

Matt 0 400 035 7 45 matt@gpsonsite.com.au





AIRBORNE LIDAR SURVEY

GPS Onsite in partnership with Precision Helicopters are pleased to offer airborne LiDAR and imagery mapping for the North Coast NSW, New England and South East QLD regions. Due to advances in LiDAR system technology, it is possible to capture high density and accurate data very quickly for applications that benefit from the added detail point cloud. Low density capture is also offered for applications requiring less detail.

We are very happy to offer this high-end solution in our region and welcome any inquiries for your existing or upcoming projects.

THIS SOLUTION OFFERS:

- High detail, high accuracy and coloured data
- Efficient capture over challenging topography
- Access to areas typically restricted to drones (populated areas, aerodromes, higher altitudes)
- Very effective in capturing ground data in vegetation due to the many laser pulse returns (5 to 32 returns)
- Capture to MGA coordinates
- Traditional ground survey services available to ensure a complete data set is achieved
- Data reduction and digitising to create 3D models and CAD data suitable for design and analysis



•

GPS

AERIAL

MACHINE CONTROL

DESIGN

RECENT DETAIL SURVEY AND LIDAR CAPTURE EXAMPLES

GPSonsite



3D view of survey data ready for submission (viewed in 12D)







SURVEY

DESIGN

GPSonsite



IMAGERY OUTCOME EXAMPLE







RIEGL SCANNER SPECS

Range Measurement Performance Measuring Principle

time of flight measurement, echo signal digitization, multiple target capability, online waveform processing, multiple-time-around-processing

Laser Pulse Repetition Rate PRR 17	150 kHz	300 kHz	600 kHz	1200 kHz	1800 kHz
Max. Measuring Range 23 natural targets $\rho \ge 20\%$ natural targets $\rho \ge 60\%$ natural targets $\rho \ge 80\%$	760 m 1260 m 1430 m	550 m 920 m 1050 m	400 m 670 m 760 m	280 m 480 m 550 m	230 m 400 m 450 m
Max. Operating Flight Altitude AGL $^{\rm 2(4)}$ @ $\rho~\geq$ 20 %	440 m (1450 ft)	320 m (1050 ft)	230 m (750 ft)	160 m (550 ft)	130 m (450 ft)
$@ \rho \ge 60 \%$	720 m (2350 ft)	530 m (1750 ft)	380 m (1250 ft)	280 m (900 ft)	230 m (750 ft)
Max. Number of Targets per Pulse 5)	15	15	15	8	5

nt brightness. In bright sunlight, the max, range is shorter than under an overcast sky, excess of the laser beam diameter, perpendicular angle of incidence, and for atmo

Minimum Range Accuracy ^{e(ii)} Precision ⁷¹⁸ Laser Pulse Repetition Rate ¹¹⁷⁰ Max. Effective Measurement Rate ¹¹ Echo Signal Intensity Laser Wavelength Laser Beam Divergence Laser Beam Foolprint (Gaussian Beam Definition)	5 m 10 mm 5 mm up to 1800 kHz up to 1,500,000 meas./sec. (@ 1800 kHz PRR & 100° scan angle) for each echo signal, high-resolution 16 bit intensity information is provided near infrared 0.4 mrad ¹⁹ 40 mm @ 100 m, 200 mm @ 500 m, 400 mm @ 1000 m
b) Accuracy is the degree of conformity of a measured quantity to its actual (true) value. 7) Precision, also called reproducibility or repeatability, is the degree to which further measurements show the same result.	 One signar @ 150 m range under RIEGL test conditions. Use selectable. Measured at the Ver points. 0.4 mirad corresponds to an increase of 40 mm of beam diameter per 100 m distance.

SELECTED EQUIPMENT





TOPCON GT1201 TOTAL STATION





BELL 206 HELLICOPTER FITTED WITH **RIEGL VUX 120** LIDAR UNIT

SURVEY

GPS

MACHINE CONTROL

DESIGN

OUR SERVICES























GPS









SURVEY

AERIAL

MACHINE CONTROL

DESIGN

SOME OF OUR PROJECT EXPERIENCE

GPSonsite

Coffs Harbour City Council Waste Management Facility

- Aerial capture of full landfill site LiDAR and Photogrammetry
- Out of hours capture due to proximity to airport and CASA regulations
- GPS establishment for survey control and quality check surveys
- Postproduction, data reduction and quality checks
- String/point generation to CHCC survey code library
- Generate strings, points, PDF imagery, Google imagery, CAD (ECW imagery), point grids, volume strings

Kyogle/GlenInnes/Inverell/Armidale/Tenterfield/Clarence-Bridge, road surveys and GPS setup/supply

- Survey of multiple bridges and roads using multiple capture techniques
- Short notification period and fast response to site
- Quality data capture in challenging/remote environments
- Short transition time from field to office to handover of data
- Machine control and survey equipment setups in challenging locations
- No complaints from public
- No safety incidents

White Rock Wind Farm (Fulton Hogan)

- Establish site GPS for all survey and machine control
- Management, reduction and review of original LiDAR survey point cloud
- Multiple aerial surveys for updated surface model and imagery (Site included approx. 40km of design tracks with significant elevation change
- Volume analysis and WTG (Wind Turbine Generator) pad orientation optimisation for improved volume outcomes
- No safety incidents for the full duration of works in a high-risk environment

New Dungowan Dam detail surveys (SMEC)

- Survey of roads, electrical, new and existing dam sites
- Large/remote site with no injuries or incidents to date
- Capture involving laser scanning (terrestrial), aerial LiDAR, Photogrammetry, Static surveys, traditional surveys
- No safety incidents











GPS

AERIAL

DESIGN

GPSonsite

Coffs Harbour Bypass (TfNSW)

- Utility relocation coordination
- Water sewer design and relocation coordination
- ٠ Overhead power surveys and modelling
- 3D modelling existing and design utilities ٠

Grafton Bridge – Fulton Hogan

- ٠ Extensive and detailed utility investigations
- Utility relocation modelling ٠
- Setout, coordination, works as executed surveys ٠
- Detail survey
- Earthworks survey pavements, drainage ٠
- **Team meetings**
- Aerial surveys/volumes
- Job site visualisation/presentation ٠
- No safety incidents

Newell/Mitchell Hwy intersection, Dubbo - SMEC

- ٠ Feature surveys
- Utility investigations, planning
- Utility design and modelling
- Co-existence reviews and presentation •
- **Team meetings** •
- Data/modelling handover
- Utility, drainage and road design optimisation
- No safety incidents
- No safety incidents ٠

Foxground/Berry Bypass (Fulton Hogan)

- ٠ Monthly aerial survey of approx. 12km of Princess Hwy upgrade.
- Volume calculations
- Data presentation
- GPS site establishment, Machine Control training and support
- No safety incidents for the full duration of works in a high-risk environment





GPS





AERIAL

MACHINE CONTROL

DESIGN









LASERS/SURVEY/GPS/MACHINE CONTROL - HIRE AND SALES

















SURVEY

GPS

AERIAL

MACHINE CONTROL

DESIGN