

Cadastral Acquisition Survey for the Muswellbrook Bypass: Supporting Infrastructure and Renewable Development in the Hunter Valley

Nick Thompson

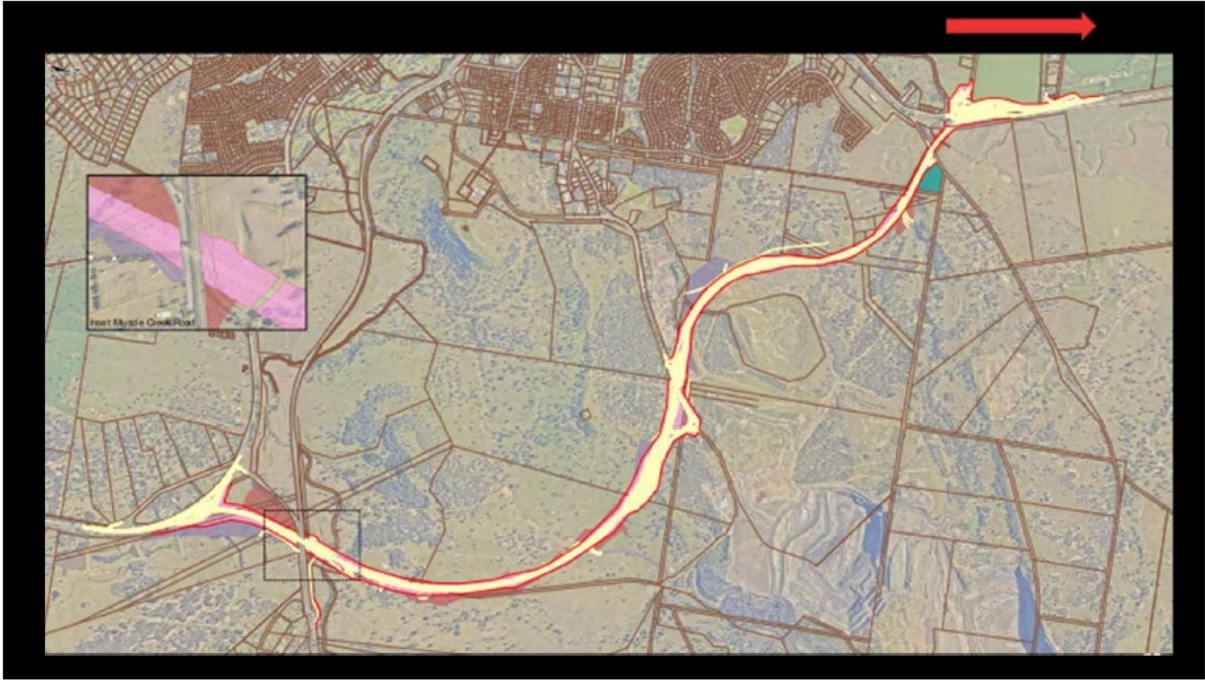
Beveridge Williams

thompsonn@bevwill.com.au

ABSTRACT

The Muswellbrook bypass cadastral acquisition survey was commissioned by Transport for NSW (TfNSW) as part of the New England Highway upgrades, jointly funded by the federal and state governments. This project, conducted by Beveridge Williams, is a key step in enhancing the transport corridor through the Hunter Valley to Newcastle Port, supporting regional growth and the advancement of renewable energy infrastructure. The survey covered a 10-kilometre stretch of the proposed bypass route, intersecting a complex mix of land parcels, including creeks, railway land, Crown roads, council roads and mining lands. Key tasks included establishing robust survey control, calculating and marking new cadastral boundaries and easements, and preparing Deposited Plans (DPs) and administration sheets within a tight 10-week timeframe. The project involved cadastral surveys, regulatory compliance, plan preparation and submission, and stakeholder coordination. This acquisition survey underscores the collaborative approach required for large-scale infrastructure projects and highlights Beveridge Williams' capability in delivering precise, regulatory-compliant cadastral services within challenging timelines. This complexity and attention to detail earned the project the 2024 NSW Excellence in Surveying and Spatial Information (EISSI) Award for Rural Cadastral and Land Titling Excellence. Notably, Beveridge Williams was also awarded in the same year for Urban Cadastral and Land Titling Excellence, marking the first time a single company has won in both the urban and rural cadastral categories. This presentation outlines this award-winning project, highlighting the challenges and collaborative approach to problem solving employed in this complex rural cadastral acquisition survey.

KEYWORDS: *Rural land titling, cadastral acquisition survey, innovation, stakeholder coordination, infrastructure development.*



Muswellbrook Bypass

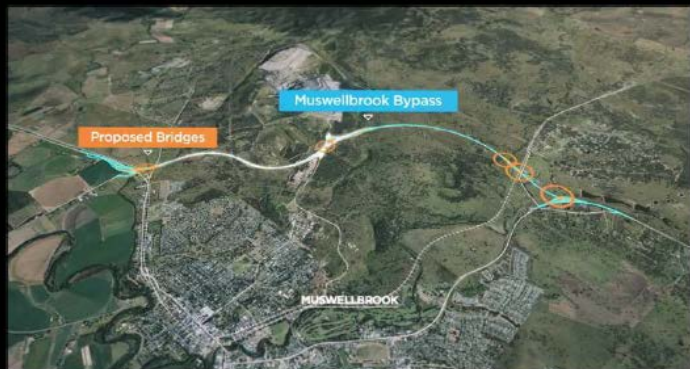
- Scope:

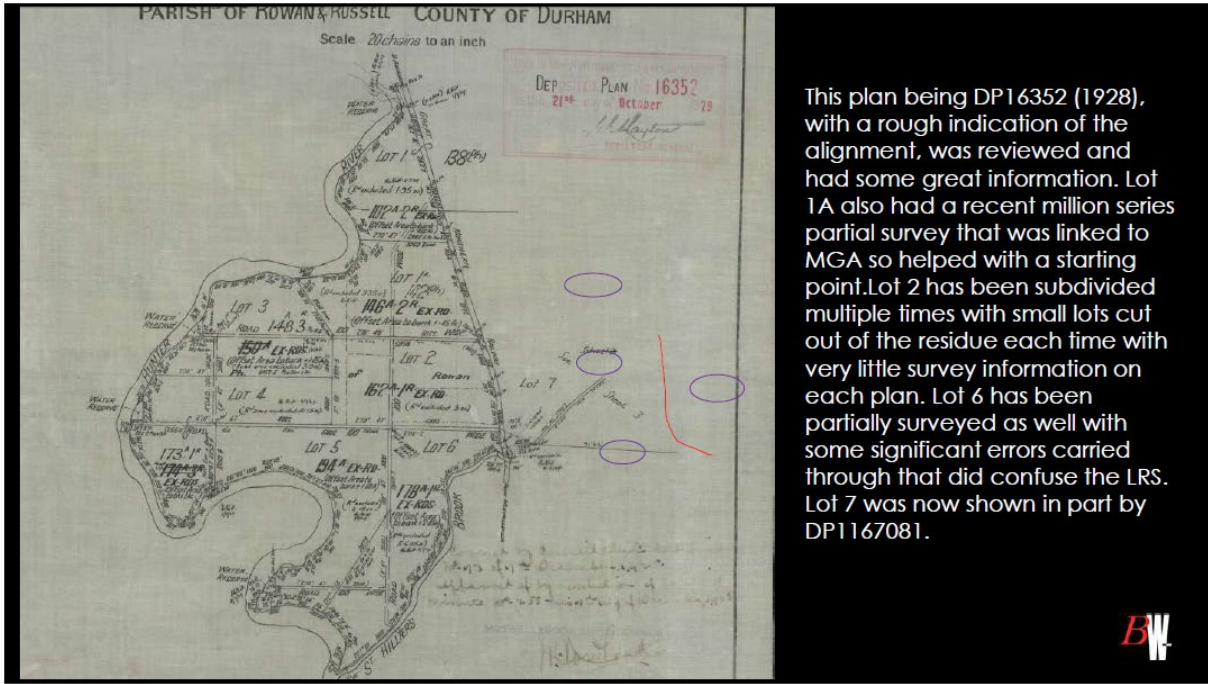
The survey included the establishment of survey control, cadastral calculations of existing and new cadastre (including easements) and marking of the new boundaries and any easements (if needed). The preparation of a plan suitable for lodgement at NSW LRS. The azimuth of the survey will be based on Map Grid of Australia (MGA).

Other requirements included liaising with:

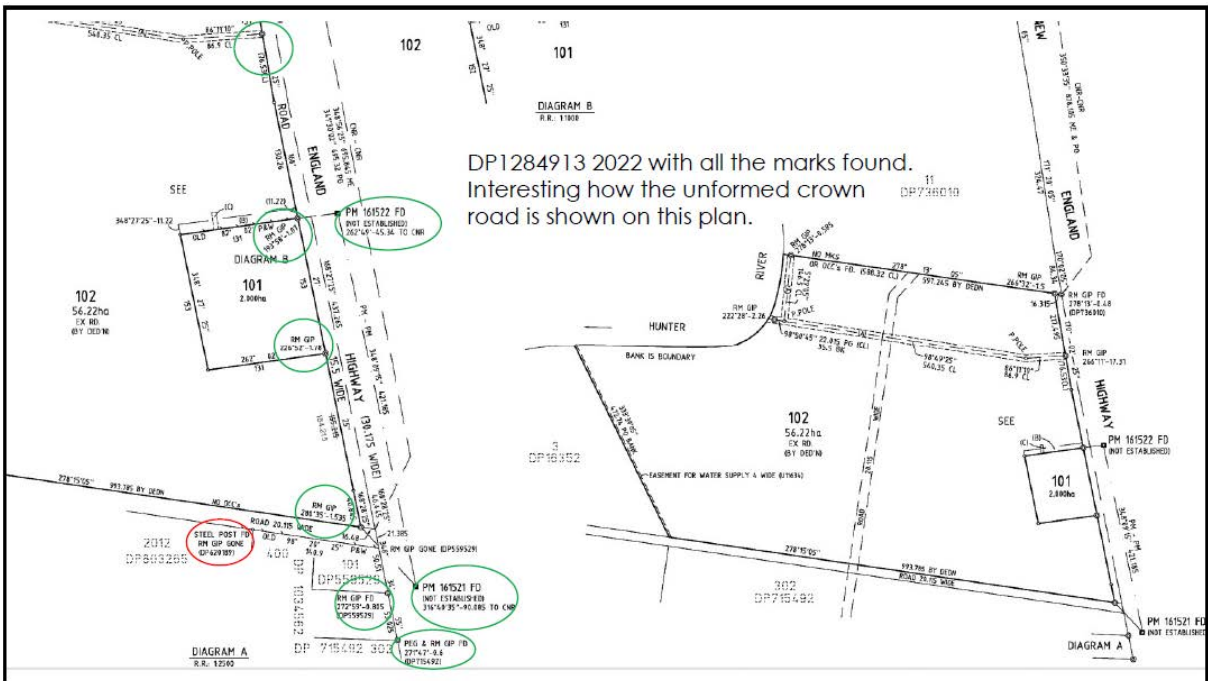
- The rail authority to obtain TAHE consent
- Crown Lands for water boundary determination and consents.

Approximately creating 25 new road lots and 20 residue lots in 1 plan along 10km's.



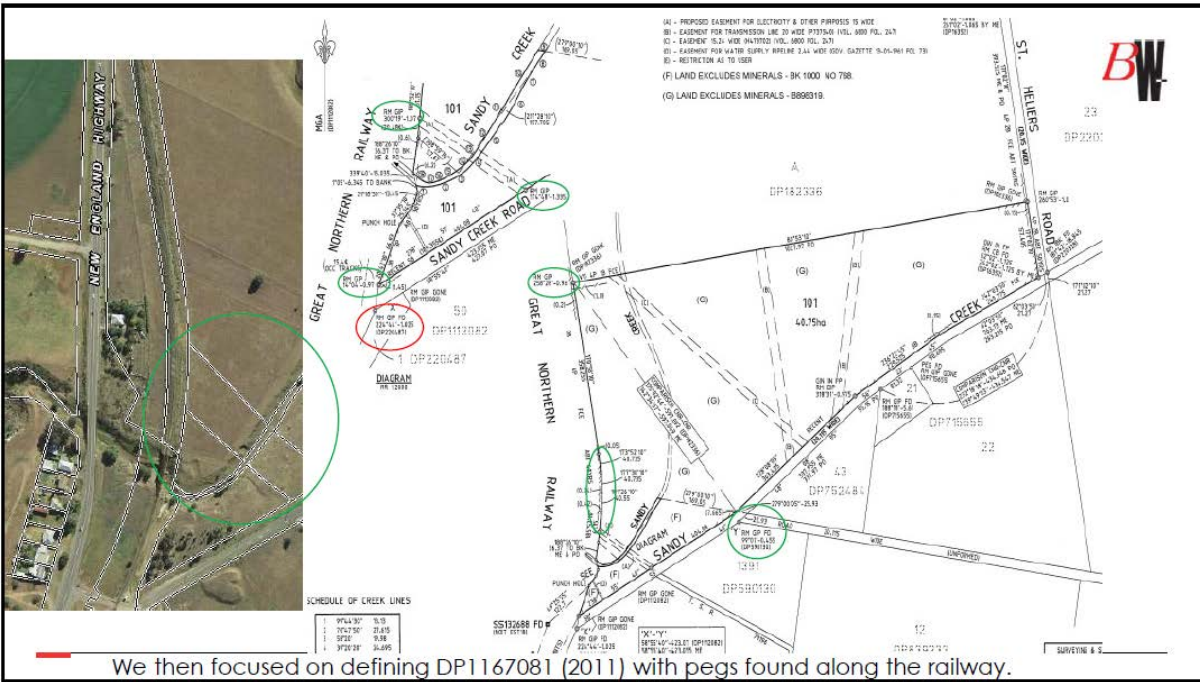
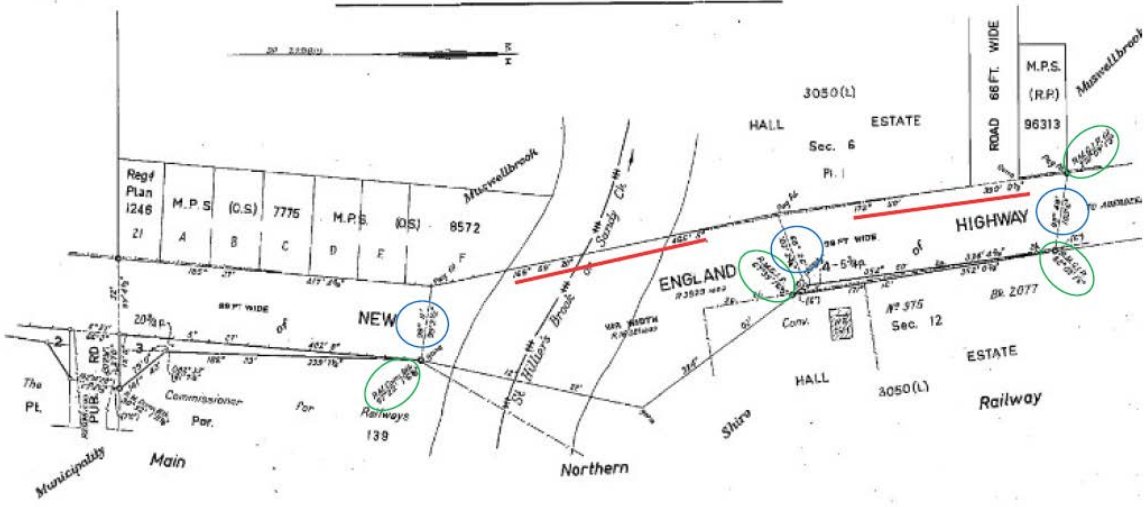


This plan being DP16352 (1928), with a rough indication of the alignment, was reviewed and had some great information. Lot 1A also had a recent million series partial survey that was linked to MGA so helped with a starting point. Lot 2 has been subdivided multiple times with small lots cut out of the residue each time with very little survey information on each plan. Lot 6 has been partially surveyed as well with some significant errors carried through that did confuse the LRS. Lot 7 was now shown in part by DP1167081.

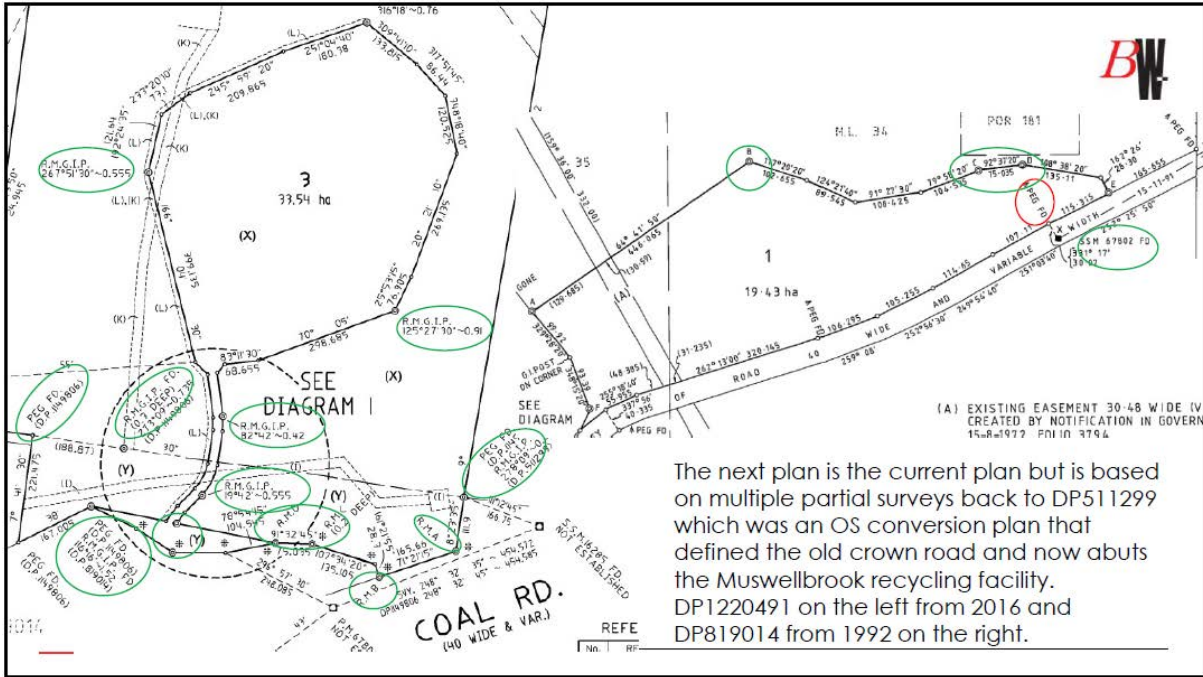


DP1284913 2022 with all the marks found.
 Interesting how the unformed crown road is shown on this plan.

DP229819 1966 was a road plan that helped link the western side of the New England Highway to the eastern side or the other way round...

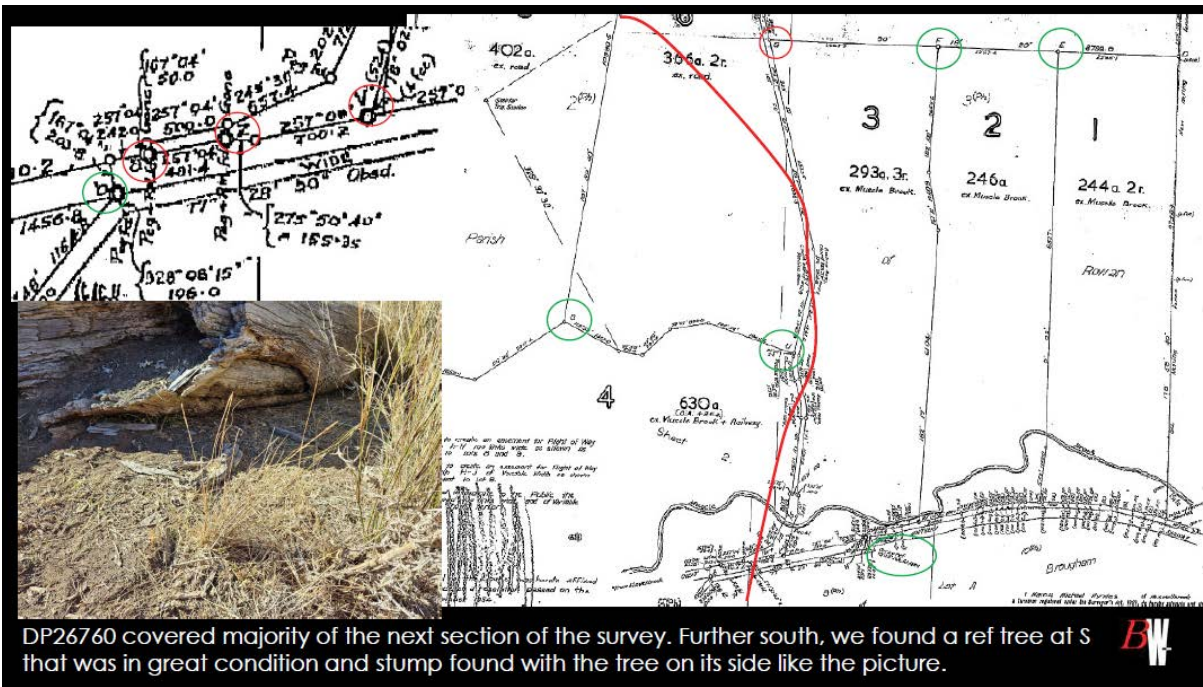
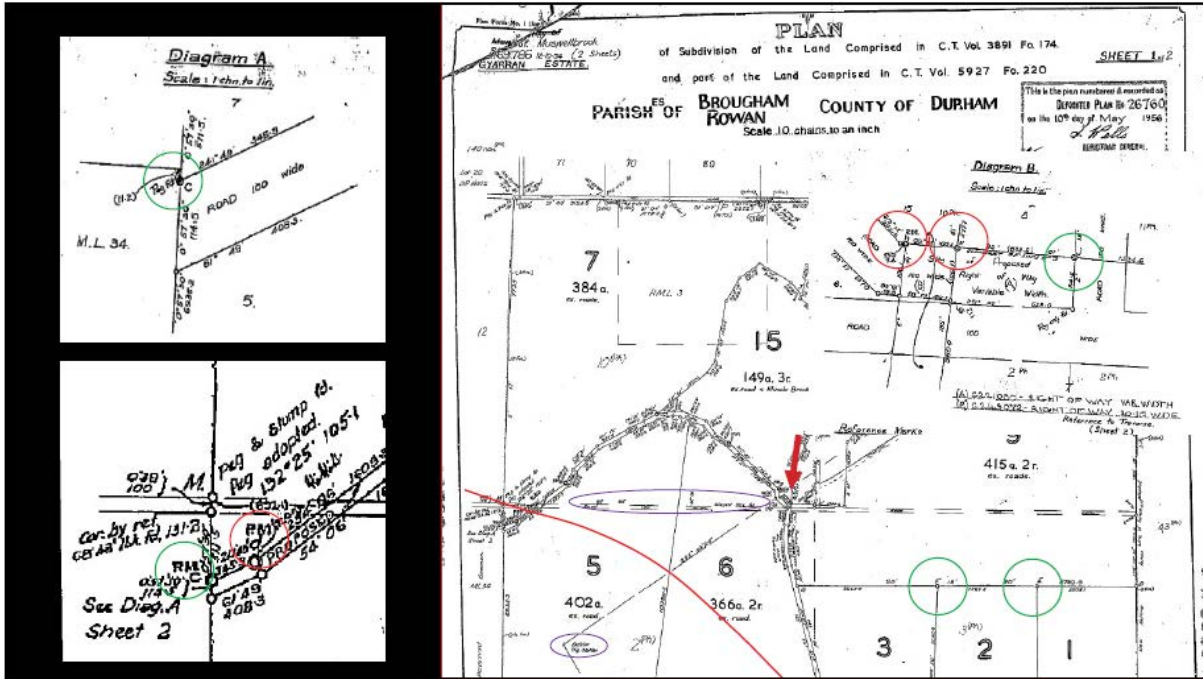


We then focused on defining DP1167081 (2011) with pegs found along the railway.



The next plan is the current plan but is based on multiple partial surveys back to DP511299 which was an OS conversion plan that defined the old crown road and now abuts the Muswellbrook recycling facility. DP1220491 on the left from 2016 and DP819014 from 1992 on the right.

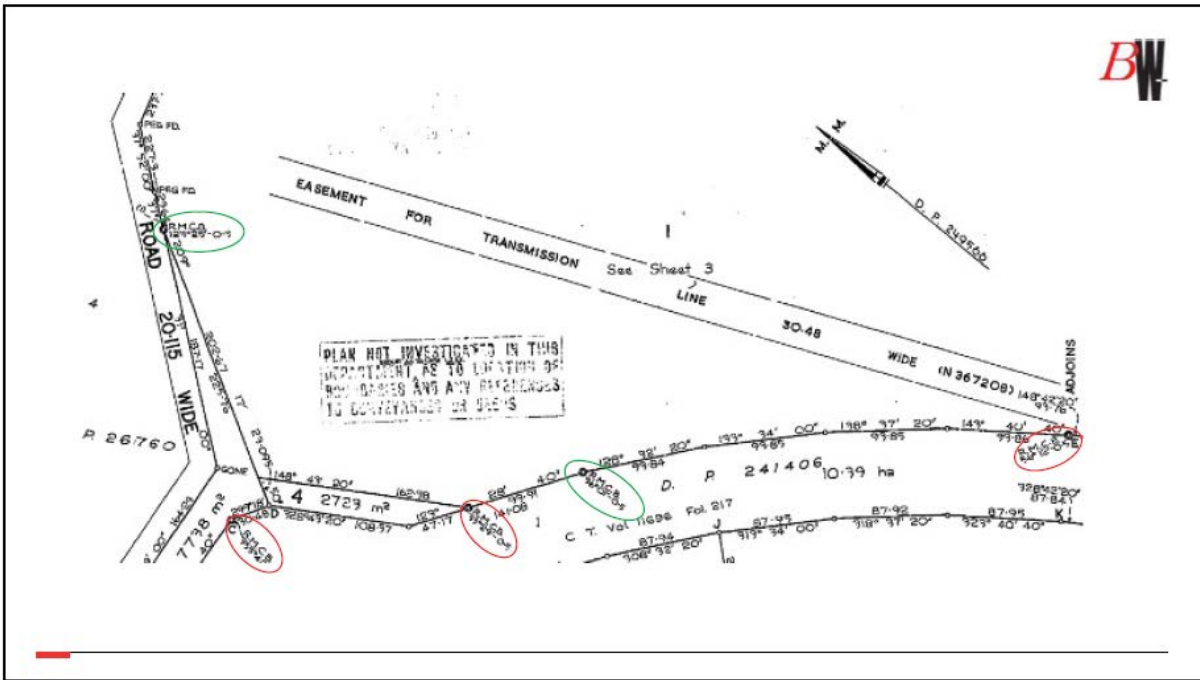






BW

On the right is Tree S and on the left is a ref tree off a right of way through lot 6 that has disappeared from its title.



BW

Review of Survey

After weeks/ months
of fieldwork,
calculations, drafting
and consultation.

- Produced two fantastic plans with the team who put in long days to get through the fieldwork.
- Integrating GNSS methodology with traditional survey allowed efficient survey and accurate obs.
- MGA coordinates are relative between each plan. We established extra permanent marks via AUSPOS to help the cadastre during & after construction.
- Cadastral challenges of defining some boundaries that hadn't been surveyed for 100 years, creek banks, a crown road & railway boundaries.
- Recreating easements to be accurately plotted on each plan was difficult.
- Working with/alongside TfNSW helped keep the project running smoothly. Having a registered surveyor as a client does have its advantages, especially with the cadastral difficulties faced.

