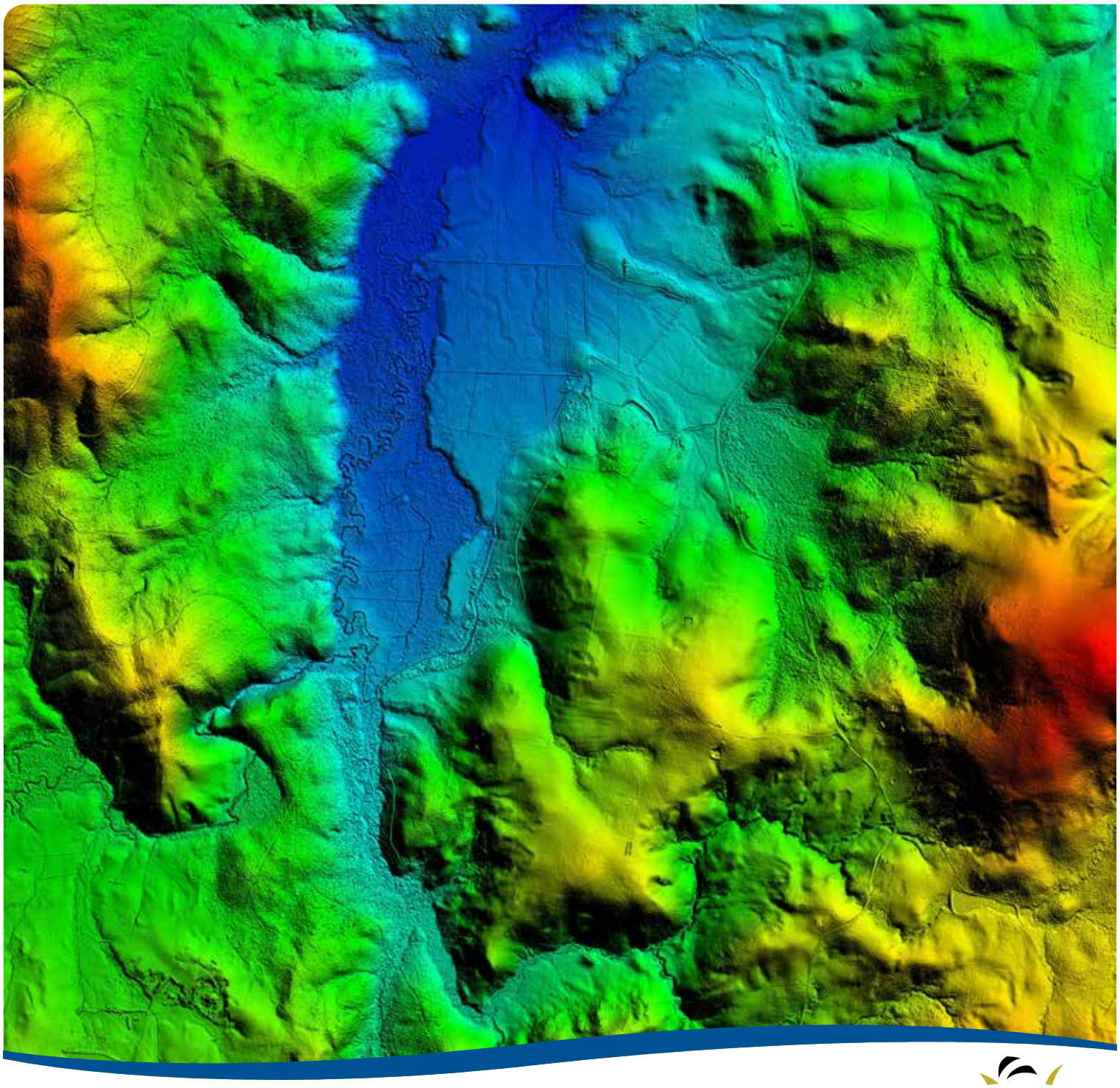
location matters

LandTasmania

A **point of reference** for Tasmanian Land Information



Department of
Primary Industries, Parks, Water and Environment

Tasmanian Government

The new edition of Lake St Clair Day Walks Map – available for purchase from Service Tasmania shops, TASMAP resellers and online at **www.tasmap.tas.gov.au**

This newsletter is designed, written, edited and produced by ***Land** Tasmania*, a Division of the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE).

location *matters* aims to keep clients and members of the community informed about new developments and progress with existing projects, as well as introduce you to staff and the work they do.

Please take a few minutes to provide feedback or ideas for future issues by completing the short questionnaire at **www.dpipwe.tas.gov.au/locationmatters**

An electronic version of this publication can be found at:

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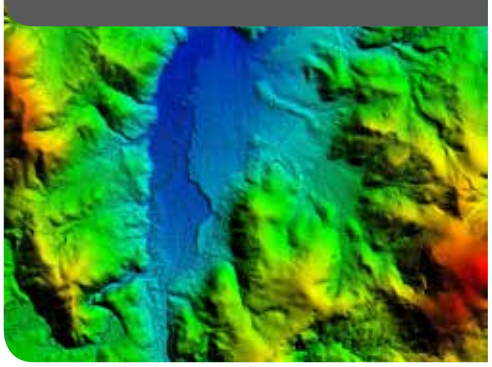
Cover image

LiDAR captured by Forestry Tasmania in the north-east of the state near Winnaleah. The LiDAR image uses a one metre grid with the colour illustrating height variation of the terrain. Features captured include forestry, roads, rivers, vegetation and agriculture. See story on page 4.



Message from the GM

On behalf of *Land Tasmania,*

welcome to the 13th edition of the location *matters* newsletter. This edition highlights some of the innovative developments being undertaken by ***Land** Tasmania*. Before I get started though, I would like to acknowledge the hard work of Robert Cockerell, who has recently departed the role of General Manager ***Land** Tasmania*. Robert has taken on the important position of General Manager TMD, which is the whole-of-government provider of communications and IT commodity services for the Tasmanian Government.

While this edition focuses on the important developments occurring in Tasmania, I thought it would be worthwhile highlighting several key initiatives related to our industry at a national level.

The first is **Geoscape**, a new initiative by PSMA that captures the built environment in 3D from high resolution Digital Globe satellite imagery and ties it to the underlying spatial topographic base. The Geoscape dataset will include building footprints, heights, roof types, roof pitch, ground and tree cover at a national level. ***Land** Tasmania* is contributing framework spatial data to assist in the development of Geoscape.

The second initiative is the ANZLIC **FSDF** (Foundation Spatial Data Framework), which is a program cataloguing Australia's 'common asset' of location information. Users rely heavily on the same trusted information to make decisions that affect people's safety, prosperity, and environment. Innovation will be enabled through discovery and access to reliable, trusted data from custodians.

The final initiative is the National Electronic Conveyancing network **PEXA** (Property Exchange Australia). PEXA will assist members such as lawyers, conveyancers and financial institutions to lodge documents as a transaction with Land Registries and complete financial settlements electronically. ***Land** Tasmania* is currently working with PEXA on implementing changes to allow transactions related to Tasmanian land to be lodged via PEXA. At this stage implementation will occur in October 2017.

I hope you enjoy reading this edition of location *matters*.

Stuart Fletcher
Acting General Manager,
***Land** Tasmania*

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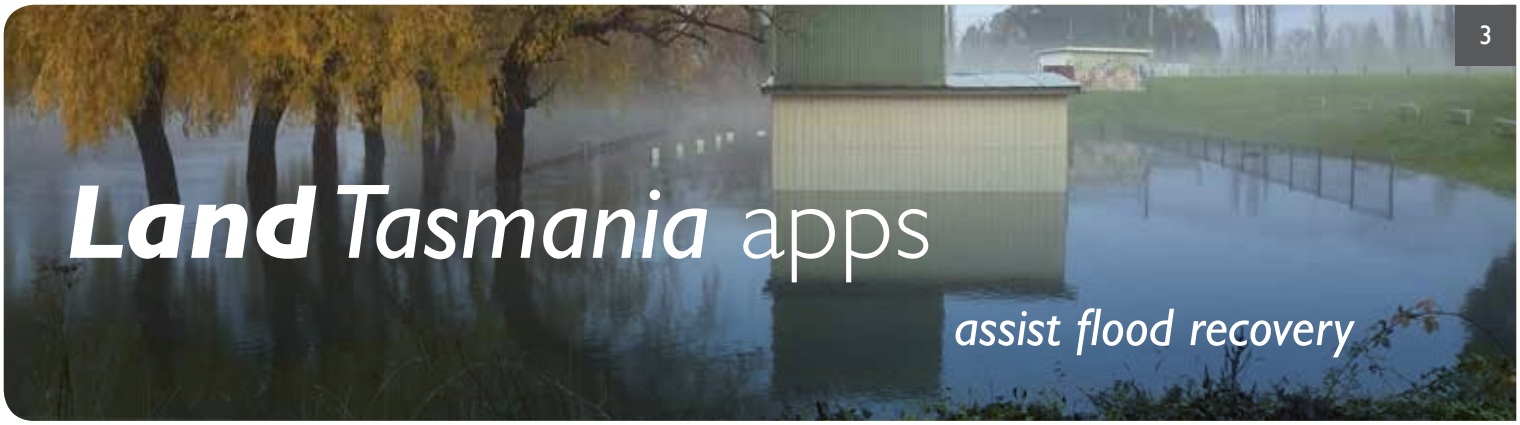


Land Tasmania apps

assist flood recovery

Record-breaking

rains caused widespread flooding in much of the north and north-west of Tasmania in June 2016. A month later in the south, Huonville also experienced its worst floods in two decades.

The speed and severity of the floods tragically resulted in loss of life and devastation to families, businesses, famers and local communities. The social, environmental and financial cost is extensive.

The Tasmanian Government established the Tasmanian Flood Recovery Taskforce (the Taskforce) to work with affected communities and others in the recovery and rebuilding process. Spatial information, in particular the collection and upload of data in the field, has been invaluable to the planning and decision-making ability of the Taskforce.

Infield data collection was made possible using mobile and web apps specially created by ***Land** Tasmania*. Data was initially collected from Rapid Impact Assessments carried out by staff from the State Emergency Services (SES) and the Tasmania Fire Service (TFS). Data has continued to flow in via infield data collection apps developed and used for local government infrastructure impacts, locating animal carcasses, impacts to agri-business, river impacts and debris management.

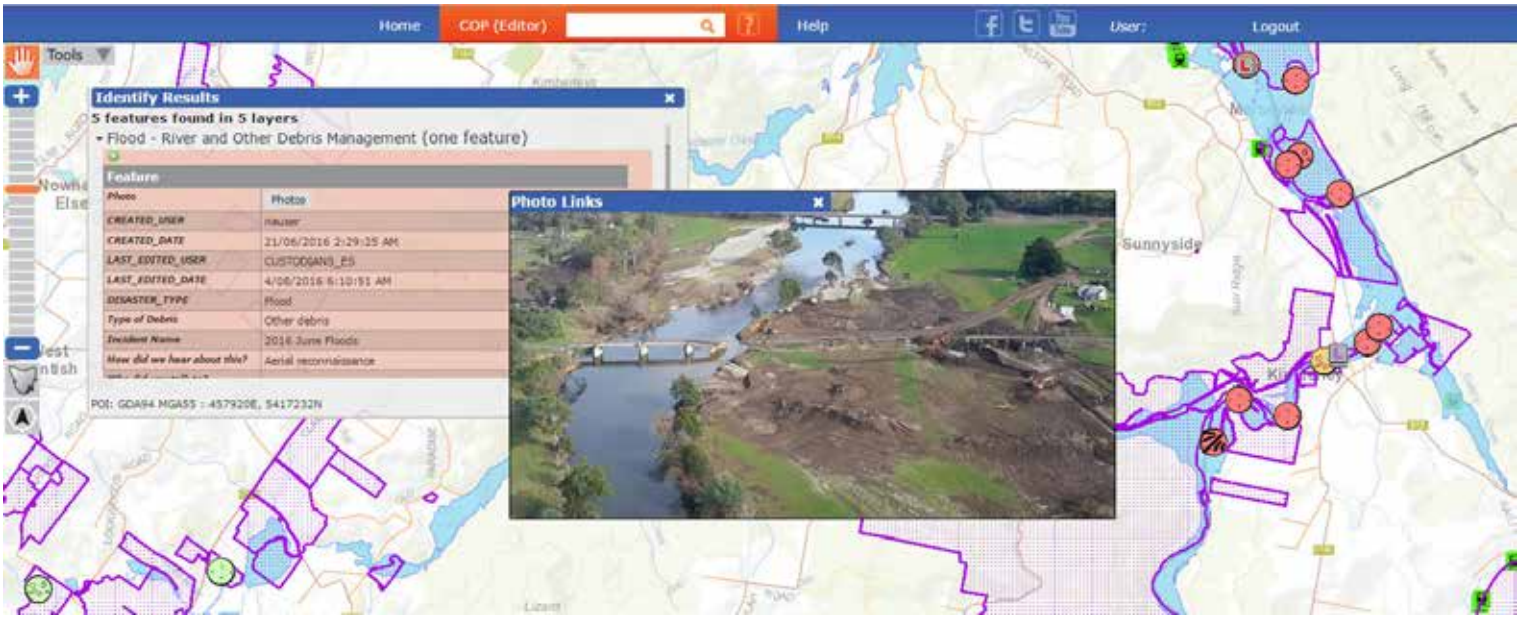
Editing data directly from LISTmap is being used for ongoing management of flood recovery, including the allocation of subsidies and grants. Since early June, more than 25 flood-specific datasets have been developed that map infrastructure, agricultural, environmental and business impacts. Information from the infield data collection apps and the flood-specific layers has been viewed using the LISTmap/COP.

One of the key roles of the Taskforce has been to apply for federal funding under the National Relief and Recovery Arrangements. When it came to submitting the funding application for Primary Producer Clean-up Grants, the ability to geographically locate the impacted properties, combined with associated costs, was integral to the application.

Data from infield collection apps, particularly the Agri-growth assessment app, enabled impact costing of 450 primary producer properties. Combined with existing spatial data, this allowed us to clearly demonstrate current and projected impact levels of up to 640 primary producers in eight local government areas.

The application was approved, releasing up to $6.4 million of joint state-Commonwealth funds to primary producers. Feedback from the Australian Government suggests the application, due to the inclusion of infield data collection, has set a new benchmark in funding requests. A great result for all involved.

Below: Huonville, during the recent floods. Image courtesy of Aerial Vision Australia.
Bottom: TheLIST showing impact information from the Agri-business, Debris Management and Rapid Impact Assessment apps.



LiDAR

extends its reach and benefits

Many people are now familiar with LiDAR as a form of Airborne Laser Scanning that captures high density terrain and surface data. Tasmania is fortunate to have accumulated significant public LiDAR coverage from campaigns conducted by Geoscience Australia, Department of Premier and Cabinet, various councils and most significantly, Forestry Tasmania (FT).

FT has recently completed LiDAR capture over the entire public forest estate. This data has been used to improve knowledge of terrain, hydrology and inventory. The accurate relief shown in LiDAR-derived-terrain data is also used to maximise coupe design and avoid geomorphological constraints such as karst and landslip areas.

Agreement has recently been reached with FT for the transfer of its LiDAR assets, derived products and intellectual property to the state, to be managed and delivered by ***Land** Tasmania* via theLIST infrastructure under open data arrangements. This is a significant step towards increasing the statewide coverage and has been eagerly anticipated by the user community.

***Land** Tasmania* has been working towards achieving a case for the investment required to complete a total state LiDAR coverage. The concept has been widely socialised through the Tasmanian industry over the last two years, and has received strong support from a variety of sectors, ranging from Mineral Resources Tasmania, Hydro Tasmania, agriculture and precision farming, irrigation, conservation and emergency services.

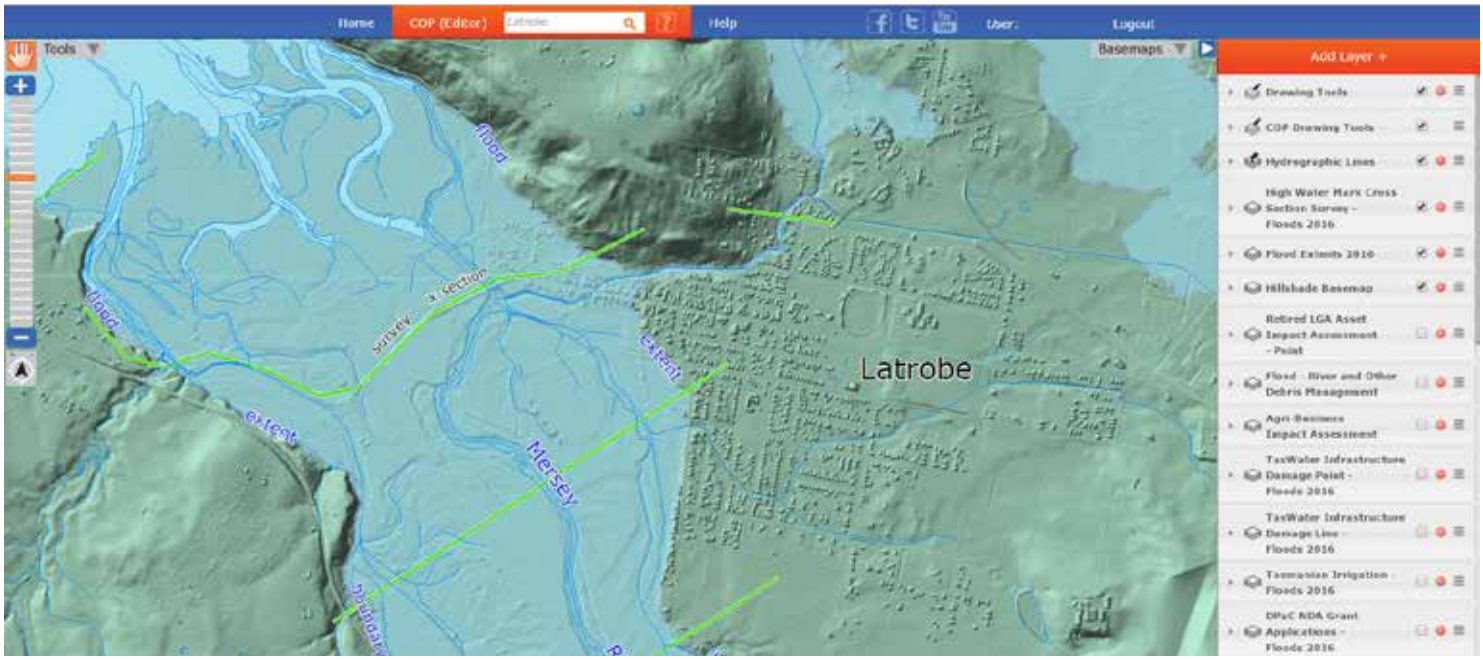
One of the attractive aspects of LiDAR from an investment perspective is that there are so many beneficiaries. For instance, several significant reports have been compiled estimating the financial benefit/cost ratio returned by improved elevation models. Possibly the most significant such report is the Dewberry report prepared for the United States Geological Survey, titled *National Enhanced Elevation Assessment.*

This report provides significant evidence that an enhanced national elevation model could provide benefit/cost ratios of between 4.3:1 and 4.9:1, depending on options implemented. In particular, agriculture and precision farming were very high on the list of major beneficiaries, along with emergency management, flood risk assessment and forest resource mapping.

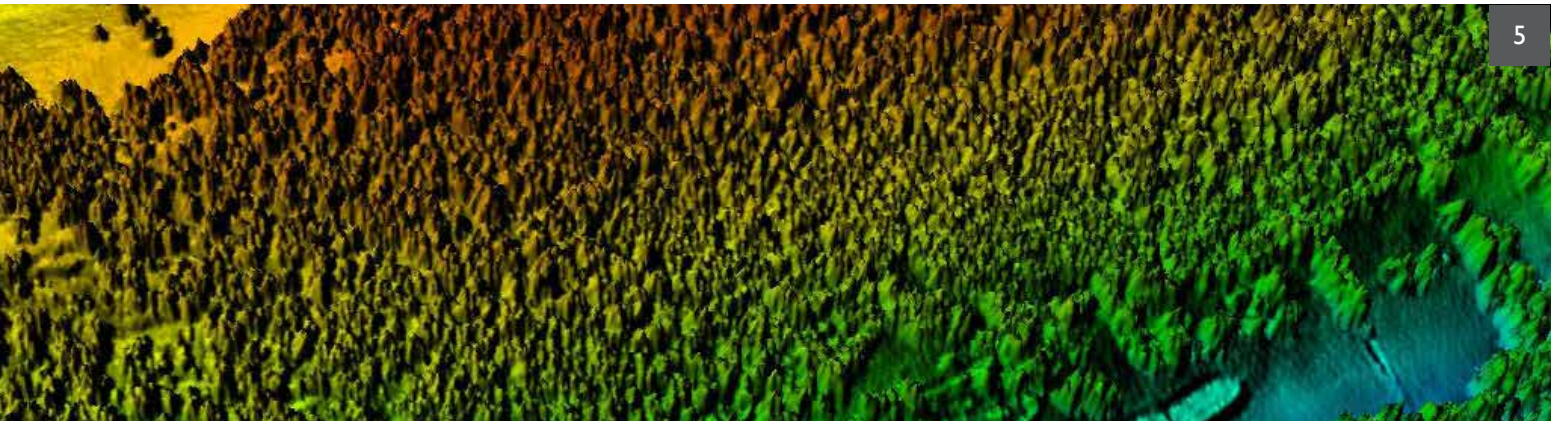
Speaking of emergency management, no-one reading this article could be unaware of the extreme year that Tasmania has endured with respect to emergencies. Starting with the prolonged and destructive summer fire season, and followed by the equally-devastating floods, it has been a very taxing time for our emergency services and support structures.

The state's LiDAR coverage has played a significant role in managing and recovering from these events. Firstly, let's look at the fires. The extent of this year's bushfires meant that assistance was needed from interstate and overseas. For this reason, briefings and maps were required for firefighters who were unfamiliar with local conditions.

One of the derived LiDAR products heavily used this year was 'Hillshade'. This is a 3D looking relief model available via theLIST that exposes terrain form in a readily-recognisable way. It reveals old unused tracks, for example, in places



June 2016 flood extents in the Latrobe area. In field surveying data taken on the cross sections was used in conjunction with LiDAR data to develop the flood extent boundary. This information can be used to guide future mitigation measures. The dark blue lines within the flood boundary show the original river alignment. The impacted residential areas of Latrobe can also be seen.



that would be hidden in standard aerial photography. This means back burning access lines and clearance lines can be made on those old tracks rather than through undisturbed bush, saving time and effort, and further destruction of vegetation. Similarly incident managers can analyse the Hillshade model to get a rapid understanding of likely fire behavior, and thus deployment maps augmented by the Hillshade layer are of great benefit for briefing the interstate resources.

The winter floods also caused chaos in many parts of Tasmania. Due to prevailing weather conditions, aircraft were not able to be deployed at the flood peak to record extents. Therefore existing LiDAR coverage, where available, was used to reconstruct extents based on ground survey control work. The accuracy of the LiDAR means that very good intelligence of flood behavior can be derived, and this is especially important for future mitigation strategies.

Case Study – Identifying better business decisions

An interesting piece of feedback from a newly-arrived Tasmanian recently landed on our Client Services desk. Matt, a Sydney-based transport planner and investor, made full use of LISTmap and LiDAR data in making a decision to purchase land and invest in Tasmania. Matt first discovered theLIST (**www.thelist.tas.gov.au**) after it was recommended to him by a Tasmanian real estate agent.

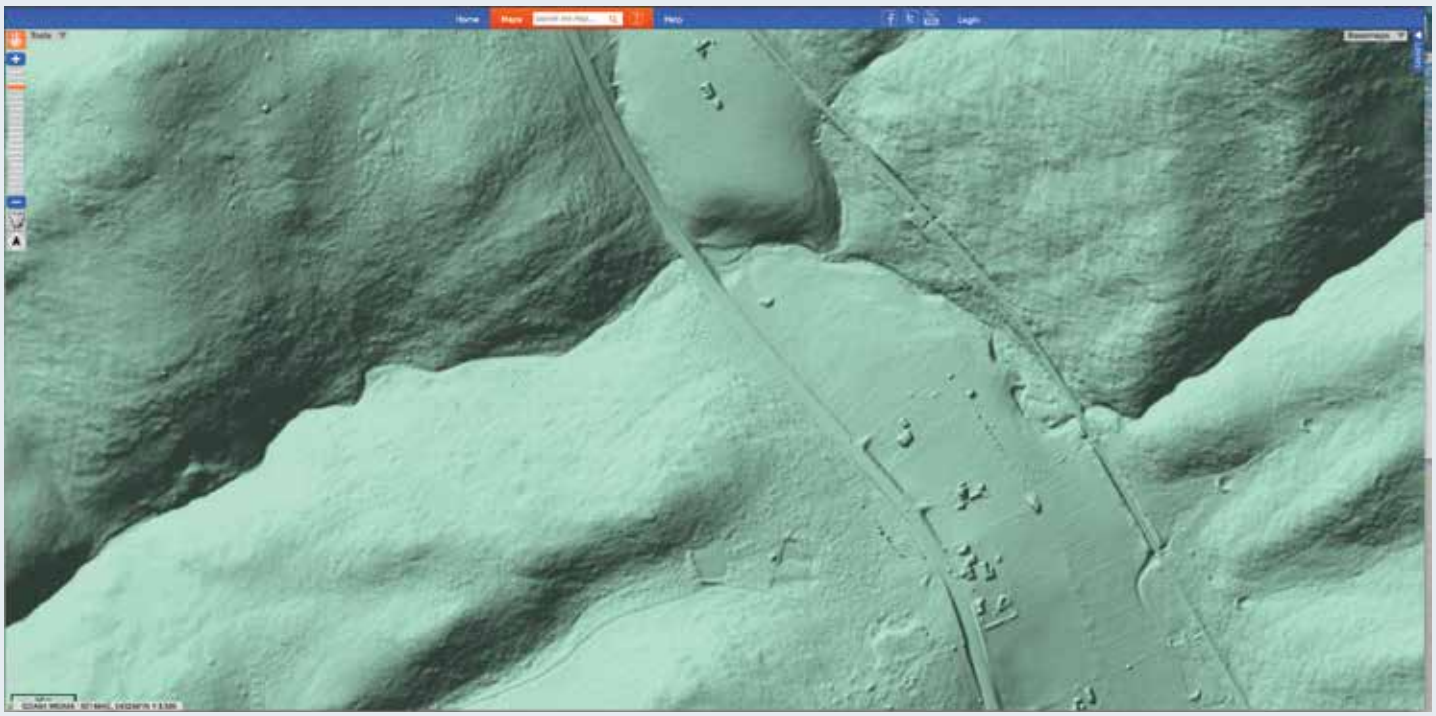
The release of the Hillshade basemap layer (a product derived from LiDAR and contour information) was another important source of information. It enabled Matt to understand the 'lay of the land' and identify features on the property like old dams that had been obscured due to the thick bracken and scrub.

On purchasing the land, Matt said he engaged a natural resource management consultant to undertake analyses of his property.

"By using the layers and basemaps in LIST, I was able to inform the consultant about features on my property, without ever having been on site," he said. "The consultant was amazed."

As part of the natural resource assessment, a 3D viewshed model of the property was produced. This included 0.5m contours over the full extent of the property from Digital Terrain, Digital Surface and Canopy Height LIDAR Models.

From the 3D viewshed models, Matt was able to better position the proposed building sites to maximise view lines across the site, accurately plot the location of new dams to be excavated, and better situate roads to minimise gradients.



Hillshade basemap shown in LISTmap illustrating surface model features such as buildings, roads, dams, railway lines and tracks.

The next step

for mobile collection of valuation data

The future for mobile collection of valuation data has taken the next step forward with the trial collection of basic data via a mobile phone application.

Two external valuation contractors are using the phone application, built by ***Land Tasmania's*** Spatial Operations Section, across 10 municipalities undergoing a fresh valuation. This is the first time, said Valuer-General Tim Grant, that we have used automated collection methods via phone.

"The phone app allows a valuer to add basic data and information to a captured image and send the image straight to a central collection data base," Tim said. "It happens in real-time, so you can see the images just after they are taken and immediately discuss any issues with a person in the field."

The phone app will be used for nearly 6 000 properties during this fresh valuation, focusing on primary production properties as well as those where a substantial change has occurred to buildings and structures since their last fresh valuation in 2010. The information collected will assist in verifying data held by the Office of the Valuer-General, and in determining an appropriate fresh valuation for the property.

Tim added that the key challenge for developers was to deal with phone coverage in remote locations. Valuers are trialing an off-line mode that enables them to continue collecting data, and then send the data and images to the central collection database when the valuer gets back to an area with phone coverage.

The Office of the Valuer-General has more than 55 years of property data, which valuers constantly need to check and verify. Tim said the new phone app will soon become a regular field tool for valuers and that there are plans to expand its role in the next fresh valuation in 2018. By that time, it could collect information for nearly 100 000 properties.

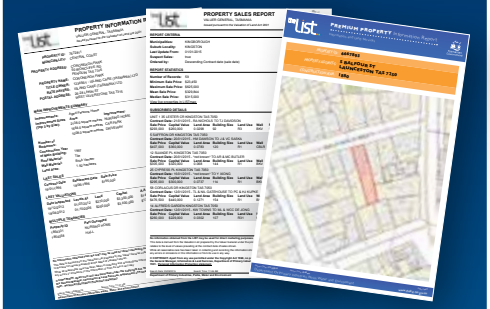
Mobile Data Collection App in action.

Find
what you need!

Land Information System Tasmania

the List...

Premium Property Report



Property information, sales and statistics in a single report

Tasmanian Government

www.thelist.tas.gov.au

Client Services contact details

Normal operating hours for all client enquiries are:

9.00am – 5.00pm Monday to Friday

LIST Helpdesk

E-mail listhelp@dpipwe.tas.gov.au

Phone (03) 6165 4444

Web via the client request form

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E-mail tasmap@dpipwe.tas.gov.au

Phone (03) 6165 4444

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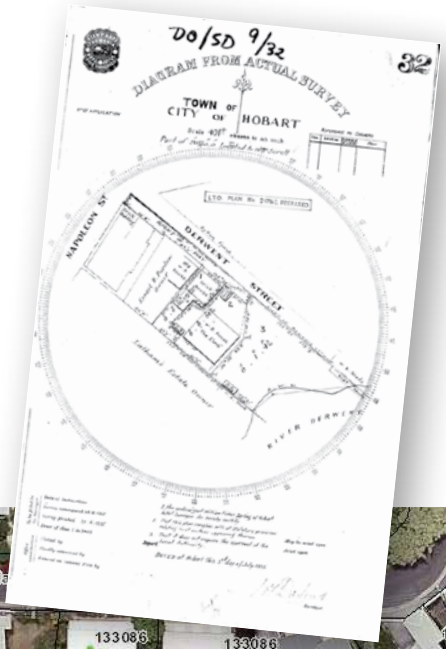
Pointing
to the past

As part of the LISTmap Cadastral Plan Points Capture Project within ***Land Tasmania***, the Land Titles Office has recently completed the spatial indexing of the three series of Deeds Office plans. This will enhance the accessibility of these important survey and historical records through online searching via LISTmap.

The plans relate to land dealings under the old general law system of land ownership and span the years from the early 1900s until 1991. They are of great value in tracing the chain of land ownership, boundaries, easements, and improvements on land, which was held under the old system. They also assist in interpreting the deed descriptions to those properties, as well as constituting part of the public survey record.

The plans sometimes also provide coincidental information of interest, such as jetties, mill races and stables that have long since disappeared.

The plan references can be viewed on LISTmap by selecting Cadastral Plan Points on the Cadastre layer. The 'Help' function of LISTmap provides detailed instructions for navigating the application. Approved LISTmap clients, such as survey firms, can now also search the Deeds Office plan references using the Survey Search tool, with the plans delivered online.



Top: Deeds Office Plan.
Above: Cadastral plan point search as shown from LISTmap.

News in brief...

Double honours at Resilient Australia Awards

***Land** Tasmania* scooped two prizes at Tasmania's 2016 Resilient Australia Awards, recently presented in Hobart.

The Awards are a national program to recognise and promote initiatives that strengthen community disaster resilience. Not only is disaster resilience about making our communities safer, but also stronger and better prepared to manage natural disasters.

By celebrating innovation and best practice, the awards showcase work that is often unrecognised, inspiring others to think about how they can be more disaster resilient.

***Land** Tasmania's* Common Operating Platform (COP) won the Tasmanian 2016 Resilient Australia Government Award. Meanwhile Bryn Roberts, from the Emergency Services GIS team, won the Tasmanian 2016 Resilient Australia People's Choice Photography Award for his photograph taken during this year's bushfires.

The state award winners are now in contention for the 2016 Resilient Australia National awards, to be announced in November.

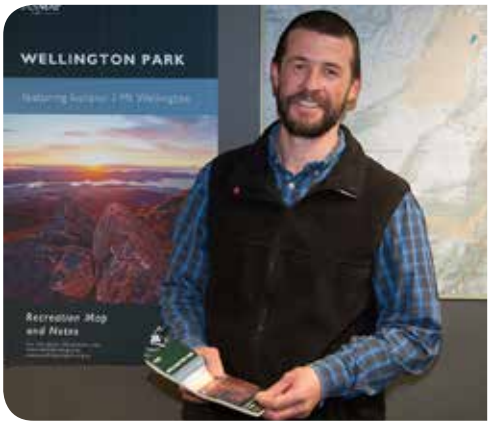
Resilient Award winning photograph taken by Bryn Roberts from a helicopter on the southern edge of Lake Rowallan looking over the Mersey complex of Tasmanian bushfires in February 2016.

New Digital 1:50 000 Topographic Maps

To cater for the requirements of our map users in the digital age, ***Land** Tasmania* is producing digital versions of the 1:50 000 Topographic map series. Our goal is to have the entire state covered by the end of the calendar year, enabling access to a complete coverage of current topographic maps at a great scale, thus providing clear and accurate portrayal of topographic information. Currently 71 digital editions of the Topographic series are available, covering the entire Tasmanian mainland, with remaining maps available in the coming weeks. The value of the digital maps was proven during the recent flood and fire events in Tasmania, during which maps were regularly utilised by Emergency Services. **www.tasmap.tas.gov.au/do/category/50000DIG**

LISTmap on mobile devices

You can now utilise LISTmap for your Tasmanian mapping requirements on the run. ***Land** Tasmania* has been busy enhancing the LISTmap web mapping application to perform better on your mobile devices. With the latest LISTmap release, enhancements to its performance and usability have been successfully achieved primarily for current generation iOS and Android devices. Samsung devices currently best support LISTmap through Chrome, with further enhancements and support targeted in future releases. **maps.thelist.tas.gov.au**



Above: Michael Roberts, winner of the latest 'Your photo on your TASMAP' competition. Michael's stunning photo – taken at sunrise from the summit of kunanyi/Mount Wellington, looking over the River Derwent – was a clear winner and now adorns the new Wellington Park Recreation Map.

New TASMAP products

Recently released map products are now available for purchase online at **www.tasmap.tas.gov.au** or from Service Tasmania shops and TASMAP resellers.

1:50 000 Topographic Maps

- Breton
- Fossey Mountains
- Snowy Range
- Tiberias

National Park, Walk and Recreation Maps

- South Coast Walks
- Wellington Park
- Frenchmans Cap

Historic Maps and Charts

- Bellerive B16 – 1859
- Mount Chappell Island Dorset 37 – 1861
- Richmond R17 – 1847
- Strahan S54 – 1884
- VDL Great Lake – 1847

NEW PRODUCTS
- DIGITAL DOWNLOADS

- National Park, Walk and Recreation Maps
- Visitors Map of Tasmania
- 1:50 000 Topographic Maps – *71 maps*

Now available online at
www.tasmap.tas.gov.au

BLI1104

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***Land** Tasmania*
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