Land Surveys

NO PROBLEMS **JUST SOLUTIONS**

CAPABILITY STATEMENT

WWW.LANDSURVEYS.NET.AU

WHAT MAKES US DIFFERENT

Land Surveys was established in 1997 and through continued growth and expansion now ranks as one of the best and most-reliable surveying companies across Australia and overseas.

INNOVATION

We utilise the latest technology to service all projects, large or small. We continuously develop innovative solutions to add value to our clients' needs by starting with the end result front of mind.

FLEXIBILITY

We have the resources to proactively respond to the varying scope of projects. Our team comprises adaptable, highly skilled and qualified professionals.

VALUE

We provide a complete tailored solution from conception to completion to streamline your project and save time, money and risk.

HEALTH, SAFETY AND THE ENVIRONMENT

The core values of our operations – health, safety and the environment – are the focal points of everything we do.

We subscribe to the philosophy of 'Zero-Harm' to our people, and the environments in which we work.

Land Surveys is officially certified to the standards of ISO 9001:2015 Quality Management Systems and ISO 45001:2018 Occupational Health & Safety Management Systems.

Additionally, Land Surveys operates an Environmental Management system based on the requirements of ISO 14001:2015 Environmental Management.

OUR MISSION

Through our people, technology and innovation we build long term client partnerships to provide 'No Problems, Just Solutions'.

OUR VISION

To be Australia's leader in providing surveying and geospatial solutions that exceed our clients' expectations.

ISO 9001 certified Equal Assurance

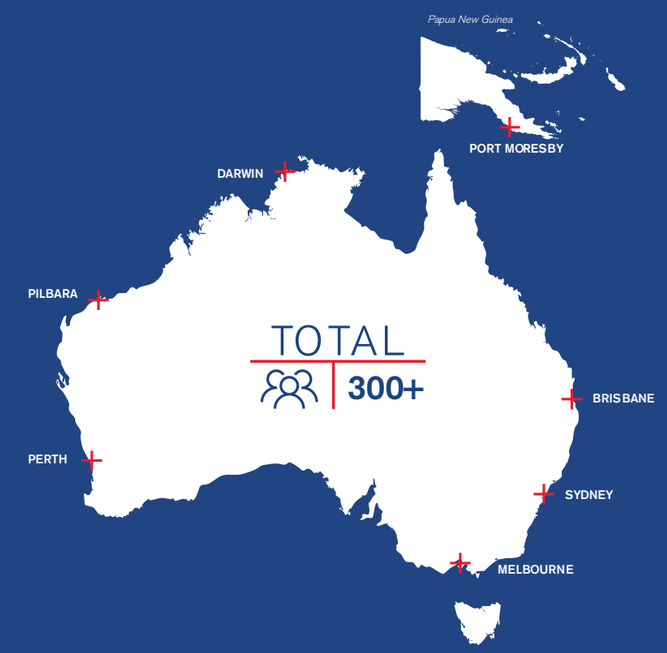
ISO 45001 certified Equal Assurance

SERVICES

A long history of servicing construction, mining, land development and resources projects across Australia has embedded exceptional experience in delivering fit-for-purpose surveying solutions.

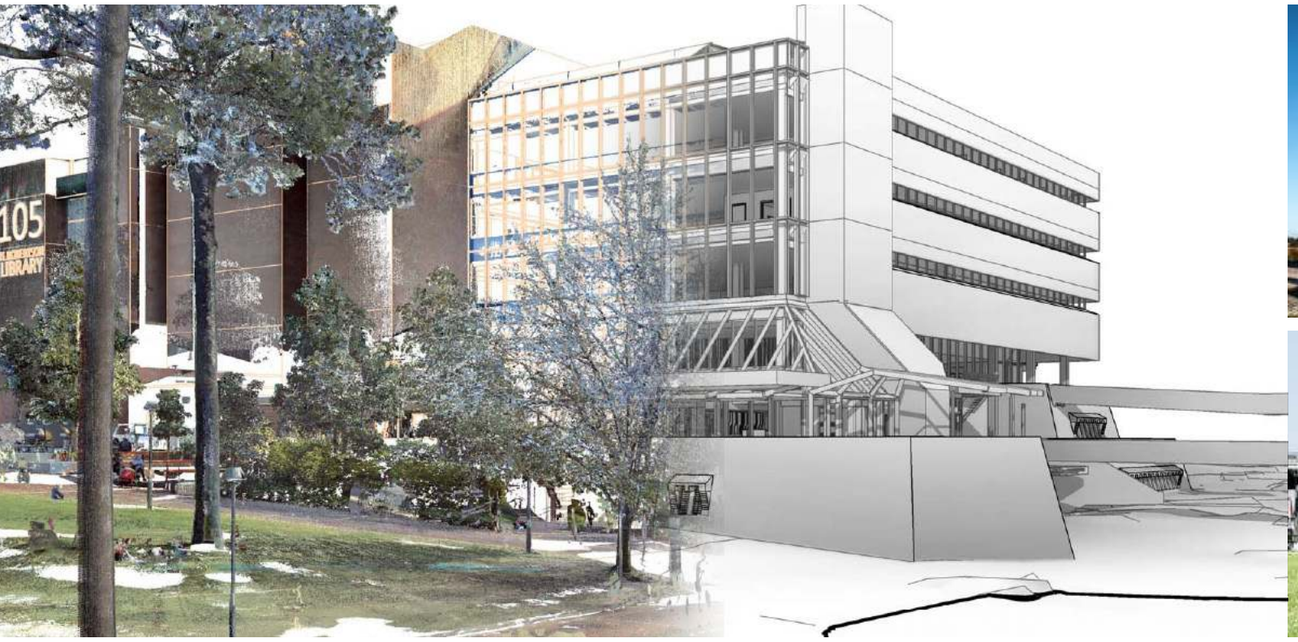
With more than 300 professional, specialist land surveyors and committed support staff, we provide full surveying services for our clients' jobs and projects.

We're a dynamic organisation with long-standing, deep-seated technical expertise. We provide a full suite of multidisciplinary geospatial services. For clients this mean they need only to engage with a single, trusted organisation for their specific project needs.



WE SPECIALISE IN

- 3D Reallity Capture
- Digital Engineering Services & Solutions
- Dilapidation Services
- Engineering Surveys
- Hydrographic Surveys
- Land Surveying & Development Services
- Mine Surveying
- Monitoring Services
- Rail Services
- UAV LiDAR Scanner & Aerial Mapping Services
- Utility Mapping



3D REALITY CAPTURE

TUNNEL SCANNING

We combine the latest measurement systems and powerful software, continuing to innovate by implementing multi/hyperspectral sensors that can gather further data on material properties – concrete, steel and asphalt – of a tunnel.

We embark on continued development of machine learning (ML) libraries. This presents opportunities for fully automated crack and defect detection, plus statistical analysis of tunnel 'health' and safety parameters over time.

Digital analysis of tunnel surfaces allows greater detail to be captured than previously possible, thereby increasing the overall quality of the data harvested and enabling accurate recording and mapping of the following survey elements:

- components (blocks, niches);
- asset installations (lamps, traffic control systems etc.);
- damage and defects (cracks, spalling, efflorescence);
- asset condition;
- geometrical shape;
- excavation profile check; and
- geological structures.

These features are identified and mapped in the 3D virtual environment, and can be linked to existing databases, previous records, external documents, or work program protocols.

By overlaying tunnel scans generated from different periods, changes in tunnel surfaces can be readily detected and monitored over time.

MOBILE MAPPING

Land Surveys works with the most comprehensive and accurate mobile mapping systems that are superior in quality, capability and data-capture speed. The use of mobile mapping technology is Land Surveys' commitment to innovation, and proof positive of an ambition to be the leader in geospatial surveying and mapping.

Capturing spatial data within the confines of infrastructure corridors such as roads and rail lines presents challenges in terms of access, safety and minimal disruptions to corridor users. The mapping solution that data mapping requires is, in turn, determined by the accuracy needed and the application for which the data will be utilised. And this determines the point of view at which the data is captured, the timeframe required, and accessibility to the corridor.

Land Surveys provides a number of exclusive capture solutions that can be used independently, or integrated to provide full coverage within any corridor, and from multiple viewpoints.

Coupled with high-definition 360-degree imagery, the resulting data can be used for a multiple applications that span vector mapping, terrain models, contours, 3D modelling, virtual tours, augmented reality (AR) and virtual reality (VR), feature extraction, geometrical analysis and asset mapping.

IMAGE SCANNING

Image scanning is ideal for applications that require a lower level of detail over a large area and in a short timeframe. Due to their superior image quality deliverable, image scanners are also well-suited to applications in which challenges of visible change detection area are critical, for example changes in colour, texture and surface defects.

Land Surveys uses a variety of image-scanning systems and platforms depending on the size and level of detail of the asset or environment to be scanned, and accessibility within that environment. While all image scanning systems utilise the principles of photogrammetry to create 3D mesh and point clouds, different systems have different capabilities and range, therefore selecting – in consultation with Land Surveys – the appropriate system for the required output is critical.

Imaging-based systems are used for many applications including:

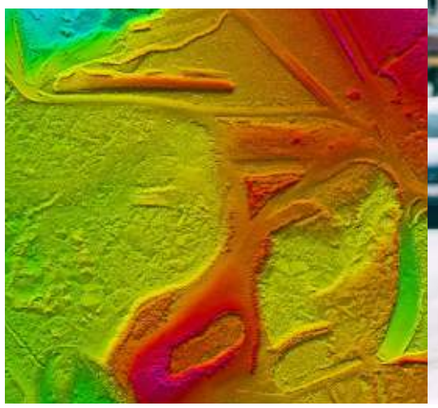
- scan to Building Information Modelling (BIM) – scanning existing assets to create a digital twin or an as-built 3D model;
- architectural and heritage surveys;
- dilapidation condition assessment and inspection;
- clash detection and conformance;
- topographic and feature surveys; and
- volumetric surveys.

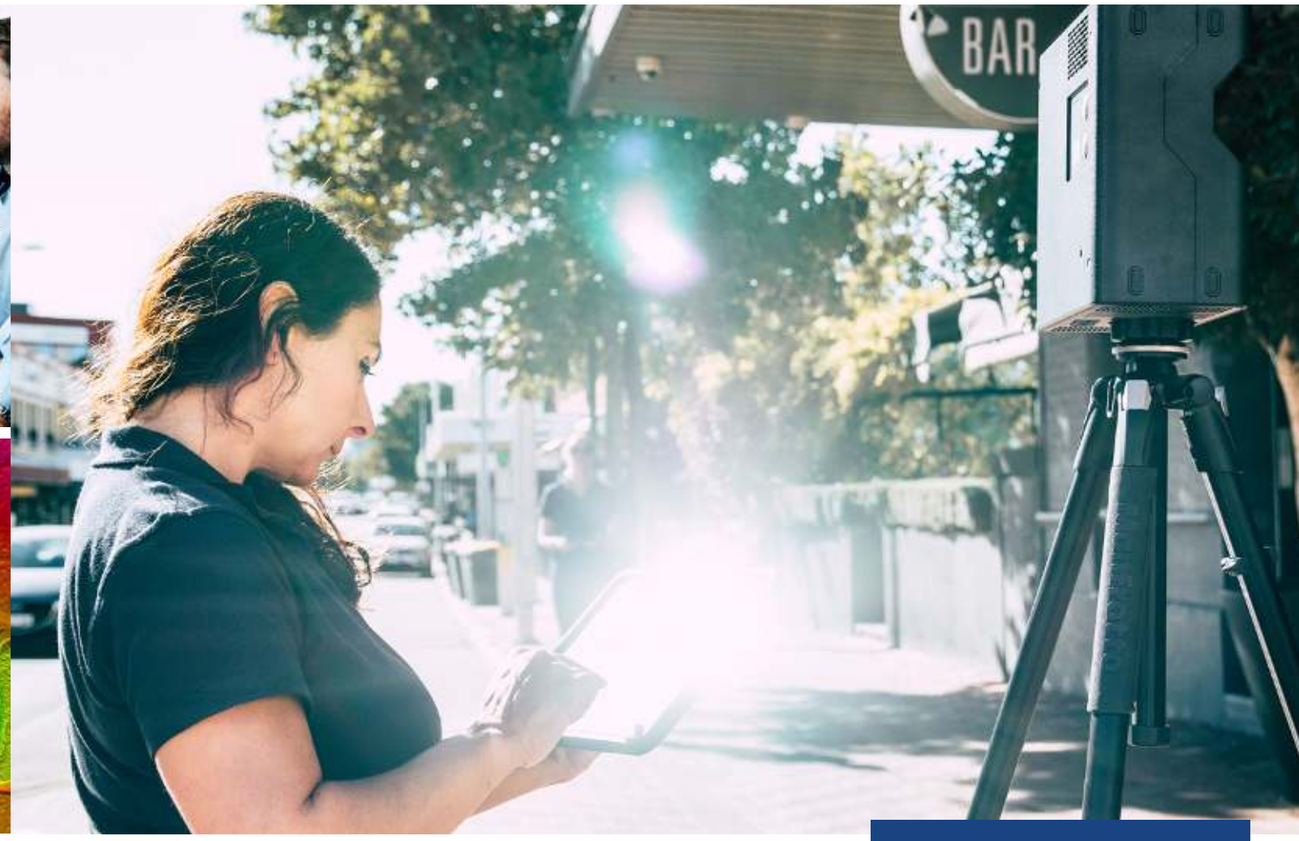
OUR 3D REALITY CAPTURE TEAM CAN HELP YOU WITH:

- ARCHITECTURAL AND HERITAGE SURVEYS
- DESIGN ANALYSIS
- MOBILE MAPPING SYSTEMS
- BIM MODELLING & VISUALISATION
- TERRESTRIAL LASER SCANNING
- TUNNEL SCANNING
- DILAPIDATION CONDITION ASSESSMENTS
- VOLUMETRIC SURVEYS

OUR DIGITAL ENGINEERING TEAM CAN HELP YOU WITH:

- GEOGRAPHIC INFORMATION SYSTEMS (GIS)
- GEOSPATIAL DATA MANAGEMENT
- GEOSPATIAL DATA ANALYTICS
- BUILDING INFORMATION MODELLING (BIM) & VISUALISATION





DIGITAL ENGINEERING SERVICES & SOLUTIONS

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Land Surveys utilises bespoke GIS data captured from specialised disciplines within the group. It can also assist in undertaking analysis of geospatial data to derive incisive, useable insights and intelligence.

- GIS represents data and text visually on a digital map; and
- GIS represents complex data in a simplified way.

BUILDING INFORMATION MODELLING (BIM) & VISUALISATION

We have a highly experienced and efficient team of data-capturing and modelling specialists, utilising highly specialised systems, software, methodologies, and customised automated extraction methods to ensure delivery of projects on time and within budgets.

Our BIM team can help you to avoid costly downtime caused by critical building components that are built off-site not fitting an existing structure during final installation.

- Avoiding costly downtime caused by critical building components that are built off-site not fitting an existing structure during final installation by;
  - identifying and resolving clashes in building elements before they occur; and
  - ensuring timely as-built data capture to feedback mechanism, ensuring compliance with the critical paths of a project.

GEOSPATIAL DATA ANALYTICS

Modern-day advances in computing power underpin the ability to identify and qualify change between data sets over time. The benefits of data analytics include the following:

- extracting greater insights and information from geospatial data sets;
- utilisation of the latest ML and AI algorithms for fast and efficient analysis of large data sets to identify key features or extract key information;
- creation of data-analytical tools and processes for particular tasks to identify specific features or occurrences; and
- the ability to visualise change over time to provide context.

GEOSPATIAL DATA MANAGEMENT

Land Surveys house an extensive range of experience with large and complex data sets for a range of different projects and asset types across their lifecycles. The benefits of data management as a service include:

- aggregation of geospatial data sets into a single, secure and readily accessible storage platform;
- creation of a single source point-of-truth (SSOT) for related data sets within a common environment; and
- easy access to geospatial data sets and 3D models with web browsers, removing the need for local data storage and specific software installed on clients' computer systems.

DILAPIDATION SURVEYS

OUR DILAPIDATION SURVEYS TEAM CAN HELP YOU WITH:

- DILAPIDATION SURVEY REPORTS
- CCTV INSPECTIONS

Dilapidation surveys are independent visual inspections of surfaces and structures adjacent to proposed developments. They're undertaken before and after construction, capturing high-resolution photographic imagery or video capture of existing conditions, highlighting notable damages or defects.

DILAPIDATION SURVEYS

Dilapidation reports ensure peace of mind, avoiding the costs of litigation and remedial repair works for damage caused by a third party. They can also provide:

- records of existing conditions and defects prior to works commencing;
- mitigate blame for indirect damage to third-party properties;
- resolve disputes expeditiously;
- prevent fraudulent claims, liabilities, or actions; and
- assist contractors in negotiation for insurance policy terms, cost-effective premiums, and the defence of insurance claims.

CCTV (CLOSED CIRCUIT TELEVISION) INSPECTIONS

CCTV offers inspection focused on assessing the internal visual conditions of existing utility piping networks, usually stormwater and sewerage, using robotic vehicles with integrated cameras.

Land Surveys can work with public agencies, engineering organisations as well as contractors to capture CCTV data in conjunction with other surveying disciplines. This can include:

- dilapidation surveys;
- underground utility mapping;
- feature surveys; and
- laser scanning.

ENGINEERING SURVEYS

Through continuous innovation in the construction environment, we strive to provide excellence to a range of projects in Australia and internationally.

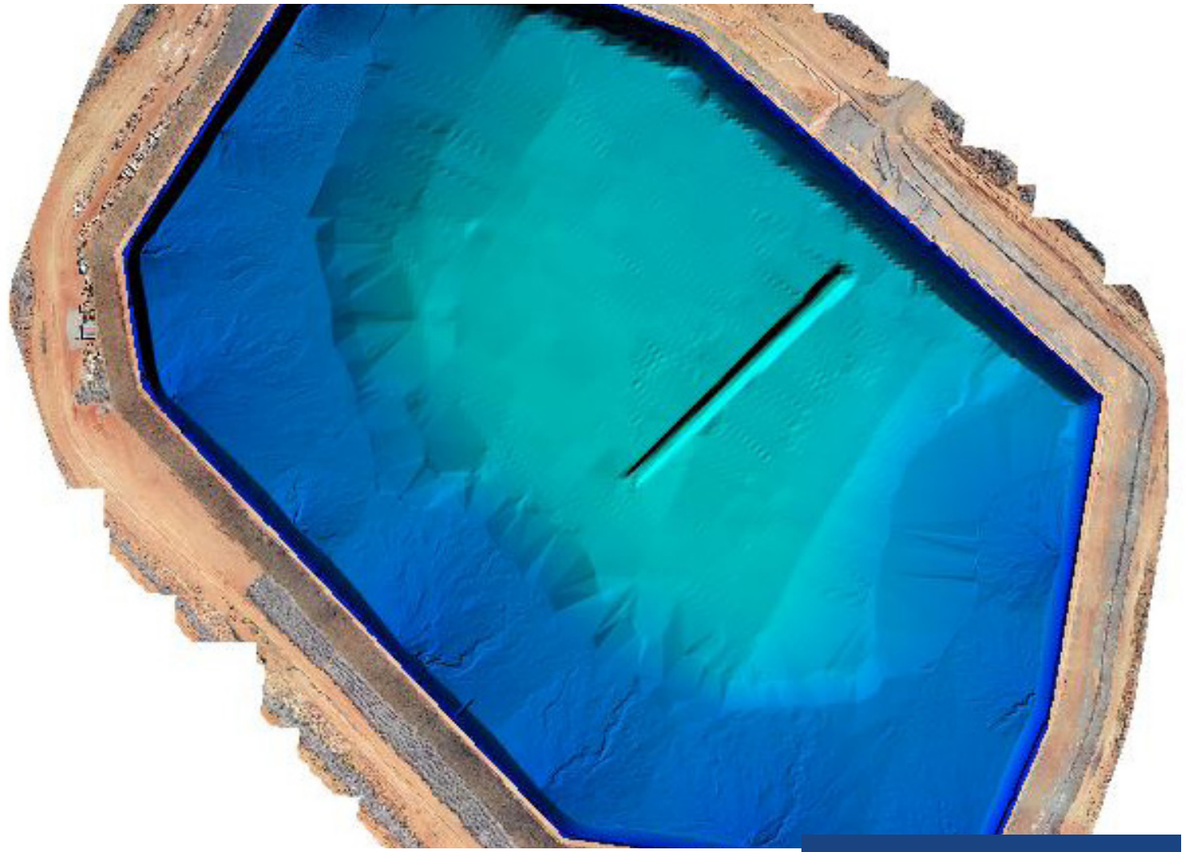
When clients align with Land Surveys they benefit from efficient systems that ensure accuracy and precision, and without causing delays to construction projects. We offer unparalleled safety, high-quality technology and highly mobile measuring systems to cater to clients' projects from conception to completion.

Engineering Surveying Services provides critical functions in design and construction of new projects, and includes:

- survey existing conditions of a site, including topographic survey, existing buildings and infrastructure, and underground services;
- set-out of building corners, property boundaries or bulk excavation limits;
- set-out of reference marks to guide the construction of new elements or linear structures;
- verify location of existing structures during construction;
- transferring horizontal and vertical control on multiple floors;
- measurement of excavated volumes and cut-and-fill analysis
- monitoring of settlement, verticality and change in geometry of buildings, adjacent rail tracks, bridges and roads; and
- as-built surveys for conformance and compliance.

OUR ENGINEERING SURVEYS TEAM CAN HELP YOU WITH:

- CONCRETE STRUCTURES
- SCANNING
- STRUCTURAL MECHANICAL PIPING (SMP)
- DIMENSIONAL CONTROL
- TUNNELING
- EARTHWORKS
- MACHINE CONTROL/GUIDANCE
- ROAD AND RAIL
- BUILDING AND HIGH RISE CONSTRUCTION
- RENEWABLE ENERGY
- PIPING AND MARINE INFRASTRUCTURE



HYDROGRAPHIC SURVEYS

Hydrographic surveys are undertaken to determine depths of water bodies and their underlying topographies. Using a variety of geophysical sensors, these surveys also provide valuable information about debris, objects on the seabed or buried below the surface, or the thickness of sediment layers.

Land Surveys is an early adopter of the latest, proven technologies. This means we have tried-and-tested workflows that allow our surveying teams to work smarter and more efficiently. The benefits of using hydrographic surveys encompass:

- seabed bathymetric (depth measurement) surveys and digital terrain models (DTM) for navigation assessment and under-keel clearance;
- support for dredging operations;
- determining sedimentation levels or thickness;
- seabed habitat mapping;
- geophysical surveying to determine seabed sub-structure and composition;
- seabed sampling and geotechnical analysis;
- determining seabed form and terrain;
- identifying seabed type, features, objects, debris and object detection;
- shallow geophysical analysis – from 0m-10m below the seabed.

OUR HYDROGRAPHIC SURVEYS TEAM CAN HELP YOU WITH:

- DAMS AND RIVERS
- PORTS AND HARBOURS
- MINE WORKINGS AND INFRASTRUCTURE
- MARINE ENVIRONMENTAL & BENTHIC SEDIMENT SURVEYS
- MARINE CONSTRUCTION ACTIVITIES

LAND SURVEYING & DEVELOPMENT SERVICES

By using the latest technologies we're able to be efficient and reactive, with multiple teams available when they're needed.

From strata property subdivisions to high-rise projects, our Land Development team can give you the best advice. Additionally, by utilising our gamut of specialised services such as site surveys and multi-unit development, we can partner with clients through the entire 'survey-to-settlement' process.

The dedicated Land Surveys team of project coordinators seamless progression of clients' developments, through to the compliance of conditions and coordination of their surveying requirements. We also arrange preparation and application for new Certificate of Title documents to finalise property sales.

OUR LAND DEVELOPMENT TEAM CAN HELP YOU WITH:

- SUBDIVISIONS AND STRATA
- PLANNING SERVICES
- LETTABLE AREA SURVEYS
- LAND INFORMATION / TITLES
- LAND DEVELOPMENT INFRASTRUCTURE
- CONTOUR / FEATURE / TOPOGRAPHIC SURVEYS

MINING SERVICES

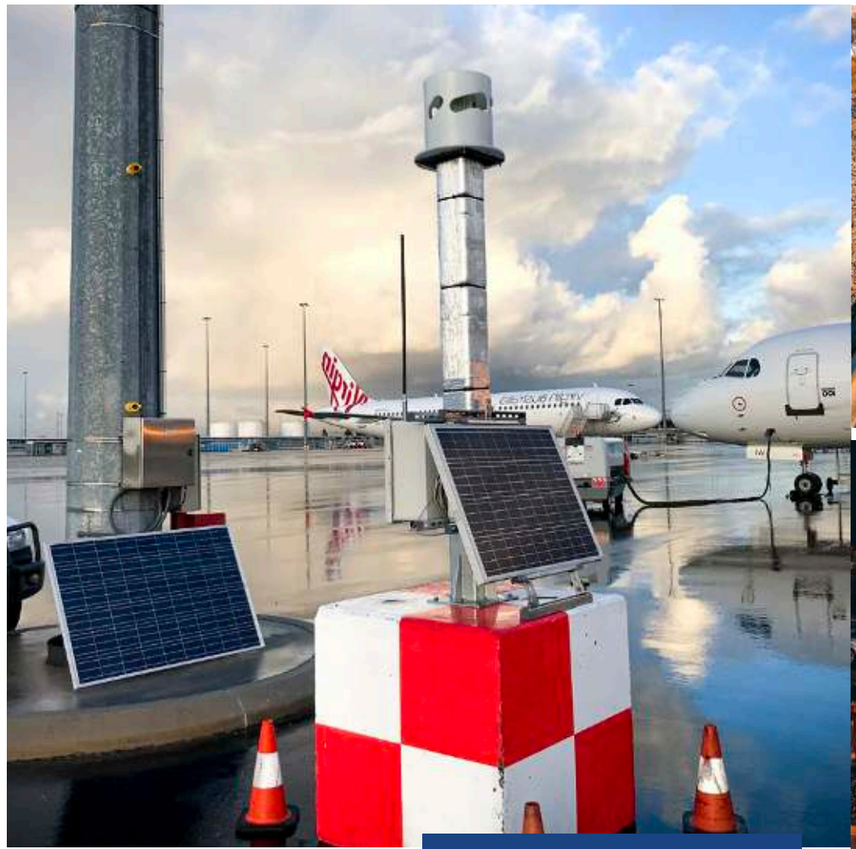
Qualified and experienced mine surveyors and survey technicians use leading technology and a suite of complementary skills to deliver successful mine surveying solutions, both above and below ground.

Our extensive mine surveying background and experience, from exploration through to closure, arm Land Surveys with an in-depth knowledge of greenfield and brownfield projects. Our team is experienced in almost all mining commodities and mining techniques across the board.

Land Surveys undertakes the full management and resourcing of entire mine site survey offices. Alternatively, it provides experienced mining surveyors at competitive rates to complement clients' in-house surveyors.

OUR MINE SURVEYING TEAM CAN HELP YOU WITH:

- EXPLORATION AND SITE SURVEYS
- SURVEY SECONDMENT SERVICES
- EXPLORATION AND SITE SURVEYS
- CONTROL SURVEY AND NETWORK ANALYSIS (CSNA)
- STATUTORY PLANS
- MINE COMMENCEMENTS AND CLOSURES



MONITORING

Instrumentation and monitoring are essential components in the modern design, construction and risk management of construction projects, and long-term management of critical assets. They enable cost and time savings, while maintaining acceptable levels of safety.

Providing accurate and precise monitoring systems that deliver data representation, analysis and interpretation of results is essential.

It allows Land Surveys and its clients to understand the relationship between the activities of an asset or asset under construction and any potential related deformation movement.

Information collected and visualised for interpretation and understanding via accurate and precise monitoring systems, provides the following benefits:

- lifecycle planning and preventative maintenance of assets;
- movement trend analysis to confirm behaviours and design model predictions;
- preparation of safety cases;
- safeguarding of existing buildings and other adjacent facilities;
- assurance to relevant stakeholders; and
- Value for money while simultaneously delivering added value.

OUR MONITORING TEAM CAN HELP YOU WITH:

- LONG TERM ASSET MONITORING
- ENVIRONMENTAL MONITORING
- TUNNELING
- ROAD AND RAIL
- BUILDING AND HIGH RISE CONSTRUCTION

RAIL SERVICES

Land surveys has more than two decades of experience in the rail industry and a deep understanding of rail industry expectations. We've built trust through many successful projects with some of australia's largest rail-based enterprises.

RAIL TRACK SURVEYS

Rail track surveys provide the confidence to project participants that their work is spatially aligned and sufficiently accurate to tie in with the 'real world' conditions as well as the proposed design requirements.

Having worked on a wide array of rail projects throughout Australia, the Land Surveys rail team accommodate works utilising a broad range of rail technology data, types and formats.

The team ensure the work it executes flows through with ease to other stakeholders. Further, as a dynamic organisation with long-standing, deep-seated technical expertise Land Surveys provides additional geospatial services in conjunction with rail track surveys, delivering holistic solutions. This means clients need only engage with a single, trusted organisation for their specific project needs.

RAIL AUTOMATED TRACK MONITORING

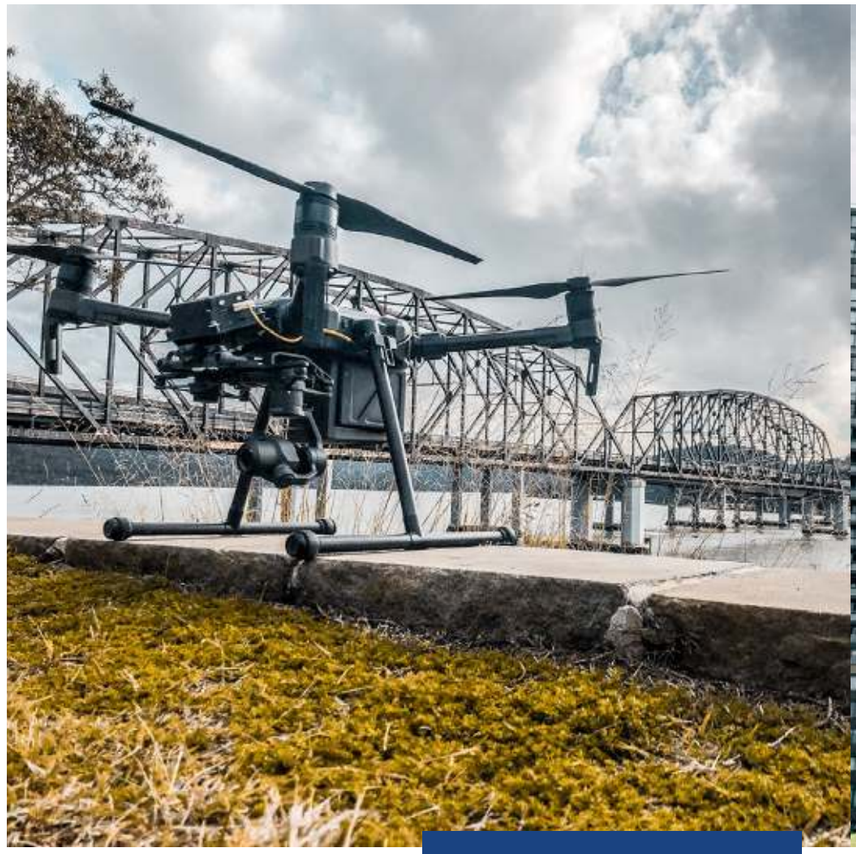
Providing accurate and precise track monitoring systems that deliver reliable data representation, analysis and interpretation is important to understand the relationship between activities and potential deformation movement. This can be critical in understanding rail environments and situations including:

- excavations;
- tunnelling;
- asset performance and maintenance;
- slope stability; and
- long and short-term changes in geometry over time.

Management of data, alert triggers, reporting and hardware and software support is managed by Land Surveys monitoring experts who deliver projects throughout Australia and internationally.

OUR RAIL SERVICES TEAM CAN HELP YOU WITH:

- CONTROL SURVEYS
- LASER SCANNING
- RAIL INSPECTIONS
- TRACK AND TURNOUT INSTALLATION
- WIRING, SIGNALLING AND SYSTEMS
- TRACK MONITORING
- SPECIALIST STANDARD SURVEYS



UAV LiDAR SCANNER & AERIAL MAPPING SERVICES

Since 2011 land surveys has used unmanned aerial vehicles (UAVs, or drones) when they became commercially available in Australia.

With UAVs we provide Australian projects and businesses with aerial surveys that assist their day-to-day operations. We continuously invest in the latest technology systems and workflows, giving us a breadth of experience in different projects and applications and setting Land Surveys apart as a leader in the industry.

All Land Surveys UAV pilots are qualified surveyors or photogrammetrists. They provide solutions for project planning, ground control, image acquisition, processing and reporting. As early adopters of the latest, proven technology, we have tried-and-tested workflows that mean our surveyors work smarter and more efficiently

OUR AERIAL SURVEYING TEAM CAN HELP YOU WITH:

- SURVEYING, MAPPING, VOLUMES
- GEOREFERENCED ORTHOPHOTOGRAPHY
- VISUALISATION AND SIMULATION
- ENVIRONMENTAL AND COASTAL MONITORING
- LAND AND VEGETATION CLASSIFICATION (NDVI)

UTILITY MAPPING

We manage utility information throughout project lifecycles. This provides a single point of access for feasibility and concept design, detailed design, construction, and management and maintenance.

Utility surveys deliver 2D and 3D identification and confirmation of known and unknown utilities within project areas. This as-built spatial data can be combined with other above-ground, as-built and/or design information to afford insights into how structures and assets interact with each other and provide visual references for identifying potential risks.

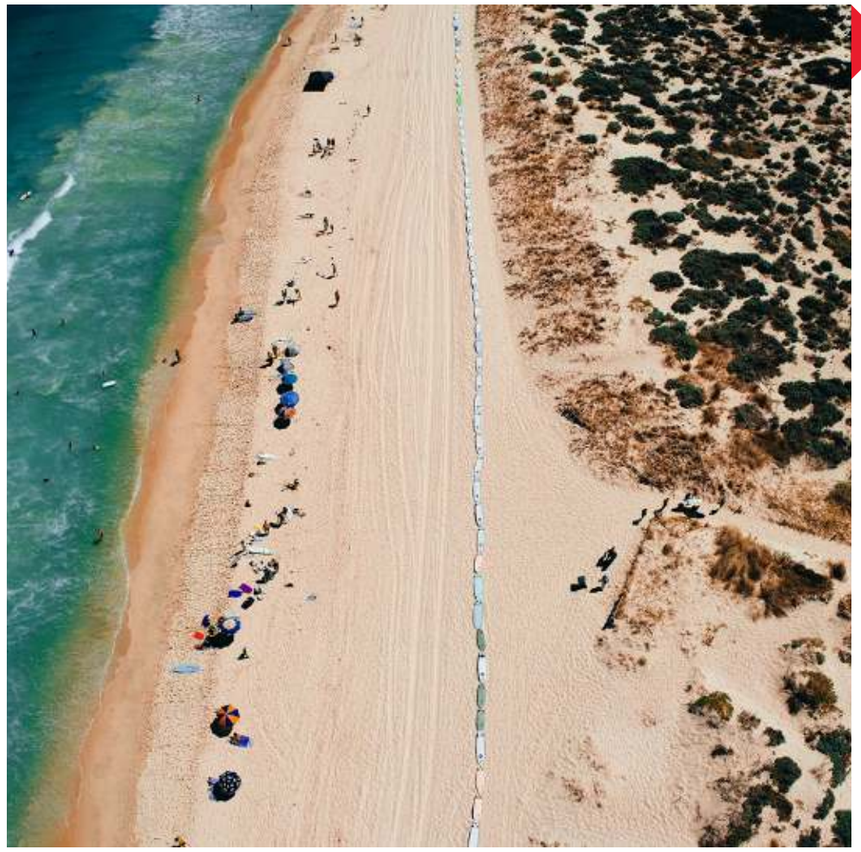
Land Surveys strictly adheres to the AS 5488 Australian Standard for Classification of Subsurface Utility Information.

The advantages of subsurface utility information (SUI) include but are not limited to the following:

- the provision of utility information is critical for planning and determining the feasibility of any project;
- utility locating and mapping services validate existing utility locations and data from existing asset owner plans and search for unknown utilities, using a range of geophysical techniques;
- designers need to rely on spatially accurate, detailed utility information to enable efficient and cost-effective design;
- effective management of the locating, validation and protection of underground utilities with an integrated ground disturbance permit system significantly reduces the risk of injury and project delays; and
- management of existing and new as-built survey data via a single platform equally provides a single source point-of-truth (SSPT).

OUR SPECIALIST UTILITY MAPPING TEAM CAN HELP YOU WITH:

- PIPES
- CABLES
- UNDERGROUND STORAGE TANKS
- BURIED STRUCTURES
- ANOMALIES
- PAVEMENT ANALYSIS



SOCIAL CONTRIBUTION

Land surveys fully recognises the vital role it must play in contributing to the social wellbeing and sustainability of the diverse communities in which it operates.

We recognise our social responsibility in supporting the communities in which we operate, and continue to strive for ways to extend positive impacts for our stakeholders.

With partner company, Indyia Geospatial, Land Surveys offers and delivers traineeship opportunities for Indigenous people. This partnership strives to provide Indigenous school leavers with an opportunity to uptake a study path in the geospatial sciences and at the same time gain work experience within the industry.

Philanthropy and giving are encouraged in our workplaces through the selfless donation of services coupled with enthusiastic fundraising initiatives. Over time we've built strong relationships with some well-known and charitable partners that help us to support safe and sustainable communities:

- Australia's Biggest Morning Tea
- Boards Up for Cancer
- Get Kids into Survey
- Keep Australia Beautiful
- Movember
- NAIDOC Week
- Ride for a Reason
- R U OK? Day
- World's Greatest Shave

ISGROUP & PARTNERS

A specialist group of companies leveraging our geospatial experience and expertise to provide intelligent solutions.

isgroup.io

IntelliSpatial provides actionable insights through intelligent analysis, allowing our clients to make critical decisions to improve the return on investment over the lifetime of their assets.

intellispatial.io

A leader in geospatial solutions specialising in 3D reality capture, digital engineering, dilapidation services, engineering services, land development, mining services, monitoring, rail services, aerial mapping and utility mapping.

www.landsurveys.net.au

Specialist consultancy focusing on subsurface utility detection, 2D and 3D utility surveys, condition assessment, and non-destructive excavation of existing utility networks.

www.utilitymapping.com.au

Specialist services focused on high accuracy dimensional control surveys, laser scanning and 3D modelling.

www.glsmonitoring.com.au

Surveying services focusing on development, engineering and mining industries including the public sector in Papua New Guinea, South East Asia and the Pacific Islands.

www.landsurveyspng.net

Industry leaders in providing responsive high-quality reporting and documentation for the construction, infrastructure, facility management and real estate sectors.

www.dilapidationreport.net.au

A joint venture focusing on improving Aboriginal education, training and engagement within the land development, surveying and spatial industries across Australia.

www.indiyageospatial.net.au

Global Scanning Solutions provides a diverse range of specialist services centred on high accuracy dimensional control survey and 3d scanning.

www.globalscanningsolutions.com

NO PROBLEMS **JUST SOLUTIONS**

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