Surveying and spatial solutions for

Engineers

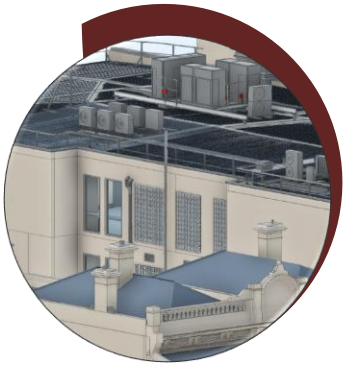
Landair
Surveys

Across Victoria and New South Wales, Landair Surveys is enabling engineers **to plan and design with confidence** – by accurately capturing site features and infrastructure down to the millimeter if needed. **Learn more at landair.com.au**

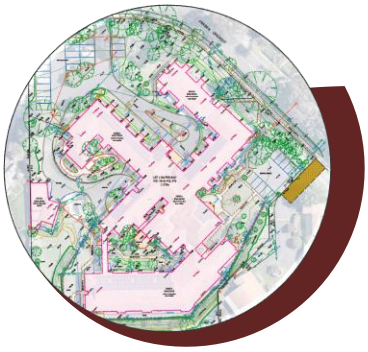
Why choose **Landair Surveys**

We know how important it is for engineers and consultants to understand all the details of their projects. **That's why:**

we make accuracy our priority, to deliver data that engineers can trust



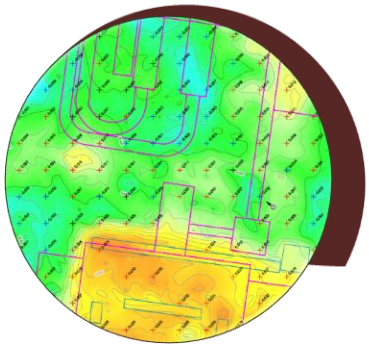
we capture all the details you need from plant rooms to overall site context



we have decades of experience for infrastructure surveying

we know your processes and are with you each step of the project

We take safe work seriously and have the right insurance levels – PL & PI



We always work professionally and commit to ongoing communication

What some of our **Long-term Clients** say about us…

Data quality and attention to detail are what Landair do best. We have a close working relationship with the team and they provide input and intellect you won't get elsewhere."
Harry Jess
Director at Conservation Studio

Landair has been an incredible partner for our business. We needed a customer solution for a project with a tight timeline, and they delivered exactly what we needed."
Armin Ghamami
Director at 4Site Design Group

The Surveyor's Toolkit

Survey Dumpy Level

Accuracy: +/- 1mm

Used for works requiring high accuracy levels (i.e. construction TBMs & monitoring surveys)

Survey Total Station

Accuracy: +/- 3m

Used for accurate control, set-out & feature surveys.

Stationary Laser Scanner

Accuracy: +/- 3 – 5mm

Used for 3d scanning surveys where the finer details are important (i.e. heritage facades, plant rooms, etc)

Mobile Laser Scanner

Accuracy: +/- 10 – 15mm

Used for 3d scanning surveys where larger site coverage and time constraints are critical (i.e. live traffic environments, hospitals, offices, warehouses)

Survey-Grade GPS

Accuracy: +/- 20mm

Used for open-area feature surveys and to align projects to the required mapping and level datums (MGA2020 & AHD)

Electromagnetic Tracer

Accuracy: +/- 300mm

Used to trace underground services such as electricity, comms, gas & water

RPA (drone)

Accuracy:

+/- 20 – 50mm horizontal

+/- 150mm vertical

Used for large-area mapping, site orthoimages & rooftop inspections

3D Reality Capture
Mobile Laser Scanning

Never experience a data shortfall again. At Landair we use the wearable NavVis VLX3 for our mobile scanning tasks.

How it works…

Essentially, everywhere we walk we measure. A site walkthrough becomes a full site pickup leading to faster fieldwork, lower costs, and no compromise on the data quality engineers need. Mobile scanning hits that Time/Cost/Quality sweet spot. It flips the traditional scanning process. Instead of fixed setups, the VLX3 uses the stable geometry around it to track its position building up a 3D picture as it moves.

The Result – a clean, colour-balanced pointcloud accurately aligned to the project coordinate system.

You get a virtual snapshot in time, a dense project pointcloud with 5mm point spacing. Choose between structured and unstructured pointclouds – with structured pointclouds you can take advantage of the 100s of embedded 360° images for virtual walkthroughs; with unstructured pointclouds you benefit from lower file sizes suitable for engineering software import. We can then extract points and stringlines from the pointcloud or create 3D models.

Where it works best…

- **When time on site is critical – get in and out with minimal interruptions**
- **Where project specs allow ±10mm indoor / ±15mm outdoor accuracy**
- **Where the built environment provides strong geometry for positioning**
- **Where broad site context matters more than sub-5mm details**
- **When large areas make traditional scanning inefficient**

3D Reality Capture
Static Laser Scanning

When the finer details are paramount, a traditional laser scanner is the best tool in the Reality Capture toolbox

Why traditional?

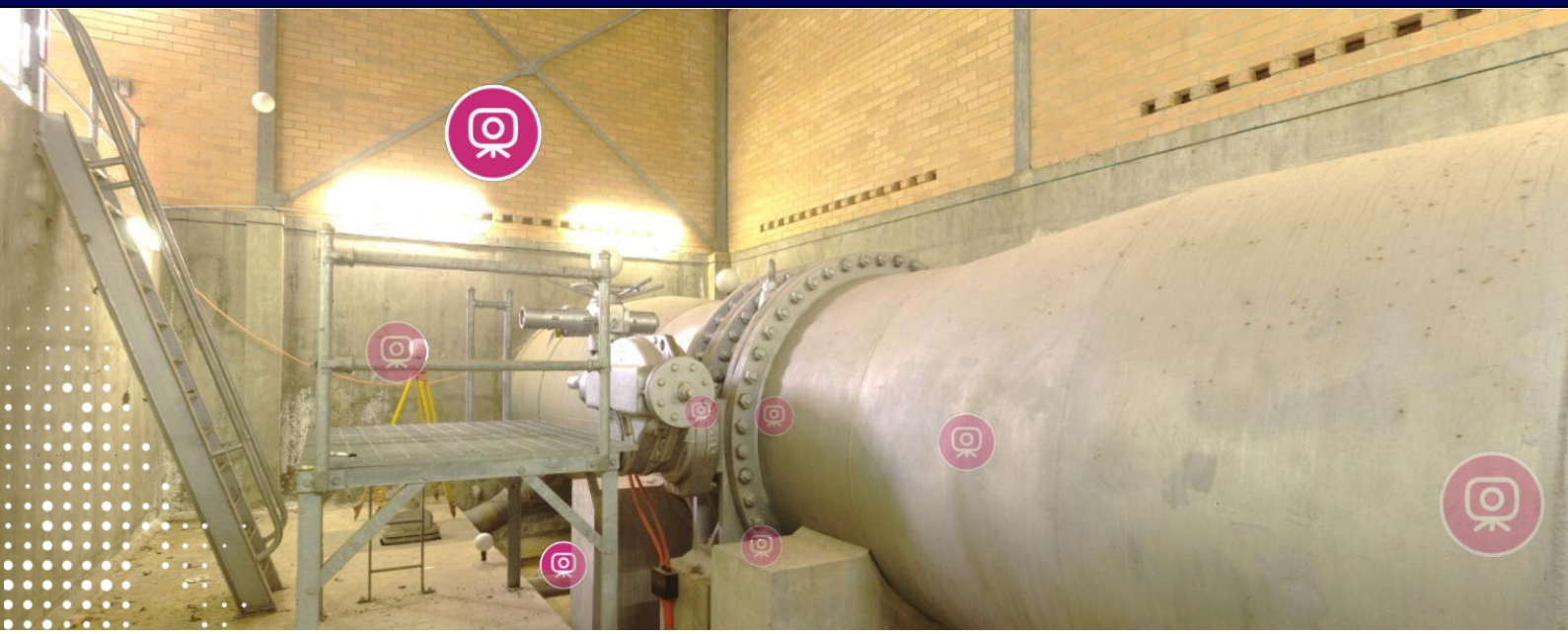
Sometimes specific infrastructure pickup is more important than the overall site context. When the finer details matter, traditional laser scanning is the method of choice. Static, or stationary, laser scanners are set up on a tripod at each critical location and moved systematically throughout the survey zone. The surveyor makes sure there is enough overlapping calibration targets (like scanning spheres) between scans to ensure highly accurate scan-to-scan registration and tight alignment to the site coordinate system.

What you get? A highly accurate, structured pointcloud with point spacings between 1 & 5mm.
How accurate? Think ± 3mm for individual scans and normal overall pointcloud accuracy of ±5mm.

When traditional 3D scanning makes sense…

- **When finer details matter**
- **When data accuracy is non-negotiable**
- **When site conditions are complex**
- **When the scanner needs to be raised or lowered to measure critical locations**

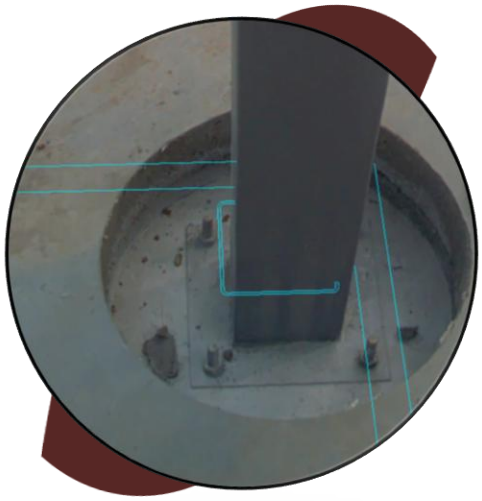
3D Reality Capture
Online Virtual Viewer



When the whole team needs to be onsite

Need an ad-hoc measurement or level? Need to confirm something back on site? **Landair has you covered.** Measure it once with either traditional or mobile laser scanning and we host the data in our online viewer.

- **No need for multiple pointcloud software licenses – any team member or consultant can view the scanning data online via a secure weblink.**
- **Hosted viewer can be password-protected for the high security sites**
- **Virtual walkthrough by selecting the scanner's 360° images.**
- **3D viewing and flythroughs.**
- **Team collaboration – share measurements and annotations.**
- **Can overlay design linework and models**
- **Download the whole pointcloud or just a crop for 3rd party software import**



Drone Flyovers
& Roof Inspections

Whether it's restricted roof access or the need for up-to-date aerial imagery, **Drone Flyovers** are one way engineers can gain that additional site context

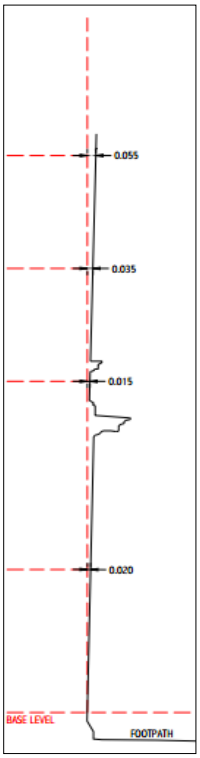
With over a decade of RPA (drone) flying under our belts we stand ready to take to the skies above your site for a bird's eye view

All our drone pilots are CASA-licensed and fly under our RPA Operator's Certificate (ReOC). We maintain a strong safety culture and proactively engage with all the stakeholders on our projects. Our fleet of mapping and inspection drones are all CASA-registered and we even have additional drone-specific Public Liability Insurance

How we help...

- **Orthoimages for overall site context and plan underlay**
- **Close-up roof imagery to assist with condition assessment reports**
- **Turn drone images into pointclouds for site terrain or rooftop infill data**

Deformation Surveys



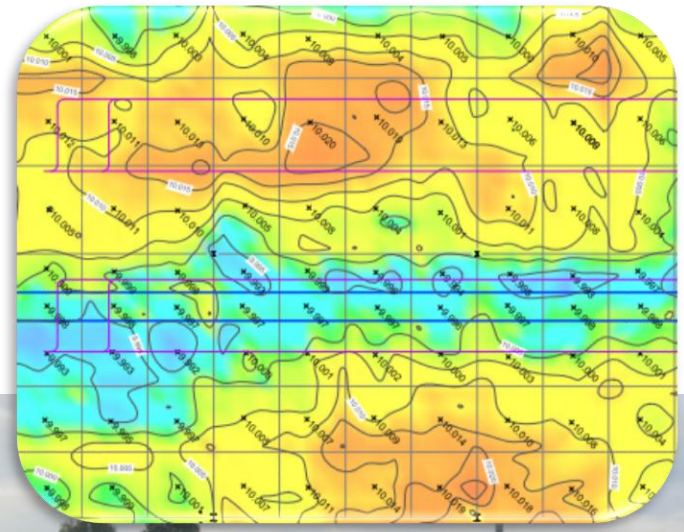
The team at Landair are regularly engaged by engineering clients for analysis of building movement, floor flatness or structural deformation.

High-accuracy measurements are taken across key locations to track changes in movement, verticality or floor flatness. Often, the same measurements are repeated across multiple return visits to quantify movement trends over time.

Traditional, static **3D Laser Scanning** is a great tool to isolate problem areas on a leaning or bowing wall and also highlight floor areas that aren't flat. With a scanning accuracy of ±3mm the stationary scanner measures millions of points across the wall or floor. Back in the office the surveyor is then able to analyze the data based on input tolerances and show areas of deviation through verticality plans or wall / floor heatmaps.

For higher accuracy works surveyors will use **Total Station** technology or a survey-grade **Dumpy Level** to accurately pin-point distinct locations. These are often in the form of reflective tape targets attached to walls or solid survey monitoring points placed around the survey extents. Initial measurements are taken as a baseline to compare with periodic return site visits.

For both methodologies, it is essential an **accurate survey control network** is placed on site so any subsequent rounds of measurements can be reduced back to the starting baseline. This is what allows movement trends to be observed.



Existing Conditions Surveys

If your project involves site assessments, design or development then **Existing Conditions Surveys** are one of the first – and most important – steps to complete. We understand every site is different, unique in both challenges and opportunities. At Landair, we want you to have the right foundational data informing your decisions. We help by accurately documenting existing site conditions, including:

Feature & level surveys

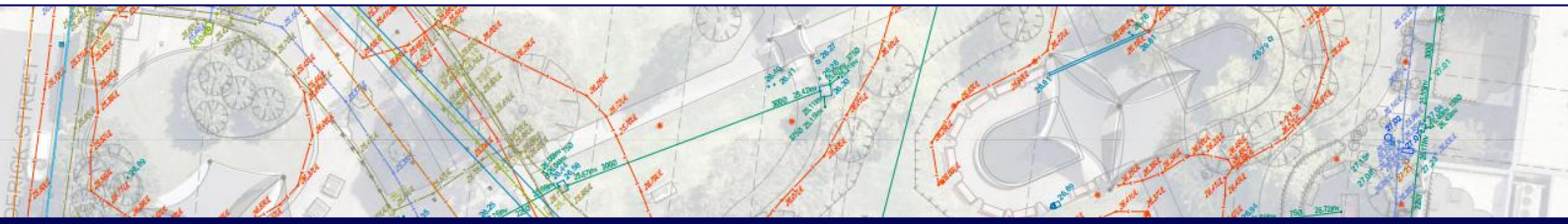
We measure site infrastructure and topography to map out your project extents, providing 2D site drawings and 3D terrain contours so there are no surprises down the track

Title surveys

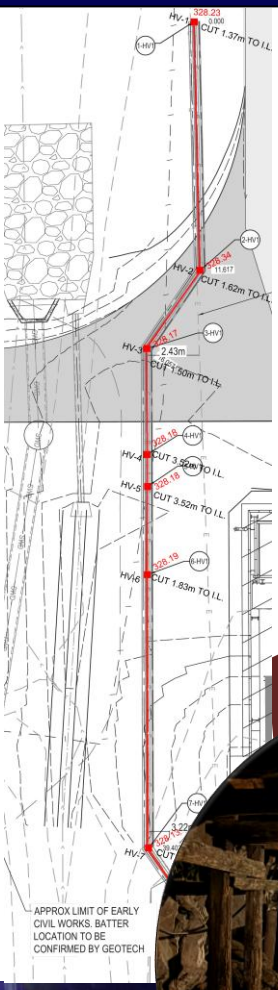
We search and review the title data and complete the required survey measurements to calculate the position of your site's title boundary noting easement locations and checks of existing occupation

Underground services tracing

Using a combination of BYDA records and electro-magnetic tracing equipment, we identify and record underground services such as electricity, water, gas and sewerage



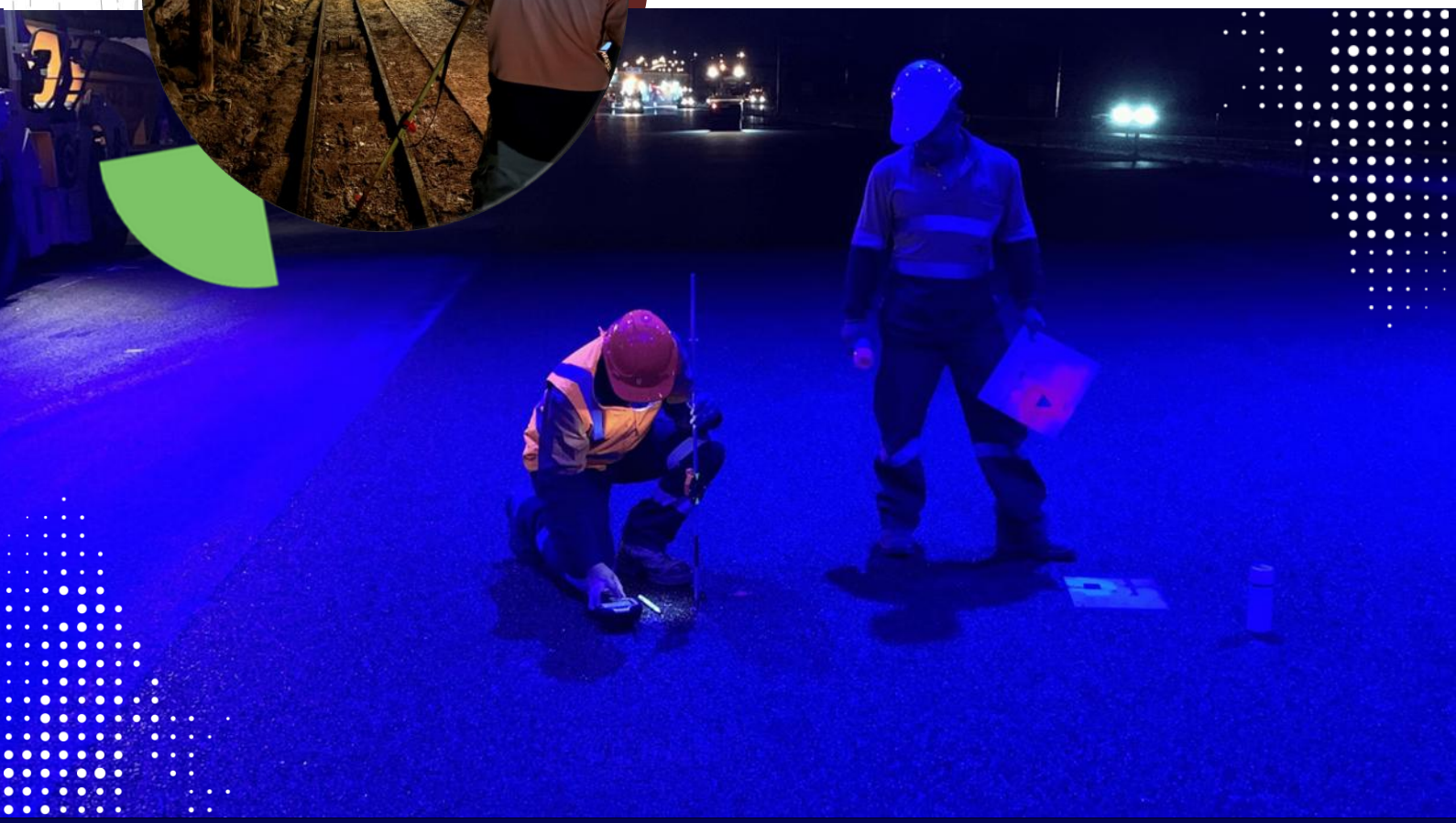
Setout & Asbuilt Surveys



Need to position your designs in the real-world?

Landair specializes in setout surveys and once the new infrastructure is built, we also undertake the final validation checks making sure what's constructed matches design.

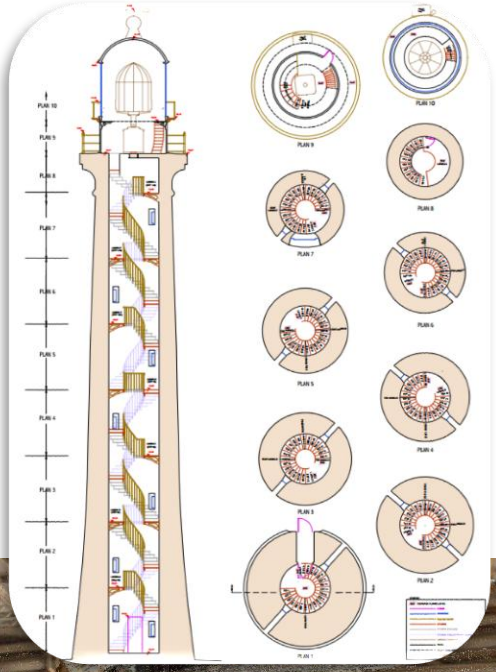
- **We take your designs and run pre-setout checks on the data to highlight potential issues aligning the proposed construction to the project coordinate system.**
- **On site, we set up an accurate control network to guarantee subsequent site surveys always come off the same baseline.**
- **We set out out what's needed and take independent checks for each point to confirm what we mark on site matches the designer's intent.**
- **We prepare clear plans showing marks placed, underlaid with the design file for added site context**
- **Once construction is complete, we'll return to site and verify how things sit in the real-world.**
- **We are big on checklists – we know what's at stake. Pre-site checks, setout checks, final plan checks – we don't take shortcuts.**



Survey Deliverables

With decades of experience in surveying on engineering projects, we pride ourselves on building lasting relationships with our clients, not just completing jobs. Whether it's a simple existing conditions pickup or a precinct-wide scanning survey, our team gives you the advice and precise data needed to move forward confidently. Our usual data sets for engineering consultants include:

- Pointclouds, 3D models & online virtual data hosting
- Existing conditions plans with underground services
- Deformation plans & heatmaps
- Monitoring survey reports
- Drone imagery and roof plans
- Title re-establishment plans
- Setout plans
- As-built check plans



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