

Cleanaway Operations Pty Ltd

Bromelton Energy and Resource Centre

Engineering (Infrastructure) Report

Reference: BERC-ARU-BNE-ENG-RPT-0001

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Job number 293683-00

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Acknowledgement of Country

Arup acknowledges the Traditional Owners across all lands, waters and skies our firm may reach; we acknowledge their wisdom, resilience, and rich cultural heritage. We pay our respects to the Elders, past and present, and to all Aboriginal and Torres Strait Islander peoples.

'Continuing to Shift to shape an even better world'
original artwork by Tarni O'Shea of Gilimbaa and
updated by David Williams of Gilimbaa.

Abbreviations and glossary

Abbreviation	Definition
AHD	Australian Height Datum
APCr	Air Pollution Control Residue
AS	Australian Standard
BDS	Beautesert Bulk Supply Substation
BERC	Bromelton Energy and Resource Centre
BREF	Best Available Techniques Reference document
C&I	Commercial and Industrial
DBYD	Dial Before You Dig
DI	Ductile Iron
EfW	Energy from Waste
GPS	Global Positioning System
GSUT	Generator Step-Up Transformer
HV	High Voltage
IBA	Incinerator Bottom Ash
IBAA	Incinerator Bottom Ash Aggregate
IED	Industrial Emissions Directive
LHV	Lower Heating Value
MRTS	Main Roads Technical Specification
MSW	Municipal Solid Waste
MWe	Megawatt Electric
NBN	National Broadband Network
NER	National Electricity Rules
NSP	Network Service Provider
POC	Point of Connection
RL	Relative Level
SDA	State Development Area
TEEP	Technically, environmentally, and economically practicable
TMR	Department of Transport and Main Roads

Abbreviation	Definition
tpa	Tonnes per annum
UU	Urban Utilities

Executive Summary

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing an energy from waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC /the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert.

This report provides information relevant to the engineering design of the Project, including earthworks, infrastructure servicing, and road design. The report should be read in conjunction with the *Stormwater Management Plan* and *Flood Risk Assessment*, which provides details on stormwater management and flood risk across the Project area and the *Traffic Impact Assessment* which provided details on the access design.

The key findings are:

- **Bulk Earthworks:** The earthworks design balances cut and fill volumes to suit the site's steep and varied topography, incorporating batters, retaining walls, and revegetation for stability and erosion control.
- **Water:** The site will connect to an extended Urban Utilities (UU) DN375 water main which runs along the alignment of Beaudesert Boonah Road, currently terminating east of the site at Waste Facility Road to the east of the Project sit. Connection to the UU recycled water network remains a future opportunity.
- **Wastewater:** Due to the absence of nearby sewer infrastructure, on-site sewer holding tanks are proposed with future connection to a precinct gravity sewer the preferred solution, if feasible.
- **Electricity:** A 110kV grid connection and on-site substation will support the facility's estimated 73.2 MWe net power output, with emergency generators and fault protection systems included.
- **Communications:** Satellite NBN is recommended for site connectivity, with Telstra cabling as a potential alternative pending further assessment.
- **Gas:** No gas infrastructure is required for the site.
- **Site Access:** It is proposed that the site is accessed from Beaudesert Boonah Road via a new four-way signalised access with Recycling Street. Consultation with TMR has occurred and is expected to continue during the assessment period.
- **Internal Roads Network:** The internal road network is designed for safe and efficient traffic flow. Separation of light and heavy vehicles and dedicated parking accommodating both staff and visitors has been prioritised.

1. Introduction

1.1 Purpose of Assessment

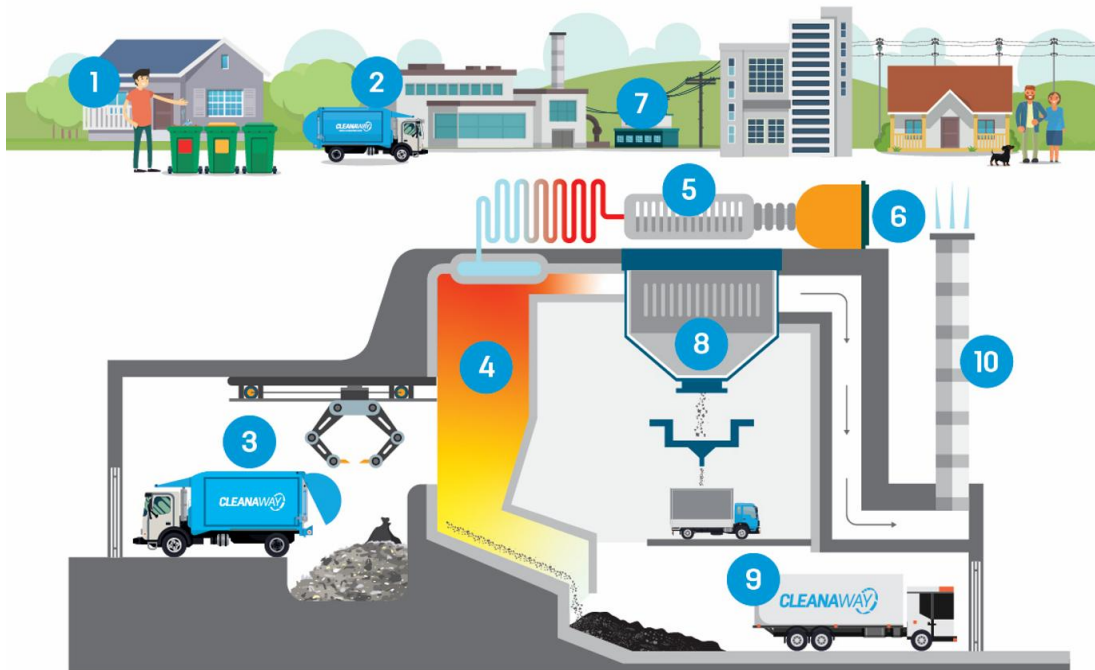
This report provides information on the infrastructure engineering design for the BERC. Its primary purpose is to outline the key engineering considerations and design solutions related to bulk earthworks, infrastructure servicing and internal road networks. The report aims to inform stakeholders of the proposed technical approach to site development, ensuring alignment with operational requirements, regulatory standards and site-specific constraints. Additionally, this report serves to complement related documents, including the *Stormwater Management Plan and Flood Risk Assessment* and the *Traffic Impact Assessment*.

1.2 Project Description

1.2.1 Project Overview

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing an Energy from Waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC) (the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert within the Scenic Rim Regional Council local government area.

The Project has been designed to thermally treat approximately 760,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. Residual waste is waste that is not technically, environmentally, and economically practical (TEEP) to reuse or recycle, which would otherwise be sent to landfill for disposal. The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (836,000 tpa). The EfW process is summarised in Figure 1.



- 1 At home and work, we sort our waste into recyclable and non-recyclable items.
- 2 Before arrival at the energy from waste facility, residual waste that has been sorted at home and work is delivered to the facility.
- 3 In the bunker, waste is mixed, ensuring consistency, by large crane claws before placement into the combustion chamber.
- 4 Waste is combusted as it moves along a moving grate. The temperature in the combustion chamber reaches more than 850°C to ensure that waste combusts completely while also destroying organic pollutants and odour.
- 5 Water is heated during combustion creating steam which turns a turbine.
- 6 Baseload electricity is generated.
- 7 Electricity is put back into the grid and used to power homes and businesses.
- 8 Gases created during combustion pass through a multi-step flue gas treatment system, removing pollutants from the gases. Residues from the flue gas treatment are collected in a sealed system for treatment before disposal.
- 9 Bottom ash from the combustion process is collected and stored. Metals are recovered for recycling. It is intended that the remaining bottom ash is sent for reuse in construction.
- 10 Cleaned gases and steam are dispersed high into the atmosphere, mixing well to ensure negligible impact on the surrounding air quality.

Figure 1: Energy from Waste Process

1.2.2 Proponent

Cleanaway, an Australian owned company, has operated for more than 50 years, supporting industry, government, communities and households across Australia. Its mission is to make a sustainable future possible, achieved through action across all levels of the waste hierarchy. Waste generation is minimised through extensive education programs, with Cleanaway's 50 education officers reaching over 120 businesses, 30 councils, and almost 33,000 school participants in the last financial year.

Cleanaway invests heavily in recycling, operating several Material Recovery Facilities nationwide and has partnered with Pact Group, Asahi Beverages and Coca-Cola to deliver two large-scale PET (polyethylene terephthalate) recycling facilities and a HDPE (high density polyethylene) recycling facility with Pact Group. In addition, in collaboration with Viva Energy, Cleanaway is developing a soft plastics recycling plant. EfW is recognised by Cleanaway as an important part of the future waste management framework, enabling recovery of energy and other resources from residual waste that cannot otherwise be recycled.

1.2.3 Policy Alignment

The BERCC aligns with the Queensland EfW Policy and the Queensland EfW Guideline (2021) by diverting residual waste from landfill and delivering economic and social benefits through employment and local business opportunities in South East Queensland.

In accordance with Policy outcome 7 of the Queensland EfW Policy, the BERC will be designed to meet the best practice emission standards and requirements of the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration (2019), which sets the European Union environmental standards for waste incineration.

The Project also supports the Queensland Waste Strategy contributing to its 2050 targets to reduce household waste by 25%, recycle 75% of all waste, and divert 90% from landfill. In doing so, the BERC will play a key role in advancing Queensland's transition to a circular economy and reducing long-term reliance on landfill.

1.2.4 Key Components

The key components of the Project are summarised in Table 1.

Table 1: Key Project Components

Project Component	Detail
Address	Lot 1 Beaudesert Boonah Road, Bromelton, Queensland, 4285 (Lot 1 on RP45234). Refer Figure 2.
Site Area	63 hectares
Summary of proposed works	The project includes the construction of a main EfW facility for waste processing, incinerator bottom ash (IBA) maturation and processing facility and an air pollution control residue (APCr) facility. It also includes all onsite infrastructure needed for the EfW facility, such as site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Project will include a visitor centre to help educate and inform the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process. The intent behind this education is to drive a shift in community awareness and attitudes toward waste management and resource recovery.
Technology Used	The proposed technology is moving grate combustion technology. This has been used globally for over 100 years and is common in many of the 500 similar operational examples across Europe.
Facility Outputs	Approximately 73.2MW (577,600 MWh/year, corrected for ambient temperature) exported to grid as baseload electricity. Potential to supply energy in the form of heat and/or process steam to local industrial users. Residual material include IBA and APCr. It is intended that the IBA will be mechanically processed on site to create incinerator bottom ash aggregate (IBAA). During the process, both ferrous and non-ferrous metals are recovered for recycling and sale. It is intended that the remaining material is re-purposed for use as an aggregate in construction. The Project includes a facility to stabilise APCr before removal and disposal at a licensed landfill.
Key Infrastructure	EfW facility including administration and visitors centre IBA maturation and processing facility (2 x pads and 2 x sheds) APCr facility (1 x pad, 1 x shed) Transformer yard and switchyard De-coupling area for trucks Weighbridges Internal road network and carparking 2 x combined storm water treatment and detention basin 1 x lined retention basin Access from Beaudesert Boonah Road via a signalised intersection with Recycling Street

Project Component	Detail
Hours of Operation	24 hours per day, seven days per week (365 days per year)
Operational Staff	Approximately 60 staff



Figure 2: Site Location Plan

2. Earthworks

2.1.1 Existing

The Project area is currently pastoral land comprising grasses with low density shrubs and trees. A topographical survey of the site and adjacent road was undertaken by TJ Kelly Surveys Pty Ltd in May 2023 and is contained in Appendix A.

The Project area has several distinct ridgelines and low points. A high-level review of the survey notes that:

- In the northern portion of the site, the highest point is RL 98.9 m Australian Height Datum (AHD).
- Northwest corner of the site sits at RL 81.75 m AHD.
- Northeast corner of the site sits at RL 79.09 m AHD.
- Land directly adjacent to the culvert crossing under the railway line is at RL 70.54 m AHD.
- Ridgeline at southwest corner of the site is at RL 119 m AHD.
- Southeast corner of the site sits at RL 66.5 m AHD.

Aside from the upper portion of the ridge, falls typically exceed 5% with the southern portion of the site containing steeply sloping terrain which exceeds 10% gradient in many places.

2.1.2 Bulk Earthworks

Bulk earthworks have been designed to create large, gently graded platforms for operational use while responding to the existing site topography, which features significant level variations and undulations throughout the project area. Consequently, a substantial volume of material movement is necessary to achieve the proposed finished surface levels and ensure appropriate grading for future development.

A balanced cut-to-fill strategy has been adopted to minimise the need for import or export of material, with the objective of reducing construction costs, environmental impact and haulage requirements on the surrounding road network. The current earthworks design achieves an approximate balance between cut and fill volumes (refer Table 2 and bulk earthworks plan contained within concept civil engineering drawings).

Table 2: Bulk Earthwork Volumes (refer BERC-ARU-BNE-CICW-DRG-1201)

Bulk Earthworks	Volume (m ³)
Total Cut	-233,730
Total Fill	205,990
Total Balance (excess of cut)	-27,740

To further support this balance and reduce the potential for off-site material disposal, an area in the southern portion of the site has been identified as a potential location for the placement of surplus fill material, if required. The location of the potential location of surplus fill has been located clear of overland flow path. This area provides flexibility in managing excess cut while avoiding unnecessary truck movements beyond the site boundary. Refer Drawing BERC-ARU-BNE-CICW-DRG-1030.

Ongoing refinement of the earthworks design will continue through detailed design to further optimise material usage and reduce earthwork movements. Refer to engineering drawings in Appendix B2 of the Planning Report.

2.1.3 Batters and Retaining Walls

Level differences across the site are primarily managed through earthworks batters. A maximum batter slope of 3H:1V has been adopted to ensure stability under typical site conditions. Where space permits, a flatter

slope of 4H:1V has been applied to improve stability and facilitate maintenance. Adjacent to a scar tree, which has been identified as being culturally significant and therefore is to be retained, a section of batter is proposed as a 1:1 reinforced soil slope to achieve the required offsets and protect the tree.

The batters adjacent to the rail corridor have been designed with a maximum 3H:1V slope and are located a minimum of 5 m from the site boundary. This design ensures safe and stable earthworks in proximity to the corridor. The batter design also maintains an appropriate setback (> 25 m) from the Order 1 stream in accordance with SEQ Water guidance, ensuring protection of the waterway and surrounding environment.

Additionally, two retaining walls are incorporated into the civil design to accommodate localised level changes where batters are not feasible due to spatial constraints. These retaining walls are located on the entrance road south of the carpark access road and adjacent to the APCr building. Additional, low level retaining structures may be introduced as part of detailed design.

Batter slopes adjacent to the rail corridor be designed in accordance with the below TMR technical specifications:

- MRTS03 Drainage Structures, Retaining Structures and Embankment Slope Protections;
- MRTS04 General Earthworks;
- MRTS52 Erosion and Sediment Control; and
- MRTS16 Landscape and Revegetation Works.

All batters and slopes will be revegetated in accordance with MRTS 16 – Landscape and Revegetation Works and Standard Drawing SD 1651 – Vegetation Works: Seeding, Detail 2 to promote long-term stability and erosion control.

A cut-off drain will be installed at the base of all slopes to capture surface water runoff, ensuring water is collected within the site boundary and routed to the existing points of discharge.

3. Infrastructure Servicing

The approach to utility connections for the BERC prioritises early coordination with relevant service providers to ensure reliable and efficient access to all essential utilities, including electricity, water, telecommunications, and sewerage. It is not planned that the facility will be delivered in stages; therefore, full utility services will be required from day one.

Where existing utility networks are in place, the facility will be connected accordingly to support timely commissioning and start-up. In locations where utility networks are planned but not yet operational, the necessary infrastructure will be delivered in alignment with future network plans to ensure seamless integration upon completion. This proactive strategy supports uninterrupted service delivery, minimises duplication of infrastructure, and aligns with broader infrastructure sequencing and planning objectives. All utility connections will be designed to relevant standards

This section covers existing and proposed infrastructure for water, wastewater, electricity and telecommunications. For information on stormwater management and flood risk refer to the *Stormwater Management Plan and Flood Risk Assessment*.

3.1 Water

3.1.1 Existing Infrastructure

The potable water and wastewater service provider for the site is Urban Utilities (UU). Preliminary investigations, including Before You Dig Assessment (BYDA) searches, have confirmed that there is currently no trunk water main or sewer infrastructure within the site or adjacent to the site boundary.

An existing DN375 ductile iron (DI) water main runs along the alignment of Beaudesert Boonah Road, terminating east of the site at Waste Facility Road. This main was constructed in 2018 in anticipation of future industrial connections within the Bromelton area. However, no active customer connections have been established to date, and UU has since disconnected the main near Helen Street, limiting its current functionality.

3.1.2 Water Demand

Ramboll have developed a water balance for the BERC project Refer Appendix C. The overall philosophy guiding the water balance is as follows:

- There shall be zero process wastewater discharge from the EfW facility area.
- Rainwater collected from roofs shall be captured and reused to reduce demand for raw potable water.
- Daily buffer tanks will provide intermediate water storage to accommodate hourly variability in process water demand and effluent generation.
- Buffer tank design will account for non-routine conditions such as start-up, shutdown, and maintenance activities, where equipment drainage is necessary for inspection or servicing.
- Where feasible, greywater from staff amenities will be managed separately from sewage wastewater originating from toilets and kitchen areas. Subject to confirmation from technology suppliers, this greywater will be used as make-up water to the EfW recycled water tank, thereby reducing reliance on fresh potable water.

The overall nominal water demand for the site is estimated to be 502.4m³/day (5.8 l/s). This is a combined water demand for all processes, including boiler makeup water, flue gas treatment, IBA maturation, APCr stabilisation, general and sanitary use and an allowance for rainwater capture and use.

3.1.3 Proposed Infrastructure

Discussions with UU have outlined the proposed water connection strategy as follows:

- UU has conducted hydraulic modelling and confirmed that there is sufficient capacity within the existing DN375 main on Beaudesert Boonah Road to accommodate the full operational water demand from the site.
- The existing main extends approximately 500 m east of the site but is currently capped and non-operational. The connection strategy involves extending this main along Beaudesert Boonah Road to the site boundary to establish the site connection.
- The main is currently planned to be operational by 2031 as part of the trunk infrastructure outlined in the NetServ Plan.
- Given the main's period of inactivity, it is anticipated that quality assurance testing, including bacterial sampling, will be necessary during commissioning to ensure water quality compliance.

Refer to Appendix D for UU Service Advice Note.

TMR in its review of the preliminary documentation, has advised that all public utility installations must comply with the requirements of the Non-Transport Utility Management and Design Manual.

TMR's position is that utilities are not to be installed on bridge structures. This position reflects ongoing maintenance considerations and the need to avoid conflicts with existing and future road planning along Beaudesert Boonah Road. Accordingly, the proposed watermain extension requires further review to identify an appropriate installation route that enables connection to BERC while avoiding any encroachment on the rail bridge structure.

It is anticipated that UU will deliver the watermain extension. Cleanaway will continue to work collaboratively with UU and TMR to investigate installation methodologies that avoid impacts to the bridge structure. Options to be explored include trenchless construction techniques, such as Horizontal Directional Drilling beneath the railway corridor, subject to detailed design, technical feasibility assessment, and relevant stakeholder approvals.

Refer Appendix B drawing BERC-ARU-BNE-CICW-DRG-1801 for onsite water and sewer utilities and BERC-ARU-BNE-CICW-DRG-1802 for offsite water infrastructure.

3.1.4 Dual Water Supply Option (Potable and Recycled Water)

UU has indicated a strategic interest in partnering with industrial customers to supply treated wastewater effluent as part of their broader goal to achieve zero discharge to the environment.

Cleanaway has explored options for using recycled water with QUU in both 2024 and 2025. UU has confirmed that a Class C recycled water network is available to the Beaudesert Boonah Road and Beaudesert House Road intersection (refer Figure 3).

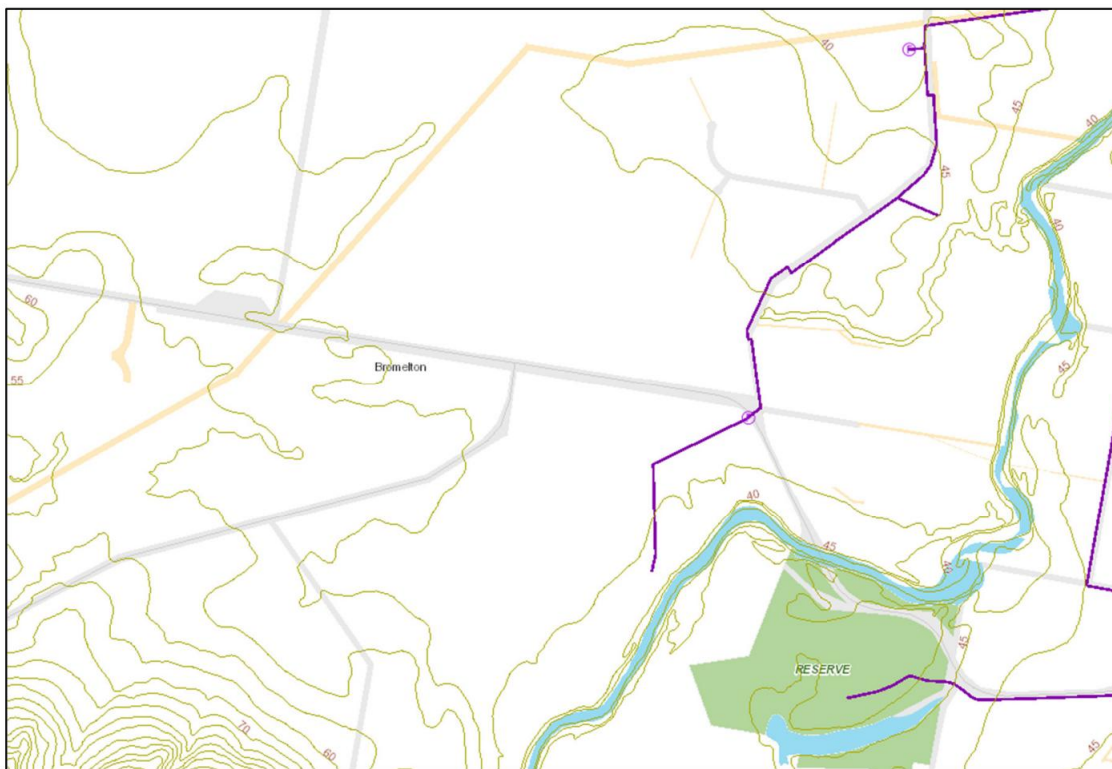


Figure 3: Existing Recycled Water Network

Class C recycled water is the lowest quality of recycled water supplied by UU. It is defined by UU as ‘generally produced to meet effluent discharge requirements set out in sewage treatment plant environmental licenses. Class C water may not be suitable for many industrial purposes and can be utilised only for limited irrigation purposes.’

Energy from waste plants require both potable water and good quality water (e.g. at least Class A) for make-up to firewater storage and demineralised water to prevent scaling and corrosion in boilers, turbines and piping, ensuring equipment longevity and efficient operation. High-purity water also supports consistent process control and helps meet strict environmental and emissions standards. Potable water will be further treated to meet these quality standards. At present, the only recycled water that could potentially be utilised in the energy from waste process is Class A.

Cleanaway acknowledges the benefits of having a recycled water network within the State Development Area particularly given the high water use of proposed industries in the area. Should a viable recycled water network become available, Cleanaway would be open to explore opportunities to integrate it into the facility, which could help reduce overall potable water demand and support catchment management objectives.

UU noted at a Bromelton Business Group meeting in July 2026 that, following Cleanaway's recycling water expression of interest, it is now exploring the potential for a Class A recycled water network to service the SDA. Cleanaway welcomes this initiative and will continue to work collaboratively with UU to investigate opportunities for recycled water supply to the Project.

All water used in the facility is reused within the process, and no process water is discharged from the site, ensuring minimal impact on the surrounding environment and catchment.

3.1.5 Firefighting Infrastructure

The BERC will be provided with a comprehensive fire protection system designed in accordance with relevant Australian Standards and the requirements of global insurers. Separate sprinkler and hydrant ring mains will be installed around the perimeter of the facility, with branches extending to serve key operational areas and equipment. Each system will be supported by dedicated external water storage tanks sized to meet the required firefighting demands.

The firewater flow rate and water storage capacity for the sprinkler system have been determined based on the following key design assumptions:

- Ceiling-mounted sprinkler systems throughout the main process areas.
- A deluge system above the boiler fuel bins.
- Automatic water cannons incorporated as part of a fire-engineered solution for bunker fire protection.
- A dual water supply system, comprising two firewater storage tanks, each providing a minimum of two-thirds of the required storage capacity to ensure system redundancy.

This configuration results in two 572 kL firewater storage tanks. The tank filling system is designed to completely refill one tank within 18 hours, corresponding to a flow rate of approximately 8.9 L/s.

For the hydrant system, two 18 kL tanks are proposed.

Firewater containment and environmental protection:

To prevent contaminated firewater runoff from entering the stormwater network or adjacent waterways, the site drainage system will include isolation valves and containment areas. The waste bunker and process areas will be bunded to contain firewater for controlled removal and treatment following an incident. This will be developed at future design stages.

System reliability and monitoring:

The fire systems will be integrated with the facility's Building Management System (BMS) for automatic monitoring of pump operation, tank levels and sprinkler activation. Backup power will be provided to ensure continuous operation during an emergency.

Access and maintenance:

Hydrant locations will be designed to provide adequate access for firefighting appliances, with hardstand areas maintained clear for emergency vehicle access. Routine testing and maintenance procedures will be implemented to ensure system reliability and compliance with AS 2419 and AS 2118.

3.2 Sewer

3.2.1 Existing Infrastructure

There is currently no formal sewerage infrastructure available for connection surrounding the site. It is understood from discussions with Seqwater that existing, surrounding developments are serviced by either sewer holding tanks or septic tanks.

3.2.2 Sewer Demand

The flue gas treatment process does not have any process effluent discharge during normal operation, as the facility itself will be designed to reuse all process water during normal operation. Therefore, the only wastewater from the BERC will be domestic sewage from the administration buildings.

3.2.3 Proposed Infrastructure

Preliminary discussions with UU confirm that there are no immediate plans to construct a trunk sewer along Beaudesert Boonah Road. The below outlines the ultimate, interim and future opportunities related to waste water.

3.2.3.1 Ultimate Design Solution

The ultimate design solution for BERC wastewater is connection to the extended UU wastewater network.

UU's wastewater master plan assumes development in this area would not occur until post-2031, with a new treatment facility proposed for the Bromelton area to service future growth. This new treatment facility is intended to support both residential and industrial expansion and would be delivered once capacity at the existing Beaudesert plant is exhausted. The BERC site is included in the ultimate service catchment.

3.2.3.2 Interim Design Solution

Prior to the connection to the UU wastewater network an on site sewer holding tank system has been designed. On-site sewer holding tanks are proposed to cater for sewage wastewater (kitchen, toilets) for each of the buildings which will house staff (EfW building and IBA admin). These retention systems will be fully contained, sized for seven days capacity, with no overflow to landscaped areas. Effluent will be transported off-site as required when these sewer holding tanks approach capacity.

The concept design provisions for a 25,000 L sewer holding tank capacity serving the EfW building and a 5,000 L sewer retention capacity serving the IBA sorting building. These sewer holding tanks, as shown in concept engineering drawing BERC-ARU-BNE-CICW-DRG-1801 (refer Appendix B), have been positioned a minimum 100 m clear of the mapped Stream Order 1 hydro-lines and are compliant with performance outcomes P02 and P07 of Seqwater's Development Guideline.

The exact position and size of the sewer holding tanks will be finalised as part of detailed design but will remain beyond the minimum offset distances stipulated by Seqwater.

3.2.3.3 Opportunities to explore at the next design stage

At future design stages landscape irrigation utilising treated wastewater may be explored, subject to the necessary site assessments and approvals. Where feasible, greywater from staff amenities will be managed separately from sewage wastewater originating from toilets and kitchen areas. Subject to confirmation from technology suppliers, this greywater will be used as make-up water to the EfW recycled water tank, thereby reducing reliance on fresh potable water.

3.3 Electricity

3.3.1 Existing Infrastructure

There is no existing power connection to the site.

3.3.2 Nominal Power Estimates

Ramboll has developed the energy recovery performance estimates using their bespoke Waste-to-Energy (WtE) modelling tool, RAMsteam. The nominal performance represents the expected net power output from the facility under design conditions, including an ambient temperature of 20°C.

Table 2 summarizes the main performance results at nominal load (i.e. 100% thermal input) for the proposed energy recovery solution. Results are presented based on the nominal Lower Heating Value (LHV) of the fuel. The nominal net power production is estimated at 73.2 MWe.

Table 3: Nominal Power Estimate (reproduced from REN2021N00922-RAM-ME-00024 / Version 2.0)

Parameter	Value	Units
Fuel Heating Value (LHV)	10.6	GJ/tonne
Power Output (Gross)	84.6	MWe
Power Output (Gross)	890	kWh/tonne fuel
Parasitic Load / Own Consumption (incl. IBA and APCr treatment facilities and a provision for Point of Connection losses)	11.3	MWe
Power Output (Net)	73.2	MWe
Power Output (Net)	771	kWh/tonne fuel

3.3.2.1 *Parasitic Load*

Parasitic load refers to the internal power consumption of the facility required to operate auxiliary systems such as fans, pumps, control equipment, and other supporting infrastructure. This load represents energy consumed onsite that is not available for export or external use.

The facility's own power consumption to drive such equipment is typically expected to range between 50–100 kWh per tonne of treated waste. For the proposed 760,000 tonnes per annum (tpa) Energy-from-Waste (EfW) plant capacity, this corresponds to a parasitic load of approximately 4.75 to 9.5 MWe electric (MWe) during nominal operation with two boilers. This estimate excludes additional power requirements for APCr stabilization, Incinerator Bottom Ash (IBA) sorting, and point of connection losses.

Assuming 8,000 hours of operation per boiler annually, the annual internal energy consumption is projected to be between 38,000 and 76,000 MWh/year.

The net power estimates provided by Ramboll are based on a nominal total parasitic load of 11.3 MWe, which includes provisions of:

- 1.0 MWe for IBA treatment and APCr stabilization area consumption, and
- 1.5 MWe for point of connection (POC) losses, such as those associated with the generator step-up transformer (GSUT) and 110 kV switchgear.

3.3.3 *Proposed Infrastructure*

3.3.3.1 *Grid Connection*

The BERC will generate electricity as part of its operations and therefore requires connection to the electricity network to enable export of power to the grid. Establishing an appropriate grid connection is a key component of the project, ensuring reliable operation, compliance with network standards and the ability to supply energy to the broader electricity system. Several connection options have been identified and assessed to determine the most suitable and efficient approach.

The single line diagram depicting existing Energex network feeders is presented in Figure 4. The Global Positioning System (GPS) map view of these feeders and the project location (indicated as Lot 1) is shown in Figure 5.

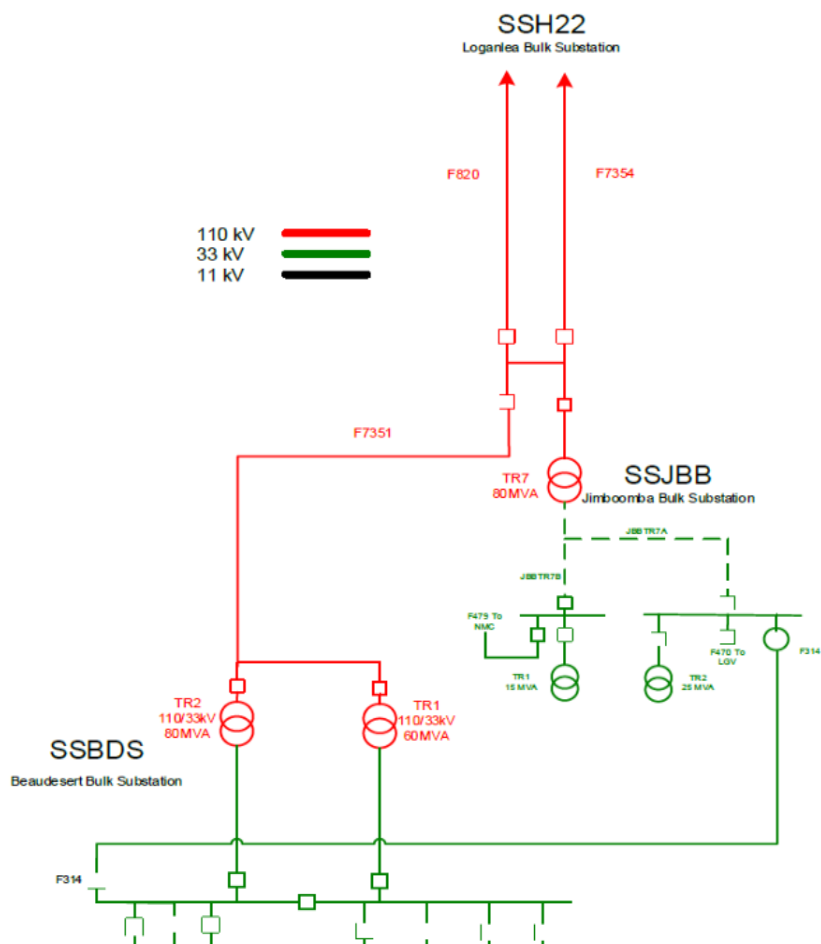


Figure 4: Single line diagram of Beaudesert and Jimboomba substations

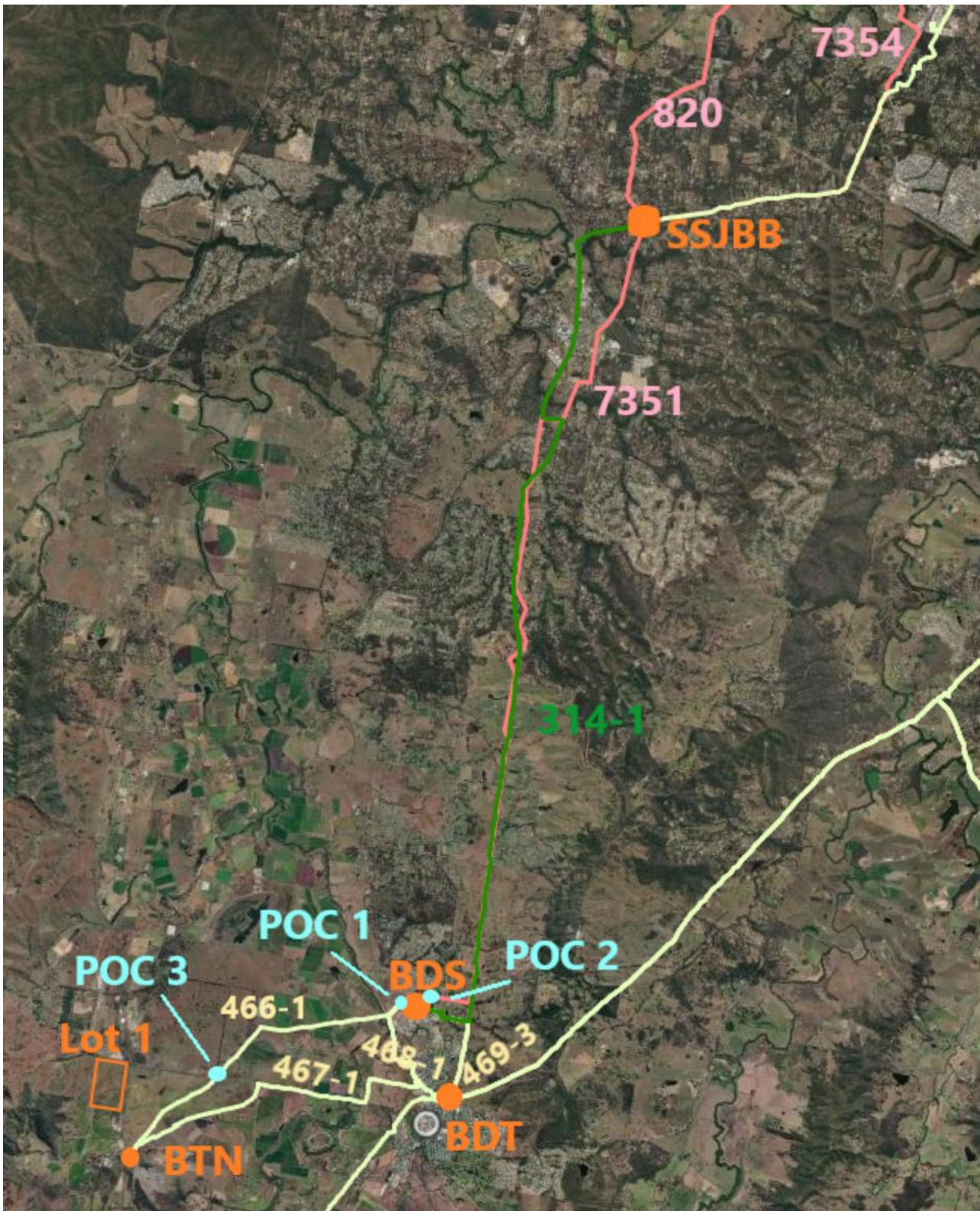


Figure 5: Nearby 33kV and 110kV network

3.3.3.2 *Engagement with Energex*

3.3.3.2.1 **Preliminary Enquiry**

In March 2022, Energex provided a preliminary response to a connection enquiry for a 60MW synchronised generator.

Two potential options for connecting the proposed 60 MW generation facility at Bromelton to the Energex distribution network were identified in the preliminary response from Energex. Both options involved

connection to the Beaudesert Bulk Supply Substation (SSBDS), located approximately 7 km from the proposed site.

Option 1 – 33 kV Connection:

Involved constructing a new 7 km 33 kV feeder from SSBDS to the site. Standard construction enables ~40 MVA, so detailed assessment is required to confirm feasibility for 60 MW. Some substation upgrades including a new feeder bay, protection, and communication works would be required.

Option 2 – 110 kV Connection:

Involved a new 7 km 110 kV feeder from SSBDS to the site. Expected to accommodate the full 60 MW capacity with associated substation, protection, and communication upgrades.

Due to the increase of generation capacity to 73 MW Option 1 is no longer considered to be viable.

3.3.3.2.2 Detailed Enquiry

Energex has undertaken a Site Specific Connection Assessment and confirmed that a viable grid connection can be achieved via a 110 kV connection to the Beaudesert Bulk Supply Substation (SSBDS). This involves the construction of a new 110 kV feeder from the Beaudesert Substation (Enterprise Drive, Beaudesert) to the proposed site, over an approximate distance of 7–8 km. Works would include upgrades within the substation, installation of connection and isolation equipment, and associated protection, communications, and system management infrastructure to ensure safe and reliable operation.

It is anticipated that the connection would be established as an overhead line. The connection is expected to use timber pole overhead distribution infrastructure similar to the existing line shown in Figure 6.



Figure 6: Example of existing overhead powerlines

3.3.3.3 On site Substation

The site will include an on-site substation to facilitate the necessary on-site HV switchgear and protection systems to ensure safe and reliable integration with the local electricity network. This on-site substation has been positioned near the northern boundary of the site, clear of main operational areas and closer to the off-site electrical easement.

3.3.3.4 Earthing and Lighting Protection

The earthing system shall be designed to achieve safe step and touch voltages at the site and vicinity when there is a fault at the 110kV system. The maximum fault current and primary and back up fault clearing times at the BDS will be taken from Energex.

3.3.3.5 *Essential Services (Emergency Power Supply)*

The BERC design includes provision for a least one 5 MW emergency diesel generator (EDG) to maintain critical systems and bring the facility to a safe shutdown in the event of a power failure and the plant is not operating in Power Island mode (Note: Specific redundancy requirement for the EDG to be assessed during Basic Design). The EDG(s) is sized to supply all essential safety, environment protection and plant preservation systems such as boiler feedwater pumps, air compressor, ID fan auxiliary motor, bottom ash vapour extraction fans, Uninterruptible Power Supply (UPS) batteries etc. independently of the external power network. In addition, the Distributed Control System (DCS) and CEMS will be connected via the UPS.

In addition to the EDG(s), the BERC power generation system will be designed to operate in Power Island mode, when technically feasible to do so. In general, this enable the BERC facility to disconnect from the external grid and continue operating using its own steam turbine generator to meet the internal electrical demand.

In combination with system/equipment redundancy provisions, these measures will enable the BERC facility to maintain safe operation, environmental compliance and protection of personnel and assets in the event of grid disturbance or loss of supply.

3.4 **Communications**

3.4.1 **Existing Infrastructure**

There is no existing communication connection to the site. Telstra cabling is present along Beaudesert Boonah Road.

3.4.2 **Proposed Infrastructure**

NBN connection is available to the site via sky muster satellite. This would require the installation of a roof satellite dish on the premises. Communications connection will be defined further by the detailed designer.

An NBN connection is available to the site via the Sky Muster satellite service. Establishing this connection would require the installation of a satellite dish on the building roof. The final communications strategy, including connection type and location, will be confirmed during the detailed design phase.

Although Telstra cabling is present along Beaudesert Boonah Road, the suitability of a direct connection to the site is currently unknown. As such, a satellite NBN connection is recommended at this stage.

3.5 **Gas**

No gas service is required for the construction or operation of the proposed facility. Back-up services will be diesel powered with proposed diesel tanks shown on the site plan.

4. Roadworks

4.1 Internal Roads

The internal road network has been designed to facilitate safe and efficient access throughout the BERC facility site. This network will accommodate the movement of staff, waste and service vehicles associated with facility operations.

The main site access point is located at the north-western corner of the site adjoining Beaudesert Boonah Road. Upon entry onto the site, the internal road network provides direct connections to the visitor and staff carpark and the operational areas of the facility (limited access). The site arrangement establishes a ring-road layout that facilitates the desired sequencing of on-site operational arrangements. This arrangement promotes the safe and efficient movement of vehicles from the main entry and through the site. Additionally, the site arrangement avoids where practicable conflict points between service/waste trucks, employees, visitors and pedestrians.

To enhance traffic flow and safety, one-way movement has been prioritised throughout the internal road network. Additionally, the design incorporates separation of light and heavy vehicles where feasible to minimise conflict points and improve operational efficiency.

Vehicle tracking analyses have been undertaken to ensure the road design accommodates the largest anticipated design vehicles for critical sections of the network. These assessments confirm that turning radii, lane widths, and road alignments are suitable for safe manoeuvring of waste delivery trucks and other heavy vehicles.

Key road and cross-section parameters are provided in Table 4.

Table 4: Road Design Criteria

Design Criteria	Requirement
Design Vehicle	B-Double (checking for A doubles)
Design Speed	20 km/hr
Posted Speed	10 km/hr
Road Width (Main Access Road)	6.0 m typical lane width + curve widening where necessary using vehicle tracking Min 6.0 m width around perimeter of EfW building.
Parking Aisle Width	Min 6.2 m
Parking Bays	Min 5.4 m long x 2.5m wide
Footpath provision	Min 1.5 m width adjacent to parking spaces and pedestrian routes
Earthworks Batters	Typically 3H:1V un-reinforced slope unless noted otherwise

Road layout, typical cross sections, long sections, vehicle tracking and pavement details are provided in the infrastructure drawing package. Road designs and site grading will be further developed and optimised as part of the detailed design process.

4.1.1 Parking

Parking provisions for the BERC have been based on anticipated staff numbers provided by Cleanaway. Further allowances have been made for visitor car parking. It has been assumed that most visitors will be part of educational groups who will arrive via private coach or bus. The parking provisions are summarised in Table 5.

Table 5: Parking Provision

Building	Vehicle Type	Parking Provision
Main facility	Car	60 spaces
	Shuttle bus / Coach	1 space (drop/off-pick-up)
Adjacent to Administration Building	Car	8 spaces including 3 accessible
IBA area	Car	7 spaces including 2 accessible
APCr area	Car	5 spaces
Decoupling area	Car	10 spaces
Substation	Car	3 spaces

Parking spaces are min 5.4 m long x 2.5 m long in accordance with AS 2890.1.

4.2 Site Access

The Project has sole frontage to Beaudesert Boonah Road (State-controlled road). A new signalised intersection is proposed at Beaudesert Boonah Road and Recycling Street (refer Figure 7). Access is obtained via the north-western corner of the site to facilitate safe vehicle movements to the site and the broader SDA. The establishment of the intersection will ultimately reduce the speed limit along the fronting section of Beaudesert Boonah Road to 70 km/h.

The location and design of the proposed signalised access arrangement is in alignment with the preliminary engagement with TMR. It is considered the most suitable solution due to the sufficient provision of sight distance and turning lane requirements, and the allowance for potential future widening of Beaudesert Boonah Road. Importantly, the provision of the signalised intersection allows for future consolidation of access points along Beaudesert Boonah Road, providing a benefit to the SDA precinct.

Please refer to the *Traffic Impact Assessment* prepared by Arup for further information.

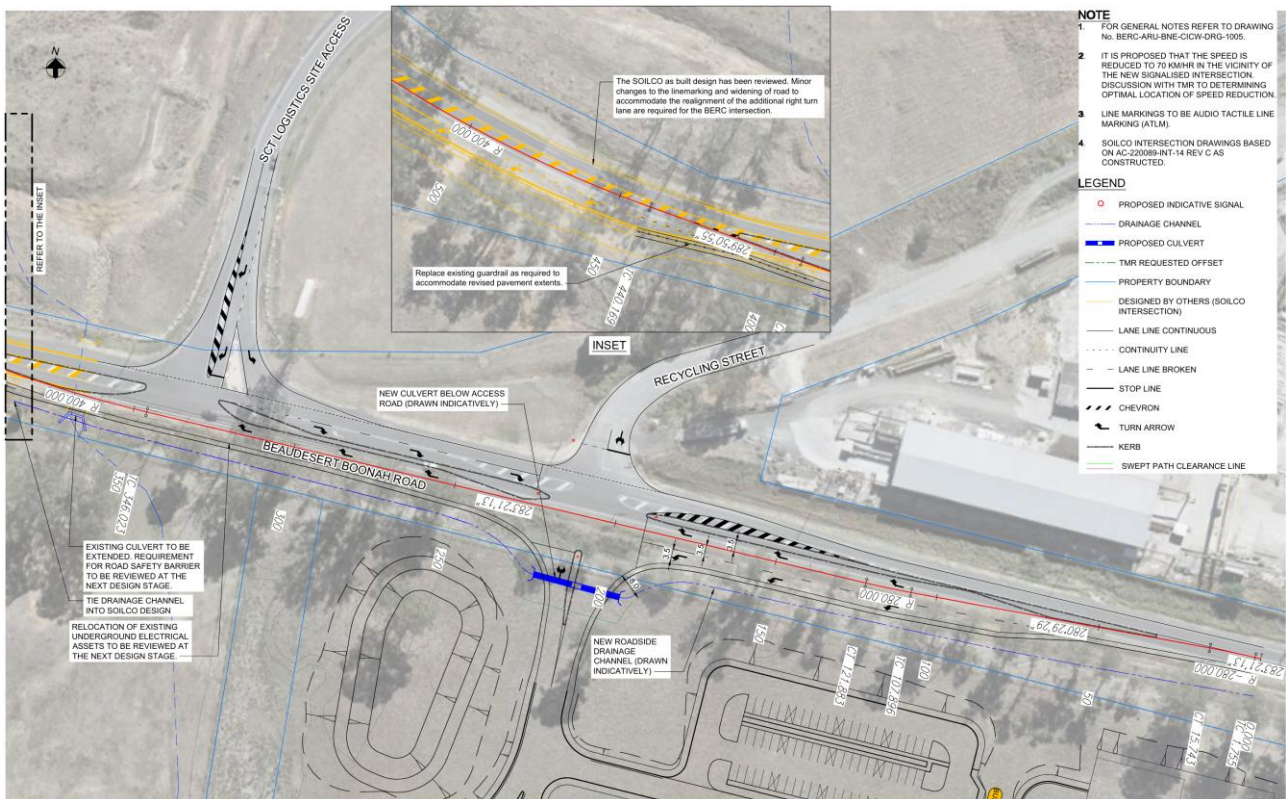


Figure 7: Site Access

5. Conclusion

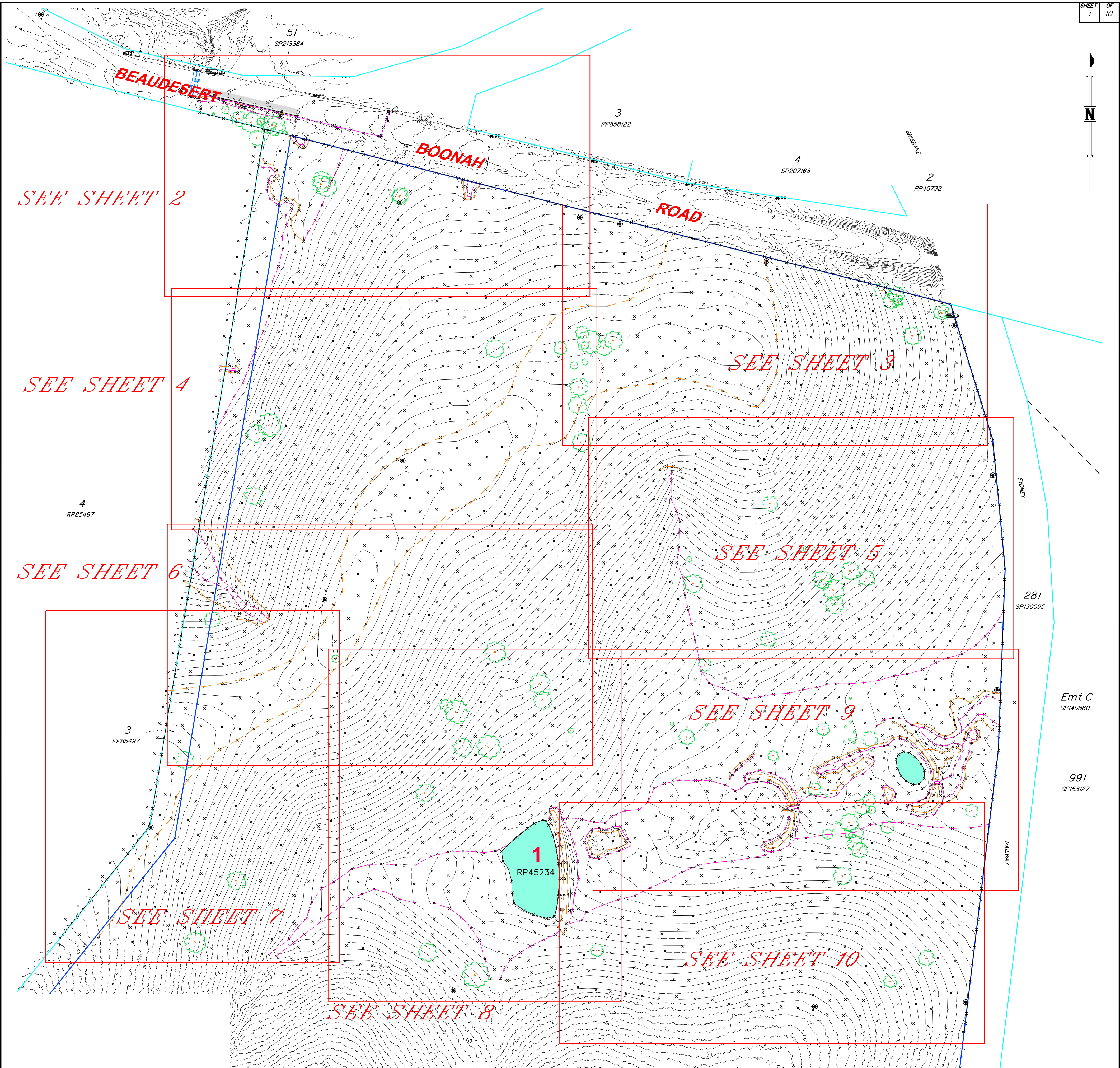
This Engineering Report has provided key information relevant to the engineering design of the BERC, covering earthworks, infrastructure servicing, and road design. It is intended to be read alongside the *Stormwater Management Plan and Flood Risk Report* and *Traffic Impact Assessment*.

The key engineering outcomes include:

- **Bulk Earthworks:** A balanced cut and fill approach tailored to the site's varied topography, with engineered batters, retaining walls, and revegetation ensuring slope stability and erosion control.
- **Water Supply:** Connection to an extended Urban Utilities' DN375 water main with integrated provisions for rainwater reuse.
- **Wastewater Management:** On-site sewer holding tanks are proposed due to the absence of nearby sewer infrastructure, with future connection to Urban Utilities' precinct gravity sewer identified as the preferred long-term solution.
- **Electricity:** The facility will be supported by a 110 kV grid connection and on-site substation, providing an estimated net power output of 73.2 MWe, supplemented by emergency generators and fault protection systems.
- **Communications:** Satellite NBN is the recommended connectivity solution, with Telstra cabling as an alternative subject to further assessment.
- **Gas Infrastructure:** No gas services are required for the site.
- **Internal Road Network:** Designed to ensure safe and efficient traffic movement. The design includes dedicated parking for staff and visitors.
- **Site Access:** Access to the facility will be via a new four-way signalised intersection at Recycling Street. Refer to the *Traffic Impact Assessment* for additional information.

These findings support the feasibility and practical design of the BERC project, aligning with operational requirements and site constraints.

Appendix A Topographic Survey



PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457
Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

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LINETYPE LEGEND

- STORM WATER
- UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE

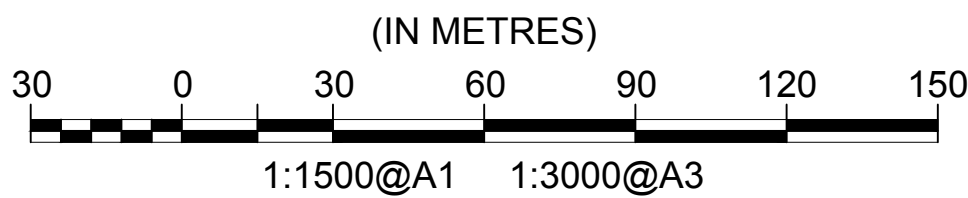
HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

SYMBOL LEGEND

- EPP - Denotes Electricity Power Pole
- * - Denotes Light Pole
- Denotes Telstra Pit
- Denotes Sign
- Denotes Electricity Pit

GRAPHIC SCALE



GENERAL NOTES

- Date of field survey: 28/04/23 RA
- Lot dimensions compiled from IS119852
- Contour interval 0.5m

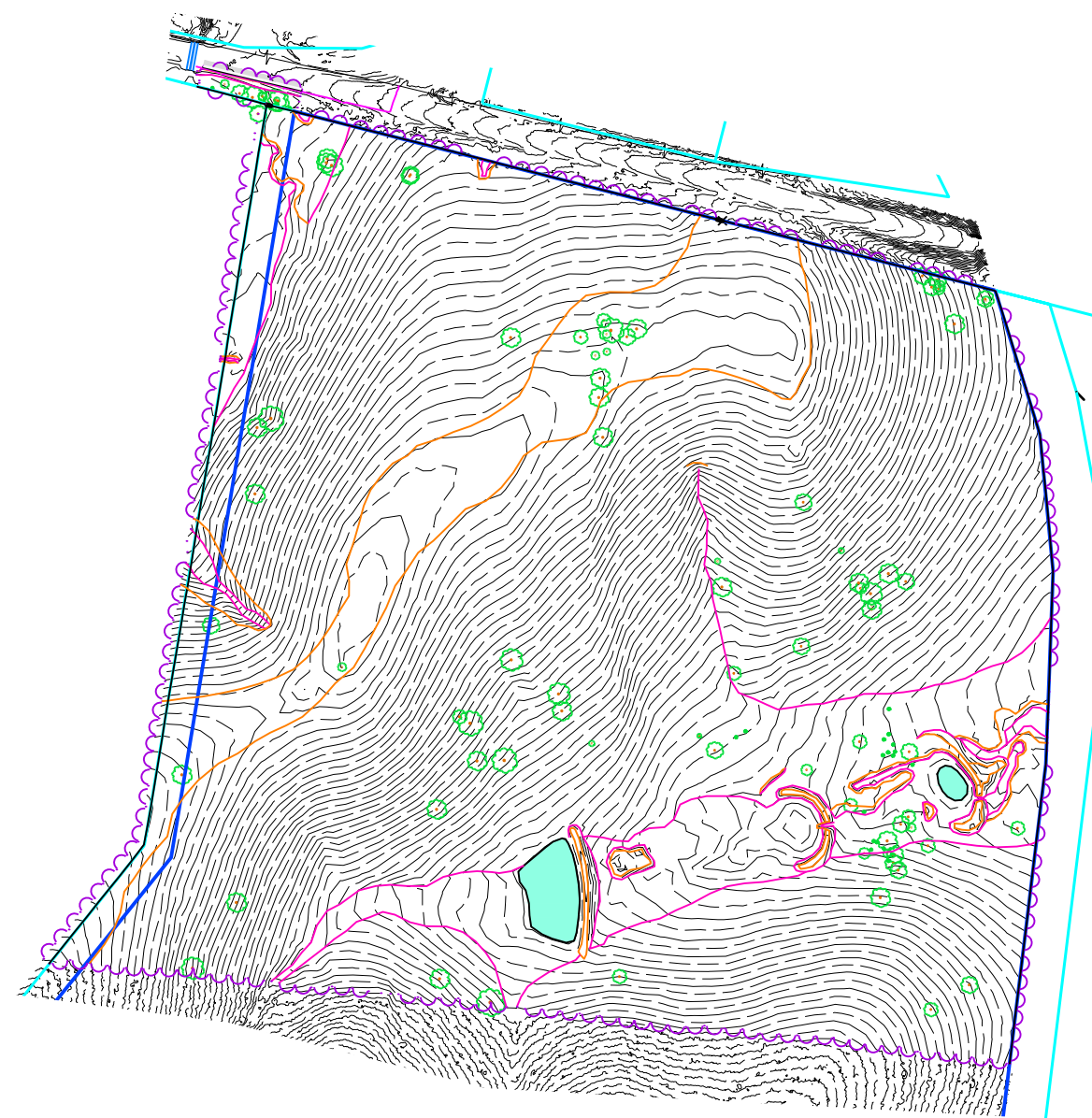
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EXTENT OF GROUND SURVEY

SCALE 1:5000

LINETYPE LEGEND

- Denotes Area of Ground Survey
- All areas outside of this line have been surveyed by Aerial LIDAR



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IMPORTANT NOTE:
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Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

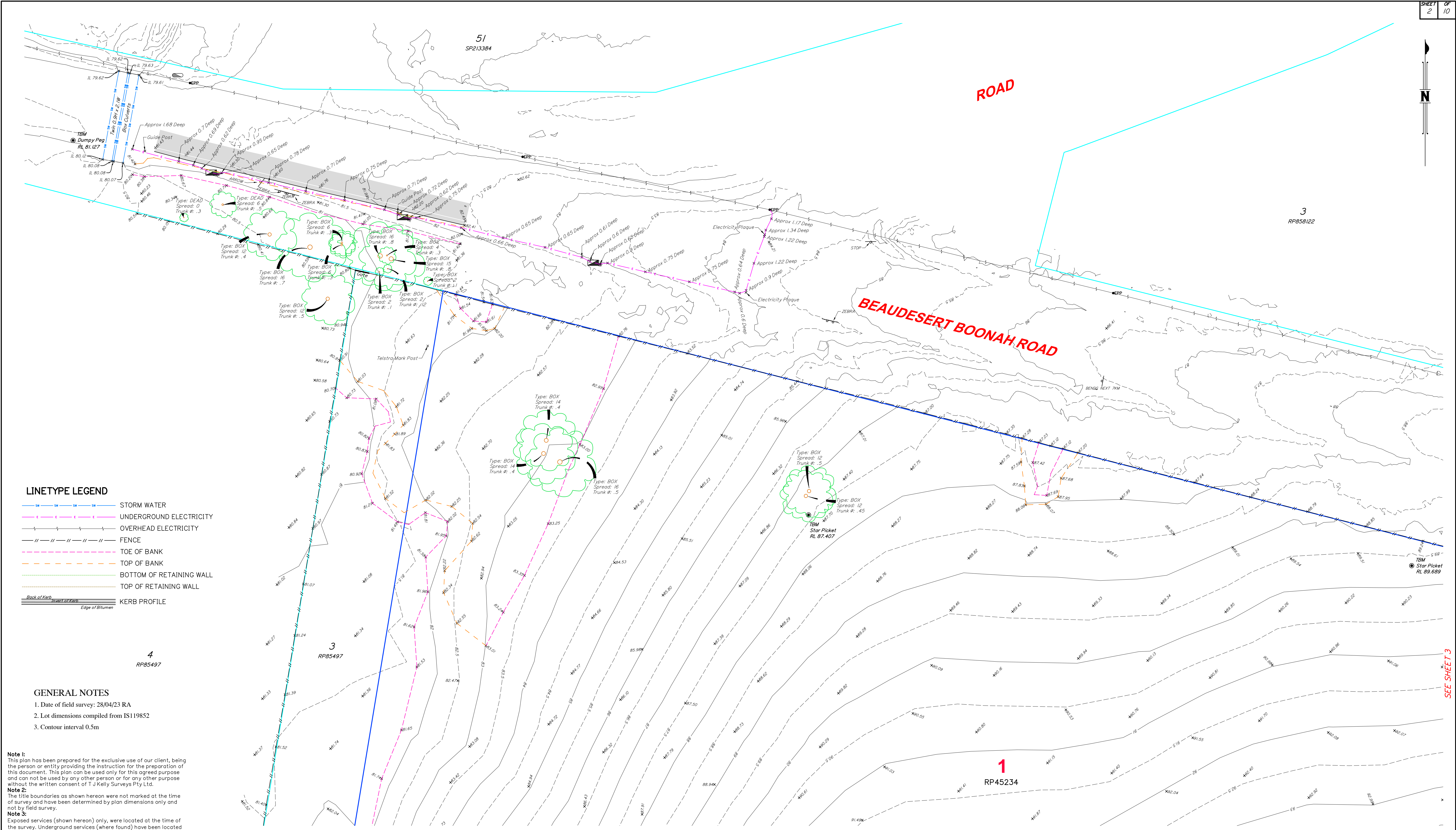
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JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:1500
Drawing Number	4577-02

LEVEL DATUM	AHD FROM PSM 163769 R.L. 43.457m
MERIDIAN:	MGA2020 Zone 56 Wide SmartNetAus
LOCAL AUTHORITY :	Scenic Rim R.C.



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Phone: (07) 5541 4722
Facsimile: (07) 5541 4723
Email: admin@tkelly.net.au
Web: www.tkelly.net.au



LINE TYPE LEGEND

---	STORM WATER
---	UNDERGROUND ELECTRICITY
---	OVERHEAD ELECTRICITY
---	FENCE
---	TOE OF BANK
---	TOP OF BANK
---	BOTTOM OF RETAINING WALL
---	TOP OF RETAINING WALL
---	KERB PROFILE

GENERAL NOTES

1. Date of field survey: 28/04/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

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HATCH LEGEND

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- ⬢ - Denotes Dam

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457 N = 40.367
Geoid-Spheroid Separation (N)	
Scale factor (To Grid)	0.999581341

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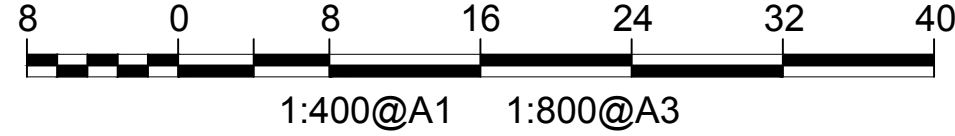
PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

IMPORTANT NOTE:
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GRAPHIC SCALE
(IN METRES)



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**Beaudesert Boonah Road
Bromelton**

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:400

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Wide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.



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Web: www.kellynet.com.au

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

HATCH LEGEND

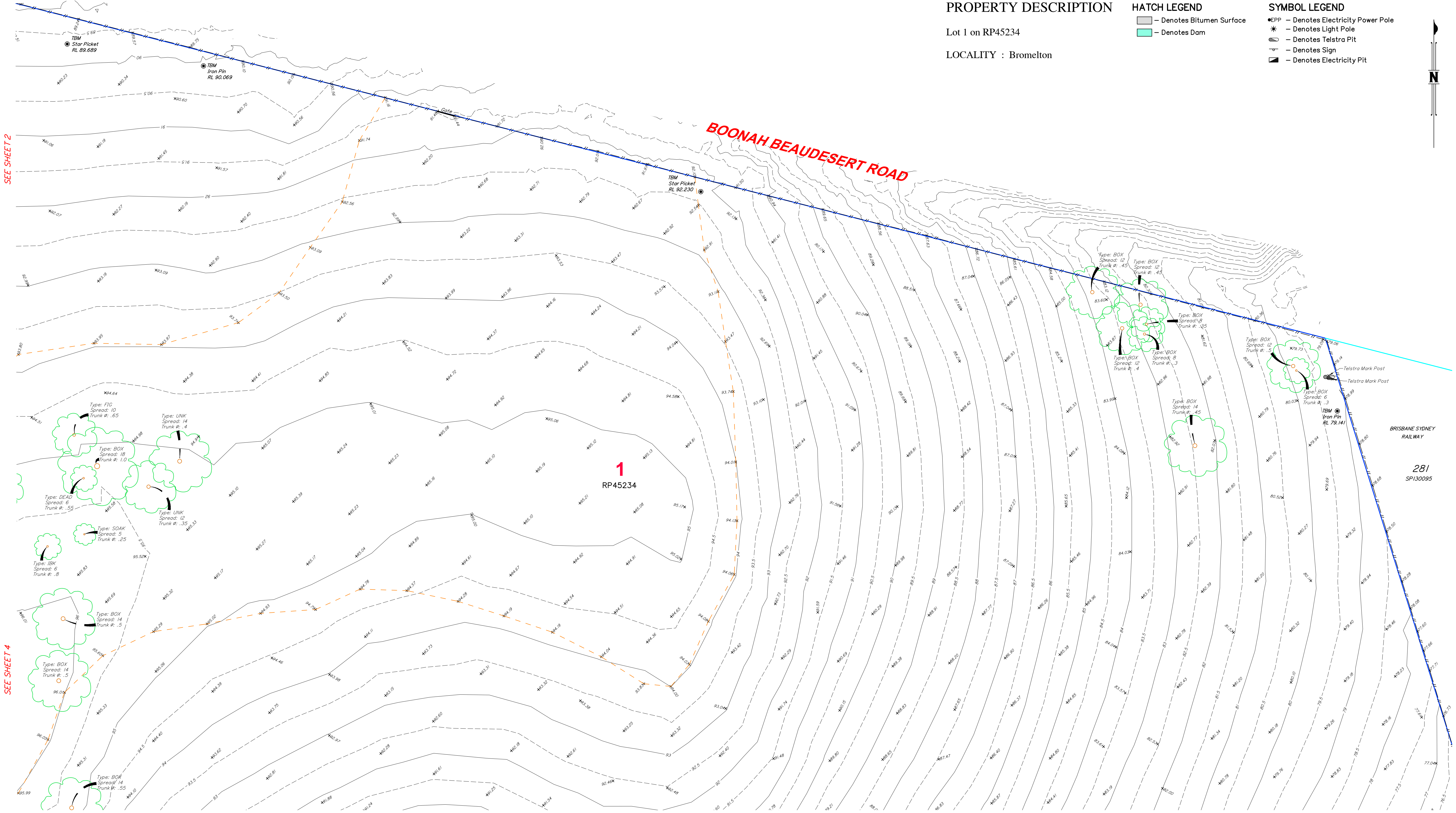
- Denotes Bitumen Surface
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SEE SHEET 2



SEE SHEET 5

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- KERB PROFILE

MGA Coordinate System Datum Information	
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Geodetic Datum	GDA2020
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Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457 N = 40.367
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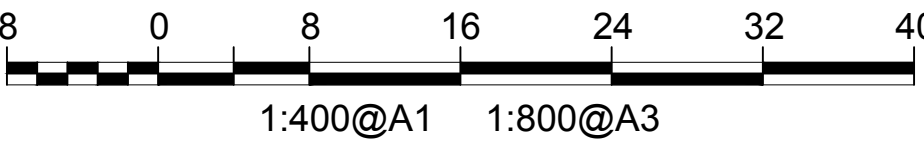
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GENERAL NOTES

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- Lot dimensions compiled from ISI19852
- Contour interval 0.5m

GRAPHIC SCALE

(IN METRES)



REVISION DETAILS	DATE	INIT
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Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:400

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

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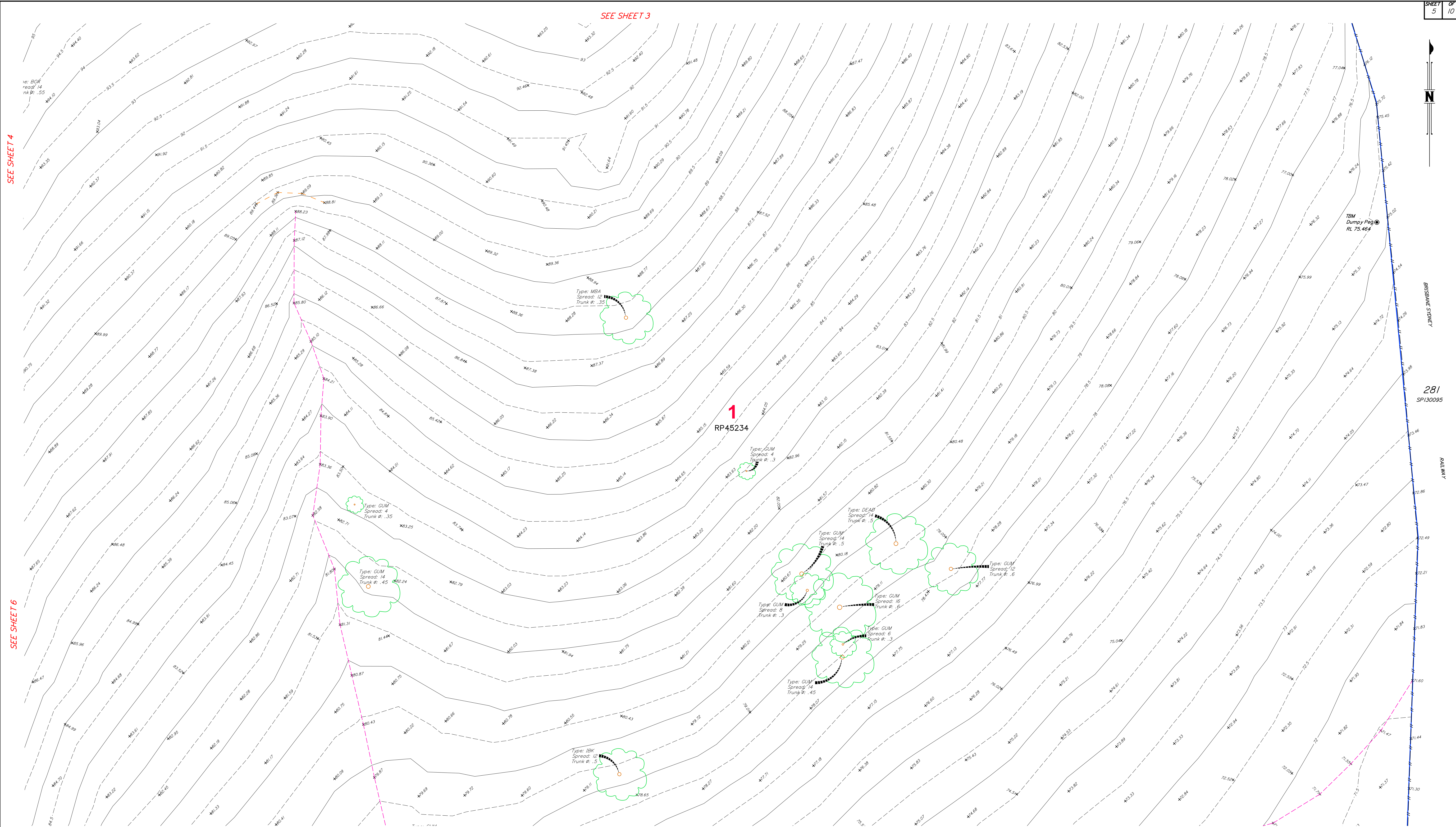
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SEE SHEET 4

SEE SHEET 6

SEE SHEET 3

SEE SHEET 9



HATCH LEGEND

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- Denotes Dam

GENERAL NOTES

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Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

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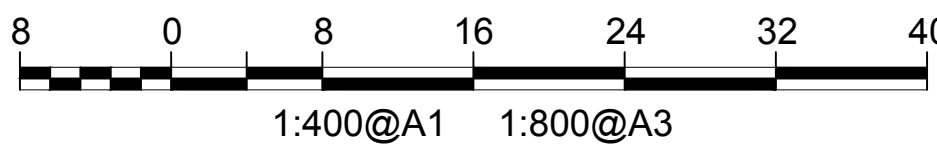
PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

GRAPHIC SCALE

(IN METRES)



Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE: 5/05/2023

JOB NO: 4577

DWG FILE: 4577-02

DRAWN: AD

CHECKED: AD

Scale: 1:400

Drawing Number: 4577-02

LEVEL DATUM

AHD

FROM PSM 163769

R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Wide SmartNetAus

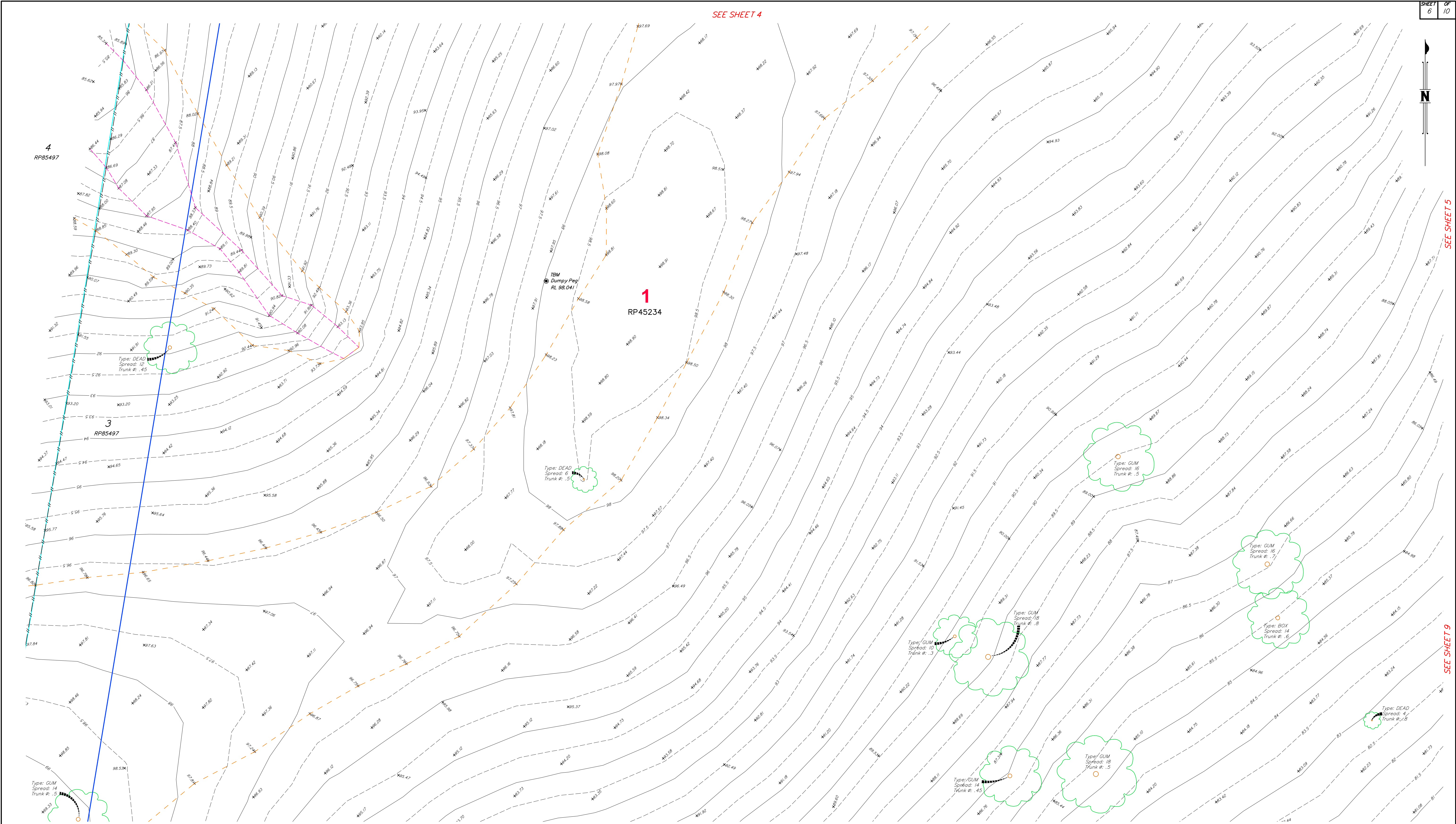
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ORIGINAL ISSUE	5/05/2023	AD



SEE SHEET 7

SEE SHEET 8

SEE SHEET 5

SEE SHEET 9

- HATCH LEGEND**
- Denotes Bitumen Surface
 - Denotes Dam

- GENERAL NOTES**
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 - Lot dimensions compiled from IS119852
 - Contour interval 0.5m

Note 1:
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- LINETYPE LEGEND**
- STORM WATER
 - UNDERGROUND ELECTRICITY
 - OVERHEAD ELECTRICITY
 - FENCE
 - TOE OF BANK
 - TOP OF BANK
 - BOTTOM OF RETAINING WALL
 - TOP OF RETAINING WALL
 - KERB PROFILE

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457
Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

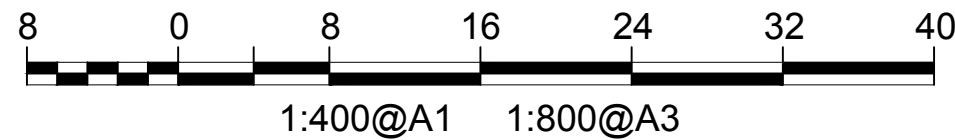
SYMBOL LEGEND

- EPP - Denotes Electricity Power Pole
- Denotes Light Pole
- Denotes Telstra Pit
- Denotes Sign
- Denotes Electricity Pit

IMPORTANT NOTE:
This plan is presented at a scale of 1:1. To convert to MGA Coordinates scale all data around TBM A (Not Shown)(492094.496, 6905859.412) by a scale factor of 0.999581341

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GRAPHIC SCALE
(IN METRES)



**Beaudesert Boonah Road
Bromelton**

Cleanaway Operations Pty Ltd
Detail & Level Survey

DATE: 5/05/2023
JOB NO: 4577
DWG FILE: 4577-02
DRAWN: AD
CHECKED: AD
Scale: 1:400

Drawing Number: 4577-02

LEVEL DATUM

AHD
From PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

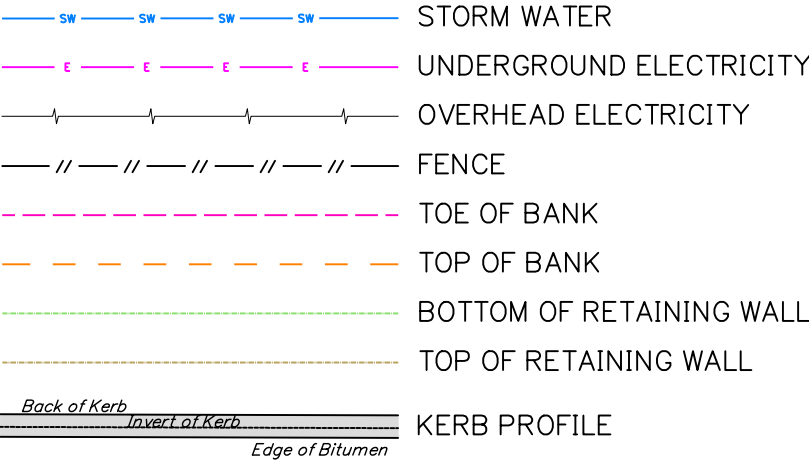
LOCAL AUTHORITY : Scenic Rim R.C.

TJ KELLY SURVEYS PTY LTD
CONSULTING SURVEYORS & TOWN PLANNERS
A.C.N. 608 752 417

OFFICE:
111 Beaudesert Road, BEAUDESERT
POSTAL ADDRESS:
PO Box 221 BEAUDESERT 4285

Phone: (07) 5541 4722
Facsimile: (07) 5541 4723
Email: admin@tkj.com.au
Web: www.kellynet.com.au

LINETYPE LEGEND



SYMBOL LEGEND

- EPP - Denotes Electricity Power Pole
- * - Denotes Light Pole
- - Denotes Telstra Pit
- ⊥ - Denotes Sign
- - Denotes Electricity Pit

HATCH LEGEND

- - Denotes Bitumen Surface
- - Denotes Dam

GENERAL NOTES

1. Date of field survey: 28/04/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

4
RP85497

3
RP85497

1
RP45234

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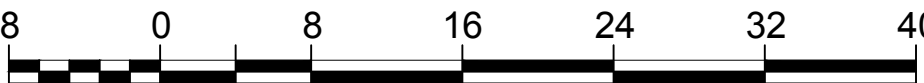
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GRAPHIC SCALE
(IN METRES)



1:400@A1 1:800@A3

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

Baadesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

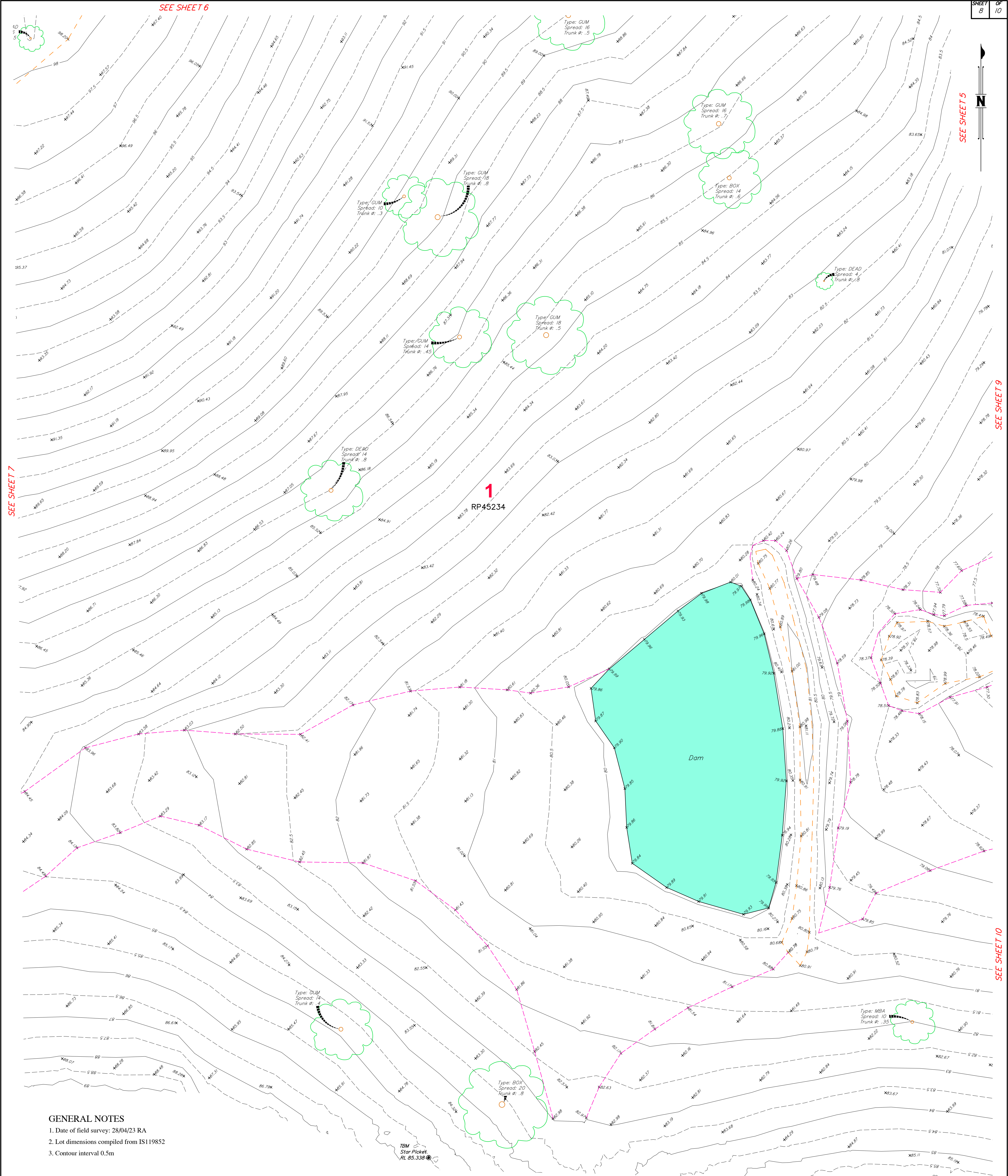
MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.



OFFICE:
111 Brisbane Street, BEAUMESERT
POSTAL ADDRESS:
PO Box 221 BEAUMESERT 4285

Phone: (07) 5541 4722
Facsimile: (07) 5541 4723
Email: admin@tkelly.net.au
Web: www.tkelly.net.au



GENERAL NOTES

1. Date of field survey: 28/04/23 RA
2. Lot dimensions compiled from ISI19852
3. Contour interval 0.5m

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- STORM WATER
- UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
Geoid-Spheroid Separation (N)	RL: 83.457
	N = 40.367
Scale factor (To Grid)	0.999581341

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

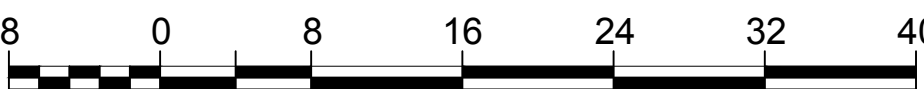
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SYMBOL LEGEND

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- Denotes Telstra Pit
- Denotes Sign
- Denotes Electricity Pit

GRAPHIC SCALE

(IN METRES)



—	ORIGINAL ISSUE	5/05/2023	AD
AMT	REVISION DETAILS	DATE	INIT

Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

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A.C.N. 098 752 417

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Phone: (07) 5541 4722
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Email: admin@tkellysurveys.com.au
Web: www.tkellysurveys.com.au

SEE SHEET 6

SEE SHEET 5

SHEET 9 OF 10

SEE SHEET 8

281
SP130095

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GENERAL NOTES

1. Date of field survey: 28/04/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

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- KERB PROFILE

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MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457
Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

PROPERTY DESCRIPTION

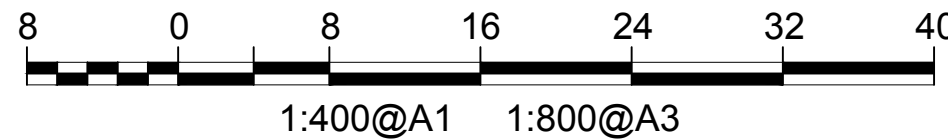
Lot 1 on RP45234

LOCALITY : Bromelton

HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

GRAPHIC SCALE (IN METRES)



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Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd
Detail & Level Survey

DATE: 5/05/2023
JOB NO: 4577
DWG FILE: 4577-02
DRAWN: AD
CHECKED: AD
Scale: 1:400

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Wide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

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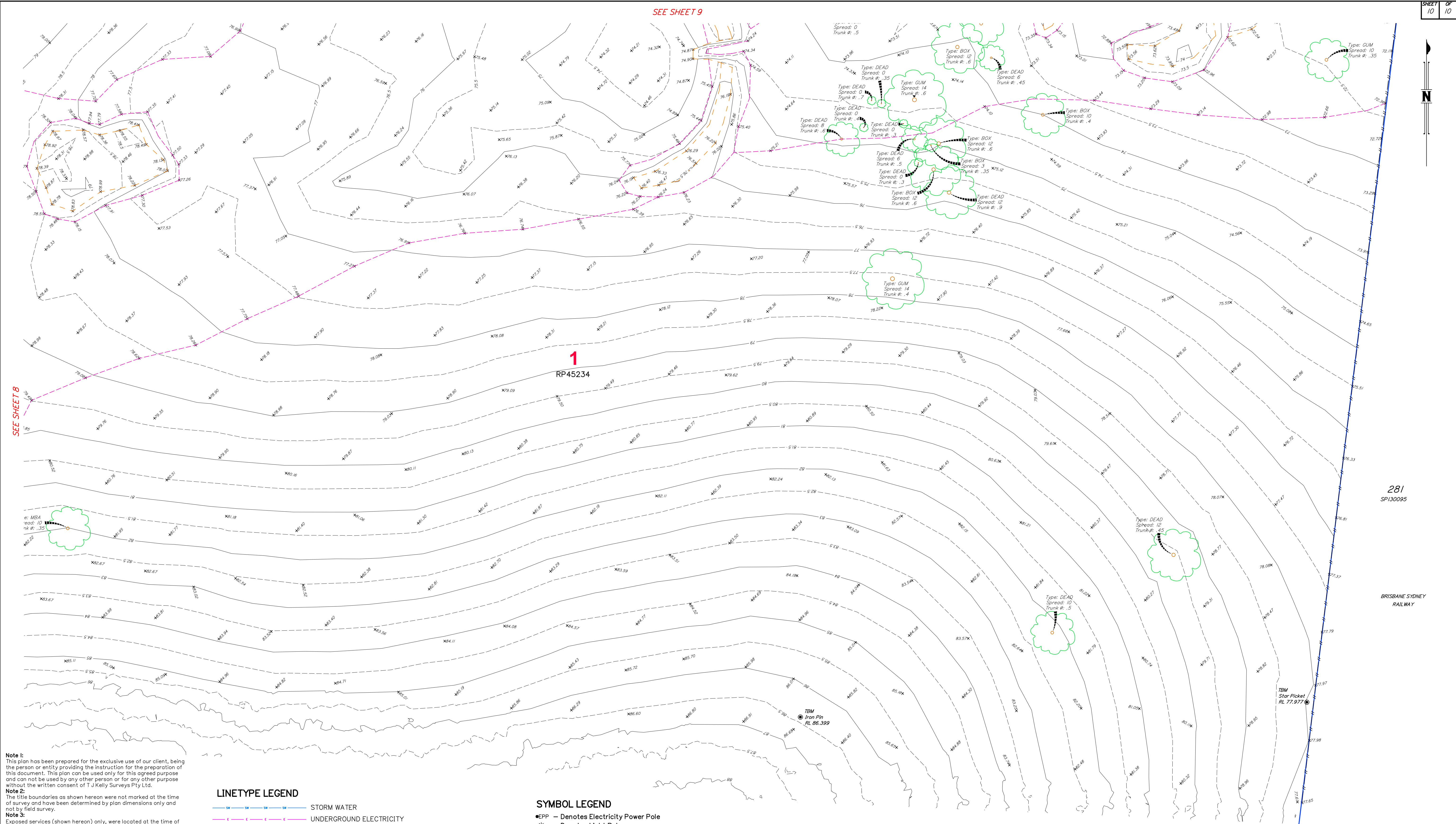
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Phone: (07) 5541 4722
Facsimile: (07) 5541 4723
Email: admin@tjkelly.com.au
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SEE SHEET 9

SEE SHEET 8



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- Denotes Sign
- Denotes Electricity Pit

HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

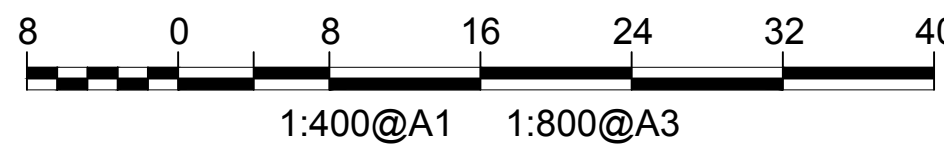
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Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM I63769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid-Spheroid Separation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

IMPORTANT NOTE:
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GENERAL NOTES

- Date of field survey: 28/04/23 RA
- Lot dimensions compiled from IS119852
- Contour interval 0.5m

GRAPHIC SCALE
(IN METRES)



Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02
DRAWN	AD
CHECKED	AD
Scale	1:400

Drawing Number
4577-02

LEVEL DATUM

AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.



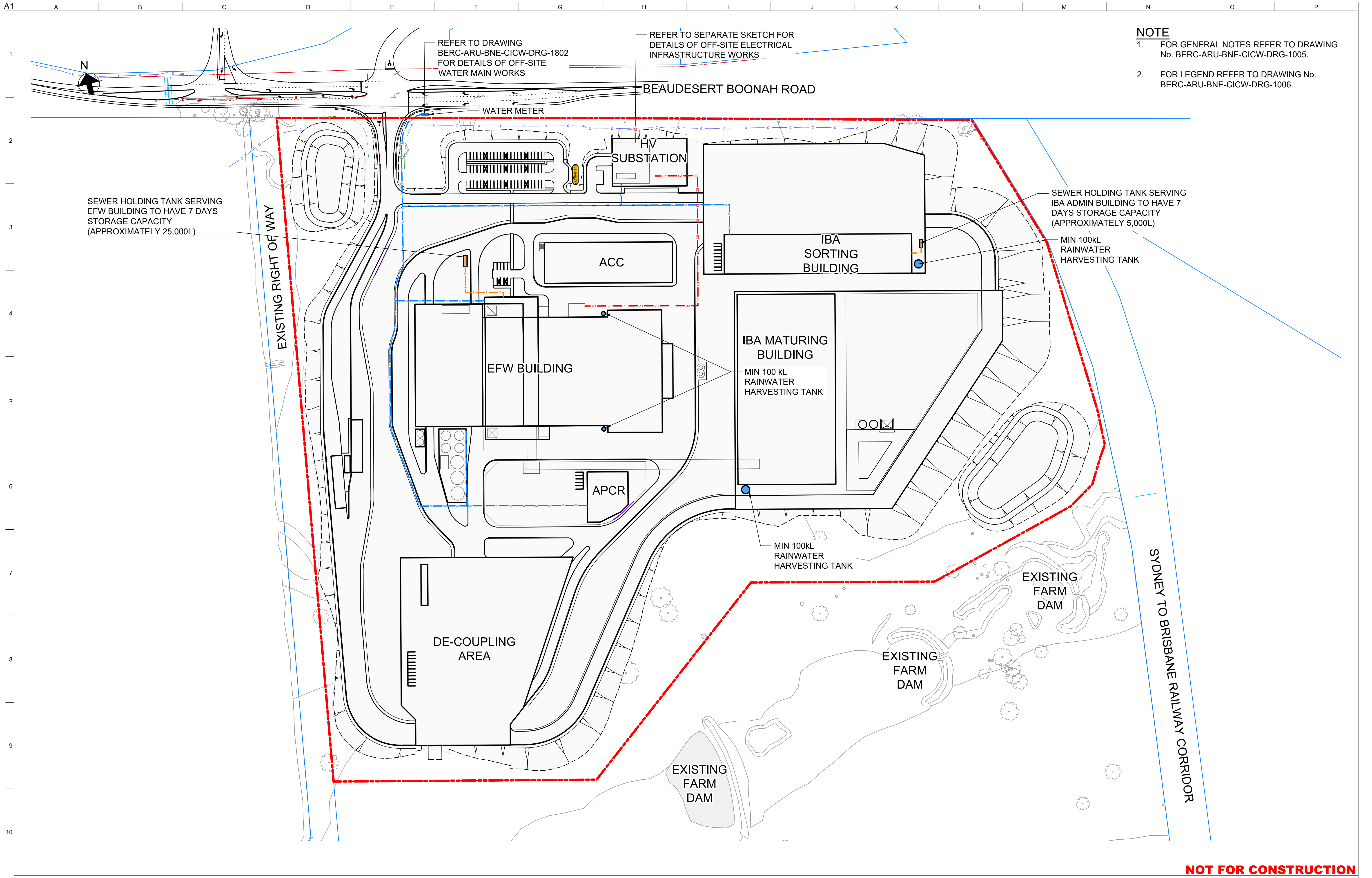
OFFICE:
111 Brisbane Street, BEAUDESERT
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REVISION DETAILS	DATE	INIT
ORIGINAL ISSUE	5/05/2023	AD

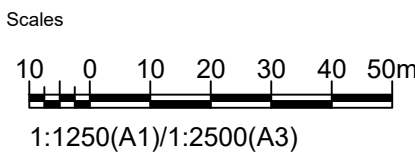
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Appendix B Infrastructure Design Drawings



- NOTE**
- 1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
 - 2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

NOT FOR CONSTRUCTION



Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
Issue	Date	By	Chkd	Appd

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: _____ Date: _____

Signature: _____

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:1250m

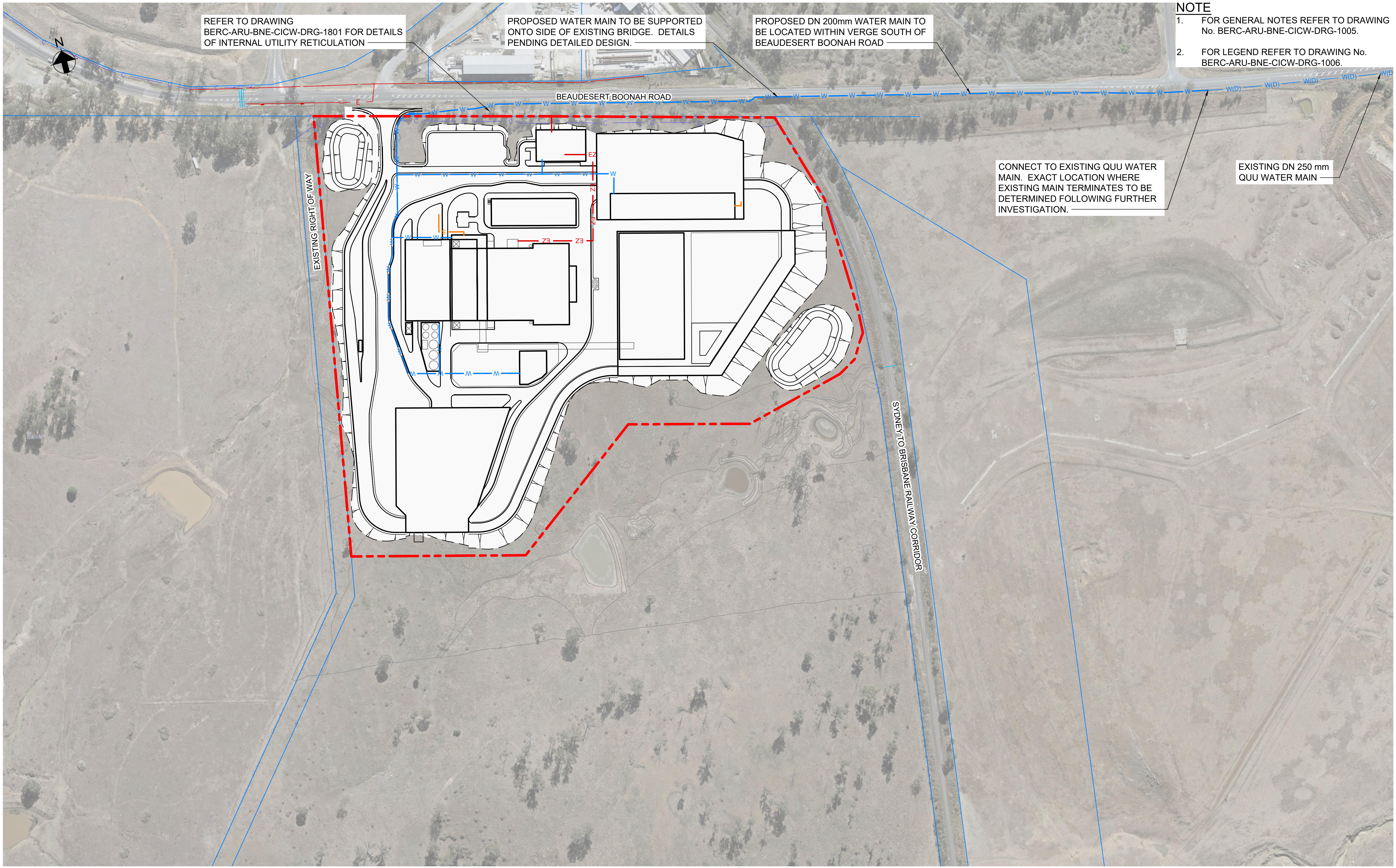
Discipline **CIVIL**

ARUP

Arup, Level 5, 151 Clarence St
Sydney, NSW, 2000
Tel +61 (02) 9320 9320 Fax +61 (02) 9320 9321
www.arup.com

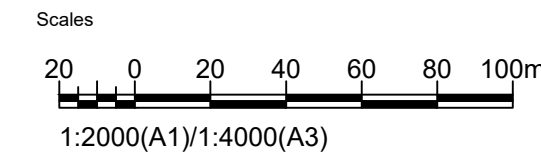
CONSULT AUSTRALIA
Member Firm
Arup Pty Ltd
ABN 18 000 966 165

Drawing Title UTILITIES PLAN		
Drawing Status FOR APPROVAL		
Job No 293683-00	Drawing No BERC-ARU-BNE-CICW-DRG-1801	Issue C



NOTE
1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

NOT FOR CONSTRUCTION



Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
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DRAFT FEED ISSUE				
Issue	Date	By	Chkd	Appd

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: _____ Date: _____
Signature: _____

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1
1:2000m

Discipline
CIVIL

ARUP

Arup, Level 5, 151 Clarence St
Sydney, NSW, 2000
Tel +61 (02) 9320 9320 Fax +61 (02) 9320 9321
www.arup.com

CONSULT AUSTRALIA
Member Firm
Arup Pty Ltd
ABN 18 000 966 165

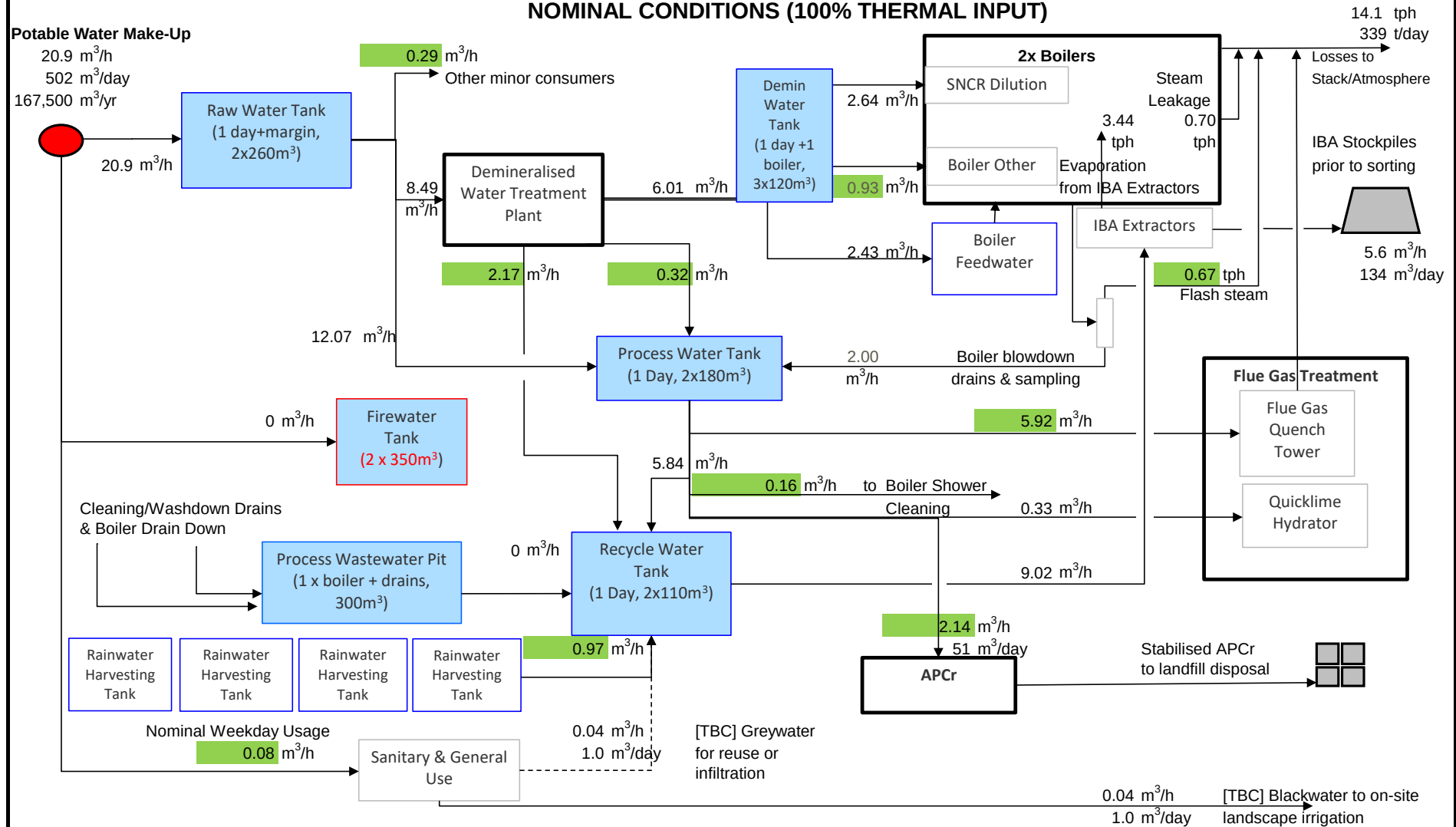
Drawing Title
OFF-SITE WATER AND SEWER PLAN

Drawing Status
FOR APPROVAL

Job No 293683-00	Drawing No BERC-ARU-BNE-CICW-DRG-1802	Issue C
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Appendix C Water Balance

SIMPLIFIED CONCEPTUAL OVERALL WATER BALANCE BLOCK DIAGRAM NOMINAL CONDITIONS (100% THERMAL INPUT)



Notes:

1. This water balance is based on the preliminary conceptual design and is subject to change during detailed design and final equipment & technology selection.
2. The flows are based on nominal operation at 20 deg.C ambient temperature and 100% thermal input, using an indicative feedstock composition at the design CV.

Appendix D UU Service Advice Note

Appendix D1 2023 SAN

21/04/2023

Ian Hustwick
Arup Group
Level 4, 108 Wickham Street
Fortitude Valley Qld 4006
Australia

Via Email: ian.hustwick@arup.com

Dear Ian,

Urban Utilities Services Advice Notice

Urban Utilities application number:	23-SAN-64867
Applicant name:	Arup Group
Street address:	BEAUDESERT BOONAH RD, BROMELTON, SCENIC RIM REGIONAL, QLD 4285
Real Property Description:	Lot 1, RP45234

Proposed service connection/alteration/disconnection type:

Drinking water	☒
Non-drinking water/recycled water	☒
Wastewater	☒

Urban Utilities provides this Services Advice Notice in response to the request received on 13/03/2023. In accordance with section 99BRAC(3) of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, this Services Advice Notice provides advice about the proposed connection having regard to the connections policy in the Urban Utilities Water Netserv Plan, the charges and conditions that may apply to the connection and other relevant matters about the connection. All terms used in this Services Advice Notice are defined by reference to the Urban Utilities Water Netserv Plan.

Further, infrastructure information may not be verified, and Urban Utilities provides no warranty or assurance that this information is correct. Independent on-location site inspections are recommended to verify the location, condition and size of any infrastructure.

This Services Advice Notice does not constitute an application for connection, is not an approval to connect to the Urban Utilities network(s) and does not bind any future Urban Utilities' decision if the applicant applies for a connection.

Urban Utilities understands that the proposed development will consist of a potential waste to energy facility.

Based on your proposal and discussion with Urban Utilities officers, the following advice is provided:

Urban Utilities Services Advice

Infrastructure and Design

Urban Utilities understand that Cleanaway operations are planning on developing an energy from waste facility at Lot 1, RP45234 Beaudesert-Boonah Rd, Bromelton. The facility will require between 180- 200m³ of water per day which can be either potable or class b water as additional water processing will be done on site regardless. Potable water access and sewer access will also be required for staff/visitors.

The key requirements forming part of this request are listed below:

- 180-200m³ of potable/class B water/day.
- Potable water access for staff - kitchens, showers, toilets etc.
- Sewer access for staff/visitors

Urban Utilities have reviewed the request and provide the following information.

Water

1. There is an existing DN375 DI main which generally follows the Beaudesert Boonah road alignment terminating to the east of the subject site in Waste Facility Rd. Figure 1 provides reference to the main with respect to the subject site.

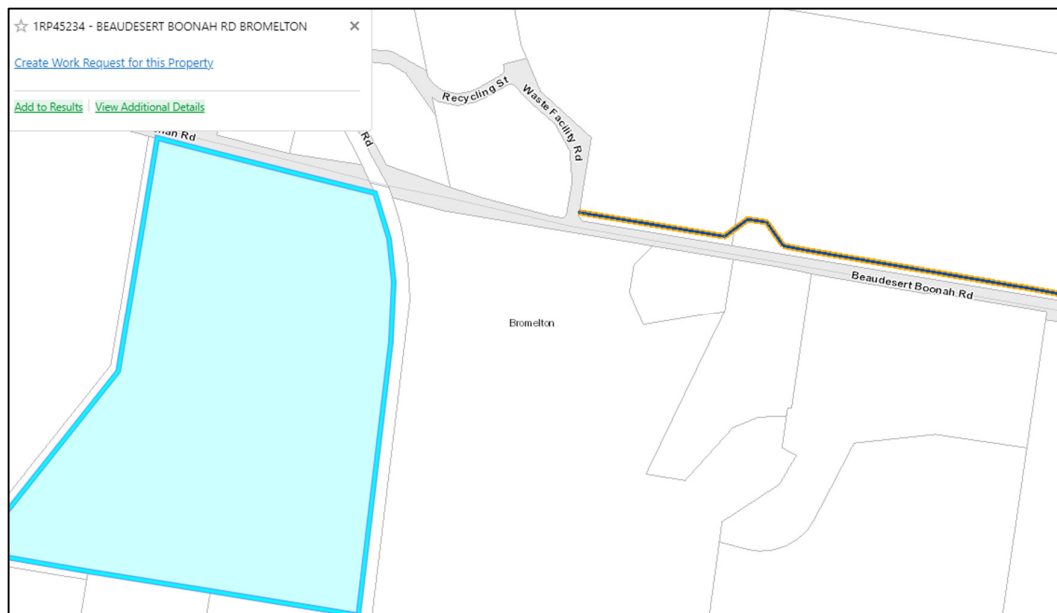


Figure 1: Existing infrastructure within the vicinity of the subject site

2. The existing water main was built in 2018 in anticipation for Bromelton industrial connections although there are no customer connections to date and UU have since

disconnected the main near 1RP181580. Figure 2 represents the location of current disconnection

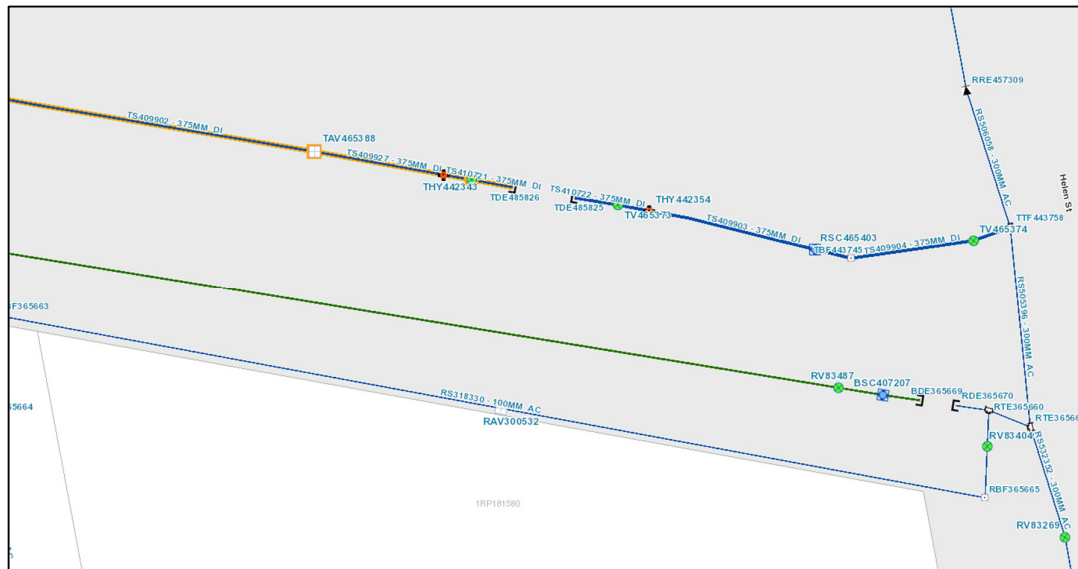


Figure 2: Existing DN375 disconnection

3. A connection to the existing potable water network to would require reconnection and commissioning of the existing water main. Given the asset has remained dormant for some time, it would be expected that quality testing (bacterial testing) would be required through this commissioning process.
4. The existing water main is considered to contain a water volume of approximately 696m³. Assuming the proposed water use is drawn from the existing potable network turnover of the main would only occur every 3-4days. The primary source of water for the region is the existing Helen St WTP facility owned and operated by SEQ Water. Advice from SEQ Water should be sought to verify the anticipated quality of water expected from the point of connection.
5. A proposed demand use of 200m³/day translates to a continuous demand of 2.3L/s. Currently there is limited capacity in Urban Utilities existing reticulated network (assuming reconnection of the existing DN375 (Birnam Range supply zone). A capacity of 2.3L/s may be accommodated for however additional modelling would need to be conducted to consider anything further. At this stage modelling indicates that the existing network is unable to accommodate for the desired fire fighting provisions for industrial estates and therefore, any specific fire protection required by building regulations must be made up onsite.
6. Per Urban Utilities water Netserv plan – The Bromelton industrial estate was not anticipated to commence development until 2031. See figure 3 below. Urban Utilities current planning suggests that upon commencing development the Bromelton supply scheme would include an independent supply from the SEQ Water source to a proposed reservoir outlined as BDB-0029 located near the subject site. No detailed planning has been conducted to either verify the feasibility of this plan, and proposed reservoir location.

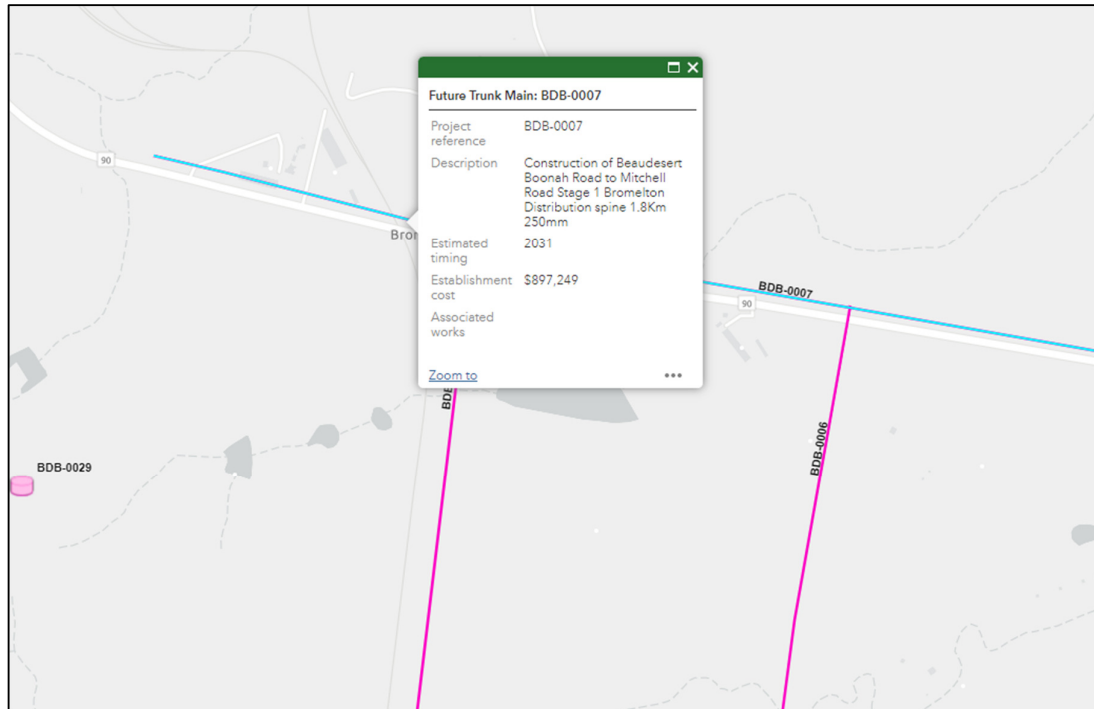


Figure 3: Water Netserv Mapping

7. A hydraulic report will be required upon submission of the proposed development. The assessment will include but not be limited to;
 - An assessment of the network's capacity and the effect the proposed development has on the existing network, including proposed measures to overcome any identified problems;
 - An assessment of any new works required (both internal and external to the proposed development), including an appreciation of the infrastructure needs of nearby existing or future developments;
 - Demonstrate security of supply to the service area; and
 - The assessment has been conducted to demonstrate compliance with the SEQ Code design criteria.

The applicant should contact Urban Utilities prior to commencing any assessment to ensure that the latest information and boundary conditions are considered.

8. Urban Utilities are about to embark on revisiting water supply planning for the Beaudesert/Bromelton region. The plan is intended to further consider phasing of water supply strategies to the Bromelton region and outline key infrastructure requirements. The study is expected to be completed within 18months. It would be recommended that this information be finalised in order to better inform any specific site service solutions for development in the region.

Recycled water

Urban Utilities are interested in partnering with industrial customers for waste water effluent distribution where possible in view of a strategic goal to achieve zero discharge to environment. Existing recycled water lines are available for connection from the Beaudesert Boonah/Local rd

intersection. Treated effluent from the chlorine contact tank is pumped to reuse customers as Class-C recycle water. The effluent pumps are located at the final chamber of the CCTs. See figure 4 below for indicative closet point of connection for recycled water. Further investigation would be required to determine the adequacy of the existing pump station and distribution network to provide recycled water to the subject property.

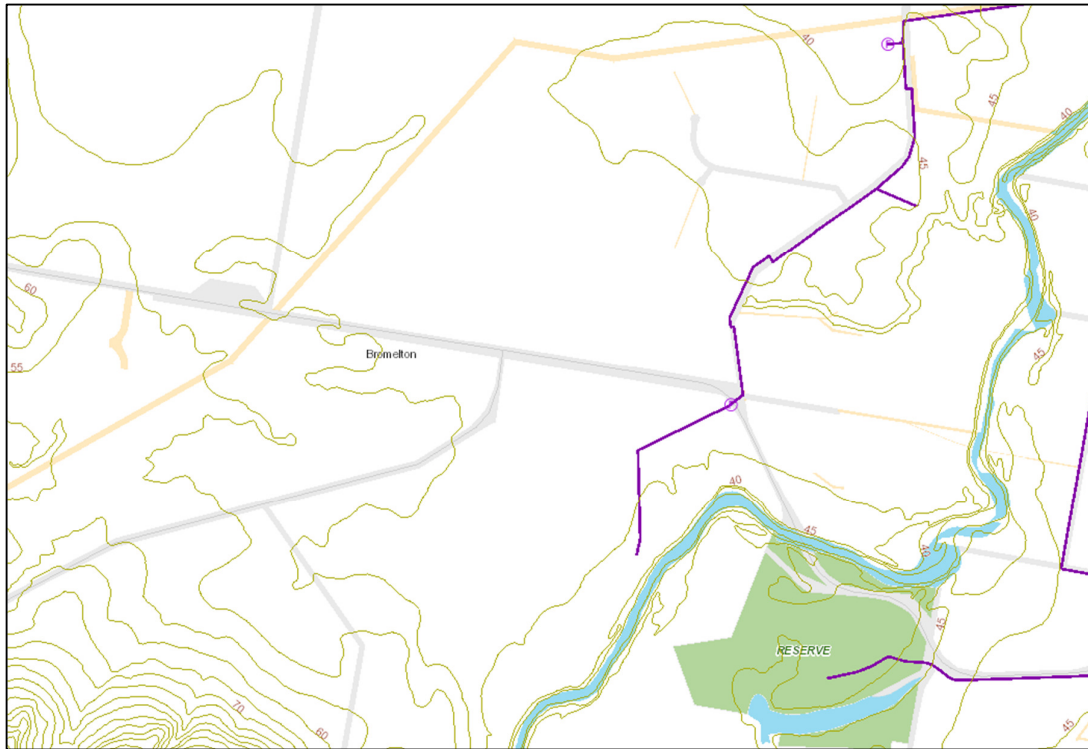


Figure 4: Existing Recycled Line

Wastewater

1. Similar to water supply, development in this region was not anticipated to occur until 2031. Based on this assumption a specific wastewater master plan has been developed which sees the exhaustion of capacity at the existing treatment facility instigating the need for a new treatment facility currently earmarked to be located within the Bromelton area. The new treatment facility was anticipated to be operational well before any growth was realised within the Bromelton development area. The facility would also have been designed making provisions for localised industrial growth. A development sequence which sees development emerging prior to the installation of the new facility presents some challenges in defining suitable interim service configurations.
2. Interim service configurations should seek to minimise the extent of redundant infrastructure required. A connection to the existing sewerage network would require a pump station and pressure rising main directing flow back to the existing sewerage treatment plan. The nominal size of the ultimate transfer main to the new Bromelton STP is DN450 per Netserv.
3. Utilising the proposed transfer may in the interim to temporarily would only be feasible if a contributing load equivalent to approximately 4000ep is available to enable adequate main scouring, and turnover.

To obtain a Trade Waste Approval, the proponent for the proposed development must apply to Urban Utilities, who will assess and decide the application. Any Trade Waste Approval granted

by Urban Utilities will be subject to Trade Waste Approval conditions and the Urban Utilities Trade Waste Environmental Management Plan (**TWEMP**).

The TWEMP and an online application form are available on the Urban Utilities website:

www.urbanutilities.com.au/business/business-services/trade-waste

For advice on the suitability of waste for discharge to sewer, and likely Trade Waste Approval conditions, you may contact Urban Utilities on **13 26 57**.

Proposed trade waste drainage solutions will be assessed for compliance with plumbing and drainage regulations and the requirements of the TWEMP at the time of plumbing compliance assessment. Proposed trade waste solutions that do not meet the requirements in the TWEMP and plumbing and drainage regulations may result in delays to the plumbing compliance process and the issue of a Trade Waste Approval.

Further information is available at the following website:

www.urbanutilities.com.au/business/business-services/trade-waste

Connection Application Process

A formal assessment as to whether your application qualifies as a Standard Connection, Minor Works Approval, or Major Works Approval will be resolved on application for a Water Approval. For the purposes of preliminary advice, and based on the information provided, it is expected that the following applications will be required to assess the ability to connect to Urban Utilities networks:

Major Works (Water and/or Wastewater)

1. Network and/or Property Service Connection – Non Standard Connection (Major Works)

The Water Approval will require connection works to be undertaken. You will be able to choose which consultants and contractors to appoint to design and construct the works, including live works (in most cases) and then maintain the works for a specified period (usually 12 months) in accordance with the conditions stated in your Water Approval.

Please note that the information provided within this section is subject to the specific aspects of the development and water application.

Fees and Charges

Urban Utilities fees and charges are stated in the Urban Utilities' Water Netserv Plan (Part A) Charges Schedule. The fees and charges that are likely to be associated with these applications are outlined below:

1. Application Phase (Minor/Major Works) – per service

Base Application Fee – Property Service Connection

Base Application Fee – Network (1 to 10 lots)

Fast-track application process (1 to 10 lots only)

Base Application Fee – Network (11 to 50 lots)

Base Application Fee – Network (over 50 lots)

2. Design, Construction and Maintenance Phases

Non Standard Connection (Minor Works) – per service
Audit and Compliance Fee – Minor Works

Non Standard Connection (Major Works)- per service
Audit and Compliance Fee – Major Works

Non Standard Connection (Design Approval Fee) – Reticulation per service

Property Service Connection
Network Connection (1 to 10 lots)
Network Connection (11 to 50 lots)
Network Connection (over 50 lots)

Non Standard Connection (Design Approval) – Network Connection Complex Asset

Design Approval – complex asset (price on application)

Re-checking Amended Plans Fee

Re-checking Amended Plans Fee (per plan page, technical report or other document)
Non Standard Connection (Inspection)

Works Inspection Fee – Reticulation per inspection

Works Inspection Fee - Reticulation
Works Re-inspection Fee - Reticulation

Works Inspection Fee – Complex Asset

Works Inspection Fee – Complex Asset \$547 (per inspection)
Works Re-Inspection Fee – Complex Asset \$822 (per inspection)

Notes:

1. The customer may incur additional fees and charges during the approval and works phase, including but not limited to, fees levied by the RPEQ and construction contractor, fees associated with the provision of maintenance/uncompleted works bond(s), re-checking amended plans fees, re-inspection of works fees and infrastructure agreement preparation fees;
2. Reticulation comprises infrastructure with a diameter of 300mm and below and complex assets comprise treatment, storage, pump facilities and infrastructure with a diameter greater than 300mm.
3. The above estimates are indicative only and are subject to review of the detailed application upon lodgement; and
4. Please refer to the Urban Utilities Water Netserv Plan and Developer Customer Price List at www.urbanutilities.com.au/development

Time Frames for Assessment

Non Standard Connection Assessments (for applications other than Standard Connection)

To be completed within 20 business days of receipt of a properly made application (including payment of the relevant assessment fee), or within a further 20 business days of receipt of requested information (unless extended by agreement).

Design Phase

For Major Works

Typically for an application classified as **major works**, the assessment of the design phase is to be completed within 20 business days of receipt of all designs.

Other Guidance

Urban Utilities network is protected by the Development Code MP1.4 Building Over or Near Infrastructure (QDC MP1.4). Please confirm with your Building Certifier whether a Build Over Asset application (BOA) is required.

This Services Advice Notice is current for a period of twelve (12) months from the date of issue. Should you wish to proceed with applying for a service connection please lodge your application via Urban Utilities Developer Applications Portal at **www.urbanutilities.com.au/development**. Please include your Services Advice Notice reference number in your application.

If you have any questions in relation to this Services Advice Notice, please do not hesitate to contact your account manager, Brett Carruthers at brett.carruthers@urbanutilities.com.au.

Alternatively, please email DevelopmentEnquiries@urbanutilities.com.au.

Yours sincerely



Brett Carruthers
Senior Engineer
Urban Utilities

9th July 2025

Anna Stewart
Arup
Level 26/123 Albert Street
Brisbane City QLD 4000
Via Email: anna.stewart@arup.com

Dear Anna,

Urban Utilities Services Advice Notice

This Urban Utilities Services Advice Notice, applies in accordance with section 99BRAC(3) of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009* and has regard to the Water Netserv Plan Connections Policy. This advice is guidance only, is not lawfully binding and does not constitute approval to connect, disconnect or alter Urban Utilities networks. Urban Utilities provides no warranty or assurance that this information is correct. The service network is dynamic and subject to change. Independent site physical investigation are recommended to verify site conditions and the location, condition and size of any existing infrastructure.

Urban Utilities application number:	25-SAN-80778
Applicant name:	Arup
Street address:	BEAUDESERT BOONAH RD, BROMELTON,, QLD 4285
Real Property Description:	Lot 1, RP45234
Services Advice Notice request received:	21/5/2025
Proposed Development:	Industrial – Waste to Energy facility
Service connection/alteration/disconnection proposed:	☒ Drinking water ☒ Wastewater
Development Demand Type:	☒ Material change of use
In a Priority Development Area:	Economic Development Queensland assessment and infrastructure charging framework applies. ☒ No
Urban Utilities Services Advice Notice Contact:	Name: Brett Carruthers Email: Brett.carruthers@urbanutilities.com.au Telephone: 0439580766 or Developer Services: 07 3432 2200 DevelopmentEnquiries@urbanutilities.com.au or Developer Services: 07 3432 2200

Infrastructure

Urban Utilities understand that Cleanaway operations are planning on developing a waste to energy facility at Lot 1, RP45234 Beaudesert-Boonah Rd, Bromelton. Initial consultation with Urban Utilities through 23-SAN-64867 tabled a facility demanding 180 - 200m³ of water per day.

Since the initial request Cleanaway has advanced design which indicates an increase in water demand is required at the below rates;

Updated water demand:

- Average daily demand: 550 m³/day
- Peak flow rate: 32 m³/hour (equivalent to 8.9 L/s)

A letter by Arup dated 23/04/2025 accompanied this application specifically seeking further advice regarding the below listed matters;

1. Water Supply Connection

1. Has Urban Utilities undertaken further assessment or planning for the Beaudesert/Bromelton network since April 2023?
2. Can the existing or planned network infrastructure support the revised average demand of 550 m³/day and peak flow of 32 m³/h (8.9 L/s)?
3. What is the current status of the DN375 DI main near Waste Facility Road?

2. Strategic Infrastructure

1. Has there been progress on the proposed BDB-0029 reservoir? Can Urban Utilities share any information on expected delivery timing, staging, or functional capacity?
2. Are there interim servicing options being considered for developments like this one, ahead of the planned 2031 strategic infrastructure timeline?
3. Is Urban Utilities contributing to or aware of any broader strategic planning or network servicing studies for the Bromelton Priority Development Area?

3. Sewer Infrastructure

1. Are there updates regarding the availability, capacity, or planning of sewer infrastructure near the development site?

4. Recycled Water

1. Has Urban Utilities advanced any Class A or B recycled water strategy or infrastructure for industrial users in the Bromelton area?
2. Are there any mapped or preferred future connection points or corridors for recycled water servicing in the area?

5. Construction

1. Construction is due to commence in 2028 completing in 2032. Could Urban Utilities identify how water for construction could be supplied?

6. Approvals and Engagement

1. Has Urban Utilities updated its engagement and approvals framework for developments progressing in advance of current trunk infrastructure delivery plans?
2. What is the recommended next step in the process for formal connection applications given our project's current design stage and planning timeline?
3. Could Urban Utilities please share a timeline outlining the submission and approvals process required for connection to the network, including steps

Urban Utilities feedback;

Urban Utilities has reviewed the request and can provide the following remarks;

1. Water Supply Connection

1. Urban Utilities planning for the region has progressed however the commissioned 'One Water Plan' has not yet been finalised. Findings to date conclude that there generally are no significant changes proposed for the Bromelton region to the strategic plan currently supporting the existing Netserv. This generally includes provision for a future reservoir specifically commanding the Bromelton area, supply and distribution networks.
2. Urban Utilities has conducted additional modelling and can confirm that capacity is available within the existing DN375 main to accommodate for the increase water demand, assuming reconnection is established per 23-SAN-64867 advice. Prior advice indicated concern regarding water quality and adequate turnover of the existing DN375. The current proposed demand reduces water age within the existing main to within a more desirable range providing confidence water quality may be provided in accordance with drinking water standards. On this basis, Urban Utilities support the increased demand as it is necessary to effectively commission the existing main.
3. Current status of the DN375 – offline and disconnected per 23-SAN-64867 advice.

2. Strategic Infrastructure

1. The planned delivery date for the identified reservoir BDB-0029 is 2035. Given the asset is not required to initiate development within the Bromelton area it is unlikely to form conditions of development approval, but rather form part of Urban Utilities capital works program, and delivered when the necessary demand is realised.

2. The interim water supply scheme intended to initiate development in Bromelton is to utilise the existing DN375 water main. Once recommissioned water is supplied through this main from the Birnum range water supply zone.
3. See (1.1) above

3. Sewer Infrastructure

1. No further updates are available to advice provided through 23-SAN-64867. Any further detailed planning is expected to be facilitated through development activity in the area. Urban Utilities understand that the current intent by Cleanaway is that onsite wastewater management is being sought through the local Council. Urban Utilities generally have no concerns with this approach provided relevant council approvals are achieved. However, the subject site has been assumed to form part of the ultimate service catchment, where connectivity, and applicable charges are integral to the infrastructure funding framework. On this basis, it would be expected that the facility be connected once networks become available.

4. Recycled Water

1. Urban Utilities strategic intent would be to establish a zero discharge arrangement. Therefore, use of recycled water, and recycled water connections is encouraged in order to achieve this vision. Further investigation may be facilitated on this matter via lodgement of an expression of interest through via the below contact details
Phone 13 26 57 (8 am - 5 pm weekdays)
Email us recycledwater@urbanutilities.com.au

5. Construction

1. Water for construction may be sourced from Urban Utilities networks via the below listed methods;
 - Obtaining a metered standpipe – See attached facts sheet in appendix 1
 - Utilising an existing water filling station. The closest filling station to the subject site is located on Helen St adjacent to the SEQ Water treatment facility located on 1RP181580. Refer figure 1 below.
 - Early extension of water infrastructure including service and metered connection via the water approvals process.



Figure 1

6. Approvals and Engagement

1. No, refer to Urban Utilities Water Approvals process and Netserv plan for details.
2. Detailed analysis commissioned defining the extent of works necessary to enable connection. Refer 23-SAN-64867 advice.
3. Refer appendix 2 for fact sheet including process flow chart and timeframes for assessment. Urban Utilities confirm that the indicative scope of works to enable connection would be considered 'Major Works'.

Contributed Assets

☒ May be applicable from information provided at this time

Trunk infrastructure is of a defined size and scale, as per the Water Netserv Plan, to service multiple developments within the Connection Areas. A development may be eligible for trunk reimbursement (offset) where delivering such trunk infrastructure on Urban Utilities behalf, in accordance with the eligibility criteria and defined growth assumptions.

Consider if there are opportunities to reach a formal agreement with a neighbouring development to deliver rationalised complex infrastructure (this may result in cost benefits but not necessarily trunk infrastructure).

State Controlled Routes

☒ This development is likely to impact a State Controlled Route (Transport and Main Road Corridor) – requiring Public Utility Plant (PUP) approval by Urban Utilities on your behalf and, if granted by the Queensland Department of Transport and Main Roads (TMR), you will be required to use the PUP and Water Approval Decision Notice to request a Road Corridor Permit from TMR before construction occurs in the corridor. Factor in additional time for your TMR approvals. For further guidance, refer to the ‘Developing in a State-controlled (TMR) road Fact sheet’ at the following link: <https://www.urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>

Water Meters

Meters must be identified at the time of development network connection or alteration. Management lots can affect metering and submetering configurations. For further guidance, refer to the Metering Guidelines, at the following link: <https://www.urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>

Infrastructure Charges

☒ Infrastructure charges are likely to apply, in accordance with legislation
Infrastructure Charges are levied in accordance with the Urban Utilities’ Water Netserv Plan (Part A) Charges Schedule applicable (online Developer Customer Price List) at the time the water approval application is lodged. Infrastructure charges are paid at the time of connection in accordance with legislation. Further information on what are infrastructure charges is available at: <https://www.urbanutilities.com.au/development/help-and-advice/fees-and-services> and information of the Water Netserv Plan provisions can be found at the following link: www.urbanutilities.com.au/development/help-and-advice/water-netserv-plan

Water Approval Application Process

A formal Water Approval assessment will determine if your application qualifies as a:

- *Standard Connection Water Approval* (generally up to 3 residential dwellings / lots) where Urban Utilities assesses the request for development to connect, disconnect or alter Urban Utilities network and a quote is provided for an Urban Utilities engaged contractor to undertake design and construction works once paid (customers are responsible for privately engaging plumbing expertise).

From receipt of a paid and properly made application, it will take five business days for the Water Approval assessment and five business days to issue a decision notice. Urban Utilities’ contractor will contact you within three business days to arrange construction. You will need to confirm that the site is cleared, ready for construction and a plumber organised. If conditions are deemed unsafe due to wet weather, works will be postponed and rescheduled as necessary. The contractor will commence construction within 15-25 business days. A Connection Certificate will be issued once your connection is complete and all fees and charges have been paid. <https://www.urbanutilities.com.au/development/our-services/how-to-connect-water-and-sewerage/standard-connections>

- *Non-Standard Connection Water Approval - Minor Works* (not deemed a Standard Connection and generally with water reticulation up to 80m and wastewater reticulation up to 90m, and no more than two maintenance structures). This is where Urban Utilities assesses the request for development to connect, disconnect or alter Urban Utilities network and design and construction certification is undertaken by a customer engaged Endorsed Consultant, from those that qualified to meet Urban Utilities Certification Scheme Guidelines, and who will be subjected to audits. A 12 month security bond ‘warranty period’ applies to infrastructure certified as Water Approval compliant but it remains private infrastructure, not owned or maintained by Urban Utilities, until then. Refer to the ‘Minor Works Design Technical Guidelines’: <https://www.urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>
- *Non-Standard Connection Water Approval - Major Works* (generally all other property and network connections, not deemed a Standard Connection Water Approval, including complex assets, i.e. pumping infrastructure, and multistage developments). This is where Urban Utilities assesses the request for development to connect, disconnect or alter Urban Utilities network and there is a Water Approval condition for a Design Approval. Appropriately registered and licenced specialists are privately engaged by

applicants to design and construct works with Urban Utilities undertaking assurance at key construction points and post construction. A 12 month to 2 year security bond 'warranty period' applies to infrastructure certified as Water Approval compliant but it remains private infrastructure, not owned or maintained by Urban Utilities, until then.

From receipt of a paid and properly made Non-Standard Water Approval application, it will take 20 business days for assessment unless otherwise agreed. Information requests may apply (up to 20 business days for you to respond and up to 20 business days to review from receipt of requested information and paid invoice. A Design Approval must be assessed in 20 business days of receipt of all designs and invoice payment. Refer also to 'Our Service Commitments' at the following link:

<https://www.urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>

Fees and Charges

Urban Utilities fees and charges, including scope of works, are stated in the Urban Utilities' Water Netserv Plan 'Developer Customer Price List': <https://www.urbanutilities.com.au/development/help-and-advice/fees-and-services>. Water Approval related fees and charges:

- *Assessment fees* - service costs for assessing Water Approval applications (connect, disconnect or alter water and wastewater connection for development), detailed designs, build over asset referrals and amendments from lodgement stage to post construction compliance
- *Construction fees* – paid to a contractor to undertake construction work related to a water approval (via Urban Utilities only for Standard Connection Water Approvals, otherwise privately engaged by an applicant e.g. plumber, builder, engineer)
- *Developer Product/Service fees* – purchased item or services e.g. complex engineering search, or products e.g. large water meters, security bonds, re-checking/re-inspection fees
- *Infrastructure charges* – State legislated, already discounted rates for new trunk demand, paid at connection (physical connection or certified connection e.g. Connection Certificate) and only used for trunk (shared major infrastructure as per Water Netserv Plan).

Visibility of Activity

- *You can follow Application Progress* – Site owners and agents can see the progress of an application by being a registered and activated contact for an application in the Developer Services Portal. Refer to the 'Application Contact' quick reference guide and 'Adding a Contact' Explainer Byte at the following link: <https://www.urbanutilities.com.au/development/developer-services-portal>
- *GIS* – Urban Utilities owned and operated (not under construction) infrastructure is available for viewing online via 'GIS Open Data'. Refer to the 'GIS Mapping System Guideline' at the following link: <https://www.urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>

Properly Made Application

You are required to submit a lawful Water Approval application. This means ensuring the following are complete and correct:

- all the Owner, Billing Entity and Agent details in the Developer Services Portal
- proposed development and site details with plans (including sequencing for multistage development)
- Proof of ownership and relevant consent of all landowners affected by the development service design.

Refer to the 'Check for completeness guidelines' and relevant consent forms at the following link:

<https://www.urbanutilities.com.au/development/help-and-advice/development-forms>

This Services Advice Notice is current for 12 months from the date of issue. Should you wish to proceed with applying for a service connection please lodge your application via Urban Utilities Developer Applications Portal at www.urbanutilities.com.au/development. Please include your Services Advice Notice reference number in your application.

Fact sheet: Metered standpipes

What is a metered standpipe?

A metered standpipe is a device used to obtain water directly from fire hydrants on water mains.

Apply to hire a metered standpipe

After discussing your water supply options with us, you can apply to hire a metered standpipe from Urban Utilities for short term periods or on a permanent basis.

Hiring fees will also be payable in advance on short term hire permits. Water consumption charges may be billed monthly or at the end of the hire, depending on the hire period. Standpipes hired from Urban Utilities can be used in the Brisbane and Ipswich service areas (excluding the Port of Brisbane and Brisbane Airport).

Use of metered standpipes in the Lockyer Valley, Somerset and Scenic Rim service area is not permitted unless a special approval is obtained. Water filling stations are always our preferred supply option where suitable or directed.

Important notes

- All standpipe users must hold a current standpipe operator's ticket and keep a log of all standpipe use.
- Responsibility for the quality of water supplied from a metered standpipe transfers to the customer at the metered standpipe outlet.
- The customer is responsible for compliance with all relevant legislation relating to the carrying, supply and use of potable water sourced from a metered standpipe.
- The use of a metered standpipe is subject to our terms and conditions.

Hired metered standpipe charges 2025-2026	
Standpipe bond (refundable)	Contact us for pricing
Standpipe hire	\$65.10 per month per standpipe
Water Consumption Charge	\$5.54 per kL

Please contact us on 3432 2032 to discuss your options for obtaining potable water.

Developing with Urban Utilities

Are you renovating, sub-dividing or planning a development?

Every day, we work with customers to build a network everyone can rely on. Connecting to water and wastewater services is a critical part of developing and knowing what to expect can save time and money.

We can help with:

- Tools and maps for researching your land.
- Technical advice and support on simple renovations to complex sub-divisions.
- Guidance for building near or over our infrastructure.
- Support for simple and complex projects in urban reuse areas (*infill/brownfield*) or undeveloped land (*greenfield*).
- Requirements for the disposal of trade waste from commercial or industrial operations.

What is the application and approval process?

New connections, disconnections or changes to our network (including increasing floor area or reusing existing infrastructure) require an Urban Utilities' Water Approval. The type of Water Approval application you need will depend on the size and nature of your development.

Visit our [Understand the Water Approval process](#) for more information.

Development questions

For more information on our services, standards, and fees and charges visit us at www.urbanutilities.com.au/development

Things to consider before developing

1. Undertaking thorough research will help to plan your project and manage risk.
 - Our [Research my land](#) page features services, information and maps to investigate your property.
 - Identify other utilities on or near your site with [Dial Before You Dig](#)
 - The complexity, cost and timing of your project may be affected by site features including [combined drains](#), [easements](#), [maintenance structures](#) (manholes), heritage listings, protected vegetation, floodable land, acid sulphate soil, waterway and transport corridors and unrecorded infrastructure, which is why physical site investigations priority to development, is important.
 - Outstanding fees or non-compliance for existing development on your site may now be your responsibility.
2. You may need an engineering consultant to design and certify your connection.
 - Consider a range of quotes when engaging a consultant. Secure a contract that details all rights and responsibilities.
3. Review your application before you lodge.
 - Our [Check for Completeness](#) guide explains how to lodge a complete and correct application to keep your project moving with fewer requests for information.
 - Ensure you have allowed enough time for assessment, construction and compliance. Our service standards and timeframes are outlined in [Our Commitment To You](#).

Common acronyms and abbreviations

As-Cons: As-Constructed drawings/package
DA: Council Development Application/Approval
Developer Services Portal: Website for application lodgement
DN: Decision Notice for Water Approval
ICN: Infrastructure Charges Notice
IR: Information Request
NAP: Network Access Permit
SAN: Services Advice Notice

To report a fault or emergency
 Contact us 24/7 on 13 23 64

General enquiries
 From 8am-6pm weekdays 13 26 57

ABN 86 673 835 011

urbanutilities.com.au

Stages of the Urban Utilities Water Approval Process

